

No. 774,417.

PATENTED NOV. 8, 1904.

S. W. FINCH.
PRICE SCALE.

APPLICATION FILED MAR. 5, 1901.

NO MODEL.

Fig. 1.

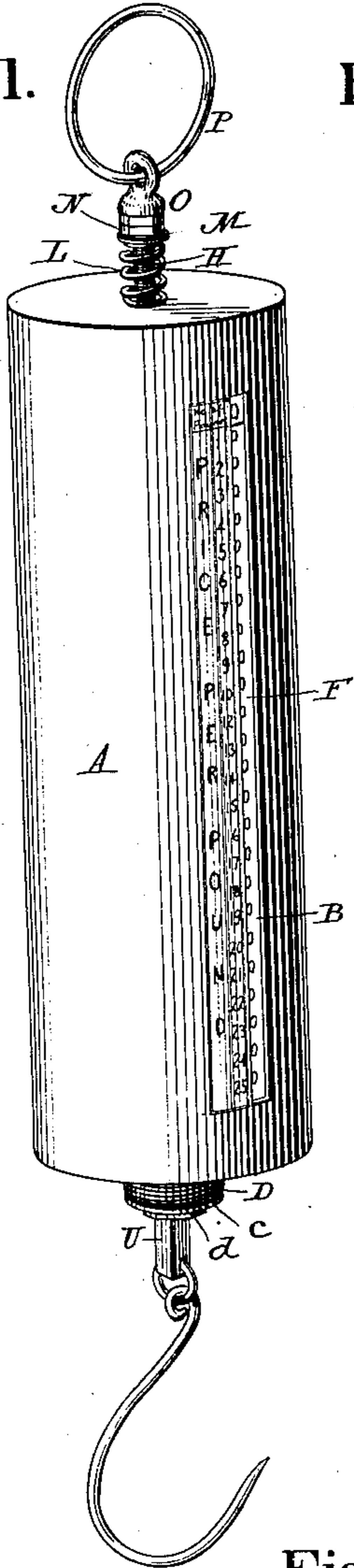


Fig. 2.

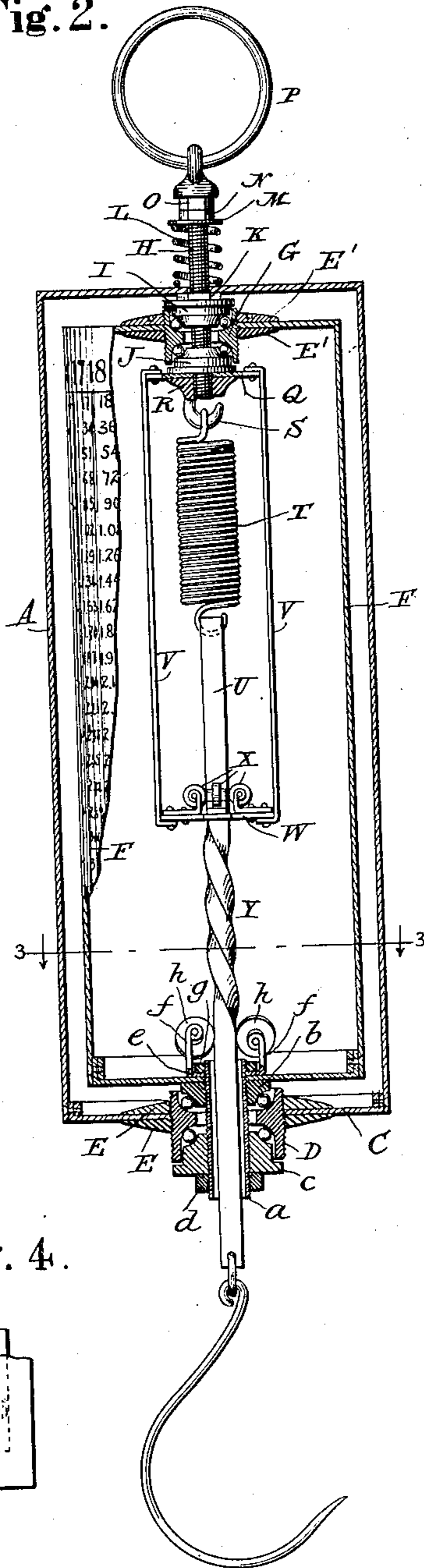


Fig. 3.

