No. 746,418. PATENTED DEC. 8, 1903.

F. VERPLAST.

COIN CONTROLLED WEIGHING MACHINE.

APPLICATION FILED MAR. 21, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

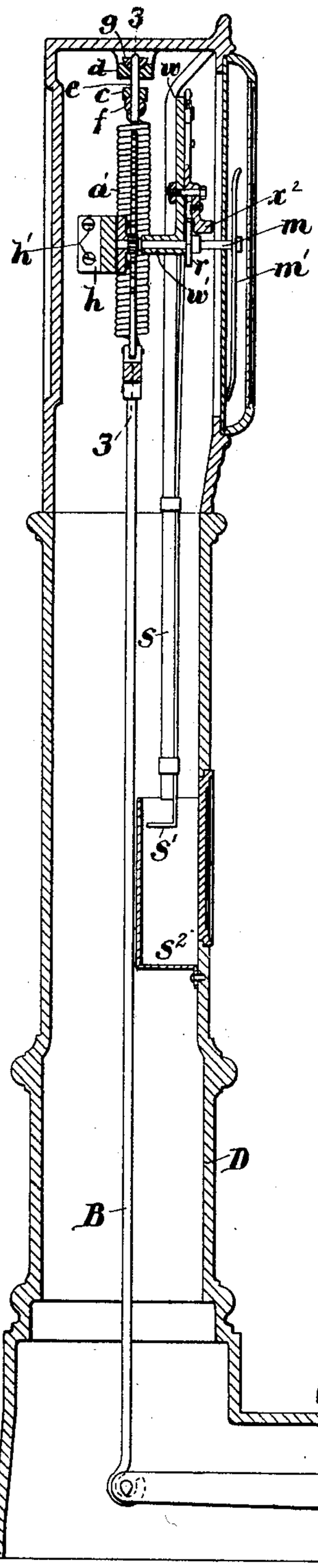


