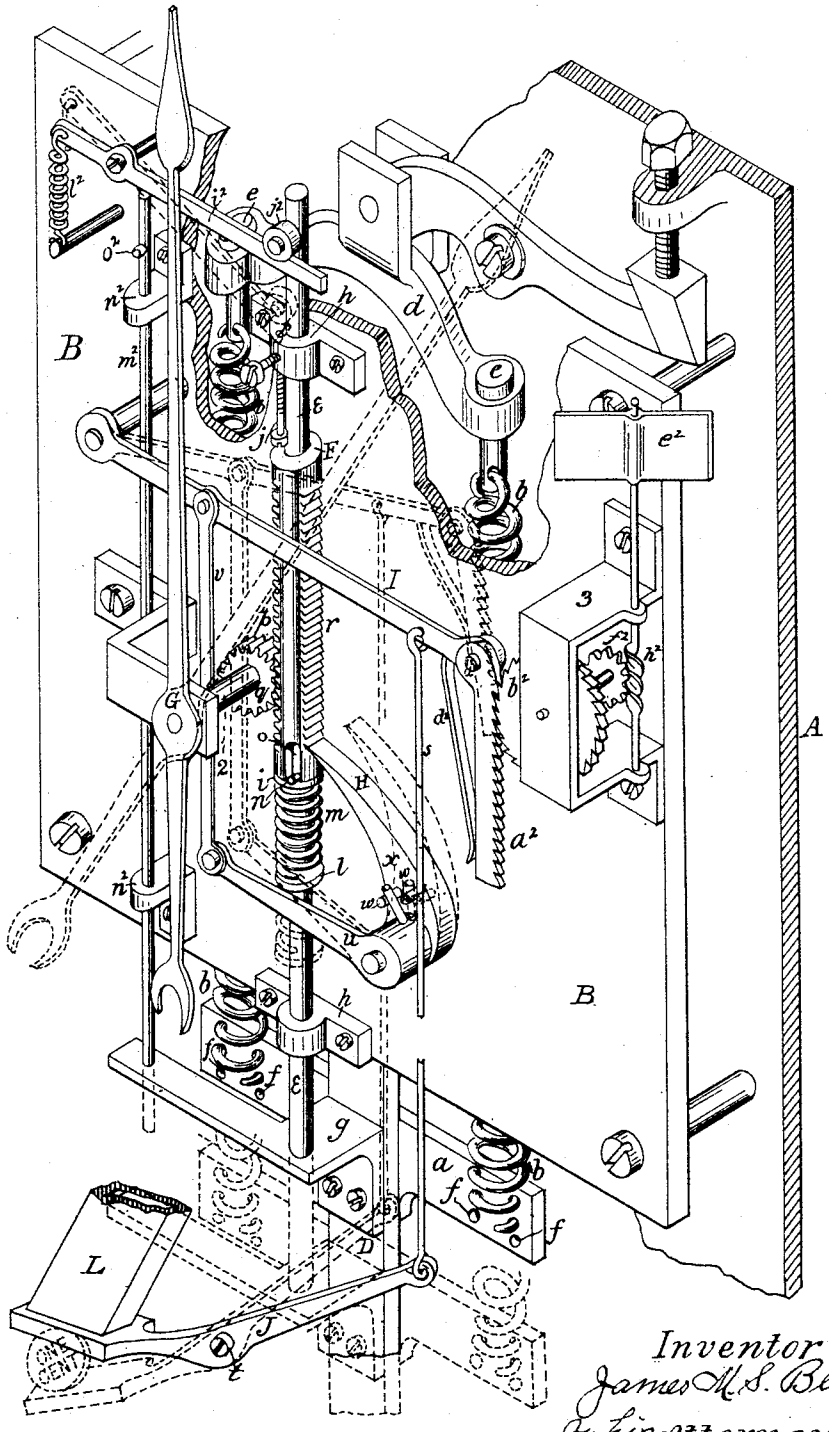
(No Model.)

J. M. S. BLAUVELT.

COIN CONTROLLED WEIGHING SCALE.

No. 448,200. Patented Mar. 17, 1891.