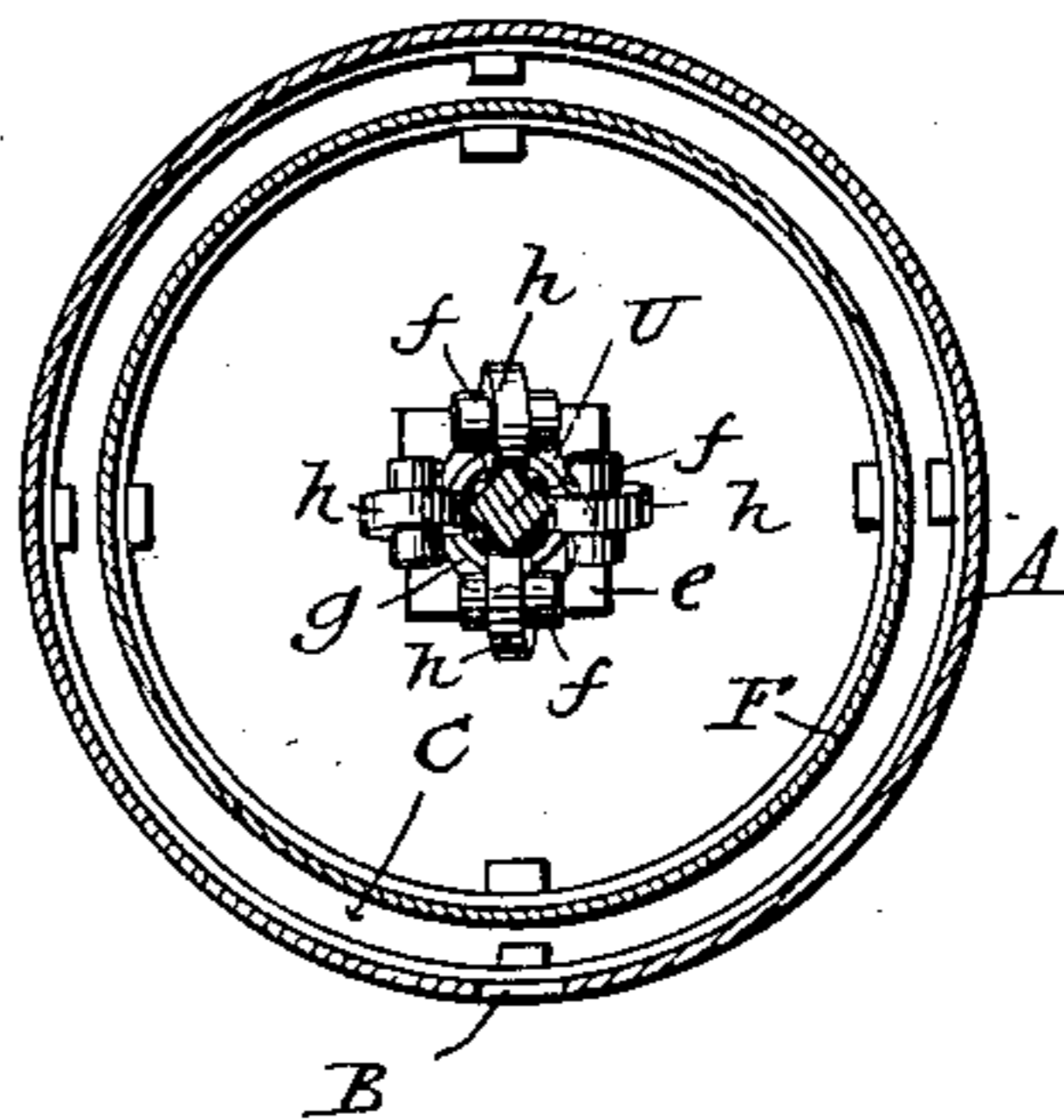


Fig. 5.

