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B. E. MILLS.
COIN OPERATED WEIGHING SCALE.
APPLICATION FILED OCT. 1, 1913.

1,155,077.

Patented Sept. 28, 1915.

4 SHEETS—SHEET 1.

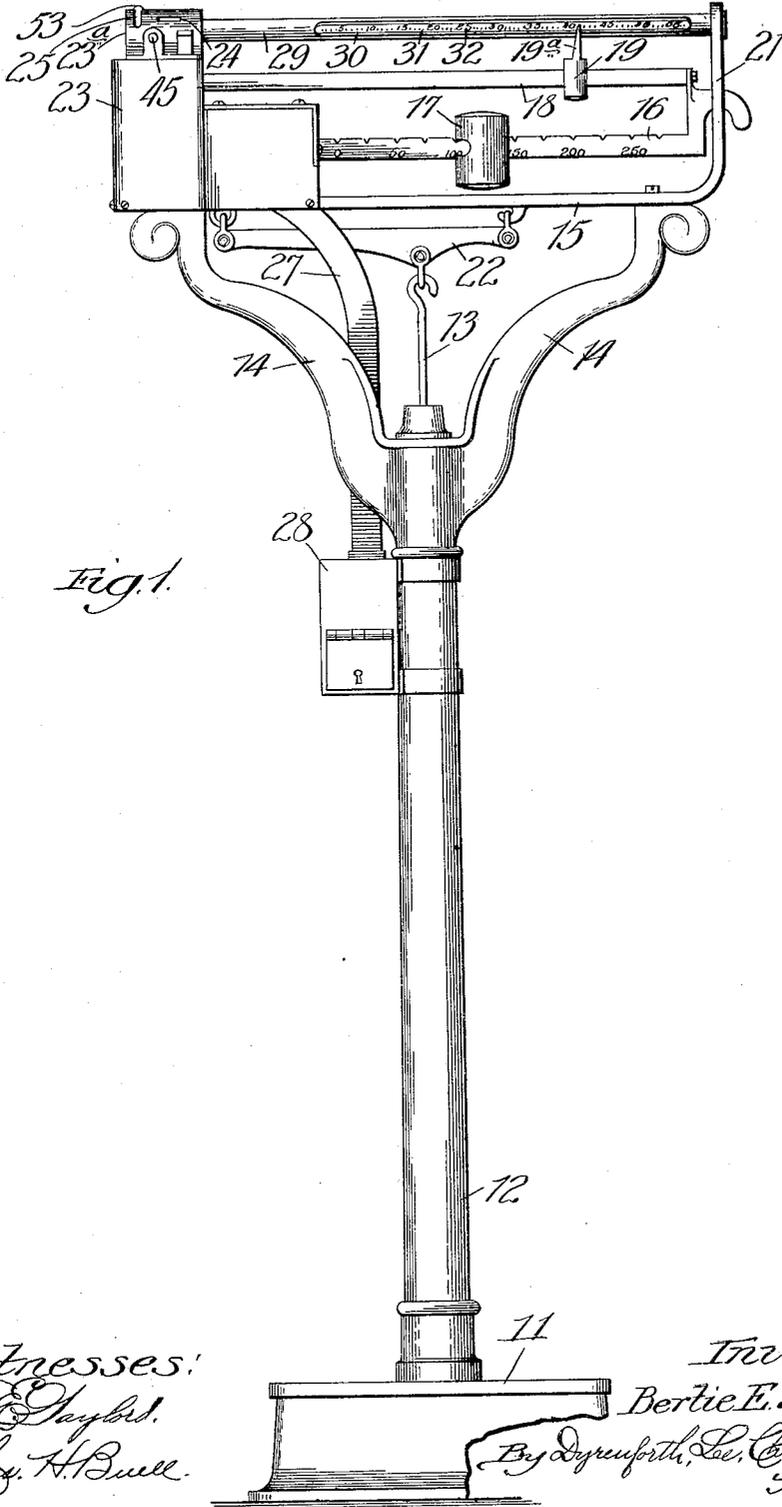


Fig. 1.

