

No. 673,086.

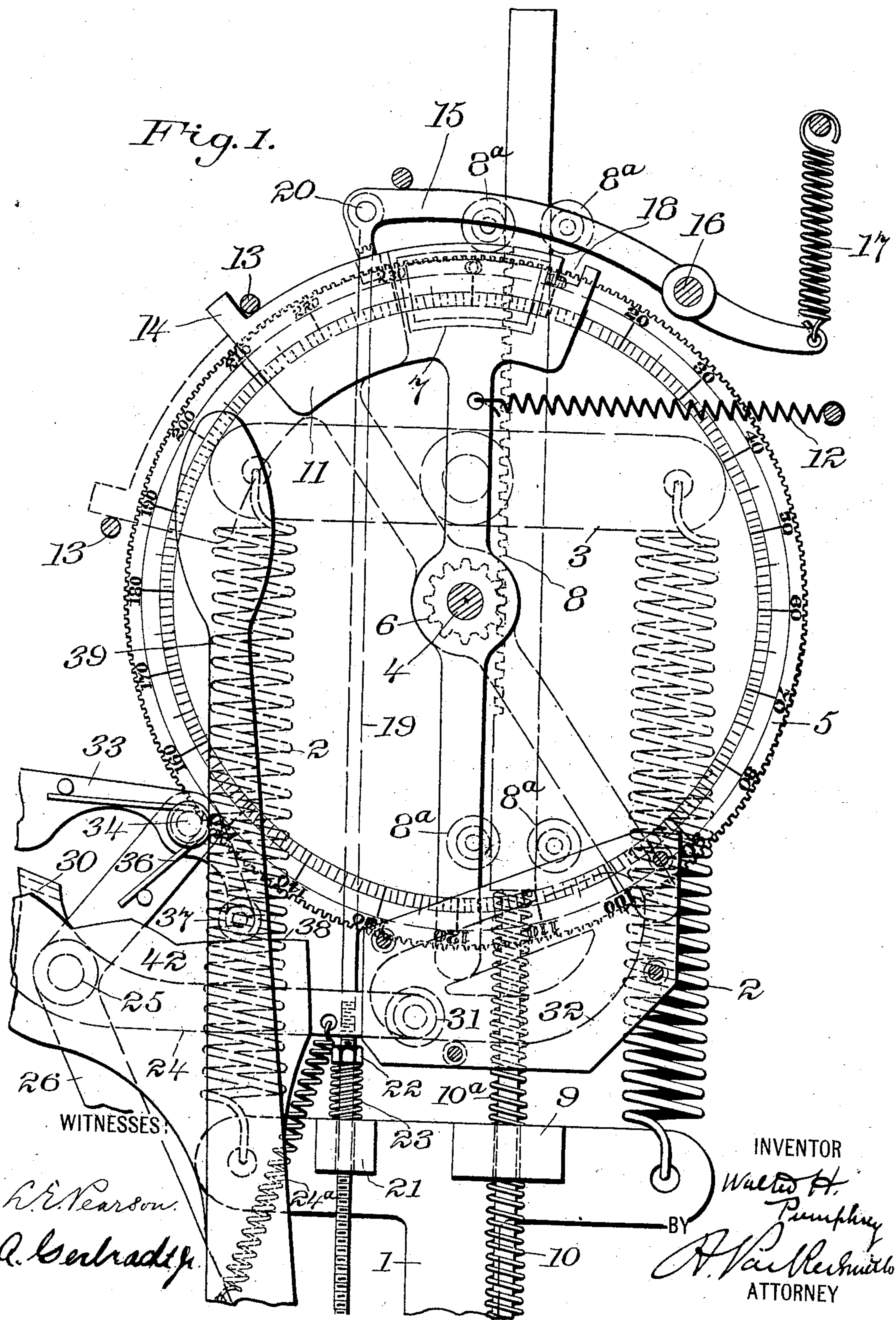
Patented Apr. 30, 1901.

