Catalog S-T-O 1918

Universal Laboratory Supports
Balances—Weights
Glassware and Supplies

WM. GAERTNER & CO.

5345-5349 Lake Park Avenue

CHICAGO

To Our Customers

This edition supersedes all previous issues and we advise our customers to destroy all former copies.

In Ordering give catalog number and name of article. State to whom goods are to be charged and to whom consigned, also state when delivery is desired.

The Prices given in this catalog are net and not subject to any discount, except when larger quantities are ordered, in which case we make a special allowance. Prices are governed by market fluctuations.

Terms are net cash 30 days, monthly accounts are payable on the 10th of each month. Overdue accounts are subject to sight drafts. Customers not having a credit already established with us will understand the necessity of sending reliable Chicago references or enclosing remittance to cover amount of purchase.

Remittances should be made by bank draft on Chicago, or by postal or express money order. If local checks are sent, add sufficient to cover collection charges.

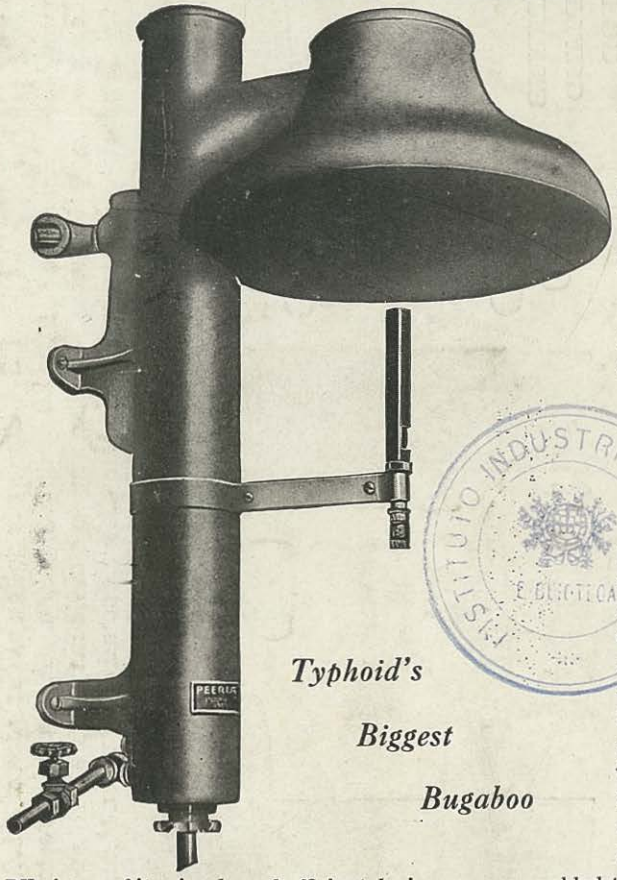
Packing will be done with the greatest care, by experienced packers, so that breakages are usually due to carelessness on part of the transportations Co's. Report breakages to us as well as to the transportation Co's, and every effort will be made to adjust matters promptly and satisfactorily.

Shipping. We obtain the best shipping rates and unless otherwise instructed, ship heavy boxes by freight. Small orders or delicate articles are sent by express or insured parcel post.

Inspection. Every article that leaves our works is carefully inspected and we can guarantee our apparatus to be in every respect fully as represented. Any piece which does not come up to the most exacting requirements will always be promptly replaced within the shortest possible time. Before goods are returned, however, kindly advise us by mail so that no misunderstanding will arise.

The Peerless Automatic Water Still.

PATENTS APPLIED FOR.



Typhoid's Biggest Bugaboo

"Raw water is an aquarium

Boiled water is a graveyard

Filtered water is a subterfuge

Mineral water is premature old age and rheumatism.

BUT DISTILLED WATER IS PURITY!"

IT is an acknowledged fact that the only chemically pure water is distilled water, inasmuch as it is the pure steam which, being freed from the impurities of the boiled water, is condensed into liquid form, leaving all refuse in the evaporating vessel.

BY virtue of its simple and efficient design we are enabled to offer a high grade still at a price within easy reach not only of all druggists and chemists, but private families as well.

IN OPERATION this still is automatic, and is well adapted to household use. Simply turn on the water so that a small stream runs from the overflow pipe, light the gas, and it will distill indefinitely without any further attention.

CAPACITY: We guarantee the Peerless Model A to distill one gallon of pure water per hour at a cost of not to exceed two cents per gallon for gas. The special burner of our own design consumes such a large percentage of air in proportion to the gas, that it gives a remarkably large and hot flame at minimum cost, and this coupled with the peculiar construction of the evaporator, enables us to produce a still with practically double the capacity of all other stills at the same price.

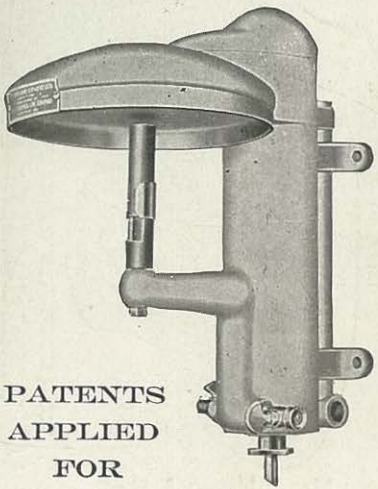
FINISHED in aluminum lacquer, and with the neat design makes an attractive fixture installed over the kitchen sink. For those who value their health it is an absolute necessity PRICE $25.00 f. o. b. Factory.

WM. GAERTNER & CO.

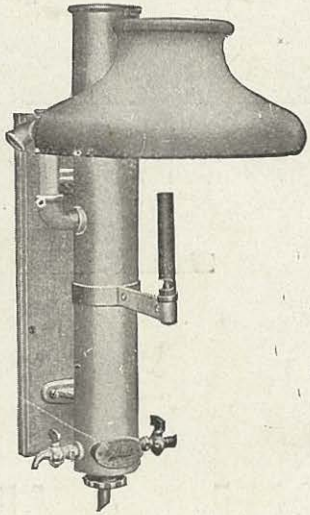
5345-49 Lake Park Ave. **CHICAGO, ILL.**

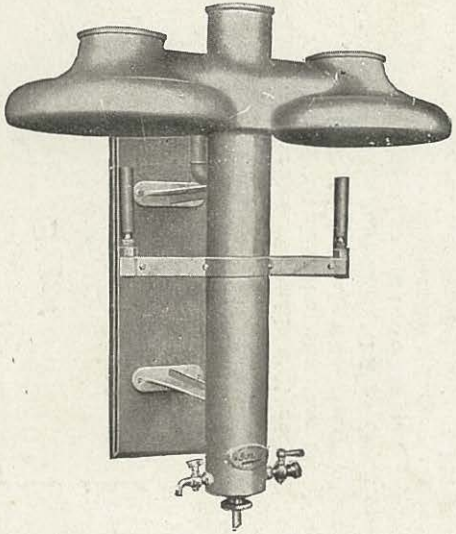
WATER COSTS

1 3-4 Cents per gallon at the rate of $1.00 per one thousand feet for gas, and sells for 20 cents per gallon. Are you interested? THIS WATER STILL OF QUALITY with care will last 100 years. It is so simple a child may operate it, and requires no attention when in operation. It is taken apart and re-assembled in less than three minutes when cleaning is necessary.



PATENTS APPLIED FOR





FOR——

Families
Druggists
Chemists
Hospitals
Photographers
Essayers
Factories
Schools
Offices
Physicians

Capacity 1-2 to 1 Gal. per Hour **$20.00**

Capacity 1 to 1 1-2 Gal. Hour **$25.00**

Capacity 2 to 3 Gal. per Hour **$50.00**

Distilled Water, unequaled for Batteries, Medicine, Health and Home. The PEERLESS AUTOMATIC WATER STILL Purifies water no matter how dirty, or unhealthy it may be, The Peerless Process makes it absolutely Pure and Wholesome. Every Still Guaranteed.

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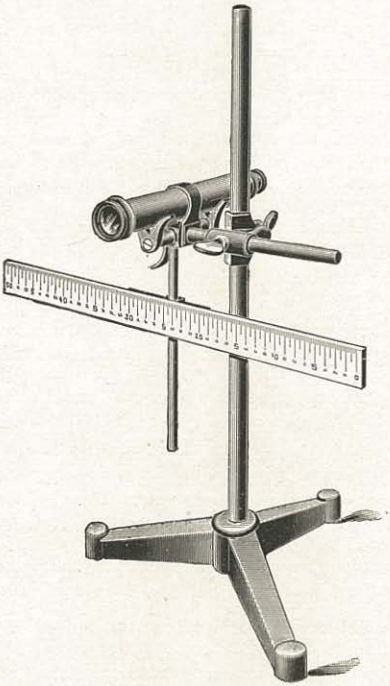


WM. GAERTNER & CO.

5345-5349 Lake Park Avenue

CHICAGO

Introduction

In this sixth edition of our catalog of **Universal Laboratory Supports,** we have listed many improvements and new pieces and have included a line of **Balances and Weights, General Supplies and Glassware,** which will cover all usual laboratory requirements. The system of laboratory supports was first brought out by us in 1897 and since then many laboratories throughout the world have been equipped with a large amount of this apparatus. Laboratory Supplies and Glassware have been carefully selected from the best domestic supply houses.

General specifications of our laboratory supports are given below. These together with the illustrations and descriptions in the text, we trust will give all necessary information.

The tripods are heavy iron castings faced at the center and neatly and durably japanned. When desired they are fitted with leveling screws. The rods are made of Bessemer steel and are polished and heavy nickel plated. They are straight, of uniform diameter and machine threaded, thus insuring a good joint when screwed into the tripods. The rods vary in diameter and length, and a support of any reasonable height and great rigidity may be built up at a moment's notice. The right angle pieces are provided with heavy brass set screws; the V grooves are machined true, and the holes reamed; hence the supports built up square, the rods slide and turn with ease and are capable of delicate adjustments which are not altered when the screws are set, an advantage not found in the roughly made supports usually supplied. Throughout the system the pieces are japanned, nickeled or lacquered.

The pieces ordinarily made in steel and cast iron can be furnished in brass, zinc, aluminum or other metals, at an additional cost of material only, in case it is found desirable to build up non-magnetic supports or where lightness is needed, but for general use the steel and iron are preferable.

The parts of the system are interchangeable and are capable of being used in many different ways, the various combinations often serving the purpose of expensive pieces of apparatus. Some interesting examples of such combinations for performing experiments in physics are shown in this catalog. The large amount of time saved by the use of these supports, when apparatus is to be set up for laboratory experiments or original investigation can only be appreciated by one who has used them.

We wish to call attention to the assortments listed on pages 31 to 35 which are based on past experience and are intended to serve as a guide to purchasers not familiar with the system.

We take this opportunity of expressing our thanks to the many scientists who by their kind suggestions and advice, have greatly assisted us in constantly improving the design and quality of our laboratory supports and other instruments. We beg to thank especially Professor S. W. Stratton, who originally gave us valuable advice. Suggestions as to new and useful pieces will always be thankfuly received.

Thanking our customers for the confidence they have bestowed on us in the past and soliciting their further patronage, we are

Very Respectfully,

WM. GAERTNER & CO.

Universal Laboratory Supports

S100-S416

ROUND RODS

Made of uniform and straight drawn steel, threaded to fit tripods, bases, wall brackets, table tops, etc. All rods are heavy nickel plated.

6 mm. Diameter; Thread 3 mm. Diameter.

S100.	Rod, 1 dm. long.	$ .18

10 mm. Diameter; to Fit Tripods S601 and Round Bases S601a, Etc.

S101.	Rod, 1 dm. long.	$ .22
S115.	Rod, 1.5 dm. long.	.24
S102.	Rod, 2 dm. long.	.27
S103.	Rod, 3 dm. long.	.30
S104.	Rod, 4 dm. long.	.32
S106.	Rod, 6 dm long.	.40
S108.	Rod, 8 dm. long.	.48

13 mm. Diameter; to Fit Tripods S602 and S603 and Round Bases S602a, Etc.

S201.	Rod, 1 dm. long.	$ .28
S215.	Rod, 1.5 dm. long.	.30
S202.	Rod, 2 dm long.	.32
S203.	Rod, 3 dm. long.	.36
S204.	Rod, 4 dm. long.	.42
S206.	Rod, 6 dm. long.	.48
S208.	Rod, 8 dm. long	.58

19 mm. Diameter; to Fit Tripods S604 and S605, Etc.

S302.	Rod, 2 dm. long.	$ .48
S303.	Rod, 3 dm. long.	.55
S304.	Rod, 4 dm. long.	.60
S306.	Rod, 6 dm. long.	.72
S308.	Rod, 8 dm. long.	.85
S310.	Rod, 1 meter long.	1.00
S312.	Rod, 1.2 meter long.	1.20

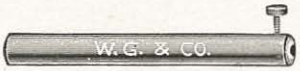
30 mm. Diameter; to Fit Tripods S606.

S403.	Rod, 2.5 dm. long	$ .80
S404.	Rod, 4 dm. long.	1.30
S406.	Rod, 6 dm. long.	1.60
S408.	Rod, 8 dm. long.	1.80
S410.	Rod, 1 meter long.	2.20
S412.	Rod, 1.2 meters long.	2.60
S416.	Rod, 1.6 meters long.	3.10

Round Rods Threaded on Both Ends. We furnish these rods in all standard lengths at an additional charge over catalog prices.

Rods 10 mm. diameter, for extra thread add	$ .15
Rods 13 mm. diameter, for extra thread add	.20
Rods 19 mm. diameter, for extra thread add	.30

Round Rods Without Threads, both ends rounded.
Rods 10 mm. diam. for rod without thread deduct.....$ .15
Rods 13 mm. diam. for rod without thread deduct..... .20
Rods 19 mm. diam. for rod without thread deduct..... .30



S151

Round Rods with Hole and Clamp-Screw, 10 mm. diam., 10 cm. long; useful as object holder in connection with the optical bench.

S151. Rod, with clamp screw.....$ .45

Note.—Any of our 10 and 13 mm. rods can be drilled and fitted with clamp screw as above.

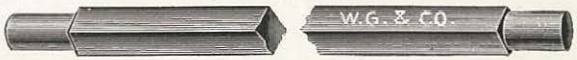
S504-S520

SQUARE RODS.

Square Rods, 19 mm. square, useful for building up optical benches, see pages 14 and 30; one end is turned to a diameter of 19 mm. and a length of 50 mm.. All four corners are sufficiently flattened to accommodate clamp screws. Threaded same as 19 mm. round rods.

S504. Square Rod, 4 dm. long.....$1.40
S506. Square Rod, 6 dm. long..... 1.75
S508. Square Rod, 8 dm. long..... 2.10
S510. Square Rod, 1 mtr. long..... 2.55
S515. Square Rod, 1.5 mtr. long..... 3.35
S520. Square Rod, 2 mtr. long..... 4.25

Note.—The round part of these rods is necessary if the rod is to be used as an optical bench with single end support S1101 in order to make the four points of support adjust themselves to any surface. The thread in this case is not required.



S550-S551

Square Rod, 13 mm. square, with round ends. Suitable for small optical bench in connection with V support S1113.

S550. Square Rod, 5 dm. long.....$ .90
S551. Square Rod, 1 mtr. long..... 1.50

S560

S561

Square Rods, with Sharp Corners. Useful as knife edges and knife edge supports for pendulums.

S560. Square Rod, 13 mm. side, 1 dm. long.....$ .18
S561. Square Rod, same as above but one-half of length turned to 13 mm. diam..... .36

GRADUATED RODS.

Any of our support rods can be furnished with metric graduations. The cost of a graduation in single millimeters, including numbering, is **$ .50** per decimeter.

RODS OF SPECIAL LENGTH.

Round and square rods of any special length can be furnished up to 3 meters long.

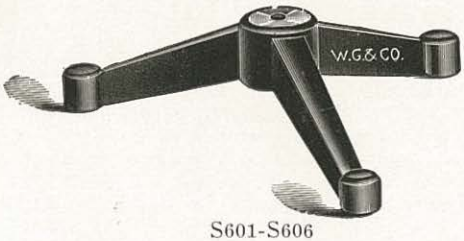
Note.—In building up apparatus for electrical experiments it is often essential to use insulating support rods. We can furnish such rods of fibre, hard rubber, or glass with brass end pieces cemented on, and will quote prices on application.

S601a-S602a

SUPPORT BASES.

Round Bases. Faced top and bottom.

S601a. Base. 8 cm. diam., to fit 10 mm. rod. ..... **$ .35**
S602a. Base. 13 cm. diam., to fit 13 mm. rod. ..... **.40**



S601-S606

S610

Tripods. Design of greatest stability. Machine faced and tapped for one or two rods.

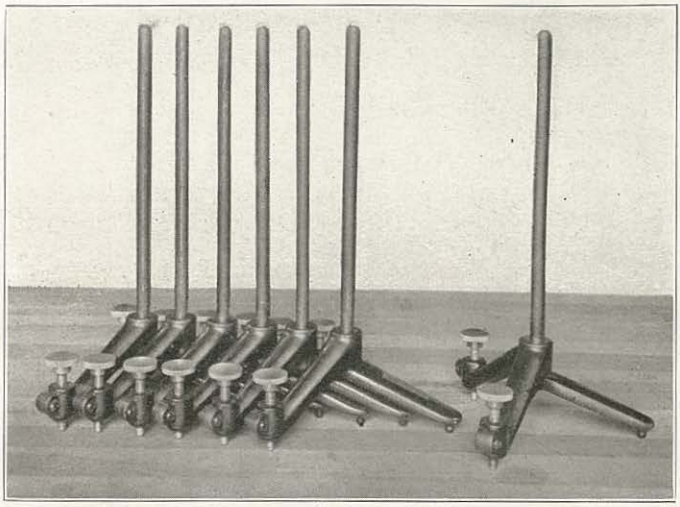
S601. Tripod, legs 9 cm. long, tap. 10 mm. rod. ..... **$ .45**
S602. Tripod, legs 12 cm. long, tap. 13 mm. rod. ..... **.65**
S603. Tripod, legs 15 cm. long, tap. 13 mm. rod. **1.00**
S604. Tripod, legs 15 cm. long, tap. 19 mm. rod. **1.00**
S605. Tripod, legs 18 cm. long, tap. 19 mm. rod. **1.25**
S606. Tripod, legs 22 cm. long, tap. 30 mm. rod. **2.95**
S610. Tripod, tap. for two 13 mm. rods, 24 cm. apart ..... **.95**
Other sizes made to order.

TRIPODS WITH ONE LEVELING SCREW.

S611. Tripod, same as S601, but with one level. screw. **$1.10**
S612. Tripod, same as S602, but with one level. screw. **1.45**
S613. Tripod, same as S603, but with one level. screw. **1.75**
S614. Tripod, same as S604, but with one level. screw. **1.75**
S615. Tripod, same as S605, but with one level. screw. **2.10**
S616. Tripod, same as S606, but with one level. screw. **4.35**

TRIPODS WITH THREE LEVELING SCREWS.

S631. Tripod, same as S601, but with 3 level. screws. **$2.10**
S632. Tripod, same as S602, but with 3 level. screws. **2.30**
S633. Tripod, same as S603, but with 3 level. screws. **3.45**
S634. Tripod, same as S604, but with 3 level. screws. **3.45**
S635. Tripod, same as S605, but with 3 level. screws. **3.75**
S636. Tripod, same as S606, but with 3 level. screws. **7.35**



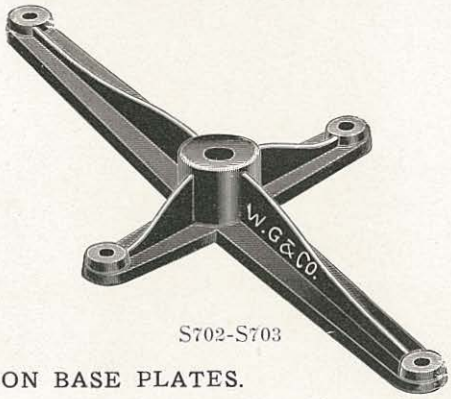
S650

TRIPODS WITH ONE LOW LEG.

These tripods allow to bring support rods close to each other.

S640.	**Tripod.**	Size as S602. Tapped for 13 mm. rod	**$ .75**
S641.	**Tripod.**	Size as S603. Tapped for 13 mm. rod	**1.20**
S642.	**Tripod.**	Size as S604. Tapped for 19 mm. rod	**1.20**
S650.	**Tripod.**	Same as S640, with two leveling screws	**2.10**
S651.	**Tripod.**	Same as S641., with two leveling screws	**3.00**
S652.	**Tripod.**	Same as S642, with two leveling screws	**3.00**

S620-S629



S702-S703

IRON BASE PLATES.

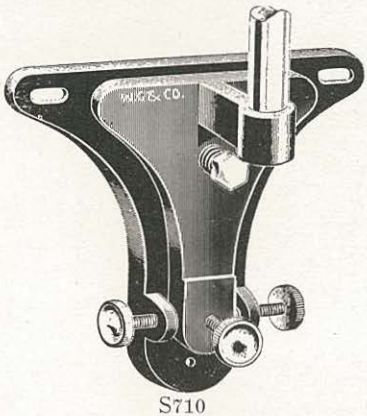
May be sunk in laboratory tables flush with top or fastened on top of same, finished all over.

S620.	**Base Plate.**	To hold 10 mm. rod. Diameter 53 mm	**$ .35**
S621.	**Base Plate.**	To hold 13 mm. rod. Diameter 64 mm	**.45**
S622.	**Base Plate.**	To hold 19 mm. rod. Diameter 78 mm	**.60**
S623.	**Base Plate.**	To hold 30 mm. rod. Diameter 105 mm	**.90**
S624.	**Base Plate.**	Same as S620, nickel plated	**.40**
S626.	**Base Plate.**	Same as S621, nickel plated	**.60**
S628.	**Base Plate.**	Same as S622, nickel plated	**.75**
S629.	**Base Plate.**	Same as S623, nickel plated	**1.15**

WALL BRACKETS

To hold round rods, convenient for suspending pendulums, for torsion and elasticity experiments and such work where a high solid support is required.

S701. Wall Plate. 7 cm. diameter, to hold 10 mm. rod.....$ .25
S702. Wall Bracket. 10 x 18 cm., to hold 13 mm. rod..... .65
S703. Wall Bracket. 15 x 25 cm., to hold 19 mm. rod..... 1.00



S710

S720-S721

ADJUSTABLE WALL BRACKETS

For holding a support in vertical position; fitted with three adjusting screws. Distance from wall to center of rod, 75 mm.

S710. Adjustable Wall Bracket. Tapped to hold 19 mm. rod....$3.50
S720. Adjustable Wall Bracket. Similar to S710, but with only one adjusting screw. Tapped for 19 mm. rod.....$1.50
S721. Adjustable Wall Bracket. Same as S720, but reamed for 19 mm. rod $1.50


S725

S730-S730c

LEVELING SCREWS

S725. Leveling Screws. Made of steel, nicely finished. Range of adjustments 7½ to 10 cm. Per set of three.....$2.50

JACK SCREWS

S730. Jack Screw. A perfect working model. Diameter at base 1¼ inches, with a range from 2¼ to 3⅝ inches. An extra pointed screw is furnished to be used in place of the screw with swivel cap.....$1.25
S730b. Extension Base. To fit above. 2 inches high..... .35
S730c. Extension Base. Same as above. 1 inch high..... .30

S760

ADJUSTABLE WOOD STANDS

These stands are made from well seasoned hard wood. The top and center pieces are glued up in three layers to prevent warping. The set screw and nut are of brass. The top is 35 cm. in diameter, and the height may be varied from 70 to 100 cm.

S760. Adjustable Wood Stand.....**$12.00**

S762. Adjustable Wood Stand. The same as above, but fitted with slow motion for elevating **$16.00**

S770

GEOMETRIC STANDS

Designed by Prof. C. V. Boys. They are useful in blocking up apparatus and are more rigid than the commonly used wooden blocks. They are made of cast iron and the top plate is machined.

S770. Geometric Stands. Set of 5 tripods and one top plate. 17 cm. in diameter, 2.5 cm. high.....**$2.25**

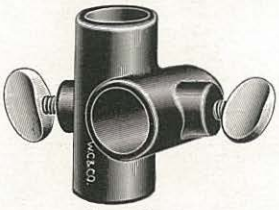
S772. Geometric Stands. Similar to S770, but tripods 5 cm. high **2.50**

S774. Geometric Stands. Set of 5 tripods and one top plate. 30 cm. in diameter, 2.5 cm. high.....**$4.90**

S775. Geometric Stands. Similar to S774, but tripods 5 cm. high **5.40**

S801

S809-S811



S802-S803

S820-S843

RIGHT ANGLE CLAMPS

To fit two round rods in different planes.

S801. **R. A. Clamp,** made of brass, both openings 10 mm.....**$ .55**
S802. **R. A. Clamp,** made of iron, both openings 13 mm..... **.70**
S803. **R. A. Clamp,** made of iron, both openings 19 mm..... **.85**

T Clamps.—To fit two round rods in the same plane. Used for building up frames.

S809. **T Clamp,** reamed for two 10 mm. rods.....**$ .55**
S810. **T Clamp,** reamed for two 13 mm. rods..... **.75**
S811. **T Clamp,** reamed for two 19 mm. rods..... **1.00**

Right Angle Reducing Clamps. To fit two round rods of different diameters.

S820. **R. A. Reducing Clamp,** opening 10 mm. and 6 mm.....**$ .50**
S821. **R. A. Reducing Clamp,** opening 13 mm. and 10 mm..... **.70**
S832. **R. A. Reducing Clamp,** opening 19 mm. and 13 mm..... **1.00**
S843. **R. A. Reducing Clamp,** opening 30 mm. and 19 mm..... **1.25**

S900-S904

S1001-S1003

Right Angle Clamps, with V-opening and round hole.

S900. V-opening for rods of 6 to 13 mm. diam. Hole 6 mm.....**$ .40**
S901. V-opening for rods of 6 to 19 mm. diam. Hole 10 mm..... **.55**
S902. V-opening for rods of 10 to 19 mm. diam. Hole 13 mm..... **.65**
S903. V-opening for rods of 10 to 30 mm. diam. Hole 19 mm..... **1.00**
S904. V-opening for rods of 10 to 30 mm. diam. Hole 30 mm..... **1.25**

Right Angle Clamps, with V-openings of same size.

S1001. **R. A. Clamp** for rods of 6 to 19 mm. diam. .....**$ .70**
S1002. **R. A. Clamp** for rods of 10 to 19 mm. diam..... **.90**
S1003. **R. A. Clamp** for rods of 10 to 30 mm. diam..... **1.25**

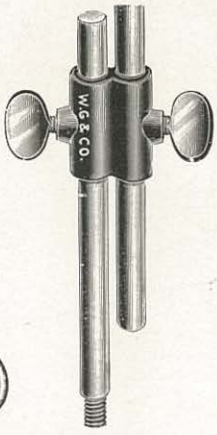
Note.—We furnish any of our tripods, rods or other fittings in brass, zinc or other non-magnetic metals. Prices on application.

S1005

S1006-S1007

S1010-S1030

S1050-S1056



S1041-S1046

SWIVEL CLAMPS

S1005. Simple Swivel Clamp. To hold 10 or 13 mm. rods at an angle. ..... $ .75

Swivel Clamps with larger swivel part, which can be clamped more firmly, and will hold two rods.

S1006. Swivel Clamp, with V-opening to fit 10 to 19 mm. rods, swivel part to hold 10 mm. rods. ..... $ .90

S1007. Swivel Clamp with V-opening to fit 13 to 19 mm. rods, swivel part to hold two 13 mm. rods. $1.20

COLLARS.

To be used when it is desired to rotate rods freely and at the same time prevent motion along the axis.

S1010. Collar for 10 mm. rods, brass ..... $ .20
S1013. Collar for 13 mm. rods, brass. ..... .25
S1019. Collar for 19 mm. rods, iron ..... .40
S1030. Collar for 30 mm. rods, iron. ..... .50

EXTENSION CLAMPS.

To hold two rods side by side.

S1041. Extension Clamp to fit two 10 mm. rods. ..... $ .50
S1042. Extension Clamp to fit two 13 mm. rods. ..... .55
S1043. Extension Clamp to fit two 19 mm. rods. ..... .70
S1044. Extension Clamp to fit two 10 and 13 mm. rods. ..... .50
S1045. Extension Clamp to fit two 13 and 19 mm. rods. ..... .70
S1046. Extension Clamp to fit two 19 and 30 mm. rods. 1.00

Extension Clamps, for two rods in the same center line. Upper part threaded for rod of the same size or the next smaller size.

S1050. Extension Clamp to fit one 10 and one 6 mm. rod. ..... $ .50
S1051. Extension Clamp to fit two 10 mm. rods. ..... .50
S1052. Extension Clamp to fit two 13 mm. rods. ..... .55
S1053. Extension Clamp to fit two 19 mm. rods. ..... .70
S1054. Extension Clamp to fit one 13 mm. and one 10 mm. rod. ..... $ .55
S1055. Extension Clamp to fit one 19 mm. and one 13 mm. rod. ..... $ .70
S1056. Extension Clamp to fit one 30 mm. and one 19 mm. rod. $1.10

S1061-S1063

S1071-S1073

S1080-S1085

CONNECTORS AND ADAPTORS.

Useful for connecting threaded pieces close together; for instance, a table top direct to a tripod, and for adapting a piece with larger or smaller thread to a standard rod, etc. By combining these Connectors, adapting pieces of different sizes can be obtained.