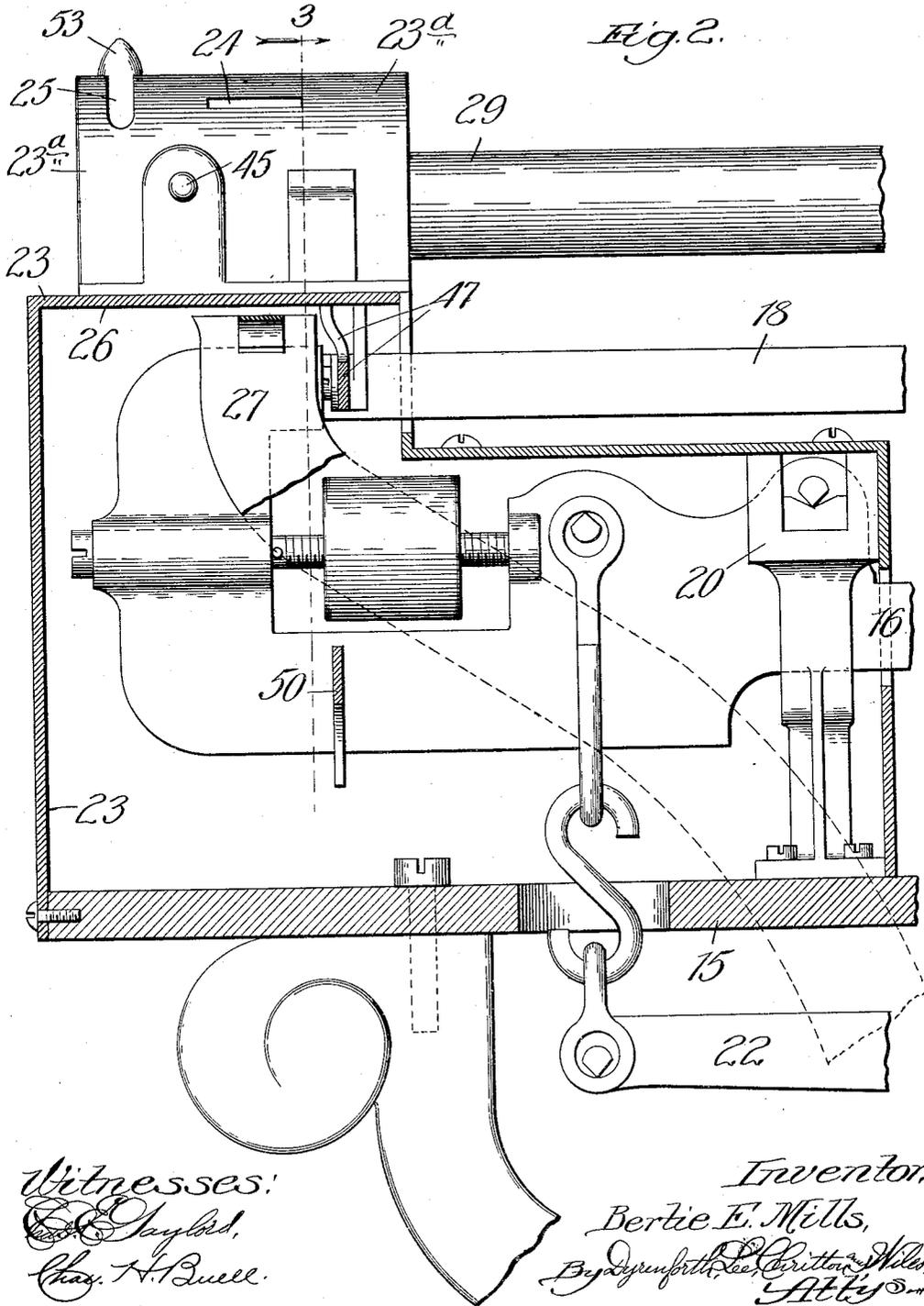
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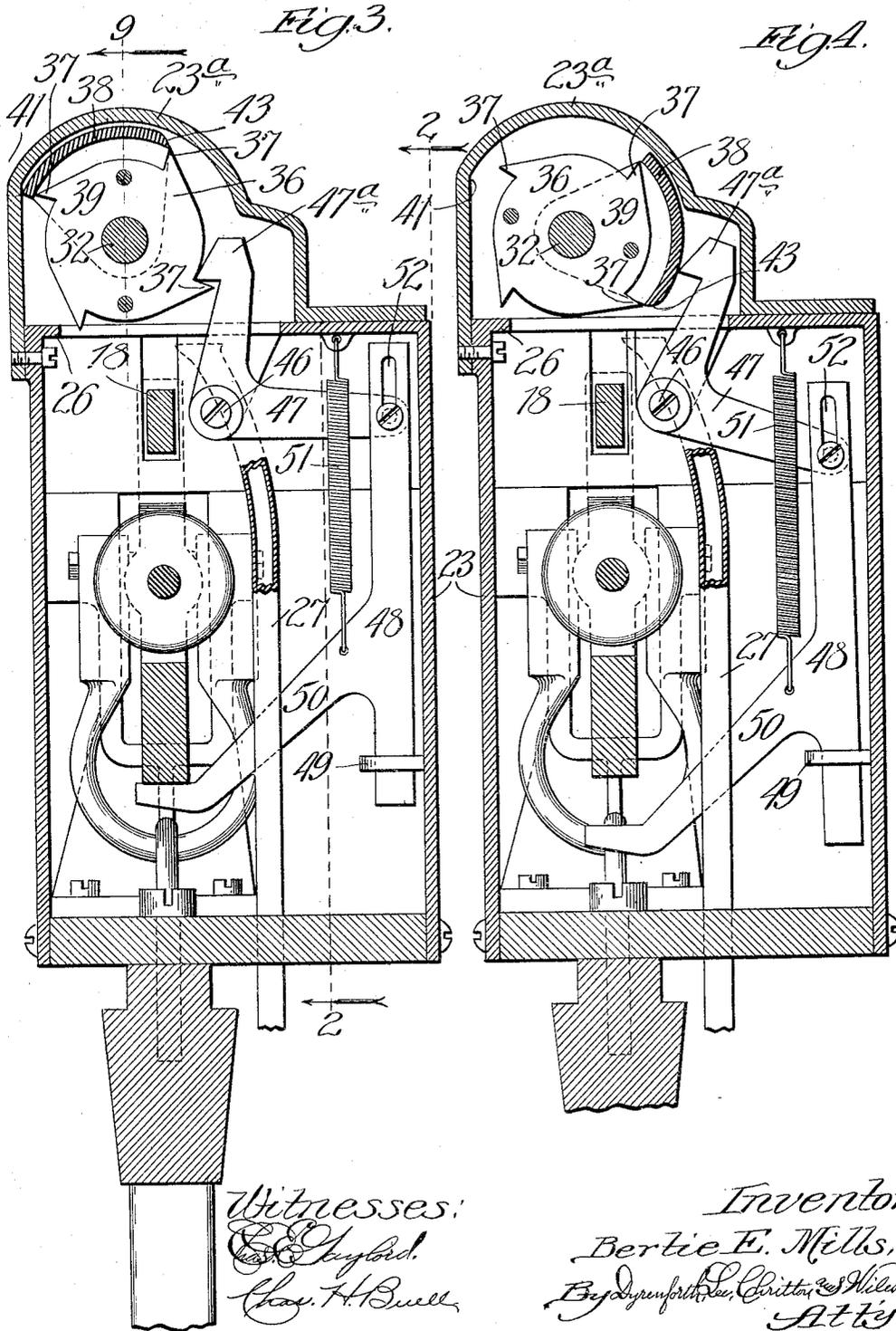
