

J. W. CULMER.
COMPUTING SCALE

No. 553,336.

Patented Jan. 21, 1896.

Fig. 1.

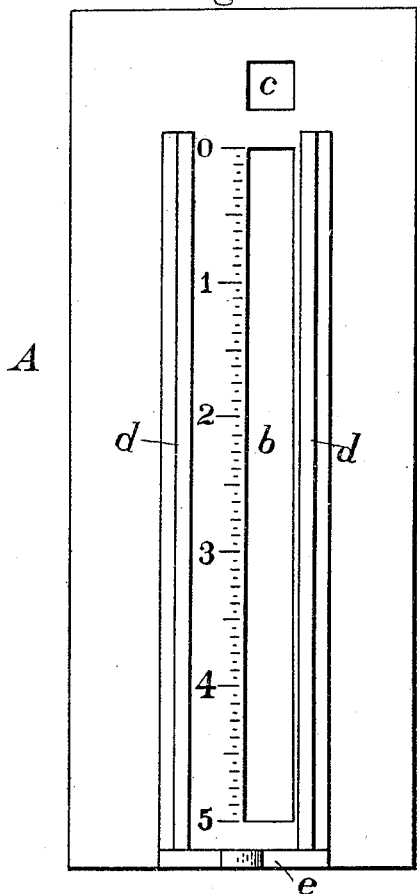


Fig. 2.

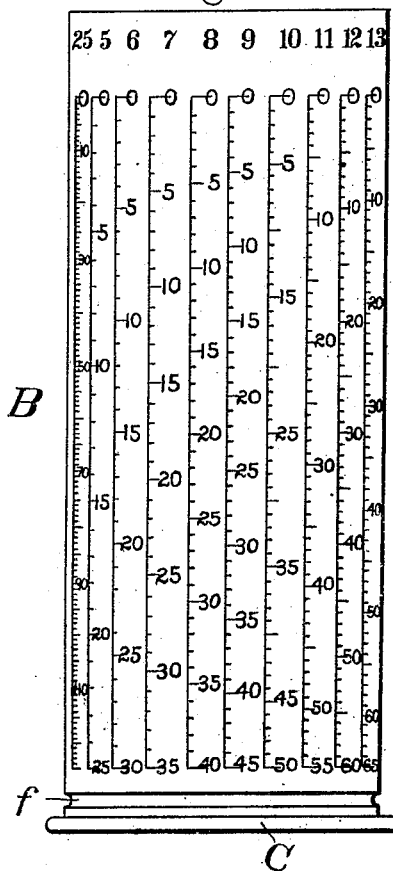
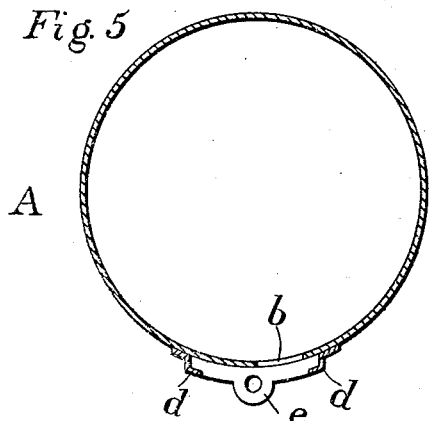
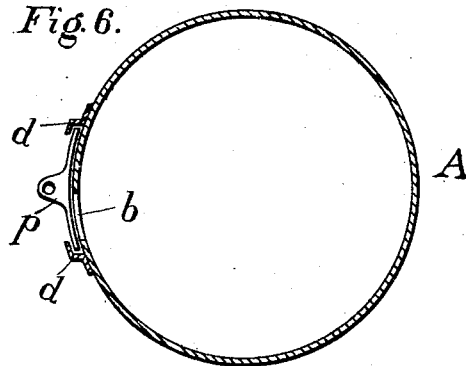


Fig. 5.