S1061. Connector, both ends threaded as 10 mm. rod. .....$ .20
S1062. Connector, similar to above, threaded as 13 mm. rod. .30
S1063. Connector, similar to above, threaded as 19 mm. rod. .50
S1071. Connector, both ends tapped to fit 10 mm. rod. .... .15
S1072. Connector, similar to above, to fit 13 mm. rod. .... .25
S1073. Connector, similar to above, to fit 19 mm. rod. .... .45
S1080. Adaptor, inside thread for 19 mm. rod, outside like 13 mm. rod. .....$ .55
S1081. Adaptor, inside thread for 13 mm. rod, outside like 10 mm. rod. .....$ .45
S1082. Adaptor, inside thread for 10 mm. rod, outside like 6 mm. rod. .....$ .25
S1083. Adaptor, inside thread for 13 mm. rod, outside like 19 mm. rod. .....$ .65
S1084. Adaptor, inside thread for 10 mm. rod, outside like 13 mm. rod. .....$ .50
S1085. Adaptor, inside thread for 6 mm. rod, outside like 10 mm. rod. .....$ .30

S1101

S1102

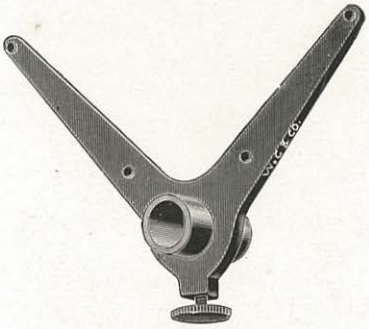
END SUPPORTS.

To hold round or square rods in a horizontal position.

S1101. End Support, to hold one 19 mm. round or square rod. per pair $1.25

S1102. End Support, to hold two 19 mm. rods, 75 mm. apart, 150 mm. high. Especially useful for building up larger benches. per pair, with one leveling screw $3.00

S1111



S1113

S1150

V-SUPPORTS.

Useful for supporting objects of various sizes and forms in horizontal position, for building up telescope holders, etc., or as end supports for optical benches. level testers, etc. Made of brass.

S1111. V-Support with V-groove to clamp on either 10 or 13 mm. round or square rods. V-arms to support up to 4 cm in diameter. per pair ..... **$ .75**

S1112. V-Support with reamed hole 13 mm. diam. V arms to support up to 4 cm. in diam. per pair..... **$ .70**

S1113. V-Support, same as above but with V arms to support up to 12 cm. in diam. Useful as end supports. per pair..... **$1.50**

S1150. Knife Edge Clamp, convenient for use on experiments, where a knife edge is desired; can be attached to a table or bench, so that the knife edge extends over the edge of the table top. Weights or pans can be suspended without coming in contact with table top ..... **$ .75**

RIGHT ANGLE CLAMPS.

For connecting rods at right angles and in the same plane. Useful as object holders in connection with optical benches.

S1200. R. A. Clamp. V-opening to fit 6 to 13 mm. round or square rods. Reamed hole 6 mm. diam. Made of brass. ..... **$ .80**

S1201. R. A. Clamp. V-opening to fit 13 to 19 mm. round or square rod. Reamed hole 10 mm. diam. **$1.00**

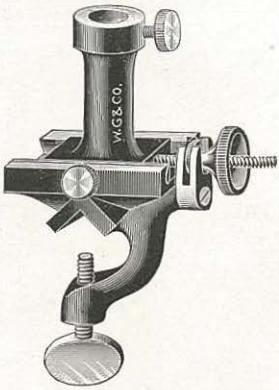
S1202. R. A. Clamp. V-opening to fit 13 to 19 mm. round or square rod. Reamed hole 13 mm. diam. **$1.00**

Note.—The following pieces are useful in connection with the optical benches in holding our microscopes and micrometer slides, and are also very suitable for fastening a cross piece on top of a rod.

S1204. R. A. Clamp. V-opening to fit 13 to 19 mm. round or square rod. Reamed hole 19 mm. diam. **$1.30**

S1205. R. A. Clamp. V-opening to fit 13 to 19 mm. round or square rod. Reamed hole 30 mm. diam. **$1.60**

S1200-S1203



S1206

S1210-S1212

S1240

ADJUSTABLE RIGHT ANGLE CLAMPS.

These pieces are provided with side motion and particularly suitable for certain experiments with the optical bench.

S1206. **R. A. Clamp,** to fit 19 mm. square rod. Hole 10 mm., side adjustment 25 mm. **$4.00**

S1207. **R. A. Clamp,** same as S1206 but with 13 mm. hole..... **$4.00**

S1208. **R. A. Clamp,** same as S1206 but with swivel so as to use the slide at any angle to the V groove, 10 mm. hole. **$5.00**

S1209. **R. A. Clamp,** same as S1208 but with 13 mm. hole ..**$5.00**

RIGHT ANGLE CLAMPS.

Useful for connecting rods at right angles and in same plane.

S1210. **R. A. Clamp** with V-opening to fit 6 to 13 mm. round or square rod. Threaded for 10 mm. rod. ..... **$ .55**

S1211. **R. A. Clamp,** same as above but to fit 10 to 19 mm. rods. Threaded for 13 mm. rod. ..... **$ .75**

S1212. **R. A. Clamp,** same as above but to fit 13 to 30 mm. rod. Threaded for 19 mm. rod. ..... **$ .90**

S1219. **R. A. Clamp,** to go on 13-19 mm. square or round rods and tapped for 10 mm. rods. Similar to S1210 but uniform in size with S1201, to hold Bunsen burner and lamp on the optical bench by means of connectors. ..... **$ .75**

RIGHT ANGLE CLAMPS.

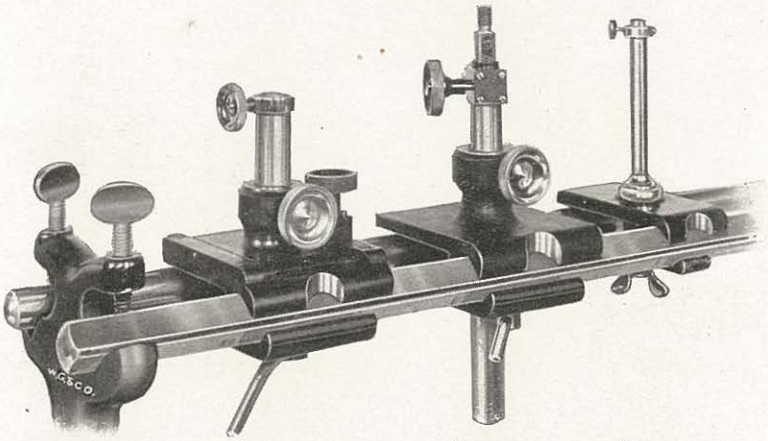
Similar to Nos. 1210, but with reamed hole in place of V groove.

S1240. **R. A. Clamp.** Hole 13 mm., tapped for 10 mm. rod..... **$ .50**

S1241. **R. A. Clamp.** Hole 19 mm., tapped for 13 mm. rod..... **.70**

S1242. **R. A. Clamp.** Hole 30 mm., tapped for 19 mm. rod..... **1.00**

S1220. **Spring.** To be used with V groove right angle piece between screw and rod. Specially useful on optical bench supports, for sliding the same on the rod. Per dozen, **$1.25.** Each..... **$ .15**



S1231 S1230 S1232

SUPPORT CLAMPS FOR DOUBLE ROD OPTICAL BENCH.

Specially suitable for supporting larger pieces of apparatus, such as photometer heads, micrometer slides, etc. The clamp is used in connection with end supports S1102 and one square, and one round 19 mm. rod. The reamed hole is 19 mm. The clamp has an index line for use on graduated rods. A slight turn of the T handle screw holds clamp firmly on both rods.

S1230. Support Clamp.....**$5.20**

S1231. Support Clamp. Same as S1230 but fitted with lateral rack and pinion adjustment **$9.80**

S1232. Support Clamp. Similar to S1230 but half as wide for holding smaller objects. Tapped for 10 mm. rod or stand tube S1700.....**$3.00**

S1234. Support Clamp. Same as S1230 but tapped for 13 mm. rods or stand tubes S1701, S1702 and S1721.....**$3.00**

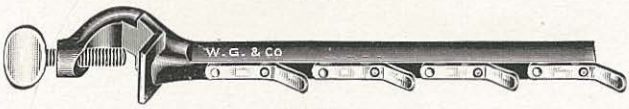
ADAPTORS.

Intended for use with support clamps S1230 and S1231.

S1236. Adaptor. To hold 10 mm. rod.....**$1.25**

S1238. Adaptor. To hold 13 mm. rod.....**$1.25**

S1250

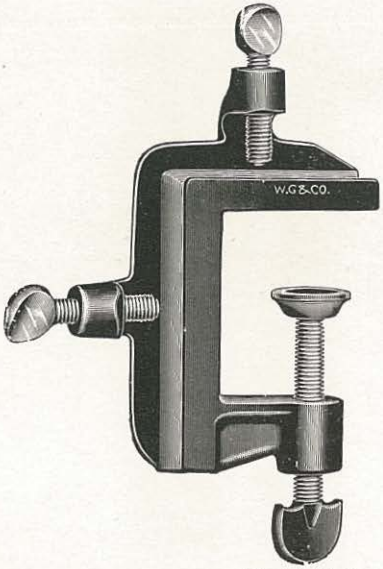


S1255

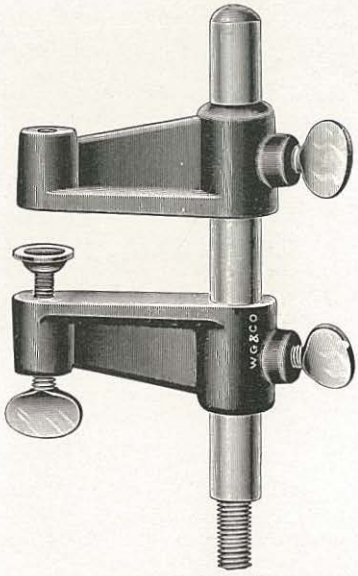
PENDULUM CLAMPS.

S1250. Pendulum Clamp. Made to clamp a fine wire or cord to 10 or 13 mm. rod, giving a sharp edge, so that the length of the pendulum can be accurately measured. Made of brass.....**$ .65**

S1255. Pendulum Clamp. To clamp on rods up to 19 mm. diameter with four clamps for holding pendulum cords.....**$ .90**



S1301-S1303



S1400-S1403

TABLE CLAMPS.

To be attached to the edge of the table or bench for holding 10 mm. to 19 mm. rods, horizontal or vertical. Broad bearing surface for table and V grooves are carefully machined.

S1301. Table Clamp. To clamp on table up to 6 cm. thick.....**$1.70**

S1302. Table Clamp. To clamp on table up to 11 cm. thick..... **2.00**

S1303. Table Clamp. Same as S1301, but with only vertical groove **$1.25**

S1310. Table Clamp. To clamp on table 3 cm. thick, tapped for 10 mm. rods, horizontal and vertical. Bearing surface machined.....**$ .55**

S1311. Table Clamp. To clamp on table 5 cm. thick, tapped for 13 mm. rods, horizontal and vertical. Bearing surface machined.....**$ .65**

S1312. Table Clamp. To clamp on table 12 cm. thick, tapped for 19 mm. rod, vertical. Broad bearing surface machined.....**$1.50**

S1314. Table Clamp. Same as S1312, with wooden jaws, for use where there is danger to table top.....**$1.75**

S1315. Table Clamp. Similar to S1312 but tapped for 19 mm. rods, horizontal and vertical **$1.50**

S1316. Table Clamp. The same as S1315 but with wooden jaws..**$2.00**

TABLE CLAMPS.

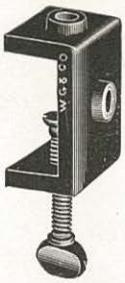
Table clamps, two part construction; useful to hold round rods at right angles to a table of any thickness or to clamp objects to round rods. Price is for two jaws as shown, but no rod.

S1400. Table Clamp. To fit 10 mm. rod.....**$ .55**

S1401. Table Clamp. To fit 13 mm. rod..... **.75**

S1402. Table Clamp. To fit 19 mm. rod..... **1.00**

S1403. Table Clamp. To fit 30 mm. rod..... **1.90**



S1310-S1311

S1312

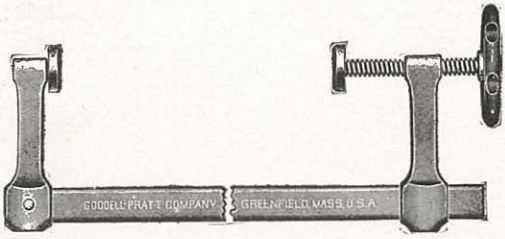
S1420

MALLEABLE IRON CLAMPS.

S1401a. Clamp. With 5 cm. opening.....**$ .30**
S1402a. Clamp. With 7 cm. opening..... **.45**
S1403a. Clamp. With 10 cm. opening..... **.65**
S1405a. Clamp. With 15 cm. opening..... **.85**
S1406a. Clamp. With 20 cm. opening..... **1.20**

S1420. Stone's Tension Clamp. This clamp can be used conveniently for experiments in composition of forces, laws of lever, etc. Made of iron and an eccentric lever which securely clamps wire, string, cords, etc., at any desired point. To clamp on table 6 cm. thick.....**$ .55**

S1401a-S1406a

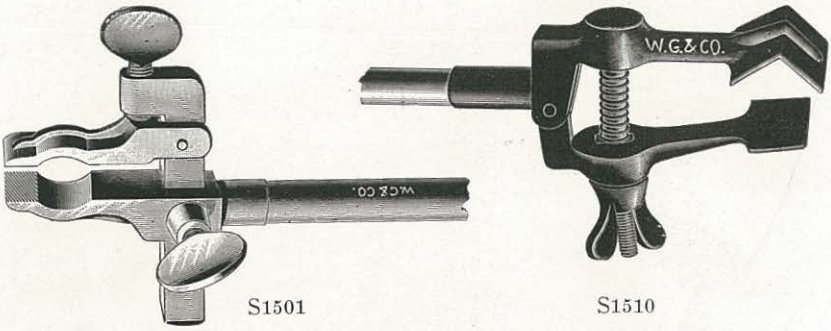


S1430-S1436

QUICK ADJUSTABLE CLAMPS.

Can be easily and quickly adjusted. Will lock the moment pressure is applied to the screw. Furnished with malleable iron arms and drawn steel bars.

S1430. Clamp. Adjustable to 10 cm., depth 8 cm.....**$ .80**
S1432. Clamp. Adjustable to 15 cm., depth 8 cm..... **.95**
S1434. Clamp. Adjustable to 20 cm., depth 8 cm..... **1.25**
S1436. Clamp. Adjustable to 25 cm., depth 8 cm..... **1.40**



S1501 S1510

PARALLEL CLAMPS.

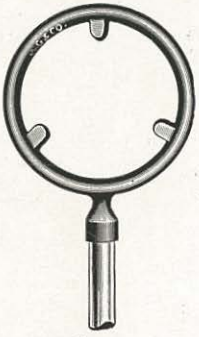
Made of brass, nickel plated, jaws roughened. Useful for holding square or round objects, mirrors, scales, burettes, etc. The smaller size is also useful as muscle clamp in physiological experiments.

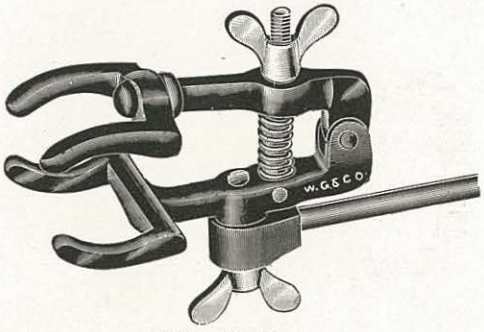
S1501. Clamps. Jaws open 4 cm. With rod S102 ..... **$2.00**
S1502. Clamps. Jaws open 2 cm. With rod S100 ..... **1.25**

CONDENSER CLAMPS.

Made of iron and lined with cork in order to hold condenser tubes, burettes and other fragile objects.

S1510. Condenser Clamps. Will hold up to 4 cm. diameter. With rod S115 ..... **$ .75**
S1511. Condenser Clamps. Will hold up to 7 cm. diameter. With rod S202 ..... **$1.05**





S1530 S1540-S1542

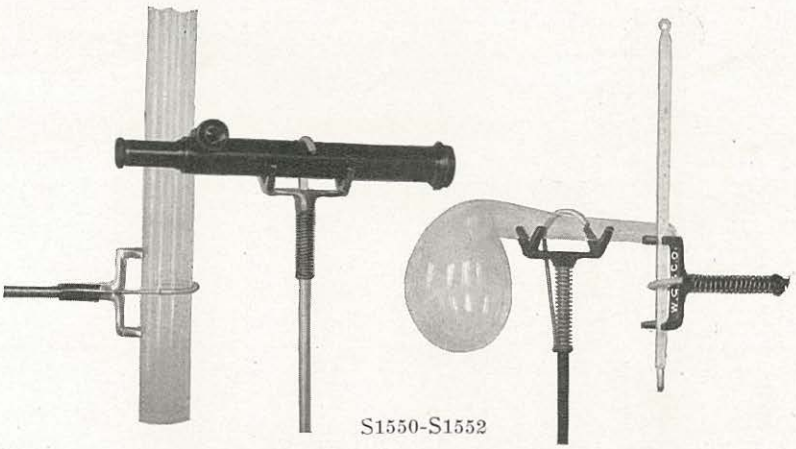
RING SUPPORTS.

S1530. Ring Support. Iron ring 7 cm. in diameter. With rod S115 ..... **$ .45**
S1531. Ring Support. Iron ring 10 cm. in diameter. With rod S115 ..... **$ .50**

UNIVERSAL CLAMPS.

Universal clamp made of iron with swivel jaws adapting themselves to irregular shapes.

S1540. Universal Clamp. Will hold objects up to 4 cm. in diameter. With rod S115 ..... **$ .95**
S1542. Universal Clamp. Will hold objects up to 7 cm. in diameter. With rod S202 ..... **$1.50**



S1550-S1552

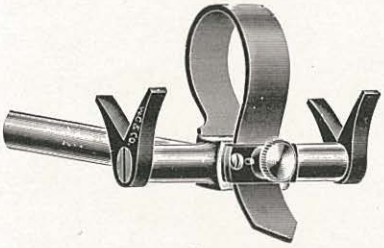
UNIVERSAL HOLDER (SPRING CLAMP)

Patented Feb. 4, 1913

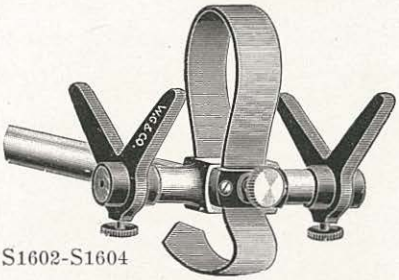
A new and very convenient form of clamp for holding firmly and without danger of injury all kinds of apparatus, such as thermometers, burettes, telescopes and anything within the range of the clamp, which will take articles up to 4½ cm. in diameter.

S1550. Universal Holder. Made of brass, nickel plated.....**$ .75**

S1552. Universal Holder. Made of iron..... **.30**



S1601



S1602-S1604

TELESCOPE HOLDERS

For telescopes and other round or square objects liable to be injured by too great pressure. A leather strap holds object securely. The bottom of the holder is also tapped for the support rod and for a 10 mm. rod which may carry a scale. All parts except rod are made of brass.

The holder in connection with a telescope and tripod support as shown in cut on front cover forms a convenient reading telescope.

S1601. Telescope Holder. To take up to 5 cm. in diameter. With rod S215 .....**$2.25**

S1602. Telescope Holder. The same as S1601, but with Y supports, which can be clamped from 5 to 10 cm. apart so as to accommodate shorter or longer objects. The ends are tapped for 13 mm. rods.....**$2.85**

S1604. Telescope Holders. The same as S1602, but with large Y supports and longer strap to hold objects up to 12 cm. diameter. With rod S215.....**$3.75**

See cut on page 36 showing S1604 with extension rods.

S1610 S1622

SCALES ON PAPER

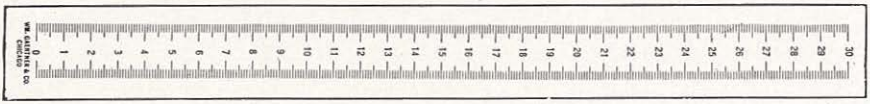
S1610. Scale, printed on Bristol board and mounted on hardwood strip, with S1620 holder. The scale is 50 cm. long divided in millimeters and has inverted figures ..... **$ .85**

S1611. Scale. Without holder, same as S1610..... **.45**

S1612. Scale only, unmounted, same as S1610..... **.15**

S1613. Scale only, unmounted, same as S1612 but with ordinary figures ..... **.15**

Unmounted scales Nos. S1612 and S1613, per dozen..... **1.50**



S1615

S1615. Scale for vertical use, suitable for manometers, etc., 30 cm. long, unmounted ..... **$ .15**

S1617. Scale, unmounted same as S1615 but 50 cm. long..... **.20**

CELLULOID SCALES FOR TELESCOPE OR LAMP READING

These scales, made with the greatest care, are engine divided on celluloid, either on **opaque, transparent** or **translucent,** well seasoned material.

The opaque scales are mounted on strips of well seasoned hard wood, and are furnished usually in millimeter graduations, 50 or 100 centimeters in length, with zero at the end or zero in the middle. In the latter form the figures and lines are **black** on one half of the scale and **red** on the other.

The opaque scales are stamped with inverted figures unless otherwise specified.

The transparent scales are ruled on strips about 1 mm. thick and 40 mm. wide with upright figures.

The translucent scales are intended for lecture room use and have heavy lines 1 cm. apart and large upright figures. Width of scale is 75 mm.

The scales are furnished unmounted or with suitable holders.

S1622. Reading Telescope Scale. 50 cm. long, inverted figures, 0 in middle, on hardwood strip, 3 cm. wide.....**$2.80**

S1624. Reading Telescope Scale. Same as S1622, with 0 at the end **$2.80**

S1626. Reading Telescope Scale. 1 meter long, on hardwood strip, both sides faced with celluloid to avoid warping, inverted figures, 0 in middle **$8.75**

Note: Scales S1622 and S1624 can be used with our scale holders S1660 and S1662. S1626 can be used with holder S1660.

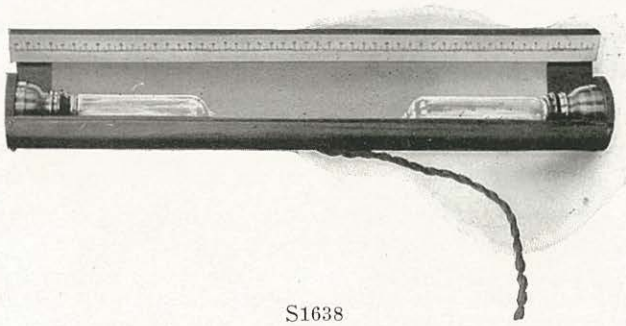
S1628. Transparent Reading Telescope Scale. 50 cm. long, 4 cm. wide, 0 at the end, unmounted **$2.50**

S1632. Transparent Reading Telescope Scale. 1 meter long, 0 at the end, unmounted **$6.25**

S1634. Translucent Scale. 50 cm. long, 75 mm. wide, unmounted **2.20**

S1636. Translucent Scale. 100 cm. long, 75 mm. wide, unmounted **5.00**

Special celluloid scales, with linear or circular graduations of any description, mounted on wood or metal, can be furnished promptly according to specifications.



S1638

S1638. Reading Telescope Scale. Consists of scale S1622 fitted with a metal hood which serves as reflector for the two bunghole incandescent lamps mounted inside. The scale is furnished with swivel clamp for 13 mm. rods, which enables its use in any position from horizontal to vertical. **$12.50**

S1644 S1650

S1640. Reading Telescope Scale. Fully mounted, the same in every respect as S1638, but with scale S1624..... **$12.50**

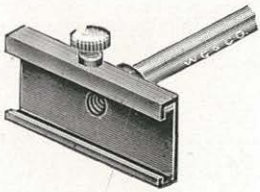
S1644. Mounted Transparent Scale. S1628 scale is fitted to a holder which has a device for bending the scale to any desired radius, mounted on tripod and rod 40 cm. high..... **$7.00**

S1646. Mounted Transparent Scale. Similar to S1644, but fitted with scale S1632..... **$11.25**

S1650. Reading Lamp. A bunghole lamp is mounted in a light-tight hood on adjustable stand..... **$4.75**

S1660

S1662



S1664

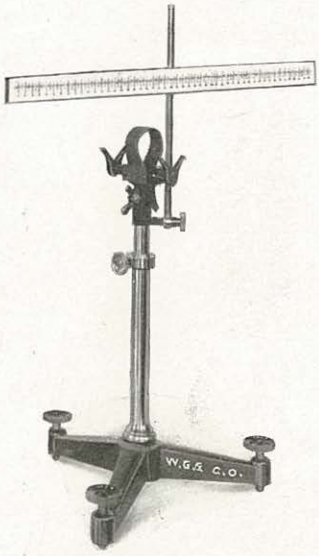
SCALE HOLDERS

S1660. Plain Scale Holder. To fit 10 mm. rod.....**$ .35**

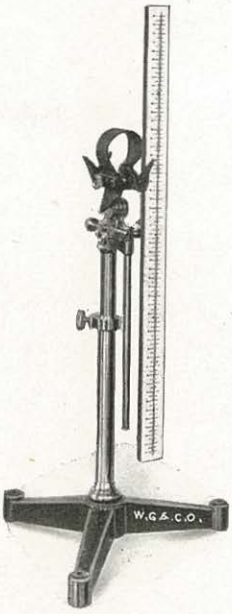
S1662. Adjustable Scale Holder. With swivel, will hold scale horizontally, vertically or at any angle. Scale can be adjusted sideways. V opening to fit 10 to 19 mm. rods.....**$ .70**

S1664. Scale Holder. Made of brass to hold boxwood meter sticks T2018 to T2024. Tapped for 10 mm. rod.....**$ .60**

S1665. Scale Holder, similar to S1664 for holding an ordinary meter stick .....**$ .60**



S1674



S1686

READING TELESCOPE SUPPORTS

S1670. Reading Telescope Support. Built up from laboratory support pieces; tripod S604, support rod S303, clamp S902, telescope holder S1601 with rod S102 and scale S1610. Will carry telescopes up to 5 cm. in diameter and allow adjustment of the telescope and scale in every direction. See illustration on front cover.....**$5.20**

S1672. Reading Telescope Support. The same as S1670, but constructed of non-magnetic materials **$12.00**

S1674. Reading Telescope Support. A convenient, well made support, consisting of telescope holder S1601, fitted with substantial hinge which allows holder to be tilted. Holder is mounted on brass stand tube 20 cm.

high, S1722. Paper scale S1610 is clamped to rod S102, which is hinged at the top so that the scale may be used above the telescope or in any position from horizontal to vertical. Mounted on tripod S634.....**$15.00**

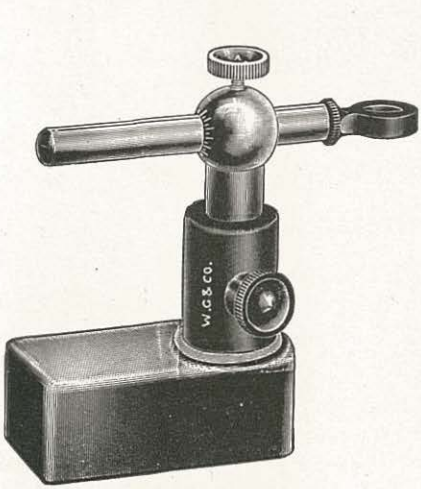
S1676. Reading Telescope Support. The same as S1674, but constructed of non-magnetic materials.....**$18.75**

S1682. Reading Telescope Support. Similar to S1674, but fitted with slow motions for delicate adjustment of the telescope in the horizontal and vertical plane. Mounted on tripod S634, paper scale included....**$25.00**

S1684. Reading Telescope Support. The same as S1682 but made entirely of non-magnetic materials **$28.00**

S1686. Reading Telescope Support. The same as S1682 but mounted on tripod without leveling screws S604.....**$22.50**

S1688. Reading Telescope Support. The same as S1686 but made entirely of non-magnetic materials **$25.00**



S1690

S1695

MICROSCOPE SUPPORTS

S1690. Microscope Support. A heavy adjustable support for measuring microscopes. The microscope may be rigidly held in any position, as all joints can be tightly clamped. The base has sufficient weight to insure the steadiness required in microscopes used for accurate measurements. The thread in the horizontal arm is standard to fit our different microscopes. The top of the base is machined so as to enable the easy attaching of stages or other arrangements. Dimensions of base 15 cm. by 8 cm. Total height of support 16 cm.....**$9.50**

S1692. Microscope Support. The same as S1690 but fitted with stage 15 cm. by 8 cm. with four clips for holding objects, and illuminating mirror **$14.00**

S1695. Microscope Support. A heavy base, into which is screwed an upright rod 30 mm. diameter and 25 cm. high. This support will be found convenient in many cases when a tripod support cannot be used. The top surface is planed true. Dimensions of base 20 cm. by 17 cm. With clamp, rod and screw collar **$7.75**

Note.—A complete line of reading and measuring telescopes and microscopes will be found listed in a Special Catalog which we will be pleased to send on application.

S1700

S1800.

S1806

S1710

STAND TUBES.

To be used in connection with round rods, tripods, etc., for building up small tables or stands. Thread at base is the same as the one on the rod, which fits in the stand tube.

S1700. **Stand Tube.** 10 cm. high to fit 10 mm. rod.....**$1.00**
S1721. **Stand Tube.** 10 cm. high to fit 13 mm. rod.....**1.10**
S1701. **Stand Tube.** 20 cm. high to fit 13 mm. rod..... **1.35**
S1702. **Stand Tube.** 30 cm. high to fit 13 mm. rod..... **1.65**
S1722. **Stand Tube.** 20 cm. high to fit 19 mm. rod..... **2.10**
S1703. **Stand Tube.** 30 cm. high to fit 19 mm. rod..... **2.30**
S1704. **Stand Tube.** 40 cm. high to fit 19 mm. rod..... **2.60**

STAND TUBES FITTED WITH RACK AND PINION.

S1710. **Stand Tube,** 20 cm. high, motion of rack 10 cm., diam. of sliding rod 13 mm.....**$7.85**

S1719. **Stand Tube,** same as S1710, but instead of screw base with straight shank to fit 19 mm. support.....**$8.50**

S1711. **Stand Tube,** 30 cm. high, motion of rack 15 cm., diameter of sliding rod 13 mm.....**$9.00**

S1712. **Stand Tube,** 30 cm. high, motion of rack 15 cm., diameter of sliding rod 19 mm.....**$11.25**

ROUND TABLE TOPS.