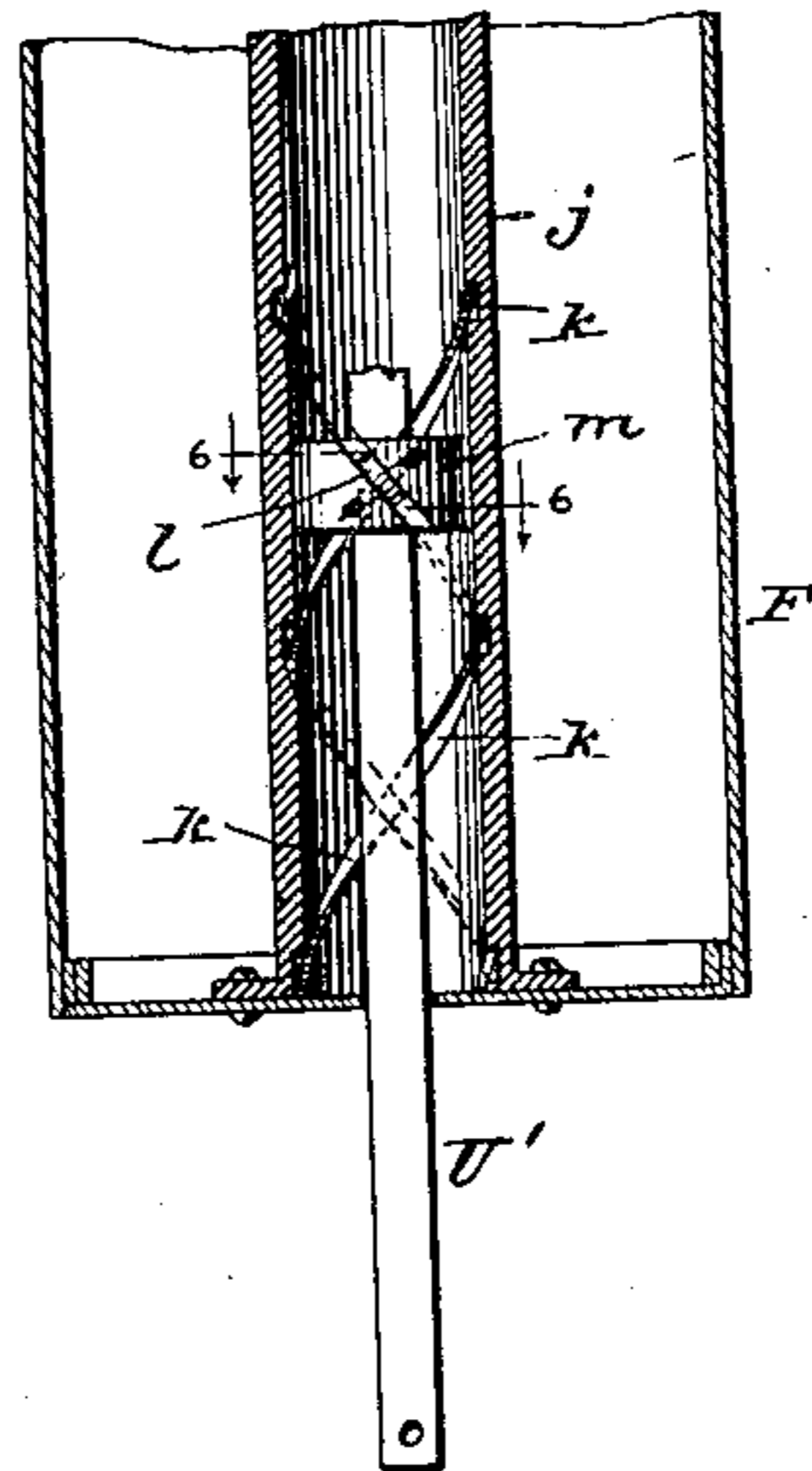


Fig. 4.

