

ILLUSTRATED PRICE LIST  
OF  
**BREWERS' THERMOMETERS,**  
Hydrometers, Saccharometers, Microscopes, Oven Thermometers, &c.



**8, 9 & 10, HATTON GARDEN, LONDON, E.C.**

Telegraphic Address:—"LENTICULAR, LONDON."

# INDEX.

	PAGE		PAGE
ALCOHOLMETER... ..	38	SAMPLE CANS, Various ... ..	36
ATTEMPERATOR, Automatic ... ..	42	SEARCH LIGHT for Casks ... ..	42
BALANCES ... ..	39	SPECIFIC GRAVITY BOTTLES ... ..	19
BARLEY SWEATING APPARATUS ... ..	37	Do. BEADS ... ..	19
BAROMETERS, Aneroid ... ..	49	TABLES, Specific Gravity, &c. ... ..	16
Do. Bartrum's ... ..	48	TELESCOPES ... ..	51
Do. Fitzroy ... ..	48	THERMOMETERS, Alarm ... ..	52 to 54
Do. Pediment ... ..	48	Do. Bath ... ..	46
Do. Self-Recording ... ..	50	Do. Blind Scale ... ..	3
Do. Standard ... ..	48	Do. Boxwood ... ..	47
BEER EXTRACTOR ... ..	37	Do. Brewing ... ..	3
BEER TASTERS ... ..	37	Do. Cellar ... ..	27
CHRONOMETERS ... ..	17	Do. Chemical ... ..	19
COPPER CANS ... ..	36	Do. Clinical .. ... ..	56
FORCING FLASKS ... ..	21	Do. Cold Storage ... ..	55
Do. TRAYS ... ..	21	Do. Copper ... ..	3
FILLING-IN CANS ... ..	36	Do. Electric ... ..	52 to 55
GAUGES, Pressure and Vacuum ... ..	41	Do. Fermenting Tun ... ..	3, 6 & 8
GAUGE GLASSES, for Boilers ... ..	28	Do. Fire Alarm ... ..	50 to 55
GLASSES, Sampling and Tasting ... ..	37	Do. Garden ... ..	46
GLUCOMETER ... ..	15	Do. Hop-Kiln ... ..	43
HYDROMETERS, Metal, Sikes' ... ..	11	Do. Hot Liquor and } Under Back } ... ..	3, 7 & 8
Do. Glass, various ... ..	12 & 13	Do. House ... ..	47
Do. Battery ... ..	54	Do. Jam Makers ... ..	43
HYGROMETERS ... ..	47	Do. Long Distance ... ..	38
JARS, Trial ... ..	13	Do. Malt Kiln & Floor ... ..	9 & 10
LABORATORY APPARATUS ... ..	20 to 26	Do. Mash Tun ... ..	4, 5 & 6
MALT CRUSHER ... ..	37	Do. Meat ... ..	44
MICROSCOPES ... ..	29 to 32	Do. Oven ... ..	43 & 44
OPAQUE GLASS MEASURES ... ..	23	Do. Pipe ... ..	7
OPERA AND FIELD GLASSES ... ..	51	Do. Porcelain ... ..	46
POLARIMETER ... ..	38	Do. Recording } (Draper's,) &c. } ... ..	50
PYROMETERS ... ..	43	Do. Refrigerator ... ..	4
PRESSURE GAUGES ... ..	41	Do. Sample Can ... ..	3
RACKING TAPS ... ..	28	Do. Standard ... ..	19
RODS, Bung and Head ... ..	34	Do. Self-Registering } Max. and Min. } ... ..	4 & 45
Do. Gauging and Spile ... ..	34 & 35	Do. Sugar Boiling ... ..	43
RULES, Callipers ... ..	34	Do. Tank ... ..	7 & 8
Do. Comparative ... ..	33	Do. Tap Heats ... ..	4
Do. Drayman's... ..	34	Do. Vacuum Pan ... ..	44
Do. Gauging ... ..	33	TINTOMETER (Lovibond's)... ..	18
Do. Measuring... ..	35	TOOLS ... ..	40
Do. Proof ... ..	33	VELINCHERS ... ..	36
Do. Wine and Spirit ... ..	34	VENT PEG ... ..	18
SACCHAROMETERS, Metal ... ..	14	WINE-TESTING APPARATUS ... ..	17 & 18
Do. Glass ... ..	15	WORT MIXER ... ..	36
SACCHAROMETER TABLES ... ..	16		

N.B.—Friends not finding in this Catalogue what they require, are requested to write, as I have a separate List for each Department of my business.

*In ordering from the present Catalogue kindly state "as in 1904 issue."*

# ILLUSTRATED PRICE LIST

OF

## BREWERS' THERMOMETERS,

Hydrometers and Saccharometers,

Gauging Rules, Laboratory Apparatus,

OVEN THERMOMETERS, &c., &c.,

MANUFACTURED BY

# JAMES J. HICKS,

Instrument Maker  
by Appointment to His  
Majesty's Home, Colonial  
and Indian  
Administrations.



Also to the  
Governments of China,  
Germany, Japan, Turkey  
and the United States.

THE PRINCIPAL OBSERVATORIES AND BREWERIES THROUGHOUT THE WORLD.  
HYDROMETER MAKER TO THE INLAND REVENUE.



8, 9 & 10, HATTON GARDEN,  
LONDON, E.C.



Awarded Nine-Medals Paris Exhibition, 1900.





JAMES J. HICKS.

## PREFACE.

IT affords me pleasure to signify the continued success which has attended my application of the celebrated **PATENT LENS FRONT** or **MAGNIFYING TUBE** to Brewers' Thermometers, by issuing a Seventh Edition of my Illustrated Price List of Philosophical and other Instruments used by Brewers, Maltsters, Distillers and Wine Merchants. The best proof of the value of this tube is that it has now been adopted by many other makers, although they all ran it down when I first introduced it.

The great advantage of the **MAGNIFYING** tube over that of ordinary round enamel glass, consists, as its name implies, in its extraordinary magnifying power, the column of mercury being made to appear about **ten times** its actual size. This effect is caused by the formation of the Tube, which is conical, and the peculiar construction of the bore.

In the Magnifying tube **less** mercury is required than in the old form, thus enabling the bulb to be made smaller, and consequently less liable to get broken. The column of mercury can be read with ease in almost any light, or in the steam:—this is an advantage which Brewers generally do not fail to appreciate, while to those of weak sight it is an incalculable boon. Notwithstanding this, there are many Brewers who prefer the ordinary non-magnifying tube and I therefore supply Thermometers of this kind to very many customers. The prices of these are lower than the magnifying tubes.

In these pages will also be found a large variety of other instruments, adapted for the use of Engineers, Bakers, Sugar Planters, &c., while attention has also been given to the wants of the Hop-Grower by the introduction of a Thermometer specially constructed for Hop Kilns. I have also patented a new Electric Thermometer for use in Fremlin's Patent Sterilising Chambers.

In conclusion, I would add that I undertake repairs of every description, and furnish estimates for any Special Instrument or Apparatus, by return post. But on no consideration can I be answerable for breakage during transit. Everything is packed with the greatest possible care, and I adopt every precaution to ensure safe delivery. Where it is possible to successfully prefer a claim against the Railway Company I am always ready to help, but beyond this it is impossible to go, and Brewers and others will kindly note this.

In ordering please quote **1904** catalogue.

8, 9, & 10, HATTON GARDEN,  
LONDON, July, 1904.

**JAS. J. HICKS.**

Telegraphic Address: "LENTICULAR, LONDON."

Telephone: 6042 Central.

# Copper & Fermenting Tun Thermometers.

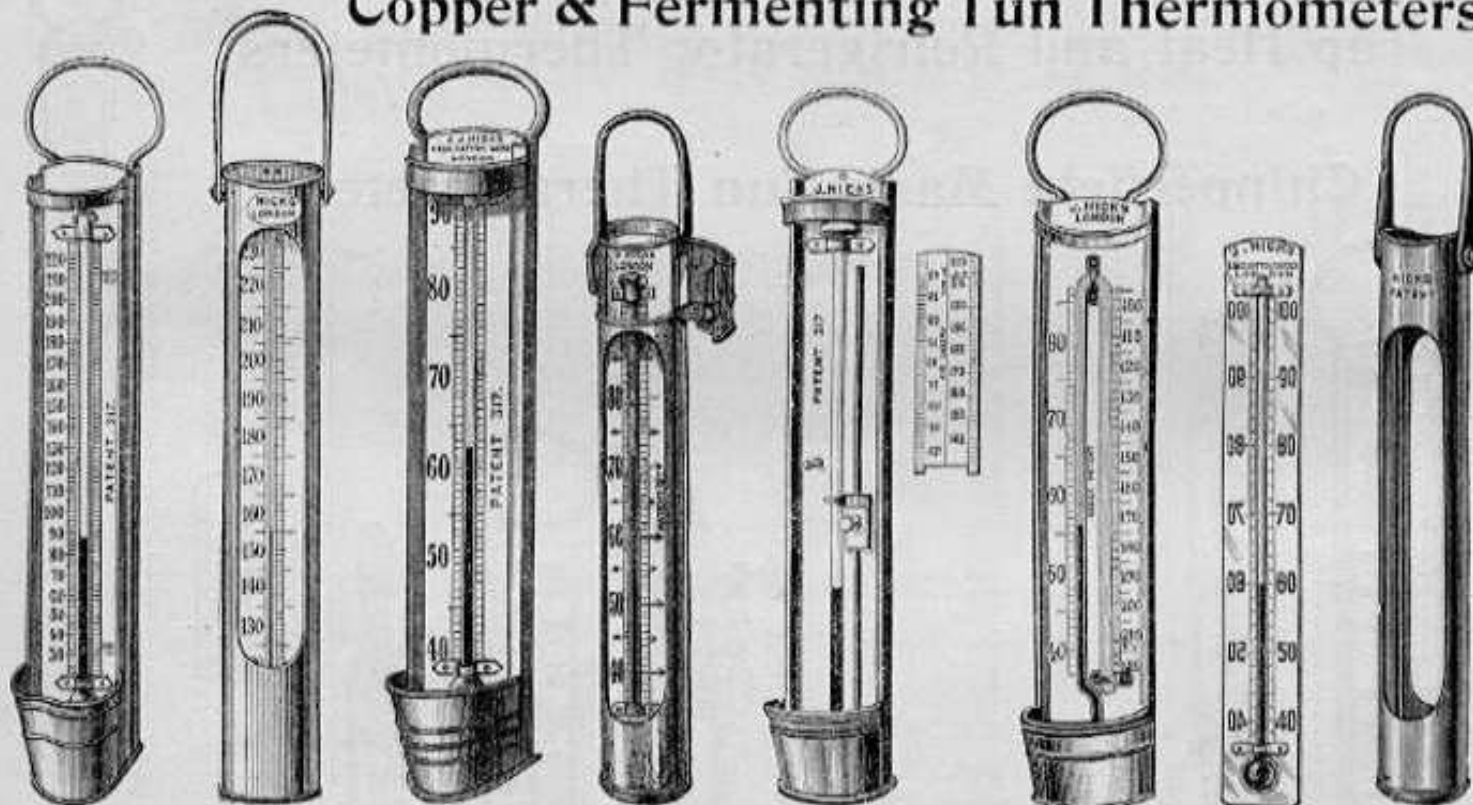


Fig. 1 Fig. 1A. Fig. 2. Fig. 3. Fig. 4. Fig. 4A. Fig. 5. Fig. 6

In these Thermometers the column of mercury is magnified about *ten times* (but the quantity of mercury is not increased), making them very easy to read. The prices are as follows:

No.	Description	£	s.	d.
1	Fig. 1. 14 inch Copper Thermometer, Metal Scale, 30° to 212°, in best rivetted copper case ... ..	0	15	0
2	Do. 12 inch do. ... do. ... do. ...	0	13	6
3	Do. 10 inch do. ... do. ... do. ...	0	10	6
3A	Fig. 1A. 14 inch do. do. 100 to 212°, in improved copper case	0	16	0
4	Fig. 2. 14 inch do. do. 40 to 80°, in best rivetted do.	0	14	0
5	Do. 12 inch do. ... do. ... do. ...	0	12	6
6	Do. 10 inch do. ... do. ... do. ...	0	10	6
7	Fig. 3. <b>New Patent Copper Case for Fermenting Tuns</b> , with cup at top, which retains a portion of the liquid, so that when the Thermometer is lifted out the liquid runs down through a hole in the cup and washes the yeast off the tube and scale, thus enabling the Brewer to <i>immediately</i> read the temperature. The old <i>scoop</i> at the bottom has also been improved, so there is not the slightest obstacle to catch attemperator pipes. The illustration shows the "cup" open; when lowered into the tun it is pushed home against the scale. Complete with 10 in. Thermometer 40° to 90°	0	12	0
8	Do. ... do. do. ... do. 12 inch	0	14	0
9	Do. ... do. do. ... do. 14 inch	0	16	0
10	Fig. 4. 14 in. Blind Ther. with ivory scale and sliding index, in best rivetted copper case	0	15	6
10A	Fig. 4A. <b>New Patent Combined Copper and Fermenting Tun Thermometer.</b> (In best rivetted Copper Case.) Is figured and divided on its left hand side from 40 to 90° with very wide degrees for use in Fermenting Tuns, and on its right hand side, from 100 to 212° for use in the Copper. The same tube, which is curved, does for both, and gives a beautifully distinct and readable scale to each side	1	1	0
11	Sample Can Thermometer, 7 in. x 1 in., with sliding back plate, 50/220	0	5	6
12	... Do. 10 in. x 1 in. ...	0	8	6
13	... Do. 12 in. x 1 in. ...	0	10	6
14	Fig. 5. <b>FERMENTING TUN THERMOMETER.</b> Made of clear glass, with the figures on both sides so that it is not necessary to catch hold of the case with the hand in order to turn the scale to the front when it twists round on the string. It is supplied in an open back copper case, like Fig. 6.	0	16	0
15	<b>COPPER THERMOMETER</b> , metal scale, reading both sides, in copper case, like Fig. 6. ... ..	0	17	6

N.B.—More Fermenting Tun Thermometers are shown on pages 6, 7 and 8.

All the Thermometers on this page, except Nos. 14 and 15, are priced with MAGNIFYING TUBES. Thermometers with ordinary enamel glass tubes, not magnifying, are 2/- less in price.

# Tap Heat and Refrigerator Thermometers

AND

## Chipperfield Mash Tun Thermometer.

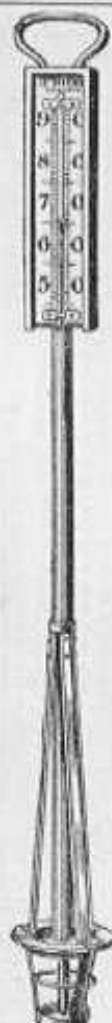
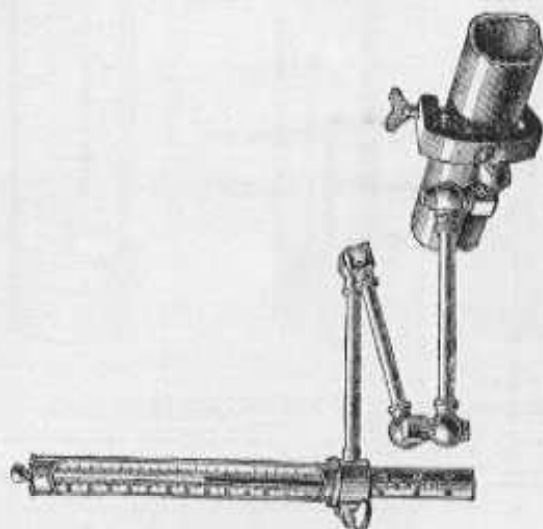
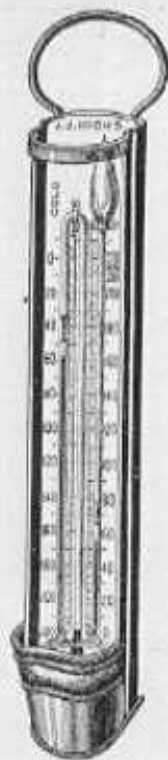
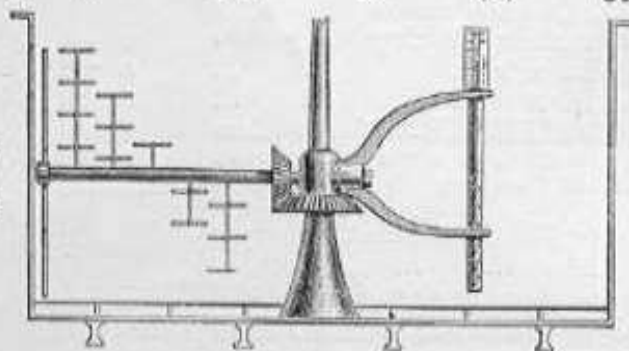


Fig. 6A.	Fig. 6B.	Fig. 7.	Fig. 8.	Fig. 8A.	Fig. 8B.	Fig. 8C.		
16	Fig. 6A.	<b>SELF-REGISTERING THERMOMETER FOR COPPER</b> , showing highest and lowest heats. Very useful in every Brewery ..				1	1	0
17	Fig. 7.	<b>TAP HEAT THERMOMETER.</b> When attached to Mash Tun Taps it always shows at a glance the heat at which wort is running, and it affords a certain indication of the highest heats the worts have attained, thus supplying a check as to incorrect mashing and sparging heats. It has a ball and socket motion to enable the Thermometer to be used for either horizontal or vertical pipes ..				1	15	0
18	Fig. 8.	<b>REFRIGERATOR THERMOMETER</b> in solid metal frame with enamel glass scale, 30° to 80° or 100° ..				1	10	0
19	Fig. 8A.	Do.	..	do.	Porcelain Scale in wood frame, with protected sides ..	0	12	6
20	..	Do.	..	do.	Metal Scale in Copper Case, similar to Fig. 8, but scale can be removed easily ..	0	17	6
21	Fig. 8B.	Do.	..	do.	do. with long body so as to raise the scale 2 feet from the floor ..	2	5	0
22	Fig. 8C.	Do.	..	do.	do. .. to raise scale 3 feet from floor ..	3	0	0
23	Fig. 6B.	Do.	..	do.	in round brass frame, with screw and tail piece for fixing in apparatus, 8 in. metal or porcelain scale, graduated 30 below 0 to 80 above, or 20 below 0 to 120 above, and red or black spirit tube ..	1	2	0
24	..	Do.	..	do.	Round boxwood pattern, 8 inches long, with sunk enamel glass tube ..	0	3	6
25	..	Do.	..	do.	Common, as used in frozen meat stores ..	0	2	6

Fig. 8D.



26 Fig. 8D.

### THE CHIPPERFIELD MASH TUN THERMOMETER

is placed in arms fixed to the head or shaft, moving the rakes as shown in the sketch. (The arms can be taken off when the M.T. is being emptied and cleaned, they could be supplied by local or Brewery Engineer).

Price of Thermometer (without arms) .. £3 10 0

## MASH TUN THERMOMETERS.

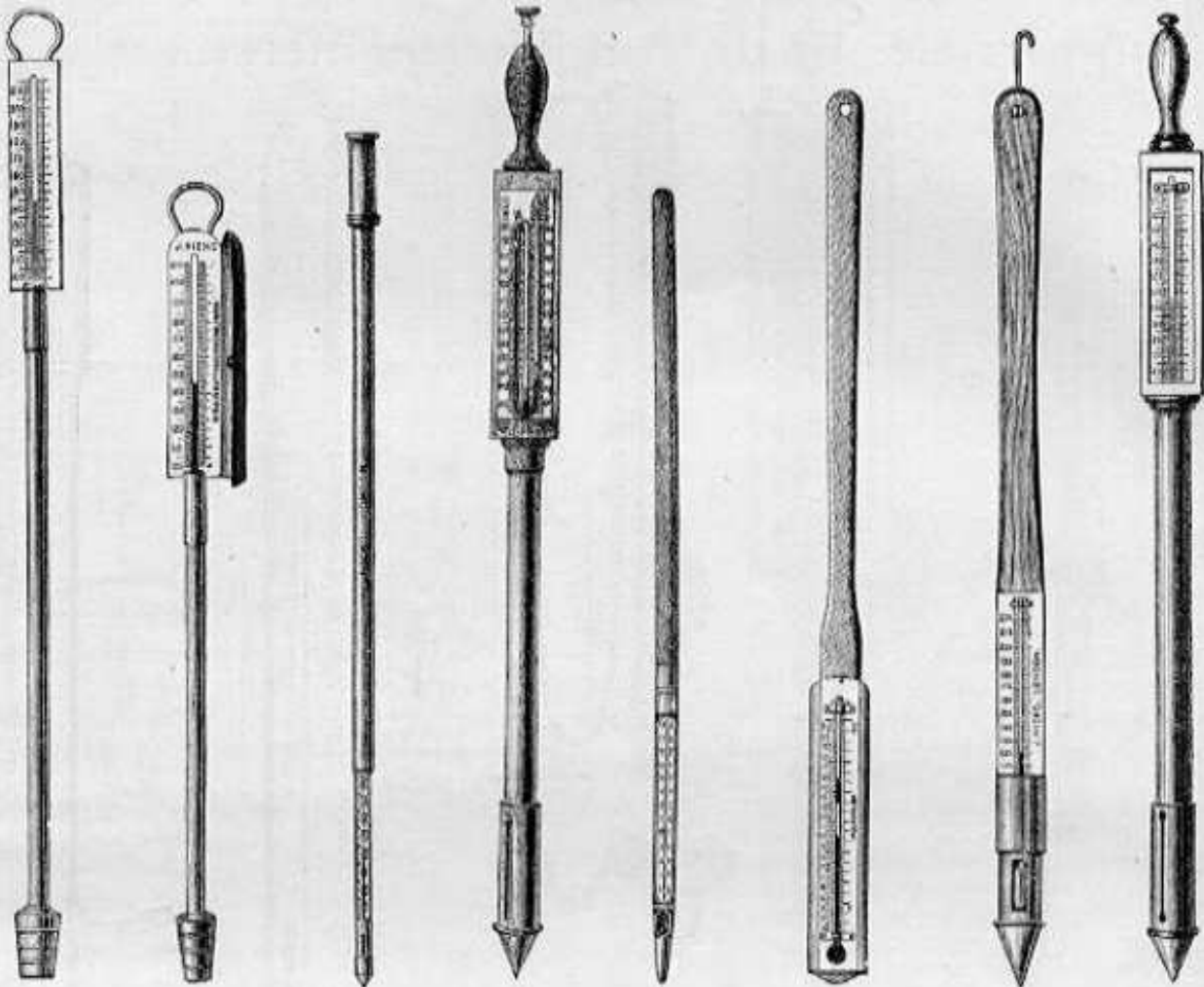


Fig. 9.

Fig. 10.

Fig. 10A.

Fig. 10B.

Fig. 11.

Fig. 11A.

Fig. 12.

Fig. 13.

No.		£	s.	d.
27	Fig. 9. <b>MASH TUN THERMOMETER</b> , in solid brass frame, metal scale to 212°, 3 ft., 30/-, 4 ft., 40/-, 5 ft., 45/-, 6 ft.	2	10	0
28	Fig. 10. Do. same as above, but with door to cover scale, 3 ft., 33/-, 4 ft., 43/-, 5 ft., 48/- ... .. 6 ft.	2	13	0
	(Enamel Glass Scale to Fig. 9 or 10, 3/- extra).			
29	Fig. 10A. Do. Guinness's Patent, in brass case 4 ft. long, self-registering tube	2	10	0
30	Fig. 10B. Do. Showing highest and lowest heats, 4 ft. long, 55/- ... .. 5 ft.	3	5	0
31	Fig. 11. Do. Howling's Improved Thermometer, on round oak stick, self-registering tube ... ..	1	5	0
32	Fig. 11A. Do. On white wood stick, with self-registering Thermometer, which slips into two grooves, and is easily removed ... ..	1	2	6
33	Fig. 12. Do. On oak stick, with scale at bottom, and metal slider to retain the heat, 3 ft., 30/-, 4 ft., 35/-, 5 ft., 40/- ... .. 6 ft.	2	5	0
35	Fig. 13. Do. In mahogany frame, with long brass guard over tube, and slider to retain the heat, porcelain scale at top, very distinct, 3 ft., 40/-, 4 ft., 45/-, 5 ft., 50/- ... .. 6 ft.	2	15	0

# Mash Tun and Fermenting Tun Thermometers.

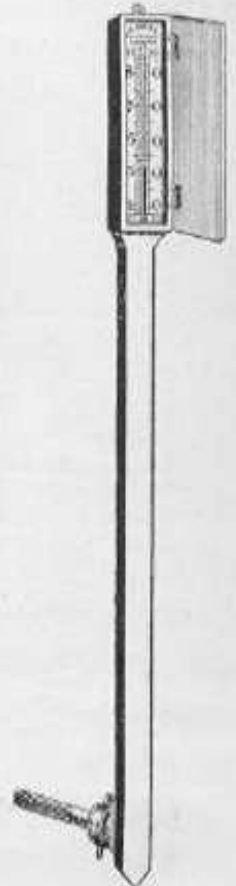
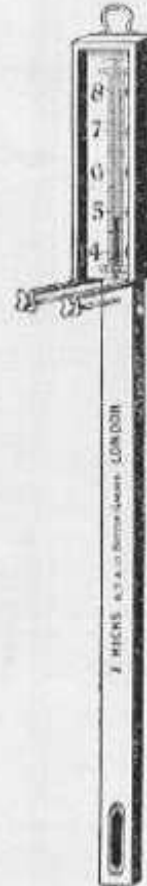
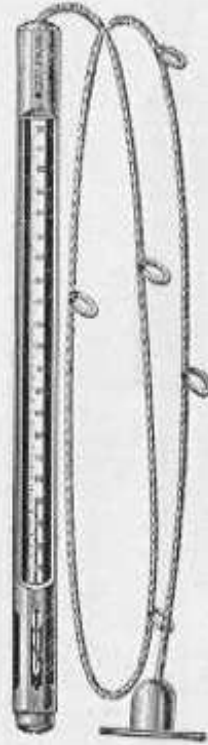


Fig. 13A.  
No.

Fig. 13B.

Fig. 13C.

Fig. 13D.

Fig. 13E.  
£ s. d.