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COIN-CONTROLLED WEIGHING-SCALE.

SPECIFICATION forming part of Letters Patent No. 448,200, dated March 17, 1891.

Application filed April 21, 1890. Serial No. 348,823. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. S. BLAUVELT, a citizen of the United States, and a resident of Brooklyn, Kings county, New York, have invented certain new and useful Improvements in Automatic Weighing-Machines, of which the following is a specification.

One object of my invention is to simplify the construction of the parts that regulates the action of the index-hand, and another object is to provide improved means for regulating or adjusting the main or balance springs of the machine.

The invention consists in the novel details of improvement and the combinations of parts that will be more fully hereinafter set forth, and then pointed out in the claims.

Reference is to be had to the accompanying drawing, forming a part of this specification, wherein the figure is a perspective view showing my improvements in position, the front part of the machine being removed.

Referring now to the accompanying drawing, the letter A indicates part of the casing of a weighing-machine, which may be of suitable construction. Within the casing A at its upper part is secured a plate B, to which part of the mechanism is preferably secured.

D is a vertical rod extending from a suitable or ordinary scale-platform at the lower part of the machine (not shown) preferably about up to the plate B, as shown. At its upper part the rod D preferably carries a cross-bar *a*, to which springs *b* are or may be secured, the upper ends of which springs *b* are connected to a support *d*, preferably adjustable, as shown, said springs preferably passing behind the plate B. For the purpose of easily and accurately adjusting the springs *b* I connect their upper ends to swiveled studs *e*, carried by the support *d*, and their lower ends each pass into a series of holes *f f* in the cross-bar *a*. The series of holes *f f* each preferably comprises two vertical substantially parallel rows of holes, and the coils of the springs *b* are adapted to be screwed into or passed through said holes, as shown. By turning the springs *b* their coils will be passed more or less through the holes *f f*, and thereby the length of the springs between the cross-bar *a* and the support *d* can be quickly regulated, whereby the tension of the springs can be correctly adjusted. The swiveled studs *e* permit the springs to be turned without injury to the coils. When I speak of the bar *a* as having the holes *f*, I mean, of course, the part to which the spring *b* is secured.

The rod D carries a shelf or support *g*, that is adapted to support a vertically-movable rod E, that is supported in suitable bearings *h* on the plate B, as shown. On the rod E is mounted a sleeve or slide F, that is adapted to have independent longitudinal movement on the rod E.

i is a shoulder or collar on the rod E, that limits the downward movement of the sleeve F on the rod E, and by which the sleeve F is moved up when the rod E rises. The upward movement of the sleeve F is limited and regulated by an adjustable stop *j*, preferably carried by a bearing *h*, as shown. Said stop *j* may consist of a screw, as shown.

In order to prevent the sudden rising of the rod E and sleeve F from injuring the parts I make the shoulder or collar *i* movable on the rod E and hold it in its proper position as follows: *l* is a stop or collar secured to the rod E, and *m* is a spring coiled on the rod E and pressing at one end against the stop *l* and at its other end against the collar *i*, which presses said collar against a pin or the like *n* on the rod E, which limits the upward movement of said collar *i* on the rod E. The pin *n* passes through a slot *o* in the sleeve F, as shown. If now the rod E and sleeve F rise suddenly and with much force, the sleeve F will be arrested by the stop *j* in the proper position while the rod E is free to rise slightly farther, the spring *m* being thereby compressed and acting to cushion the blow.

The sleeve F carries a rack *p*, that gears with a pinion *q* on the arbor 2 of an index-hand G, said arbor being suitably journaled on the plate B, as shown. As the sleeve F rises and falls the index G will be turned by said rack and pinion.