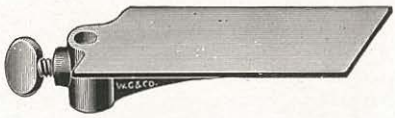
Made of cast iron, turned true on top and edge.

S1800. **Round Table Top,** 8 cm. diam., for 10 mm. rod.....**$ .50**
S1801. **Round Table Top,** 15 cm. diam., for 13 mm. rod..... **1.00**
S1802. **Round Table Top,** 20 cm. diam., for 13 mm. rod..... **1.75**
S1803. **Round Table Top,** 20 cm. diam., for 19 mm. rod..... **1.75**
S1804. **Round Table Top,** 30 cm. diam., for 19 mm. rod..... **2.50**

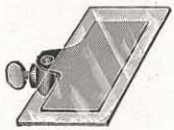
ROUND TABLE TOPS.

Made of three ply, well seasoned hardwood and fitted with iron center to screw on 13 mm. or 19 mm. rods.

S1806. Diameter 15 cm to fit 13 mm. rods.....**$1.40**
S1807. Diameter 20 cm. to fit 13 mm. rods..... **1.80**
S1808. Diameter 20 cm. to fit 19 mm. rods..... **1.80**
S1809. Diameter 30 cm. to fit 19 mm. rods..... **2.50**



S1810-S1813



S1816

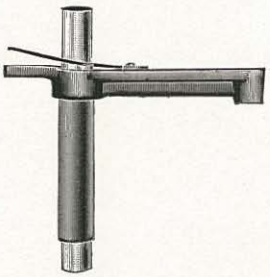
TABLE PLATFORMS.

To be clamped direct to vertical rods. Cast iron planed true on top.

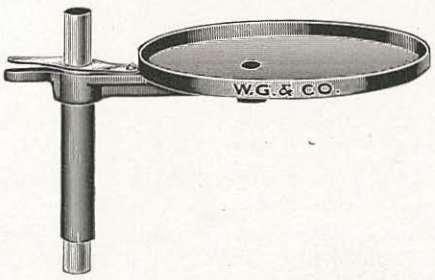
S1810. Table Platform, reamed for 10 mm. rods, 6x9 cm.....**$ .65**
S1811. Table Platform, reamed for 13 mm. rods, 9x13 cm..... **1.00**
S1812. Table Platform, reamed for 19 mm. rods, 12x18 cm..... **1.40**
S1813. Table Platform, reamed for 30 mm. rods, 16x24 cm..... **2.50**

TABLE PLATFORM WITH GLASS TOP.

S1816. Table Platform, reamed to fit on 13 mm. rod. Glass plate convenient for supporting optical levers, etc., 12.5 cm. by 7.5 cm.....**$1.60**



S1821



S1831

VERTICAL SLIDING CLAMPS.

S1821. Vertical Sliding Clamp. Intended to slide on 13 mm. rod; is simple in construction and useful where a rapid, secure and delicate vertical adjustment is desired. The horizontal arm is 8 cm. long and tapped at the end for a 10 mm. rod, so that attachments can be used. Made of brass..**$ .75**

S1831. Vertical Sliding Clamp, with Platform. Same as S1821 but has firmly attached a metal platform with raised rim, 12 cm. in diameter... **1.20**

Note.—We wish to call special attention to the assortments listed on pages 31 to 35, which will give a good guide to purchasers not familiar with the apparatus.

S1901-S1902

S1906

S1925-S1910

LENS HOLDERS.

Adjustable. The lens is held in a grooved Y and kept in place by an adjustable arm, which allows a slight tilting of the lens. The edge of the lens is accessible for the convenience of making measurements.

S1901. Lens Holder, for lenses from 25 to 50 mm. with rod S115 **$1.15**

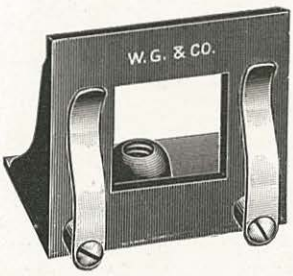
S1902. Lens Holder, for lenses from 50 to 100 mm. with rod S115 **1.70**

S1906. Lens Holder. A convenient holder adjustable to lenses from 10 mm. to 50 mm. diameter and of any thickness. The top edge of the lens is free, convenient for measurements. Can be used on table without support rod. Tapped for 10 mm. rod.....**$ .65**

Lens Holders, to hold single or achromatic lenses of the given diameters.

S1925. Lens Holder, for lens 25 mm. or 1 inch with rod S101..**$ .55**
S1950. Lens Holder, for lens 50 mm. or 2 inch with rod S101.. **.90**
S1975. Lens Holder, for lens, 75 mm. or 3 inch with rod S101.. **1.25**
S1910. Lens Holder, for lens 100 mm. or 4 inch with rod S101.. **1.80**

S2151-S2153



S2159

ADJUSTABLE MIRROR HOLDERS.

Adjustable, on vertical and horizontal axis. Price includes plane mirror.

S2151. Adjustable Mirror Holder, mirror 35 mm. diam., with rod S100 ..... **$1.60**

S2152. Adjustable Mirror Holder, mirror 60 mm. diam., with rod S101 ..... **$3.25**

S2153. Adjustable Mirror Holder, mirror 100 mm. diam., with rod S201 ..... **$4.00**

OPTICAL BENCH ACCESSORIES.

S2155. Screen Holder to fit drilled laboratory rod S151, made of spring brass wire, bent in a flat spiral. Will hold paper, cardboard, screens, etc. ..... **$ .25**

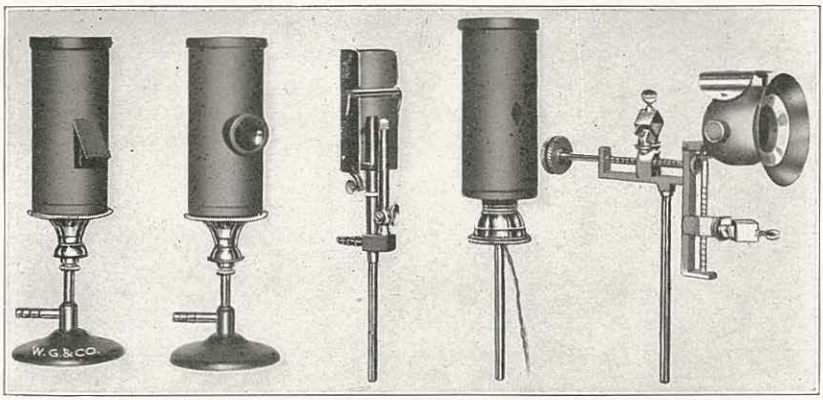
S2157. Screen with Diaphragm. Screen with a circular opening of 25 mm., which can be closed by a diaphragn, having four circular openings varying in size from 6 to 25 mm., and a slit of 1 mm. width. With rod, S115 ..... **$4.50**

S2159. Mirror and Grating Holder. Two spring clips hold any flat object such as mirrors, screens, gratings, etc. Face 50x50 mm., square opening 25x25 mm., base 50x35 mm., tapped for 10 mm. rod, without rod **$2.20**

S2161. Plain Slit with jaws 3 cm. long, made of brass with screw adjustment. With rod S115 ..... **$6.00**

S2163. Candle Holder. Substantially made of brass and mounted on rod S101 ..... **$ .60**

Note: See illustration of S2155-S2157, S2161-S2163 on page 29.



S2165 S2169 S2173 S2177 S2185

WELSBACH LAMPS.

Adapted for general use in laboratories and particularly for microscope and optical work. The hoods shown in the illustration are interchangeable and fit either the gas or electric lamps

S2165. Welsbach Lamp, on base with mantel, chimney and hood. Specially designed of the proper height for microscope work. Complete **$3.25**

S2167. Welsbach Lamp, same as S2165, but mounted on rod S101, for use in connection with stand tube and tripod or optical bench. Complete **$3.10**

S2169. Welsbach Lamp, same as S2165, but with hood S2191. Particularly intended for optical work and as a reading lamp for galvanometer. Complete **$4.25**

S2171. Welsbach Lamp, same as S2169, but mounted on rod S101. Complete **$4.10**

SODIUM AND WHITE LIGHT BURNERS.

An ordinary gas burner and a Bunsen burner are supported on a block with hose attachments and carried on a rod S101. Behind the Bunsen burner is mounted a shield, which holds on a wire the glass tube for producing the sodium light. This shield is adjustable, so that the glass may be brought into any part of the flame in order to give more or less brilliancy. The gas burner has an independent stopcock, which permits turning the white light on or off.

S2173. Sodium and White Light Burner, complete.....**$6.25**

S2175. Sodium and White Light Burner, similar to S2173 but fitted with a condensing lens which is mounted, adjustable in front of burner, complete **$9.00**

ELECTRIC LAMPS.

S2177. Electric Incandescent Lamp. Adapted for use with galvanometers, or optical bench, consists of an incandescent lamp of the Bunghole type, mounted on Edison receptable with fibre disc and support rod S101. With 16 C. P., 110 Volt lamp, 5 feet cord and Edison plug. With hood S2193 .....**$3.50**

S2179. Electric Incandescent Lamp. Same as S2177 but with straight filament lamp instead of "Bunghole" lamp **$5.30**

S2181. Electric Incandescent Lamp. "Bunghole" type for use with S2177 .....**$ .35**

S2183. Electric Incandescent Lamp. Straight filament for use with S2179 .....**$2.15**

S2185. Electric Arc Lamp. Hand feed, right angle form, particularly intended for projection purposes, but also suitable for other experiments in connection with the optical bench, when an extremely powerful source of light is required. The advantages of the right angle form are that the crater of the horizontal carbon, which is the principal source of light, is in line with the optical axis and fed directly toward the center of the condensing lens. For operation on direct current circuits a ⅜ inch solid vertical carbon and a ½ inch cored horizontal carbon are necessary. For operation on alternating circuit both carbons should be ½ inch cored. The lamp has a ball hood and shield, with a ground mica disc, through which to observe the arc. With rod S115.....**$10.50**

S2186. Rheostat, for direct or alternating currents from 52 to 115 volts, capacity 12-15 amperes with switch, fuse block, and 15 feet of flexible cable for use with lamp S2185 .....**$10.00**

HOODS.

These are removable and interchangeable and will fit any of the lamps shown in the illustration. They have a top cover and throw no light, except in the direction desired. The inside is lined with nickeled metal, which can be taken out and cleaned or renewed when tarnished.

S2189. Hood with rectangular opening 25x50 mm. shielded, for microscopic work **$1.00**

S2191. Hood with condensing lens of 30 mm. diameter, for general optical work **$2.00**

S2193. Hood with rhomb shaped opening, particularly intended for galvanometer reading lamp.....**$1.00**

S2195. Shade for bunghole lamp, made of steel, white inside. See illustration on page 29.....**$ .75**

S3000

S3010

S3020

Brass Thumb Screws for support pieces. These screws are made of hard red brass, carefully machine threaded, polished and nickel plated. The threads are standard V threads 3/8-inch, 16; 1/4-inch, 24; 7/32-inch, 28.

S3000. Thumb Screws. Diameter 3/8 inch.

Length under head, cm	1½	2½	4	5
Each	$ .18	$ .20	$ .22	$ .25
Per dozen	1.90	2.25	2.50	2.75

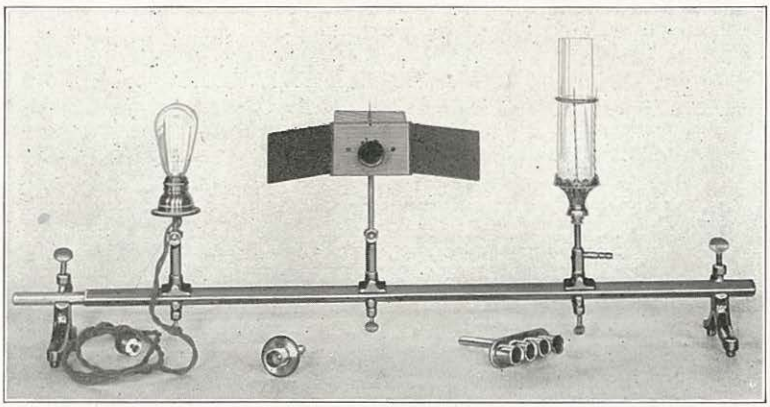
S3010. Thumb Screws. Diameter 1/4 inch.

Length under head, cm	1½	2½	3½
Each	$ .18	$ .20	$ .22
Per dozen	1.50	1.90	2.25

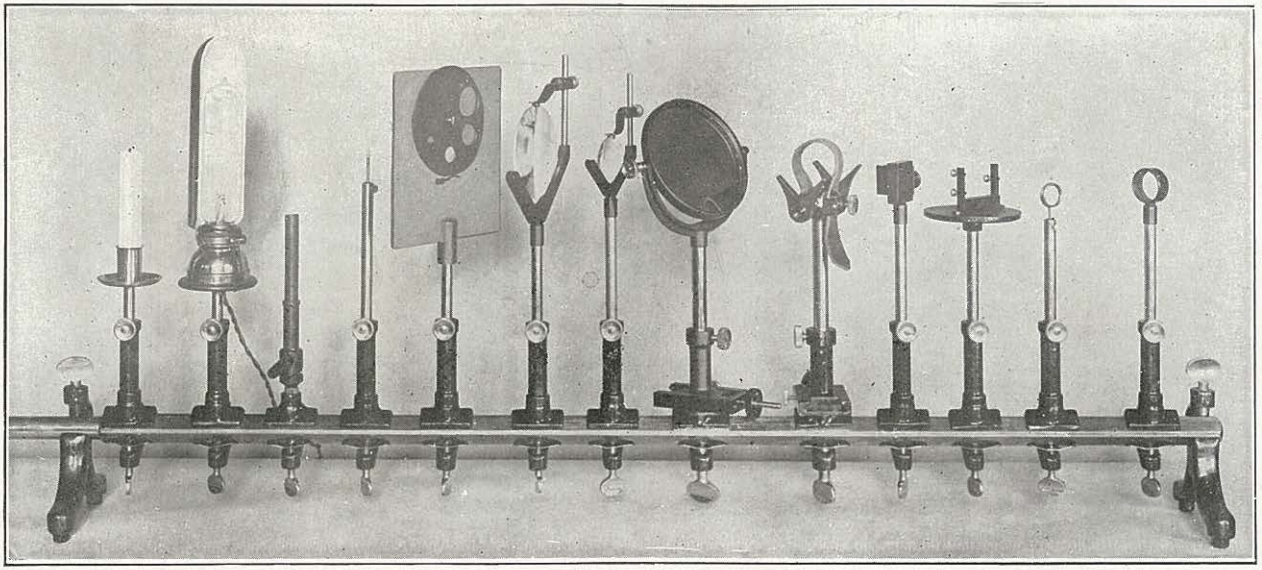
S3020. Thumb Screws. Diameter 7/32 inch.

Length under head, cm	1½
Each	$ .15
Per dozen	1.50

Note: Any other screws, wing nuts or other parts of our laboratory support pieces can be promptly supplied.



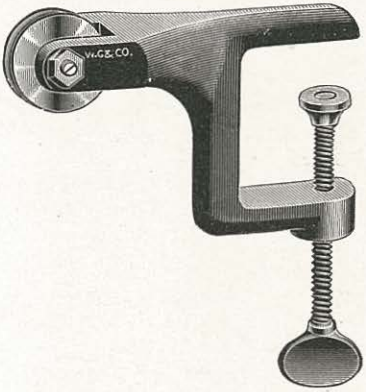
Optical Bench and Photometer. Complete, consisting of: End supports S1101, support rod graduated one meter, three right angle clamps with index, electric lamp receptacle, Tungsten lamp, 40 watts, high-grade Welsbach lamp complete with mantle and chimney, Bunsen photometer box with eyeshields.....**$22.00**



OPTICAL BENCH

Complete with rods two meters long $52.40
Complete with square rod graduated 61.90

The illustration shows an optical bench carrying the following: 1. Candle holder S2163 in right angle clamp S1201. 2. Electric lamp with shade S2195 in S1201. 3. Bunsen burner O202 mounted with connector S1061 on S1219. 4. Rod with hole S151 with point in S1201. 5. Screen with diaphragm S2157 in S1201. 6. Large lens holder S1902 on rod S101 in S1201. 7. Small lens holder S1901 in S1201. 8. Large mirror holder S2153 on swiveling right angle clamp S1209. 9. Telescope holder S1601 on adjustable clamp S1207. 10. Slit S2161 in S1201. 11. Table top S1800 on rod S101 in 1201. 12. Screen holder S2155 in rod S151 on S1201. 13. Small lens holder S1925 in S1201.



S2501

S2510

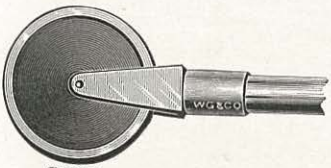
S2520

PULLEYS AND PULLEY CLAMPS

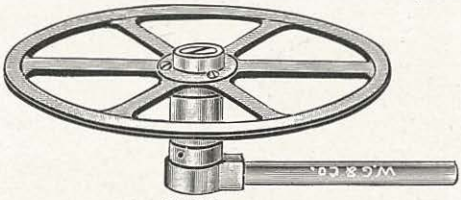
S2501. Pulley Clamp. Pulley of brass, 40 mm. diameter, cone-bearing clamp to fit on table 5 cm. thick.....**$1.00**

S2510. Universal Pulley Clamp. Will clamp on table up to 5 cm. thick, and has a brass pulley 40 mm. in diameter which by means of a wing nut can be clamped in any position. It can be used in experiments involving forces acting in space, for vibration of strings, etc.....**$1.70**

S2520. Pulley of brass 35 mm. diameter mounted in iron frame with cone bearings .....**$ .65**



S2601



S2610

S2601. Pulley of brass 40 mm. diameter. Mounted in brass fork, with rod S101 .....**$ .65**

S2610. Anti-Friction Pulley. Useful in building up Atwood machines, inclined plane experiments, etc. The pulley is made of aluminum and runs in especially light constructed ball bearings, very free from friction. Pulley, 10 cm. in diameter with rod S202.....**$5.60**

S2611. Pulley. Similar to S2610, but with pulley of 20 cm. diameter, with rod S202.....**$9.75**

S2621. Pulley. Made of brass, accurately true, nicely finished, diameter 40 mm. Single, two hooks.....**$ .45**

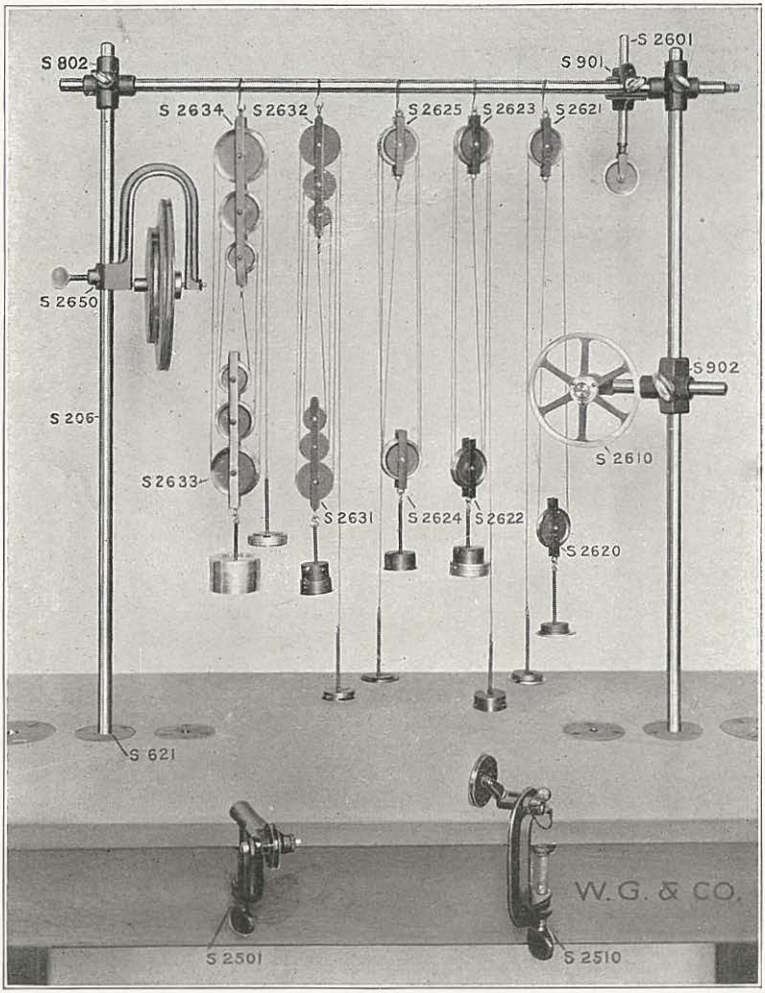
S2623. Pulley. Double, two hooks..... **.90**

S2625. Pulley. Triple, two hooks..... **1.40**

S2632. Pulley Block. With three pulleys in line. Plain bearings. Diameter of largest pulley 40 mm., with two hooks.....**$1.90**

S2634. Pulley Block. With three pulleys in line. Highly finished cone bearing running with very little friction. Diameter of largest pulley 50 mm., with two hooks.....**$3.30**

S2650. Wheel and Axle. Wheel made of magnelium, accurately true and balanced, running in cone bearings. Largest diameter 12.5 cm. Iron frame, to clamp on 13 mm. rod.....**$3.75**

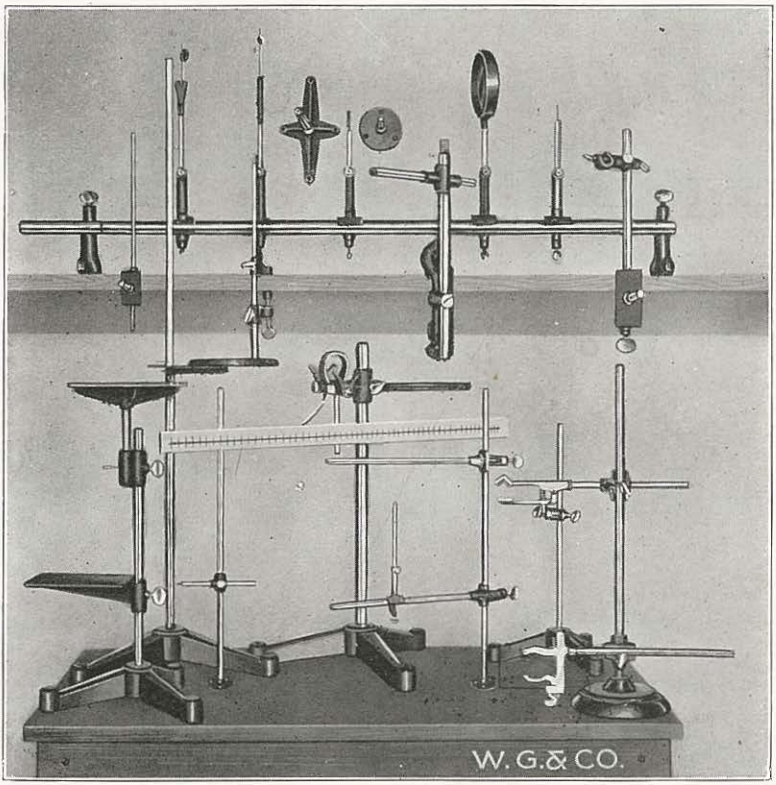


PULLEY ASSORTMENT

Complete set as shown with supporting frame, base plates, pulley clamps, etc., but no weights. Consists of 1 S2501, 1 S2510, 2 S621, 3 S206, 2 S802, 1 S901, 1 S902, 1 S2650, 2 S2634, 2 S2632, 2 S2625, 2 S2623, 2 S2621, 1 S2601, 10 T1752.

S2600. Pulley Assortment **$30.00**

Note: The illustration shows Nos. S2620, S2622, S2624, S2631, S2633, which are no longer listed; in place of these are now furnished the corresponding pulleys listed above. S2650 wheel and axle is shown with wheel made of wood; the wheel as listed now is made of magnelium.



The Assortments listed below are based on past experience and are intended to serve as a guide to purchasers not familiar with the system.

Assortment No. 1 consists of a set of lighter support pieces, including an optical bench.

Assortment No. 2 contains the heavier supports and may be purchased as complementary set to No. 1.

Assortment No. 3 gives a very complete set and forms a good basis from which to judge of the usefulness of the supports.

ASSORTMENT NO. 1. $50.00

Rods

2	S100	$ .36	2	S103	$ .60	2	S202	$ .64	1	S303	$ .55
2	S151	.90	2	S104	.64	3	S203	1.08	1	S304	.60
3	S101	.66	3	S201	.84	1	S204	.42	1	S510	2.55
2	S102	.54	1	S208	.58						

Tripods, Bases, Etc.

1	S601	$ .45	1	S604	$1.00	1	S701	$ .25
2	S602	1.30	1	S602a	.40	1	S702	.65
1	S603	1.00	2	S620	.70			

ASSORTMENT NO. 1 (Continued)

Right Angle Pieces

1	S801	$ .55	2	S1001	$1.40
1	S900	.40	1	S1005	.75
1	S901	.55	2	S1061	.40
1	S902	.65	2	S1062	.60
			1	S1081	.45

Clamps, Holders, Etc.

1	S1013	$ .25	1	S1501	$2.00
1	S1042	.55	1	S1510	.75
1	S1101	1.25	1	S1530 Not shown in illus.	.45
1	S1200	.80	1	S1540 Not shown in illus.	.95
5	S1201	5.00	1	S1552 Not shown in illus.	.30
2	S1210	1.10	1	S1601	2.25
1	S1211	.75	1	S1610	.80
1	S1301	1.70	1	S1801	1.00
1	S1310	.55	1	S1811	1.00
1	S1311	.65	1	S1831	1.20
1	S1401	.75	1	S1901	1.15
			1	S1906	.65
			1	S1910	1.80
			1	S2155	.25

ASSORTMENT NO. 2. Special, $90.00

Rods

2	S101	$ .44	4	S203	$1.44	2	S306	$1.44
2	S102	.54	4	S204	1.68	1	S308	.85
3	S103	.90	3	S206	1.44	2	S310	2.00
1	S104	.32	2	S208	1.16	1	S410	2.20
1	S201	.28	2	S303	1.10	1	S550	.90
2	S202	.64	3	S304	1.80			

Tripods, Bases, Etc.

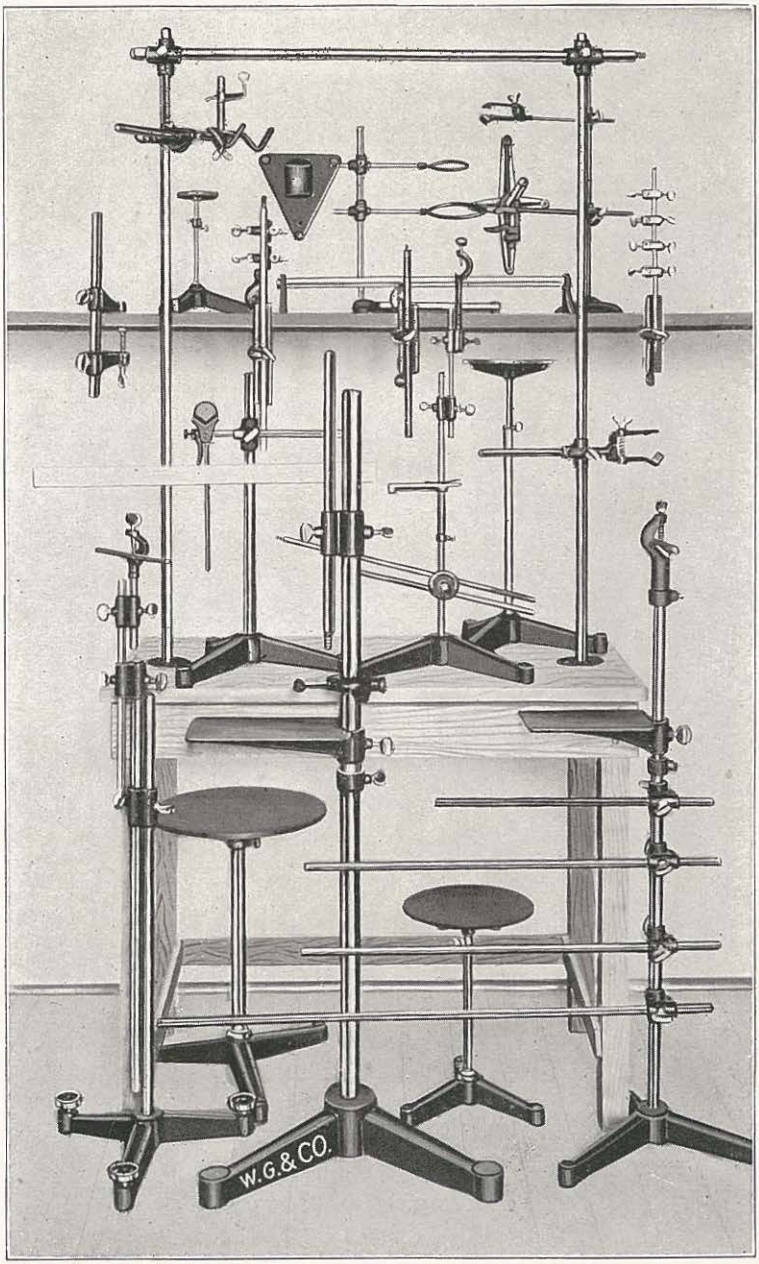
1	S601	$ .45	1	S606	$2.95	2	S622	$1.20
3	S602	1.95	1	S610	.95	1	S703	1.00
2	S603	2.00	1	S602a	.40	1	S721	1.50
1	S604	1.00	1	S634, with leveling screws.	3.45			
2	S605	2.50						

Right Angle Pieces

4	S801	$2.20	1	S1002	$ .90	1	S1045	$ .70
2	S803	1.70	1	S1006	.90	1	S1046	1.00
5	S901	2.75	1	S1041	.50	1	S1010	.20
6	S902	3.90	1	S1043	.70	1	S1013	.25
1	S1001	.70	1	S1044	.50	1	S1019	.40
						1	S1030	.50

Clamps, Holders, Etc.