Witnesses
James S. Smith
Frank B. Marlow,

Fig. 6.



Inventor:
John W. Culmer,
By Chas. F. Benjamin,
Attorney.

UNITED STATES PATENT OFFICE.

JOHN WOODRUFF CULMER, OF NEW BRIGHTON, PENNSYLVANIA.

COMPUTING-SCALE.

SPECIFICATION forming part of Letters Patent No. 553,336, dated January 21, 1896.

Application filed January 24, 1895. Serial No. 536,062. (No model.)

To all whom it may concern:

Be it known that I, JOHN WOODRUFF CULMER, a citizen of the United States, residing at New Brighton, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Computing-Scales; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to spring-balances of the cylindrical form, and its object is to indicate upon the balance the price of a commodity at a given rate per pound or other unit of weight.

The invention consists in the addition to the ordinary weighing-cylinder of a cylinder designed to indicate price, and in adapting the construction and arrangement of the parts making up the spring-balance to the co-operative action of the two cylinders.

In the accompanying drawings the same letters indicate the same parts throughout.

Figure 1 is a front elevation of the outer or weight cylinder provided with a weight-indicating table reaching to five pounds; Fig. 2, an elevation of the inner or price cylinder provided with rate and value tables to exemplify the manner of spacing and marking the cylinder; Fig. 3, a vertical sidewise section through the center of the balance; Fig. 4, a front elevation of the balance; Fig. 5, a cross-section of the outer cylinder near the bottom thereof; and Fig. 6, a cross-section of said cylinder, showing the cross-head of the indicating-rod in place within its guides on the face of the cylinder.

A represents the weight-cylinder provided with a long vertical slot *b*, a short equal width slot *c* above the other, a pair of guides *d*, projecting from the face of the cylinder, each of them parallel with and equidistant from the left-hand edge of the long slot, and a brace *e*, projecting horizontally from the bottom of the pair of guides and perforated vertically and centrally.

For the purpose of clear description the length of the long slot is to be taken as five

inches and the weighing limit of the balance at five pounds. Therefore the face of the cylinder along the left-hand edge of the slot is divided into five one-inch spaces, marked with the numerals indicating one pound to five pounds, and each one-inch space is subdivided into sixteenths, each sixteenth marking one ounce.

B is the price-cylinder, diametered to fit and turn within the weight-cylinder and rigidly mounted upon a base C, the foot of which is larger around than the circumference of the weight-cylinder, so that it bears against the bottom rim of that cylinder when the price-cylinder is inserted therein to the proper extent. A groove *f* runs horizontally around the upper part of the base, so that when the price-cylinder has been turned right or left to a proper adjustment a pair of oppositely-placed thumb-screws *g* working in and through the weight-cylinder will have a bearing in the groove, and so hold the inner cylinder fast.

Around the upper part of the price-cylinder is a circle of numerals representing rates per pound. For present purposes the rates are indicated progressively from five to twenty-five cents. Whenever this cylinder is properly placed within the other, one of this series of rates will show through the small slot of the weight-cylinder. Beneath each price-rate is a vertical row of markings, to be taken as five inches in length in order to accord with the scale adapted for the outer cylinder. Each inch of this vertical scale is marked into a number of equal divisions corresponding with the price-rate above it. This scale will show through the long slot of the weight-cylinder when the cylinders are properly united.

A cap D is provided for the weight-cylinder, and has a vertical central screw-threaded orifice *h*, in which works a screw-bolt E, for the support of a helical spring F, depending from it. A tube G is passed through an aperture *k* in the base of the price-cylinder and ascends that cylinder surrounding the spring. This tube is closed by a base H, which projects at one end, where it is provided with a stud *l*, having a vertical orifice, into which works horizontally a set-screw *m*, tool or thumb operated, as desired. A second screw-

