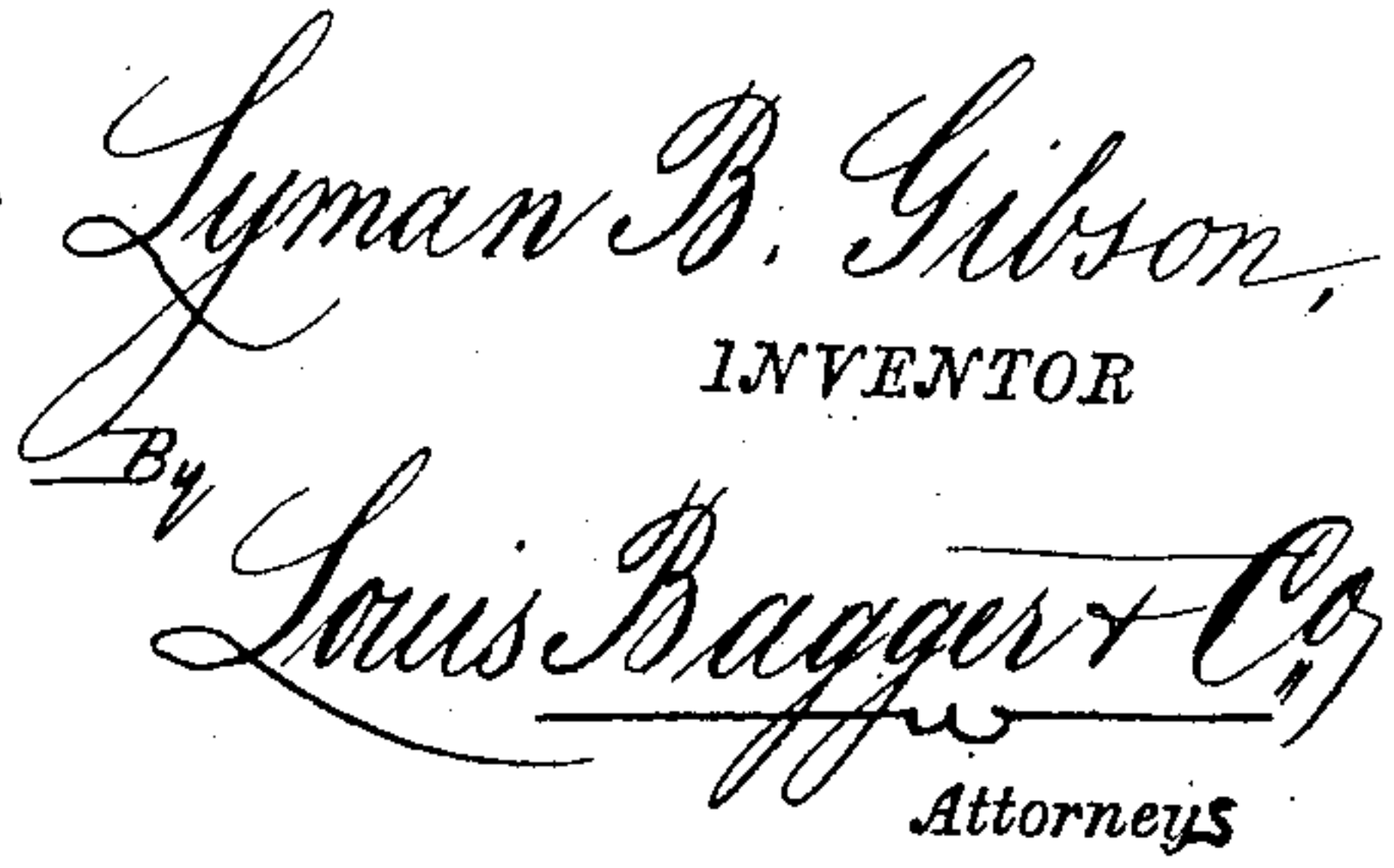


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UNITED STATES PATENT OFFICE.

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WEIGHING AND PRICE SCALE.

SPECIFICATION forming part of Letters Patent No. 330,690, dated November 17, 1885.

Application filed June 2, 1885. Serial No. 167,388. (No model.)

To all whom it may concern:

Be it known that I, LYMAN B. GIBSON, a citizen of the United States, and a resident of Addison, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Scales; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to that class of counter-scales known as "combination-scales;" and it has for its objects, first, to dispense with the use of loose or separate weights; second, to construct a counter-scale provided with an improved index, by the use of which any portion of a commodity with reference to its selling price may be accurately and conveniently weighed, and, third, in the use of an adjustable reversibly auxiliary weight adapted to be used for the purposes which will be hereinafter set forth.

To these ends my invention consists in the improved construction and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

Referring to the annexed drawings, Figure 1 is a perspective view of my improved combination counter-scale. Fig. 2 is a vertical sectional view taken on line *x x*, Fig. 1. Fig. 3 is a vertical sectional view taken on line *y y*, Fig. 1; and Fig. 4 is a perspective detail view of the spring-weight *E*², which will be hereinafter described.