1	pr. S1113	$1.50	1	S1501	$2.00	1	S1702	$1.65
1	S1210	.55	1	S1510	.75	1	S1703	2.30
1	S1211	.75	1	S1511	1.05	1	S1800	.50
1	S1204	1.30	1	S1530	.45	1	S1801	1.00
1	S1212	.90	1	S1531	.50	1	S1802	1.75
1	S1301	1.70	1	S1601	2.25	1	S1804	2.50
1	S1302	2.00	1	S1610	.80	1	S1812	1.40
1	S1303	1.25	1	S1700	1.00	1	S1813	2.50
1	S1402	1.00	1	S1701	1.35	1	S1821	.75



Assortment No. 2

ASSORTMENT NO. 3. $180.00

Rods

3	S101	$ .66	2	S203	$ .72	2	S306	$1.44
3	S102	.81	2	S304	1.20	3	S308	2.55
2	S103	.60	5	S206	2.40	4	S310	4.00
3	S104	.96	3	S208	1.74	1	S408	1.80
2	S201	.56	2	S303	1.10	1	S410	2.20
2	S202	.64	2	S304	1.20	1	S510, no threads	2.55

Tripods, Bases, Etc.

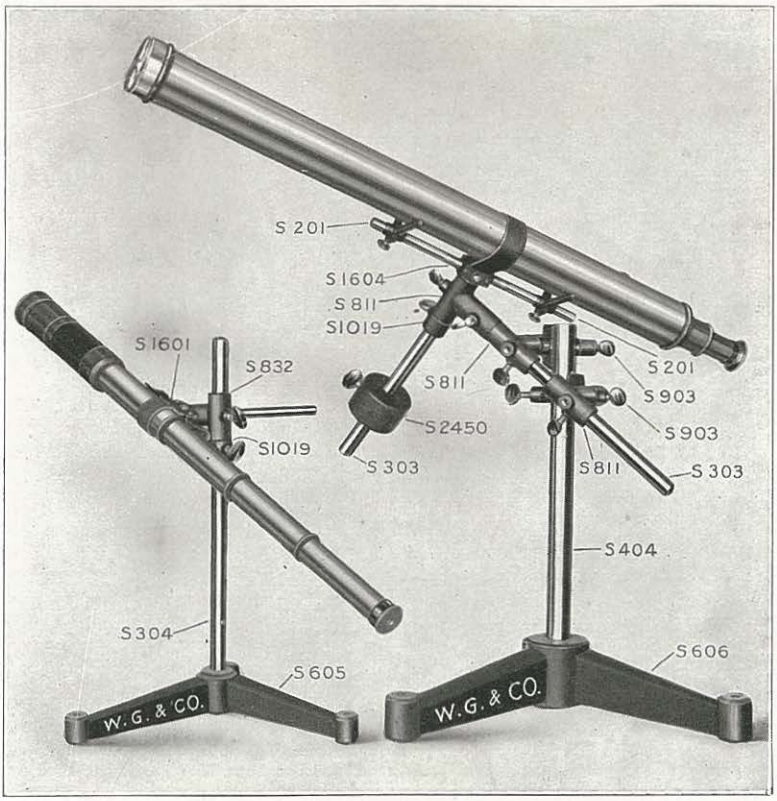
3	S601	$1.35	2	S602a	$ .80	2	S701	$ .50
3	S602	1.95	1	S610	.95	2	S702	1.30
3	S603	3.00	2	S621	.90	1	S703	1.00
4	S604	4.00	2	S622	1.20	1	S721	1.50
4	S605	5.00	1	S633	3.45	1	S770	2.25
2	S606	5.90	1	S635	3.75			
2	S601a	.70	1	S636	7.35			

R. A. Pieces, Clamps, Holders, Etc.

4	S801	$2.20	2	S1310	$1.10
2	S802	1.40	2	S1311	.130
2	S803	1.70	1	S1401	.75
2	S810	1.50	1	S1402	1.00
2	S811	2.00	2	S1501	4.00
5	S901	2.75	2	S1510	1.50
5	S902	3.25	2	S1511	2.10
3	S903	3.00	1	S1530	.45
5	S1001	3.50	1	S1531	.50
2	S1002	1.80	1	S1542	1.50
1	S1005	.75	1	S1552	.30
1	S1006	.90	2	S1601	4.50
1	S1007	1.20	1	S1604	3.75
1	S1010	.20	2	S1610	1.60
1	S1013	.25	2	S1611	.90
1	S1019	.40	2	S1662	1.40
1	S1030	.50	2	S1701	2.70
1	S1044	.50	1	S1702	1.65
1	S1045	.70	1	S1703	2.30
1	S1046	1.00	2	S1800	1.00
2	S1061	.40	2	S1801	2.00
2	S1062	.60	2	S1802	3.50
2	S1071	.30	2	S1803	3.50
2	S1072	.50	1	S1804	2.50
1	S1101	1.25	1	S1810	.65
1	S1113	1.50	1	S1811	1.00
3	S1201	3.00	1	S1812	1.40
1	S1202	1.00	1	S1813	2.50
1	S1204	1.30	1	S1821	.75
3	S1241	2.10	1	S1831	1.20
2	S1301	3.40	1	S1902	1.70
2	S1302	4.00	1	S1906	.65
2	S1303	2.50			

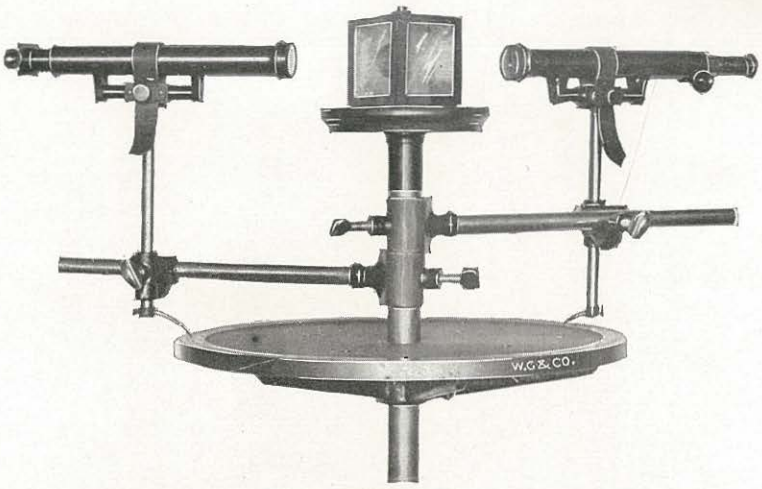
EXAMPLES OF ASSEMBLED LABORATORY SUPPORTS

Science teachers and experimenters are always interested in obtaining apparatus which may be quickly set up and while at the same time is accurate and inexpensive. In the following pages we show with a few examples how a number of important and instructive experiments may be performed by using our laboratory supports. The ingenuity is also stimulated by having the student assemble the apparatus, with which experiments involving accurate determination of physical constants are to be performed.



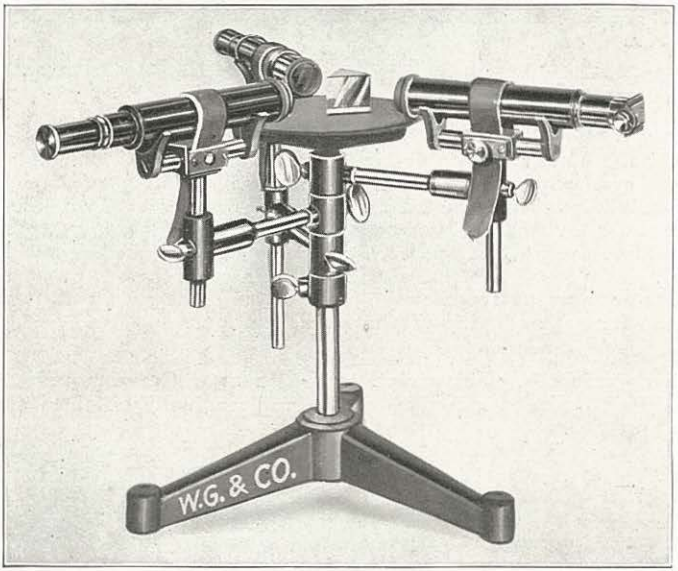
TELESCOPE MOUNTINGS

The above illustration shows in a striking manner the manifold uses and advantages of our laboratory supports. We have built up an alt-azimuth mounting for a 1½-inch spy glass and an equatorial mounting adjustable for different latitudes with a 2½-inch telescope.



SPECTROMETER

The graduated force table top (Catalog No. L1050) serves as divided circle. An efficient spectrometer may thus be easily constructed. For telescopes, etc., see Catalog M-L.



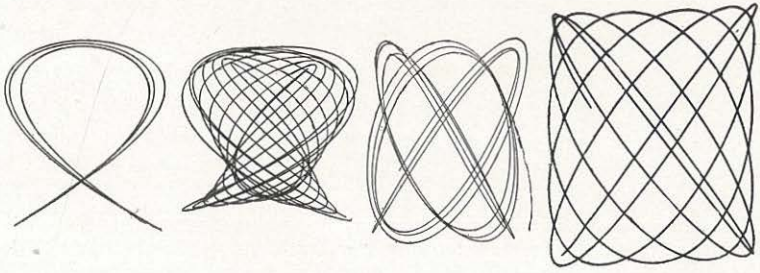
SPECTROSCOPE

Tripod S604 holds upright rod S302, both ends threaded, the table top S1801 is especially tapped for this rod and serves as prism table. A collar S1019 and three right angle pieces S1241 with rods S201 are mounted on the upright rod and in this manner the three arms may be turned to any position and clamped. Pieces S810 carry the telescope holders S1601.

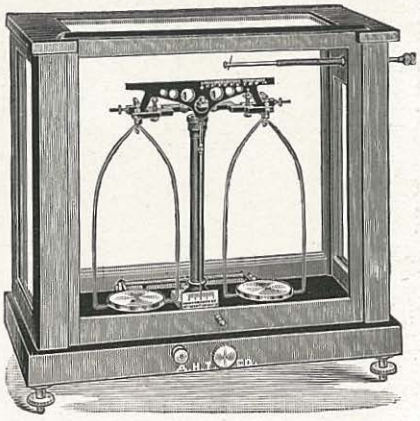
TISLEY'S HARMONOGRAPH

Near the corner of a table are clamped with four C clamps 2 pairs of wooden bars, which support the pendulums consisting of 2 right angle clamps S901, holding knife edges S560 and rod S106. Two kilo weights serve as bobs and may be supported by any clamp of proper size. On the upper end of the rods are fastened pins (held in the drilled end by clamp screws). Two wooden strips are joined by a pin driven through both and their free ends are passed over the pins on top of the rods, thus forming the two arms for compounding the harmonic motions.

The smoked glass plate rests on a set of geometric stands S770 and may be held by soft wax. This simple arrangement will give as perfect results as can be desired and a few examples of the actually obtained curves are shown herewith.



Balances and Weights



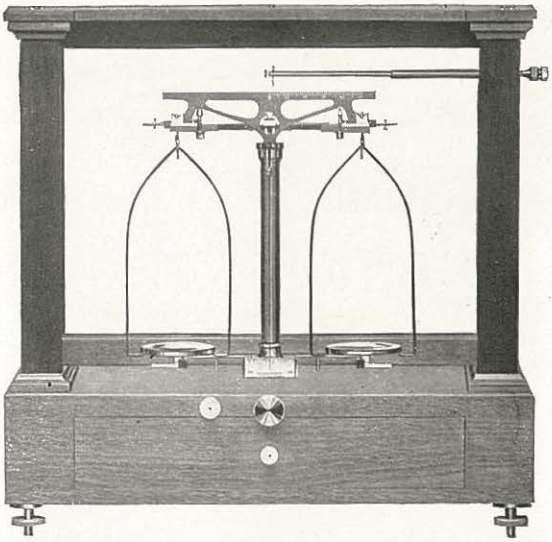
T1005

ANALYTICAL BALANCES

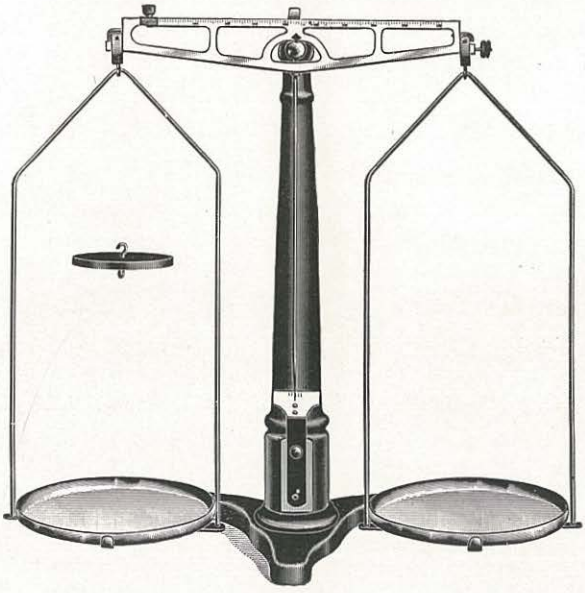
T1005. Analytical Balance, designed to meet the requirements of educational laboratories in quantitative analysis, capacity 200 grams, sensibility .1 mg. The beam is of aluminum, oxidized black, 7 inches long, divided into fifths of milligrams with white divisions. The rider carrier is of effective design and knife edges and planes of agate. The pans are of German silver 2½ inches diameter. The case of polished mahogany has counterpoised front door and the base fitted is with leveling screws.....**$37.50**

T1015. Analytical Balance, capacity 200 grams in each pan, sensibility .1 mg. The beam which is 7 inches long is of aluminum alloy and divided on right arm into 50 divisions. It is also supported by a three-point rigid beam arrest that has a fall away action and releases the beam so that the contact at the center knife edge is coincident with the contact at the end knife edge, thereby avoiding all jarring and possible injury to the knife edge by a sudden shock. The rider carrier is designed to be thoroughly effective and free from any possibility of derangement. The bearings are of agate throughout. The case is of polished mahogany with counterpoised front sash, and glass sash at the back, top and both ends. The base is fitted with a drawer and is provided with screw leveling feet.....**$70.00**

T1030. Analytical Balance, similar to T1015 but with beam divided on both sides of the central knife edge instead of on the right hand side only and with black polished plate glass base.....**$80.00**



T1015



T1100

T1100. Laboratory Balance. Capacity 1000 grams, sensibility 20 mg.

This balance is specially designed to meet the demand of educational institutions as well as technical laboratories for an inexpensive beam balance of large capacity, high sensibility and great convenience. We designed this balance in accordance with suggestions made by Professor Millikan of the University of Chicago. Several thousand have been sold to leading schools, private laboratories, and to the United States Government during the last years and have given universal satisfaction. The following are its points of advantage:

There are no small weights needed, as all weights up to 10 grams are taken care of by the rider.

The balance is very suitable for specific gravity work, as the triangular shaped base allows a vessel as large as 17 cm. in diameter to be placed under the beam directly on the table, without using any special support. A counterweight for specific gravity weighing is included.

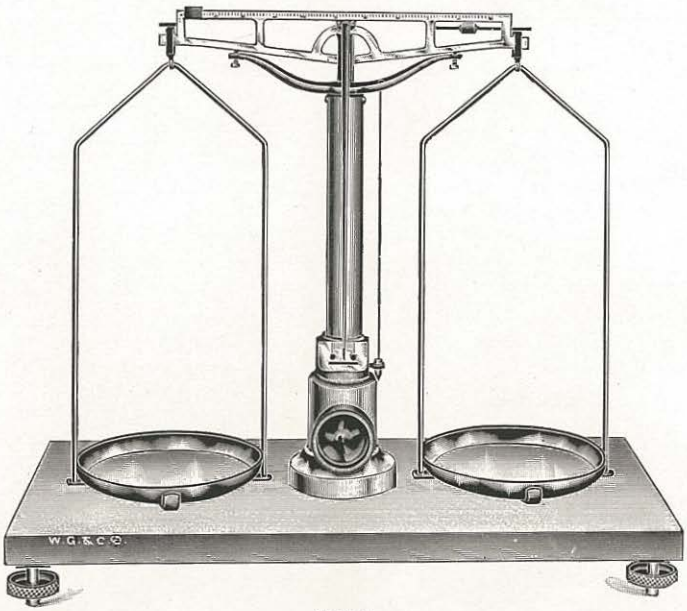
The sensibility with full load is 0.05 grams. The beam is divided into 100 parts, each representing .01 gr. Loads up to 4 kg. may be safely weighed.

The pans are 15 cm. in diameter. The height of the balance from table to knife edges is 40 cm.

The beam hanger and pans are securely held and cannot be accidentally displaced.

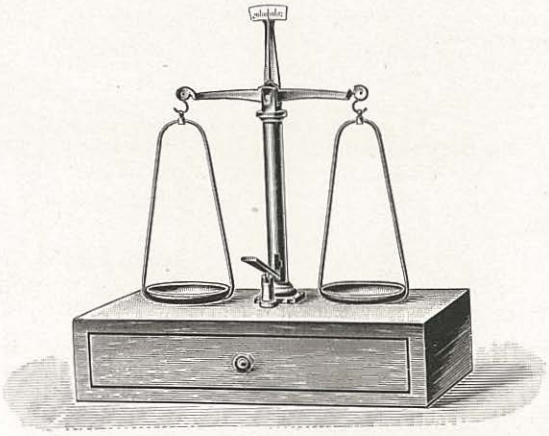
The balance is provided with a convenient damping device.

Construction and finish are first class, the knife edges are of steel. Beam and pans are nickel plated, base and pillar japanned.....**$13.50**



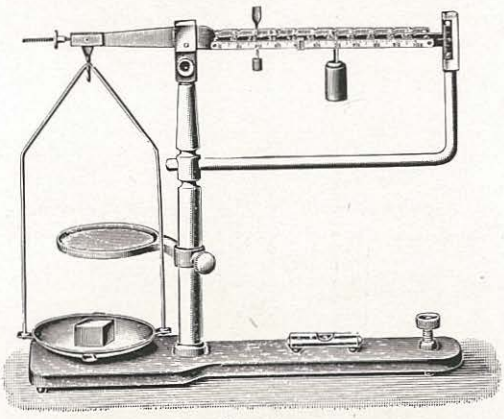
T1110

T1110. Laboratory Balance. Capacity 1000 grams, sensibility 10 mg. Similar to T1100 but of higher sensibility and provided with arrest for beam and pans. The balance is mounted on a polished hardwood base fitted with leveling screws and plumb bob. Pillar of brass, lacquered, beam of hard brass nicely finished and nicked plated.....**$25.00**



T1120

T1120. Laboratory Balance. For weighing up to about 200 grams where no great accuracy is required. Fitted with simple arrest for pans. The balance is nickel plated and mounted on hardwood box with drawer... ..... **$4.50**



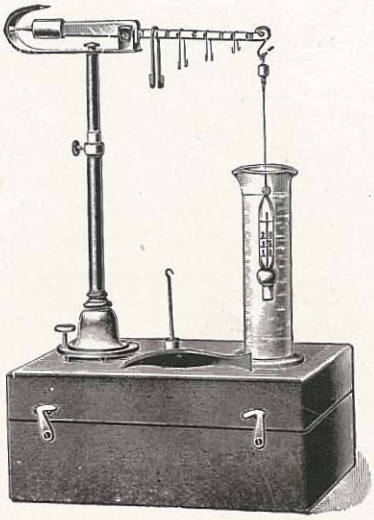
T1130

T1130. Triple Beam Laboratory Balance. Capacity 111 grams. This balance is very popular in physical and chemical laboratories, being used for rapid weighing and specific gravity work. The three beams are graduated as follows:

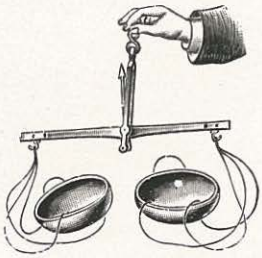
Front beam—10 centigrams by 1 centigram divisions.
Middle beam—100 grams by 10 gram divisions.
Back beam—10 grams by 1 gram divisions.

The weights are easily handled and cannot be removed from the beams, making it impossible to lose them. The balance is also provided with an adjustable support to hold jar, etc., for experiments in specific gravity.... ..... **$17.50**

T1135. Extra Weight. To be used with balance T1130 to weigh up to 211 grams..... **$1.75**



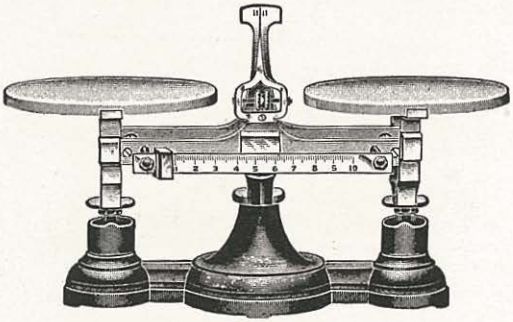
T1140



T1150

T1140. Specific Gravity Balance. According to Westphal, with Reimann thermometer plummet for determining the specific gravity of liquids to the fourth decimal. All parts of the balance fit into the box, being very compact and portable. The balance has adjustable brass pillar, Reimann thermometer plummet with suspension and counterpoise, glass jar, forceps and eight riders.....**$20.00**

T1150. Hand Balance. Beam 15 cm., of lacquered brass with steel knife edges, pans of horn.....**$1.50**



T1160

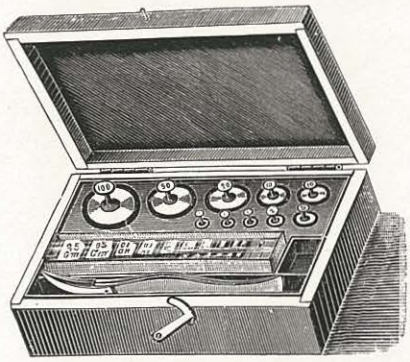
T1160. Trip Scale, Agate Bearing. Harvard design, capacity 2 kg., sensibility about 0.1 gram. Range of graduated beam 10 grams, divided to 0.1 gram **$9.00**

T1170. Spring Balance. In iron case with sliding index recorder. For experiments in tensile strength. English and metric scales 30 pounds in ¼ pound divisions and 15 kilos in 100 gram divisions.....**$6.00**

T1175. Spring Balance. English and metric reading, 30 pounds in ¼ pound divisions and 15 kilos in 100 gram divisions.....**$1.65**

T1180. Spring Balance. English and metric reading, 8 ounces in ¼ ounce divisions and 250 grams in 10 gram divisions. Flat back.....**$ .90**

T1185. Spring Balance. English and metric reading, 64 ounces in 1 ounce divisions, 2000 grams in 25 gram divisions. Flat back.....**$ .45**



T1500

ANALYTICAL WEIGHTS

Analytical Gram Weights. These weights are accurately adjusted for the highest grade of analytical work. Down to 1 gram they are of hard drawn brass, gold plated and are mounted in a velvet lined polished mahogany case with ivory tipped forceps. The fractional weights from 500 mg. to 10 mg. are of platinum, the smaller ones of aluminum are kept under a glass cover. Two rider weights are included.

T1500. Analytical Weights, 20 grams to 1 mg..... **$23.00**
T1502. Analytical Weights, 50 grams to 1 mg..... **25.00**
T1504. Analytical Weights, 100 grams to 1 mg..... **28.00**
T1506. Analytical Weights, 200 grams to 1 mg..... **37.00**

Analytical Gram Weights. Of the same form as T1500 are accurately adjusted as before. The weights down to 1 gram are of brass carefully lacquered, mounted in velvet lined polished mahogany case. The fractional weights are of German silver kept under a glass cover. Brass forceps and two rider weights are included.

T1522. Analytical Weights, 50 grams to 1 mg..... **$22.00**
T1524. Analytical Weights, 100 grams to 1 mg..... **24.00**
T1526. Analytical Weights, 200 grams to 1 mg..... **30.00**

T1544

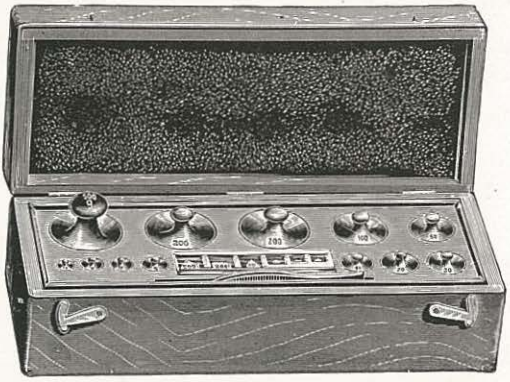
T1548

Analytical Weights, designed for use with Balance T1005, are guaranteed to be within the limit of tolerances established by the Bureau of Standards for Class B Analytical Weights. The larger weights are of lacquered brass and the fractional weights of aluminum, furnished in a velvet line case with hinged lid.

T1540. Analytical Weights, 20 grams to 1 mg.....**$ 9.25**
T1542. Analytical Weights, 50 grams to 1 mg..... **10.50**
T1544. Analytical Weights, 100 grams to 1 mg..... **12.00**

Analytical Weights, same as T1540 but furnished with polished hardwood block.

T1546. Analytical Weights, 50 grams to 1 mg.....**$6.50**
T1548. Analytical Weights, 100 grams to 1 mg..... **7.50**

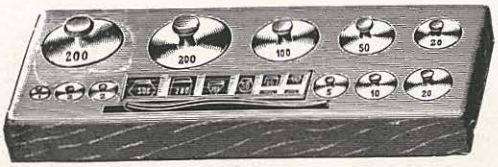


T1588

PRECISION GRAM WEIGHTS

Gram Weights, of solid brass in polished mahogany case with velvet lined hinged lid. The fractional weights are of German Silver and are kept under glass cover, furnished with brass forceps.

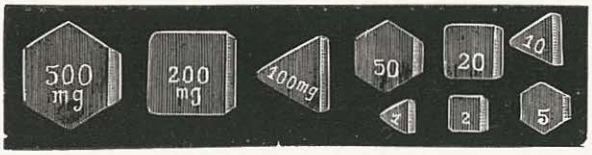
T1580. Gram Weights, 20 grams to 1 mg.....**$ 4.50**
T1582. Gram Weights, 50 grams to 1 mg..... **5.00**
T1584. Gram Weights, 100 grams to 1 mg..... **6.00**
T1586. Gram Weights, 200 grams to 1 mg..... **8.00**
T1588. Gram Weights, 500 grams to 1 mg..... **12.00**
T1590. Gram Weights, 1000 grams to 1 mg..... **14.00**



T1595

Gram Weights, same as T1580 but mounted in polished hardwood block.

T1591. Gram Weights, 20 grams to 1 mg.....**$ 2.50**
T1592. Gram Weights, 50 grams to 1 mg..... **3.25**
T1593. Gram Weights, 100 grams to 1 mg..... **4.00**
T1594. Gram Weights, 200 grams to 1 mg..... **5.00**
T1595. Gram Weights, 500 grams to 1 mg..... **7.50**
T1596. Gram Weights, 1000 grams to 1 mg..... **10.00**



T1645-T1650

T1660

T1635. Fractional Weights. 500 mg. to 1 mg. The larger weights are of German silver, smaller weights are aluminum. In block under glass cover **$1.50**

T1640. Fractional Weights. 500 mg. to 1 mg. The same as T1635 but in pasteboard box.....**$ .50**

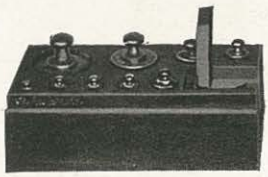
T1645. Fractional Weights of platinum.