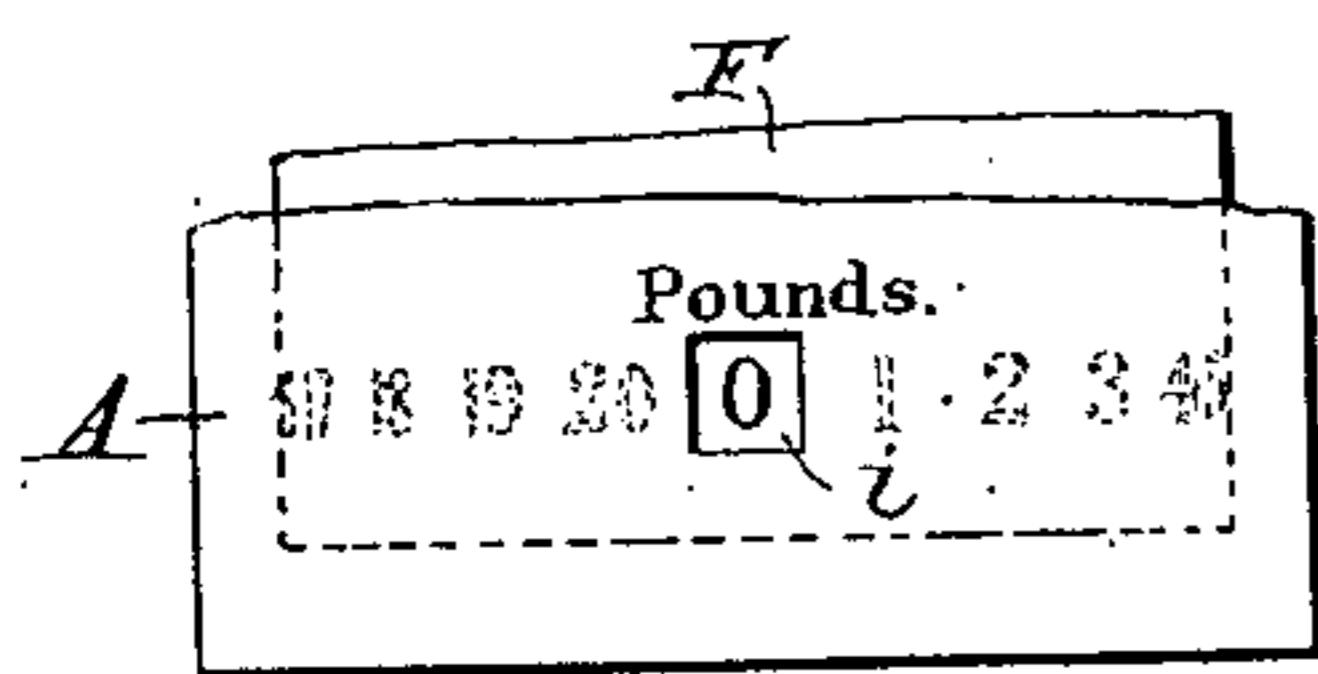
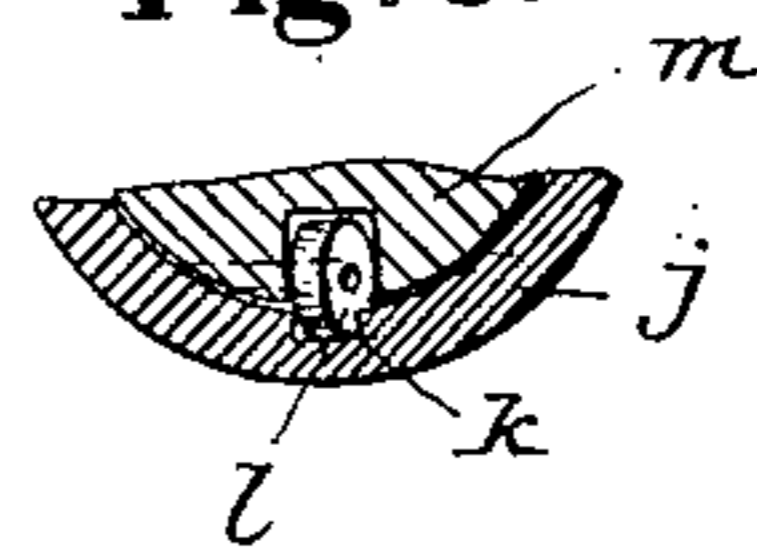


Fig. 6.



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UNITED STATES PATENT OFFICE.

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PRICE-SCALE.

SPECIFICATION forming part of Letters Patent No. 774,417, dated November 8, 1904.

Application filed March 5, 1901. Serial No. 49,937. (No model.)

To all whom it may concern:

Be it known that I, STANLEY W. FINCH, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Price-Scales, of which the following is a specification.