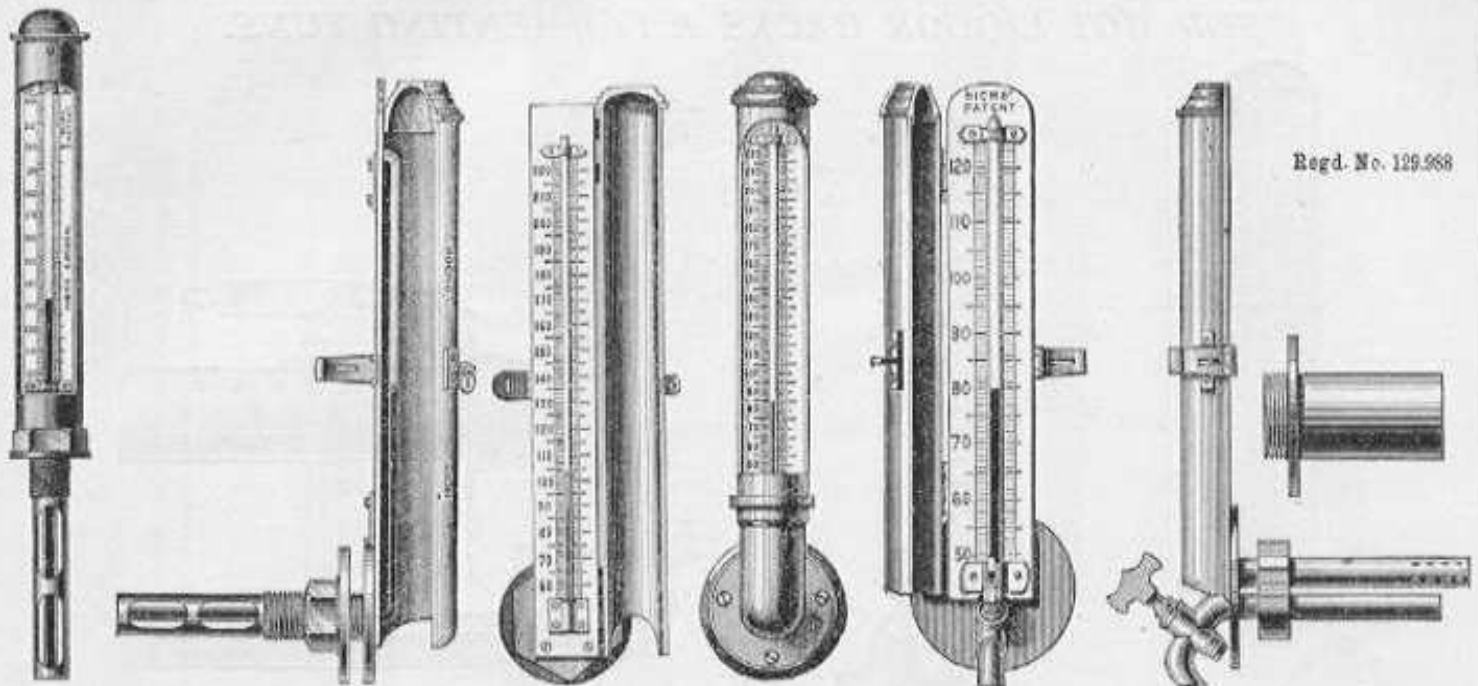
- 36 Fig. 13A. **MASH TUN THERMOMETER**, on oak stick, with two Thermometers, the upper one moveable, so as to take the heat at two different places at the same time. 5 ft. 50/- (Maximum tubes to both, 5/- extra) 6ft.
- 37 Fig. 13B. **MASH TUN THERMOMETER**, on oak stick, with scale at upper part, and metal slider to retain the heat, very sensitive. 3 ft., 35/-, 4 ft., 40/-, 5 ft., 45/- ... .. 6 ft.
- 38 Fig. 13C. **MASH TUN THERMOMETER. Bullard's Pattern.** Consisting of long perforated copper tube, allowing the heat every access to the interior, and a self-registering thermometer, enclosed in a brass case, which is lowered by a cord or chain down the perforated tube at any desired depth. The thermometer can be used, if desired, in the side of the Mash Tun, for which purpose the metal socket and cap is necessary. 4 ft., 65/-, 5 ft., 70/- ... 6ft.
- Spare Thermometer, in brass case ... .. 1 1 0
- " " without " .. .. 0 15 6
- Brass Socket Chain and Cap .. .. 0 18 0
- 39 Fig. 13D. **FERMENTING TUN THERMOMETER**, with clips to hang on side of Tun. Very accurate and portable. 3 ft., 35/-, 4 ft., 40/-, 5 ft.
- 40 Fig. 13E. **FERMENTING TUN THERMOMETER**, to fix outside the Tun, and bent part going through the tube. Very sensitive, of nice appearance and very reliable. 4 ft., 50/- ... .. 5 ft.

Fig. 13E.	£	s.	d.
	3	0	0
	2	10	0
	3	15	0
	1	1	0
	0	15	6
	0	18	0
	2	10	0
	3	0	0



# PIPE AND TANK THERMOMETERS.

For Pipes, Hot Liquor and Under Backs, Fermenting Tuns, &c., in Brass Frames.



Regd. No. 129,968

Fig. 14.

Fig. 15

Fig. 15A.

Fig. 16.

Fig. 16A.

No.	Description	Scale	Price (£ s. d.)
41	Fig. 14. PIPE THERMOMETER, 6-inch	Porcelain or Metal Scale, without revolving cover	1 4 0
42	... Do. ... 8-inch	do. do. do.	1 6 0
43	... Do. ... 10-inch	do. do. do.	1 7 0
44	... Do. ... 12-inch	do. do. do.	1 10 0
45	... Do. ... 6-inch	do. with revolving cover and cup to solder to pipe	1 7 0
46	... Do. ... 8-inch	do. do. do.	1 10 0
47	... Do. ... 10-inch	do. do. do.	1 12 0
48	... Do. ... 12-inch	do. do. do.	1 14 0
49	Figs. 15 and 15A. BENT THERMOMETER	8-inch do. with door to lock	1 12 0
50	... Do. ... 12-inch	do. do. do.	1 18 0
51	... Do. ... 18-inch	do. do. do.	2 12 0
52	Fig. 16 ... Do. Dome top	12-inch do. with revolving cover	2 7 6
53	... Do. ... 18-inch	do. do. do.	2 15 0
54	... Do. (like Fig. 16 but lighter frame)	8-inch do. without revol. cover	1 10 0
55	... Do. ... 10-inch	do. do. do.	1 12 0
56	... Do. ... 12-inch	do. do. do.	1 14 0
57	... Do. ... 8-inch	do. with revolving cover	1 12 0
58	... Do. ... 10-inch	do. do. do.	1 14 0
59	... Do. ... 12-inch	do. do. do.	1 17 6

N.B.—When ordering, please say size of gas thread and length of tail piece, measuring from flange, required: also whether scale is to be graduated 40° to 90° Faht., 50° to 220°, or what? The prices include any range up to 300° Faht.; above this will be extra. The above prices are for 6-inch tail-pieces or bends, above that, every 6 inches will be charged 5/- extra.

60 Fig. 16A. COMBINED ELBOW THERMOMETER AND TAP, for use in Fermenting Tuns. The absolute cleanliness of the Thermometer and tap can be assured by unscrewing and withdrawing the frame, and thoroughly cleansing it. When withdrawn from the Tun, a cap is screwed over the opening on to the socket, which is a fixture (Fig. 16A shows front and side views),

2 18 0

## Hicks' Improved Removable Thermometers, FOR HOT LIQUOR BACKS & FERMENTING TUNS.

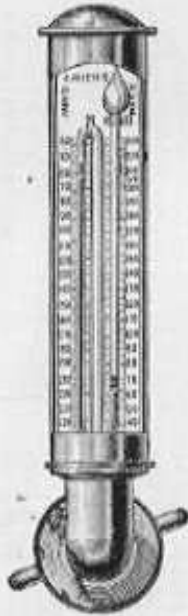


Fig. 17.

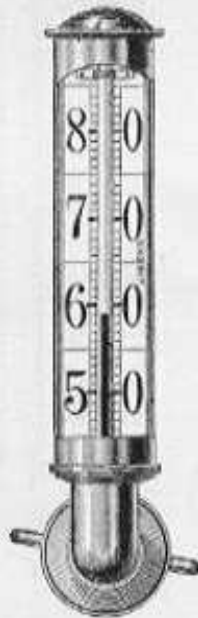


Fig. 17A.

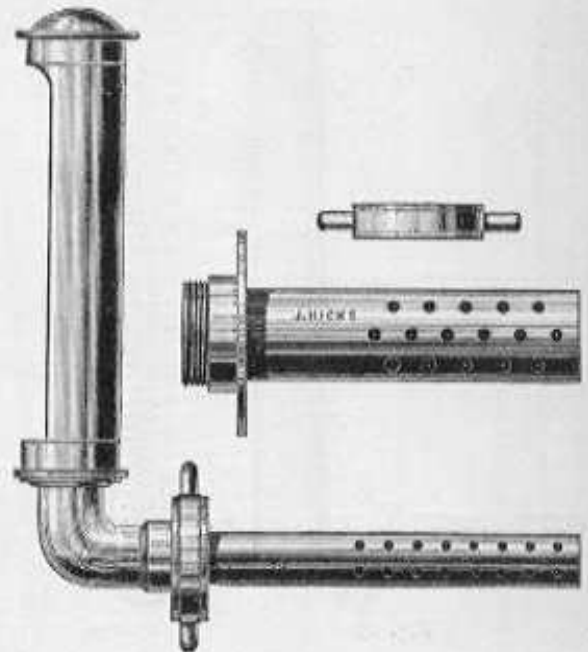


Fig. 17B.

The advantage of having Thermometers for the Hot Liquor Back or Fermenting Tun in these frames is that they can be so easily fitted in and as easily removed. The separate socket and cap shown in the upper portion of the right hand illustration is fixed *permanently* through the side of the Tun, and the Thermometer itself is simply slipped into the socket and fixed by a few turns of the milled head, which has two convenient lugs attached to it to assist in turning the screw. The Thermometer itself can therefore be quickly removed if desired during cleansing, or transferred to another Tun. The Thermometers are beautifully finished in every way, and being fitted in highly polished brass cases considerably add to the attractive appearance of the Tun room. They are used now in a large number of Breweries. These Thermometers are undoubtedly a great benefit, as the temperature can be read off at any time without having to dip a Thermometer in, which is often inconvenient as it soils the hands and clothes.

No.		£	s	d.
61	Fig. 17. SELF-REGISTERING THERMOMETER for Hot Liquor Backs, &c., Bent Frame, showing the highest and lowest heats	3	0	0
62	Fig. 17A. FERMENTING TUN THERMOMETER, front view, and 17B side view, very bold figures and clear porcelain scale 50° to 80°	2	10	0
63	... HOT LIQUOR BACK or TANK THERMOMETER, like 17A and 17B, but graduated from 80° to 212° ... ..	2	10	0

N.B.—Nickel plated frames, 5/- extra.

# MALT KILN AND FLOOR THERMOMETERS.

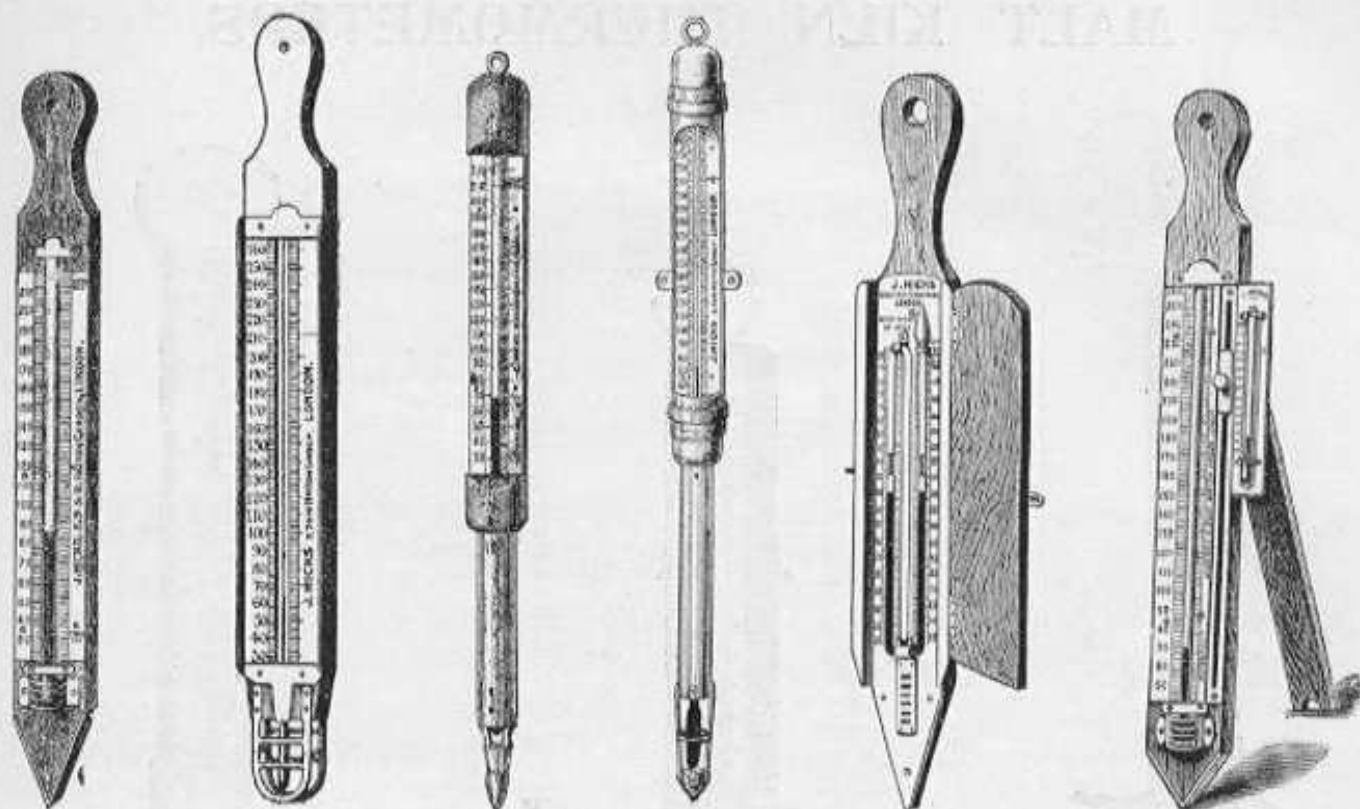


Fig. 18.

Fig. 19.

Fig. 20.

Fig. 20A.

Fig. 21.

Fig. 22.

No.	Description	£	s.	d.
64	Fig. 18. 18-inch OAK MALT KILN or MALT FLOOR THERMOMETER, with Metal Scale to 230°, and magnifying tube ...	0	10	6
65	Do. ... do. but with Porcelain Scale ...	0	12	6
66	Fig. 19. Do. ... do. with strong open wire guard so as to enable the thermometer to take up the heat quicker, porcelain scale and protected metal sides ...	0	15	0
67	Fig. 20. 19-inch ROUND do. Metal Scale, 12/6; Porcelain Scale	0	15	0
68	Fig. 20A. Do. ... do. Metal Scale like Fig. 20, but with revolving door to lock up, and bulb of thermometer more exposed ...	1	0	0
69	Fig. 21. 20-inch FLAT WOOD do. Metal or Porcelain Scale, with self-registering maximum and minimum tube, and door to lock up ...	1	15	0
70	10-inch POCKET MALT THERMOMETERS, in Morocco case, very handy for carrying about from malting to malting ...	0	10	0
71	Fig. 22. IMPROVED MALT FLOOR THERMOMETER, with an attached smaller moveable thermometer, so that the true heat of the grain in two places can be ascertained.	1	3	6
	NOTE.—Figs. 18, 19, 20 and 20A supplied with self-registering mercurial or steel index tubes ... extra	0	3	6
72	HICKS' IMPROVED MALT FLOOR THERMOMETERS. Fig. 22A is 8 inches long, has a magnifying tube with a cylinder shaped bulb, and silvered metal scale, on wood back, with very bold figures, 40° to 70° Fahr., price each	0	8	6
73	Fig. 22B is 10 inches long and similar to above, except that it has round bulb and a scale from 40° to 90° ... price each	0	7	6
74	HICKS' NEW INSULATED SCALE MALT FLOOR THERMOMETER, with bold red spirit tube and clean white scale, 30° to 90°, very legible, English make, and accuracy guaranteed ... each	0	5	6
75	Do. ... do. ... mercury tube, each	0	6	6
75A	INSULATED GLASS THERMOMETER, (for malt kilns), enamel glass scale to 260°, and bold tube ...	0	12	6

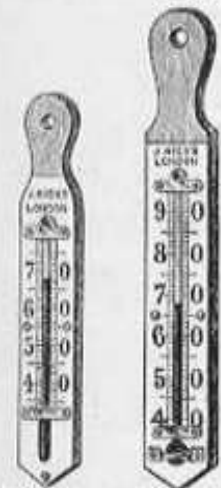


Fig. 22A.

Fig. 22B.

75

Do.

do.

do.

do.

do.

do.

do.

do.

do.

do.

do.

do.

do.

do.

do.

do.

do.

# MALT KILN THERMOMETERS.

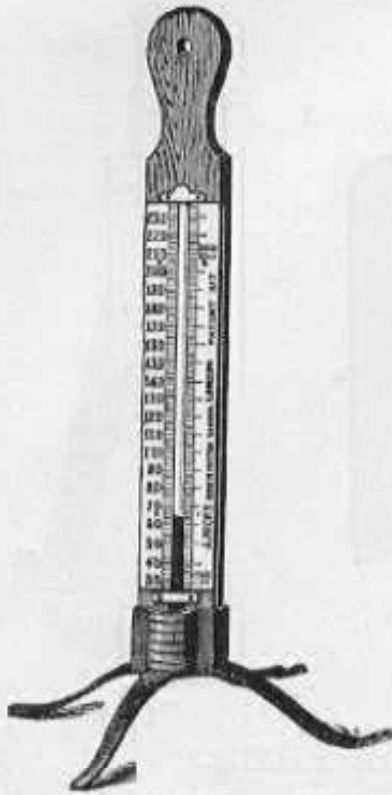


Fig. 22C.

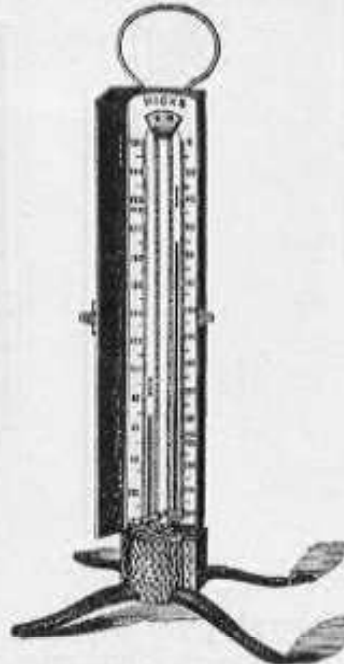


Fig. 22D.

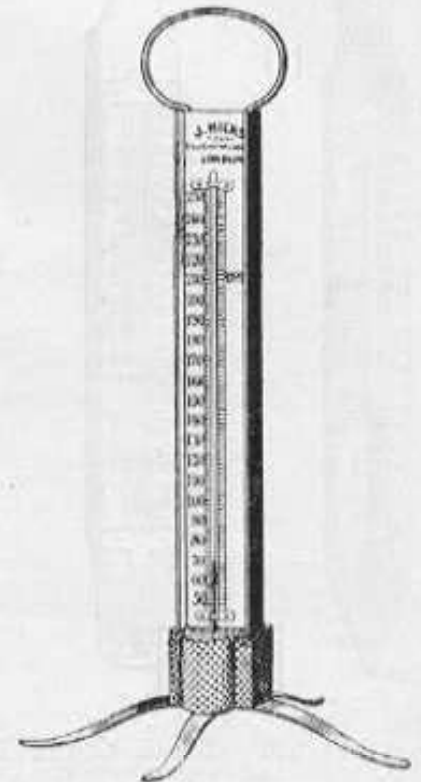


Fig. 22E.

No.		£	s.	d.
75B	Fig. 22C MALT KILN THERMOMETER, with metal scale to 250°, on iron foot, so as to stand upright in the malt. The frame is of wood, and the thermometer tube is sunk below the surface so as to protect it. It is very strong and durable ... ..	0	12	6
75C	Do. ... .. do. ... .. with enamel glass scale, which renders it more distinct and easy to read ... ..	0	15	0
75D	Fig. 22D. Do. ... .. do. ... .. with self-registering maximum and minimum tubes so as to give the highest and lowest heats. It is known as the "Tell-tale," as it registers the highest and lowest temperatures that have been attained on the kiln during the maltster's absence. It has a strong metal frame, with door to lock up, and a magnet is supplied with it, to set and work the indices in the tube. The reading is taken on the top of each column of mercury, not on top of the index. It has an enamel glass scale for easy reading and is graduated up to 260° Faht. In use all over the country ... ..	1	10	0
75E	Fig. 22E. Do. ... .. is similar to No. 75B, but instead of a wood frame it has a metal frame with protected sides, and is more durable. Also a clear enamel glass scale, and bold tube reading up to 250° ...	0	17	6

*For Maltsters' Recording Thermometers see page 50.*

## SIKES' HYDROMETERS.



Fig. 23.

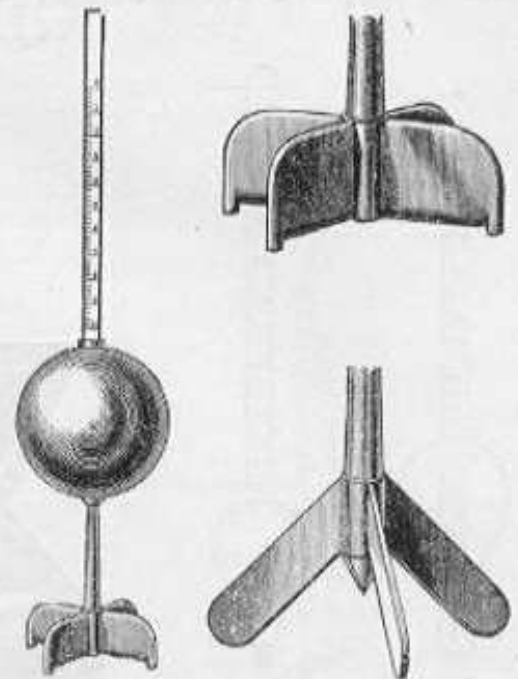


Fig. 24.

		£	s.	d.
76	SIKES' HYDROMETER, with 7 inch Ivory scale Thermometer, in mahogany box, book of tables and directions, and trial glass, but no rule ...	1	10	0
76A	... .. Do. ... do. ... .. better quality ... ..	2	0	0
77	... .. Do. ... do. ... .. specially prepared for Export, and complete as above, but with proof rule ... ..	2	5	0
78	... .. Do. strongly electro gilt, with 7 inch best Ivory Thermometer, in mahogany box, book of tables and directions, trial glass, and comparative rule ... ..	2	10	0
79	... .. Do. silver soldered, strongly electro gilt, 9 inch ivory scale enamel tube Thermometer, in mahogany box, velvet lined, book of tables and directions, comparative or proof rule, and trial glass, complete ... ..	3	0	0
80	Fig. 23. Do. strongly electro gilt, with a 9 inch Thermometer, in best mahogany box, including book of tables, two rules and trial glass, complete ... ..	3	10	0
81	... .. Do. (Standard), silver soldered, strongly electro gilt, with enamelled tube Thermometer divided on stem, in mahogany box, with book of tables and directions, two rules and trial glass, complete .. ..	4	0	0
82	... .. Do. small pocket size in neat mahogany case, containing highly gilt Instrument, best ivory scale Thermometer, magnifier and trial glass, and separate book of tables. This is an exceedingly portable and convenient Instrument, specially suitable for testing small samples or for carrying long distances ... ..	3	0	0
82A	... .. Do. pocket size, in morocco case with Thermometer, but no jar ... ..	2	5	0
82B	HYDROMETER, small metal gilt, for pocket, in morocco or boxwood case from 3 over P. to 20 under P. ... ..	0	15	0
	The above instruments are priced as ordinary patterns. If fitted with Hicks' New Patent Foot, as shown in the right hand illustration (see below) ... extra	0	5	0

NOTE.—The advantage of this Foot is that with it the Instrument becomes *immediately* stationary, and will not turn round in the fluid. It forms a tripod rest for the Instrument when lying down, so that it is impossible for it to roll off the table or counter and get injured. It also serves as a stand on which the Instrument can rest with safety, and drain itself dry, thus avoiding the necessity of wiping it, and thereby wearing off the gilt, which reduces its efficiency. Hydrometers should *not* be put away in their boxes *wet*, but wiped dry with a soft cloth.

HYDROMETERS OF ANY MAKE REPAIRED AND DONE UP AS NEW AT MODERATE COST.

The Prices of Proof and Comparative Rules separately, will be found on page 33.

# Glass Hydrometers, & Keating's Patent Hydrometers, FOR TESTING SPIRITS, &c.

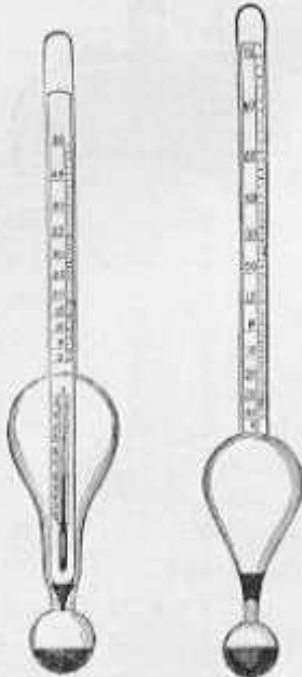


Fig. 25. Fig. 26.



Fig. 27.



Fig. 28.

No.	Description	£	s.	d.
83	Fig. 25. GLASS HYDROMETER, for spirit, ivory scale with Thermometer inside to indicate the temperature ...	0	8	6
84	... Do. for spirit, ivory scale and slide rule in polished mahogany box, and trial glass separate ...	1	0	0
85	Fig. 26. Do. ivory scale for proof spirit, from 40° under to 70° over proof in metal case ...	0	3	6
86	... Do. ... do. paper scale ... do. ... do. ...	0	2	9
87	... Do. ... do. Hicks' patent enamel stem and flat bulb, same range as above ...	0	4	6
88	... Do. ... do. do. ... hermetically sealed tube ... do. ...	0	6	0
89	... Do. ... do. Beaume's, for liquids heavier than water, in metal case ...	0	3	6
90	... Do. ... do. Beaume's, for liquids lighter than water, in metal case ...	0	3	6
91	... Do. ... do. A set of three, with ivory scales, from '700 to 1'900 in metal case ...	0	15	0
92	... Do. ... do. ... do. ... with paper scales ...	0	12	6
92A	... Do. ... do. for distiller's use, small size, paper scale, from 6 over proof to 10 under ...	0	5	0
93	Fig. 28. KEATING'S PATENT GLASS HYDROMETER has a stem 10 times as strong as any other, and can be handled without the least fear of breakage. The stem of the instrument is quite open at the top, and it has also a small opening at the bottom of the scale through which the fluid enters, thus giving a very extended and beautifully open reading, as there is great width between each division. The instrument can be divided to show proof spirit and under and over proof if desired, in box ...	0	10	6
94	Fig. 27. KEATING'S SET OF 3 HYDROMETERS, showing 30 under proof, to 60 over proof, in deal case ...	1	15	0
95	... Do. ... Small set of 5 do., showing 25, 35, 45, 55, and thermometer in mahogany case ...	3	10	0
95A	... Do. ... Large set of 5 do., do. ... do. ... do. ...	3	15	0
95B	... Do. ... Set of 10 do., showing specific gravity from '700 to 1'000, 12 inch trial jar, and 9 inch thermometer in mahogany case ...	5	5	0

NOTE.—These sets are exceedingly useful for Distillers, as they show such a beautiful open range that exceedingly fine readings can be taken.

# TRIAL AND SAMPLE JARS,

For use with Hydrometers and Saccharometers.