Fig. 1.

Witnesses:
Walter E. Lovelace.
Edwin T. Luce

Inventor:
Frederick Verplast,
by Charles F. A. Smith Atty.

No. 746,418. PATENTED DEC. 8, 1903.

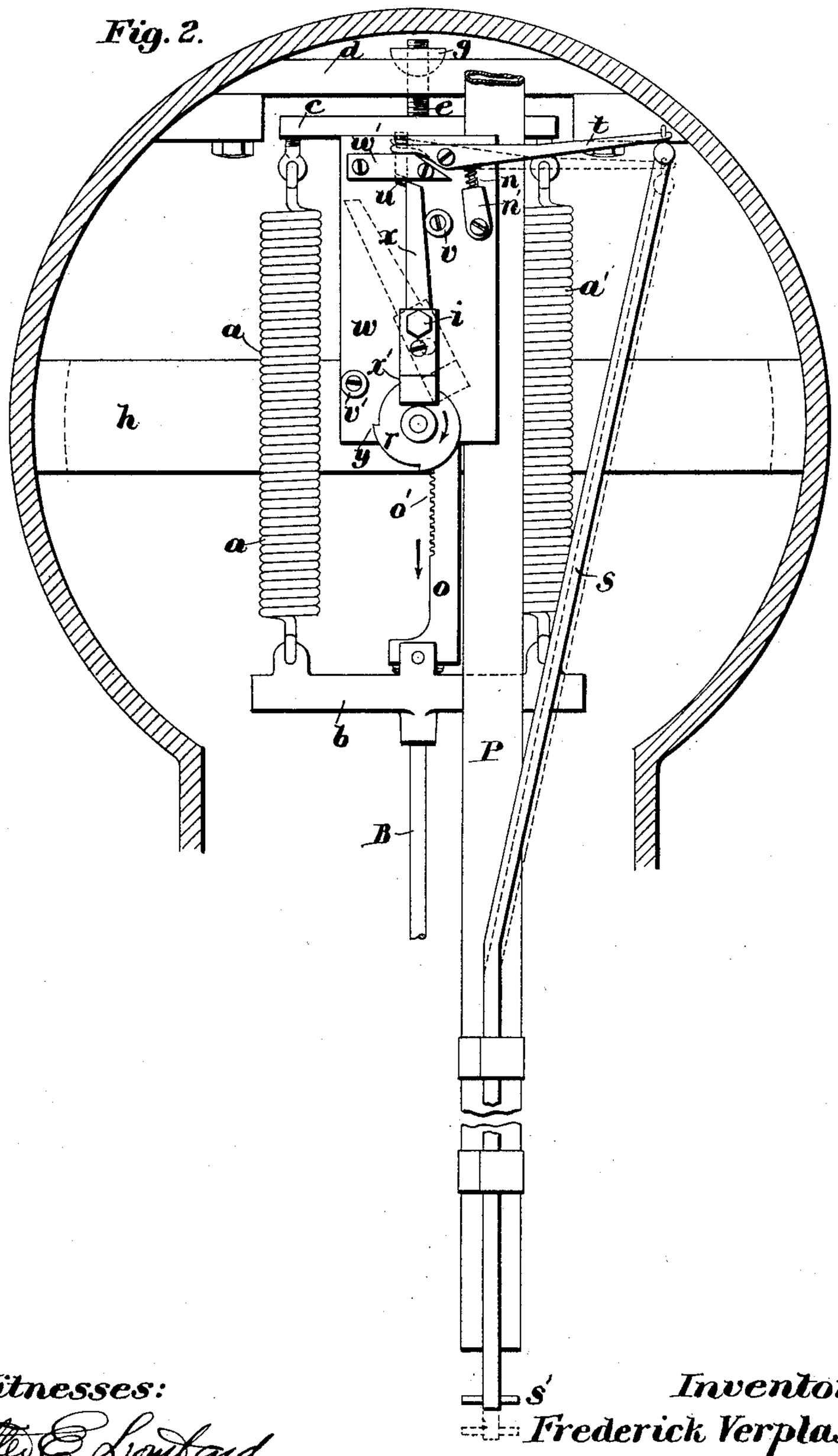
F. VERPLAST.