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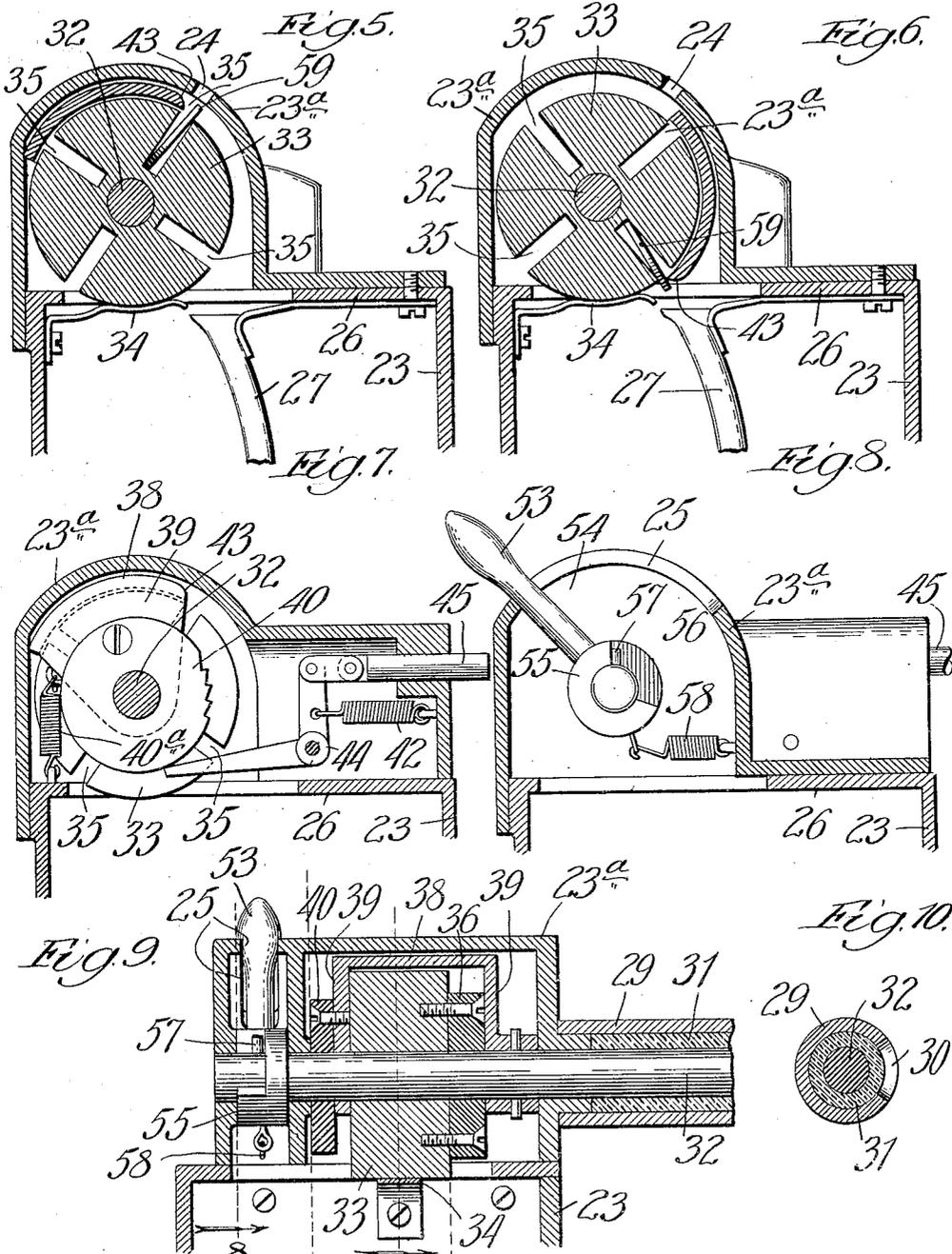
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