The same letters of reference indicate corresponding parts in all the figures.

Referring to the several parts by letter, A represents the frame which supports the hopper and weighing devices in operative position upon the support or platform A'.

B represents a glass cylinder, which is lined with white pasteboard or other similar substance, which is marked in the manner which will be hereinafter described, or the cylinder may be made of any suitable opaque material and the gradations marked upon the exterior thereof. The glass cylinder is provided at

each end with an end piece or cap, B' B², the said caps being provided with flanges *b*, to adapt them to fit upon the ends of the glass cylinder B, a metal pipe or core, C, passing through the glass cylinder and centrally through the end pieces thereof, being provided at its outer end with the bead or enlargement *c*, against which the outer cap, B², bears, while a pin, *c'*, inserted into the said core against the outer face of the rear cap, B', serves to hold the caps B' and B² firmly against the ends of the glass cylinder and cause them to revolve with the same. The inner end of the metallic core C passes through a sleeve or bearing, A², in the frame A, which is pivotally supported at *a'*, a thumb-screw, *a*², serving to secure the said core in its adjusted position. In the inner end of the core C slides a rod, D, having on its inner end the weight D', the said rod being held in its adjusted position by the set-screw *d*. A tube, E, having on its outer end the weight E', slides in the outer portion of the core C, the said tube E being marked to denote pounds and ounces, and having placed within it the curved spring-weight E², which is held in position by its spring or tendency to expand after it has been adjusted in the tube E, for the purpose hereinafter set forth. The tube E is provided with a longitudinal slot, *e*, through which the spring-weight E² may be reached to adjust it back and forth in the tube as required.

An annular or ring shaped weight, F, which weighs one pound, slides upon the glass cylinder B, having secured to it the annular flat ring G, (which I will for convenience term the "price-list,") the said price-list being marked with figures running from 10 to 100, and the metallic price-list being indented at a point between the figures 10 and 100 (which are contiguous) at *g* to adapt the portion thus depressed to fit and slide within a longitudinal groove, *b*², on the outer face of the glass cylinder, thereby preventing the price-list and weight from turning on the said cylinder as it is moved from one end of the cylinder to the other. The white pasteboard lining of the glass cylinder B is provided with the longitudinal lines *b*³, the space between the said lines corresponding to the spaces on the price-list in which the figures are placed, these spaces

between the lines being divided into as many portions as the numeral which stands at the end of the said space. For instance, the longitudinal space on the lining opposite to or registering with the numeral 10 is divided by transverse lines into 10 spaces, while the space opposite the numeral 85 is divided into 85 spaces, and so on.

An auxiliary weight H is secured on the outer end of the graduated tube H', which slides in a sleeve or bearing, I, on the side of the pivoted supporting-frame A, as shown in the drawings, the said tube being provided with a longitudinal slot, h', and having placed within it a spring-weight, h, similar in construction to the weight E² in the main tube E, the said auxiliary weight being used for the purposes hereinafter set forth.

To adjust the scale in its operative position, the glass cylinder B is first secured upon the core C, and the weight E' pushed in close against the outer cap, B², of the cylinder B, while the weight F is moved to the inner end, B', of the glass cylinder. By loosening the thumb-screws a² and d the core carrying the cylinder may be moved in or out, and thus, in unison with the weight D', which is also moved in or out, caused to balance the scale and hopper A³, when the thumb-screws are tightened. A test pound-weight is then placed in the hopper, and the weight F moved to the outer end of the cylinder B, and if the weight F is found to be too light in that position to balance the test pound-weight, which is caused by the glass cylinder B being too short—say one-fourth of an inch—we then loosen the thumb-screw a² and draw the core C out from the sleeve A² for one-fourth of an inch, thereby bringing the glass cylinder and weight F to a balance with the test-weight. The test-weight is now removed, and the weight F moved back to the inner end of the glass cylinder, when the weight D' is drawn out from the inner end of the core C to balance the adjusted cylinder.

The weight E', (which is used in connection with or in combination with the weight F when it is desired to weigh more than a pound of a commodity,) may be adjusted by first moving the annular weight F to the inner end of the glass cylinder B, placing a test pound-weight in the scoop or hopper A³, and then drawing the graduated tube E out until it indicates one pound, when, if it is found that the weight E' does not balance the test-weight in the hopper through its being too light, the spring-weight E² may be moved out toward the weight E', and by thus moving the said spring-weight farther away from the pivotal point a' of the balance the weight E' will be caused to exactly balance the test-weight in the hopper, while, if the weight E' is found to be too heavy, the spring-weight is moved in toward the inner end of the tube E—that is, toward the pivotal point a' of the balance—so as to cause the said weight to exactly balance the test-weight in the hopper.