COIN CONTROLLED WEIGHING MACHINE.

APPLICATION FILED MAR. 21, 1902.

NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.



Witnesses:

Walter E. Lombard

Edwin T. Luce

Inventor:

Frederick Verplast,

by Charles F. A. Smith Atty.

No. 746,418. PATENTED DEC. 8, 1903.

F. VERPLAST.

COIN CONTROLLED WEIGHING MACHINE.

APPLICATION FILED MAR. 21, 1902.

NO MODEL. 3 SHEETS—SHEET 3.

Fig. 3.

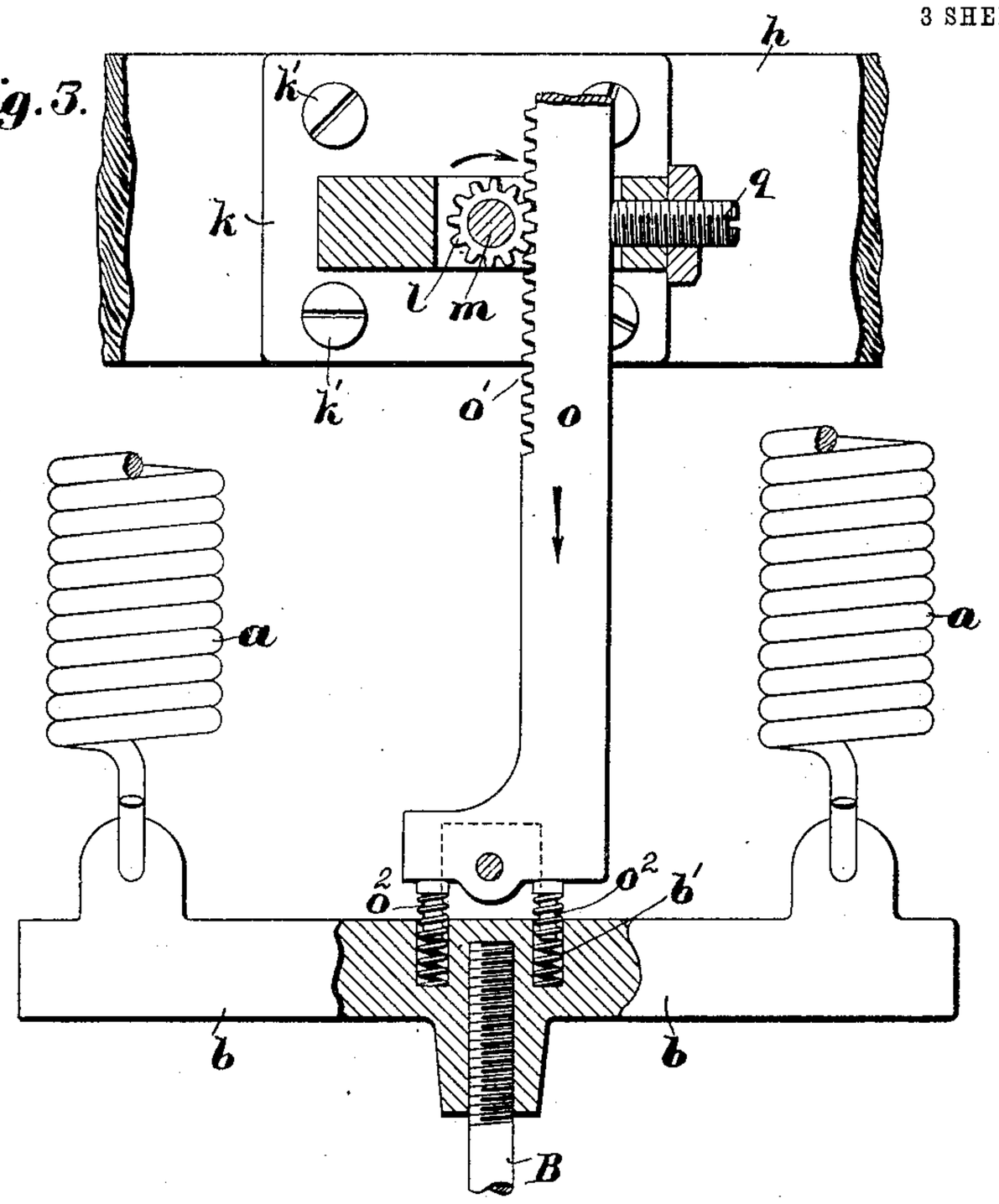


Fig. 4.

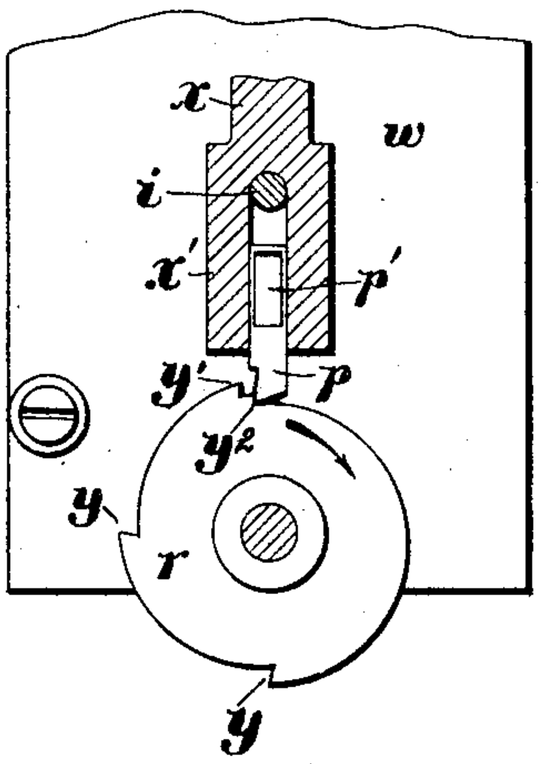


Fig. 5.