BERTIE E. MILLS, OF CHICAGO, ILLINOIS, ASSIGNOR TO MILLS NOVELTY CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

COIN-OPERATED WEIGHING-SCALE.

1,155,077.

Specification of Letters Patent.

Patented Sept. 28, 1915.

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To all whom it may concern:

Be it known that I, BERTIE E. MILLS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Coin-Operated Weighing-Scales, of which the following is a specification:

My invention relates to an improvement in weighing-scales of the class wherein the scale-beam is normally locked and requires the insertion of a coin to release it for balancing by shifting the weight or weights thereon; and my object is to provide improved means requiring to be actuated, after the beam has been thus balanced, to disclose the actual weight of a body imposed on the scale-platform.

In the accompanying drawings, Figure 1 is a view in front elevation of a weighing scale provided with my improvement; Fig. 2 is a view in sectional elevation, the section being taken on the irregular line 2—2, Fig. 3; Figs. 3 and 4 are similar sections on line 3, Fig. 2 or Fig. 9, but respectively showing parts in different positions; Figs. 5 and 6 are similar sections on line 5, Fig. 9, but showing parts in different positions; Figs. 7 and 8 are sections taken, respectively, on line 7 and line 8, Fig. 9; Fig. 9 is a section through the coin-operated mechanism, on line 9, Fig. 3, and Fig. 10 is a cross-section through the longitudinally-slotted stationary tube containing a glass-covered rotatable weight-indicating rod, which is actuated by the coin-operated mechanism.

The scale shown, and to which my improvement is applied, is of well-known general construction. It involves the usual spring-platform 11, from one end of which rises a hollow standard 12 containing the vertical rod 13, and having diverging arms 14 on its upper end carrying the horizontal beam-supporting bar 15. The scale-beam, comprising the usual lower member 16 carrying the sliding weight 17, and an upper member 18, which latter, however, in the present case is blank or devoid of weight-indicating numbers on both surfaces and carries the sliding weight 19, is fulcrumed in a bearing 20 on the bar 15 and works at its hooked or free end in a slotted upright end-extension 21 of the bar. At 22 is shown the usual member which is fulcrumed at one end to the under side of the horizontal bar

and linked, through an opening in the latter, to the beam behind its fulcrum, and to which, between its ends, the upper hooked end of the rod 13 is connected.