My present invention relates to improvements in price-scales, the construction and advantages of which will be hereinafter pointed out, reference being had to the annexed drawings, wherein—

Figure 1 is a perspective view of the scale complete; Fig. 2, a vertical sectional view of the same; Fig. 3, a transverse sectional view on the line 3 3; Fig. 4, a detail view of a portion of the bottom of the scale; Fig. 5, a vertical sectional view illustrating a modified form of certain of the operative portions of the scale, and Fig. 6 a sectional view taken on the line 6 6 of Fig. 5.

The object of my invention is to provide a simple and efficient price-scale in which by a slight movement of the weight-supporting rod or member rotary motion is imparted to one member of the scale and the weight and price per pound of the article being weighed is thereby indicated.

Referring to Figs. 1 to 4, inclusive, A indicates the outer shell or member of the scale, by preference cylindrical in form and provided with a longitudinally-extending slot or opening B in one side thereof. The bottom C of said shell or casing is removable and formed with a central opening, in which is mounted a double raceway or cup D, held in place by nuts E E, which bear upon the inner and outer faces of the bottom, securely holding the raceway or cup D in place and permitting adjustment thereof when necessary or desirable.

F denotes the inner cylindrical member, around the upper end of which appears a series of figures, from nought to any desired number, and which indicate the number of pounds. Said figures come into line with the upper end of the slot or opening B when member F is rotated. Below this series of figures appear columns of figures, the first number

in each column being the same as the number immediately above it and those below throughout the columns being multiples of the unit or first number. Adjacent to the slot or opening B in the outer shell or casing there is placed a series of numbers, from one to twenty-five in the illustration shown, though of course the numbers will vary according to the desire or wish of the scale-maker. To one side of this vertical column of numbers appears the words "Price per pound," while at the head of the column in line with the upper row of figures on the inner cylinder appear the words "Number of pounds." This arrangement of numbers and the notations upon the outer face of the scale are well known, and hence are not herein shown in detail. It is to be understood, of course, that the scale may be adjusted to weigh an ounce or any fraction thereof as well as a pound or any fraction thereof and that the notations will be made to correspond therewith.

Secured to the upper end of the inner cylinder F by means of nuts E' E', similar to the nuts employed in connection with the outer cylinder, is a double raceway or cup G, and through said cup extends a shaft or spindle H. Upon said spindle are mounted cones I and J, suitable balls being interposed between said cones and the cup or raceway. A nut K holds the upper cone I in its adjusted position, and as indicated in Fig. 2, said nut K bears against the under face of the top of the outer member or shell A. A relatively stiff spring L is placed about the shaft or spindle H above the upper face of the cylinder and rests directly thereon. This spring is held in place by a washer M, a nut N, and a second nut O, said nut O having an eye formed thereon through which is passed the sustaining-ring P. The object of the spring will be hereinafter pointed out.

Upon the lower end of shaft or spindle H, beneath cone J, there is mounted a plate Q, a nut R being secured upon the end of the shaft to securely clamp the plate between it and the under face of cone J. Fastening the plate in this manner also secures the cone against movement on the shaft or spindle. Nut R, as will be seen upon reference to Fig. 2, is prefer-

ably formed with a hook S, which constitutes the support for spring T, to the lower end of which is secured the weight-sustaining rod or bar U.

5 Extending down from plate Q are two bars or members V, to the lower end of which is secured a plate W, upon which is mounted a number of rollers X, bearing directly against the rectangular or squared portion of the
10 weight-sustaining rod or member U. Said rod, as will be noted, is twisted throughout a portion of its length below the support W, forming what may be termed a "quick pitch" or "spiral" thread Y. The lower end of the rod,
15 which in the form illustrated is left rectangular, passes through a sleeve or tube *a*, said sleeve forming a support for and carrying the cones *b c*, which, together with the raceway or cup D and the interposed antifriction-balls,
20 form a ball-bearing similar to that at the upper end of the interior cylinder or rotary member. Cone *c* is held in its position upon the exteriorly-threaded sleeve or tube *a* by a lock-nut *d*. The upper cone *b* bears directly against
25 the under face of the lower head of the inner cylinder F. A plate *e*, formed with a series of arms *f*, rests upon the inner face of the lower head of the interior cylinder, the sleeve or tubular member *a* extending through a central opening formed in said plate *e* and the
30 plate being held in a fixed position with relation to the other parts by a lock-nut *g*.