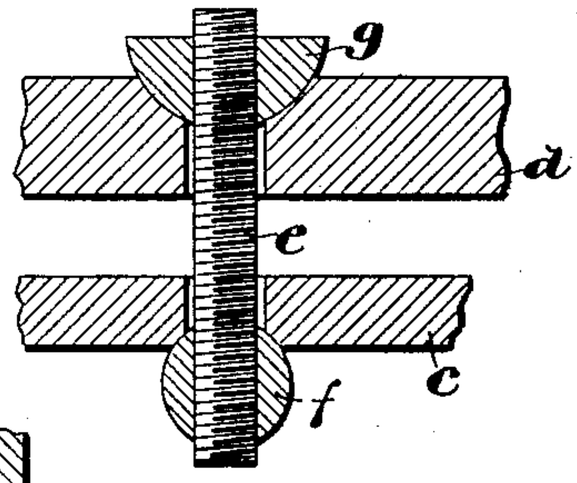
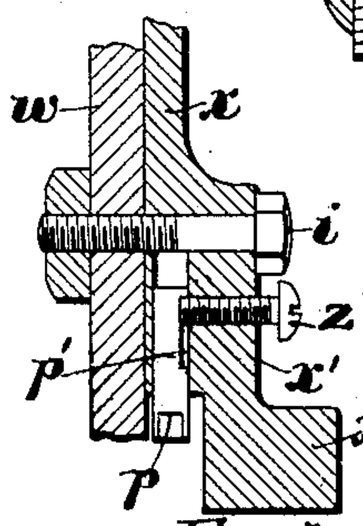


Fig. 6.



Witnesses:

Walter E. Lombard

Edwin T. Luce

Inventor:

Frederick Verplast,

by Charles F. A. Smith Atty.

No. 746,418. Patented December 8, 1903.

UNITED STATES PATENT OFFICE.

FREDERICK VERPLAST, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE NORTH AMERICAN SCALE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

COIN-CONTROLLED WEIGHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 746,418, dated December 8, 1903.

Application filed March 21, 1902. Serial No. 99,277. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK VERPLAST, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have made certain new and useful Improvements in Coin-Controlled Weighing-Machines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view in central vertical section of a portion of a coin-controlled weighing-machine with my invention applied. Fig. 2 is a view in front elevation, illustrating the upper portion of the machine with my devices applied, the case being broken away. Fig. 3 is a front sectional view on line 3 3 of Fig. 1. Fig. 4 is a front sectional view of the movable locking-pin, its case, and the ratchet-disk. Fig. 5 is a front sectional view of the upper bolt and movable balls used for adjusting the weighing-springs. Fig. 6 is a side sectional view of the movable pin shown in Fig. 4 and its surrounding parts.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My improvement is adapted for application to ordinary platform weighing-scales and, as will be seen by the drawings, A represents the platform, which rests upon the ordinary compound levers usual in scales of this class and to which the scale-rod B is connected in the usual manner. This construction being so well understood, I deem it unnecessary to herein specifically describe it or illustrate it further than as shown in Fig. 1.

The box-shaped standard D rises vertically from the rear of the base C, as is usual in scales of this class, within which my mechanism is placed.

The scale-rod B, extending up through the upright case, is connected with the movable T-shaped frame *b*, to which the weighing-springs *a a'* are attached. The upper ends of these springs are connected to the horizontal bar *c*, which is secured to the board *d*, fastened in the upper part of the head-casing, the bar *c* being secured to the board *d* by the bolt *e* and the adjustable balls or nuts *f* and *g*, which are preferably made in the shape of balls to allow of freely moving in their sockets, the upper ball *g* resting in a socket in the upper surface of the board *d* and the lower ball working upward in a socket in the lower part of the bar *c*, and a free movement for the bar *c*, which can slide unhindered upward on the bolt *e* or to right or left upon the ball *f*. In the middle of this frame and extending from side to side of the head-casing thereof is the horizontal supporting-bar *h*, fastened to the side of the case by the screws *h'*. Fastened by the screws *k'* to the middle of this bar *h* is the metallic frame *k*, supporting the pointer-shaft *m*, to which is attached the pinion *l*, which is engaged by the teeth *o'* of the vertically-sliding rack *o*. This rack and pinion are fitted to move easily, so that the rack will drop downward of its own weight when its movement is not hindered by the pinion, which is held in a fixed position except as when released by the coin or other weight, as will be hereinafter explained. The rack-bar is kept in contact with the pinion *l* by the screw-bolt *q*, as shown in Fig. 3, but is not made rigid with the frame *b*, being pivoted to a pair of shoulders extending upward from this frame, as can be seen by an examination of Figs. 2 and 3, and is provided with a pair of pins o^2, extending down within the springs set in the cavities in the upper part of the frame *b*.