When the rod D and shelf *g* are in their normal positions—that is, when the scale-platform is unloaded—the rod D and sleeve F will be held elevated and the index G be held at zero. When now a weight is put upon the

scale-platform, the rod D and shelf g descend to a degree corresponding to the weight on the platform and the rod E descends a corresponding amount, carrying down the collar i. If the sleeve F were not now supported independently, it would also descend; but it is intended that the sleeve shall not descend until released by the entry of a coin. To accomplish this I provide the following arrangement: The sleeve F carries a ratchet or other rack r, that is adapted to be engaged by a pawl H, pivoted on the plate B, as shown. The pawl H is normally in engagement with the ratchet r, and thus keeps the sleeve F elevated and the index at zero when the rod D has descended by the lowering of the support g, as before stated. The pawl H is to be moved out of engagement with the ratchet r only by the action of a coin. For this purpose the pawl H is connected with a lever I, so that when the lever I is lifted by a coin the pawl H will be moved out of the ratchet r. The lever I connects by a rod s with one end of a lever J, pivoted in the machine, as at t, the opposite end of said lever coming under or within a coin-chute L, so that the weight of a coin may act to depress one end of said lever and thereby lift the rod s, lever I, and thus move the pawl H out of the ratchet r. The means I have shown connecting the pawl H with the lever I, consists of a crank u hung on the pivot of the pawl H, which crank is jointed to an arm v depending from the lever I and jointed thereto, as shown.

The crank u may be rigidly secured to the pawl H; but I prefer to have a movable connection, as follows: The pawl H carries two pins or projections w, and the crank u carries a projection x that passes between the two pins w, as shown; but the positions of said pins or projections could be reversed, if desired. When the crank u turns, its pin x, by acting against a pin w, will move the pawl H in a corresponding direction. I prefer to place the pins w at a distance apart, so that the pin x may have a slight free motion before actuating the pawl H. This arrangement is such that if a coin or blank that is lighter than a proper coin—say one cent—be dropped upon the lever J, it will only have force enough to raise the lever I part of the way, if at all, and during this movement the pin x will not act to move the pawl H, because it does not move far enough to encounter the pin w, and therefore the sleeve F will not be released to indicate a weight. So, also, when the lever I is descending after the pawl H has been moved out of the ratchet r the sleeve F is allowed time to descend to carry around the index before the pawl is pushed by the pins w and x into the ratchet r. After the lever I has been raised to release the pawl H from the ratchet r it should descend gradually or be retarded, so as to give the sleeve time to descend to turn the index. For this purpose I pivot to the free end of the lever I a ratchet a^2, that is adapted to engage a ratchet-wheel b^2, as shown. A light spring d^2, carried by the lever I, keeps the ratchet a^2 in gear with the wheel b^2. When the lever I is raised by a coin, the ratchet a^2 slips over the wheel b^2 without turning the latter; but when the lever I descends the ratchets a^2 b^2 lock, and thus the ratchet-wheel b^2 will be turned. To retard the descent of the lever I the wheel b^2 connects by suitable gearing with a fan or regulator e^2. For this purpose I have shown a gear-wheel f^2, secured to the arbor of the wheel b^2, which wheel f^2 gears with a worm h^2, which carries the fan or regulator e^2.

The above parts are all suitably journaled in a frame 3, secured to the plate B, as shown.

In order to insure that the rod E will rise to its proper height every time to certainly bring the index to zero, I pivot a lever i^2 on the plate B and place its free end under a projection or roller j^2 on the rod E, as shown. A light spring l^2, secured at one end to the lever i^2 and at its other end to the plate B, keeps the lever i^2 in contact with the projection j^2. m^2 is a rod guided in suitable bearings n^2 on the plate B, its upper end coming against the lever i^2, as shown. A pin o^2 on the rod m^2 limits the downward movement of said rod by contacting a bearing n^2. The lower end of the rod m^2 is to be engaged by the shelf or support g, as shown, so that when the support g rises it will lift the rod m^2, and thereby the rod E will be pushed up to its proper height.

My improvements operate together as follows: When the parts are in their normal positions the pawl H will be in engagement with the ratchet r, the lever I will be down, and the index at zero, all as in full lines. A person now steps on the scale-platform, which draws down the rod D and shelf or support g a certain distance, whereby the rod E will descend and rest on the shelf g. The collar i will also thereby descend, but sleeve F will remain elevated and the index thus be held at zero. The rod m^2 also descends when the shelf g descends, all as in dotted lines. A coin now being dropped into the coin-chute it depresses the lever J, thereby raising the lever I, which acts to turn the pawl H, to disengage it from the ratchet r, as before stated. The sleeve F being now free immediately descends until it comes to rest on the collar i. In its descent the sleeve F turns the index to indicate the weight on the scale-platform, which indication is regulated by the distance the support g, and thereby the collar i, descends.