## AND VARIOUS HYDROMETERS.

No.	Description	Dimensions	Capacity	Price (£ s. d.)
95C	Fig. 28A. TRIAL AND SAMPLING JARS, not divided	$6\frac{1}{2} \times 1\frac{1}{2}$ inches	per dozen	0 9 0
95D	Do. ... do. ... do. ...	$7\frac{1}{2} \times 2\frac{1}{2}$ "	"	0 11 0
95E	Do. ... do. ... do. ...	$10 \times 2$ "	"	0 16 0
95F	Do. ... do. ... do. ...	$12\frac{1}{2} \times 2\frac{1}{2}$ "	"	0 18 0
95G	Do. ... do. ... do. ...	$14 \times 2$ "	"	1 4 0
95H	Do. ... do. ... do. ...	$14 \times 3$ "	"	1 6 0
95I	Fig. 28B Do. ...	Divided, $14 \times 3$ inches	into 8 gills in $\frac{1}{4}$ -ths, or $\frac{1}{100}$ -ths of a gallon	each 0 5 6
95J	Do. ...	Divided, $8\frac{1}{2} \times 2\frac{1}{2}$ inches	into 4 gills in $\frac{1}{2}$ -ths, or $\frac{1}{80}$ -ths of a gallon	" 0 3 6
95K	Do. ...	Divided, $7\frac{1}{2} \times 1\frac{1}{2}$ inches	into 1 gill in $\frac{1}{10}$ -ths, or $\frac{1}{800}$ -ths of a gallon	" 0 3 0
NOTE.—Plain Jars can be divided into 20 equal parts ... .. per doz. extra				0 12 0
Do. do. do. 21 (in $\frac{1}{3}$ parts) do. ... ..				0 18 0
Do. do. do. 28, 36, 40 or 50 do. ... ..				0 18 0
Do. do. do. 100 equal parts ... ..				1 16 0
Do. do. do. 120 do. ... ..				2 2 0
95KK	HYDROMETER JAR, hollow stem, Revenue pattern			0 2 6
95L	Glass Hydrometer, from 1.000 to 1.850			0 5 0
95M	Do. do. ... .. 1.700 to 1.000			0 4 0
95N	Acetometer, for testing vinegar and acetic acid, paper scale	1.000 to 1.100		0 3 6
95O	Ammoniameter, for testing ammoniacal liquors, liquid ammonia, &c., in metal case			0 3 6
95P	Aquarium Hydrometer, for testing artificial sea-water, 0° to 40°			0 3 6
95Q	Oleometer, for testing the strength of oils, ivory scale, in metal case			0 3 6
95R	Gay Lussac's Alcoholometer, as used in France, ivory scale, in metal case			0 4 0
95S	Barktrometer, open graduations, ivory scale, for testing liquor of tan-pits, from 0° to 100° in grains			0 3 6
95T	Board of Trade Hydrometer, for showing the specific gravity of sea water, 0° to 40°			0 3 6

### TWADDLE'S HYDROMETERS.

No. 1	0 to 25	Sp. Gr. 1.000 to 1.125	No. 4	75 to 100	Sp. Gr. 1.375 to 1.500
" 2	25 to 50	Sp. Gr. 1.125 to 1.250	" 5	100 to 125	Sp. Gr. 1.500 to 1.625
" 3	50 to 75	Sp. Gr. 1.250 to 1.375	" 6	135 to 170	Sp. Gr. 1.675 to 1.850

To convert degrees of Twaddle into specific gravity, multiply by 5, and add 1.000.

(N.B.—Special Quotations to Mineral Water Manufacturers requiring large quantities of Twaddles, &c.)

No.	Description	Price (£ s. d.)
25U	Twaddle's Hydrometers, Nos. 1 to 3	each 0 2 6
95V	Twaddle's Hydrometers, Nos. 4 to 6	" 0 3 6
95W	Twaddle's Hydrometers, set of six, in stained deal case	1 1 0
95X	Twaddle's Hydrometers, set of six, in mahogany case, with Thermometer, divided and figured on stem, for immersion in acids, &c.	1 10 0

# METAL SACCHAROMETERS for TESTING BEER, and Inland Revenue Officers' Case.



Fig. 29.  
No.

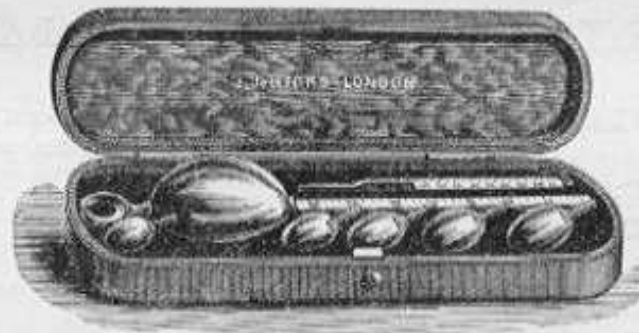


Fig. 32A.

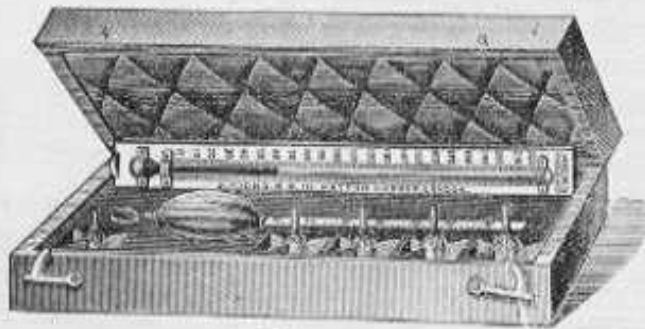


Fig. 31.

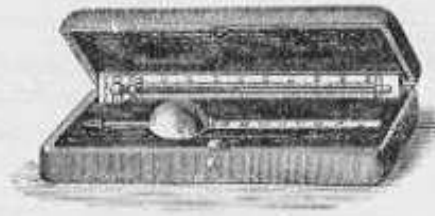


Fig. 30.



Fig. 32.

No.	Description	£	s.	d.
96	Fig. 32. IMPROVED BREWING SACCHAROMETER, in strongly gilt metal, for use with one weight, either lbs. per barrel or specific gravity, in mahogany case, with Thermometer	2	5	0
97	Fig. 30. SACCHAROMETER, pocket size, 0° to 35° sp. gr. on one side, and lbs. per barrel on the other, 10 weights, but with Thermometer. Very handy for publicans and travellers	1	15	0
98	Fig. 32A. SACCHAROMETER CASE, specially designed for Inland Revenue Officers. Very portable, measuring only 7½ × 1½ ins. Price of case only, 5/6; Thermometer only, 6/6; Saccharometer with 5 weights, Thermometer and case	3	10	0
<i>(This case is a distinct advantage to those having long distances to travel on foot. Highly commended by many Officers)</i>				
99	SACCHAROMETER, pocket size, in gilt metal, 0 to 12 lbs. per barrel (or sp. gr. if desired), for testing glasses of beer, no weights, enclosed in neat round wood case, suitable for carrying in the waistcoat pocket	1	0	0
100	BATES' PATENT SACCHAROMETER, in strongly gilt metal, with one weight for giving the value of wort, low wines, &c., in direct specific gravity degrees. In mahogany case, with Thermometer, tables and instructions complete	1	15	0
101	As Fig. 31. Do. ... but with ordinary foot (see below), do. with four weights	2	12	6
102	Do. do. ... Excise pattern, do. with five weights	3	10	0
103	ALLEN'S SACCHAROMETER, joints silver soldered, strongly electro-gilt, metal scale Thermometer, ivory rule in mahogany box, complete	2	15	0
104	DICAS' IMPROVED SACCHAROMETER, 9 weights in box, complete	4	0	0
105	STANDARD SACCHAROMETER, including two strongly electro-gilt Saccharometers, one ranging from 0 to 30 lbs., and the other from 30lbs. to 60lbs. divided into tenths of a pound, one weight, and best Thermometer, complete	4	10	0
106	RICHARDSON'S SACCHAROMETER, in electro-gilt metal, to 60 lbs. in mahogany case	2	15	0
107	SOLEIL'S SACCHAROMETER, modified by Duboscq, for estimating the value of saccharine fluids by polarised light	13	10	0
NOTE.—The above prices are for Instruments of ordinary pattern. For HICKS' PATENT FOOT, as shewn in Figs. 29, 31 and 32, an extra charge will be made of		0	5	0

SEE FOOT NOTE.

The advantage of this new Foot are fully described on page 11.

SACCHAROMETERS OF ANY MAKE REPAIRED AND DONE UP AS NEW. PRICES RANGING FROM 10/- to 15/-



## Glass Saccharometers, and Glucometer.

No.						£	s.	d.
108	GLASS SACCHAROMETERS, with paper scale, in metal case, 50 lbs. per bl., or 100 sq. gr. for common work, pear shaped body					0	2	9
109	Do.	...	with ivory scale	do.	...	0	3	6
110	Do.	...	with Hicks' Patent enamel stem, lbs. per barrell or specific gravity, and flat bulb to prevent the Instrument turning round in the wort, in metal case	...	do.	0	6	0
111	Do.	...	do.	...	do.	0	7	6
112	Do.	...	divided with two scales as preceding, but the instrument having an ivory scale	...	...	0	5	0
113	Do.	...	Pocket size, divided either to 10 lbs. per barrel or specific gravity, for testing small samples or glasses of beer, in neat wood case	...	...	0	7	6
114	Do.	...	do.	and small ivory scale Thermometer, in neat morocco case	...	0	15	0
115	Do.	...	with paper scale to 1,150° specific gravity	...	...	0	6	0
116	STANDARD SACCHAROMETER, with Hicks' patent enamel stem, divided 35 lbs. per barrel and specific gravity, in mahogany case. Specially graduated and guaranteed					0	15	0
117	Do.	...	do.	a set of two, one divided lbs. per barrel 0° to 25°, and the other 25° to 50°, with corresponding specific gravity scales	...	1	5	0
118	Do.	...	do.	a set of three, same as preceding, but the third instrument containing the scale from 50° to 75°	...	1	15	0
119	Do.	...	paper scale, divided 0 to 15 lbs. per barrel, in $\frac{1}{10}$ ths, in metal case...	...	...	0	6	0
120	Do.	...	do.	do.	0 to 30 lbs. per barrel, in $\frac{1}{10}$ ths	0	6	0
120A	Do.	...	do.	do.	...	0	6	0
120B	Do.	...	do.	do.	...	0	6	0
120C	Do.	...	a set as above three, 0°15, 15°30, 30°45 lbs. per barrel, in mahogany box...	...	...	1	5	0

NOTE.—Sampling or Trial Glasses for Saccharometers are priced on page 13.

120D	GLUCOMETER (Long's), for ascertaining amount of lbs. extract, per 2 cwt. in Glucose and all kinds of Sugar used in brewing					0	15	6
------	--	--	--	--	--	---	----	---

**Directions for Use.**—Weigh up carefully 3 oz. of the sample to be tested, dissolve it in hot water, then cool down with water to a temperature of 60°, and to exactly an Imperial pint in quantity. When immersed in this the Glucometer will show at once, by the divisions on its stem, the lbs. extract per 2 cwt. No calculation required.

NOTE.—Saccharometers can be made to show special ranges, as desired. When ordering please say whether *specific gravity* or *lbs. per barrel* scale is required.

**NOTICE.**—In consequence of the Railway Companies refusing to give compensation for Breake of HYDROMETERS & SACCHAROMETERS, Mr. Hicks can only forward them at Brewers' risk. He will see that every possible care is taken in packing, and labelling "GLASS WITH CARE," etc., but absolutely declines to accept any responsibility for accidents during transit.

# A USEFUL PAGE FOR BREWERS.

## SACCHAROMETER TABLES.

*Showing the Equivalent of Specific Gravity Degrees, at 60° Fahrenheit, in Pounds per barrel.*

A saccharometer pound is always  $2\frac{7}{8}$  as much as a degree of gravity, so that if the brewing saccharometer showed 10 pounds, the degrees of specific gravity would be  $10 \times 2\frac{7}{8} = 27.7$ , or as usually expressed 1027.7. So too, if the specific gravity saccharometer were employed and it showed a wort to be 1060, the corresponding weight would be in pounds per barrel  $60 \div 2\frac{7}{8} = 21.6$ . The rule is, therefore in reducing specific gravities to pounds to multiply the degrees over the 1000 by .36. Thus  $60 \times .36 = 21.6$ .

Specific Gravity.	Pounds per Barrel.	Specific Gravity.	Pounds per Barrel.	Specific Gravity.	Pounds per Barrel.	Specific Gravity.	Pounds per Barrel.
1000	.0	1026	9.36	1052	18.72	1078	28.08
1001	.36	1027	9.72	1053	19.08	1079	28.44
1002	.72	1028	10.08	1054	19.44	1080	28.80
1003	1.08	1029	10.44	1055	19.80	1081	29.16
1004	1.44	1030	10.80	1056	20.16	1082	29.52
1005	1.80	1031	11.16	1057	20.52	1083	29.88
1006	2.16	1032	11.52	1058	20.88	1084	30.24
1007	2.52	1033	11.88	1059	21.24	1085	30.60
1008	2.88	1034	12.24	1060	21.60	1086	30.96
1009	3.24	1035	12.60	1061	21.96	1087	31.32
1010	3.60	1036	12.96	1062	22.32	1088	31.70
1011	3.96	1037	13.32	1063	22.68	1089	32.04
1012	4.32	1038	13.68	1064	23.04	1090	32.40
1013	4.68	1039	14.04	1065	23.40	1091	32.76
1014	5.04	1040	14.40	1066	23.76	1092	33.12
1015	5.40	1041	14.76	1067	24.12	1093	33.48
1016	5.76	1042	15.12	1068	24.48	1094	33.84
1017	6.12	1043	15.48	1069	24.84	1095	34.20
1018	6.48	1044	15.84	1070	25.20	1096	34.56
1019	6.84	1045	16.20	1071	25.56	1097	34.92
1020	7.20	1046	16.56	1072	25.92	1098	35.28
1021	7.56	1047	16.92	1073	26.28	1099	35.64
1022	7.92	1048	17.28	1074	26.64	1100	36.00
1023	8.28	1049	17.64	1075	27.00	1200	72.00
1024	8.64	1050	18.00	1076	27.36		
1025	9.00	1051	18.36	1077	27.72		

### TO COUNTRY BREWERS.

Mr. Hicks is always happy to execute Commissions, or to be of service in any way to Brewers residing at a distance from London. He is also glad to recommend Brewers, having good credentials to those Breweries, (with which he does business), who may have vacancies for such.

NOTE.—Breweries in ordering from this Catalogue are requested to quote Fig. (if any) number, and year of issue "1904" so as not to confound with previous issues, in which many of the numbers differ owing to extensive additions in present issue.

# Chondrometer and Wine Testing Apparatus.

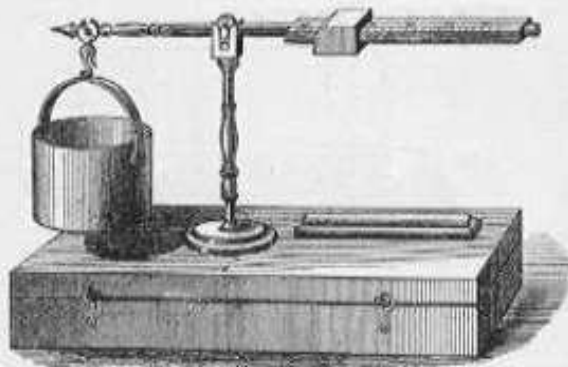


Fig. 33.

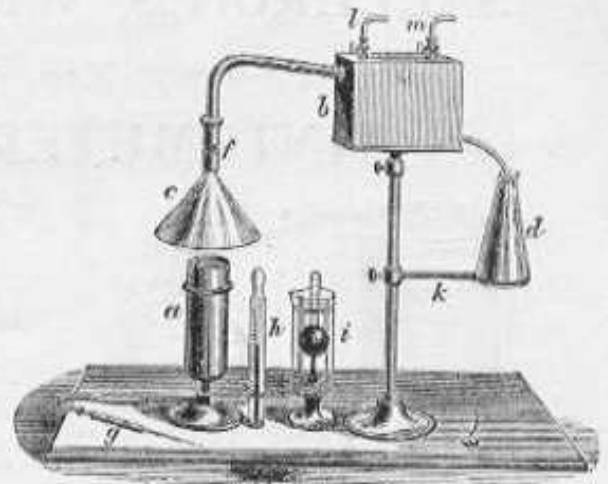


Fig. 34.

Fig. 33. **CHRONDROMETER, or CORN BALANCE**, for showing the weight per bushel of wheat, barley, oats, &c. Carefully adjusted by the Imperial Standard. To use the Instrument:—

- (1) *Fill the measure or bucket carefully, and with the roll strike off the top.*
- (2) *Hook the bucket on the end of the scale beam, then move the brass weight till it just balances the bucket and its contents.*
- (3) *Read off the degree marked on the brass slide, which will be the weight of an eight gallon bushel of the grain tested.*

No.										£	s.	d.
121	<b>CHRONDROMETER</b> , without funnel, to hold 1 pint	...	...	...	...	...	...	...	...	2	12	6
122	... Do. ... do. ... do. ½ pint	...	...	...	...	...	...	...	...	2	2	0
123	... Do. ... do. ... do. ¼ pint	...	...	...	...	...	...	...	...	1	13	6
124	... Do. ... do. ... do. ½ pint	...	...	...	...	...	...	...	...	1	10	0
125	... Do. ... with funnel do. 1 pint	...	...	...	...	...	...	...	...	5	0	0
126	... Do. ... do. ... do. ½ pint	...	...	...	...	...	...	...	...	3	15	0

Fig. 34. **WINE TESTING APPARATUS**. This Apparatus is arranged for conveniently determining the amount of proof spirit in Wines, Liqueurs, &c., and has been extensively used in the laboratories of H.M. Board of Customs. Price of apparatus, with glass flask and measure glass only ...

4 4 0

**EXTRAS.**

128	12 inch Chemical Thermometer	...	...	...	...	...	...	...	...	0	7	6
129	Metal Gilt Hydrometer (Sikes')	...	...	...	...	...	...	...	...	1	10	0
130	Gas Burner or Spirit Lamp	...	...	...	...	...	...	...	...	0	10	6
130A	12 feet Rubber Tubing	...	...	...	...	...	...	...	...	0	8	0
130B	12 Leather Washers	...	...	...	...	...	...	...	...	0	3	0

# SALLERON'S WINE TEST APPARATUS

(Adopted by the French Custom House, and others),

## TINTOMETER AND VENT PEG.

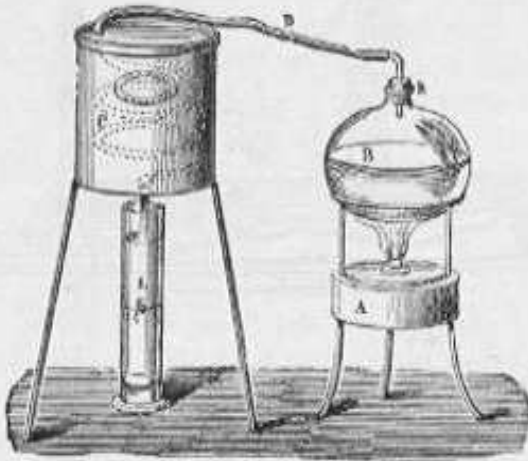


Fig. 34A.



Fig. 34B.

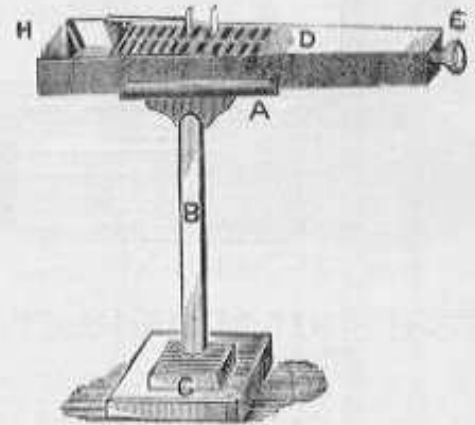


Fig. 34C.

No. 130C Fig. 34A. **SALLERON'S WINE TEST** is universally employed in all countries where wine is produced. It combines perfect precision with great simplicity of manipulation, and permits, by substituting for Gay-Lussac's alcoholometer employed in France, Sikes's hydrometer used in England and in the English Colonies, the measurement of alcohol in proof spirit, wines, beer, etc., etc.

The apparatus consists of the following articles:—A spirit-lamp, A. A glass globe, B, as a Boiler. A Worm contained in a refrigerating vase, C, supported on three brass legs,—the worm is connected with the boiler by means of the india-rubber tube, D, fixed to a stopper, E, which fits into the neck of the globe, B. A glass measure, L, with a line, *a*, which limits the quantity of the liquid to be tested and that of the liquid that drops under the worm. Two areometers, one of which is used for common wines, the other for alcoholic wines and sweet liqueurs. A Centigrade or Fahrenheit thermometer, and a glass dropping tube.

Full instructions for use are supplied with each apparatus. Price, complete £1 10s.

130D Fig. 34C. **LOVIBOND'S TINTOMETER** is an instrument, by means of which the depth of colour in liquids and solids can, for the first time, be accurately measured in degrees, placed in their position in a permanent colour scale and registered.

It consists of a graded series of standards made of coloured glasses numbered according to their depth of colour, and an instrument for holding the glasses and the object to be measured, and consists essentially of the standard series and the instrument. It is therefore exceedingly serviceable to Brewers and Maltsters, as is proved by the very large number in use all over the country.

Set of Apparatus for Brewers, Wine Merchants, Sugar and Caramel Manufacturers, including 20 Standard Glasses ... .. £6 6 0

130E Extra Apparatus or estimation of colour in Dry Malt ... .. 2 10 0

130F Standard Coloured Glasses ... .. each 0 1 3

130G A Complete Set of Standard Glasses for matching all possible colours, numbers 470 glasses ... .. 30 0 0

130H Fig. 34B. **VENT PEG**, Parker's Patent, for giving vent to casks containing liquid. Extremely simple and most effective. Half a turn of the thumb-screw is sufficient to regulate it. Hundreds in use, and highly commended by the Brewing Press. Price ... .. each 0 1 0

(Specially Lacquered for Export, 1/6).

# Standard & Chemical Thermometers, Specific Gravity Beads and Bottles.

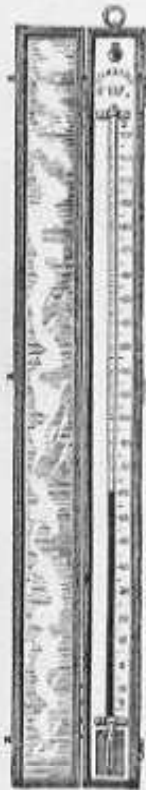


Fig. 35.



Fig. 36.



Fig. 37.



Fig. 39.

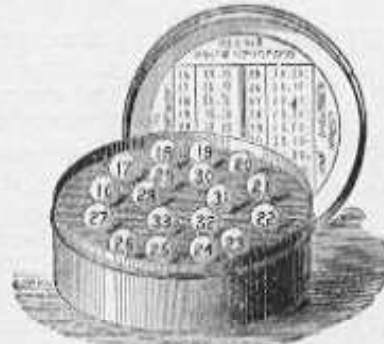


Fig. 38.



Fig. 40.

No.	Fig.	Description	Price
131	Fig. 35.	<b>STANDARD THERMOMETERS</b> , 18 inch. With enamel glass tube, scale engine divided on stem, figured on silvered metal raised piece, 0° to 220°, in morocco case ... ..	2 0 0
132	...	Do. 16 in., metal scale, guaranteed perfect and unalterable, in copper case	1 1 0
133	...	Do. either of the above with patent magnifying tubes ... extra	0 5 0
<i>No Brewer should be without a Standard Thermometer.</i>			
134	Fig. 36.	<b>CHEMICAL THERMOMETERS</b> , divided and figured on stem, enamel tube, in round wooden case—	
		8-inch.      10-inch.      12-inch.      14-inch.      16-inch.      18-inch.	
		0° to 220°      5/0      5/3      5/6      5/9      6/0      8/9	
		0° to 400°      5/3      5/6      5/9      5/0      6/9      9/3	
		0° to 650°      5/6      5/9      6/0      6/9      7/3      10/0	
134A		<b>POCKET THERMOMETER</b> , for testing Beers, divided and figured on stem from 40° to 90°, 4 or 5 inches long as desired, with magnifying tube	0 10 0
134B	Do.	do. do. do. do. do. do. with ordinary tube	0 7 6
135	Fig. 37.	<b>CHEMICAL THERMOMETERS</b> , with enamel tube and hinged boxwood scale, extra on above prices, each	0 2 0
136	Fig. 38.	<b>SPECIFIC GRAVITY BEADS</b> . Set of 12 in box, with tables, indicating strengths from 35° over to 20° under proof	0 7 0
137	...	Do. ... do. set of 18, indicating strengths from 35° over to 50° under proof ... ..	0 10 0
138	...	Do. ... do. Set of 24, indicating strengths from 60° over proof to 55° under proof ... ..	0 12 6
138A	Fig. 39.	<b>SPECIFIC GRAVITY BOTTLE</b> . To 1000 grains, with counterpoise, in japanned metal case ... ..	0 7 6
138B	...	Do. ... do. To 500 grains 6/6; to 250 grains ... ..	0 5 6
139	Fig. 40.	<b>HICKS' NEW MERCURIAL THERMOMETER</b> 100 to 900° Faht. Guaranteed. 18 inches long. Divided and figured on its stem. Beautifully distinct ... ..	1 15 0

# LABORATORY APPARATUS.

## HIGHEST GRADE.



Fig. 41.



Fig. 44.



Fig. 45.



Fig. 46.

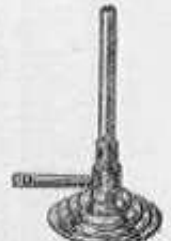


Fig. 47.

No.					f.	s.	d.
140	Fig. 41.	BASINS, glass, with glass cover, each 2 in. diam., 9d., 2 1/4 in., 1/-; 3 1/2 in.			0	1	6
141	Do.	Porcelain, thin evaporating, shallow, each 3 1/2 in. diam., 9d., 5 in., 1/3 ... .. 5 1/2 in.			0	1	9
142	Do.	... do. deep, 5 1/2 in. diam., 2/6, 6 1/2 in., 3/6, 7 1/2 in.			0	5	0
143	Fig. 44.	BEAKERS, finest thin Bohemian glass, uniform thickness, per doz., 3 oz., 4/6, 7 oz., 7/-, 11 oz., 8/- ... .. 15 oz.			0	10	0
144	Fig. 45.	BLOWPIPES, Gas, with universal joint ... .. each			0	10	6
145	Fig. 46.	Do. ... do. 2 stopcocks and 2 extra jets ..			1	0	0
146	Fig. 47.	BUNSEN'S BURNER, with regulator, all brass, 1/8 in. ..			0	4	6
147	Do.	do. Gauze, Argand, and brass chimney ..			0	10	6



Fig. 49.



Fig. 50.

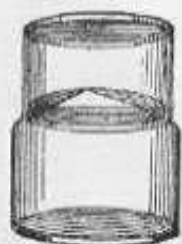
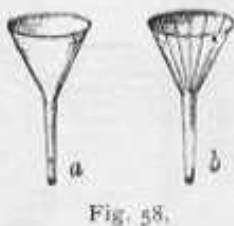
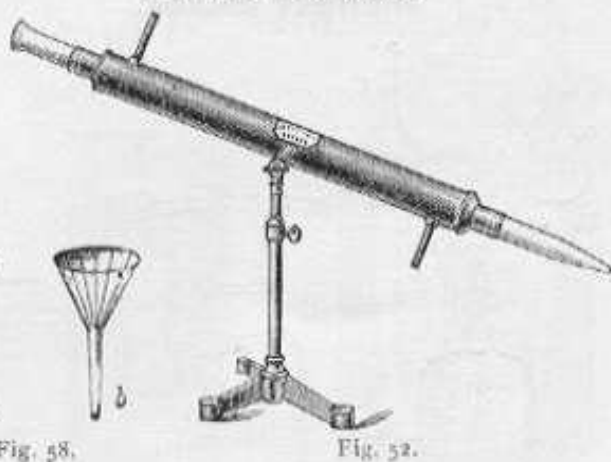
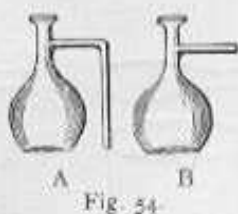


Fig. 51.

