(No Model.)

W. R. SMITH & A. L. WASHBURN.

COIN OPERATED ELECTRICAL WEIGHING SCALE.

No. 365,353. Patented June 21, 1887.

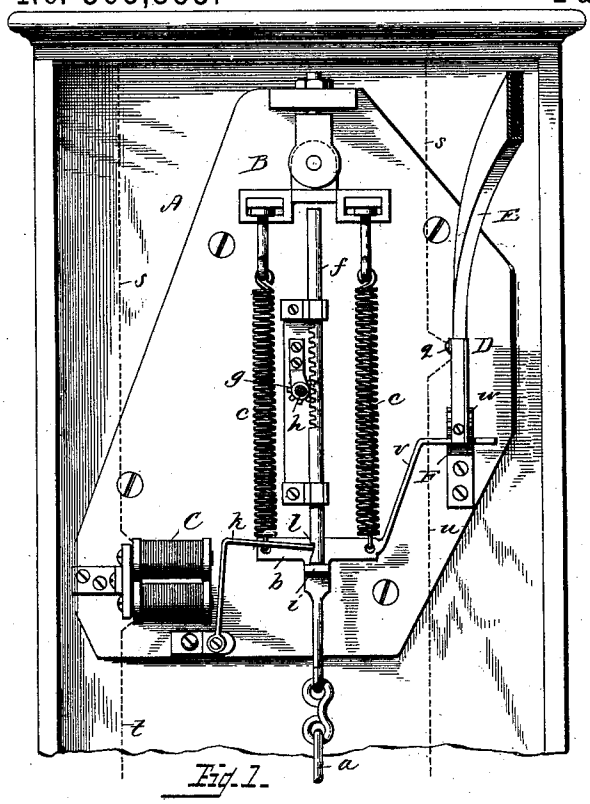


Fig. 1.

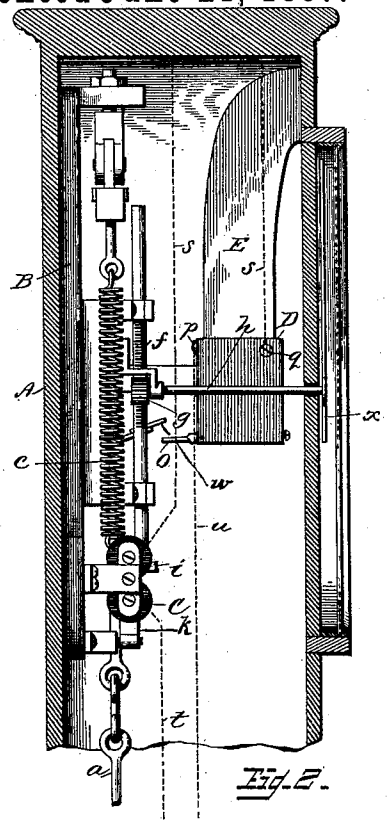


Fig. 2.

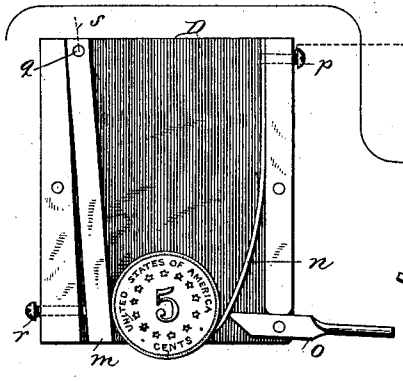


Fig. 3.

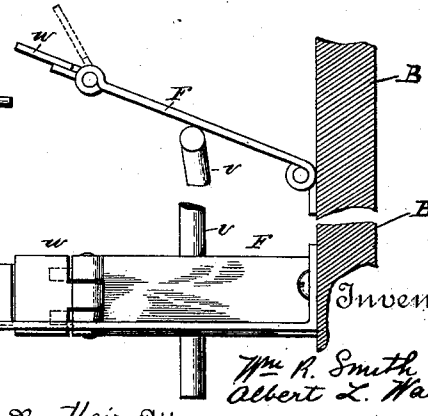


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM R. SMITH, OF BANDERA, TEXAS, AND ALBERT L. WASHBURN, OF NEW YORK, N. Y.; SAID WASHBURN ASSIGNOR TO SAID SMITH.

COIN-OPERATED ELECTRICAL WEIGHING-SCALE.

SPECIFICATION forming part of Letters Patent No. 365,353, dated June 21, 1887.