W. H. PUMPHREY.
COIN CONTROLLED SHUTTER MACHINE.

(Application filed Oct. 22, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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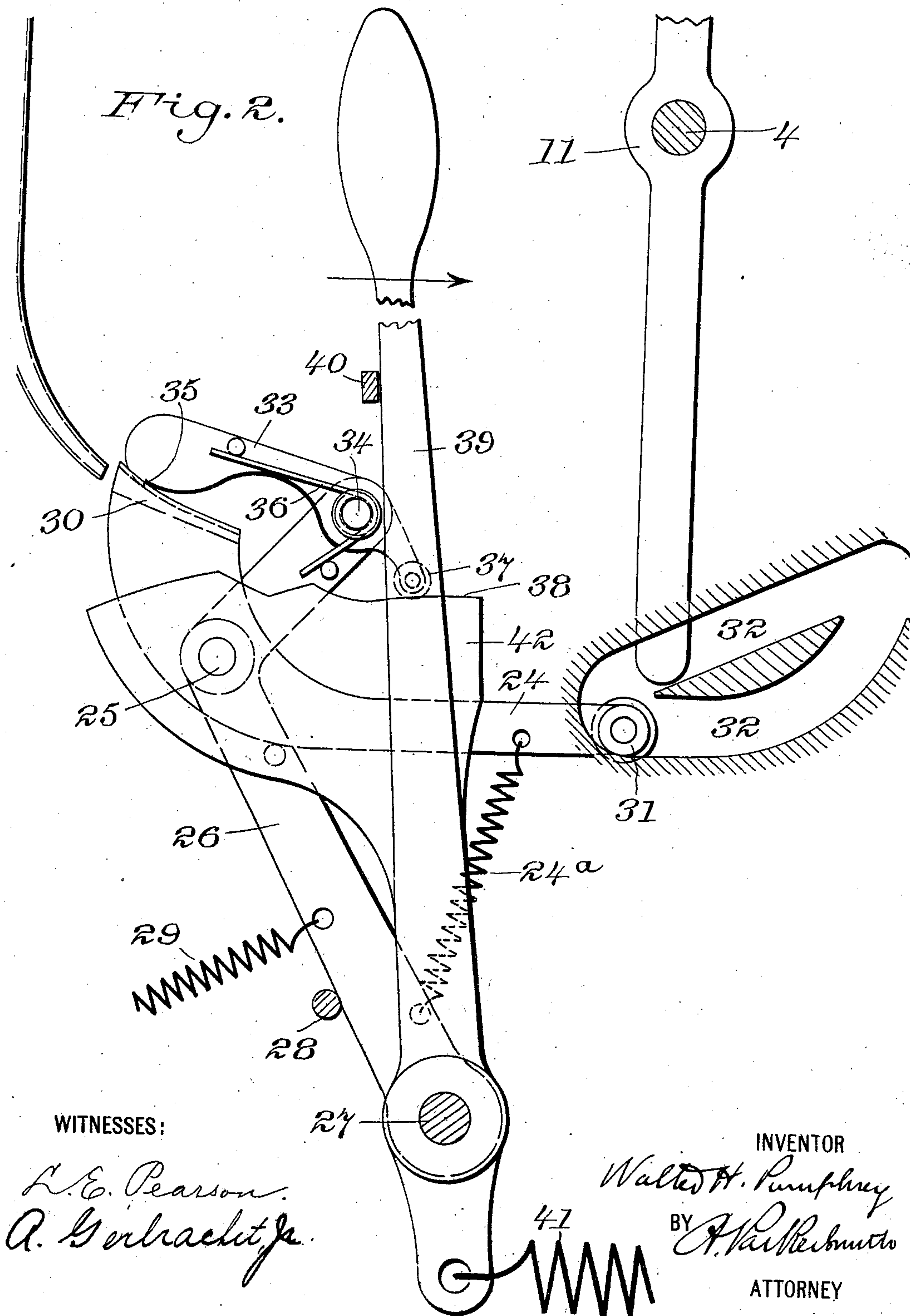
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2 Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

WALTER H. PUMPHREY, OF NEW YORK, N. Y.

COIN-CONTROLLED-SHUTTER MACHINE.

SPECIFICATION forming part of Letters Patent No. 673,086, dated April 30, 1901.

Application filed October 22, 1900. Serial No. 33,817. (No model.)

To all whom it may concern:

Be it known that I, WALTER H. PUMPHREY, a citizen of the United States of America, and a resident of New York, county of New York, State of New York, have invented certain new and useful Improvements in Coin-Controlled-Shutter Machines, of which the following is a specification.

My invention relates generally to coin-controlled weighing-scales, and more specifically to machines of this class employing a rotating dial and a cooperating coin-controlled shutter.