Milligrams	10	20	50	100	200	500
Each	**$ .50**	**$ .60**	**$ .70**	**$ .90**	**$1.50**	**$2.50**

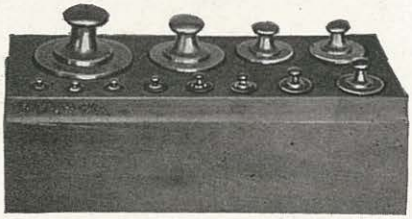
T1650. Fractional Weights of German silver. 10, 20, 50, 100, 200 and 500 mg. Each .....**$ .07**
Per dozen ..... **.60**

T1655. Fractional Weights, aluminum. 1, 2, 5, 10, 20 and 50 mg. Each .....**$ .07**

T1660. Riders of platinum. 1, 2, 5, 6, 10, 12 mg. Each..... **.75**
T1662. Riders of aluminum. 1, 2, 5, 6, 10, 12 mg. Each..... **.25**



T1674



T1678

WEIGHTS FOR GENERAL LABORATORY WORK

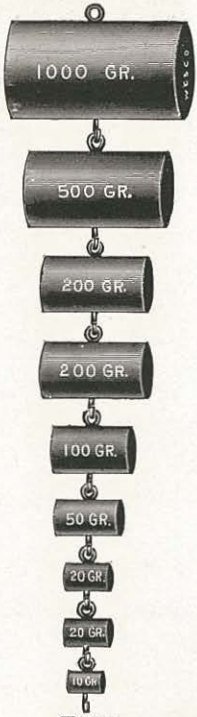
T1670. **Brass Weights** in block, 20 grams to 1 centigram **$1.75**
T1672. **Brass Weights** in block, 50 grams to 1 centigram..... **2.00**
T1674. **Brass Weights** in block, 100 grams to 1 centigram..... **2.75**
T1676. **Brass Weights** in block, 200 grams to 1 gram..... **4.00**
T1678. **Brass Weights in block,** 500 grams to 1 gram..... **6.50**
T1680. **Brass Weights** in block, 1000 grams to 1 gram..... **9.75**

T1690. **Universal Laboratory Weights** of steel, nicely finished and accurately adjusted. Set of nine weights as shown in cut.....**$2.50**

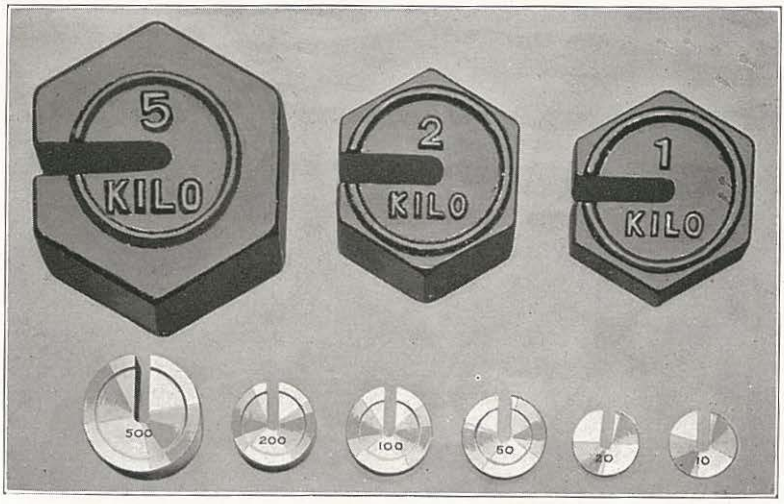
T1692. **Holder.** For weights of iron..... **.50**
T1700. **Slotted Iron Weight,** 1 Kg..... **1.00**
T1702. **Slotted Iron Weight,** 2 Kg..... **1.50**
T1704. **Slotted Iron Weight,** 5 Kg..... **2.50**
T1705. **Slotted Iron Weight,** 10 Kg..... **5.00**
T1706. **Slotted Brass Weight,** 500 gr..... **1.50**
T1708. **Slotted Brass Weight,** 200 gr..... **1.00**
T1710. **Slotted Brass Weight,** 100 gr..... **.85**
T1712. **Slotted Brass Weight,** 50 gr..... **.70**
T1714. **Slotted Brass Weight,** 20 gr..... **.60**
T1716. **Slotted Brass Weight,** 10 gr..... **.50**
T1718. **Slotted Brass Weight,** 5 gr..... **.40**
T1720. **Slotted Brass Weight,** 2 gr..... **.35**
T1722. **Slotted Brass Weight,** 1 gr..... **.30**

T1730. **Set of Slotted Weights,** consisting of 1 500 gr., 5 100 gr., 1 50 gr. (Iron), 2 20 gr., 1 10 gr. (brass), on Holder T1758.....**$1.75**

T1732. **Set of Slotted Weights,** consisting of 1 500 gr., 2 200 gr., 1 100 gr., 1 50 gr., 2 20 gr., 1 10 gr. All weights of nickel plated brass on Holder T1758 .....**$7.00**



T1690



T1700-T1716

WEIGHT HOLDERS

These various forms cover nearly all laboratory requirements.

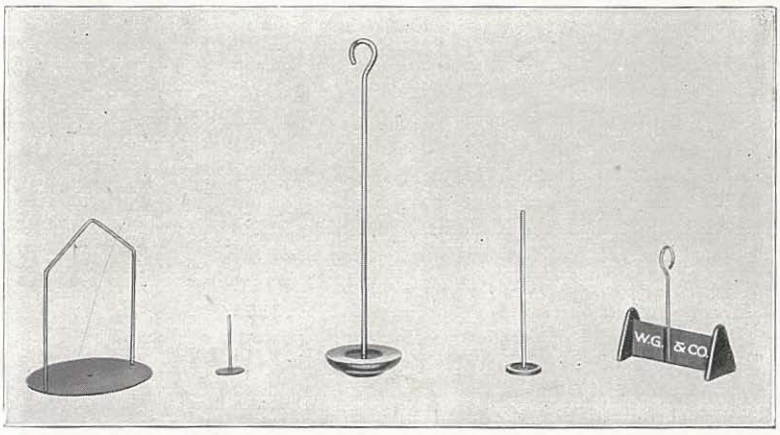
T1750. Weight Holder. Suitable for any form weights, will take up to 5 kg. Weight of holder 180 gr.....**$ .80**

T1752. Weight Holder. Light type, suitable for pulley experiment, holds slotted weights up to 500 gr. Weight of holder 8 gr.....**$ .35**

T1754. Weight Holder. Medium type. Will hold slotted weights up to 3 kg. Weight of holder 50 gr.....**$ .50**

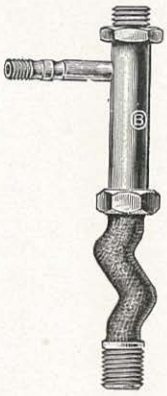
T1756. Weight Holder. Heavy type, will hold large slotted cast iron weights up to 20 kg. Weight of holder ½ kg.....**$ .60**

T1758. Combined Weight Holder and Stand. Convenient for slotted laboratory weights. Will take weights up to 1.6 kg. Weight of holder 300 gr.....**$ .50**

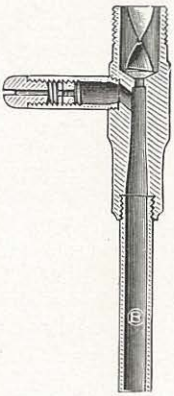


T1750 T1752 T1756 T1754 T1758

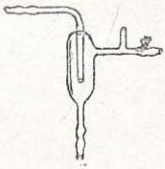
Laboratory Glassware Apparatus and Supplies



O102



O104



O108

O110

O114

050. Apron, for Chemical Laboratory use, made of rubber covered with cloth, width 36 inches, length 50 inches.....$ .50

O100. Aspirator (Filter Pump). Prof. Richards, of brass, small size, ⅛-inch I. P. thread $1.50

O102. Aspirator (Filter Pump). Prof. Richards', of brass, large size, ⅜-inch I. P. thread $2.00

O104. Aspirator (Filter Pump). Chapman's No. 1, made of brass, ⅛-inch I. P. thread $1.50

This pump will produce a vacuum in a remarkably short time.

O106. Aspirator (Filter Pump). Chapman's No. 3, made of brass, ⅜-inch I. P. thread $2.25

O108. Aspirator. Fisher's Filter Pump, made entirely of glass... 1.25

O110. Aspirator Coupling. For threaded faucet. Will fit No. O100 and No. O104 .....$ .45

O112. Aspirator Coupling. For threaded faucet. Will fit No. O102 and No. O106 .....$ .45

O114. Aspirator Coupling. For smooth faucet. Will fit No. O100 and No. O104 .....$ .55

O116. Aspirator Coupling. For smooth faucet. Will fit No. O102 and No. O106 .....$ .55

O118. Asbestos Paper. For filtering acids and general laboratory use Per pound .....$ .30

O120. Asbestos Sheet. Size 40 x 40 inches.

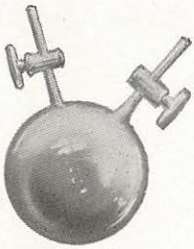
Thickness in inches	1/16	⅛	3/16	¼
Per sheet	$1.05	$2.10	$3.15	$4.20

O122. Asbestos Sheet. Cut in pieces one foot square.

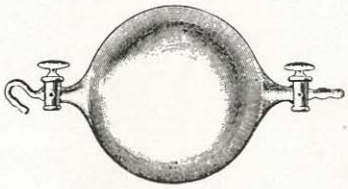
Thickness in inches.....	1/16	⅛	3/16	¼
Per foot	$ .15	$ .20	$ .30	$ .45

O124. Asbestos Sheets. Cut in squares.

Size, inches, 4 x 4 x 1/16. Per dozen.....$ .25
Size, inches, 6 x 6 x 1/16. Per dozen..... .50



O128



O130

O134

O126. Balloon. Glass, for weighing gases, 80 mm. diameter, with one stopcock **$2.50**

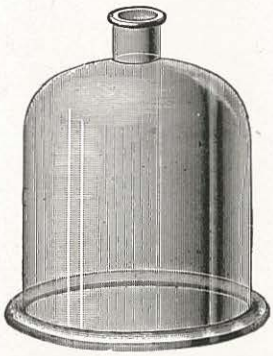
O128. Balloon. Same as above, with two stopcocks..... **$3.50**

O130. Balloon. Glass, with two stopcocks and hook, capacity about 1000 cc. **$5.00**

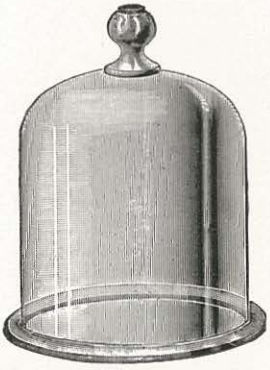
O132. Balloon. Rubber, small ..... **.05**

O134. Bulb. Chancels, for determining a density of gases..... **$3.50**

O138



O142



O148

O136. Beakers. Griffin form, lipped, best glass.

Number	000	00	0	1	2	3	4	5
Capacity, cc.	30	50	75	130	230	350	550	750
Each	$ .16	$ .18	$ .20	$ .22	$ .24	$ .30	$ .40	$ .45

O138. Beakers. Griffin form, in nests of 6, No. 00 to 4. Per nest **$1.50**

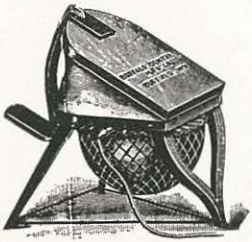
O140. Beakers. Griffin form, in nests of 4, No. 1 to 4. Per nest **1.20**

Bell Jar. Ground flange open top for stopper.

Cat. number	O142	O144	O146
Size	13 cm. x 21 cm.	21 cm. x 26 cm.	21 cm. x 31 cm.
Capacity	½ Gal	1 Gal.	2 Gal.
Each	$1.00	$1.50	$2.00

Bell jar. Ground flange knob top.

Cat. number	O148	O150	O152
Size	13 cm. x 21 cm.	21 cm. x 26 cm.	21 cm. x 31 cm.
Capacity	½ Gal	1 Gal.	2 Gal.
Each	$1.00	$1.50	$2.00



O162

O176

O178

O154. Bellows. Hand, width 7 inches.....**$ .90**

Bellows. For blast lamps, blowpipes, etc.

Cat. number	O156	O158	O160
Size	9	9A	9B
Each	$6.25	$8.25	$13.00

Bellows. Improved type, mounted on legs. With this type the rubber disc is fully protected.

Cat. number	O162	O164	O166
Size	10	10A	10B
Each	$7.25	$9.25	$14.50

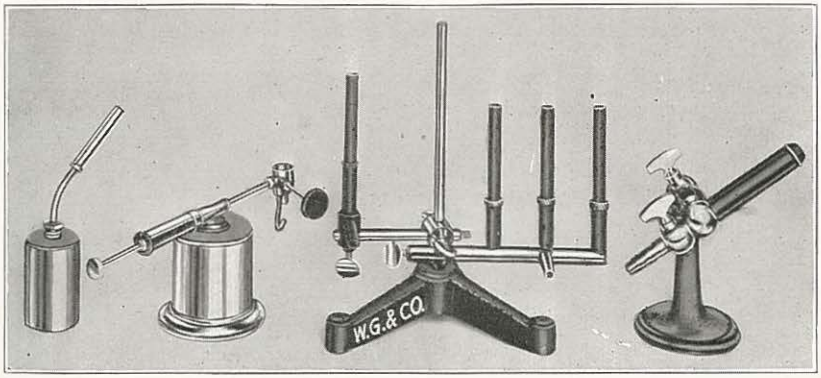
Bellow Discs. Rubber.

Cat. number	O168	O170	O172
Fit Bellows No.	9 & 10	9A & 10A	9B & 10B
Size, inches	9⅛	11½	14¼
Each	$ .75	$1.15	$1.65

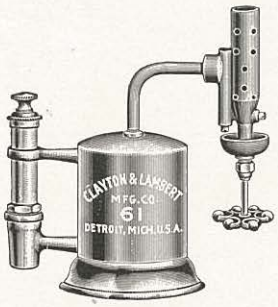
O174. Bellow Nets for same, any size. Each.....**$ .40**

O176. Blast Lamp. Alcohol, of copper, upright blast..... **2.35**

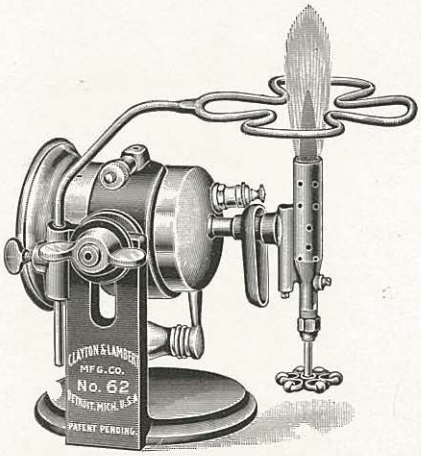
O178. Blast Lamp. Alcohol, double jet. Equivalent to a blowpipe, giving maximum heat from wood alcohol and producing a constant needle flame without the use of bellows. The nickel plated reservoir is 90 mm. diameter and 100 mm. high, capacity 500 cc. Flame can be adjusted horizontally, vertically or at an angle.....**$7.50**



O180 O182 O200 O204 O188



O184



O186

O180. Blast Lamp. Baby Gasoline Torch. The smallest torch made which gives perfect results and can be used as a hand torch. It burns equally well in all positions, is perfectly automatic, has no cocks or valves to get out of order, lights with a match, requires no pumping of air and is always ready for use. Burns about two hours with one filling.....**$1.75**

Note: This lamp can also be furnished with upright tube.

O182. Gasoline Torch. Medium size, made of brass, nickel plated. This torch is absolutely safe in its operation and produces a very hot flame, which is under the operator's control. The burner is simple in construction and may be started with a match. The torch has air pump and needle valve. Capacity of tank, ½ pint.....**$5.00**

O184. Laboratory Torch. Holds one pint of gasoline and is fitted with rigid burner which produces an intensely hot blue vertical flame, which can be regulated to a small pointed flame or a brush flame, as desired. The tank is made of heavy gauge, seamless drawn brass and is fitted with a patented automatic brass pump in the handle. The bottom is concave and contains the filler plug, which makes it convenient in filling. This torch will be found very desirable for experimental work in laboratories. It can be placed under a tripod, so that the intense heat that it produces will envelop a laboratory vessel **$6.00**

O186. Laboratory Torch Outfit. The best and most convenient laboratory apparatus of its kind made. The adjustable stand permits the flame to be pointed in any position desired. The torch itself is adjustable and is pint size. It is made of the very best material and produces a perfect blue flame of intense heat that can be easily regulated. It is strong and durable and is equipped with a patented automatic brass pump in tank. The tripod, which also is adjustable, will hold any ordinary size pan or laboratory vessel and can be swung out of the way when not in use.....**$9.00**

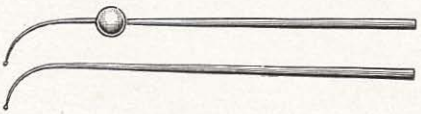
O188. Blast Lamp for Gas, Bunsens. The oldest and best gas blast, giving a powerful flame for brazing, etc.....**$3.75**

O190

O192

O190. Laboratory Blowpipe. Will be found very useful for repairing large pieces of laboratory glass apparatus which cannot be easily taken apart. Light and very convenient to use, made of brass, nickel plated **$2.40**

O192. Laboratory Blowpipe. Same as above but with regulating valves for both gas and air..... **$3.50**



O194-O196

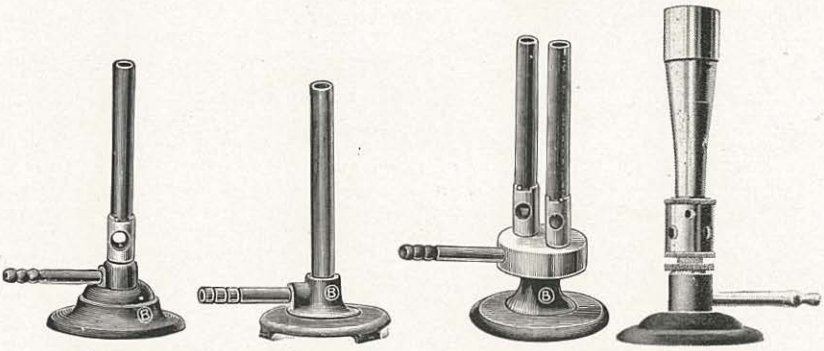
O194. Blowpipe. Brass, plain.

Length, inches	8	10
Each	$ .18	$ .25

O196. Blowpipe. Brass, with bulb.

Length, inches	8	10
Each	$ .32	$ .40

O198. Mouthpiece of wood for No. O194 and No. O196. Each..$ .10



O206 O207 O208 O216

O200. Bunsen Burner. Single burner, which can be used in connection with our laboratory supports in two ways, either to clamp on 10 mm. rod, as shown in illustration, or to have a 10 mm. rod screwed in the bottom in place of clamp screw. To clamp on 10 mm. rod.....$ .40

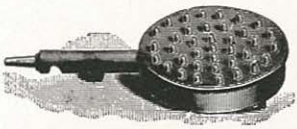
O202. Bunsen Burner. Same as O200, with rod S101..... .55

O204. Triple Bunsen Burner. Has a clamp for 13 mm. rod and can be used to heat combustion tubes, or with fan top attachment for making long radius bends in glass tubing, etc.....$1.25

O206. Bunsen Burner. With air regulator and base..... .30

O207. Bunsen Burner. Center draft. This burner requires no gas tip or air regulator and is very satisfactory for student use. Substances which accidentally drop into the tube will fall clear through to the table, making it impossible to clog up, as often occurs when using other burners....$ .25

O208. Bunsen Burner. Two tubes, with air regulators and base. **1.40**



O212

O214

O212. Burner, Fletcher's Evaporating. Made of copper.

Size, inches	4	5	6½
Each	$2.00	$2.50	$3.25

O214. Burner, Gas. A portable gas table stove with cast iron top and base, and Russia iron body. Diameter 9 inches, height 4½ inches..... **$1.25**

O216. Meeker Burners. These burners are very powerful. The temperature of the flame is nearly uniform throughout as there is a homogeneous mass of burning gas. Size No. 1 takes the place of the Bunsen Burner, No. 2 and 3 for general laboratory work and No. 4 and 5 replace the blast lamp for coal gas.

Number	1	2	3	4	5
Height of Burner, mm	115	130	155	190	250
Diam. of Flame, mm	16	20	24	30	43
Each	$1.85	$2.00	$2.50	$3.00	$5.25

O218. Meeker Burners, for gasoline gas same sizes and prices as O216.

O220. Meeker Burner for natural gas, same sizes and prices as O216.

O226

O228

O230

O232

ATTACHMENTS FOR BURNERS WITH 7/16-INCH TUBE.

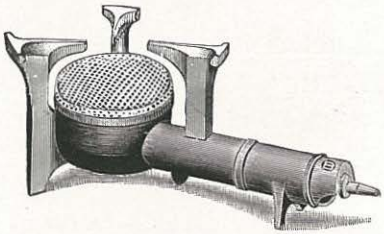
O226. Blowpipe Tube for yellow flame..... **$ .15**

O228. Blowpipe Tip, with rest for blowpipe..... **.15**

O230. Blowpipe Wing, for use in bending glass tubing..... **.15**

O232. Tripod for holding dishes..... **.20**

O236. Burner Guards, Stoneware for protecting a flame from drafts, provided with a hole for rubber tubing and inlets for air. Size 9 inches high. 8 inches diameter at base and 5 inches diameter at top..... **$ .50**



O240

O240. Burner, Solid Flame. Four inches diameter.....**$1.80**

O244. Bottles. Wide mouth, round flint glass.

Capacity, ounces	½	1	2	4	8	16	32
Per dozen	$ .30	$ .35	$ .45	$ .50	$ .60	$1.00	$1.50

O246. Bottles. Narrow mouth, round flint glass.

Capacity, ounces	½	1	2	4	8	16	32
Per dozen	$ .30	$ .35	$ .45	$ .50	$ .60	$1.00	$1.50

O248. Bottles. Wide mouth, mushroom stopper.

Capacity, ounces	1	2	4	8	16	32
Per dozen	$1.25	$1.40	$1.65	$2.15	$3.00	$3.75

O250. Bottles. Narrow mouth, glass stopper (Tinctures).

Capacity, ounces	1	2	4	8	16	32
Per dozen	$1.10	$1.20	$1.50	$2.00	$2.75	$3.50

O252. Bottles, Aspirator. With glass stopper and stopcock.

Capacity	½ gal.	1 gal.	2 gal.
Each	$4.00	$6.00	$9.00

O254. Bottles, Aspirator. Same as No. O252, tubulature at bottom but without glass stopper and stopcock.

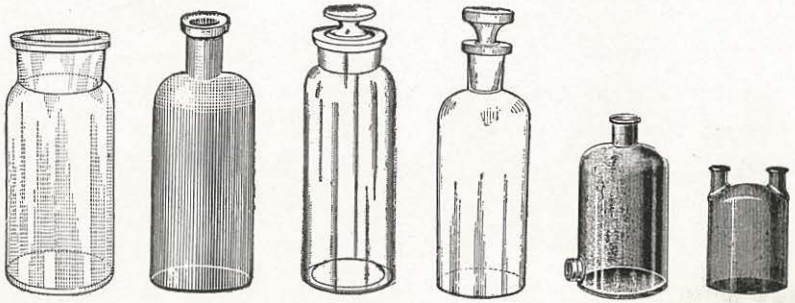
Capacity	1 pt.	1 qt.	½ gal.	1 gal.	2 gal.
Each	$ .80	$1.20	$1.60	$2.50	$4.50

O256. Bottles Woulff. Two neck.

Capacity, pints	¼	½	1	2
Each	$ .70	$ .85	$1.10	$1.40

O258. Bottles Woulff. Three neck.

Capacity, pints	¼	½	1	2
Each	$ .75	$ .90	$1.20	$1.50



O244 O246 O248 O250 O254 O256

O258

O270

O266

O268

O260. Bottles, Gas. Plain.

Capacity, pints	½	1	2
Each	$ .30	$ .40	$ .50

O262. Bottles, Gas. Fitted with rubber stopper, funnel and delivery tubes.

Capacity, pints	½	1	2
Each	$ .50	$ .75	$ .90

O264. Bottles, Gas Washing. Dreschel's, with tube ground into neck.

Capacity, cc.	125	250	500
Each	$1.00	$1.50	$2.00

O266. Bottles, Washing. With glass tubes and rubber stopper.

Capacity, cc	125	250	500	1000
Each	$ .35	$ .45	$ .55	$ .75

O268. Bottles, Washing. For ether, with glass tubes and glass stopper ground in neck.

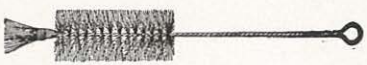
Capacity, cc.	250	500
Each	$1.50	$2.00

O270. Bottles, Specific Gravity. Accurately adjusted.

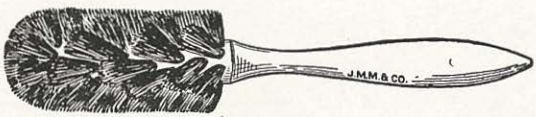
Capacity, cc.	10	25	50	100
Each	$1.00	$1.25	$1.50	$1.75

O280. Bottles, Specific Gravity. Unadjusted.

Capacity, cc	10	25	50	100
Each	$ .40	$ .50	$ .75	$ .90



O284



O288

O284.—Brushes, Test Tube. Plain end...Each..... $ .05
Per dozen ..... $ .55

O286.—Brushes, Test Tube. Sponge end. Each..... $ .10
Per dozen 1.15

O288. Brushes, Beaker. Each..... .25

O290. Brushes, Burette. Also for long tubes 36 inches long.
Each ..... $ .25

O292. Brushes. Camel hair, for cleaning scale pans, instruments, etc.

Width, inches	½	1	1½	2
Each	$ .15	$ .20	$ .25	$ .35

O296

O294. Burettes, Mohrs. With tip and connection for pinchcock.

Capacity, cc.	10	25	50	100
Graduated to cc.	1/10	1/10	1/10	1/10
Each	$ .60	$ .75	$1.00	$2.00

O296. Burettes, Mohrs. With glass stopcock.

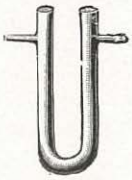
Capacity, cc.	10	25	50	100
Graduated to cc.	1/10	1/10	1/10	1/10
Each	$1.75	$2.00	$2.50	$3.00

O298. Burette Floats, Erdman's ..... $ .35

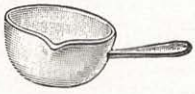
O300. Burette Floats, Erdman's. With points to prevent adherence to side of burette ..... $ .60

O302

O304



O306



O308

O302. Calcium Chloride Tube. One bulb, straight delivery tubes.

Length, inches	4	6	8
Each	$ .14	$ .18	$ .20

O304. Calcium Chloride Tube. U form, plain.

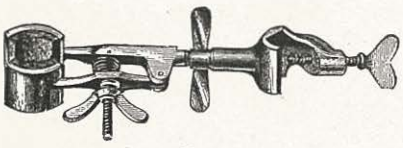
Length, inches	4	5	6	8
Each	$ .18	$ .20	$ .30	$ .40

O306. Calcium Chloride Tubes. U form, with side neck.

Length, inches	4	5	6	8
Each	$ .25	$ .35	$ .40	$ .60

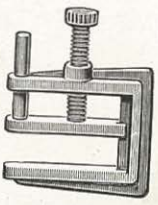
O308. Casseroles, Royal Berlin Porcelain. With lip and porcelain handle.

Number	1	2	3	4
Capacity, cc.	30	75	150	375
Diameter, mm.	50	70	85	110
Each	$ .40	$ .50	$ .60	$1.00



O310

O314



O320

O310. Burette Clamp. Universal clamp and swivel joint.....$ .35

O311. Bunsen Clamp, similar to O310 but mounted on rod 10 mm. dia., 15 cm. long.....$ .35

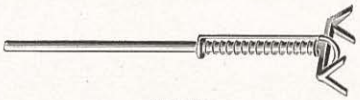
O313. Clamp Holder for fastening clamps to rod of support stands .....$ .25

O314. Hoffman Clamp. Small size ..... .15

O318. Hoffman Clamp. Large size..... .20

O320. Hoffman Clamp. Improved form; may be attached to tubing without disconnecting apparatus. Small size.....$ .20

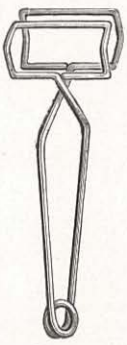
O322. Hoffman Clamp. Same as above, large size.....30



S1550

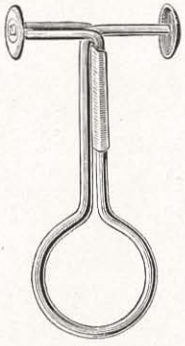
S1550. Universal Holder, Spring Clamp, Patented Feb. 4, 1913. A new and very convenient form of clamp for holding firmly and without danger of injury all kinds of apparatus, such as thermometers, burettes, telescopes and anything within the range of the clamp, which will take articles up to 4½ cm. in diameter. Made of brass, nickel plated.....$ .75

S1552. Universal Holder. Same as No. S1550 but made of iron....30



O328

O330



O334

O338

O328. Test Tube Clamp. Of spring brass wire. Stoddard's.....10

O330. Test Tube Clamp. Of hard wood with closing spring.....12

O332. Test Tube Clamp. Of hard wood, for holding flasks and large tubes .....$ .30

O334. Clamp. Mohr's pinchcock.

Size	Small	Medium	Large
Each	$ .10	$ .12	$ .15

O336. Cork Borers. Set of 3, 4 mm. to 7 mm.....$ .60

O338. Cork Borers. Set of 6, 4 mm. to 10 mm..... .95

O340. Cork Borers. Set of 9, 4 mm. to 13 mm..... 1.50

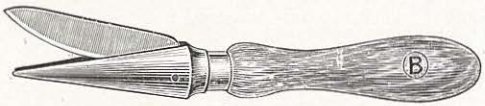
O342. Tapered Corks. Regular length, XX quality.

Number	0	1	2	3	4	5	6	7	8	9	10
Dia. at top, mm.	10	11	13	14	16	17	19	21	22	24	25
Per dozen	$ .03	$ .03	$ .04	$ .04	$ .05	$ .05	$ .06	$ .07	$ .07	$ .08	$ .10
Number	11	12	13	14	15	16	18	20	22	24	26
Dia. at top mm.	27	29	30	32	34	35	38	41	45	48	51
Per dozen	$ .10	$ .12	$ .13	$ .15	$ .18	$ .20	$ .22	$ .32	$ .40	$ .50	$ .60

O343. Tapered Corks, same as O342, No. 0 to 11 assorted, in gross packages ..... $..65

O344. Jar Corks. XX Quality.

Diam at top in mm	25	32	38	44	51	57	63	69	76
Per dozen	$ .08	$ .12	$ .15	$ .20	$ .25	$ .30	$ .45	$ .60	$ .70

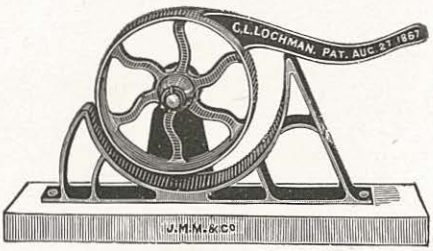


O345

O345. Cork Borer Sharpener. Steel cone with knife..... $1.50

O346. Corkscrew. Wood handle ..... $ .10

O348. Cork Knife. Steel blade, 4 inches long, wood handle..... $ .30



O350

O354

O356

O350. Cork Press. Wheel form..... $1.00

O352. Combustion Boat of porcelain.

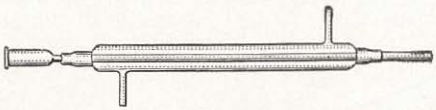
Length mm.	60	75	75	100
Width mm.	10	11	15	18
Each	$ .25	$ .25	$ .25	$ .30

O354. Combustion Tube (reduction tube) of hard glass with bulb on end, 15 cm..... $ .20

O356. Combustion Tube (reduction tube) of hard glass with bulb in center, 15 cm. long..... $ .20

O358. Combustion Tube of hard glass, open at both ends.