Application filed May 4, 1887. Serial No. 237,026. (No model.) Patented in Belgium December 17, 1886, No. 75,628; in Spain February 12, 1887, No. 10,436, and in France April 26, 1887, No. 180,332.

To all whom it may concern:

Be it known that we, WILLIAM R. SMITH, a citizen of the United States, residing at Bandera, in the county of Bandera, State of Texas, and ALBERT L. WASHBURN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electrical Weighing-Scales, (for which we have obtained patents in Belgium, No. 75,628, December 17, 1886; in Spain, No. 10,436, February 12, 1887, and in France, No. 180,332, April 26, 1887,) of which the following is a specification.

Our invention relates to improvements in weighing-scales, the mechanism of which may be tripped by electricity; and the main object of our invention is to so arrange the electric circuit that it may be closed for tripping the indicating mechanism by inserting within the machine a coin or like-shaped metallic disk.

In the accompanying drawings, Figure 1 is a front elevation of so much of a weighing-scale as is necessary to show our improvements, the front of the case being removed. Fig. 2 is a side elevation of the same, the case being shown in vertical section. Fig. 3 is a detached side elevation of parts, with one side removed, illustrating that portion of the circuit which is completed or closed by a coin; and Fig. 4 is a plan view of the same, the two latter figures being on an enlarged scale.

Our improvement is adapted for application to ordinary platform weighing-scales, the platform being mounted upon any ordinary lever mechanism for such scales, and therefore we deem it unnecessary to illustrate such ordinary mechanism. Extending from the platform is an upright case, A, within which our mechanism is placed. Extending from the lever mechanism underneath the platform, and up through the upright case, is a rod or suitable connection, *a*, which is connected with the movable T-shaped frame *b*, to which the weighing-springs *c c* are attached. The upper ends of these springs are fastened to a projection from the upper end of the metallic frame B, which frame we secure to the back of the case A in an upright position, as shown. In the middle of this frame is a vertically-sliding rack, *f*, the teeth of which engage the pinion *g*, which is attached to the pointer-shaft *h*. On the exterior of the case is a suitable dial divided into graduations indicating pounds and fractions thereof, and on the outer end of the shaft *h* is a pointer, *x*, to indicate the proper weight, according to the fall of the rack *f*. 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 obstructed by some object. At the lower end of this rack *f*, and upon the T-shaped frame *b*, there is a stop in the form of a bracket or shelf, *i*, which the lower end of the rack may rest upon when the springs draw said frame to its uppermost position, or whenever said frame is in a lower position and the falling of the rack-bar is not prevented by means of the tripping-latch *k*. This tripping-latch, as shown, is in the form of a pivoted angle-lever, with that part of the lever at the end nearest the magnet C forming an armature for the same, while the opposite end engages a notch, *l*, Fig. 1, in the rack *f*. This latch is so mounted as to turn easily, and may be provided with a light spring which has a tendency to hold it in engagement with the rack *f*, and thereby hold the indicator at zero or any desired point on the dial. Close to the body of this latch and upon the frame C is an electro-magnet.

To one side of the weighing-springs *c c* we place a short section of a chute, D, the same being mainly composed of rubber or some non-conducting material, which material forms the two broadest sides of said chute-section, while the two moving sides of said chute section are formed of metal strips or conductors *m n*, the latter of which is held in place by a latch or lever, *o*, (see Figs. 3 and 4,) so as to make the chute-section a little less in width than the diameter of a coin of a given size or other metallic disk.

In Fig. 3 one side of the chute-section D is removed in order to show the interior. The shank of the strip *n* is fastened in place by the screw *p*, on which it is pivoted. The strip *m* is held within the chute-section at one end by means of the screw *q*, and is pivoted thereon, so that by turning the screw *r*, which bears against one edge of said strip, the width of the aperture at the lower end of the chute-section can be adjusted to any desired size of coin

or metallic disk. It is evident that a strip like *m*, pivoted loosely at the upper end of the chute and slanting inwardly at the bottom, may, without changing the other parts, be substituted for the spring *n*, which in substance is the moving side of the chute. One of the magnet-wires, *s*, extends through any convenient part of the case to the screw *q*. The other magnet-wire, *t*, extends to a battery, which may be placed in the lower part of the case or at any convenient point therein, while another wire, *u*, extends from the screw *p* to said battery, thereby connecting said wires with the strips *m n*. Thus it will be seen that when a proper-sized coin—for instance, a five-cent nickel, 5—is inserted within the chute-section and lodges therein, as shown in Fig. 3, the metallic strips *m* and *n* are connected and the electric circuit completed or closed, the coin itself becoming a part of the circuit, so that the magnet then withdraws the latch *k* from the notch *l* in the rack *f* and permits said rack to fall and rest upon the frame below, to which the springs are attached.