No.					f.	s.	d.
148	Fig. 49.	BURETTES, Gay-Lussac's, 1000 grains, divided into 100 parts			0	4	6
149	Do.	do. 50 c.c. .. 250 "			0	5	0
150	Do.	do. 50 c.c. .. 500 "			0	6	6
151	Fig. 50.	Do. Bink's, 25 c.c. .. 250 "			0	3	6
152	Do.	do. 50 c.c. .. 250 "			0	4	6
153	Do.	do. 50 c.c. .. 500 "			0	5	6
154	Do.	Geissler's, with glass stopcock 10 c.c. divided into 1/10 divns.			0	4	0
155	Do.	do. 20 c.c. .. "			0	4	6
156	Do.	do. 30 c.c. .. "			0	5	6
157	Do.	Hicks' Patent Opaque, very easy to read, with pinchcock 20 c.c. divided into 1/10 divns.			0	7	6
158	Do.	do. 30 " (with glass-cock)			0	8	6

# LABORATORY APPARATUS.

## HIGHEST GRADE.



No.	Description	£	s.	d.
159	Fig. 52. <b>CONDENSER</b> , Leibig's, copper, with glass tube, 38 ins. long, 7/8 in. diameter, on iron foot, with joint and brass telescope slide, for the Distillation of Spirits, Water, &c. ... ..	1	1	0
160	Fig. 53. <b>DESSICATOR</b> , Bohemian glass, domb or flat top ... .. each	0	6	0
161	<b>FLASKS</b> , Distilling, conical shape, each 2/6; with brass collar and screw for attaching to apparatus .. .. .	0	4	0
162	Fig. 54. Do. best Bohemian, for forcing tray, A or B same price, per dozen, } 2 oz., 8/- ... .. 4 oz. }	0	10	0
Rubber Corks for Flasks, 3/- per dozen.				
163	Fig. 55. Do. best hard Bohemian, for boiling, flat bottom, per dozen, 4 oz., 5/-; } 16 ozs., 10/- ... .. 20 oz. }	0	12	0
164	Fig. 56. Do. globular, capacity 8 oz., 8d.; 10 oz., 1/-; 18 oz., 1/6; 36 oz.	0	3	0
165	Fig. 57. Do. with mark on neck, and stoppered, capacity 100 c.c., 2/-; } 200 c.c., 3/-; 500 c.c., 4/- ... .. 1000 c.c., each }	0	5	0
166	Fig. 58. <b>FUNNELS</b> , Bohemian glass, plain or ribbed, each 3 1/2-in., 9d.; } 4 1/2-in., 1/-; 5 1/2-in., 1/6 ... .. 8-in. }	0	2	6
167	Fig. 59 Do. cup pattern, with stop-cock ... .. each	0	4	0

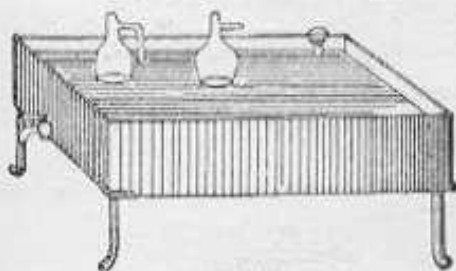


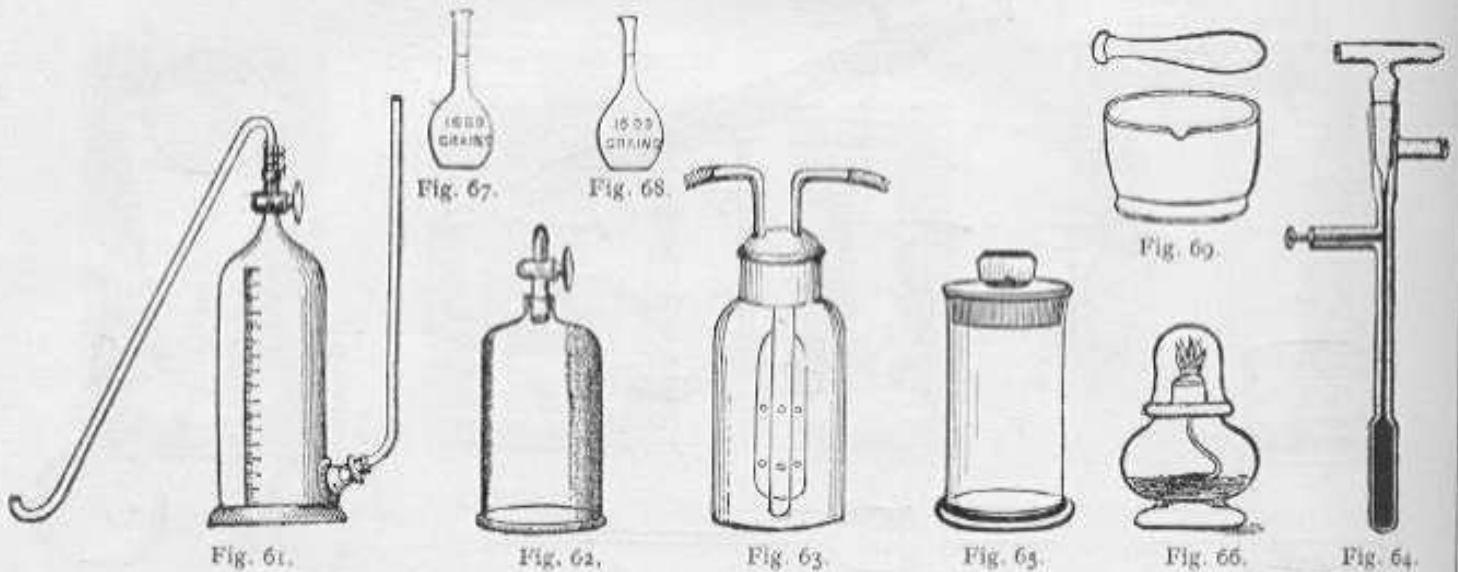
Fig. 60.

No.	Description	£	s.	d.
168	Fig. 60. <b>FORCING TRAY</b> , of copper, size, 30 X 24 X 4 inches deep, on iron stand with tap ... ..	3	10	0
169	Do. do. 18 X 12 X 3 inches	2	5	0

(Other sizes quoted on application.)

# LABORATORY APPARATUS.

HIGHEST GRADE.



No.						£	s	d
170	Fig. 61.	GAS HOLDER for mercury, with glass stop-cock, graduated to 180 mm., 10/-; to 230 mm.		...	...	0	12	0
171	Fig. 62.	GAS RECEIVER, with stop-cock, 8-in. high, 6-in. diameter, each		...	...	0	10	0
172	...	Do.	...	do.	...	0	13	0
173	Fig. 63.	GAS WASHING BOTTLE, double action:—						
			250cc.	500cc.	1000cc.			
			about 8-oz.	16-oz.	32-oz.			
			each 4/6	5/6	6/6			
174	Fig. 64.	GAS REGULATOR, Reichert's, suitable for all temperatures		...	...	0	6	6
175	Fig. 65.	JARS, specimens, stoppered, best white glass and polished:—						
		diameter	1½-inch.	2-inch.	4-inch.			
		height...	6-inch.	7½-inch.	12½-inch.			
		each ...	1/6	2/6	6/-			
176	Fig. 66.	LAMPS, glass, spirit, 2-oz., 1/3; 4-oz., 1/6; 8-oz.		...	...	0	2	0
177	Fig. 67.	MEASURES, STANDARD, as used by the Inland Revenue for taking the original gravity of Beer, standard 1600 grain mark		...	...	0	2	0
178	Fig. 68.	Do.	...	do.	...	0	3	0
179	...	Do.	...	do.	Hicks' patent opaque glass, very distinct, and easy to read in any light, most useful for Laboratory work, will be found illustrated and priced on next page.			
180	Fig. 69.	MORTAR AND PESTLE, Berlin porcelain:—						
		outside diameter	2½-inches.	3½-inches.	4½-inches.			
		each ...	2/-	3/6	4/6			



## Laboratory Apparatus. Measures, Opaque Glass, Hicks' Patent.

*Easy to read. Invaluable in laboratories.*



Fig. 70.



Fig. 71.



Fig. 72.



Fig. 73.

**T**HE advantage of these measures over those of plain glass consists in their being made of pure white enamel tubing, with a narrow opening of clear glass back and front, through which to read the liquid, and the divisions and figures being written in black, and fired on the enamel are indelible, and can be read with the greatest ease in almost any light.

They are of especial value to Brewers, Wine Merchants, and Distillers. Where accurate measurements are absolutely essential, they will be found invaluable, and there is no doubt that when their merits are known they will be universally adopted. Any Measure can be divided in whatever way a Customer desires, or verified and stamped at the small additional cost of 3d. each nett.

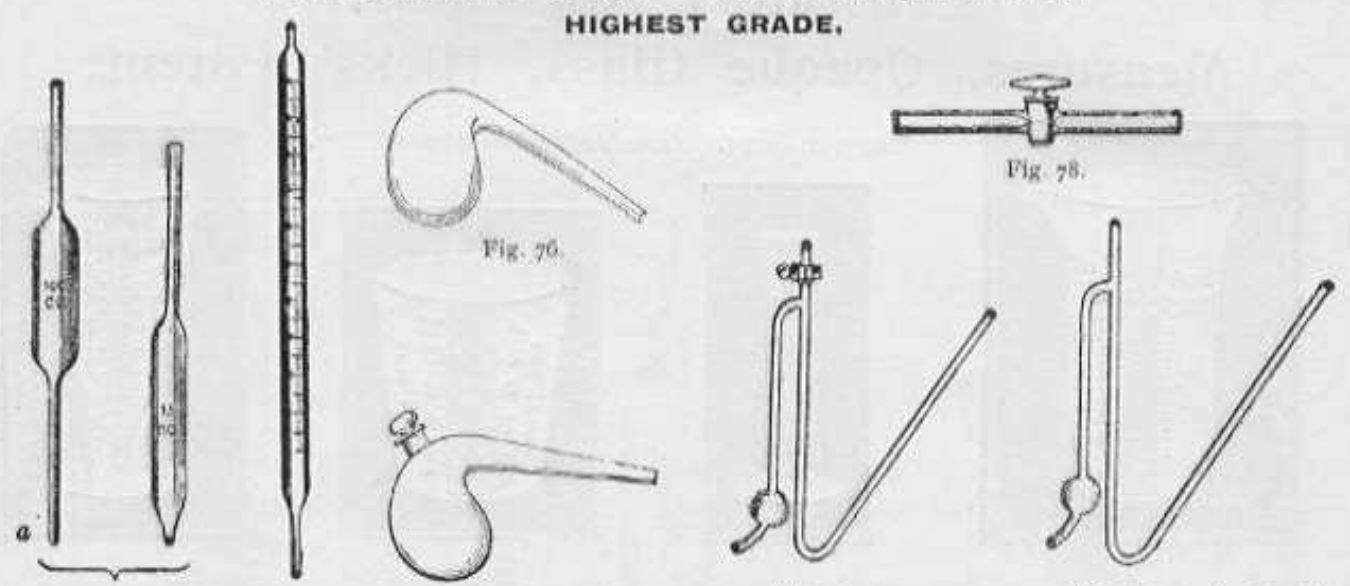
No.		Per doz.	No.		Per doz.
		£ s. d.			£ s. d.
181	1 oz., cup shape, like Fig. 70...	1 1 0	194	120 minim, cylindrical, like Fig. 71	1 4 0
182	2 oz. do. do. ...	1 6 0	195	½ oz. do. do. ...	1 6 0
183	4 oz. do. do. ...	1 10 0	196	The Tumbler, like Fig. 72 ...	1 2 0
184	6 oz. do. do. ...	1 14 0	197	60 minim, conical, like Fig. 73..	1 0 0
185	8 oz. do. do. ...	1 16 0	198	120 do. do. ...	1 1 0
186	10 oz. do. do. ...	2 5 0	199	½ oz. do. do. ...	0 19 0
187	12 oz. do. do. ...	2 8 0	200	1 oz. do. do. ...	1 5 0
188	16 oz. do. do. ...	2 10 0	201	2 oz. do. do. ...	1 8 0
189	20 oz. do. do. ...	2 15 0	202	4 oz. do. do. ...	1 12 0
190	40 oz. do. do. ...	4 14 0	203	6 oz. do. do. ...	1 16 0
191	5 inch Rain Gauge Jar ...	2 12 0	204	8 oz. do. do. ...	2 2 0
192	8 inch do. ...	3 9 0	205	10 oz. do. do. ...	2 10 0
193	60 minim, cylindrical, like Fig. 71	1 2 0	206	20 oz. do. do. ...	2 15 0

**PLAIN GLASS MEASURES OF ALL KINDS SUPPLIED AT LOW PRICES.**

*N.B.—In ordering from this or any other page, please quote 1901 Catalogue.*

# LABORATORY APPARATUS.

HIGHEST GRADE.



No.	Fig.	Description	Price	Sh.	D.
207	Fig. 74	PIPETTES, with standard mark, 5cc, 8d.; 10cc, 1/-; 50cc, 1/6; 100cc ... each	0	2	6
208	Fig. 75	Do. ... graduated scale, 5cc into 25 parts each	0	1	6
		10cc .. 50 .. .. .	0	2	0
		20cc .. 100 .. .. .	0	3	0
209	Fig. 76	RETORTS, hard bohemian glass, plain, 4 oz., 8d.; 12 oz., 1/-; 24 oz., ... each	0	1	6
210	Fig. 77	Do. do. ... stoppered, 4 oz., 1/-; 12 oz., 1/6; 24 oz., each	0	2	0
211	Fig. 78	STOPCOCKS, glass, 9 inches long, bore 2mm. 3mm. 4mm.			
		2/6 3/6 4/6			
212	Fig. 79	SYPHONS, glass, with suction tube, 12 inch arm, 2/-; 15 inch arm, 2/6; 18 inch arm ...	0	3	0
213	Fig. 80	Do. ... do. for Acids, with stopcock, 12 in. arm, 4/-; 18 in. arm	0	5	0

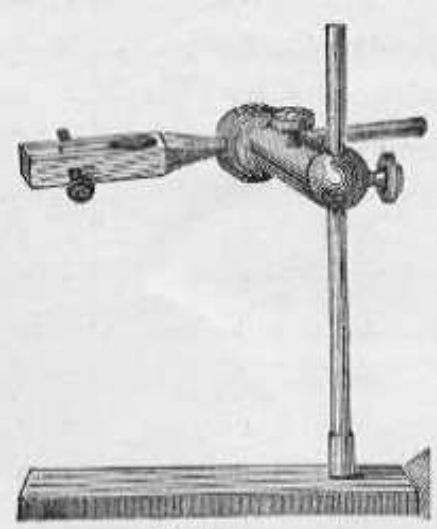


Fig. 81.

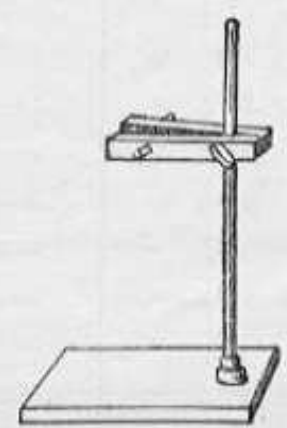


Fig. 82.

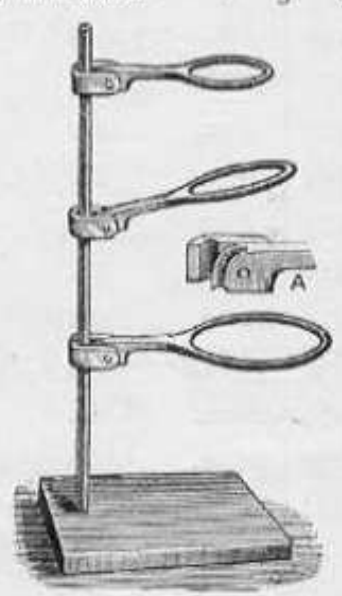


Fig. 83.

214	Fig. 81	STAND FOR RETORTS, etc., universal motion, polished wood clamp, lined with cork ... each	0	10	0
215	Fig. 83	Do. do. Moor's patent, each ring movable at will ... ..	0	8	6
216	Fig. 82	STAND FOR BURETTES, etc., with clamp, polished boxwood screws, each, 6/- ... .. double	0	8	0

# LABORATORY APPARATUS.

HIGHEST GRADE.



Fig. 86.



Fig. 87.

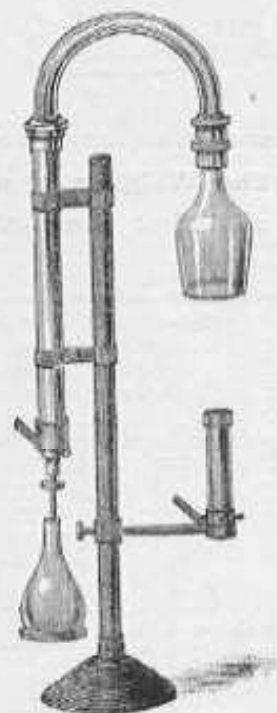


Fig. 84.

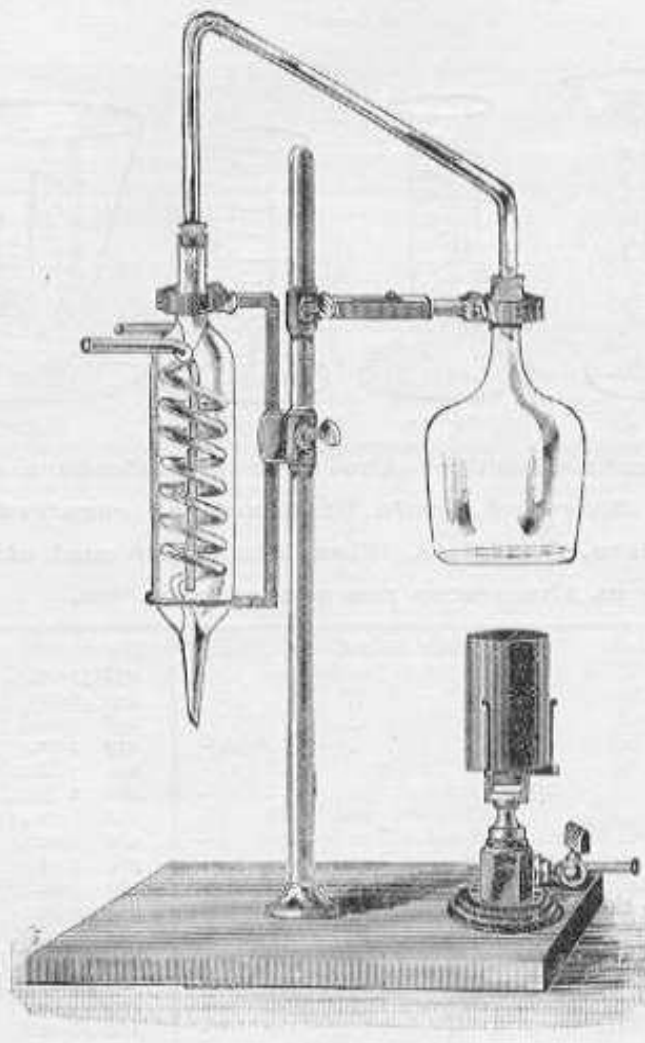


Fig. 85.



Fig. 88.



Fig. 89.



Fig. 90.



Fig. 91.



Fig. 92.

No.	Fig.	Description	Price
217	Fig. 84.	STILL, for Wines. Keene's, vertical, copper condenser, as used H.M. Customs, for gas or spirit, complete ...	4 0 0
		(Flasks for above, 1/6 each, with bayonet catches, 2/6 each).	
218	Fig. 85.	Do. Inland Revenue, Dr. Thorpe's pattern, as used at the Government Laboratory ...	2 10 0
219	Fig. 86.	TRIPODS, iron, height 7 inches, triangle 4 1/4 inches ...	0 1 6
220	Fig. 87.	Do. round do. diameter at top, 4 inches ...	0 1 9
221	Fig. 88.	TUBES, U shape, length of limb, 5 inch 6 inch 8 inch Diameter 3/8 " 1/2 " 5/8 "	
		Each 7d. 9d. 1/-	
222	Fig. 89.	Do. on foot, graduated into 100 parts ...	0 4 6
		(Various capacities made to order).	
223	Fig. 90.	Do. Test, size, 3 x 1 1/2 in. 4 x 2 in. 5 x 2 1/2 in. 6 x 3 in. Per gross, 3/6 5/6 6/6 8/-	
224	Fig. 91.	WASHING BOTTLE, with bent tube and india-rubber cork, each 16 oz., 2/-; 20 oz., 2/6 ...	0 3 6
225	Fig. 92.	WASHING FLASK, with india-rubber cork and ball, each 16 oz., 3/6; 20 oz., 4/- ...	0 5 0
225A		WATER OVEN, with stand, 8 x 8 in., 45/- ... 10 x 10 in.	3 5 0
		(With Tap, 5/- extra).	

## Laboratory Apparatus.

## Plain Glass Measures.



Fig. 93.

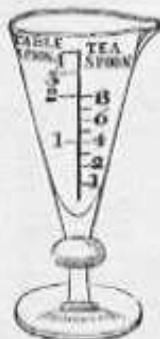


Fig. 94.

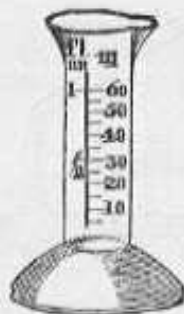


Fig. 95.



Fig. 96.



Fig. 97.



Fig. 98.

These Measures are all of the best Manufacture and are graduated in accordance with the Board of Trade Standard, as required by the Weights and Measures Act. Chemists, Druggists, Wine Merchants and others will find them of great value, especially as the prices are exceedingly low.

No.		Sub-divided.	Per doz.	No.		Sub-divided.	Per doz.
226	Tulip Wine Glass, with lip ..	4 Table & 8 Tea Spoons	8/-	256	32-oz. Conical ..	2 lb.	24/-
227	" without lip ..	" "	8/-	257	40-oz. " ..	2 Pints	27/-
228	Fig. 94. Taper .. with lip ..	" "	10/-	258	1-oz. " ..	In Drops	10/-
229	Taper Wine Glass without lip ..	" "	10/-	259	2-oz. " ..	" "	11/-
230	" without lip ..	In Drops	12/-	260	1 Drachm, cup shape	60 Minims	7/-
231	Hollow Stem Wine Glass ..	" "	12/-	261	2 " "	120 " "	8/-
232	Miniature " ..	Tea, Dessert and Table	7/-	262	1/2-oz. " cup shape	4 Fl. Dr.	7/-
233	German " ..	4 Table & 4 Tea Spoons	5/-	263	1-oz. " "	8 " "	7/-
234	Fig. 97. Mason " with lip ..	4 Table & 8 Tea Spoons	10/-	264	2-oz. " "	16 " "	7/-
235	" without lip ..	" "	10/-	265	3-oz. " "	24 " "	8/-
236	1/2-oz. Best Cryst'al Tumbler ..	Tea, Dessert and Table	6/-	266	4-oz. " "	1 lb.	10/-
237	1-oz. " ..	2 Tea & 2 Table Spoons	7/-	267	6-oz. " "	32 Fl. Dr.	11/-
238	2-oz. " ..	4 Table & 8 Tea Spoons	7/-	268	Fig. 98. 8-oz. cup shape	1 lb.	13/-
239	4-oz. " ..	8 Table & 8 Tea Spoons	8/-	269	10-oz. " cup shape	1 Pint	14/-
240	2-oz. Half Crystal ..	4 Table & 8 Tea Spoons	6/-	270	12-oz. " "	1 1/2 lb.	15/-
241	2-oz. " common ..	" "	5/-	271	16-oz. " "	1 lb.	17/-
242	1 Drachm, Conical ..	60 Minims	6/-	272	20-oz. " "	1 Pint	19/-
243	2 " ..	120 " "	7/-	273	32-oz. " "	2 lb.	24/-
244	4 " ..	240 " "	8/-	274	40-oz. " "	2 Pints	27/-
245	1/2-oz. " ..	4 Fl. Dr.	5/-	275	1 Drachm Tube	60 Drops	4/-
246	1-oz. " ..	8 " "	6/-	276	2 " "	120 " "	6/-
247	2-oz. " ..	16 " "	7/-	277	Fig. 95. 1 Drachm Tall	60 Minims	7/-
248	Fig. 93. 3-oz. ..	24 " "	8/-	278	2 Drachm Tall	120 " "	8/-
249	4-oz. " ..	32 " "	10/-	279	Fig. 96. 1-oz. Oil Measure	" "	7/-
250	6-oz. " ..	" "	11/-	280	2-oz. Oil Measure	" "	8/-
251	8-oz. " ..	1 lb.	13/-	281	1/2 Drachm Tall	Single Minims	8/-
252	10-oz. " ..	1 Pint	14/-	282	Leather Cases for No. 11	" "	7/-
253	12-oz. " ..	1 1/2 lb.	15/-	283	" " for No. 12	" "	8/-
254	16-oz. " ..	1 lb.	17/-	284	" " for Tumbler	" "	9/-
255	20-oz. " ..	1 Pint	19/-		" " and Minim Measure	" "	9/-

## COLLODION BOTTLES, FILTERS, &amp;c.

No.		Plain	Graduated.	No.			
285	2-oz. Collodion Bottles, with Pourers, each	1/9	2/6	291	4-oz. Filters, each	"	5/-
286	3-oz. " "	2/-	3/-	292	6-oz. " "	"	6/-
287	4-oz. " "	2/6	3/6	293	8-oz. " "	"	7/-
288	6-oz. " "	3/-	4/-	294	10-oz. " "	"	9/-
289	8-oz. " "	3/6	4/6	295	Glass Stirring Rods, per dozen, 6-inch, 1/-; 9-inch	2/-	
290	Developer Cups, set of 3, per set, not graduated	1/3		296	" " " " 12-inch, 2/6; 24-inch	5/-	

N.B.—In ordering from this list please quote "1904" Catalogue.

## CELLAR THERMOMETERS.

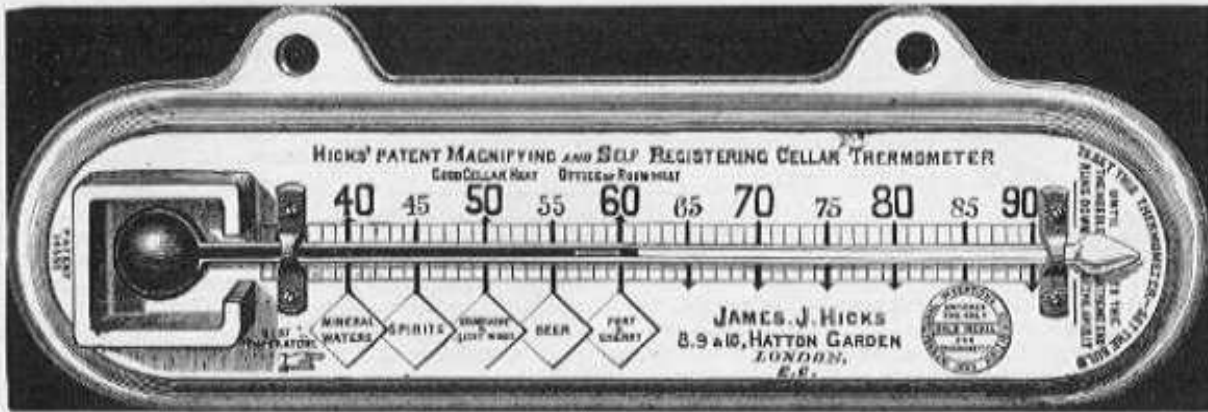


Fig. 99.

No. 297. Fig. 99 **CELLAR THERMOMETER** has been expressly designed and constructed to meet a long-felt want, for although it is a fact that there already exists a number of various kinds of Thermometers for taking the temperature of the Cellar, there have been few which have been really thoroughly adapted to the purpose. To this Thermometer the following **Special Features** have been applied:—

- (1) A large bold Porcelain Scale with **very legible** figures and divisions.
- (2) Short and simple instructions for setting the Thermometer **printed on the scale.**
- (3) The correct temperatures (gauged by practical experience), for keeping Mineral Waters, Wines, Spirits, &c., distinctly and concisely marked.
- (4) One of Hicks' celebrated Magnifying Tubes, as adopted by most of the leading Brewers in the Kingdom, enabling the fluid to be read with far greater ease in the dim light of the cellar.
- (5) Extreme simplicity, neat appearance, and easily kept clean.
- (6) Although designed specially for the cellar, it is equally suitable for any Room or Office. Price, each 7s. 6d.