The manner in which the price-list operates in conjunction with the graduated cylinder is as follows: If it is desired to sell seven cents' worth of a commodity which sells at ten cents per pound, the weight F is moved out from the inner end of the cylinder seven-tenths of the distance of the space which is divided into ten parts by its transverse lines, which is seven-tenths of a pound or seven cents' worth of that particular commodity. The same principle is followed in selling commodities at different prices; eighty cents' worth of an article selling at eighty-five cents per pound being weighed by moving the annular pound-weight and price-list to the point where the space which registers with the numeral 85 on the price-list is marked 80, and so on. By the use of the sliding graduated rod E, having the weight E', the use of separate weights is entirely dispensed with.

The auxiliary weight H, when its tube H' is inserted through the sleeve or bearing I, in the position shown in the drawings—that is to say, with the weight H on the same side of the pivotal point a' as the main weight F—may be used to take out tare from the object being weighed. For instance, if a certain proportion of a commodity—say, for example, honey—is to be weighed, and it is necessary or desirable to place the same in a vessel in the hopper, the said vessel may be first placed in the hopper, and balanced by the auxiliary weight H, and the commodity itself may be then placed in the said vessel and weighed by the main weight F, as will be readily understood.

The auxiliary weight H may be used to assist in weighing the article or commodity in the hopper in combination with the weights F and E', thereby dispensing with loose weights, while, by reversing its tube H' in the sleeve or bearing I, it may be used in the following manner: If a certain quantity—say two pounds—of a commodity has been weighed in the scoop A³ by the weights F and E', and the purchaser desires that a certain quantity—say three quarters of a pound—should be wrapped in a separate bundle from the remainder of the same, the weight H, in its reversed position, may be drawn out until its graduated tube H' indicates three quarters of a pound, thereby making the combined weight of the commodity in the scoop and the auxiliary weight H amount to two and three-quarters pounds, while the weights F and E' on the opposite side of the pivotal point are adjusted to weigh two pounds, as before stated. Three-quarters of a pound of the commodity may be then removed from the scoop, this quantity being exactly determined by the reversed auxiliary weight H, it being only necessary to keep removing the commodity from the scoop until the scale is balanced, the one and three-quarters pound left in the scoop and the auxiliary weight adjusted at three-quarters of a pound exactly balancing the weights F and E' on the opposite side of the pivotal point; also, when it is desired to remove the scoop

A³ and place the article to be weighed or the vessel in which it is to be placed directly upon the flat portion of the frame A, the auxiliary weight H may be used in its reversed position to balance the cylinder B in place of the scoop which has been removed.

When the slotted tube H' is inserted through the collar I in the position shown in Fig. 1, and the said tube has been drawn out to indicate, say, one-half pound, and a test one-half-pound weight has been placed in the scoop A³, if the weight H is then found to be too light or too heavy to exactly balance the test-weight in the hopper the spring-weight *h* is adjusted until the weight H exactly balances the test-weight, being adjusted in the same manner and for the same purpose as the spring-weight E² in the tube E'.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of my improved combination counter-scale will be readily understood without requiring further explanation.

It will be seen that my invention dispenses with the use of separate weights, and may also be used to take out tare and subtract from or divide the commodity being weighed, while any proportion of a commodity with reference to its selling price may be accurately and conveniently weighed. It will be seen that my improved scale is also exceedingly simple in construction, and is therefore cheap to manufacture, and not liable to get out of order.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States, is—

1. The combination, with the pivoted supporting-frame, of the graduated cylinder having the core adapted to be secured adjustably in the said supporting-frame, as and for the purpose shown and set forth.

2. The combination, with the pivoted supporting-frame, of the graduated cylinder having the core adapted to be adjusted longitudinally in a suitable bearing in the said

supporting-frame, as shown, for the purpose set forth.

3. The combination, with the pivoted supporting-frame, of the core supporting the graduated cylinder carrying the main weight and adjustably secured in the forward portion of the said supporting-frame, and the rod having the end weight and adapted to be secured adjustably in the inner end of the said core, as shown, for the purpose set forth.

4. The combination, with the pivoted supporting-frame and the central core, of the graduated metallic tube having the weight on its outer end, and adapted to slide in the outer end of the said core, substantially as set forth.

5. The combination, with the pivoted supporting-frame and central core, of the graduated metallic tube having the weight on its outer end and provided with the adjustable interior spring-weight, for the purpose set forth.

6. The combination, with the pivoted supporting-frame and weighing apparatus, of the adjustable and reversible auxiliary graduated tube having the end weight, and adapted to operate in the manner and for the purpose set forth.

7. The combination, with the pivoted supporting-frame and weighing apparatus, of the adjustable and reversible auxiliary graduated tube arranged to operate in the manner and for the purpose set forth and having the adjustable interior spring-weight, as set forth.

8. The combination, with the pivoted supporting-frame and the adjustable core carrying the graduated cylinder having the adjustable weight and price-list, of the graduated adjustable tube having the weight on its outer end and provided with the adjustable spring-weight, for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

LYMAN B. GIBSON.

Witnesses:

WILLIAM W. WRIGHT,
JAMES D. CLINTON.