Length cm.	30	45
Inside diam. mm.	10	19
Each	$ .20	$ .50



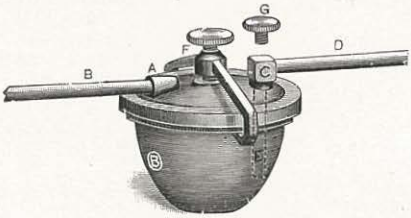
O359

O359. Condensers, Liebig's. Glass, with rubber connections.

Length of jacket, inches	12	15	20	24
Each	$1.25	$1.75	$2.00	$2.50

O360

O362



O364

O360. Crucibles. Royal Berlin Porcelain. Glazed inside and outside, with cover

Number	000	00	0	1	2	3	4	5
Capacity, cc	5	10	15	30	57	95	155	280
Diameter, mm	26	30	35	41	52	62	72	87
Height, mm	19	25	27	35	43	50	59	72
Each	$ .20	$ .22	$ .25	$ .38	$ .46	$ .60	$ .70	$ .85

O361. Crucibles, Gooch. Glazed inside and outside, with perforated bottom.

Number	2	3	4
Capacity cc	10	25	35
Diameter mm	27	35	40
Height mm	30	40	43
Each	$ .30	$ .45	$ .50

O362. Crucibles. Wrought Iron. Light, with cover.

Capacity, cc	20	50	100	200
Diameter, mm	38	53	63	79
Height, mm	32	38	51	60
Each	$ .25	$ .30	$ .35	$ .40

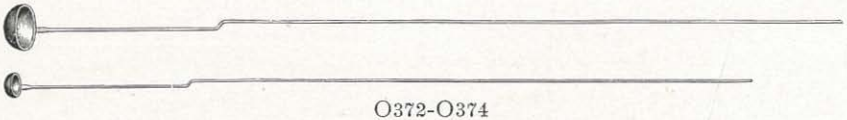
O364. Crucible. Normal School. A spun iron crucible for individual use of the laboratory student, or for general experimenting. It may be used equally well as an open crucible, a closed crucible, or a retort; and being of thin metal, is easily brought to a red heat in the flame of an ordinary burner. All parts interchangeable. Capacity, about 1½ ounce..... **$1.10**

O366

O368

O376

O380



O372-O374

O366. Crucible Tongs. Steel, double bend, 9-inch.....$ .35

O368. Cylinders (Hydrometer Jars) on foot, with flange.

Height, inches.....	8	10	12	15	15	18
Diameter, inches.....	1½	1½	2	2	3	3
Each .....$ .40	$ .50	$ .60	$ .75	$1.00	$1.50

O370. Cylinders (Hydrometer Jars) on foot, with lip, same sizes and prices as above.

O372. Deflagrating Spoon. Iron bowl, ½-inch diam.....$ .10

O374. Deflagrating Spoon. Brass bowl, ½-inch diam.....$ .12

O376. Dessicator, Scheibler's, of Bohemian glass, cover ground, air tight.

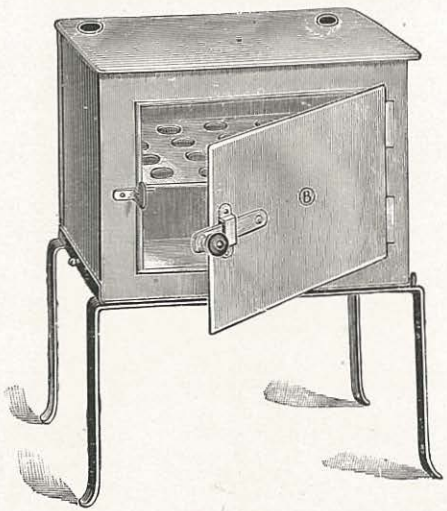
Diam. inside, inches.....	4	5	6
Each $1.50	$1.75	$2.00

O380. Dishes, Evaporating, of porcelain, with lip. Smaller sizes are entirely glazed; larger sizes are glazed inside, but only partly outside.

Number	000	00	0	1	2	3	4	5
Diam. outside, cm.....	6	7	8	8½	9	10	11	12
Capacity, cc.....	35	60	80	100	140	175	210	300
Each .....$ .15	$ .22	$ .25	$ .30	$ .35	$ .40	$ .45	$ .60

O384. Dishes, Lead.

Diameter, inches.....	2	3	4
Each .....$ .10	$ .15	$ .20



O390-O392

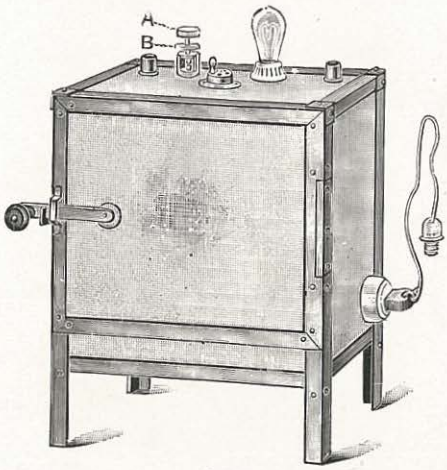
Drying Ovens, heavy planished copper, with tubulation for thermometer and gas regulator, mounted on separate iron support, provided with false bottoms of sheet iron to protect the copper.

O386. Drying Oven. Single wall, outside measurement 6x8 in....**$5.00**

O388. Drying Oven. Single wall, outside measurement 8x10 in..**$7.00**

O390. Drying oven. Double wall, outside measurement 6x8 in....**$6.75**

O392. Drying Oven. Double wall, outside measurement 8x10 in..**$10.00**



O393

O393. Electric Hot Air Oven, with automatic control, constructed of asbestos board, with heavy brass binding. The regulation is positive and the control within one degree. The range at which the oven can be used is from 50 degrees to 200 degrees celcius. Consumption is 5 amperes, furnished for 110 volts, either direct or alternating current. Sizes 10x10x12 inches, with cord and plug.....**$32.00**

O396

O394. Eudiometer, Bunsens, with platinum electrodes, graduated in 1/5 cc.

Capacity, cc.	50	100
Each	**$2.50**	**$3.50**

O396. Eudiometer, Bunsens, with platinum electrodes, graduated in mm.

Length of grad., mm	300	500
Each	**$2.50**	**$3.50**

O397. Filter Tubes to fit Gooch's Crucibles.

Diam. at top, mm	25	30	35
Each	**$ .35**	**$ .40**	**$ .50**

O398. Filter Paper, for qualitative work, cut in round filters, 100 in a package.

Diameter, inches	3	4	5	6	8	10
Per package	$ .12	$ .15	$ .20	$ .25	$ .35	$ .55

O399. Filter Paper. Same as No. O398, in sheets 19x19 inches.

Per quire ..... $ .60
Per ream $8.00

O400

O402

O406

O412

O400. Filter Berkefeld. Designed to be attached to any ¾-inch bibb faucet. Filter cylinder is of infusorial earth and may be easily cleaned with a sponge. All metal parts are nickel plated. Outside filter cylinder is 163 mm. long and 68 mm. diameter $10.00

O400A. Extra Cylinder, for Berkefeld Filter $2.00

O402. Flasks. Good glass, flat bottom.

Capacity, ounces	2	4	6	8	12	16	32
Each	$ .15	$ .18	$ .20	$ .22	$ .28	$ .32	$ .44

O404. Flasks, Same as O402, round bottom.

Capacity, ounces	2	4	6	8	12	16	32
Each	$ .15	$ .18	$ .20	$ .22	$ .28	$ .32	$.44

O406. Flasks. Erlenmeyer's good glass.

Capacity, ounces	2	4	8	16	32
Each	$ .15	$ .18	$ .22	$ .32	$ .44

O408. Flasks. Fractional Distillation, good glass, with side neck.

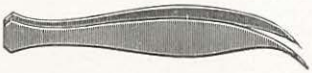
Capacity, ounces	4	8	16
Each	$ .30	$ .45	$ .60

O410. Volumetric, Litre Flasks. Volume fixed with one mark on the neck, very accurate.

Capacity, cc	50	100	250	500	1,000
Each	$ .75	$ .85	$1.00	$1.25	$1.50

O412. Flasks, Volumetric. Same as O410, with ground glass stopper.

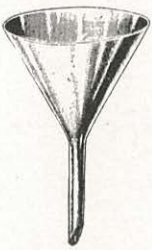
Capacity, cc	50	100	250	500	1,000
Each	$1.00	$1.40	$1.60	$1.75	$2.00



O414

O416

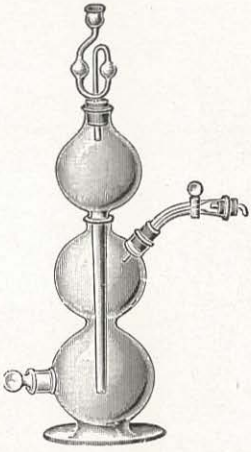
O414. Forceps. Brass, plain curved for handling weights ..... $ .25
O416. Forceps. Brass, ivory tipped $1.50
O418. Forceps. Steel, heavy, for general laboratory use, 6 inches long ..... $ .20



O420

O424

O428



O434

O436

O420. Funnels, Glass. Stem ground to a point.

Diam., inches	2	2½	3	3½	4	5	6
Each	$ .30	$ .35	$ .40	$ .45	$ .50	$ .75	$ .90

O424. Funnel Tube. Thistle top, straight tube.....$ .12

O426. Funnel Tube. Thistle top, one bulb.....$ .25

O428. Funnel, Separatory. Globe shape with glass stopcock, stopper and long tube.

Capacity, cc	50	100	250
Each	$2.00	$2.40	$3.00

O430. Gas Bags. Pure rubber oval form.

Capacity	1 gal.	2 gal.	3 gal.
Each	$2.00	$2.50	$3.00

O432. Gas Stopcocks, for O430.....$1.00

O434. Gas Generator. Kipps Apparatus.

Capacity	Pint.	Quart.
Each	$7.00	$8.75

O436. Gasometer Tubes, graduated to 1/5 cc.

Capacity, cc	25	50
Each	$1.00	$1.35

O438. Gauze, Iron Wire, to put under dishes, etc.

Size, inches	4x4	5x5	6x6
Each	$ .05	$ .07	$ .08

O439. Gauze, Asbestos Center, iron wire.

Size, inches	4x4	5x5	5x6
Each	$ .12	$ .16	$ .20

O440. Gauze, Brass Wire, to put under dishes, etc.

Size, inches	4x4	5x5	6x6
Each	$ .10	$ .15	$ .18

O442. Glass Rod. Best German glass, free from lead, in 5 ft. lengths, ⅛ to ½ inch. Per lb.....$ .50

O444. Glass Rods. Stirring Rods.

Size, inches	5x⅛	6x¼	8x¼
Per dozen	$ .20	$ .25	$ .35

O446. Glass Tubing. German soft glass, in five-foot lengths, size ⅛ to 1 inch. Per lb.....$ .50

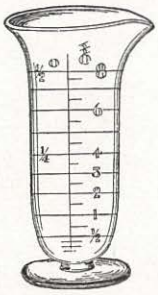
O448. Glass Tubing. Sizes 1 to 2 inches. Per lb.....$ .75

O450. Glass Tubing, Barometer. 3 to 5 mm., bore, 7 to 10 mm. outside diam. Per lb.....$ .80

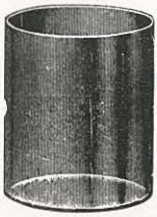
O452. Glass Tubing (Capillary), in 5-foot length, 5 to 7 mm., outside diam., ¼, ½, ¾, 1, 1¼, 1½, 1¾ mm. bore. Per lb.....**$ .80**

O454. Glass Wool. Per ounce.....**$ .50**

O456



O458



O462

O456. Graduates, Cylindrical. Double graduation so that the divisions may be read up or down.

Capacity, cc.....	25	50	100	200	250	500	1,000
Each .....**$**	**.80**	**$1.00**	**$1.25**	**$1.50**	**$1.75**	**$2.00**	**$3.00**

O458. Graduates. Glass cone shape, metric measure.

Capacity, cc.	100	200	250
Each .....**$**	**.45**	**$ .65**	**$ .75**

O460. Graduates. Glass, cone shape, metric and English measure, double graduation.

Capacity, ounces.....	3	6	8	16
Capacity, cc.....	100	200	250	500
Each .....**$**	**.60**	**$ .75**	**$ .90**	**$1.25**

O462. Jars, Battery, 4x5 inches, quart.....**$ .25**

O464. Jars, Battery, 5x7 inches, ½ gal.....**$ .35**

O466. Jars, Battery, 6x8 inches, 1 gal.....**$ .40**

O468. Jars, Battery, 7x9 inches, 2 gal.....**$1.25**

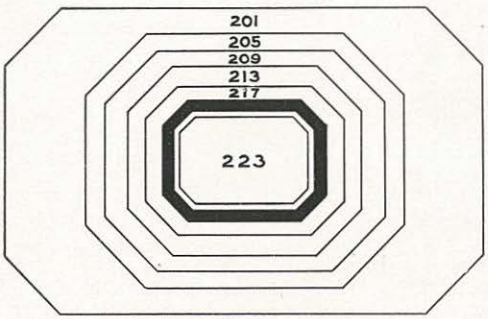
O470. Jars, Lightning Sealing, for storage of chemicals, etc.

Capacity	Pint.	Quart.
Per dozen.....**$**	**1.35**	**$1.50**

O472. Labels (Dennisons), with red border, rectangular shape, sizes No. 201 to 223. Per box.....**$ .10**

Note: We carry a full line of labels larger than those listed above. Prices in proportion.

O474. Chemical Label Book.....**$ .50**



O472

O475

O480

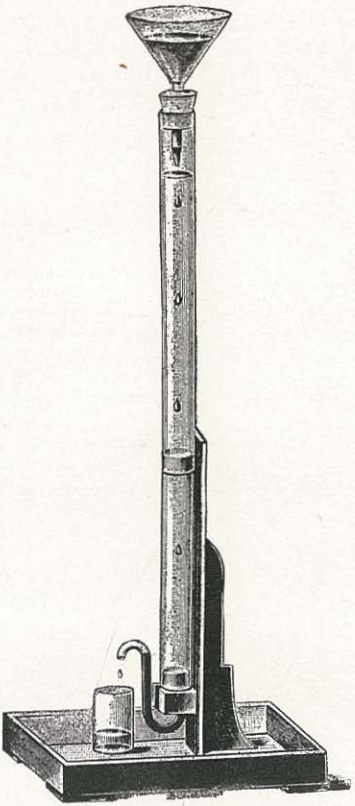
O475. Lamps, Alcohol. Glass, with ground cap, wick and wick holder.

Size, ounces	4	8
Each	$ .30	$ .40

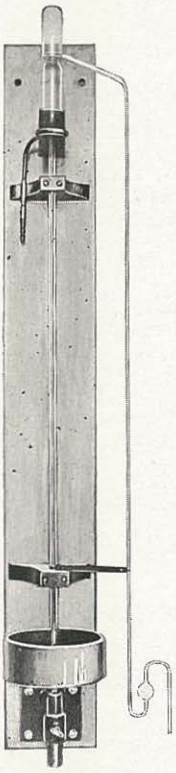
O478. Lamp Wicks. For alcohol lamps. Per dozen..... $ .15

O480. Lamps, Alcohol. Brass, with cap, wick and wick lift.

Size, ounces	2	4
Each	$ .50	$ .60



O482



O483

O482. Mercury Cleaning Apparatus, according to Ostwald, completely mounted, as shown in illustration.....**$7.50**

O483. Mercury Distilling Apparatus. (Ames and Bliss.) This apparatus is substantially constructed, mounted on iron frame, intended to fasten against the wall.....**$18.00**

O484. Microscopic Slides, ground edges, 3x1 inch.

Per dozen.....**$ .15**
Per gross.....**$1.25**

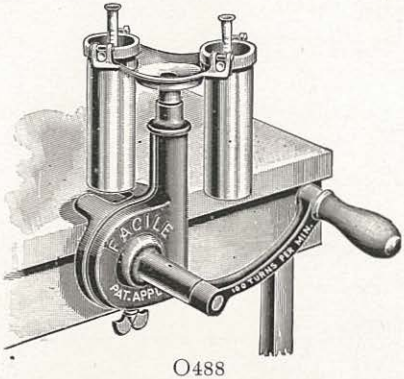
O485. Microscopic Slides, same as O484, with concave center. Per dozen.....**$ .75**

O486. Microscopic Cover Glasses, round, medium thickness.

Size, mm.....	15	18	22
Per ounce.....	**$1.50**	**$1.50**	**$1.50**

O487. Microscopic Cover Glasses, square, medium thickness.

Size, mm.....	15	18	22
Per ounce.....	**$1.50**	**$1.50**	**$1.50**



O488

O488. Babcock Milk Tester. For hand power, can be clamped to any bench or table. The head may be rotated at all speeds, without danger of its coming off. The pockets for holding test bottles are made of heavy gauge brass. Complete set of glassware consisting of milk test bottles, pipette, acid measure, brush, bottle of acid and full directions for use. Two bottle machine, complete as above.....**$6.00**

O489. Babcock Milk Tester. Four bottle machine, complete with bottles, etc.....**$7.50**

O490. Milk Tester Bottle. 10 per cent, graduated to 1/5 per cent..**$ .25**

O492. Cream Test Bottle. 30 per cent, graduated to ½ per cent..**$ .30**

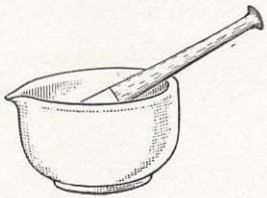
O494. Cream Test Bottle. 56 per cent, graduated to 1 per cent..**$ .25**

O496. Pipette, for Milk, 17.6 cc.....**$ .20**

O498. Pipette, for Cream, 18 cc.....**$ .20**

O500. Lactometer. Graduated 0° to 120° in 2° divisions.....**$ .60**

O502. Lactometer. Quevenne's. Combined lactometer with thermometer.....**$2.25**



O506

O507

O504. Mortars. Iron, heavy, with pestle.

Capacity, pints	1	2	4
Each	$ .75	$1.25	$1.75

O506. Mortars, Porcelain. Shallow, with pestle.

Number	6	5	4	3	2	1
Diam., inches	2½	3	4	5	6	6½
Each	$ .35	$ .45	$ .55	$ .90	$1.20	$1.30

O507. Mortars. Glass, with pestle.

Capacity, ounces	2	4	8	16
Each	$ .30	$ .40	$ .50	$ .70

O508. Paper, Litmus Blue. Per sheet, 8x10 inches..... $ .05

O510. Paper, Litmus Blue. Per quire, 8x10 inches..... $ .85

O512. Paper, Litmus Blue. Per book of 25 strips..... $ .10

O514. Paper, Litmus Blue. Per vial of 100 strips..... $ .20

O516. Paper, Litmus Red. Per sheet, 8x10 inches..... $ .05

O518. Paper, Litmus Red. Per quire, 8x10 inches..... $ .85

O520. Paper, Litmus Red. Per book of 25 strips..... $ .10

O522. Paper, Litmus Red. Per vial of 100 strips..... $ .20

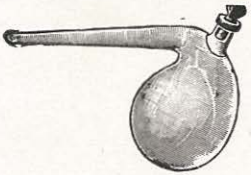
O524. Paper, Parchment Vegetable. Per sheet..... $ .15

O526. Paper, Parchment Vegetable, Genuine Animal Product. Per sheet, 17x22 inches..... $1.50

O528. Pencil, blue, for writing on glass..... $.20

O530

O532



O542

O534

O530. Pipettes, Medicine Droppers. Per dozen..... $ .35

O532. Pipettes, Volumetric, accurately graduated.

Capacity, cc	1	5	10	15	25	50
Each	$ .15	$ .20	$ .20	$ .25	$ .35	$ .45

O534. Pipettes. Mohr's, accurately graduated in 1/10 cc.

Capacity, cc	1	2	5	10	20	25
Each	$ .40	$ .50	$ .55	$ .60	$ .70	$1.00

O536. Plates. Glass, of blue cobalt glass.

Size, inches	2x2	2x3	3x3	4x4
Each	$ .06	$ .08	$ .10	$ .12

O538. Platinumware. At market prices.

O542. Retorts, with glass stopper.

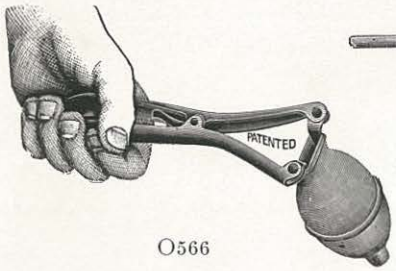
Capacity, ounces	4	8	16	32
Each	$1.00	$1.25	$1.50	$1.25

O544. Retort. Iron, for distilling mercury, etc., cover fastened by screw clamp, delivery tube reaching through cover.

Capacity, pints	½	1	2	4
Each	$2.50	$2.75	$3.00	$4.00

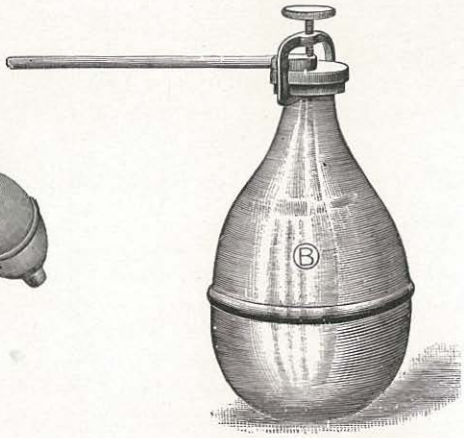
O546. Retort. Copper, with iron clamp and delivery tube.

Capacity, pints	½	1	2
Each	$2.50	$2.75	$3.50



O566

O568



O546

O548. Rubber Stoppers. Best quality. Length 25 mm. Solid, one hole or two holes. Per pound.....**$1.60**

Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Diam. at small end, in mm	12	15	17	18	20	23	26	30	33	37	42	50	59
Number per lb. One hole	90	65	60	45	35	30	21	16	13	11	8	6	5

O550. Rubber Tubing, White. Good quality, light wall.

Inside diam., inches	1/8	3/16	1/4	5/16	3/8	1/2
Per foot	$ .05	$ .06	$ .09	$ .10	$ .12	$ .20

O552. Rubber Tubing, White. Good quality, heavy wall.

Inside diam., inches	3/16	1/4	5/16	3/8	1/2
Per foot	$ .12	$ .14	$ .16	$ .20	$ .30

O554. Rubber Tubing, Red. Antimony, medium wall.

Inside diam., inches	1/8	3/16	1/4	5/16	3/8	1/2
Per foot	$ .05	$ .08	$ .12	$ .16	$ .20	$ .27

O556. Rubber Tubing, Black. Pure gum, medium wall.

Inside diam., inches	1/8	3/16	1/4	5/16	3/8	1/2
Per foot	$ .05	$ .09	$ .12	$ .16	$ .20	$ .30

O558. Rubber Tubing. Cloth insertion, pressure for air pumps, etc.

Inside diam., inches	3/16	1/4	5/16	3/8	1/2
Per foot	$ .09	$ .11	$ .15	$ .18	$ .22

O559. Rubber Tubing, pure gum band, for Gooch's crucibles.

Diam., inches	1	1¼	1½
Per foot	$ .25	$ .30	$ .40

O560. Rubber Tubing, White. Silk covered, which makes it a great deal stronger and also gives it a neat appearance when used for making up apparatus, etc., ¼ inch, inside diameter. Per foot.....**$ .20**

O562. Tubing, Flexible Steel. For connecting gas to Bunsen Burners, etc. It is gas tight and will not kink. 5/16 inch diam. Per foot.....**$ .10**

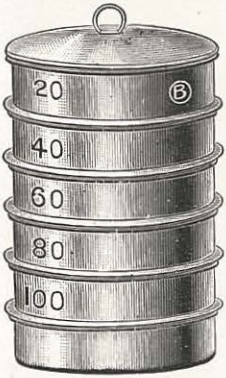
O564. Rubber Ends. For above, special heavy. Each.....**$ .05**

O566. Rubber Tube and Bulb Expander.....**$ .75**

O568. Sand Baths. Shallow form.

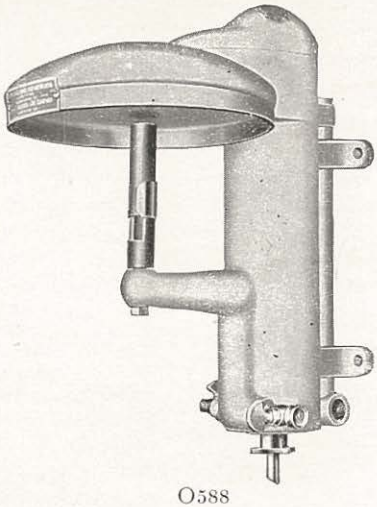
Diam., inches	3	4	5	6
Each	$ .08	$ .10	$ .12	$ .15

O569. Stencil. A flexible celluloid plate having cutouts of various articles, such as Beakers, Flasks, Funnels, etc., for making drawings in students' notebooks.....**$ .15**



O572

O587



O588

O570. Sieves. Brass gauze, seamless brass frames, with pan bottom. 5 inches, diameter.

Mesh	10	20	40	60	80	100
Each	**$1.75**	**$1.90**	**$2.00**	**$2.15**	**$2.30**	**$2.50**

O575. Sieves, same as O574 in nests of five with brass cover and bottom, set consists of 20, 40, 60, 80 and 100 mesh. Per set.....**$9.50**

O573. Covers. Only for sieves 5 in. Each.....**$ .75**

O574. Sieves, for preparing soils for analysis. Seamless brass frame, 5 inch diameter, having brass bottom with circular perforations.

Dia. of Perforations mm	½	1	2	3	5
Each	**$1.50**	**$1.40**	**$1.30**	**$1.30**	**$1.20**

O575. Sieves, same as O574 in nests of five with brass cover and bottom **$8.20**

O578. Spatula. Horn double end.

Length, inches	4	6
Each	**$ .12**	**$ .15**

O579

O579. Spatula, Steel wooden handle.

Length of blade, inches	4	5	6	8
Each	**$ .45**	**$ .55**	**$ .70**	**$1.10**

O580. Spoon. Glass teaspoon .....**$ .18**

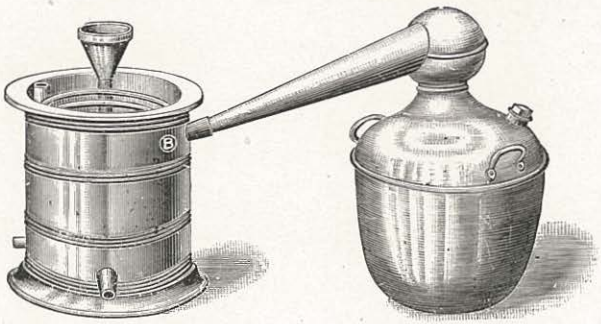
O585. Spoon. Sodium of brass gauze wood handle..... **.30**

O586. Stirring Apparatus. For use with calorimeters, or stirring solutions. Three small stirring blades 1.5 cm. diameter are mounted on a steel shaft, which extends 15 cm. over the bearing. Fork and pulley of brass. Support rod S115 ..... **$2.25**

O587. Stirring Apparatus. Motor driven. Similar to O586, but directly connected to a small battery motor. One dry cell is sufficient to run it. With support rod S115..... **$5.00**

O588. Still Peerless Automatic Water Still. This still is of simple and efficient design and is well adapted for laboratory use. In operation it is automatic and will produce distilled water at an expense for gas not to exceed two cents per gallon. Its parts are readily accessible for cleansing, the boiling vessel is of cast iron and condensing tube of heavy tinned copper. Finished in aluminum and lacquered brass. Capacity 2 to 4 quarts per hour **$20.00**

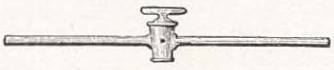
O589. Still Peerless Automatic Water Still. Capacity 4 to 6 quarts per hour **$25.00**



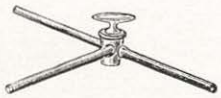
O590

O590. Still. Copper retort, tin lined with movable head, connected with pure block in condensing worm, enclosed in zinc vessel with proper inlets and outlets.

Capacity, gallons	½	1	2
Each, complete	**$14.00**	**$15.50**	**$18.50**



O591

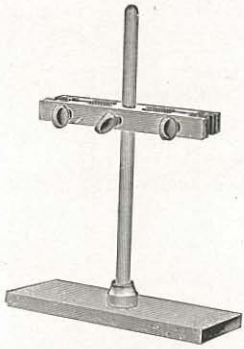


O592

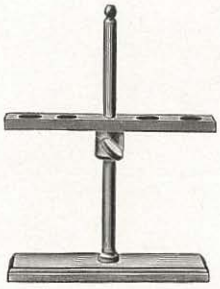
O591. Stopcocks. Glass, straight.

Bore, mm.	2	3	4
Each	**$1.00**	**$1.20**	**$1.45**

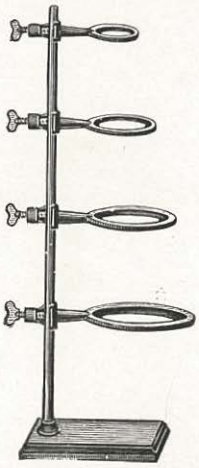
O592. Stopcock. Glass, three way, 2 mm. bore..... **$2.00**



O593



O594



O596

O593. Support Burette. Of hard wood, cork lined for two burettes **$1.25**

O594. Support Funnel. Of hard wood, for holding four funnels.. **.85**

O595. Supports, rectangular iron base 6¾ inches by 4 inches with rod 18 inches long ..... **$ .50**

O595A. Supports, similar to O595 but with base 8 inches by 5 inches and rod 20 inches long..... **$ .75**

O595B. Supports, similar to O595 but with base 9 inches by 6 inches and rod 24 inches long ..... **$ .90**

O596. Supports (Retort Stand) same as O595 but with one each 3 and 4 inch ring ..... **$ .85**

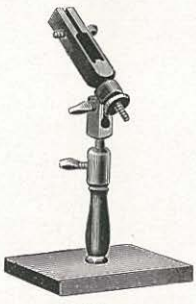
O596A. Supports (Retort Stands) same as O595A but with one each 3, 4 and 5 inch ring **$1.35**

O596B. Supports (Retort Stands) same as O595B but with one each 3, 4, 5 and 7 inch ring..... **$1.80**

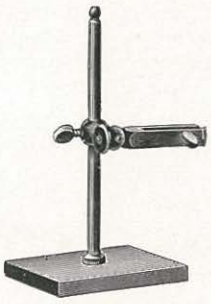
O599. Rings only, for attaching to ring stand, complete with clamps.