Fig. 100.

No.	Description	£	s.	d.
298	<b>CELLAR THERMOMETER</b> , Boxwood, with magnifying Mercury tube, and very bold figures	0	3	6
299	Do. ... do. ... Spirit, each...	0	3	0
300	Do. ... cheap form, wood, unpolished, per doz.	0	12	0
301	Do. do. polished, bold figures at 30°, 60° and 90° ,,	0	18	0
302	Fig. 100. Do. white porcelain, very distinct, mercury tube ,,	2	8	0
303	Do. do. do. Spirit tube ,,	2	2	0

*N.B.—In ordering above Thermometers please quote "1904" Price List.*



## NEW PATENT "Watkin" Mountain Aneroid Barometer.

The Barometer that all the World has been waiting for, and the only Aneroid that can be put in action when required, and "put out of gear" when it is not wanted for use, and which, when thrown out of action, is absolutely impervious to the influence of variations in atmospheric pressure. Travellers and Surveyors will now be able to ascertain *correct* altitudes owing to the marvellous accuracy of this Instrument, which is described at length by Mr. WYLLIE, the distinguished Alpine climber, in the *Times* of Dec. 17th, 1898. In 65 readings taken in Switzerland, between 1,227 and 10,289 feet above the sea, the mean error ascertained by comparison with the Mercurial Barometer was never so much as 0.1 of an inch.

"It is beyond doubt a wonderful instrument, &c." (Press.)

The remarkable nature of the following figures will be apparent to anyone who has acquaintance with the barometer, and especially to those who have used Aneroid Barometers in the field. Upon two occasions, Col. Watkin's instrument read so truly against the mercurial that I was unable to detect any discrepancy between the two instruments. At Randa, the mean of six readings gave a result *no* error. Stress need

not be laid upon these happy agreements. It is more to the purpose to draw attention to Column G in the following table. If the eye is run down that column, and neglects the hundredths and thousandths of an inch, it will be seen that it reads 0.0 from first to last! Attention must be paid to two points when employing this instrument: The first is to keep it constantly shut off from the influence of the atmosphere, except at the times when readings are to be taken; and the second is to take the readings as quickly as possible.

I feel confident that, in the hands of those who will give the requisite attention, *extraordinary results may be obtained from Watkin's Mountain Aneroid* in observations made for altitude, and in determining differences of level.

A Place of Observation.	B Date, 1898.	C Altitude.	D Merc. Bar. reduced to 32° F.	E Watkin's Mountain Aneroid.	F Number of Observations.	G Mean error of Aneroid.
Zermatt .. .. .	Sept. 3-8	5315 ft.	25.006 ins.	25.096 ins.	21	+ 0.090 in.
Top of Gugel .. .. .	" 9	8882 ..	21.963 ..	22.020 ..	1	+ 0.057 ..
Riffelhaus .. .. .	" "	8429 ..	22.319 ..	22.360 ..	1	+ 0.041 ..
Top of Gornergrat .. .. .	" "	10289 ..	20.872 ..	20.820 ..	1	- 0.052 ..
Zermatt .. .. .	" 10-13	5315 ..	24.912 ..	24.980 ..	8	+ 0.068 ..
Top of Gornergrat .. .. .	" 13	10289 ..	20.729 ..	20.717 ..	3	- 0.012 ..
Zermatt .. .. .	" 13-14	5315 ..	24.917 ..	24.947 ..	2	+ 0.030 ..
Randa .. .. .	" 15-17	4741 ..	25.687 ..	25.687 ..	6	0.000 ..
St. Nicholas .. .. .	" 17-22	3678 ..	26.443 ..	26.424 ..	5	- 0.019 ..
Visp .. .. .	" 23-29	2165 ..	27.726 ..	27.720 ..	3	- 0.006 ..
Zermatt .. .. .	" 30	5315 ..	24.475 ..	24.492 ..	2	+ 0.017 ..
Visp .. .. .	Oct. 4-7	2165 ..	27.800 ..	27.907 ..	5	+ 0.017 ..
Sierre .. .. .	" 9-12	1765 ..	28.131 ..	28.121 ..	5	- 0.010 ..
Geneva .. .. .	" 13-17	1227 ..	28.332 ..	28.302 ..	2	- 0.030 ..

Made in Aluminium for lightness, in either 3-inch or 4½-inch sizes, in sling leather case; scale to 5,000 ft. 115/-; 10,000 ft. 122/6; 15,000 ft. 130/-; 20,000 ft. ... .. } £6 17 6

## Patent Enamelled Triplex MAGNIFYING WATER GAUGE GLASSES. For Boilers and Racking Taps.

304 The only Gauge Glass that has obtained a GOLD MEDAL. Sold in lengths from a foot upwards, price from 1/- to 1/6 per foot according to diameter, say from ¼ to 1 inch.

Red-Striped Gauge Glasses. Same price as above.

305 RACKING TAPS, Brass, to drive or screw in ... ¼-in. 5/6, ¾-in. 7/6, and 1-in. 12/6.

## MICROSCOPES.

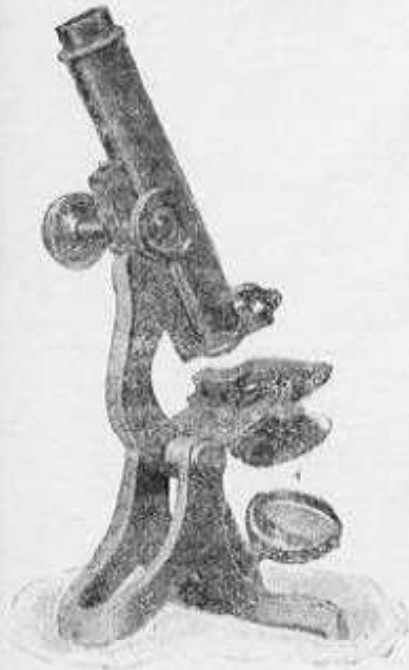


Fig. 102.



Fig. 103.

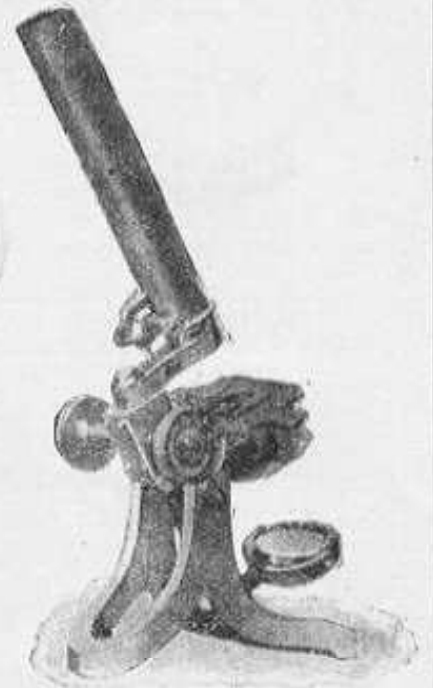


Fig. 104.

No.			£	s.	d.
306	Fig. 102	<b>THE "BURTON" MICROSCOPE</b> , with spring stage, specially adapted for Brewers' use, includes capped eye piece, 1-in. and $\frac{1}{2}$ -in. objectives, condenser, &c., &c....	5	10	0
		... .. price			
307	...	Do. with $\frac{1}{10}$ -in. objective ... ..	7	15	0
308	...	Do. with $\frac{1}{2}$ -in. objective, for starch examination ... ..	9	0	0
309	...	Larger do., with three eye pieces, 1-in., $\frac{1}{2}$ -in. and $\frac{1}{10}$ -in. objectives ...	13	10	0
310	Fig. 103.	<b>STUDENT MICROSCOPE</b> , comprising eye piece, 1-inch objective dividing to $\frac{1}{2}$ -inch and $\frac{1}{4}$ -inch, stage and hand forceps, live box, in cabinet with drawer for 24 slides ... ..	3	3	0
		... .. price			
311	Fig. 104.	<b>HICKS' SPRING STAGE MICROSCOPE</b> , with capped eye piece, separate 1-inch and $\frac{1}{2}$ -inch objectives, hand forceps, with live box and condenser, in best class mahogany cabinet ...	4	15	0
		... price			

## MICROSCOPES.



Fig. 105.

No.			£	s	d.
312	Fig. 105.	MICROSCOPE, with large stage, mirrors, plane and concave, new spiral rack and pinion, coarse adjustment, in addition to ordinary sliding ditto, fine adjustment of great range, either 1-inch, $\frac{3}{4}$ -inch or $\frac{1}{2}$ -inch, and $\frac{1}{4}$ -inch objectives, 2 eye pieces, in mahogany case (c)	7	7	0
313	... Do.	... do. extra large, with hinged sub-stage, having new spiral rack and pinion adjustment for focussing illuminating accessories, such as Abbe's Condenser	10	10	0
314	... Do.	... If with sliding adjustment only for focussing the objectives	9	9	0



## MICROSCOPES.

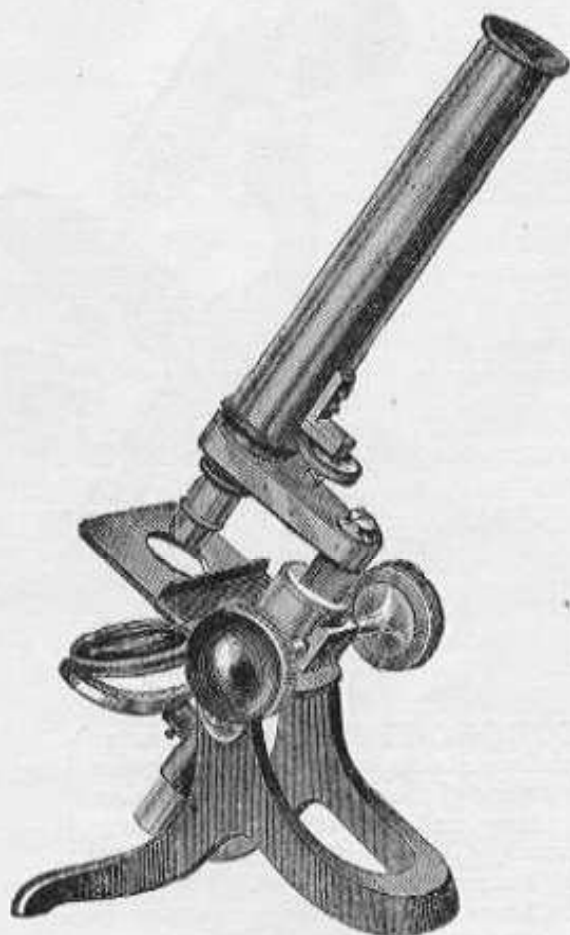


Fig. 106.



Fig. 107.

No.		£	s.	d.
315	Fig. 106. <b>THE BREWER'S MICROSCOPE.</b> Specially prepared for the examination of Yeast, with 1-inch and $\frac{1}{10}$ -inch powers. This is a neat and handy instrument, containing really all a Brewer requires. It is warranted to wear well in any climate (w) ...	6	6	0
316	Fig. 107. <b>THE COMET MICROSCOPE,</b> specially constructed for Brewers and Maltsters, is fitted with two capped eye pieces, best form; Abbé model illuminator, with set of stops; best quality 1-inch and $\frac{1}{4}$ -inch objectives. The foot is remarkably firm and steady. Complete in mahogany cabinet... ..	7	15	0

MICROSCOPES.

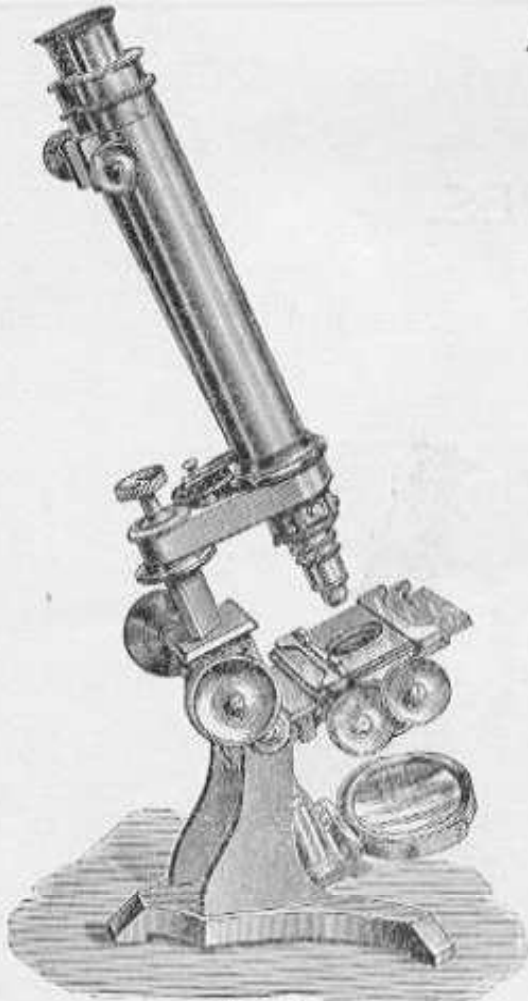


Fig. 108.



Fig. 109.

No.

317 Fig. 108.

**THE "MALTSTER" MICROSCOPE** (Binocular), is so named because of its being specially suitable for the use of Brewers and Maltsters. It has fine adjustment of the very best construction. Perfect steadiness. Mirrors plane and concave of extra large diameter, mounted on jointed arms. 2 eye pieces, A and B; best quality 2-inch, 1-inch, and  $\frac{1}{2}$ -inch achromatic objectives. Polarising apparatus. Analyzing prism in brass box. Selenite mounted in brass plate. Spot lens. Large condenser on stand with universal motions. Camera Lucida. 2 live cages or animalculæ boxes. Stage condenser. Stage forceps. 2 pair of bottle pliers, curved and straight. Set of dipping tubes in case, 2 stage plates, glass. In mahogany cabinet with glass panel door.

318 Fig. 109.

(A  $\frac{1}{4}$ -inch or  $\frac{1}{8}$ -inch objective can be added, if desired, for £5 extra)...  
**THE "VICTOR" MICROSCOPE**, (Monocular or single body), is also particularly suitable for the use of Brewers, Maltsters, and Analysts, for the examination of yeast, malt, water, sugar, &c. It has coarse and fine adjustments of best construction. Mechanical stage of extra large size, and large plane and concave mirrors with universal motions. The instrument has bronzed foot and limb, the rest finished bright; it is of extreme solidity and most convenient size. It is fitted with two eye pieces; 1-inch best quality and  $\frac{1}{2}$ -inch objectives; Abbé model sub-stage illuminator, with set of stops; condenser on stand; live box; hand forceps. The whole packed in upright mahogany cabinet

319

This instrument can be supplied in *Binocular* form with rack and pinion adjustment for separating the eye pieces, to suit the distance between the eyes of different persons; 2 extra eye pieces, and the same apparatus as described above...

£ s. d.

27 10 0

16 16 0

19 0 0

# Gauging, Comparative and Proof Rules.



Fig. 110.



Fig. 112.



Fig. 111.

No.		£	s.	d.
320	Figs. 110 & 111. GAUGING, ULLAGING AND REDUCING RULE, 6-inch, two slided, boxwood, each	0	5	9

By these Rules, and the aid of a Dip Rule, the contents of any sized cask can be ascertained, and the value of Spirits determined.

321	... Do. ... do. ... 9-inch do. each	0	7	6
322	... Do. ... do. ... 12-inch do. "	0	8	6
323	... Do. ... do. ... 18-inch do. "	0	11	6
324	... Do. ... do. ... 24-inch do. "	0	13	6
325	... Do. ... do. ... 9-inch ivory "	1	12	0
326	... Do. ... do. ... 12-inch do. "	2	2	0

327	COMPARATIVE RULE, ... 6-inch boxwood	0	3	0
-----	--------------------------------------	---	---	---

For determining the number of gallons of Water necessary to reduce spirits; also the relative value of Spirits.

328	... Do. ... 9-inch do. each	0	3	0
329	... Do. ... 12-inch do. "	0	4	0
330	... Do. ... 18-inch do. "	0	7	6
331	... Do. ... 24-inch do. "	0	10	0
332	... Do. ... 30-inch do. "	0	12	0
333	... Do. ... 36-inch do. "	0	15	0
334	... Do. ... 6-inch ivory "	0	12	6
335	... Do. ... 9-inch ivory "	0	17	6
336	... Do. ... 12-inch do. "	1	10	0

337	Fig. 112. PROOF or TEMPERATURE RULE, 6-inch boxwood, each	0	3	0
-----	---	---	---	---

For using with Sikes' Hydrometer in the Collar, Instead of the Book of Tables.

338	... Do. ... 9-inch do. "	0	3	0
339	... Do. ... 18-inch do. "	0	7	0
340	... Do. ... 24-inch do. "	0	10	0
341	... Do. ... 9-inch ivory "	0	17	6

# Bung Rods, Wine and Spirit Rules, &c.

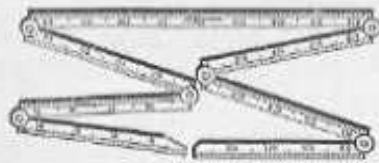


Fig. 114.



Fig. 115.

No.								6	8	d.
342	Fig. 113.	HEAD ROD, boxwood	...	...	...	...	...	0	18	6
343		BUNG ROD, 4-feet, with brass slider...	...	...	...	...	...	0	9	6
344	...	Do. ... do. in one length	...	...	...	...	...	0	8	0
345	...	Do. ... do. Customs pattern	...	...	...	...	...	0	6	0
346	...	Do. ... do. with socket joint at 3-feet	...	...	...	...	...	0	7	0
347	...	Do. ... 5-feet in one length	...	...	...	...	...	0	10	6
348	...	Do. ... do. Customs pattern	...	...	...	...	...	0	7	0
349	...	Do. ... do. with socket joint at 3 feet	...	...	...	...	...	0	8	6
350		Complete Set of Gauging Instruments, as used by H.M. Customs—including Cross and Long Callipers, Head Rod, 4-foot Bung Rod, and a Book of Instructions	...	...	...	...	...	3	7	6
351	Fig. 114.	BAR CASK RULE, 3-feet, 6-folding	...	...	...	...	...	0	6	0
352	...	Do. ... 3-feet, 8-folding	...	...	...	...	...	0	8	0
353	Fig. 115.	WINE, SPIRIT or BEER RULES, 3-feet, 4-folding	...	...	...	...	...	0	5	0
354	...	Do. ... 3 " 6 "	...	...	...	...	...	0	6	6
355	...	Do. ... 4 " 4 "	...	...	...	...	...	0	5	6
356	...	Do. ... 4 " 6 "	...	...	...	...	...	0	7	0
357	...	Do. ... 5 " 4 "	...	...	...	...	...	0	7	0
358	...	Do. ... 5 " 6 "	...	...	...	...	...	0	7	6
359	...	Do. ... 6 " 6 "	...	...	...	...	...	0	8	0
360	...	Do. ... 6 " 8 "	...	...	...	...	...	0	10	0
361	...	Do. ... 6 " 12 "	...	...	...	...	...	0	16	6
362		CROSS CALLIPER, to ascertain the quantity of Spirit, Wine, or Beer in any cask, in lance or boxwood	...	...	...	...	...	0	18	6
363		LONG Do. ... do. ... do. ... do. ... do.	...	...	...	...	...	0	18	6
364		DRAYMAN'S RULE, for the pocket, 2-feet, 4-fold, for pins, firkins, barrels, &c., lying and standing	...	...	...	...	...	0	5	0
365		BOTTLE RULES, for bouge or cylinder bottles, 2-feet, 4-fold	...	...	...	...	...	0	5	0
366	...	Do. ... do. ... 2 " 6 "	...	...	...	...	...	0	6	6
367		VAT MEASURING TAPE, 6-feet, divided in inches and tenths, with weight	...	...	...	...	...	0	3	6

Fig. 113.

## Measuring Rules, Gauging Rods, &c.

No.		£	s.	d.
368	<b>SPILE RODS</b> for ascertaining the dip of a cask through the spile hole 3-feet, screw jointed, each	0	5	0
369	... Do. ... do. 4-feet do.	0	7	0
370	... Do. ... do. 5-feet do.	0	9	0
371	... Do. ... do. 6-feet do.	0	11	0
372	... Do. ... do. straight	0	2	6
Leather cases for above to order.				
373	<b>STRAIGHT GAUGING RODS</b> , 4-feet lancewood	0	5	6
374	... Do. ... 5-feet do.	0	6	6
375	... Do. ... 6-feet do.	0	8	0
376	... Do. ... 4-feet, brass or steel	1	4	0
377	... Do. ... 5-feet do.	1	8	6
378	... Do. ... 6-feet do.	1	12	6
379	... Do. ... 30-inch, with brass shoulder, Excise pattern	0	6	0
380	<b>GAUGING RODS</b> , with Cork Floats, for ascertaining the amount of liquid in the copper. They are made of lancewood, and divided in half inches and inches ... 3-feet	0	6	0
381	... Do. ... do. 4-feet	0	7	0
382	... Do. ... do. 6-feet	0	10	0
383	... Do. ... do. 8-feet	0	13	6
384	... Do. ... do. 10-feet	0	16	0
385	... Do. ... do. 12-feet	1	0	0
(With Screw or Socket Joints extra.)				
386	... Do. ... with combined Cork Float and Shoulder, either of which can be used as required ... 4-feet	0	10	0
387	... Do. ... do. 6-feet	0	12	6
388	<b>MEASURING RULES</b> , One foot, four-fold, boxwood, in inches and tenths	0	2	0
389	... Do. ... do. ivory do.	0	10	0
390	... Do. ... Two feet, either two or four-fold, boxwood do.	0	2	6
391	... Do. ... do. ivory do.	0	18	6
392	... Do. ... do. six-fold boxwood do.	0	6	0
393	... Do. ... do. ivory do.	1	7	6
394	<b>BRASS STAVE GAUGE</b> , to determine thickness of Cask...	0	2	0
395	<b>ULLAGE STICK</b> , boxwood, to determine number of Gallons out of Cask...	0	3	0
396	<b>STEEL TAPE</b> , for Maltsters, numbered in consecutive inches, 1 to 300 inches, in solid leather case, with flush handle	0	15	0
397	... Do. ... do. 1 to 600 inches	1	0	0

## COPPER SAMPLING CANS, &c.



Fig. 116.



Fig. 117.



Fig. 118.



Fig. 119.



Fig. 120.

**SAMPLING CAN (Cousins' Patent).** The great advantage of this Can is that it enables Brewers to take a true sample of wort at any depth. It consists of a copper, tin or zinc Can, fitted with a removable collar or neck, and a gun-metal valve, cone-shaped, which fits into the neck when pulled tight by the cord. Prices as follows:—

No			£	s.	d.	
398	Fig. 116.	Do. ... 1 Quart Copper Can, complete ... ..	0	16	0	
399	Do.	... 1 Pint " " " " " " " " " "	0	13	0	
400	Do.	... Neck, Valve and Mouthpiece separate ... ..	0	8	0	
401	<b>SAMPLING CAN (Meachams' Patent).</b> This Can or Jar takes a sample of wort absolutely from the bottom of the collecting vessel, thereby enabling the Brewer to have a complete check on the mixing of the worts. Highly commended by Mr. Lawrence Briant, the eminent analyst, and many others as the best sampling Can yet introduced. It should be in every Brewery ...			1	5	0
402	Do.	with perforated lid, so as to take samples from Mash Tun, &c., fitted for use with a wood handle, but supplied without the handle...	0	10	6	
403	<b>SAMPLE CANS</b> for Saccharometers, of tin, 12 x 2 inches ... ..			0	3	0
404	Do.	do. of copper ... ..	0	5	0	
405	Fig. 117.	Do. double, for Saccharometer and Thermometer, of copper size, 12 x 2½ inches ... ..	0	15	0	
406	Fig. 118.	<b>COPPER BEER or SPIRIT MEASURE,</b> 1 pint, 8/-; 1 quart, 10/-; ½ gall., 13/6; 1 gall., 16/-; 2 galls., 21/-; 3 galls., 30/-; 4 galls., 40/-; and 5 galls. ... ..	2	10	0	
407	Fig. 119.	<b>FILLING UP CAN,</b> tin, 1 gall., 9/-; 1½ galls., 12/-; 2 galls. ... ..	0	15	0	
408	Do.	copper, 1 gall., 20/-; 1½ galls., 25/-; 2 galls. ... ..	1	10	0	
409	Fig. 120.	<b>VELINCHERS,</b> for sampling casks, strong copper, 18-inch, 9/-; 24-inch, 12/6; 36-inch ... ..	0	15	0	
410	Do.	<b>GLASS,</b> 12-inch, 3/6; 18-inch, 5/-; 24-inch ... ..	0	6	6	
411	<b>WORT MIXER,</b> consisting of 4 stout copper tubes, 14 inches long, which are all attached to the end of the hose at right angles to each other, so that the wort when turned on gets thoroughly mixed, as it is distributed in four different parts of the Tun... ..			1	15	0

## Sampling Glasses, Beer Tasters, Barley Apparatus, &c.



Fig. 121.



Fig. 122.



Fig. 123.



Fig. 124.

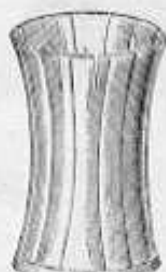


Fig. 125.



Fig. 126.



Fig. 127.



Fig. 130.



Fig. 129.



Fig. 128.

No.	Description	£	s.	d.
412	Fig. 121. TASTING AND SAMPLING GLASSES, cut, $\frac{1}{2}$ pint) best English glass, very fine ... .. per dozen)	0	18	0
413	Fig. 122. Do. do. plain ... ..	0	15	0
414	Fig. 123. Do. Goblet, $\frac{1}{2}$ pint, superior (see foot note <i>re</i> Badging) ..	0	8	0
415	Fig. 124. Do. Antique pattern, very nice for sampling Ales, $\frac{1}{2}$ pint ..	0	18	0
416	Fig. 125. Do. Tumbler, "Picadilly" Pattern, $\frac{1}{2}$ pint ... ..	0	8	0
417	Fig. 126. Do. do. " $\frac{3}{4}$ pint, 7/6 doz., 1 pint ... ..	0	10	0
418	Fig. 127. Do. do. " do., 12/- " 1 " ... ..	0	16	0

NOTE.—Badging or Naming Glasses, as shown in illustrations, 1/- doz. extra, and cost of Badge, 5/-.

419	Fig. 129. MALT CRUSHER, Cocoawood ... .. each	0	3	0
420	... Do. ... Ivory ... ..	0	15	0
421	Fig. 128. BEER TASTER, Syphon, of tin ... ..	0	3	0
422	Fig. 130. Do. Plain, of tin, with wood handle ... ..	0	3	6
423	Do. do. with handle to unscrew .. ..	0	4	6
424	BREWERS' SLATE, of porcelain, for hanging in his office. A very handy register of the week's brewings, neatly and conveniently ruled, and easily cleaned with a sponge ... ..	0	5	0
425	BARLEY SWEATING APPARATUS, consisting of a small copper water oven, gas regulator and thermometer, also a gas burner and 2 feet of rubber tubing. It is devised to enable several samples to be kept at sweating temperatures (about 100° Fahr). The samples should of course be tried in germinators after leaving the oven. Price ... ..	2	10	0
426	BEER EXTRACTOR, for Barrels, 15/- ... .. for Hogsheads (Union, 2/6 extra).	0	17	6

# LONG DISTANCE THERMOMETER.

(Callendar's Patent.)