On the exterior of the case is a suitable dial, as is common in scales of this class, divided into graduations indicating pounds, and on the outer end of the pointer-shaft *m* is the pointer *m'* to indicate the proper weight according to the fall of the rack *o*, which distance is regulated by the weighing-springs *a a'*, which are extended downward according to the weight applied to the platform A. When pressure is applied to the scale-platform, the rack *o* would be drawn downward, and the pointer-hand would immediately indicate the weight applied if the pinion were allowed to move freely and was not obstructed by some object.

Extending upward from the pointer-shaft is a metallic plate having at its lower part a hub which encircles part of said shaft, this plate acting as a support for the locking mechanism, as will be hereinafter described. Attached to this shaft and placed directly in front of the plate is the ratchet-disk r, fast upon and rotating with the index-shaft and provided at its periphery with ratchet-recesses, the number of which may be as desired, but is preferably four, placed at the four points on the disk indicated by the letters and figures $y\ y\ y'\ y^2$. When the disk is locked and the pointer at zero, it will be seen that the disk is held by a movable stop-pin p, working in a socket in the lower part x' of the weighted lever x, the downward movement of the pin being limited by the screw z, (see Figs. 4 and 6,) which extends through the front part of the lever x' into the cavity p' in the pin p. The pin p at its lower end is sloped or cut away upward from left to right to allow it to freely pass over the surface of the disk as it passes backward from right to left after pressure has been removed from the scale-platform and insuring a quick engagement of the pin and one of the recesses in the disk and locking the disk against rotating toward the right until the lever x is again unlocked by the inserting of a coin. The disk is cut as at y' and y^2, so that if the pointer did not pass entirely back to zero, as might sometimes happen should the weight be easily removed from platform, still the disk would turn sufficiently so that the pin would fall into the recess y' and prevent another weighing taking place—in other words, what is termed the "cheating of the machine"—while if only the one recess y' was there, as at the point shown, the pin in many cases would not mesh solid with the pinion, but would allow a throwing of the lever over and a few pounds weighed when a quick and heavy pressure was applied to the platform, and which would especially be the case when the indicator was at zero. Therefore it is essential that there be at this point on the disk the two recesses as shown, while it is also desirable that two recesses be placed in the disk, as at y, at the bottom, and at y on the left side, each about one-quarter of the circumference apart. The disk turns after pressure is applied and the pin released from left to right.

The lever x, which holds the pin p, is attached to the plate w by the bolt i, as shown in Fig. 6, the lever being somewhat thicker and broader at the lower part than at the upper part above the bolt, and is also at its lower part weighted, so that it quickly will return to its original perpendicular position; but in the figures I have shown a weight such as I prefer and which extends downward and outward beyond the upper part of the disk, as shown in Figs. 2 and 6, the lever being limited in its upward and backward movement by the projection or screw v and in its downward movement by another projection, v'.

The machine is also provided with a coin-chute, as at P. This chute may be of any size or shape; but it has been found that with the mechanism here shown a long and narrow chute, to which the rod s, extending downward beyond the end of the chute, can be attached, as shown in Fig. 2, is preferable, the rod being provided with a foot-piece s', onto which the coin drops before falling into the box s^2. The rod extends outward from the chute at its upward part, so that sufficient leverage can be obtained to raise the movable pin in the outer end of the laterally-extending arm or lever t, attached to the upper end of the rod s, and thus release the lever x as the coin falls upon the foot-piece s'.

The lever t is attached to the metallic plate w by a screw, its long arm being limited in its downward movement by the spring n, working downward in the socket of a shell n', screwed to the plate w. The outer end or shorter arm of this lever is further limited in its downward movement by the plate w', attached to the plate w, which also acts as a socket and guide for the pin u. This pin is also sloped at its lower part for allowing the lever x to slide past it and become locked.