After the sleeve F descends the lever I immediately descends, and thus turns the pawl H back to engage the ratchet r, whereby the sleeve F can descend no farther until a new coin is inserted, and thereby a heavier weight than the one first applied will not be indicated for a single coin.

When the weight is removed from the scale-platform, the rod D rises, thereby pushing up the rod E, sleeve F, and rod m^2. The

sleeve F then becomes locked by the pawl H and remains so until another coin is inserted to release it.

Having now described my invention, what I claim is—

1. A sliding toothed bar, combined with a pawl arranged to engage said toothed bar, coin-actuated mechanism connected with said pawl for disengaging it from said toothed bar, and a movable connection between said pawl and said coin-actuated mechanism to allow the pawl independent movement, substantially as described.

2. The sliding rack *p* and the index actuated thereby and the sliding ratchet *r*, connected with and also actuated by and with the rack *p*, combined with the pawl H, to engage the sliding ratchet *r*, and coin-actuated mechanism connected with said pawl for disengaging it from said ratchet, substantially as described.

3. The ratchet *r* and the index in connection therewith, combined with the pawl H, crank *u*, pins or projections *w x*, and lever I, connected with the crank *u*, substantially as described.

4. The rods D and E, acting in unison, stop *i* on the rod E, sleeve F on said rod, index actuated by said sleeve, and ratchet *r*, connected with said sleeve, combined with the pawl H, lever I, and connections between said pawl and lever, substantially as described.

5. The rod D, having shelf or support *g*, and the rod E, having a stop *i*, combined with the sleeve F, an index actuated thereby, and an adjustable stop to regulate the upward motion of said sleeve, substantially as described.

6. The rod D, having shelf or support *g*, and the rod E, having loose collar *i*, rigid stop *l*, and spring *m* between said collar and stop, combined with the sleeve F, sliding on the rod E, a stop for the sleeve F, and an index actuated by the sleeve F, substantially as described.

7. The rod D, having shelf or support *g*, sliding rod E, having collar or stop *i*, sleeve F, having rack *r*, and an index actuated by said sleeve, combined with the pawl H, to engage said rack, crank *u*, lever I, connected to said crank, and coin-actuated mechanism for lifting said lever to release the rack *r*, substantially as described.

8. The sliding rack F and an index actuated thereby, combined with the pawl H, to engage said rack, lever I, actuated by the entrance of a coin, and a movable connection between said pawl and the lever I, whereby the lever I can be moved a certain distance without actuating the pawl H, but by a farther movement will actuate said pawl, substantially as described.

9. The sliding rack F and an index actuated thereby, combined with pawl H, crank *u*, projections *w w*, pin *x*, the distance between said projections being greater than the width of the pin *x*, lever I, connected with the crank *u*, and coin-actuated mechanism, substantially, as described, for lifting the lever I, substantially as specified.

10. The lever I, pivoted rack a^2, carried thereby, and spring d^2, combined with the toothed wheel b^2, regulator e^2, driven thereby, and coin-actuated mechanism for lifting the lever I, substantially as described.

11. The support *d* and spring *b*, swiveled thereto, combined with the bar *a*, having holes *f*, that receive the coils of the spring *b*, whereby said spring can be lengthened and shortened between *a* and *d* by passing its coils more or less through the holes *f*, substantially as described.

12. The support *d*, having swiveled stud *e*, and spring *b*, connected thereto, combined with the bar *a*, having holes *f f*, that receive the coils of the spring *b*, whereby said spring can be lengthened or shortened by passing its coils through said holes, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 17th day of April, 1890.

JAMES M. S. BLAUVELT.

Witnesses:
W. C. ROGERS, Jr.,
J. N. BLAUVELT.