# POLARIMETER and ALCOHOLMETER.

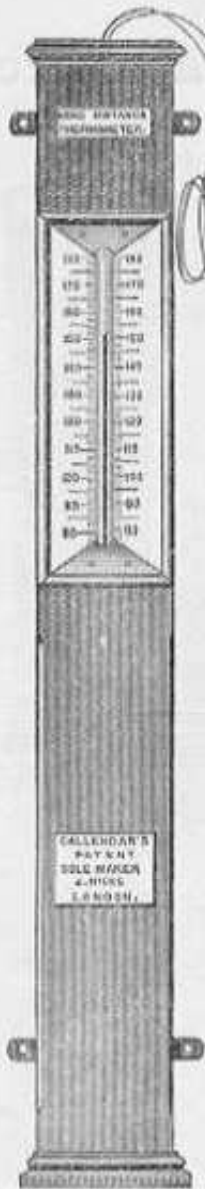


Fig. 132.

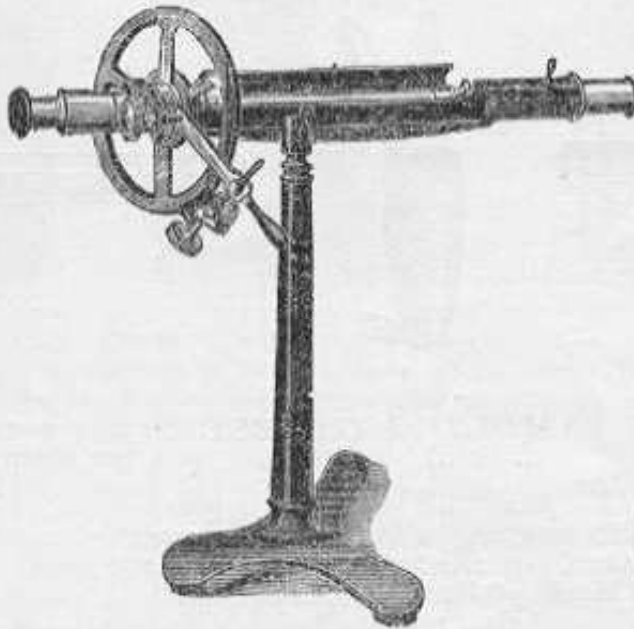
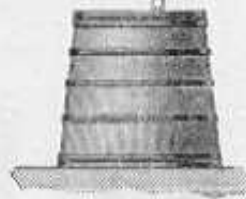


Fig. 133.

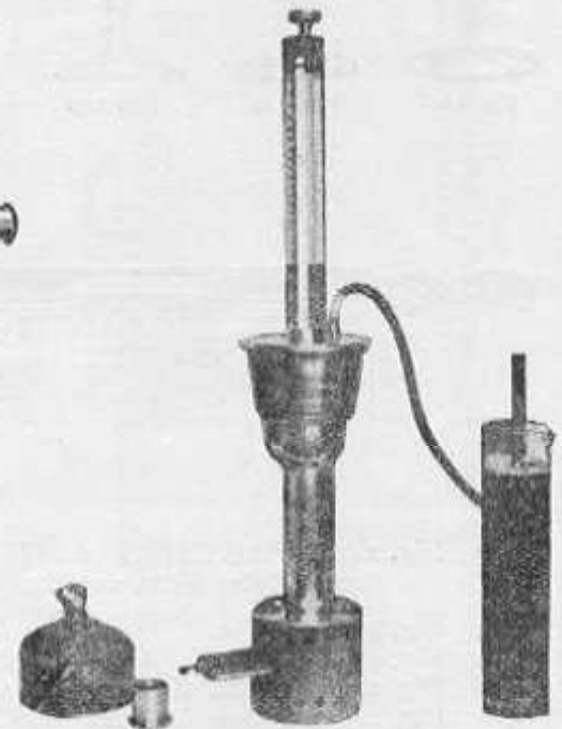


Fig. 134.

- No. 427 Fig. 132. **LONG DISTANCE THERMOMETER.** It has a range from 80° to 180° Fahr., and will indicate the temperature correctly to a tenth of a degree at a distance of 100 yards or more. It is especially adapted for Brewers, Maltsters, &c., the ends of the flexible tubes in illustration being in a tun or vat. The idea is to have the thermometer fitted up in a room or office, with the flexible tubes leading to any boiler or vat 100 yards or more away, so that the correct temperature of the vat can be ascertained without leaving the room, as the indicator is shown on the scale of the thermometer. Price, with 100 feet of tubing ... ..
- 428 Fig. 133. **POLARIMETER Complete** in box, with 20-centimetre tube and adjustments for zero, illumination of field and observation of angular rotation right and left ... ..
- 429 Ditto with similar adjustments, and improved rackwork and fine movements Mahogany case instead of deal one, extra ... ..
- Polished Brass Stand instead of Japanned one, extra ... ..
- Specially constructed Lamp for monochromatic sodium flame ... ..
- 430 Fig. 134. **FIELD'S ALCOHOLMETER, IMPROVED.** For ascertaining the original gravity of every description of Ale, Stout, Porter, &c., at any period after fermentation. Complete in mahogany case, with gilt Saccharometer, trial jar, lamp and directions ... ..

£	s.	d.
10	10	0
9	15	0
11	5	0
1	5	0
1	5	0
0	12	6
6	15	0



## BALANCES FOR CHEMICAL ANALYSIS, &c.

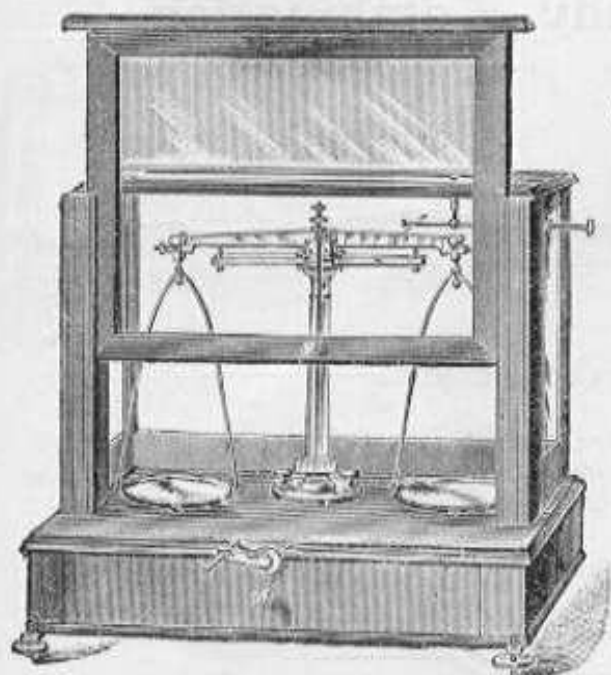


Fig. 137.

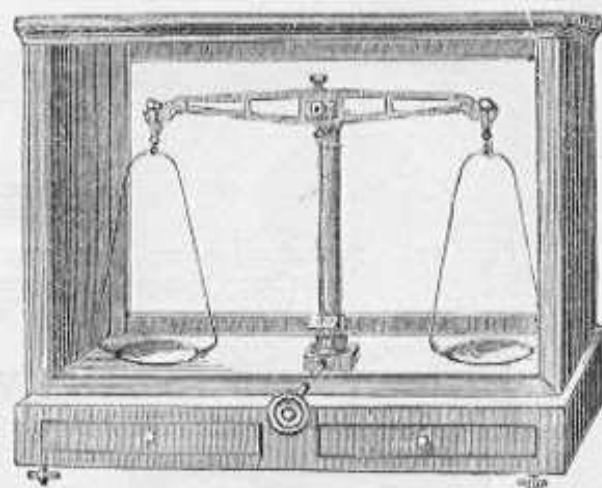


Fig. 136.

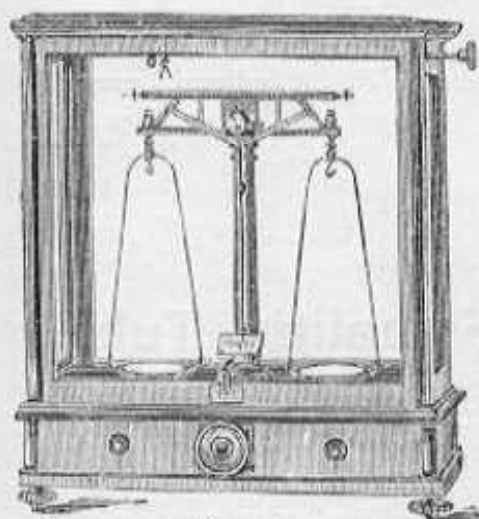


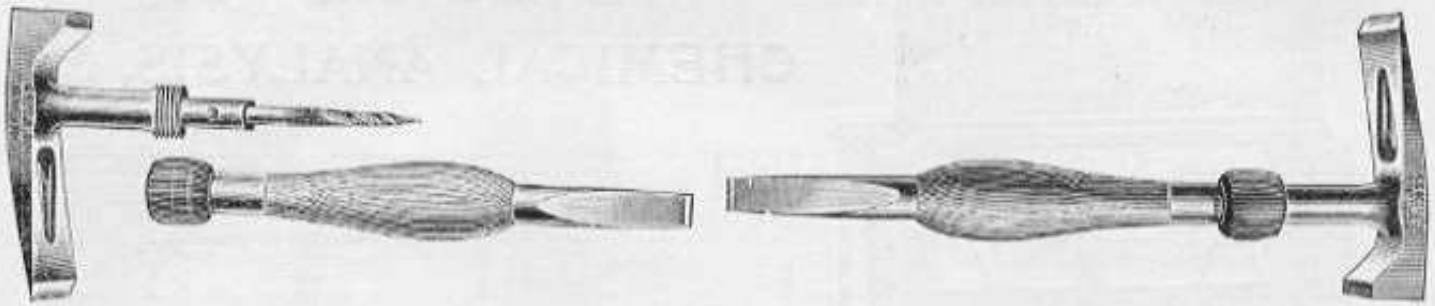
Fig. 135.

No.	Description	£	s.	d.
431	Fig. 135. BALANCE, Chemical Analysis, with pendant stop-catch, and apparatus for arrest of beam, whereby both knife edges are released from the agate planes, brush arrangement for the arrest of the pans, also apparatus for moving the sliding weight. Beam, pendant, and pans, gilt, in handsome glass case, with drawers to carry 50 grammes, sensible to $\frac{1}{10}$ of a milligramme ...	11	0	0
432	... BALANCE. To carry 200 grammes, sensible to $\frac{1}{2}$ of a milligramme ...	12	0	0
433	... Do. do. 1000 do. do. $\frac{1}{2}$ a milligramme ...	14	10	0
434	Fig. 136. Do. for Physical Purposes, to carry 50 grammes in each pan, sensible to $\frac{1}{4}$ milligramme. Pans, &c., of brass ...	3	10	0
435	... Do. do. To carry 100 grammes ... do. ...	4	0	0
436	... Do. do. To carry 100 grammes. Pans, &c., of nickel ...	5	0	0
437	Fig. 137. Do. new model, to carry 100 grammes, sensitive to $\frac{1}{2}$ milligramme, in polished mahogany glass case, with drawer, brass leveling screws and plummet, all knife edges and bearings of agate, no steel or iron used in construction. The beam is divided and fitted with rider apparatus. Gilt pans to c/m diameter, double hook for taking specific gravity, with specific gravity table ...	5	0	0

N.B.—Fig. 136 does not possess the accessories of Fig. 135, but is simply a plain balance in French polished case.

NOTE.—THESE BALANCES ARE STRICTLY NETT.

## The Cellarman's Handy Combination.



(WITH IMPROVED SAFETY LOCKING NUT).

No.	Combined Fig. 138.	£	s.	d.
438	Fig. 138. Including Adze, Hammer, Spile Drawer, Fret, Screw Driver, and Case Opener. Approved and adopted by all the principal London Wine Merchants. Price complete (best Sheffield finish), each ...	0	15	0

## Patent Spile Drawer or Vent-Peg Lever.



SPILE ADZE.  
Fig. 139.

Soft  
Spiles.



Push & Lift.  
Fig. 140.

To ensure Beer being brish and brilliant, spile tightly, and to vent use the Patent Improved Lever.

No.	Fig.	Description	£	s.	d.
439	Fig. 140.	SPILE DRAWER ... ..	0	3	0
440	Fig. 139.	SPILE ADZES, from ... ..	0	5	0
441	...	SPILE DRAWER, with fret ... ..	0	6	6

NO CELLAR IS COMPLETE WITHOUT

## Patent Duplex (Self-Venting) Sampling Tube.

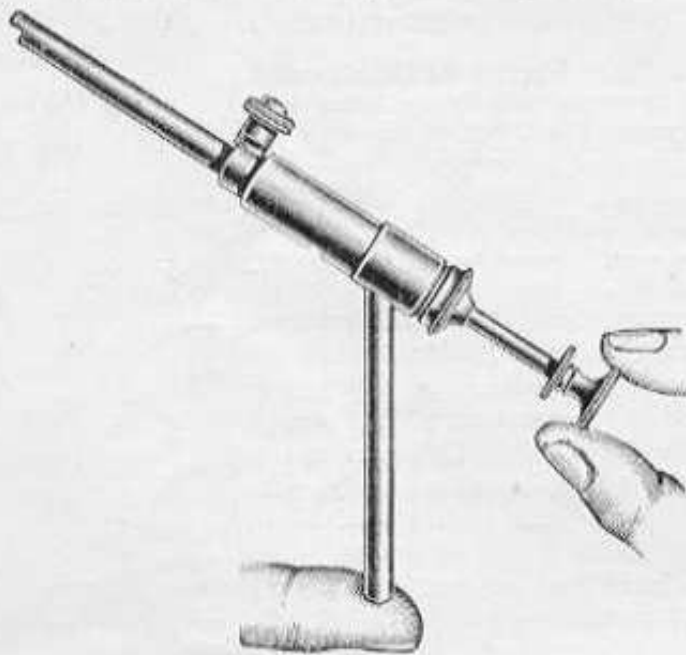


Fig. 142.

Position of Hands while using Sampling Tube.

The attention of Claret Shippers and Wine Merchants in general, is specially directed to the advantages of this simple, cleanly and effective instrument.

When inserted in stave it immediately secures a *continuous* flow; the syphon action thus established preserving perfect equilibrium. No more air entering than fluid escapes, thus materially protecting the wine against acidity.

It entirely abolishes the objectionable practices of sucking, blowing, etc., so fatal to the bouquet and flavour of *richerché* wines. Should the sampling have to be temporarily suspended, the tube need not be removed, a turn of vent cap securing against access of air or escape of wine.

No.	Fig.	Description	£	s.	d.
442	Fig. 142.	Price—heavily silver plated highest finish .. each)	1	10	0

DIRECTIONS.—Before inserting **always** moisten Outer Tube, close Vent Cap, press well into Stave, then, placing thumb on outlet, open Vent and withdraw the handle. To stop flow tighten Vent Cap.

# Pressure, Vacuum, and Hydraulic Gauges, &c.

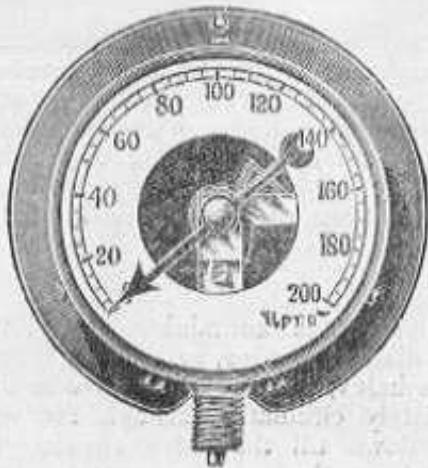


Fig. 143.

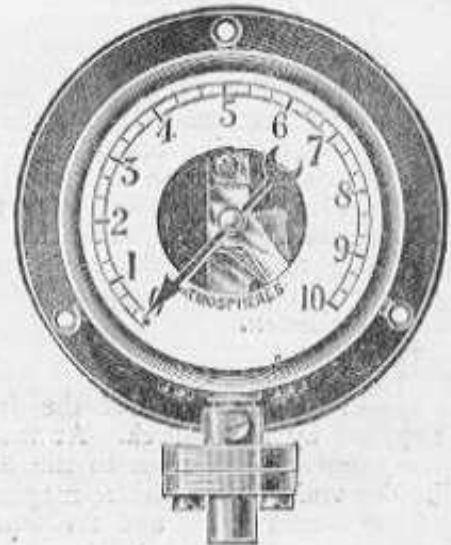


Fig. 144.

No.	Description	£	s.	d.
443	Fig. 143. <b>PRESSURE OF VACUUM GAUGE</b> , improved Bourdon with closed dial, 3-inch	0	14	0
	4-inch, 16/-; 5-inch, 18/-; 6-inch	1	4	0
	7-inch, 26/-; 8-inch, 30/-; 9-inch	1	15	0
	10-inch, 40/-; 12-inch, 55/-; 15-inch, 70/-; 18-inch	4	10	0
	(If compound required, 8/- extra).			
444	<b>BOURDON GAUGE</b> , with eccentric indicator, 3-inch ... ..	0	12	0
	4-inch, 14/-; 5-inch, 16/-; 6-inch, 19/-; 7-inch	1	4	0
	8-inch, 30/-; 9-inch, 35/-; and 10-inch	2	0	0
445	<b>HYDRAULIC GAUGE</b> , for Engineers, maximum hand with hinged rim, 3-inch, 34/-; 4-inch	1	16	0
	5-inch, 45/-; 6-inch, 52/-; 7-inch, 60/-; 8-inch	3	10	0
	9-inch, 80/-; 10-inch, 90/-; and 12-inch	5	5	0
446	<b>AMMONIA GAUGE</b> ... .. 4-inch, 26/-; 5-inch, 30/-; 6-inch	1	15	0
	7-inch, 42/-; 8-inch, 50/-; 10-inch	3	0	0
	Do. ... do. ... Compound 4-inch, 30/-; 5-inch, 36/-; 6-inch	2	2	0
	7-inch, 50/-; 8-inch, 53/-; 10-inch	3	6	0
447	Fig. 144. <b>RAILWAY CARRIAGE GAS GAUGE</b> , as used by the leading Railway Companies in England up to 10 or 12 atmospheres, 4-in.	0	14	0
448	Do. ... do. ... Latest improved, to 12 atmospheres ... ..	0	15	0

NOTE.—All Gauges will be made with closed dials, unless otherwise ordered. Open dials are 2/- each extra. Any kind of Gauge made to order.

# THE AUTOMATIC ATTEMPERATOR.

STOCKMAN'S PATENT (SOLE MAKER, J. J. HICKS).

No. 449. This Instrument is for the purpose of regulating the temperature during the fermentation process in Brewing operations. It is perfectly self-acting, and consists of two parts; one being an instrument of the Mercurial Thermometer form, and called a "Thermostat," which is placed in the ferment vat; and so constructed as to register both rising and falling temperatures; on the scale for either of which is an index, set by a screw in any desired position; and when the temperature rises to the degree, set by the index, electric contact takes place, and the same happens when the temperature is cooled down to the degree limited by the other index.

The other part of the instrument consists of a small tank containing cold liquor, supplied by a ball-cock. At the bottom of this tank is a discharge-valve, so that the moment the thermostat rises to the high temperature set by the index, the discharge-valve is lifted in the tank by an electro-magnet, the cold liquor immediately circulates through the worm of the attemperator, and the temperature in the vat cools down till the index on the other scale is reached, when electric contact is again made, and another electro-magnet releases the discharge-valve, which falls and shuts off the cold liquor from the attemperator, allowing the heat of the ferment to again rise to the degree limited by the index; and so the operation is repeated. At each contact, made by the rising and falling of the thermostat, an electric bell rings to call attention. Obviously, within the limit of the scale of the thermostat, the indices can be set at any degree of rising or falling temperatures. And the two parts of the instrument may be placed in any desired position or distance apart from each other.

Price on Application.

*This instrument can be seen at work at Messrs. Gillman & Spencer's Brewery, 21, St. George's Road, Southwark, London, S.E., any day, on presentation of card.*

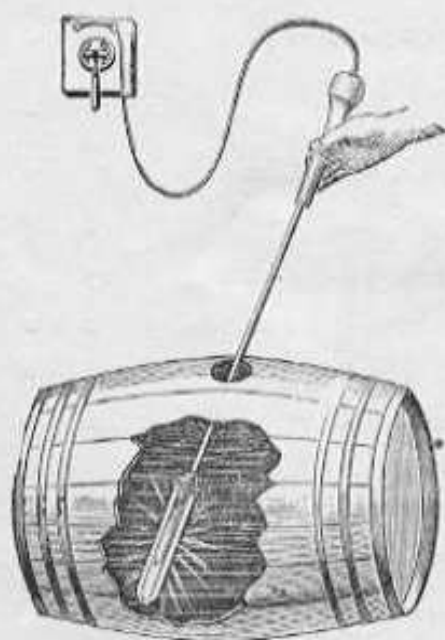


Fig. 145.

## Patent Electric Search-Light or Cellar Torch.

The only perfect, clean, odourless and reliable appliance for thoroughly examining Brewers' Casks, Vats, Refrigerator or C O<sub>2</sub> Tubes, Spirit Merchants' Jars, &c., Oil Merchants' Cans, &c., Engine and Boiler Tubes, Gun Barrels, or any orifice not less than  $\frac{1}{2}$ -inch diameter.

NO.	SIZES.	VOLTS.	C.P.	PRICES.
450	Large, for orifices 2-in. diameter...	40 to 110	16	£1 10 6
451	Medium „ $\frac{1}{2}$ -in. „ ...	8	2½ OF 5	£1 5 0
452	Small „ $\frac{1}{4}$ -in. „ ...	1	1	£1 0 0

REFLECTORS, 5/- each.

# PYROMETER, OVEN. SUGAR BOILING, AND HOP-KILN THERMOMETERS.

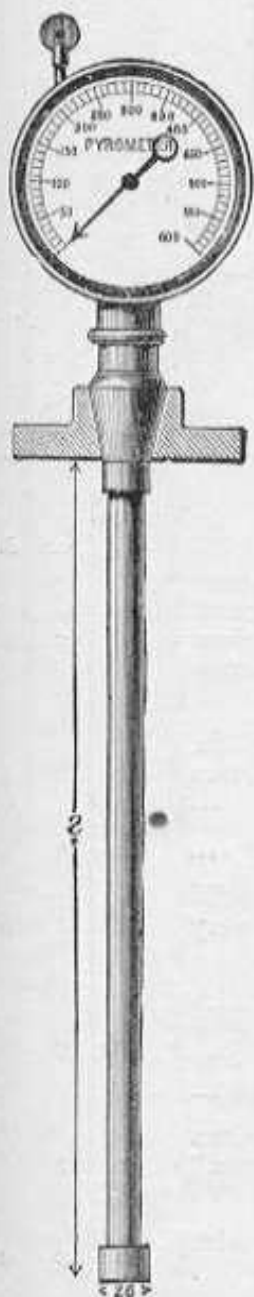


Fig. 146.



Fig. 147.



Fig. 148.

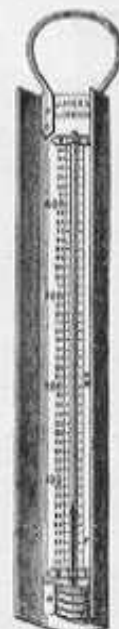


Fig. 149.

No.	Description	£	s.	d.
453	Fig. 146. <b>PYROMETER</b> , for testing the heat of Kilns, Ovens, Boiler Flues, &c. It can be employed for temperatures up to 100° Fahr. With 6-inch dial, and 3-ft. long ... ..	3	10	0
454	Do. do. to 1200° Fahr. ... ..	4	0	0
455	Fig. 147. <b>OVEN THERMOMETER</b> , in strong iron frame, very durable, with enamel glass tube and metal scale, divided from 60 to 660° Fahr., and 2-ft. tail piece (or bend) ... ..	1	10	0
456	Do. ... do. ... with magnifying tube ... ..	1	15	0
457	Fig. 148. <b>OVEN THERMOMETER</b> , of brass, with 6-inch scale, and sunb enamel tube to either 300° or 500° Fahr. ... ..	1	1	0
458	Do. ... do. ... do. 8-inch scale ... ..	1	3	0
459	<b>HOP-KILN THERMOMETER</b> , similar in appearance to Fig. 147, for fixing outside kiln, with tail end going through wall on to Hop-kiln. 3-foot bend, £2; 6-foot bend, £3; 9-foot bend, £4 10s.; 12-foot bend ... ..	6	0	0
(Arrangements can be made for my man to fix if desired).				
460	Fig. 149. <b>SUGAR BOILING THERMOMETER</b> , as used by Jam Makers, Confectioners and other. A very light and handy instrument, with turned up metal sides, scale divided to 450° Fahr., and enamel glass tube ... ..	0	6	0
461	Do. ... do. ... with magnifying tube, very much easier to read ... ..	0	8	0
462	<b>JAM MAKERS' THERMOMETER</b> , in brass frame, 30 inches long, scale graduated from 200° to 250° Fahr. ... ..	2	0	0
463	<b>JAPANNERS' OVEN THERMOMETER</b> , in frame similar to Fig. 149, but with the tube bent at right angles so as to project into the oven ... ..	0	10	0

NOTE.—Any of the Thermometers on pages 9 and 10 are also suitable for use on Hop-kilns.

# Cooking and Vacuum Pan Thermometers.



Fig. 150.



Fig. 151.

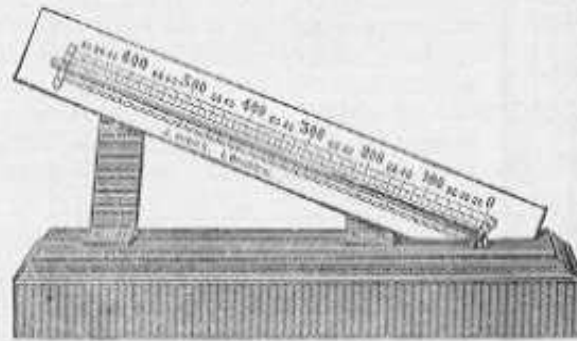


Fig. 152.

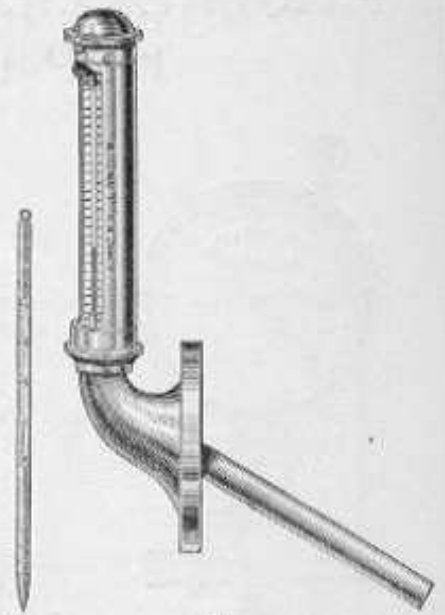


Fig. 153.

Fig. 154.

£ s. d.

464	Fig. 150.	<b>PASTRY THERMOMETER</b> , in brass frame, with enamel tube, and opaque glass scale, very distinctly marked and figured from 100° to 500° Fahr. The different heats for baking various forms of pastry are also clearly shown on the scale, 15/-; with magnifying tubes ... ..	0	17	6
465	Fig. 151.	<b>FRYOMETER</b> , for cooking purposes. Specially designed for frying and stewing, with plainly marked scale 100° to 600°, on brass frame ... ..	0	8	6
466	... ..	Do. ... .. do. ... .. on nickel frame ...	0	9	6
467	Fig. 152.	<b>OVEN THERMOMETER</b> , for use inside ovens, with solid iron foot to prevent it being knocked over, and slanting scale very clearly marked, graduated to 600° Fahr. ... ..	1	5	0
468	Fig. 153.	<b>MEAT THERMOMETER</b> , in protected metal case, with point for inserting into large joints or carcasses while cooking, or afterwards while cooling, <i>divided and figured on stem</i> , 7/-; with magnifying tube ... ..	0	9	0
469	... ..	Do. ... .. do. 6-inch, with the figures and divisions inside the body of the tube so that they cannot be effaced ("Climax" Patent) self-registering maximum ... ..	0	12	6
470	Fig. 154.	<b>VACUUM PAN THERMOMETER</b> , in brass case, with 12-inch metal scale, and 12-inch bend at angle, as shown ... ..	2	10	0
471	... Do. ...	do. Same as above with bend 2-ft. long ... ..	2	15	0
472	... Do. ...	do. ... do. 3-ft. long ... ..	3	0	0
473	... Do. ...	do. With 12-in. metal scale, and 6-in. bend at right angles	1	15	0
474	... Do. ...	do. In straight brass frame, with 12-in. metal scale 150° to 400°, and 13-in. guard (25-in. long over all)... ..	2	0	0
475	... Do. ...	do. In straight brass frame, 6-ft. long ... ..	3	0	0
476		<b>VACUUM GAUGE</b> , Mercurial, in upright brass frame, with stopcock, for vacuum pan ... ..	2	10	0

# Self-Registering Maximum & Minimum Thermometers

## SHOWING THE GREATEST HEAT AND COLD.



Fig. 155.