When it is desired to use the machine, the weight is applied to the scale-platform, thus exerting a downward pressure upon the scale-rod B and the rack o; but as these are locked no movement of the mechanism takes place until a coin has been placed in the chute, which coin falling down the chute falls out upon the foot-piece s' and trips it or presses it down, setting the mechanism in motion. The rod s is thus pulled down, carrying with it the long arm of the lever, raising the shorter arm and likewise the pin out of contact with the lever x, the pin u being raised within the socket w', thus unlocking the disk and likewise the pinion and the rack, and thus freed the rack is pulled downward, but is of course limited in its downward movement by the weighing-springs $a\ a'$, which are extended according to the amount of pressure applied to the platform through the rod B and the T-shaped frame b. As the rack descends the pinion is turned from left to right and likewise the pointer-shaft and the disk, and the pointer thus turning shows or indicates the weight weighed. The lever x being weighted assumes its original position, and when the weight is removed or partly removed from the platform the disk immediately, through the contraction of the springs, turns back from right to left, and thus becomes locked by the lever-pin p, the lever having become locked while the weight was still upon the platform by the dropping of the pin u as the lever assumed its perpendicular position. The notches or recesses upon the disk prevent the weighing of another weight to a great extent by another weight being applied while the former was on and the removal of

the first weight, as has been common with a great many weighing-scales.

I am aware that prior patents in this and other countries show devices where a coin placed within a chute operates to trip a mechanical device, although the mechanism there used are entirely different from what I have shown, and that in the combination of weighing-springs, scale-rod, rack, and pointer-shaft, in combination with a coin-chute, there is also nothing new. Therefore I do not claim any invention in their combination; but

What I do claim, and desire to secure by Letters Patent, is—

1. A machine of the character specified, comprising an indicator-operating shaft, weight-actuated means for rotating the same in one direction, means for yieldingly rotating the shaft in the opposite direction, a ratchet affixed to the shaft, an oscillatory arm having at one end a detent adapted to engage a tooth of said ratchet, a secondary detent arranged to engage the opposite end of said arm, and coin-operated means for disengaging said secondary detent from the arm.

2. In a machine of the character specified, the combination of an indicator-operating shaft having a ratchet, a locking mechanism therefor comprising an oscillatory arm, a coin-controlled detent for the outer end of the arm, and a ratchet-engaging detent carried by the inner portion of said arm and movable longitudinally thereof and adapted to be displaced by the backs of the ratchet-teeth and to automatically engage the front faces thereof, the said arm and ratchet-engaging detent, when in position for locking the ratchet, standing substantially radial to the axis of the ratchet.

3. A machine of the character specified, comprising an indicator-operating shaft, weight-actuated means for rotating the same in one direction, means for yieldingly rotating the shaft in the opposite direction, a ratchet affixed to the shaft, an oscillatory arm having at one end a detent adapted to engage a tooth of said ratchet, a secondary detent arranged to engage the opposite end of said arm, a pivoted trip-lever having one arm engaged with the secondary detent, a coin-chute, a plate movable toward and from the delivering end of the chute, and a connection between said plate and the other arm of the trip-lever.

4. A machine of the character specified, comprising an indicator-operating shaft, weight-actuated means for rotating the same in one direction, means for yieldingly rotating the shaft in the opposite direction, a ratchet affixed to the shaft, an oscillatory arm having at one end a detent adapted to engage a tooth of said ratchet, a secondary detent arranged to engage the opposite end of said arm, a pivoted trip-lever having one arm engaged with the secondary detent, a spring acting on said lever to force the secondary detent to its operative position, and means for causing the displacement of said lever and secondary detent by the movement of a coin.

5. A machine of the character specified, comprising an indicator-operating shaft, weight-actuated means for rotating the same in one direction, means for yieldingly rotating the shaft in the opposite direction, a ratchet affixed to the shaft, an oscillatory arm having at one end a loose pin carried by the inner portion of said arm and movable longitudinally thereof and adapted to be displaced by the backs of the ratchet-teeth and to engage by its own weight the front faces thereof and lock the indicator at any point, a secondary loose pin arranged to engage by its own weight the opposite end of said arm and coin-operated means for disengaging said secondary pin from the arm.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FREDERICK VERPLAST.

Witnesses:

CHARLES F. A. SMITH,

A. M. SMITH.