Diameter, inches	2½	3	4	5	7
Each	$ .15	$ .18	$ .20	$ .25	$ .30

O599



O602



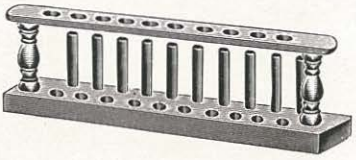
O604

O605

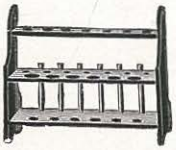
O602. Support, Schellbach's hardwood. Clamp cork lined, universal movement for holding tubes, etc.....**$1.75**

O604. Support, Hardwood. Improved form of Gay-Lussac's, with cork lined clamp, which is movable in three ways.....**$1.50**

O605. Support Pipette, of hardwood, made to revolve and will hold 12 pipettes **$3.00**



O608



O610

O606. Support, Test Tube. For 6 tubes with drying pins.....**$ .30**

O608. Support, Test Tube. For 10 tubes with drying pins..... **.35**

O610. Support, Test Tube. For 13 tubes with drying pins..... **.45**

O612. Support, Test Tube. For 25 tubes with drying pins..... **.75**

O613. Support Test Tube, made of steel wire. Will hold 40 tubes, size 9½ inches long, 4½ inches wide and 3½ inches high.....**$ .50**

O614

O618

O620

O622

O614. Test Tubes. German glass, lead free.

Size, inches	3x⅜	4x½	5x⅝	6x¾	7x⅞	8x1
Per dozen	$ .20	$ .25	$ .30	$ .35	$ .50	$ .60
Per gross	2.00	2.25	2.75	3.00	5.40	6.00

O616. Test Tubes. Same as above, assorted 3 to 7 inches. Per dozen .....**$ .35**

O618. Test Tubes. Graduated in cubic centimeters.

Capacity	10 cc. in 1/10 cc.	25 cc. in ½ cc.
Each	$ .50	$ .75

O620. Test Tubes, on foot.

Length, inches	4	6	8
Per dozen	$ .75	$1.50	$2.25

O622. Test Tubes, side neck.

Length, inches	5	6	8
Per dozen	$1.00	$1.25	$1.50

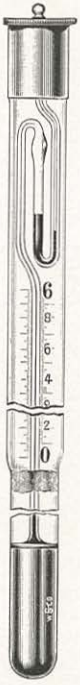
O624. Test Tubes (Ignition Tubes) of hard glass.

Length, inches	4	5	6
Per dozen	$ .50	$ .60	$ .70

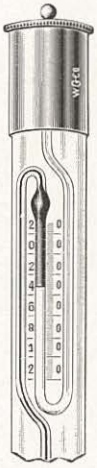
THERMOMETERS

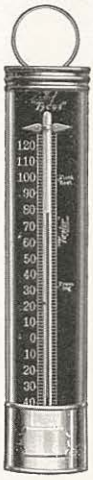
The thermometers listed below are furnished with an expansion chamber which tends to prevent breakage in case of over heating and makes same less liable to damage in the hands of the student. Any of the thermometers can be furnished with certificate of the Bureau of Standards.

T1843



T1865





T1875

T1880

T1843. Thermometer, Centigrade scale, —5 to +100°, engraved on stem in single degrees. Length about 300 mm. diameter 6 mm.....**$1.00**

T1844. Thermometer, Centigrade Scale, —5° to +150°, engraved on stem in single degrees. Length about 300 mm., diameter 6mm.....**$1.25**

T1845. Thermometer, Centigrade Scale, —50 to +200°, engraved on stem in single degrees. Length about 350 mm., diameter 6mm.....**$1.50**

T1846. Thermometer, Centigrade Scale, —5° to +360°, engraved on stem in single degrees. Length about 400 mm., diameter 6 mm.....**$1.75**

T1847. Thermometer, Centigrade Scale, 0 to +400°, engraved on stem in single degrees, filled with nitrogen. Length about 400 mm., diameter 6 mm.....**$2.00**

T1853. Thermometer, Centigrade Scale, —5° to +100° engraved on stem in ½ degrees. Length about 350 mm., diameter 6 mm.....**$5.00**

T1855. Thermometer, Centigrade Scale, —5° to +55°, engraved on stem in 1/5th degrees. Length about 330 mm., diameter 6 mm.....**$5.00**

T1858. Thermometer, Centigrade Scale, —5° to +100° engraved on stem in 1/10th degrees. Length about 600 mm., diameter 6mm.....**$5.50**

The following thermometers T1860, T1862, T1864 and T1865 are high-grade and especially suited for Calorimetric work.

T1860. Thermometer, Centigrade Scale, —2° to +25°, engraved on stem in 1/10th degrees. Length about 350 mm., diameter 6 mm. The divisions begin about four inches from lower end of mercury bulb, thus leaving ample space for immersion.....**$5.50**

T1862. Thermometer, Centigrade Scale, —10° to +50°, engraved on stem in 1/10th degrees. Length about 450 mm., diameter 6 mm.....**$12.00**

T1864. Thermometer, Centigrade Scale, +15° to +40°, engraved on stem, in 1/20th degrees. Length about 350 mm., diameter 6mm., with plain ungraduated space for immersion **$6.00**

T1866. Thermometer, Fahrenheit Scale, +20° to +120°, engraved on stem in 1/10th degrees. Length about 500 mm., diameter 6 mm.....**$10.00**

BECKMANN THERMOMETERS

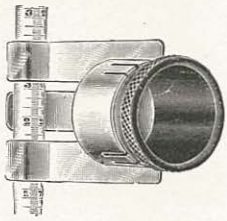
For precise measurement of the small changes of temperature in calorimeters, thermometers of the type devised by Beckmann are recommended. The several thermometers of this type give differential readings over ranges of about 6° or 12° in any desired part of the scale between the freezing and boiling points and are graduated in 1/100 or 1/50 of a degree. These thermometers have an auxiliary scale at the top of the tube which makes it easy to set the thermometer to the range desired and enables one to adjust it for use near the freezing point without the necessity of cooling the bulb in ice. Although these thermometers may be used at any temperatures between the freezing and boiling points of water, it is well in ordering to state at about what temperatures the thermometers will customarily be used, so that they may be tested within the range.

T1865. Beckmann Thermometer, covering a range of 5° to 6° and graduated to 1/100th degree with auxiliary scale.....**$25.00**

T1870. Beckmann Thermometer, covering a range of 10° to 12° and graduated to 1/50th degree with auxiliary scale.....**$25.00**

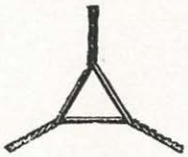
T1875. House Thermometer, Standard grade, Fahrenheit Scale, range 10° to 40° below zero to about 120° above. Black oxidized metal scale, mounted in japanned tin case, length 250 mm.....**$ .75**

T1880. Soil Thermometer, range 30° to 180° Fahrenheit with oxidized brass scale set in mahogany frame, 400 mm. long with strong pointed metal end **$2.50**

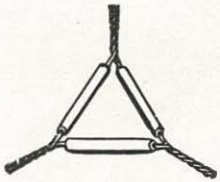


T1885

T1885. Thermometer Reading Device, consists of a magnifying lens of suitable power and large field mounted in an adjustable frame, made of German silver **$1.80**



O626



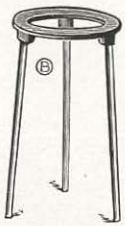
O628

O626. Triangles. Made of nichrome wire, melting point above 3000° F., cost a great deal less than platinum and have greater permanency.

Number	1	2	3	4
Length of side, inches	1½	2	2½	3
Each	$ .40	$ .50	$ .75	$1.00

O628. Triangles. Iron wire covered with pipe stems.

Number	1	2	3	4
Length of side, inches	1½	2	2½	3
Per dozen	$ .75	$ .75	$ .75	$ .75

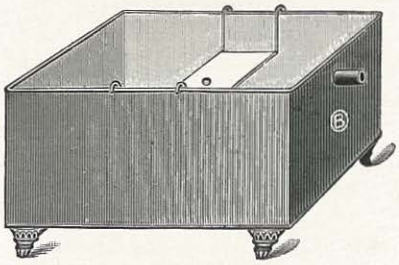


O630

O630. Tripods. Iron japanned, plain without rings.

Diam., inches	5	6	8	10
Each	$ .30	$ .40	$ .50	$ .65

O632. Tripods. Small low form for spirit lamps.....$ .30



O634

O634. Troughs. Pneumatic of japanned tin with sliding shelf and overflow. Students' size 4½x6½x10 inches.....$ .75

O636

O640

O642

O636. Troughs, Mercury. Reg. shape holding 4 kilos.....**$1.50**

O638. Tubes. Connecting U shape of glass.

Size, inches	¼	⅜	½
Each	**$ .10**	**$ .15**	**$ .20**

O640. Tubes. Connecting Y shape of glass.

Size, inches	¼	⅜	½
Each	**$ .10**	**$ .15**	**$ .20**

O642. Tubes. Connecting T shape of glass.

Size, inches	¼	⅜	½
Each	**$ .10**	**$ .15**	**$ .20**

O644. Tube. Connecting Y shape of lead, ¼ inch outside diameter.
Each .....**$ .20**

O645. Watch Glasses well annealed and ground edges.

Dia, inches	1½	2	2½	3	3½	4	5	6
Per dozen	**$ .45**	**$ .50**	**$ .55**	**$ .60**	**$ .75**	**$1.00**	**$1.50**	**$2.50**

O646

O646. Water Bath. Polished copper, tin lined concentric copper rings and cover, handles and steam escape.

Size, inches	4	5	6	8
Number of rings	3	4	5	6
Each	**$1.25**	**$1.50**	**$1.75**	**$2.50**

O647. Water Bath. Polished copper, same as O646, with constant water level.

Size, inches	4	5	6	8
Number of rings	3	4	5	6
Each	**$2.00**	**$2.25**	**$2.50**	**$3.25**

RAW MATERIAL

O648. Aluminum Wire, Bare.

B & S gauge No..	14	16	18	20	22	24	26	28	30
Per 4 oz. spool..						$ .70	$1.00	$1.15	$1.45
Per 1 lb. spool..	$ .75	$ .75	$ .90	$ .90	$1.10	$2.10			

O650. Annunciator Wire. Copper, double cotton covered and paraffined.

B and S gauge No.	16	18	20	22
Feet per pound	106	157	230	350
Per pound	$ .45	$ .50	$ .55	$ .60

O652. Brass Spring Wire, on 4 oz. spools.

Stubbs' Ga No.	16	18	20	22	24	26	28	30	32	34	36
4 oz.	.18	$ .18	$ .18	$ .20	$ .25	$ .27	$ .30	$ .30	$ .36	$ .50	$ .80

O654. Copper Wire, Bare.

B & S Ga	14	16	18	20	22	24	26	27	28	30	32	34	36	40
1 oz.	...	...	...	...	...	...	$ .10	$ .10	$ .11	$ .11	$ .11	$ .12	$ .13	$ .22
4 oz.	...	...	...	...	...	...	.18	.18	.18	.18	.21	.22	.24	.40
8 oz.	...	...	...	...	...	...	.31	.33	.35	.37	.38	.39	.42	...
1 lb.	$ .50	$ .50	$ .50	$ .51	$ .52	$ .55	.58	.60	.60	.63	.65	.70	.75	...

O655. Copper Wire, Double Cotton Covered.

B & S Ga.	14	16	18	20	22	24	26	27	28	30	32	34	36	40
1 oz.	...	...	...	...	...	...	$ .15	$ .16	$ .18	$ .22	$ .26	$ .30	$ .45	$1.28
4 oz.	...	...	$ .18	$ .20	$ .23	$ .25	.30	.33	.33	.36	.45	.60	.95	2.75
8 oz.	...	...	.30	.32	.38	.40	.50	.50	.60	.70	.80	1.10	1.50	...
1 lb.	$ .56	$ .56	.56	.60	.70	.80	.90	1.00	1.10	1.30	1.50	2.00	2.70	...

O656. Copper Wire, Double Silk Covered.

B & S Ga	16	18	20	22	24	26	27	28	30	32	34	36	40
1 oz.	...	...	...	...	...	$ .25	$ .30	$ .30	$ .38	$ .50	$ .70	$ .90	$1.75
4 oz.	...	...	$ .35	$ .37	$ .40	.50	.68	.75	.80	1.00	1.45	1.80	3.50
8 oz.	...	$ .54	.56	.60	.70	.80	.85	.95	1.25	1.65	2.25	2.95	...
1 lb.	$ .90	.95	1.00	1.10	1.25	1.50	1.60	1.95	2.25	3.10	4.20	5.40	...

O657. Copper Wire, Enameled. The insulating film on enameled wire is a hard, tough and elastic coating. This wire may be used freely in place of silk or cotton covered wire, in all round coils or layer windings, requires less space and has more feet to the pound.

B. & S. gauge	26	28	30	32	36	38	40
1 oz.	$ .27	$ .32	$ .38	$ .50	$ .90	$1.50	$1.80
4 oz.	.40	.50	.60	.80	1.25	....	....
8 oz.	.60	.70	.80	1.08	1.50	....	....
1 lb.	1.10	1.25	1.50	1.90	2.60	....	....

O658. German Silver Resistance Wire, 18 Per Cent Alloy, Bare.

B & S Gauge	14	16	18	20	22	24	26	27	28	30	32	34	36
1 oz.	...	...	...	...	...	...	$ .20	$ .20	$ .20	$ .24	$ .27	$ .32	$ .40
4 oz.	...	...	...	$ .32	$ .34	$ .38	.39	.40	.42	.44	.53	.63	.75
8 oz.	...	...	$ .54	.56	.57	.62	.64	.66	.68	.71	.88	1.00	1.25
1 lb.	...	$ .92	.97	.99	1.03	1.09	1.16	1.18	1.21	1.30	1.60	1.88	2.25

O659. German Silver Wire, Double Cotton Covered.

B & S Gauge	16	18	20	22	24	26	27	28	30	32	34	36
1 oz.	...	...	...	...	...	$ .35	$ .38	$ .40	$ .45	$ .50	$ .60	$ .90
4 oz.	...	...	$ .47	$ .50	$ .58	.66	.71	.75	.83	1.00	1.19	1.70
8 oz.	...	$ .72	.78	.83	.95	1.09	1.17	1.24	1.38	1.65	2.00	2.86
1 lb.	$1.28	1.31	1.40	1.50	1.72	2.00	2.12	2.25	2.50	3.00	3.60	5.20

O660. German Silver Wire, Double Silk Covered.

B. & S. gauge.....	16	18	20	22	24	26	27	28	30	32	34	36
1 oz.	...	...	...	...	...	$ .45	$ .50	$ .54	$ .70	$ .90	$1.15	$1.50
4 oz.	...	...	...	...	$ .80	.90	1.00	1.08	1.39	1.79	2.25	3.14
8 oz.	...	...	...	$1.17	1.32	1.54	1.68	1.80	2.30	2.97	3.77	5.22
1 lb.	...	...	$1.89	2.20	2.40	2.80	3.04	3.28	4.20	5.40	6.84	9.50

Prices on all wire have advanced approximately 50 per cent but are subject to market fluctuation.

O661. Iron Wire. Soft, on 4 ounce spools.

Stubbs Gauge	16	18	20	22	24	26	27	28	30
Per spool	$ .12	$ .13	$ .14	$ .15	$ .15	$ .16	$ .17	$ .18	$ .18

O662. Piano Wire. On spools.

Music gauge	00	0	1	2	3	4	5	6	7	8
Approximate feet on spool.	15	15	14	12	12	12	10	10	8	8
Per spool	$ .06	$ .06	$ .06	$ .06	$ .06	$ .06	$ .06	$ .06	$ .06	$ .06

O664. Piano Wire. Imported steel, in 4 ounce rolls.

Music wire gauge	1	4	5	6	8	10	14	18
B. & S. gauge	30	28	27	26	24	22	20	18
Per 4 ounce roll	$1.50	$ .65	$ .50	$ .45	$ .40	$ .36	$ .36	$ .36

O666. Lead Wire. Diameter ⅛ inch. Per foot..... $ .05

O668. Zinc Wire. Diameter ⅛ inch. Per foot..... .06

We also furnish wires as follows at market prices.

Manganin Resistance Wire.
Platinoid Resistance Wire.
Platinum Wire.
Nickel-Chromium Alloy Wire.
Constantan Wire.

ALUMINUM

O670. Aluminum Rod.

Diam., in..	3/16	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1
Per foot..	$ .06	$ .07	$ .09	$ .14	$ .18	$ .25	$ .40	$ .54	$ .65	$ .90

O672. Aluminum Sheet.

Thickness, B. & S. No...	12	14	16	18	20	22	24	26	30
Per square foot	$1.15	$ .90	$ .72	$ .54	$ .45	$ .36	$ .27	$ .23	$ .15

O673. Aluminum Tubing. Seamless, No. 16, B. & S. gauge.

Diameter, inches	¼	⅜	½	¾	1
Per foot	$ .30	$ .35	$ .40	$ .50	$ .55

BRASS.

O674. Brass Rod, Round.

Diam., inches.	⅛	3/16	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1
Per foot	$ .05	$ .05	$ .08	$ .10	$ .17	$ .22	$ .30	$ .50	$ .65	$ .85	$1.15

O676. Brass Rod, Square.

Size, inches	¼	⅜	½	⅝	¾
Per foot	$ .15	$ .27	$ .54	$ .75	$1.00

O678. Brass Sheet.

Thickness, B & S gauge....	12	14	16	18	20	22	24	26	28	30
Per square foot	$1.20	$1.00	$ .75	$ .60	$ .50	$ .40	$ .30	$ .23	$ .18	$ .15

O680. Brass Tubing. Brazed. Per foot—

Wall B. & S. Gauge.	Diameter Outside in Inches.									
	⅛	3/16	¼	5/16	⅜	½	⅝	¾	⅞	1
No. 12										$ .50
No. 14						$ .23	$ .27	$ .32	$ .36	.45
No. 16					$ .15	.20	.24	.27	.32	.36
No. 18			$ .10	$ .11	.12	.16	.18	.23	.27	.32
No. 20	$ .08	$ .09	.10	.11	.11					

Wall B. & S. Gauge.	Diameter Outside in Inches.			
	1¼	1½	1¾	2
No. 12	$ .63	$ .75	$ .90	$1.05
No. 14	.54	.63	.78	.90
No. 16	.45	.50	.60	.72
No. 18	.36	.40	.45	.50

CARBON

O682. Carbon Rods. Plain, 12 inches long.

Diameter, inches	⅛	3/16	¼	⅜	½	⅝
Each	$ .10	$ .10	$ .10	$ .11	$ .11	$ .12

Carbon Sheet. Special sizes cut to order. Price on application.

Prices are subject to market fluctuation.

COPPER

O684. Copper Rod.

Diameter, inches	1/8	3/16	1/4	3/8	1/2	5/8	3/4	1
Per foot	$ .05	$ .09	$ .15	$ .32	$ .55	$ .90	$1.25	$2.25

O686. Copper Sheet.

Thickness, B. & S. gauge	14	16	18	20	22	24	26	28	30
Per square foot	$2.25	$1.80	$1.45	$1.10	$ .90	$ .70	$ .55	$ .45	$ .35

O688. Copper Foil. B. & S. gauge No. 30. Per square foot..... $ .50

O690. Copper Tubing. Wall No. 16 B. & S. gauge.

Diameter outside, inches	1/4	3/8	1/2
Per foot	$ .25	$ .25	$ .27

FIBRE

O692. Fibre Rod, Black.

Diameter, inches.	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
Per foot	$ .16	$ .16	$ .16	$ .17	$ .18	$ .27	$ .36	$ .50	$ .75

O694. Fibre Sheet, Black.

Thickness, inches	1/8	3/16	1/4	5/16	3/8	1/2
Per square foot	$ .32	$ .75	$1.05	$1.25	$1.50	$2.05

O696. Fibre Tubing. 1/16-inch wall, full lengths 2 to 3 feet.

Diameter inside, inches	1/4	3/8	1/2	5/8	3/4	1
Per foot	$ .18	$ .20	$ .22	$ .26	$ .32	$ .36

IRON.

O698. Iron Rod. Norway soft for electro magnets.

Diameter, inches	1/4	3/8	1/2	5/8	3/4	1
Per foot	$ .05	$ .05	$ .08	$ .12	$ .18	$ .32

O700. Iron Sheet. Tinned—common tin plate size, full sheet 20 x 28 inches.

Number	1C	X	XX	XXX
Thickness, B. & S. gauge	28	26	25	24
Per sheet	$ .27	$ .30	$ .35	$ .38

LEAD

O702. Lead, Sheet.

Thickness, inches	1/64	1/32	1/16	1/8	3/16	1/4
Per square foot	$ .25	$ .30	$ .60	$1.20	$1.80	$2.39

O704. Lead Tubing. Medium wall.

Diameter inside, inches	1/4	3/8
Per foot	$ .10	$ .15

MICA

O706. Mica, Sheet.

Size, inches	2 x 4½	4 x 5	5 x 8
Per sheet	$ .06	$ .09	$ .15

PHOSPHOR BRONZE

O708. Phosphor Bronze, Sheet.

Thickness, B. & S. gauge	22	24	26	30
Per square foot	$1.25	$ .90	$ .82	$ .72

Phosphor Bronze Ribbon. For galvanometer suspensions see Miscellaneous Supplies.

Platinum Wire, Foil, etc. Price on application.

RUBBER

O710. Rubber Rod. Hard, polished; full lengths 30 inches.

Diam., inches	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
Per foot	$ .08	$ .11	$ .16	$ .27	$ .30	$ .35	$ .50	$ .72	$ .90	$1.35

O712. Rubber Sheet. Hard, polished.

Thickness, inches	1/16	1/8	3/16	1/4	5/16	3/8	1/2
Per square foot	$ .78	$1.50	$2.25	$3.10	$3.83	$4.60	$6.15

O714. Rubber Tubing. Hard, not polished, 1/8-inch wall.

Diameter outside, inches	3/8	1/2	5/8	3/4
Per foot	$ .10	$ .15	$ .20	$ .25

O716. Rubber Dam. Pure gum. Per square foot..... $ .25

Prices are subject to market fluctuation.

STEEL

O718. Steel Rod. Bessemer, 4-foot lengths.

Diameter, inches	1/8	3/16	1/4	5/16	3/8	7/16	1/2
Per foot	**$ .05**	**$ .05**	**$ .05**	**$ .10**	**$ .10**	**$ .10**	**$ .12**

O720. Steel Drill Rod. For making tools.

Diameter, inches	1/8 to 3/16	1/4 to 7/16	1/2 to 3/4
Per foot	$ .25	$ .50	$ .90

Note: We can also furnish best grade of imported magnet steel.

ZINC

O722. Zinc Sheet, thin B & S gauge No. 32, per square foot.....**$ .10**

O724. Zinc Sheet.

Thickness, inches	1/32	1/16	1/8	3/16	1/4
Per square foot	$ .20	$ .42	$ .82	$1.15	$1.65

Zinc Wire. See Wire.

MISCELLANEOUS SUPPLIES

O750. Aluminum Pellets. Per pound.....**$ .80**

O752. Brass Balls. Accurately turned and drilled for suspension.

Diameter, inches	3/4	1	1½
Each	$ .20	$ .30	$ .90

O754. Cast Iron Balls. Drilled for suspension.

Diameter, inches	3/4	1	1½	2	3
Each	$ .08	$ .12	$ .20	$ .30	$ .75

O756. Hardwood Balls. Accurately turned, drilled for suspension.

Diameter, inches	3/4	1	1½	2
Each	$.08	$ .10	$ .15	$ .20

O758. Lead Balls. Drilled for suspension.

Diameter, inches	3/4	1	1½
Each	$ .10	$ .15	$ .25

O760. Steel Balls. Hardened, accurately ground and polished.

Diameter, inches	1/2	3/4	1	1½
Each	$ .05	$ .07	$ .20	$ .40

O762. Ivory Balls. Genuine ivory, accurately turned and polished.

Diameter, inches	1/2	3/4	1	1½	2
Each	$1.00	$1.50	$1.75	$3.25	$5.00

O802. Cardboard. White, for making photometer screens. Per square foot .....**$ .05**

O804. Cardboard. Black. Per square foot ..... **.05**

O806. Chamois Skins.

Size, inches	6 x 8	9 x 11	14 x 18
Each	$ .20	$ .35	$ .60

O808. Cheese Cloth. Per yard .....**$ .15**

O810. Chimneys. Student's lamp. Each, **$ .20,** per dozen.....**$2.40**

O812. Chimneys, Argand. 2 x 7 inches. Each, **$ .15,** per dozen.. **1.80**

O814. Chimneys for Welsbach burners, glass. Each..... **.20**

O816. Chimneys for Welsbach burners, mica. Each..... **.20**

O818. Carborundum Powder. Coarse or fine. Per pound..... **.30**

O820. Cement Quixo, or liquid porcelain. This cement hardens as it dries, and when dry is not affected by heat or water. Per 2-ounce can **$ .25**

O822. Cement, De Khotinsky.
Hard, for cementing glass, metal, porcelain, etc.
Medium, for cementing and insulating purposes.
Soft, for insulating and covering electric wires.

Any grade, per ounce	**$ .40**
Per pound	**6.00**

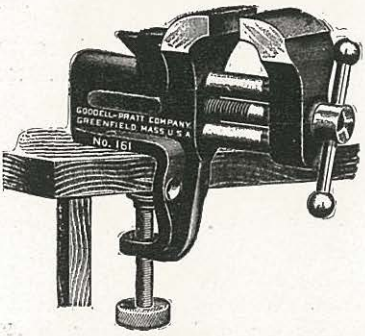
O824. Cement, Rubber. Per ounce tube..... $ .15
O826. Copper Shot or punchings. Per pound..... .65
O828. Cord, Chalk Line. 1/16-inch. Per hank, 20 ft..... .15
O830. Emery Powder. Fine or coarse. Per pound..... .20
O832. Foil, Aluminum. Per book, 25 leaves..... .45
O834. Foil, Dutch Metal. Imitation gold leaf. Per book..... .40
O836. Foil, Gold Leaf. Per book, 24 leaves..... 1.00
O838. Foil, Silver Leaf. Book, 25 leaves..... .45
O840. Foil, Tin. Per square foot..... .10
O842. Fish Line. Braided linen. Per 25 yards..... .30
O844. Fish Line. Braided silk. Per 25 yards..... .50
O848. Gas Tipe. Lava. Per dozen..... .25
O850. Gas Tips. Aluminum. Per dozen..... .50
O852. Glue, Le Page's. 2-ounce bottle..... .15
O854. Glue, Marine. Water proof, for projection cells, etc. Per 1-ounce bottle..... $ .75
O856. Gold Beaters' Skins. Per 10..... .75
O857. Ground Glass Screen. For optical experiments. 10 x 8 x 3/8 inch..... $ .25
O858. Lead Shot. Per pound..... .20
O860. Lacquer. Colorless or dead black. Per ounce..... .30
O862. Lacquer. Gold. Per 1-ounce bottle..... .35
O864. Lacquer Brush. 1 inch wide..... .25
O866. Lacquer Brush. 1/2 inch wide..... .20
O867. Matches, Safety. In cartons of 12 boxes. Per carton..... .15
O868. Mirror Glass. Per square foot..... .50
O870. Mirror Glass. Crystal plate. Per sq. ft..... 1.00
O871. Needles, Knitting. Per dozen..... .20
O872. Machine Oil. For oiling machinery, etc. Pint can..... .20
O873. Dynamo Oil. A light machine oil used for high speed machinery such as motors, dynamos, etc. 1/2 pint..... $ .35
O874. Pump Oil. Specially adapted for lubricating air pump cylinders, also for use on Geryk or any oil sealed pump. Pint can..... $ .35
O875. Clock Oil. 1/2-ounce bottle..... .35
O876. Blue Print Paper. Per 10-yard roll, 36 inches wide..... 1.25
O878. Blue Print Paper. 4 x 5 inches. 2 dozen sheets in light proof box..... $ .30
O879. Blue Print Paper. 5 x 7 inches. 1 dozen sheets in light proof box..... $ .25
O880. Blue Print Paper. 6 1/2 x 8 1/2 inches. I dozen sheets in light proof box..... $ .30
O881. Webb's Co-ordinate Paper. Ruling 8 inches by 10 3/4 inches. Per quire..... $1.50
O882. Webb's Co-ordinate Paper. Ruling 10 3/4 inches by 15 3/4 inches. Per quire..... $2.00
O884. Paper, Emery. (French.) No. 00 to 1. Per sheet..... .10
O886. Paper, Sand. All grades. Per quire..... .50
O888. Rubber Bands. Per 4-ounce box, assorted..... 1.35
O890. Sealing Wax. 4 sticks to pound. Per pound..... .50
O892. Soft Wax, Universal. Per stick..... .15
O894. Solder. Wire form. Per pound..... .50
O896. Suspensions. Galvanometer suspension wire, phosphor bronze. Per yard..... $ .15
O898. Suspensions. Galvanometer suspension fibre, unspun silk. Per yard..... $ .05

CHEMICALS

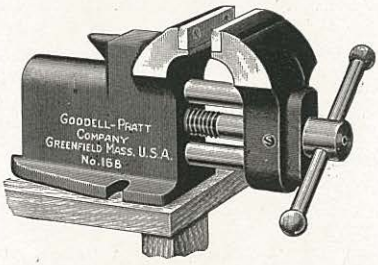
	Lb.
Acetamide, Cryst. Per ounce, $ .50.	
Acid, Hydrochloric. Com'l, 6-pound bottle $1.50 per pound	$ .35
Acid, Hydrochloric. C. P. 6-pound bottle $1.75; per pound	.45
Acid, Hydrofluoric. Com'l, in ceresine bottle. Per ounce	.45
Acid, Nitric. Com'l, 7-pound bottle, $2.00; per pound	.45
Acid, Nitric. C. P. 7-pound bottle, $2.25; per pound	.50
Acid, Sulphuric. Com'l, 9-pound bottle, $1.50; per pound	.35
Acid, Sulphuric. C. P. 9-pound bottle, $1.75; per pound	.45
Alcohol, Denatured. Per gallon, $2.00; per pound	.40
Alcohol, Grain. 95% pure	1.00
Alcohol, Wood	.35
Ammon, Chloride (Salamoniac)	.35
Ammonia Hydrate, 4 F. 4-pound bottle, $1.25; per pound	.30
Ammonia, Hydro Sulphide, C. P	.90
Calcium Chloride (Anhydrous). For drying. Per ounce, $ .20	.75
Calcium Sulphate (Plaster Paris)	.20
Camphor (refined). Per ounce, $ .25; per pound	1.25
Carbon Bisulphide. Com'l. 1-pound cans only	.35
Copper Sulphate (Blue Vitriol) Cryst	.30
Copperas. See Iron Sulphate.	
Ether (Sulphuric)	.90
Ink. Diamond, for etching glass. Per ounce, $ .60.	
Iron Filings. Fine. Per pound	.20
Iron Filings. Coarse. Per pound	.15
Iron Turnings. Per pound	.15
Iron Sulphate (Ferrous Sulphate). Per pound	.15
Lycopodium (Powder). Per ounce, $. 30.	
Manganese Dioxide. Lumps. Per pound	.25
Manganese Dioxide. Granulated. Per pound	.20
Manganese Dioxide. Powdered. Per pound	.15
Mercury (redistilled). Per pound	2.30
Naphthaline (Flakes). Per pound	.40
Nickel Sulphate. Com'l. Per pound	.35
Nickel Ammonium Sulphate for nickel plating. Per pound	.30
Paraffine. Soft, M. P. 120° F	.20
Paraffine. Hard, M. P. 135° F	.20
Potassium Bichromate. Cyst. Per pound	1.00
Rosin. Per pound	.20
Silver Nitrate. Cryst., pure. Per ounce, $ .90.	
Sodium Carbonate. Cryst., com'l	.20
Sodium Carbonate. C. P	.35
Sodium Bichromate. Com'l	.35
Sulphur (Flour). Per pound	.15
Sulphur (Roll Brimstone). Per pound	.15
Wax (Beeswax). Yellow. Per pound	1.00
Zinc Sulphate (Cryst., Pure). Per pound	.20
Zinc, Mossy. For making hydrogen. Per pound	.50
Zinc Pieces. ⅜ x ⅜ x 1 inch, for Kipps Apparatus	.45

Note: We can also furnish any other chemicals, microscopic stains and reagents.