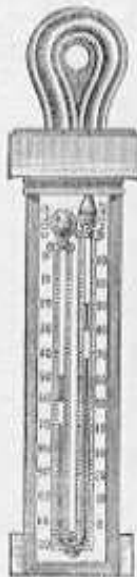


Fig. 156.

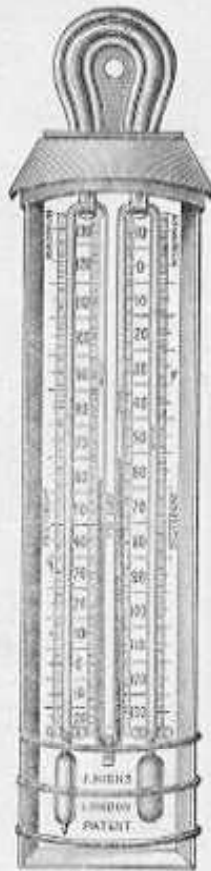


Fig. 157.

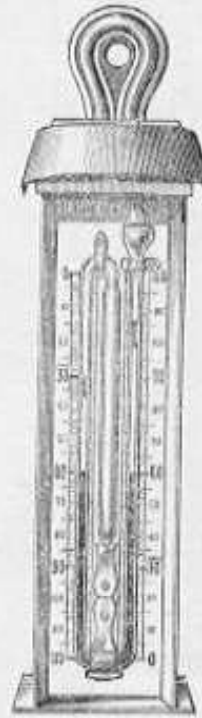


Fig. 158.

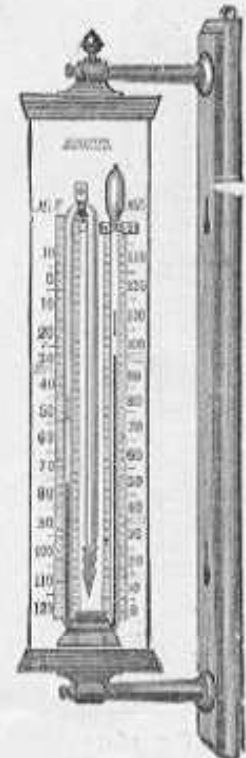


Fig. 159.

No.	Description	With Ordinary Enamel Tubes.						With Magnifying Tubes, like Fig. 158.							
		8-in.	10-in.	12-in.	14-in.	16-in.	20-in.	8-in.	10-in.	12-in.	14-in.	16-in.	20-in.		
477	Round Top Boxwood Scale ...	4/6	5/6	—	—	—	—	6/0	7/6	—	—	—	—		
478	Fig. 156. Boxwood Scale, in black Japan case ...	4/9	6/0	—	—	—	—	6/3	7/9	—	—	—	—		
479	Porcelain do., in white do. ...	10/0	12/3	15/3	16/9	—	—	11/0	13/9	15/6	17/0	—	—		
480	Transparent Glass do. in white do. ...	10/6	12/9	16/0	17/3	—	—	11/3	14/3	16/3	17/9	—	—		
481	Fig. 159. Porcelain or Transparent Glass on Oak Board, with brackets to revolve ...	—	18/9	21/3	24/6	26/9	33/3	—	19/6	23/6	25/6	27/3	37/6		
482	Zinc Scale, in white Japan case ...	5/0	7/3	10/6	12/0	—	—	6/6	8/9	11/0	13/6	—	—		
483	Transparent Glass Scale on polished Oak or Mahogany back ...	15/0	17/0	19/0	21/0	—	—	16/6	18/6	21/0	24/0	—	—		
484	Porcelain Scale, with back plates top and bottom ...	—	—	—	—	—	30/0	—	—	—	—	—	35/0		
485	Fig. 155. Double Registering showing the temperature of yesterday and to-day ...	10/6	12/9	16/0	17/3	—	—	11/3	14/3	16/3	17/9	—	—		
486	Fig. 157. Double Registering, with bulb reversed so as to render the Thermometer less liable to get out of order during transit, with boxwood scale, 8-inch, 11/-; 10-inch, 15/-; 12-inch, 19/-; and 14-inch ...												£	s.	d.
													1	3	0
487	... Do. do. with glass scale, 8-inch, 13/-; 10-inch, 17/-; 12-inch, 21/-; and 14-inch ...												1	5	0

# Garden, Window and Porcelain Thermometers.

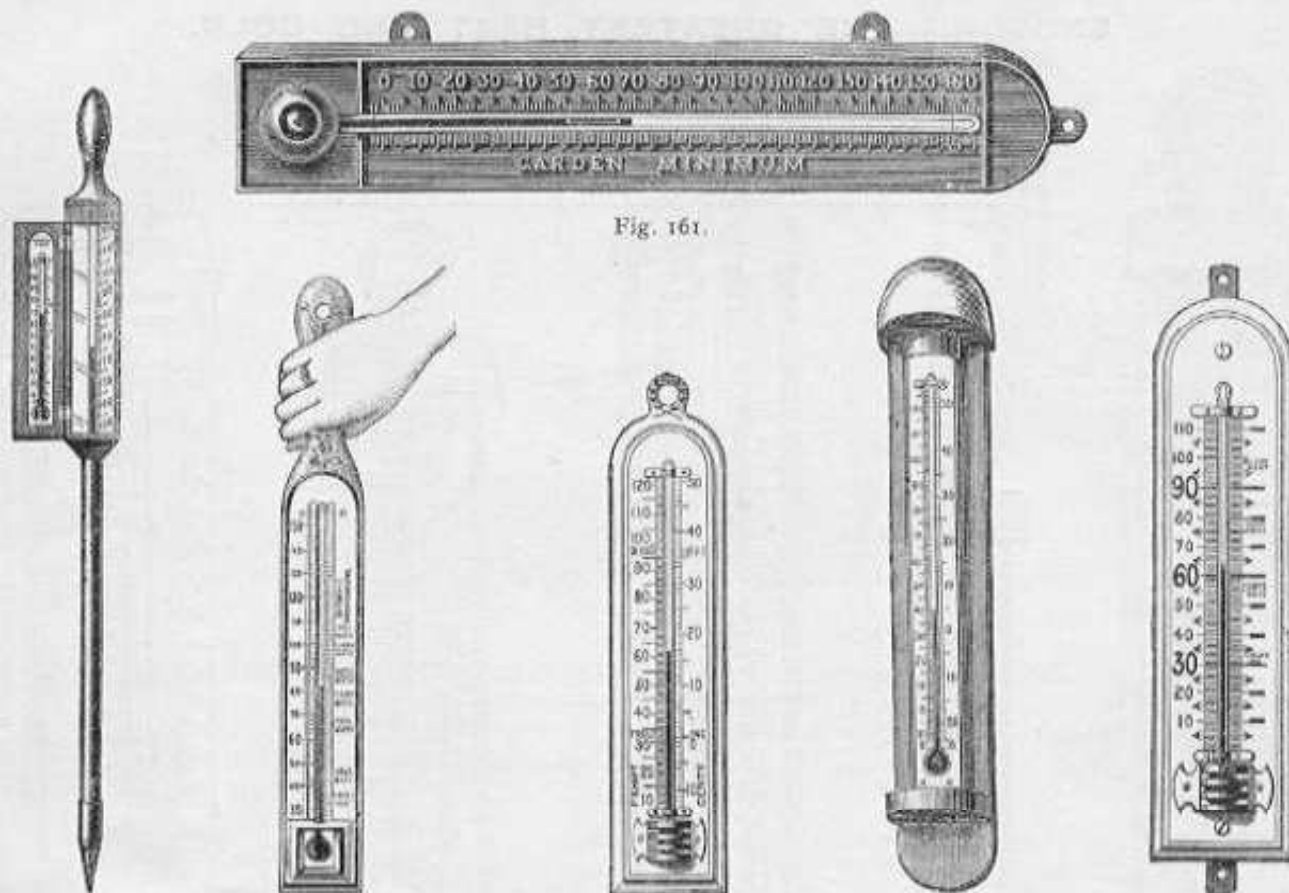


Fig. 160.

Fig. 162.

Fig. 163.

Fig. 164.

Fig. 165.

No.	Fig.	Description	£	s.	d.
488	Fig. 160.	<b>HOT-BED THERMOMETER</b> , 30-inch, with ordinary enamel tube, in mahogany frame, enclosed in brass tube, and extra thermometer on door for air temperature ... ..	1	7	6
489	...	Do. ... .. do. ... with two patent magnifying tubes	1	15	6
490	...	Do. ... .. do. ...30-inch, porcelain scale, with ordinary enamel tubes, in copper case, with brass tube	0	15	0
491	...	Do. ... .. do. ... .. with patent magnifying tube	0	18	6
492	Fig. 161.	<b>GARDEN MINIMUM THERMOMETER</b> , solid zinc scale, enamel spirit tube, raised figures and divisions	0	3	0
493	...	Do. ... .. do. 8-inch polished boxwood scale, enamel spirit tube	0	2	0
494	...	Do. ... .. do. 10-inch ... .. do. ... .. do. ...	0	3	0
495	Fig. 162.	<b>BATH THERMOMETER</b> , pink or blue porcelain scale and enamel tube, with Dr. Forbes' specification for the Bath legibly printed on, 8-inch ... ..	0	3	0
496	Fig. 163.	<b>PORCELAIN THERMOMETER</b> , with metal guard, enamel tube and double scale, 8-inch, 7/6; 10-inch, 8/6; 12-inch, 10/6; 14-inch, 11/6; 16-inch, 17/6; 20-inch ... ..	1	5	0
497	Fig. 164.	<b>WINDOW THERMOMETER</b> , with ivory scale and ordinary enamel tube enclosed in glass tube, on mahogany frame, with copper roof, 8-inch, 18/6; 10-inch ... ..	1	1	0
498	...	Do. ... with patent magnifying tube, 8-inch, 18/6; 10-inch ...	1	3	0
499	Fig. 165.	<b>PORCELAIN THERMOMETER</b> , with very legible scale and every thirty degrees indicated by larger figures and broader lines, moulded sides, metal guard, and bold enamel tube, 20-inch	1	3	0



# House Thermometers and Hygrometers.

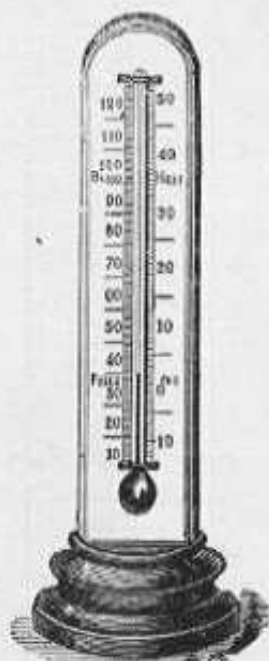


Fig. 166.

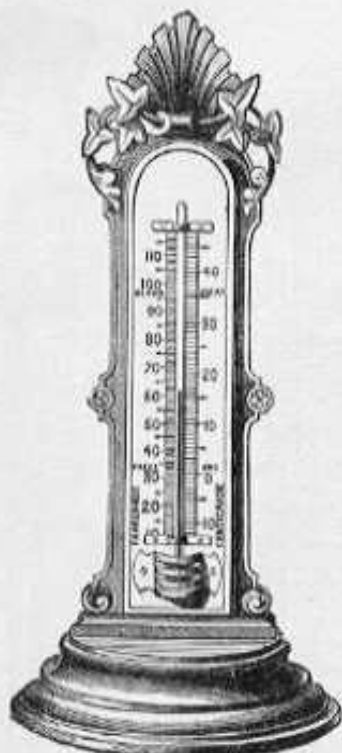


Fig. 167.

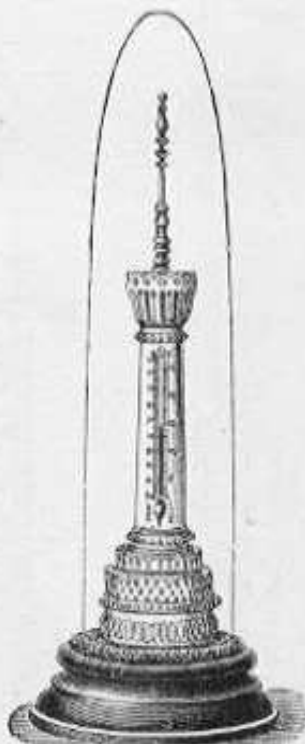


Fig. 168.

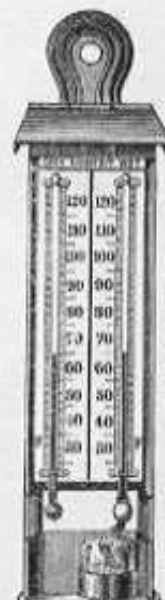


Fig. 169.

No.	Description	£	s.	d.
500	Figure 166. <b>PEDESTAL THERMOMETER</b> , with ivory scale and ordinary enamel tube on ebony base	0	13	6
501	... Do. ... do. ... do. with patent magnifying tube	0	15	6
502	Fig. 167 ... Do. ... with opal glass scale and ordinary enamel tube, on carved oak or walnut stand	0	18	6
503	... Do. ... do. ... do. with patent magnifying tube	1	1	0
504	Fig. 168 ... Do. ... carved ivory, with ordinary enamel tube	3	0	0
505	... Do. ... do. ... do. with patent magnifying tube	3	3	0
506	<b>DRAWING ROOM THERMOMETERS</b> , opal glass scales, ordinary enamel tubes, on ebony or boxwood backs, 8-in., 8/3; 10-in., 10/-; 12-in.	0	13	6
507	... Do. ... do. ... do. with patent magnifying tube, 8-in., 10/-; 10-in., 12/-; 12-in.	0	15	6

No.	Description	8-inch	10-inch	12-inch
508	<b>BOXWOOD THERMOMETER</b> , unpolished, plain ... mercury tube, single scale	1/0	1/6	2/3
509	... Do. polished, enamel tube, single scale	1/6	2/0	3/0
510	... Do. with bevelled edge, Faht. and Cent. scales, and enamel spirit tube	2/6	3/6	5/6
511	... Do. do. with bevelled edge, Faht. and Cent. scales, and enamel mercury tube	3 0	4/6	6/6
512	Fig. 169. <b>HYGROMETER</b> , as used in factories and warehouses to determine amount of moisture; very strong and legible, and well protected from damage, in copper case		16/6	22/6
513	... Do. ... do. ... do. in japanned tin case		15/0	19/6
514	... Do. better quality, mounted on oak or mahogany back, tubes, divided on stem and figured on the scales			large size, each 31s. 6d.
515	... Do. ... do. ... do. ... medium size, ,,			27s. 0d.
516	... Do. ... do. ... do. ... small size, ,,			21s. 0d.

# Standard, and Bartrum's Barometers, &c.

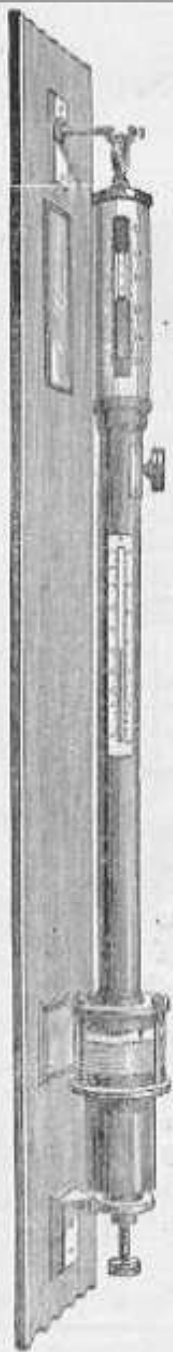


Fig. 170.

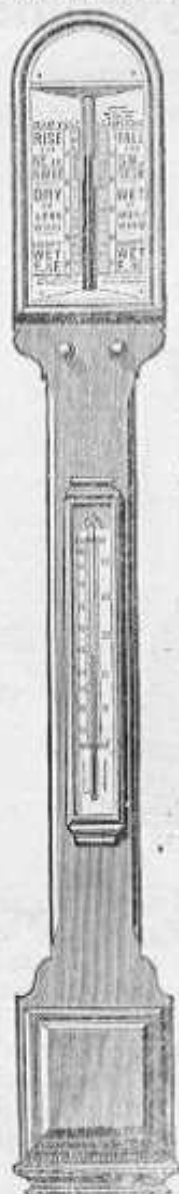


Fig. 171.

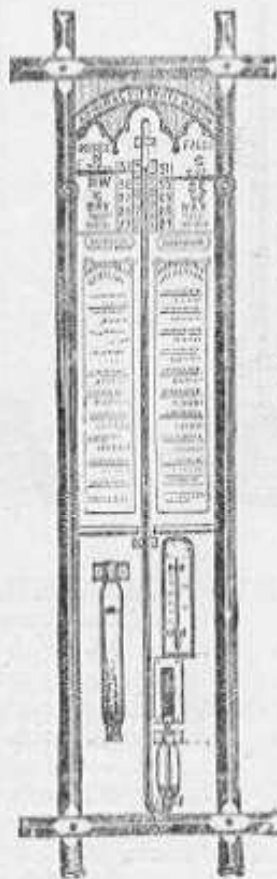


Fig. 172.

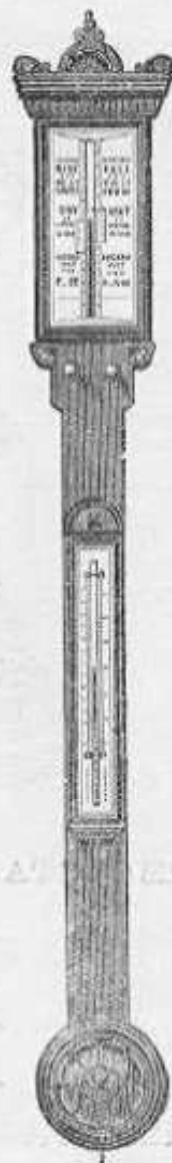


Fig. 173.



Fig. 174.

517 Fig. 170. **STANDARD BAROMETER**, specially suitable for Brewers. It is mounted on a mahogany board, has a silvered scale, and vernier reading to 1-500th of an inch ... ..

NOTE.—Kew Verifications, if desired, of Standard Barometers, extra 15s.

518 Fig. 171. **ROUND TOP PEDIMENT BAROMETER**, in oak or walnut frame ... ..

519 Fig. 173. **CARVED TOP** ... .. do. ... ..

520 Fig. 172. **FITZROY BAROMETER**, in strong Oxford frame, a really good reliable and serviceable Instrument, with bold mercurial tube, storm glass and Thermometer. It always looks well, and is not easily put out of order ... ..

521 Fig. 174. **BARTRUM'S BAROMETER** is without doubt one of the most beautiful instruments of its kind ever introduced to the public. It is not only *extremely sensitive and accurate*, but so *simple and distinct* that a little child could understand it. The coloured fluid in the tube and the very legible porcelain scale behind it can be seen and read with the greatest ease. Owing to the extremely open range of the barometer (over 8 ins. to an in. of mercury) no vernier is required, and *a reading can easily be taken to one-1000th of an inch* ... ..

522 ... Do. ... .. do. ... More highly finished, with Rackwork ... ..

Fig. 174.		
£	s.	d.
6	6	0
4	15	0
3	3	0
0	18	0
8	8	0
10	10	0

# ANEROID AND WHEEL BAROMETERS.



Fig. 175.  
No.

Fig. 176.

Fig. 177.

Fig. 178.

Fig. 179.

No.	Fig.	Description	£	s.	d.
523	Fig. 178.	ANEROID BAROMETER, with 10-inch silvered metal dial, Gothic design, castellated top, very handsome, in solid oak frame, with attached thermometer	9	9	0
524	Do.	Do. ... do. 8-inch dial, same as preceding ...	8	8	0
525	Fig. 177.	Do. ... do. 10-inch dial, richly carved, floral design...	6	0	0
526	Do.	Do. ... do. 8-inch, same as preceding ...	5	0	0
527	Fig. 176.	Do. ... do. 10-inch dial, elaborately carved Ionic pillars ...	8	15	0
528	Do.	Do. ... do. 8-inch, same as preceding ...	7	15	0
529		WHEEL BAROMETER, Long box, plain, 8-inch dial, no carving ...	1	1	0
530	Do.	Do. ... do. Beaded, 10-inch dial, carved ...	3	0	0
531	Do.	Do. 12-inch silvered dial, scroll pattern, nicely carved ...	4	0	0
532	Fig. 175	ANEROID BAROMETER, 5-inch silvered metal dial and cylinder bulb Thermometer, in frame of floral design	2	17	0
533	Do.	Do. ... do. 6-inch dial ...	3	5	0
534	Fig. 179.	Do. ... do. 5-inch silvered metal dial and cylinder bulb Thermometer, in frame of Gothic design	2	17	0
535	Do.	Do. ... do. 6-inch dial... ...	3	5	0

# SELF-RECORDING THERMOMETERS AND BAROMETER.

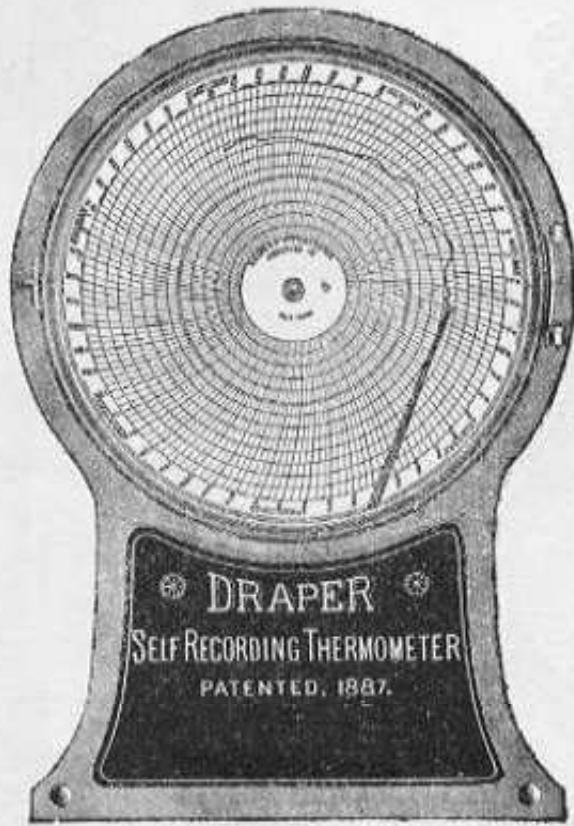


Fig. 180.

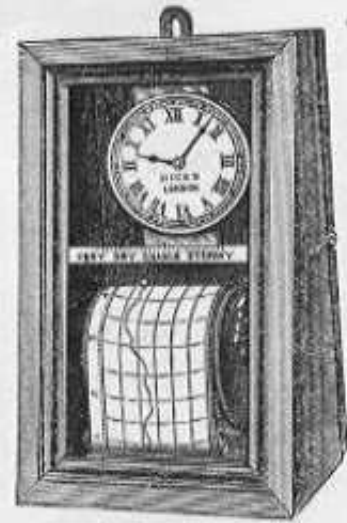


Fig. 182.

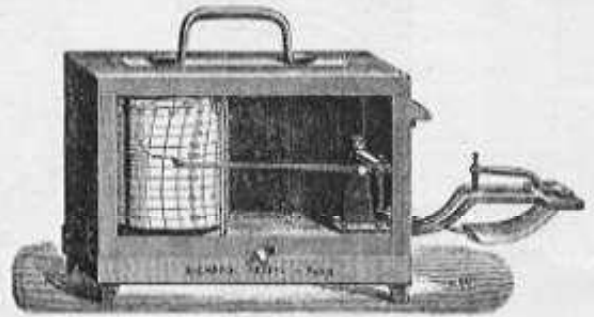


Fig. 181.

- No. 536 Fig. 180. **MALTSTER'S SELF-RECORDING THERMOMETER** (Draper's Patent). Mr. Hicks is Sole Agent in this country for this highly important invention, which is particularly suitable for use in Breweries, Malt Houses, Drying Rooms, &c., &c. It gives a permanent and continuous record of the temperature, and consists of a clock which revolves a disc, on which is placed a chart, indicating the hours of the day, and days of the week and gives the degrees of temperature, Fahrenheit scale, from zero to 110°. A lever provided with a pen is supported on an axis, carried on by the expansion and contraction of bimetallic strips, so that the pen which rests on the chart moves outward and inward from the centre, drawing a line on the surface of the chart, showing the temperature at any given time. The charts should be changed once a week, when the clock is also wound. The very slightest variation or fluctuation in temperature causes motion in the Thermometer, which is easily kept in working order. Price, nett ... .. £6 6 0  
 One year's service of Charts for above, 10/- nett.
- 537 Fig. 181. **MALTSTER'S SELF-RECORDING THERMOMETER**, very simply constructed, but noted for the accuracy of its records. It is mounted on an iron base, with zinc cover and glass front. A fresh chart is placed upon the drum every eighth day when the clock is wound. It is exceedingly portable, the handle at the top enabling it to be conveniently carried. Useful for Maltsters, Brewers, and Stores. Price ... £6 6 0
- 538 Fig. 182. **THE NEW SELF-RECORDING BAROMETER**. This is the very latest improvement, and is a highly sensitive and compact instrument. It is made to hang up as shown above, its dimensions being only 10-ins. x 6-ins., and fits into a neat mahogany case with glass front. Its exceedingly low price should recommend it to all. It differs from others inasmuch as the pen traces a dotted curve instead of a continuous line; this action takes place every quarter of an hour, and the dots being very close, form the equivalent to a continuous line. Price, including small bottle of ink, 55 charts and lever clock, as illustrated ... .. £4 15 0
- 539 ... .. Do. ... .. do. Without lever clock ... .. £4 0 0

## Opera and Field Glasses and Telescopes.

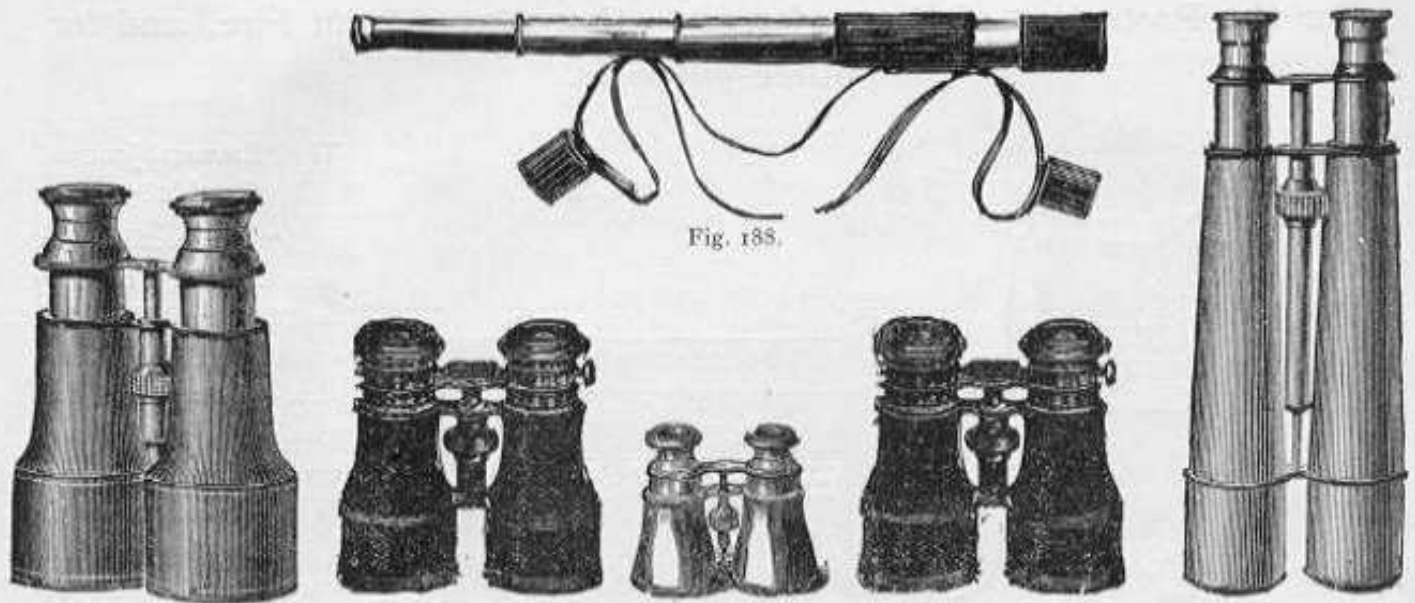


Fig. 183.