This invention is designed as an improvement upon the machine disclosed in United States Patent No. 387,285, granted to Henry Fairbanks under date of August 7, 1888, and in addition employs the hand-operated coin mechanism described and claimed in my pending application, filed August 20, 1900, and serially numbered 27,512.

The novelty of the invention therefore lies mainly, though not entirely, in the peculiar combination and arrangement of elements, there being certain features employed which are new to both the patent and application above referred to and by means of which the main combinations are rendered effective.

Mechanism embodying my invention is illustrated in the accompanying two sheets of drawings, throughout the several views of which like reference characters indicate corresponding parts.

Referring to the drawings, Figure 1 is a view in front elevation of the upper portion of a weighing-machine, the same being removed from the inclosing case ordinarily employed to more clearly show the weight-indicating mechanism and its connection and relation to both the weight-adjusting and coin mechanisms; and Fig. 2 is a view in diagram of the hand-operated coin-tripping device.

In the drawings only the upper portion of the weight-adjusting mechanism is illustrated, the same comprising the T-rod 1, herein-after termed the "weighing-rod," connecting the platform-levers (not shown) with twin counterbalancing-springs 2 2, which latter are supported from the pivoted cross-bar 3, mounted in the head of the casing.

The indicating mechanism comprises a shaft 4, journaled in suitable bearings and carry-

ing a dial 5 and a pinion 6, both of which are made fast and rotate therewith. The dial is marked in the usual manner to indicate weight in pounds and in operation is adjusted under the rotation of the shaft until the correct amount appears through a glazed sight-opening 7 in the outer casing, (the relative position of which is indicated in dotted lines in Fig. 1.) The dial-shaft is rotated by means of a rack-bar 8, movable up and down in bearings 8^a 8^a, and this bar is elastically connected with the cross-head of the weighing-rod above referred to by having a reduced portion thereof extending loosely through an opening in a lug 9 of the cross-head and encircled above and below the lug by opposing springs 10 10^a, so that independent movement of the rod or weight adjusting mechanism is permitted while the rack-bar is locked, all such motion being taken up by the springs for a purpose to be explained later on.

It will be seen that the mechanism thus far described constitutes a complete weighing-scale and also that it is free at all times to become adjusted to and indicate in pounds the amount of weight supported upon the platform—that is to say, as a person, for example, steps upon the platform his weight will be counterbalanced by the twin springs 2 2 and the weighing-rod will be drawn downward to an extent proportionate to such weight. The rack-bar connected and moving with the weighing-rod will rotate the pinion, fast upon the dial-shaft, and thereby adjust the dial until the amount of the weight appears beneath the sight-opening, whereupon the mechanism comes to rest in an adjusted position, and is thus sustained by the weight upon the platform. In order that the amount of weight thus indicated may not be read or exposed at the sight-opening before a proper coin is first inserted in the slot of the machine, a shutter 11 is employed, the same being interposed between the dial and the glazed sight-opening formed in the outer casing. The shutter is loosely mounted upon the dial-shaft and is sustained normally closing off a view of the dial by means of a spring 12, its movement being determined and limited by stops 13 13, cooperating with a lug or projection 14 thereof.

In the operation of the machine after the

dial has become adjusted to the weight upon the platform and the shutter is shifted to expose the amount of the weight it is desirable to temporarily maintain these parts thus adjusted in order that the person operating the machine may have ample time to read the dial. To effect this, I employ a device self-acting for locking both the dial and shutter in an adjusted position, the same consisting of a dog 15, pivoted at 16 and having a spring 17, which serves to advance the dog into engagement with the members to be locked. Normally, or when the shutter is closing off a view of the dial, the dog is prevented from entering into locked relation with the dial and is sustained above and clear of the same by the shutter, the upper curved edge of which serves as a support for the same. As the movement of the shutter is definite and does not vary in extent, being limited by the stops 13 13, its upper edge is notched at a point 18, which every time the shutter is adjusted is brought directly beneath the dog, and as the latter under the influence of its spring enters the notch a toothed portion of the engaging extremity of the dog at the same time locks into the toothed periphery of the dial, thereby locking both the shutter and dial against movement in either direction and maintaining this relation until the weight upon the scale-platform is removed. The release of the dial and shutter is brought about by the upward movement of the weighing-rod, as the latter under the influence of its springs is permitted to resume its normal position by the removal of the weight from the platform. The requisite movement for disengaging the dog is transmitted through a connection consisting, preferably, of a rod 19, pivotally attached to the dog at 20 and having its lower end connected with the weighing-rod by being extended loosely through a lug 21 thereof, there being sufficient play allowed the rod in the opening of the lug, so that the weight-adjusting mechanism may operate freely and without interference or friction. The lower end of the rod 19 is threaded and provided with an engaging nut 22, which is adjusted and set at a proper point to be engaged either directly or indirectly through an interposed spring 23 by the lug in the upward movement of the weighing-rod, and thereby elevate the dog and release the dial and shutter just before the rod reaches the upward limit of its travel.