bolt I passes through an aperture *n* in the tube-base, and through the apertured base of the price-cylinder, and so ascends the tube and engages the lower end of the helical spring. This bolt is retained by a nut *o*, bearing against the bottom of the tube-base. The extent to which each of the two bolts penetrates the spring determines the tension of the spring, and enables it to be so adjusted as to insure a correct indication of weight upon the weight-scale of the outer cylinder. A rod *K* passes up through the orifice *l* of the tube-base and through the orifice in the brace *e* of the weight-cylinder, and has a cross-head *p*, which fits and slides within the guides *d* of the weight-cylinder. It also carries a pair of oppositely-directed pointers *r*, and when these are level with the zero-mark at the top of the row of spacings on the weight-cylinder the rod is made fast in its supports by tightening the screw *m* in the tube-base.

The balance is suspended for use preferably by a ring or hook attached to the upper screw-bolt, and the article to be weighed is suspended from the lower screw-bolt. If a plate, pan or vessel is necessary to contain the article to be weighed, it can be hung from the screw-bolt and the spring tensioned to accommodate the tare and keep the pointers at zero.

To illustrate the use of this kind of computing-balance, let it be supposed that a weighing-pan has been attached and its tare compensated by tensioning the spring. An end piece of beef at eight cents a pound is to be weighed and valued. The cylinders are so adjusted that the numeral 8 shows through the little slot of the weight-cylinder. The meat is put into the weight-pan and pulls down the tube and its attachments till the left-hand pointer is half-way between the figures 3 and 4 on that side, showing the weight to be three and a half pounds. At the same time the right-hand pointer, which is on the same level as the other, will point to the mark for 28 on its side, thus indicating twenty-eight cents as the price to be paid for the end piece of meat.

In the making and use of this computing-balance any weight-unit may be adapted, and any practically desired multiple of that unit fixed upon as the limit of weighing capacity. The unit determined, as well as the linear space to be allowed it on the face of the weight-cylinder, the same linear space must, on the price-cylinder, be marked off into divisions equal in number to the price-unit figure below which the markings appear; also the whole perpendicular linear space occupied by

the weight-scale on the face of the outer cylinder must be equalled by the whole perpendicular linear space occupied by each pricing-scale on the inner cylinder, all as hereinbefore explained.

Having thus described my invention, I claim as follows:

The combination in a spring balance of the top-closed outer cylinder, having the long vertical slot in its face, and the shorter slot immediately above the other; the bottom-closed inner cylinder, fitting and turning within the outer cylinder; the screw bolt, fitted in and through the head of the outer cylinder; the spiral spring fitted to and depending from the said screw bolt; the tube, passing up through the bottom of the inner cylinder, and surrounding the aforesaid spring, and having the forwardly projected base; the screw bolt, passing through the said tube-base and the bottom of the inner cylinder, and engaging the lower end of the aforesaid spiral spring, and also fitted with the nut adapted to clamp it against the under face of the aforesaid tube base; and the indicating rod, fitted in the projected end of the aforesaid tube base, and extending up along and in front of the slotted face of the outer cylinder, and provided with the pair of oppositely directed pointers—the head of the outer cylinder being suitably apertured for the admission and adjustable support of the upper screw bolt, and the face of said cylinder fitted with suitable guides for the vertical movement of the indicating rod in front thereof; the bottom of the inner cylinder being suitably apertured for the admission into said cylinder of the tube and the lower screw bolt; the tube base being suitably apertured for the admission of the lower screw bolt, and also at its projected end for the support of the indicating rod, and said last named aperture fitted with a set screw adapted to support said rod adjustably within the aperture provided for it; also, the faces of the outer and the inner cylinder being graduated and marked into suitable and co-operative units of weight on the outer cylinder and price rates and values on the inner cylinder; the whole constructed and arranged as described, for the purpose of adapting the said construction to the uses of a weighing and computing scale, as hereinbefore specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN WOODRUFF CULMER.

Witnesses:

G. C. WAREHAM,
G. L. EBERHART.