Fig. 184.

Fig. 185.

Fig. 186.

Fig. 187.

No		£	s.	d.
540	MARINE GLASS, 24 lines, 6 glass, covered and japanned, bending, in black leather case ... ..	3	3	0
541	Do. Aluminium, 24 lines, 6 glass, covered Russia and bright, not bending ...	7	12	6
542	Do. Aluminium, bending, 24 lines, 6 glass, covered do. ... ..	8	15	0
543	ALUMINIUM FIELD GLASS, 21 lines, 6 glass, patent draw to facilitate focussing, covered vulcanite, bending, in leather sling case ... ..	6	15	0
544	Fig. 183. BINOCULAR ALUMINIUM GLASS, 10 lines, bending, 2 draws, covered Russia and bright (or dull) in brown leather case ... ..	9	2	6
545	ARMY REGULATION FIELD GLASS, 26 lines, 12 glass, covered and bronzed ... ..	2	10	0
546	ALUMINIUM OPERA GLASS, pearl and bright, 17 lines, 6 glass, deep eye-piece, in collapsing case ... ..	3	3	0
547	OPERA GLASS, pearl and gilt, 15 lines, 6 glass, collapsing case	2	12	6
548	Fig. 185. Do. 15 lines, 6 glass, oxidized body, gilt draws, in collapsing case	2	4	0
549	Fig. 184. ALUMINIUM THREE CHANGE GLASSES, Theatre, Field, and Marine, black mounts, 24 lines ... each	7	10	0
550	Fig. 186. Do. do. do. do. not Aluminium ...	2	15	0
551	TOURIST GLASS, 13 lines, 6 glass, covered chocolate and gilt, in chocolate collapsing case ... ..	2	2	0
552	OPERA GLASS, 17 lines, 6 glass, covered dull, black collapsing case ... ..	1	15	0
553	Fig. 188. TOURIST TELESCOPE, 22 lines, 3 draw, leather body, caps and sling, brass mounts ... ..	2	15	0
554	Fig. 187. DOUBLE TELESCOPE, 19 lines, Aluminium, in case ...	13	10	0

NOTE.—In addition to above I have always in stock a large assortment of cheaper Opera and Field Glasses ranging from 15/- to £3, which I guarantee. A list of these forwarded free by return post on application.

# ELECTRIC ALARM THERMOMETERS

For the Protection of Breweries and other places from Fire, and for other purposes.

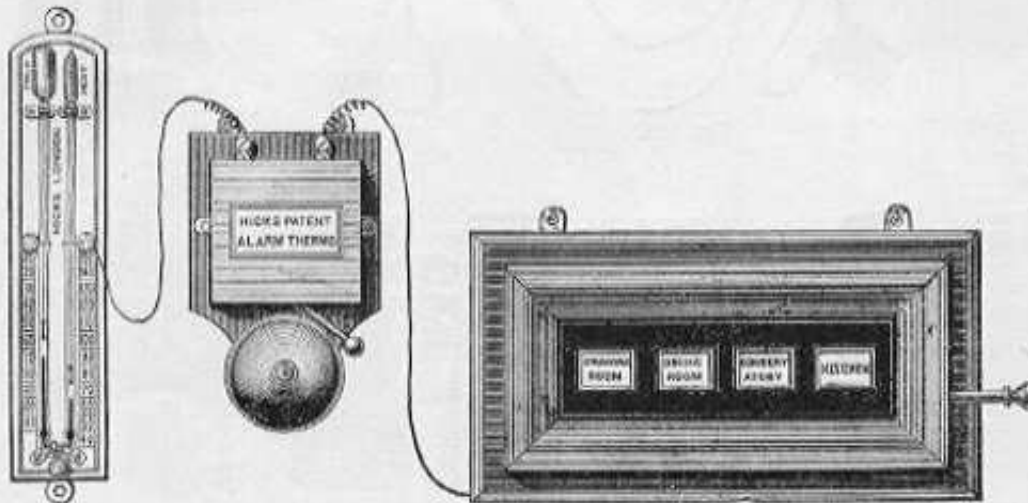


Fig. 189.

apparatus should be provided adequate to deal with any outbreak which may possibly occur.

"The ways of preventing fires are usually simple, and if constant vigilance were maintained, it is improbable that fires would ever occur in any properly constructed brewery; but as it is practically impossible to ensure such vigilance and thus practically impossible to prevent fires sometimes occurring, all that can be done is to take ordinary precautions and provide fire apparatus."

Having devoted considerable attention to this subject, I am of opinion that no apparatus for the prevention of Fire in a Brewery can be considered complete without the aid of an alarm thermometer which will indicate in the office or brewing room that the temperature, caused by an outbreak of Fire, has risen above its normal or ordinary degree and thus give an early warning of danger, probably in time to prevent serious disaster.



Fig. 190. FOR COLD STORES, &c.

In the excellent article referred to above, the following sentence appears:—"Fires may occur at night, and only be discovered when they have such a hold that the inside fire apparatus cannot be used, &c., &c." It is obvious therefore that the alarm should be before the fire obtains such a hold. To effect this, one or more thermometers should be placed in each room, or upon each floor of the Brewery, and these being electrically connected with a loud sounding bell in the watchman's or other office, give him timely warning that something is wrong and enable him to raise the general alarm or take such steps as may be needful. By the aid of the indicating board, which is placed beside the bell, he sees at once in which quarter of the Brewery the danger lies. The board shown in the illustration bears the names of rooms in a private house, but, of course, the names of any rooms or floors in a Brewery or Factory can be inscribed upon it, and it can have as many discs for this purpose as desired.

One of the chief merits of these thermometers (which are patented) consists of being able to "set" them for any temperature by the aid of a magnet to move the index. All other electrical thermometers only ring at a given temperature. With my thermometers, supposing the known ordinary temperature of a room was 60°, you would set the index 10 or 20° higher—say at 70° or 80°.

The "Brewers' Journal" of April 15th, 1897, says:

"The costliness of plant in a large brewery and the loss of business caused by the destruction of even part of this machinery by fire, renders it important that in all brewing establishments precautions should be taken to prevent fires, and that

Now, the instant the mercury reaches the highest temperature and touches the bottom of the index, it makes contact and *continuously* rings the warning bell in the office, which will *never* leave off till some person, the watchman or other official, has run to the thermometer and raised the indicating needle from the mercury by the application of the magnet. On reaching the floor he discovers the cause of the alarm and acts accordingly.

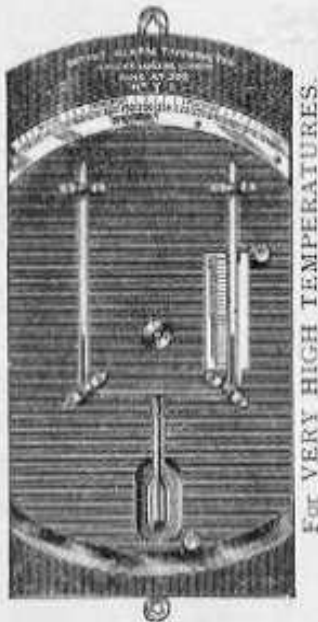


Fig. 191.

The value of the apparatus is clearly therefore of incalculable value to every Brewer, Distiller and Maltster, and to every Factory, Warehouse, Bank, Hotel and Club, in addition to private houses and innumerable other places.

The previous description applies to fire only, for which the thermometer is specially graduated to high heats as shown in Fig. 189. But for **COLD ROOMS AND STORES** I have devised a thermometer similar to the foregoing (see Fig. 190) which is graduated to show low heats, and which gives the alarm when these heats are increased or otherwise. This should be of great service in the refrigerating rooms, where meat is frozen, &c., as the rise or fall of temperature is a matter of the highest importance. My Thermometer will not only give them warning, but enable them to regulate their storage to a nicety.

For very high temperatures, Bakeries and such like, Fig. 191 is suitable.

## Hicks' Patent Mechanical Fire Alarm.

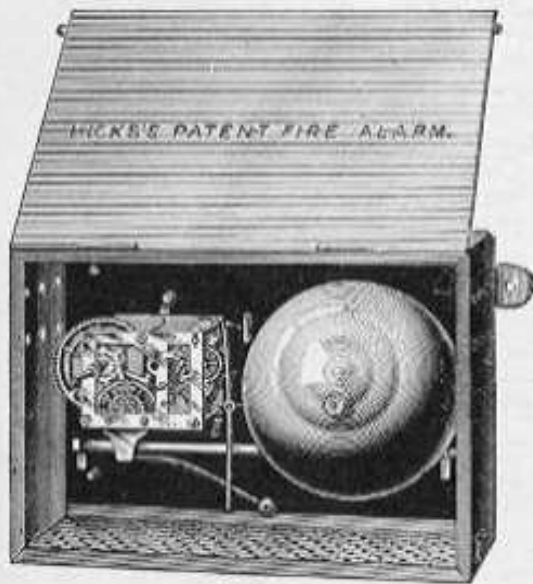


Fig. 192.

Is an ingenious contrivance which has a large standard metal bar fixed at one end, of extreme sensitiveness, and on reaching a certain temperature, say 70°, 80°, or 100°, will ring a very loud-sounding bell. It is exceedingly simple in its action, there is nothing to get out of order, and no battery is required to work it. Further than this, it is **absolutely reliable**, and is a most invaluable instrument to have in all large institutions, such as Schools and Asylums, Factories, Stores and Warehouses, Hotels, Clubs, Industrial Dwellings, etc.

As it indicates increase of temperature and gives loud warning of same, it is of course applicable for many other alarm purposes besides that of fire. For instance, it would be particularly useful in Hospitals and Sick Rooms, and especially in Cold Storage Rooms for the preservation of food, where it is desirable that an even temperature should as far as possible be maintained, and any departure from it made known at once.

It is enclosed in a strong metal case, measuring only 14 x 8 x 5 inches, and is made to hang up, if desired, to a wall or other convenient place.

No.	Description	Price	Shillings	Pence	Farthings
555	Fig. 189. Complete with Bell, Battery, 100 feet of Wire and Indicating Board } with 4 discs ... ..	3	0	0	
556	Fig. 190. Do. do. do. do. ... ..	2	15	0	
557	Fig. 191. Do. do. do. do. ... ..	3	5	0	
558	Fig. 189. Thermometer only, without Bell, Battery, Wire or Indicating Board ...	1	1	0	
559	Fig. 190. Do. do. do. do. ... ..	0	15	0	
560	Fig. 191. Do. do. do. do. ... ..	1	15	0	
Wire, per 100 feet, 4/-.					
561	Fig. 192. Patent Mechanical Fire Alarm ... ..	2	15	0	

# ELECTRIC ALARM THERMOMETERS AND BATTERY HYDROMETERS.

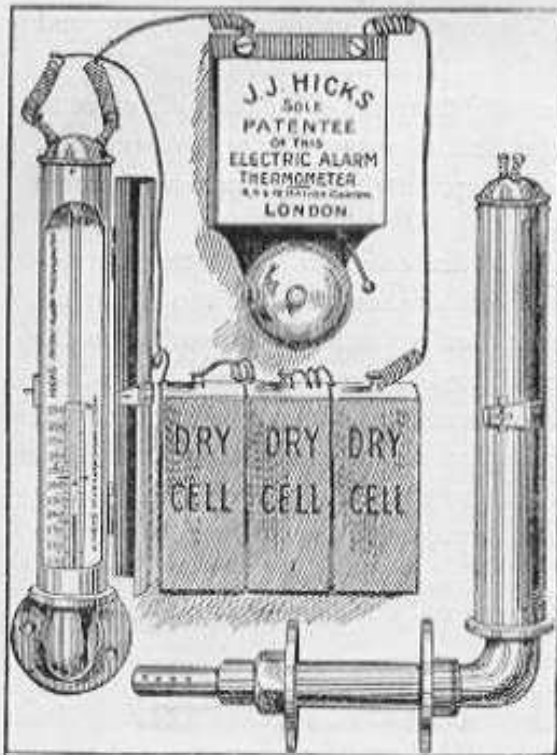


Fig. 193.

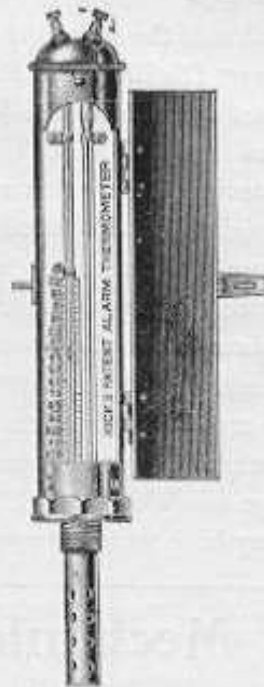


Fig. 194.

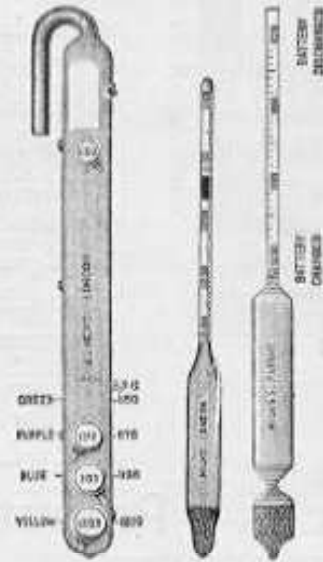


Fig. 195. Fig. 196. Fig. 197.



Fig. 197A  
l. s. d.

No.	Fig.	Description	Price
562	Fig. 193.	<b>ELECTRIC THERMOMETER</b> , for use in <b>FREMLIN'S</b> Patent Sterilising Chamber. It is supplied in a bent brass frame so that it can be inserted through the side of the Chamber. The index which is attached to a long platinum wire, is movable, and can be "set" by the aid of a magnet at any desired temperature. As the heat in the Chamber increases, the mercury gradually ascends the tube until it touches the index, which causes a bell to ring and give warning. The illustration shows the front and side view of the thermometer. Price, complete with bell and three dry cells (the bell can be placed at any distance from the thermometer) ... ..	3 10 0
[IN USE AT MANY BREWERIES.]			
563	Fig. 194.	.. Do. ... .. do. ... .. for pipes. This acts in the same manner as the previous one, and is useful for hot or cold water pipes, &c. Price complete with bell and batteries ... ..	3 0 0
564	Fig. 195.	<b>BATTERY HYDROMETER (Hicks' Patent)</b> , is the best in the world for electricians and others for testing accumulators. It has four different beads, indicating different gravities, and the correct gravity is shown on the bead which floats nearest the centre of the tube. Extensively used in the Laboratories at South Kensington, etc. ... ..	0 4 6
565	Fig. 196.	... Do. ... loaded with shot at one end, and has the scale clearly marked in its stem ... ..	0 2 0
566	Fig. 197.	Do. ... .. <b>Keating's Open Scale Patent</b> ... ..	0 4 6
567	Fig. 197A.	... Do. ... The rubber tubing is inserted in the acid and the teat squeezed to exclude the air. When the teat is released the acid will rise inside the tube, and the bead floating nearest the centre gives the gravity. The rubber tube can easily be inserted in a narrow place. Specially adapted for small batteries. (HICKS' PATENT)	0 4 0



# Electric Alarm & Various Thermometers for Cold Storage.

**THE ELECTRIC ALARM THERMOMETER, Fig. AA,** has been designed specially for refrigerating rooms and chambers. The index is a *movable one*, so that simply by the aid of a magnet, it can be *set* to ring at *any* temperature. This thermometer should be of great use where meat or poultry is stored, because the rise and fall of temperatures is a matter of the highest importance, and this thermometer gives instant warning of it, the bell continuing to ring until attention is paid to it. The thermometer is made to hang *inside* the chamber, with the electric wire passing through it and connected with the bell which can be fixed any distance away, at the spot most convenient for the owner or attendant to hear. If preferred the thermometer can be made with the scale reading outside the chamber, with a bent arm containing the bulb of mercury projecting inside the chamber. I shall be pleased to give an estimate for fixing either of these complete, or for a quantity. Butchers and others would find them simply invaluable. They can be seen in operation at my place, or my representative will attend, if desired, and show one in operation.

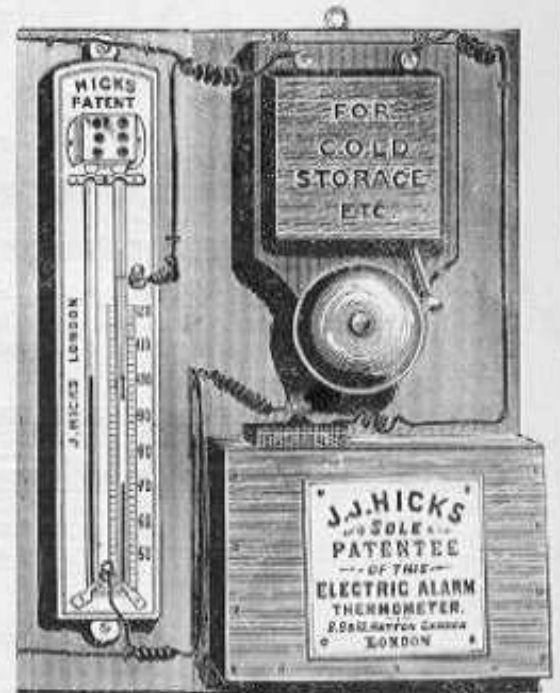


Fig. AA.

Price of Fig. AA, with maximum or minimum tube only, to show the heat or cold, bell, 3 batteries, board, and 20 feet of wire, **47/-**

Price with maximum and minimum tube combined, with bell, &c., as above, **60/-**

**BENT WOOD FRAME THERMOMETER, Fig. BB,** for fixing outside a cold room or chamber so that the temperature can be easily read on the scale without going inside the cold room. The bent piece containing the mercury bulb is inside the chamber and can be made whatever length desired, so as to penetrate wherever likely to be most effective. The scale of the thermometer in the drawing shows 0 to 50° Fahr., but it can be varied a few degrees higher or lower if preferred. The thermometer is easily fixed by screws or bolts and is guaranteed of good workmanship and perfectly accurate.

Price of thermometer as illustrated, with 12 inch wood frame and door with glass scale for clear reading, and 12 inch bend, **37/6**. The thermometer illustrated has a brass bend but a wooden one can be supplied if preferred—this thermometer is *not* electric.

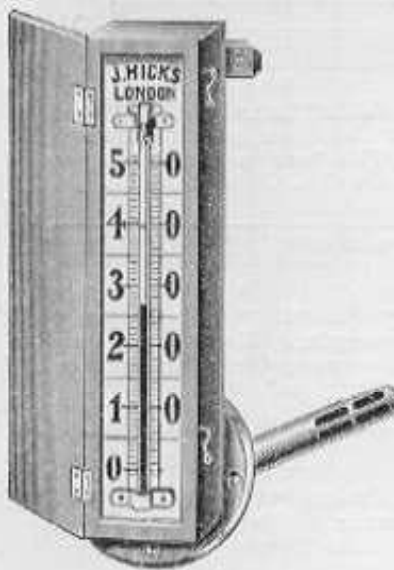


Fig. BB.

**Also Maker of the following Thermometers for hanging in Cold Stores or fixing in Refrigerating Apparatus:—**

- S** Thermometer in copper frame, 50 below 0 to 120°  
Per dozen, **42/-**
- H** Thermometer in wood frame with handle.  
Per dozen, **60/-**
- E** Thermometer with flat wood scale, 40 below 0 to 120°  
Per dozen, **24/-**
- B** Thermometer in half round wood stick, 50 below 0 to 120°  
Per dozen, **28/-**

**SPECIAL . . .  
. . . . PRICES**  
for quantities of any of these given on application.

Please quote the letter or letters appearing under the illustration you prefer, so as to avoid mistakes.

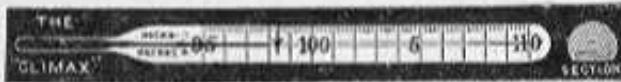
- T** Pipe Thermometer in brass case, bronzed, with porcelain scale 10 below 0 to 60° above.  
Price, each **22/-**
- O** Thermometer in round boxwood frame with sunk tube.  
Per dozen, **30/-**
- XXX** Thermometer for sticking into meat, each **8.6.**

# HICKS' CLINICAL THERMOMETERS

ARE THE BEST.

*Known and Used all over the World.*

(BEWARE OF SPURIOUS IMITATIONS.)



568 Fig. 198. Hicks' Patent "Climax" Clinical Thermometer. Scale enclosed in body. No dirt or infection. Price, in case, 5s.



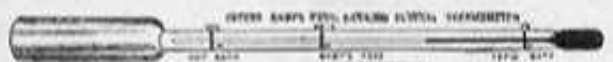
569 Fig. 199. Hicks' Patent Opaque Lens Clinical Thermometer. Very beautiful and distinct scale. Price, in case, 5s.



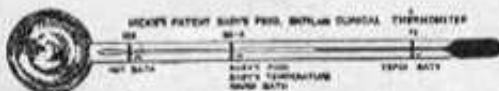
570 Fig. 200. Hicks' Patent "One Minute" Clinical Thermometer. Magnifying. Very rapid action and very popular. Price, in case, 6s. Non-Magnifying, 4s.



571 Fig. 201. Hicks' Patent "Duplex Bulb" Clinical Thermometer. Very sensitive and exceedingly strong. Magnifying. Price, in case, 8s. 6d. Non-Magnifying, 6s. 6d.



572 Fig. 202. Invaluable for Nursery use. Price, in case, 3s. 6d.



573 Fig. 203. Same as above, but different shaped bulb, 3s. 6d.

**NOTICE.**

The word "Minute" on Clinical Thermometers is my Registered Trade Mark, and anyone infringing it is liable to prosecution.



574 Fig. 204. Hicks' Latest Patent Clinical Thermometer, the "Facilis." Easy to shake down. It only requires ONE or two swings to shake down the index. Price, with non-magnifying tube, in case, 3s. " " magnifying " " 5s.



575 Fig. 205. Hicks' Patent "Non Plus Ultra" Clinical Thermometer. Magnifying. The scale is very clear, as figures are placed near bulb. Price, in case, 6s. Non-Magnifying, 4s. 6d.



576 Fig. 206. Hicks' Patent Lens Front Clinical Thermometer. With flat back to prevent it from rolling. The bore is very plain, as shown in the illustration. Price, in case, 4s.



577 Fig. 207. Hicks' Patent "Half-Minute" Clinical Thermometer. Magnifying. Very rapid action, and very popular. Price, in case, 6s. Non-Magnifying, 4s.



578 Fig. 208. Hicks' Patent "Hospital" Clinical Thermometer. Very popular with Hospital Doctors and Nurses. Price, in case, 2s. 6d.



579 Fig. 209. Hicks' Patent "Instantaneous" Clinical Thermometer. Highly commended by the late Sir Morell Mackenzie. Price, in case, 10s. 6d.



580 Fig. 210. Hicks' Patent Clinical Thermometer. For Mother's use in the household, with words "feverish," etc. Price, in case, 3s. 6d.

All Clinical Thermometers made by me bear my mark thus:



None others are Genuine.

**Complete Illustrated Price List FREE. For Wholesale Terms of Clinical Thermometers as supplied to Shippers and Wholesale Houses, please make written application. In ordering from this sheet please state whether Magnifying or Non-Magnifying Tube is required.**

OSSERVATORIO  
ASTRONOMICO  
PALERMO

Inv. m. 13515/BABA

## Mr. HICKS is also Manufacturer of

AIR METERS, 2 and 6 dial, &c.  
 AIR PUMPS.  
 ANEMOMETERS, various.  
 ARGENTOMETERS, for Photographer's use.  
 ARTIFICIAL HORIZONS.  
 BARKTROMETERS.  
 BAROGRAPHS.  
 BOILING POINT APPARATUS.  
 BURETTES, in Plain and Opaque Glass.  
 CATHETOMETERS.  
 CHARTS, of every description.  
 CLINOMETERS, Ships'.  
     Do.           Col. Watkins's Patent.  
 COMPASSES, all kinds of.  
 GAUGES, Gas, Rain, Steam, Tide and Water.  
 HYDROMETERS.  
 HYSOMETRICAL APPARATUS.  
 LACTOMETERS, for Testing Milk.  
 LEVELS, Ships', Drainage and Surveying.  
 MEASURES, Tape and Steel.  
 PEDOMETERS.  
 QUADRANTS.

RANGE FINDERS, all kinds of.  
 READING GLASSES.  
 SALINOMETERS.  
 SEXTANTS.  
 SPECTACLES and EYE GLASSES.  
 SPIROMETERS.  
 STORM BOTTLES.  
 SURVEYING INSTRUMENTS.  
 SCREENS, for Thermometers.  
 SYRINGES, Hypodermic, &c.  
 TELESCOPES.  
 THEODOLITES, TRANSIT, &c.  
 TIME GLASSES.  
 THERMOMETERS, Board of Trade.  
     Do.           Clinical, all kinds of.  
     Do.           Deep Sea.  
     Do.           Dimenuon.  
     Do.           Differential.  
     Do.           Solar and Terrestrial Radiation.  
 URINARY CABINETS AND STANDS.  
 URINOMETERS.  
 WAR OFFICE INSTRUMENTS.  
 WATER HAMMERS.  
 WIND VANES.

And all other kinds of Standard Meteorological and Philosophical Instruments.

Special Price Lists on application. As all my Price Lists are in separate parts, friends are requested to name the Instruments they require. Estimates sent by return Post.

### Cost of Repairing Thermometers, Hydrometers and Saccharometers.

14-inch scale	Thermometer,	new patent magnifying tube and	scale re-divided	9/0	} If fitted with ordinary enamel tubes, not magnifying 2/0 each less.
12-inch	Do.	do.	do.	8/0	
10-inch	Do.	do.	do.	7/0	

Re-gilding and adjusting Hydrometer or Saccharometer, according to what it requires, from 10/- to 15/-

**NOTICE.**—In consequence of the Railway Companies refusing to give compensation for breakage of THERMOMETERS and SACCHAROMETERS, Mr. HICKS can only forward them at Customer's risk. He will see that every possible care is taken in packing, and labelling GLASS, WITH CARE, but cannot guarantee safe arrival, or accept responsibility for breakage.



INTERNATIONAL  
INVENTIONS  
EXHIBITION

LONDON 1883

THE EXECUTIVE COUNCIL HAVE  
UPON THE RECOMMENDATION OF THE  
INTERNATIONAL JURIES AWARDED A  
GOLD MEDAL

TO *James J. Hicks*  
FOR *Aneroid barometers.*

*Montgomery*  
PRESIDENT  
*Gabriel Praxinos*  
CHAIRMAN

W. & A. GILBEY

W. & A. GILBEY