Assuming that the mechanism is locked in a weight-indicating position and that the person has just stepped from the platform, it will be seen that by reason of the elastic connection between the rack-bar and weighing-rod the former will be held, but the latter will at once move upward under the influence of the weighing-springs. In its upward travel the lug 21 will engage the nut upon the rod 19, either directly or indirectly, through the spring, as previously pointed out, and disengage the dog, thereby releasing both the shut-

ter and dial, and immediately thereafter the spring 10^a, which was compressed on the return of the weighing-rod, will at once act to force the rack-bar upward, and thereby return the dial to its normal position, and the shutter, under the influence of its retractile spring, will also be returned to its normal position beneath the sight-opening, closing off the view of the dial.

The hand-operated mechanism for adjusting the shutter through the medium of a coin, as above stated, has been fully described and claimed in a pending application and is not specifically claimed herein, as any other form of mechanism for this purpose will cooperate with equal effect with the weight-adjusting and weight-indicating mechanisms above described. As shown, this device comprises a trip-lever 24, which is pivoted at 25 upon an arm or support 26, the latter being loosely mounted on shaft 27 and is normally sustained in engagement with a stop 28 by means of a retractile spring 29. The trip-lever at its upper end is bifurcated or notched to provide oppositely-disposed parallel guides 30 for the reception of a coin, the same being hereinafter termed the "coin-carrier," and the entrance to these guides adjoining the lower end of the coin-chute is flared to facilitate the entrance therein of the coin. The opposite end of the trip-lever is provided with a pin or roller 31, which lies in an approximately oval guideway 32, and is thereby directed to engage the shutter-arm when the lever becomes properly adjusted through the agency of a coin in a manner to be later on described. Normally, however, this end of the trip-lever is held out of operative relation with the shutter-arm by means of a spring 24^a, which serves also to maintain proper alinement between the coin-carrier and the lower end of the coin-chute.

33 represents a coin-finder, which consists of a lever pivoted at 34 upon an extension of the rocker-arm or oscillating support 26, above referred to, and provided with a shouldered extremity 35, which serves as a coin-ejector and normally lies between the guides of the coin-carrier, but clear of the path traveled by the coin in its discharge from the chute. This lever is thus sustained by means of a spring 36, and on its opposite end is mounted a roller 37, which latter is yieldingly maintained by the same spring in engagement with a cam-face 38.

39 represents a hand-lever loosely mounted upon the shaft 27 and held at one extremity of its movement against a stop 40 by means of a retractile spring 41. This lever has formed in part or fixed to it a cam-plate 42, the face of which cooperates with the roller 37 of the coin-finder, as above stated.

Briefly, the operation is as follows: A person wishing to be weighed steps upon the platform, and as the weight-indicating mechanism is normally free and connected with the weight-adjusting mechanism the entire