Rollers *h* are mounted in the upper ends of the arms *f* and, as indicated in Figs. 2 and 3,
35 are inclined from the vertical, so as to have a practically true rolling action with relation to the thread or surfaces Y upon which they bear.

From the foregoing it will be noted that
40 the inner cylinder is supported by ball-bearings at its upper and lower end and that there can be no wobbling or yielding of the parts one relatively to the other. It is also apparent that by reason of the squared portion of
45 the upper part of the sustaining-rod U passing between the rollers X there can be no twisting or torsional movement of the spring. Consequently the position of the inner cylinder with relation to the other or outer member cannot be varied except upon a downward or upward movement of the bar or member U.

The inner cylinder is of course placed in such relation to the outer cylinder that the
55 column containing noughts or ciphers will appear, as in Fig. 1, opposite the slot or opening B when the weight-sustaining bar is in its highest position or that indicated in Fig. 2.

Immediately any weight is placed upon the
60 rod said rod will descend and the threaded or twisted portion Y thereof will act upon the rollers *h* and cause the inner cylinder to rotate, indicating at the upper portion of the slot or opening B the number of pounds or

fraction of a pound, if the scale be so adjusted, that is upon the hook or sustained by the rod or member U. The number of pounds being indicated, as just noted, the attendant simply has to cast his eye down the column indicating the price per pound, and opposite
70 any particular price-figure will be found the total cost of the article being weighed.

Should it be desired to weigh any article in a pan or other receptacle, the scale can be readily adjusted for the tare by simply rotating the outer cylinder while the inner cylinder is held stationary. By reason of the use of spring L this can be done without loosening any nuts or the like. This adjustment is also advantageous in enabling the scale to be
80 corrected at any time.

In Fig. 4 the outer cylinder or member is shown as provided with an opening *i* and the inner cylinder or member as provided with a series of figures arranged in line with the
85 opening and designed to indicate to the purchaser the number of pounds being weighed. By preference this opening *i* will be formed upon the scale at a point diametrically opposite the slot or opening B, as said slot B of
90 the scale is usually toward the attendant.

In Figs. 5 and 6 there is illustrated a modified form of actuating device wherein instead of employing a rod having a thread or series of threads formed thereon and against
95 which the rollers bear there is employed a tube or cylindrical member *j*, which is secured to the bottom of the inner cylinder F. Said cylindrical member is provided upon its inner face with two threads or ways *k*, in which
100 work rollers *l*, mounted in a block or head *m*, attached to the weight-sustaining rod U'. The attachment of the spring to the upper end of the rod is the same as in the other construction. In this form of the device by
105 employing two rollers and a double thread the parts are guided and held against any wobbling or tilting movement to a greater or less extent. The employment of the rollers also does away with a great deal of friction.
110 This form is, in effect, a female screw-thread and is to be treated as the equivalent of that shown in Fig. 2. It is manifest that many other modifications of the screw-thread connection between the parts for transforming
115 reciprocatory right-line movement of the rod into a reciprocatory rotary movement of the inner cylinder or member may be devised.

From the foregoing description it is apparent that there is little or no friction present
120 in the scale and that the parts are readily and easily adjusted. It is also apparent that a greater or less rotation of the inner member may be had by varying the pitch of the screw or thread which imparts rotary movement to
125 it. It is likewise apparent that a great area upon which the figures or computing-table may be placed is afforded by the cylindrical

surface of the inner member and that but a slight or relatively slight endwise or right-line movement of the rod U is necessary to bring about a complete rotation of the inner cylinder.

While I have shown the scale as provided with a double ball-bearing at each end, it is manifest that other forms of bearing may be employed, and I do not, therefore, desire to restrict myself to the particular form shown, though in actual use the construction shown has been found to work admirably. The invention is also susceptible of modification in various details—as, for instance, in the construction of the members or frame which serve to prevent rotary movement of the weight-sustaining rod or member U.