TOOLS AND MEASURING INSTRUMENTS



T2002



T2003

T2000. Anvil. Heavy, regular shape, steel face. Weight 15 pounds, length over all 9 inches.....**$5.00**

T2002. Anvil Clamp Vise. This vise, while not differing in general appearance from other tools of this character, has been designed with the belief that there is a demand for a little better construction than the majority of the small bench vises usually offered for sale.

1-inch jaw **$1.25**
2-inch jaw **2.50**

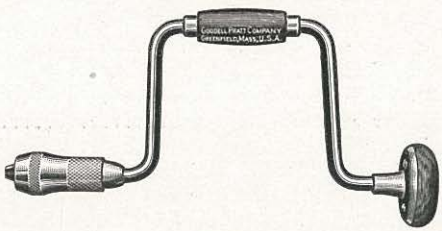
T2003. Anvil Vise of larger construction, has steel screw and two steel guide rods 5/8 inch diameter. The jaws are steel faced, the faces fastened in place with screws.

2½-inch jaw **$5.00**

T2004. Auger Bits. A hardwood case containing one each blued steel auger bits, 4, 5, 6, 8, 10, 12/16th.....**$3.75**

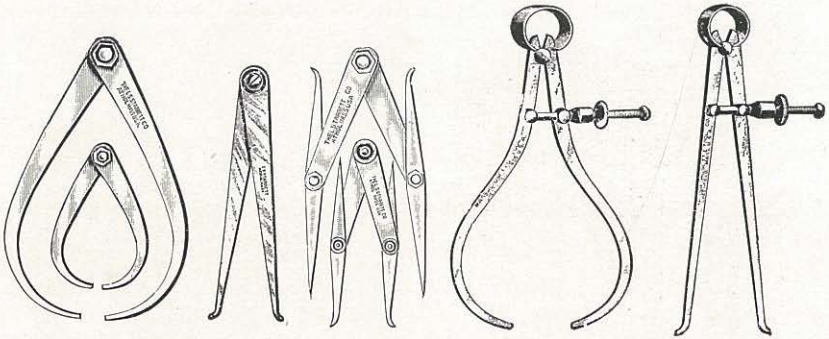
T2005. Auger Bits, all sizes.

Size	3	4	5	6	7	8	9
Each	**$ .40**	**$ .40**	**$ .40**	**$ .40**	**$ .40**	**$ .45**	**$ .45**
Size	10	11	12	13	14	15	16/16
Each	**$ .60**	**$ .65**	**$ .65**	**$ .70**	**$ .70**	**$ .80**	**$ .80**



T2009

T2009. Bit Brace, with roller bearing head, forged steel sweep 8 inches, chuck socket and shell are malleable iron and jaws are of forged steel..**$2.00**



T2010 T2012 T2014 T2016 T2018

T2010. Caliper. Outside, with improved firm joint. The quality of these calipers is far superior to that of any old style riveted-joint caliper on the market.

4 inches long.....$ .75
6 inches long..... .90

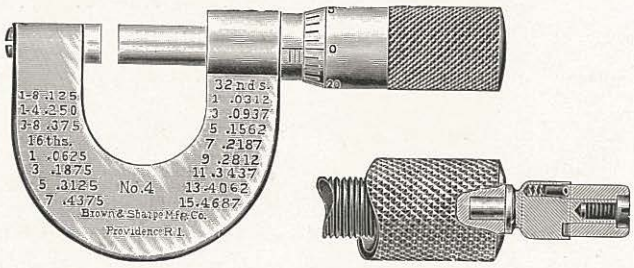
T2012. Caliper. Inside, same construction as T2006.

4 inches long.....$ .75
6 inches long..... .90

T2014. Calipers. Double—combined dividers and inside and outside calipers—length 6 inches.....$1.50

T2016. Calipers, Spring. Outside, with solid nut, length 6 inches. 1.10

T2018. Calipers, Spring. Inside, with solid nut, length 6 inches.. 1.10



T2020 T2022

T2020. Calipers, Micrometer. Measuring from 0 to 25 mm. and reading to .01 mm., B. & S.....$7.00

T2022. Caliper, Micrometer. Same as No. T2020, with ratchet stop 7.50

T2024. Caliper, Micrometer. Measuring from 0 to 50 mm., reading to .01 mm., B. & S.....$10.00

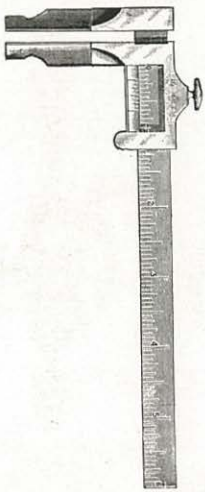
T2026. Caliper, Micrometer. Same as No. T2024, with ratchet stop 10.50

T2027. Morocco Cases for Nos. T2020-T2022-T2024-T2026..... .75

T2028. Caliper Micrometer, measuring from 0 to 25 mm. and reading to .01 mm.....$5.00

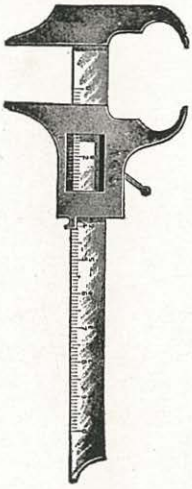
T2029. Caliper Micrometer, same as T2028 but provided with friction head so that all measurements are made with same degree of pressure..$6.00

T2030. Caliper Micrometer, English, same as T2028, measuring from 0 to 1 inch and reading to .001 inch.....$5.00



T2031

T2034



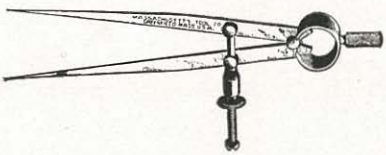
T2035

T2031. Vernier Caliper. 100 mm. long, opening 80 mm., graduated on one side in millimeters, reading to 0.01 mm., on the other side in .05 of an inch and $\frac{1}{16}$ of an inch, reading to .01 and 1/128 of an inch..... **$3.50**

T2032. Vernier Caliper. Same as T2030 but 150 mm. long..... **4.25**

T2034. Vernier Caliper (Columbus). Outside and inside measure and depth gauge, metric and English scale. Range 10 cm. or 4 inches. Vernier reading to 0.1 mm. and 1/128 inch..... **$3.00**

T2035. Vernier Caliper (Boley's). One hundred mm. long for inside and outside measuring, graduated in mm with Vernier reading to 1/10 mm. **$2.50**



T2042

T2037. Chisel, extra cast steel, polished hickory handle.
½ inch ..... **$ .80**
1 inch **1.00**

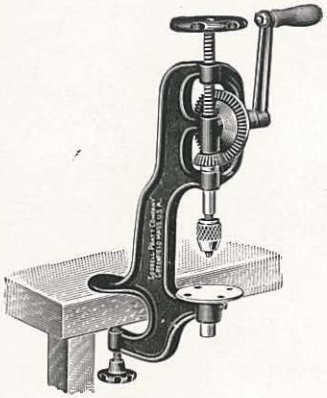
T2038. Chisel, Cold, $\frac{3}{16}$-inch blade..... **.35**

T2040. Compass, Pencil. Can be attached to any pencil. Each.. **.15**
Dozen **1.75**

T2042. Dividers, Spring. Polished steel, with solid nut, length 6 inches **$1.10**

T2044. Dividers, Plain. Brass, 4½ inches long..... **.35**
5½ inches long..... **.40**

Note: We can furnish anything in mathematical and drawing instruments. Send for our special circular.



T2050

T2060

T2062

T2064

T2050. Drill, for clamping on table or bench. The frame is of cast iron, 13 inches high, and is equipped with a hand feed wheel on the top of the steel feed screw. The table has a turned and polished top and is adjustable for height. The chuck has three hardened jaws for holding round shank drills up to ¼ inch and the gears are fitted carefully so that they run easily and smoothly. Eight tool steel drill points are furnished with each machine **$6.00**

T2052. Drills, special short twist drills, 2¼ inches long, in sets of 7, from 1/16 inch to ¼ inch inclusive **$1.50**

T2053. Drills, same as T2052, in sets of 11, from 1/16 inch to ⅜ inch inclusive **$3.00**

T2060. Drill, Automatic Hand. Equipped with a three-jawed chuck, will hold up to ¼-inch round shank drills. Length 11¼ inches **$2.50**

T2062. Drill, Hand. Single gear, all steel, polished and nickeled frame, with three-jawed chuck. Capacity 0 to 5/32 inch. Eight drills from 1/16 to 11/64 inch furnished with each tool, all contained in handle **$2.50**

T2064. Drill, Hand. Double gear, two speeds, capacity of chuck 0 to ⅜ inch **$4.00**

T2066

T2068

T2066. Files. Round.

Size, inches	4	5	6
Each	**$ .16**	**$ .20**	**$ .25**

T2068. Files. Triangular.

Size, inches	4	5	6
Each	**$ .16**	**$ .20**	**$ .25**

T2070

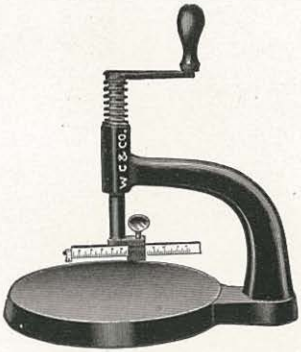
T2070. Figures. This set consists of 9 hand cut steel figures, $\frac{3}{32}$ inch. The bodies are made in such a manner that the figures are always right side up and perpendicular when in use. Per set.....**$2.70**

T2074

T2076

T2077

T2081



T2080

T2074. Glass Cutter. Metal handle, steel wheel.....**$ .10**

T2076. Glass Cutter. Turret head. This tool has 6 cutters which may be revolved and clamped to frame, enabling the operator to place a new cutter in position for use instantly.....**$ .35**

T2077. Glass Tube Cutter. Cutting inside, for tubing over $\frac{1}{8}$ inch diameter **$1.25**

T2080. Glass Disc Cutter. Apparatus for cutting circular glass discs. This apparatus will cut discs from 2 to 20 cm. diameter. The cutter arm is graduated to mm. and provided with 6 cutters. The apparatus can also be used for cutting discs of cardboard, etc.....**$7.50**

T2081. Glass Disc Cutter, with graduated beam for cutting circular glass discs, any size from 2 to 12 inches in diameter.....**$1.00**

T2082

T2082. Hack Saw. Adjustable, 8 inches to 12 inches, all steel, nickel plated. Blades can be faced four ways. With one blade.....**$1.50**

T2083. Hack Saw, solid frame, made of cast iron, black enameled, for 8-inch blades .....**$ .50**

T2084. Hack Saw Blades. Suitable for all around work.

Length, inches	8	10	12
Per dozen	**$ .90**	**$1.00**	**$1.25**

T2086

T2088

T2086. Hammer, Claw. Forged steel, polished. Weight 7 ounces.**$ .75**

T2088. Hammer, Machinists'. Forged steel, polished. Weight 7 ounces .....**$ .75**

T3012

T3013

T3004. Unmounted Spirit Level. Accurately ground and graduated.

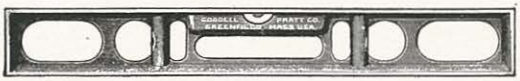
a— 5 to 6 cm. long, reading from 60 to 30 sec.....**$1.00**
d— 7 to 9 cm. long, reading from 60 to 30 sec..... **1.15**
g—10 to 12 cm. long, reading from 60 to 30 sec..... **1.50**
h—10 to 12 cm. long, reading from 30 to 20 sec..... **2.00**

T3005. Level Whichway. A circular level, 1⅜-inch diameter, being very sensitive and adapted for balances and other instruments.....**$1.25**

T3010. Circular Level. Similar to those used on photographic apparatus, circular base 25 mm. diameter, lacquered brass.....**$ .75**

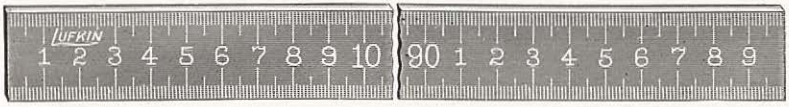
T3012. Level. Mounted in a nickel plated tube ground flat on the base, very useful in setting up apparatus, length 2 inches.....**$ .30**

T3013. Level. In wood frame, with brass top plate, 2⅛ x 1⅛ x 12 to 16 inches long.....**$ .75**



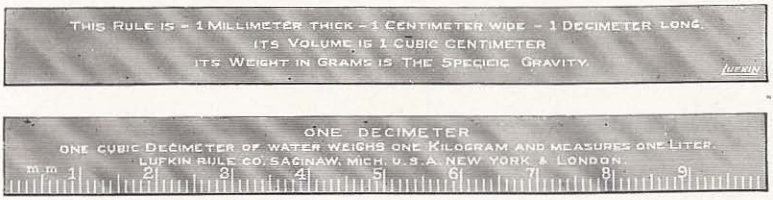
T3014

T3014. Level Iron, with level vial and 2 plumb glasses. The faces and ends are accurately milled and body of black Japan, length 12 inches..**$2.00**



T3015

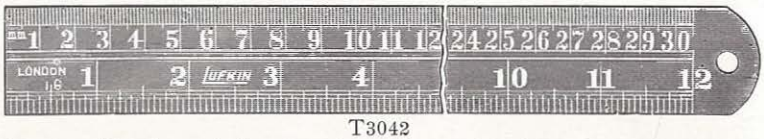
T3015. Meter and Yard Stick. Plain maple .....**$ .25**
T3016. Meter and Yard Stick. Brass tipped ..... **.30**
T3017. Two Meter Stick, same as T3016, two meters long, brass tipped **$1.50**
T3019. Meter Stick (school meter), 2 cm. square, one face is plain and shows length of the simple meter, the second face is graduated to 1/10th, the third face to 1/100th and the fourth face to 1/1000th of a meter...**$ .85**
T3025. Metric and English Folding Rule, graduated to millimeters on one side and inches on the other. This rule has six folds with rivet joints and finished in yellow enamel.....**$ .35**
T3026. Metric Rule, Boxwood. 12 inches long, one edge graduated in mm. and the other side of ruler graduated in 1/16 inches. Each.....**$ .08**
Per dozen ..... **.80**
T3028. Metric Rule. Maple, 12 inches long, bevel on both edges, one edge is graduated in mm. and the other in 1/16 inches. Each.....**$ .04**
Per dozen ..... **.35**



T3029

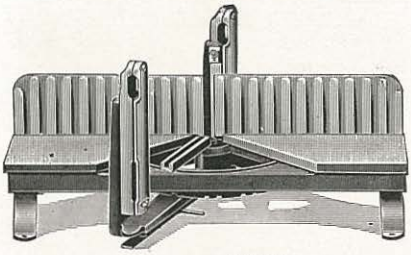
T3034

T3029. Metric Scale. This is a steel scale, one decimeter long, graduated in millimeters. It is one centimeter wide and one millimeter thick. Supplied in a leather case.....**$ .50**
T3030. Metric Scale, Steel. One corner divided to ½ mm., the remaining edges to 1 mm. Length 5 cm.....**$ .35**
T3032. Metric Scale, Steel. Same as T3030, length 10 cm..... **.60**
T3034. Metric Scale, Steel. Same as T3030, length 20 cm..... **1.00**
T3036. Metric Scale, Steel. Same as T3030, length 30 cm..... **1.50**
T3038. Metric Scale, Steel. Same as T3030, length 50 cm..... **2.40**
T3040. Metric Steel Scale. Same as T3030, length 100 cm..... **9.00**
Note: Metric Scales T3030 to T3040 can be furnished with both metric and English graduations at same price.

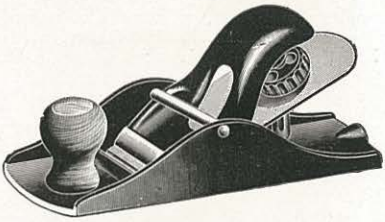


T3042

T3042. Metric and English Steel Scale, Flexible. 12 inches long, in 1 mm. and 1/8 inch graduations.....$ .75



T3043



T3050

T3043. Mitre Box. The bed and back are made of a single piece of iron, the legs are steel. The saw guides can be quickly adjusted for any thickness of back or panel saw. Stops are provided to regulate the depth of cut when a back saw is used. The lever locks automatically at all regular angles and can be instantly set at all angles. This box has a capacity of 7⅛ inches at right angles and 4½ inches at mitre without saw.....$ 7.50

T3044. Mitre Box, same as T3043 with back saw 24x4 inches.... 10.50

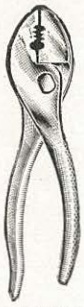
T3046. Oil Stone. Washita, 7x2 inches, in polished hardwood box 1.00

T3047. Oil Can, zinc, diameter at bottom 2 inches..... .12

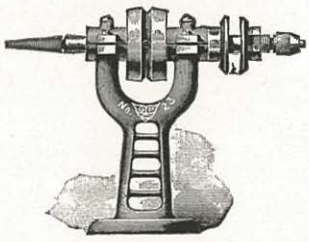
T3050. Plane, iron block, 5½ inches long, 1¼-inch cutter..... .75

T3053

T3057



T3058



T3059

T3052. Pliers. Flat nose, 5 inches long.....$ .50

T3053. Pliers. Flat nose, side cutting, 5 inches long..... .75

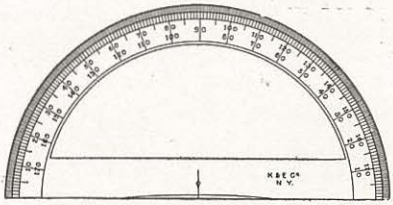
T3054. Pliers. Round nose, 5 inches long..... .50

T3056. Pliers. Bernard's, cutting parallel jaws, nickel plated, 5½ inches long $1.60

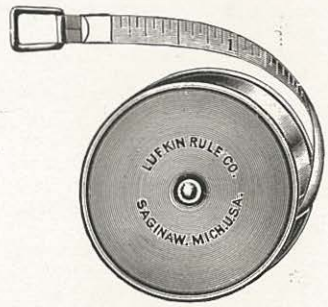
T3057. Pliers and Wire Cutters, combined, blued finish with polished jaws, 6 inches long.....$ .60

T3058. Pliers, Combination, gas plier, wire cutter and screwdriver made from crucible steel hardened and tempered, 6½ inches long.....$1.00

T3059. Polishing Head. The frame is of solid iron 6 inches high, with steel spindle ⅜ of an inch in diameter and 8 inches long.....$3.00



T3060



T3082

PLAIN BRASS PROTRACTORS—SEMICIRCULAR

T3060. **Protractor.** Diameter 95 mm., division 1 degree.....$ .15
T3062. **Protractor.** Diameter 110 mm., division 1 degree..... .40
T3064. **Protractor.** Diameter 130 mm., division ½ degree..... .75
T3066. **Protractor.** Diameter 160 mm., division ½ degree..... 1.00

PAPER PROTRACTORS—SEMICIRCULAR

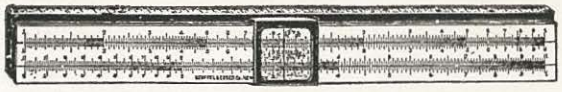
T3068. **Protractor.** Diameter 100 mm., division ½ degree.....$ .15
T3070. **Protractor.** Diameter 125 mm., division ½ degree..... .20

PAPER PROTRACTORS—FULL CIRCLE

T3072. **Protractor.** Diameter 200 mm., division ½ degree.....$ .30
T3074. **Protractor.** Diameter 355 mm., division ¼ degree..... .50

T3075

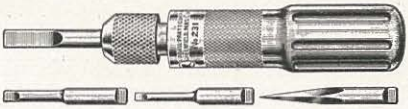
T3075. **Saw, Rip,** of good grade steel, 26 inches long.....$2.00
T3076. **Saw, Crosscut,** of good grade steel, 26 inches long..... 2.00
T3078. **Saw, Keyhole,** Japanned iron handle, 7-inch cast steel blade .35



T3080

T3080. **Slide Rule.** Mannheim Favorite, 10 inches long, divided on white facings with glass indicator, in case with directions.....$3.00
T3082. **Steel Pocket Tape.** Spring winding, ¼ inch wide, in nickeled brass case, 1 meter long. Millimeters on one side, inches in $\frac{1}{16}$ on the other side $1.00
T3084. **Steel Pocket Tape.** Same as T3082, 2 meters long..... 1.50
T3086. **Steel Tape.** 5 meters long, $\frac{3}{8}$ inch wide, metric only.... 2.25
T3088. **Steel Tape.** 10 meters long, ¼ inch wide, metric only.... 4.25
T3090. **Steel Tape.** 15 meters long, ¼ inch wide, metric..... 5.00

T3095



T3096

T3095. Screw Driver Ratchet, changes from right to left or rigid by turning the knurled ferrule. Blade and ratchet are made of tool steel.

Length of blade, inches	2	4	6
Each	$ .60	$ .75	$1.00

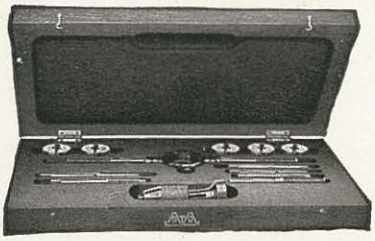
T3096. Screw Driver Pocket Set. A convenient tool, 3¼ inches long when closed, consisting of a chuck, three screw driver blades and a reamer, which are kept inside of the hollow handle when not in use..... $ .85

T4000. Screw Drivers. With hammer forged, oil tempered blades, hardwood handle with heavy steel ferrule.

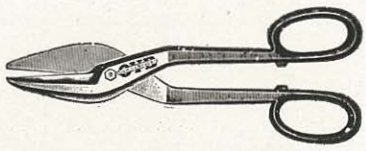
Length of blade, inches	4	6	8
Each	$ .25	$ .35	$ .45

T4002. Screw Driver. Slim light and suitable for the most delicate work, made from drill rod steel, carefully hardened and tempered.

Length of blade, inches	2	4	6
Each	$ .25	$ .30	$ .40



T4004



T4008

T4004. Screw Die and Tap Set. Stock 7 inches long. Tap wrench 7½ inches long, 6 dies 1⅜ inch diameter and 6 taps cutting threads 2.56, 3.48, 5.40, 8.32, 10.32 and 14.24. Complete in hardwood case..... $6.75

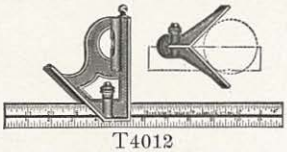
T4006. Shears for cutting paper, 6 inch..... .75

T4008. Snips or metal shears, 2½ inch cut..... 1.75

T4010

T4010. Soldering Outfit. Soldering copper, scraper, paste and solder in wooden box..... $ .85

T4011. Soldering Outfit. Less elaborate than T4010, consisting of soldering iron, solder and flux..... $ .25



T4012

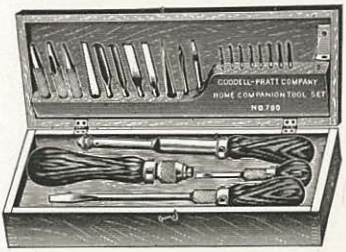
T4012. Square, Patent Combination. English and metric adjustable scale 12 inches long, graduated on one side in ½ millimeters and 32nds of inches; on the other in millimeters and 64ths of inches. It is one of the best gauges made for transferring exact measurements or laying out work,

with the auxiliary center head it forms a centering square both inside and outside which is both convenient and accurate. Complete with center head and level **$3.00**

T4014. Square Try, polished steel blades and open metal handles, graduated in ⅛th inches.

Size, inches	6	8	10
Each	**$1.20**	**$1.50**	**$1.80**

T4015



T4018

T4015 Tool Holder, with hollow polished handle, ten tools and nickel plated chuck **$1.50**

T4018. Tool Set for Metal Work, polished hardwood case, 13 x 5¼ x 3 inches with assortment of seven selected tools which will be very useful in a laboratory or workshop. Set also contains a number of small accessories, such as drills and tools for use with tool holder. Complete with case.. **$6.00**

T4020. Tool Set, for metal work. Larger than T4018, with polished hardwood case 16 x 8½ x 5½ inches and assortment of 20 selected tools. Set also contains a number of small accessories, such as drills, hack saw, blades, and 9 smaller tools used with adjustable tool handle. Complete in case **$17.50**

T4025. Tool Chest. Wood working tools, in chestnut case, 26⅜ x 19⅜ x 8⅛ inches, contains 35 tools of good quality..... **$25.00**

T4026. Wire Gauge. American standard of best hardened steel with decimal equivalents stamped on back, sizes 5 to 36..... **$2.00**

T4028. Wire and Drill Gauge. Numbers 0 to 60 with decimal equivalents **$1.50**

T4040. Wrench, Pocket. A good quality and very satisfactory, wrench jaws open 1⅜ inches..... **$ .30**

T4042

T4045

T4042. Wrench, Coes. Wood handle. Length 8 inches..... **$1.00**

T4045. Warnock Wrench. This wrench is specially suitable for use in connection with our laboratory supports. It will grip without injuring the nickel plated surface or indenting the stand tubes and adjusts itself instantly to every size. The wrench is of drop-forged steel, 12 inches long, and grips by means of a strong linen band. Complete, gripping from ⅜ to 2 inches **$2.50**

T4046. Extra Strap. For wrench No. T4045..... **.35**

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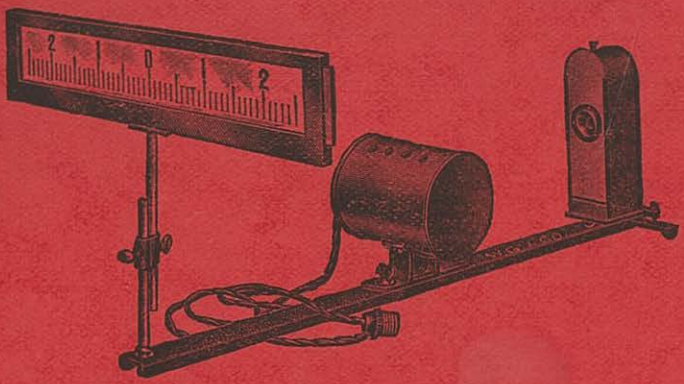
INDEX—Continued



Lecture Room Projection Galvanometer.....$16.00

This new form of Demonstration Galvanometer is of the projection type, employing lamp and scale, but it has several advantages over other instruments of this kind. The instrument is self contained and the galvanometer with lamp and scale are mounted together on a light but strong frame, on which they are easily adjustable.

The galvanometer is in construction similar to our H3000 D'Arsonval, which has proven extremely satisfactory, but is equipped with a special coil and fitted with mirror and lens.

The lamp is nitrogen filled, 110 volt, 60 watts, and the filament is of such shape to make it particularly suitable for projection. It is mounted on a well insulated housing and adjustable on the frame, so that the spot of light can be properly adjusted and focused on the scale. The scale is of translucent celluloid 50cm. long, the divisions 10mm. apart and very easy readable. It is adjustable in height and can be shifted in the frame in order to get the spot of light adjusted to the zero mark.

The sensitiveness of the galvanometer has been selected so as to make the instrument suitable for all elementary work, but at the same time delicate enough to be used for induction experiments, for instance with our dynamo analysis apparatus.

The instrument does not require a darkened room, as the spot of light is very intense and easily visible, but it is recommended to mount it permanenly on a shelf in a dark corner.

Note: The instrument can be furnished with galvanometer of any desired sensitiveness, or the different parts are sold separately.