weighing-scale responds, and in operation the weighing-rod will be drawn downward in opposition to the twin counterbalancing-springs, carrying with it the rack-bar, which through the engaging pinion rotates the shaft, and thereby adjusts the dial, so that the amount of the weight supported upon the platform is brought under the sight-opening. The movement of the weighing-rod also carries the supporting-lug 21 downward, leaving the locking-dog sustained entirely by the shutter and under the action of the spring 17. To adjust the shutter clear of the sight-opening and expose the dial, a coin is inserted, and directed by the chute lodges in the coin-carrier. The hand-lever is then grasped and moved toward the right or in the direction of the arrow, (see Fig. 2,) and as the cam is drawn under the roller by this movement of the hand-lever the coin-finder is rocked until the coin-ejector engages the edge of the coin. Continued movement of the cam-lever causes a corresponding movement of the coin-finder, which latter through the medium of the coin transmits motion to the trip-lever, depressing the carrier end and causing the opposite end to move upward into the inclined portion of the guideway. As the terminal roller of the trip-lever abuts against the guide further upward movement of the lever is prevented, and the continued travel of the cam under the roller causes the parts—*i. e.*, the coin-carrier and trip-lever—to become frictionally locked, and thereafter these parts and their support 26 are advanced toward the depending shutter-arm. In thus advancing the carrier end of the trip-lever becomes gradually depressed through the elevation of the opposite end thereof in the guide; but there is a compensating follow-up movement on the part of the cam which tends to maintain the locked relation between the several members, and thereby effects an engagement between the trip-lever and the shutter-arm, causing the shutter to swing clear of the sight-opening and expose the dial. By this movement of the shutter the notch 18 thereof is brought under the engaging end of the dog, and thereupon the spring-advanced dog enters the notch, and its toothed portion at the same time locks into the toothed edge of the dial locking the members in an adjusted position. As the roller upon the end of the trip-lever reaches the top of the inclined guide the spring tends to draw it downward, and its return is by way of the rear curved guide-section. During the advance of the trip-lever by reason of the difference in the arc of travel of the coin-carrier and coin-finder the coin is gradually forced outward by the ejector and may be caught in a suitable receptacle. (Not shown.) The return of the parts to their normal position is effected through the action of the several springs described. Having thus ascertained his weight, the person steps from the platform, and the weight-adjusting mechanism—*i. e.*, the weighing-rod, counterbalancing-springs,

&c.—resumes its normal position, but the indicating mechanism being locked is thus held until the locking-dog is disengaged through the coöperation of the lug 21 with lift-rod 19, as above described, and thereafter the indicating mechanism is returned to zero by the spring-retracted rack-bar and the shutter again closes off the view of the dial.

The advantages of my invention consist generally in its simplicity and certainty in action, also in the absence of small and delicate parts, such as are ordinarily employed and which frequently become disarranged or broken, causing the machine to be labeled "out of order." Furthermore, in rendering the locking and releasing device of the indicating mechanism independent of the coin or the coin mechanism there is less liability of failure in operation, and, finally, the employment of a shutter, hand operated through the medium of a coin, permits the parts or members to be constructed in a strong and substantial manner, thereby insuring long life and reducing the cost of maintenance to a minimum.

It will be understood that I do not wish to limit myself to the exact form or details of the mechanism herein illustrated and described, as various changes may be made within the meaning of the present invention. Other forms of shutter and dial may be employed and they may be differently arranged, the same being true of the locking device, and, as previously stated, any hand-operated coin mechanism may replace that shown; but all such modifications would be mere changes in form and still within the scope of the invention.

Having therefore described my invention, I claim—

1. The combination with weight-adjusting mechanism, of weight-indicating mechanism including a dial normally free to rotate, a coin-controlled shutter coöperating with the dial, and a device for locking both the shutter and dial in an adjusted position.

2. The combination with weight-adjusting mechanism, of weight-indicating mechanism including a dial normally free to rotate, a shutter coöperating with the dial, and a device for locking both the shutter and dial in an adjusted position together with mechanism for adjusting the shutter.

3. The combination with weight-adjusting mechanism of weight-indicating mechanism including a dial normally free to rotate, a spring-retracted shutter coöperating with the dial, and a device for locking both the shutter and dial in an adjusted position, together with mechanism for adjusting the shutter.

4. The combination with weight-adjusting mechanism, of weight-indicating mechanism including a rotating dial, a shutter coöperating with the dial, a device for locking both the shutter and dial in an adjusted position, means for releasing the locking device, said means being actuated by the decrease in

weight upon the scale-platform together with mechanism for adjusting the shutter.

5 5. The combination with weight-adjusting mechanism of weight-indicating mechanism including a rotating dial, a shutter coöperating with the dial, a device for locking both the shutter and dial in an adjusted position, a connection between the locking device and the weight-adjusting mechanism, whereby
10 the release of said device is effected, together with means for adjusting the shutter.

6. The combination with weight-adjusting mechanism of weight-indicating mechanism

elastically connected therewith and including a rotating dial, a coöperating shutter, a device for locking both the shutter and dial in an adjusted position, and a connection between the locking device and weight-adjusting mechanism, together with means for adjusting the shutter. 15 20

Signed at New York, N. Y., this 3d day of October, 1900.

WALTER H. PUMPHREY.

Witnesses:

L. E. PEARSON,

R. GERBRACHT, Jr.