Having thus described my invention, what I claim is—

1. In a price-scale, the combination of an outer cylinder having an opening in one face thereof; a second cylinder rotatably mounted in said first cylinder; notations upon one of said cylinders to indicate the weight of an article and its price; a spring-supported rod for sustaining the article being weighed; a screw connection intermediate said rod and the rotatable cylinder; and means independent of the spring-support of the rod for preventing rotation thereof.

2. In a price-scale, the combination of an outer cylinder having an opening in one face thereof; a second cylinder rotatably mounted in said first cylinder; notations upon one of said cylinders to indicate the weight of an article and its price; a spring-sustained rod for holding the article being weighed; a screw connection intermediate said rod and the rotatable cylinder; means for preventing rotation of said rod; and means for adjusting the scale for tare.

3. In a price-scale, the combination of an outer cylinder having an opening in one face thereof; a second cylinder rotatably mounted in said first cylinder; notations upon one of said cylinders to indicate the weight of an article and its price; a spring-sustained rod for holding the article being weighed; a screw connection intermediate said rod and the rotatable cylinder; and guide-rollers acting on the rod to prevent rotation thereof.

4. In a price-scale, the combination of an outer cylinder having an opening in one face thereof; a second cylinder rotatably mounted in said first cylinder; notations upon one of said cylinders to indicate the weight of an article and its price; a spring-sustained rod for holding the article being weighed, said rod being provided with a screw-thread throughout a portion of its length; rollers carried by the rotatable cylinder and bearing directly upon said screw-threaded portion of the rod; and means independent of the rod-supporting means for preventing rotation of the rod.

5. In a price-scale, the combination of an outer cylinder having an opening in one face thereof; a second cylinder rotatably mounted in said first cylinder; notations upon one of said cylinders to indicate the weight of an article and its price; a spring-sustained rod for holding the article being weighed, said rod being threaded throughout a portion of its length; rollers connected to the inner cylinder and bearing upon said threaded portion; a frame connected to a fixed portion of the scale; and rollers carried by said frame bearing upon the weight-sustaining rod to prevent rotation thereof, substantially as described.

6. In a price-scale, the combination of an outer cylinder having a slot formed in one face thereof and provided with an opening in its opposite face; a second cylinder rotatably mounted within said first cylinder, said second cylinder being provided with a series of notations or numbers designed to pass by the slot and indicate the number of pounds and the total value of the article being weighed, and likewise provided with a second series of figures in line with the second opening in the outer cylinder and designed to indicate to the purchaser the weight of the article; a spring-sustained rod for supporting the article being weighed; a screw-thread connection intermediate said means and the rotatable cylinder for imparting rotary motion to said cylinder; and means for preventing rotation of the rod.

7. In a price-scale, the combination of an outer cylinder having an opening in one face thereof; a second cylinder rotatably mounted in said first cylinder; notations upon one of said cylinders to indicate the weight of an article and its price; a spring-sustained rod for supporting the article being weighed, said rod having screw-threads formed thereon throughout a portion of its length; and a series of inclined rollers carried by the second cylinder and bearing upon the screw-threads.

8. In a price-scale, the combination of an outer cylinder having an opening formed in one face thereof; a cup or raceway secured in the base of said cylinder; a second cylinder mounted in said first cylinder; a cup or raceway secured to the upper end of said second cylinder; a shaft or spindle extending inwardly from the upper end of the outer cylinder through the cup or raceway carried by the inner cylinder; cones adjustably mounted upon said spindle; a frame connected to said spindle; a spring likewise sustained by said spindle; a polygonal weight-sustaining bar or member connected to said spring, said bar being threaded throughout a portion of its length; guide-rollers carried by the frame and bearing upon the polygonal portion of said rod; a sleeve or tube secured to the lower end of the inner cylinder and extending through the cup or raceway carried by the lower end of the outer cylinder; cones adjustably mounted

upon said sleeve or tube; inclined bearing-
rollers working upon the screw-threaded por-
tion of the weight-sustaining rod; notations
upon one of the cylinders to indicate the weight
5 and price of the article being weighed; and
balls interposed between the cones and race-
ways.

In testimony whereof I have signed my name
to this specification in the presence of two sub-
scribing witnesses.

STANLEY W. FINCH.

Witnesses:

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J. B. MALNATÉ.