The chute-section D is designed to be placed at the lower end of any suitable chute or conductor, E, which leads from an aperture on the outside of the case to said chute-section. By lifting the outer end of the swinging lever *o* the moving side *n* is allowed to swing and let the coin 5 fall from the chute-section D, from which it may fall or be conducted into any proper receptacle. This lever *o* might be tripped by hand; but we prefer to trip said lever by means of the weighing mechanism.

To the movable T-shaped frame *b* we rigidly secure a laterally-extending arm, *v*, so that said arm will rise and fall with said frame *b*. To the frame B we attach by one of its ends a swinging arm, F, at the other end of which is a jointed end, *w*, provided with a stop-joint, so that it cannot move beyond a certain point on its pivot when the swinging arm F is moved upward, but may be allowed to turn on its pivot freely when the arm F is lowered. A person standing on the platform will depress the lever mechanism, and through the rod *a* pull the frame *b* and its shelf or bracket *i* downward more or less, according to his weight. The latch *k*, engaging the notch *l* in the rack, will hold said rack in its elevated position, and therefore the pointer *x* will not revolve to indicate the person's weight upon the dial. In pulling down the frame *b* the arm *v* moves downward with it and allows the swinging arm F to fall below lever *o*, which it trips on its return. In thus falling the jointed end *w* turns backward on its pivot to pass the end of the lever *o*. By inserting a nickel in the aperture left in the case for that purpose, it will pass through the conductor E into the chute-section D and complete or close the circuit through the coins becoming a part thereof, so that the magnet will withdraw the latch *k* from the notch *l* and allow the rack to fall until it is stopped by the shelf or bracket *i* at the proper point to indicate, by means of the dial and hand, the correct weight of the person standing on the platform. When the person steps off the platform, the springs *c c* raise the frame *b* to its former position, thereby carrying the laterally-extending arm upward, and said arm *v* carries the swinging arm F upward with it, so as to trip the lever *o* and let the nickel 5 fall from the chute-section, said swinging arm *w* passing the end of the lever *o* and into position for another action, as shown in Figs. 2 and 3. At the same time the shelf or bracket *i* on the frame *b* carries the rack upward again into its former position, where it is again held in place by the latch *k*, and the parts are ready for repeating the operation.

We are aware that a prior patent in this and other countries shows a weighing-machine constructed in such a manner that the act of placing a coin in the apparatus will cause the weight then on the scales to be indicated on the dial, the result being accomplished wholly by mechanical devices without the aid of an electric current. Such an apparatus, broadly considered, is hereby disclaimed.

We are also aware that other prior patents show devices for registering toll and other money, in which a coin or like metallic piece placed within a chute operates to trip a mechanical device; and, broadly considered, we do not claim the same.

While we have shown our mechanism as applied to weighing-scales, we do not wish to limit ourselves to such scales as to all features of our invention, because it is evident that some parts of our invention, especially the chute-section, can be applied to various mechanical devices which may be tripped by electricity.

In this application we do not claim, broadly, the weighing-scales in combination with an electrical releasing device and the indicating mechanism operated by the scales, such matter forming part of our application, Serial No. 214,501, for electrical weighing-scales, filed September 25, 1886.

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

1. The combination of the chute-section adapted to receive a coin or similar metallic piece, and having insulated electrical conductors, a weighing-machine having its indicator disconnected from the main portion of the weighing mechanism, a stop on said main portion to limit the movement of the indicator when released, a latch for securing said indicator at the zero-point, and electrical connections between said chute-section and latch, substantially as described, and for the purpose specified.

2. The combination of the chute-section D, having secured thereto a moving side that projects into the path through the chute far enough to stop a coin of a given size, in combination with the latch, the lever *o*, pivoted to said chute-section, with one end abutting against the outer face of said moving side and locking it against moving in a direction to enlarge the passage through said chute-sec-

tion, substantially as described, and for the purpose specified.

3. The combination of the chute-section D, having the moving strip or side *n*, the lever *o*, the swinging arm F, having the outer end, *w*, pivoted thereto by a stop-joint, the arm *v*, the movable frame *b*, to which said arm is connected, and the weighing-scales, substantially as described, and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM R. SMITH.

Witnesses as to W. R. Smith:
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ALBERT L. WASHBURN.

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