On one end of the bar 15 is secured, for housing parts hereinafter described, a sheet-metal casing 23 having a top extension 23^a containing a coin-insertion slot 24 and a slot 25 for the play of an operating handle; and the bottom of this casing-extension is a horizontal slotted plate 26 forming the top of the casing-section below it. A coin-chute 27 leads from the bottom of the casing to a suitable coin-receptacle, shown in Fig. 1 as a box 28 fastened on the standard 12.

A tube 29 is rigidly fastened at one end, as shown in Fig. 9, to extend from about a flanged opening in the inner wall of the top casing-section 23^a horizontally to the upright extension 21 of the bar 15, and is rigidly fastened thereto at its opposite end. This tube has a longitudinal display-slot 30 in its face, which is covered by a transparent medium, preferably, as shown, by a glass tube 31 in the tube 29 (Figs. 9 and 10). A cylindrical rod 32 is journaled in the casing-section 23^a to extend and be rotated in the glass-lined tube and is provided along that portion of its surface which is normally displayed at the slot 30, with a series of numbers, spaced apart at intervals of 5, denoting units of pounds and arranged like the weight-indications usually provided on the upper beam-member in an ordinary weighing-scale. The sliding weight 19 carries a finger 19^a pointing upwardly to the indications on the rotary rod. A solid wheel 33 is loosely mounted on the casing-inclosed end of the rod, being held by a spring-brake 34 yieldingly against rotation; and it contains four radial coin-receiving slots 35 uniformly spaced apart. On the inner face of the wheel is fastened, concentrically about the rod, a ratchet 36 having four cam-faced teeth 37 equidistant apart.

A segmental hood 38 is carried at its opposite radial arms 39 on the rod to extend and be movable over the wheel, and has fastened to the face of the outer arm a mutilated ratchet-wheel 40, which is secured on the rod and fastens thereto the hood to rotate or rock with it; and the hood is retracted to its normal position, represented in Fig. 3 and against a stop-point at 41 on the inner face of the adjacent casing-wall in the path

of its rear edge, by a spiral spring 40^a (Fig. 7) connected with the ratchet. The forward edge 43 of the hood is formed on a bevel, rendering it a wedge to cooperate with the cam-faced ratchet-teeth 37 at the right-hand end of that edge, as and for the purpose hereinafter described. A bell-crank lever 44 is fulcrumed to extend, as a pawl, into the path of the mutilated ratchet 40, and has connected with its outer, shorter arm a push-rod 45 supported to extend, for access to it, through the front wall of the casing-section 23^a. On a bearing-rod 46 is fulcrumed a bell-crank 47 terminating at its inner end in a beveled or cam-faced pawl 47^a extending into the path of the teeth 37 and beveled forward edge of the hood. A bar 48 is pivotally connected at one end with the horizontal arm of the bell-crank 47 and is guided at its lower end in a loop 49 on the casing-wall. A finger 50 extends from the bar normally against the under edge of the lower scale-beam member, as shown in Fig. 3, being held in that position by a spiral spring 51 to lock the scale-beam against movement; and in the upper end of this arm is an elongated slot 52, at which the pivotal connection is made with the bell-crank 47. The arm and finger thus constitute the beam-locking member of my improvement.

An operating handle 53 extends, at one side of a partition 54 in the upper casing-section, through the slot 25 in the latter from a hub 55 on its inner end loosely surrounding the rod 32 and containing in its outer face a recess 56 (Figs. 8 and 9), into which enters a pin 57 projecting from the rod to be engaged, for locking the latter, by the shoulders at the opposite ends of the recess. A spiral spring 58 holds yieldingly the handle in its normal position represented in Fig. 8.

The operation is as follows: To weigh a person or other object on the scale-platform, a suitable coin 59, or token, is inserted into the coin-insertion slot 24 to enter into a coincident receiving-slot 35 in the wheel 33 and project therefrom into the path of the advance edge of the hood. The handle 53 is then turned from its normal position (Fig. 8) until it is stopped by encountering the forward end of the slot 25, when it is released and returned by the spring 58. Thus turning the handle turns the rod 32, to take the numbers thereon from display at the slot 30, and the hood 38. The hood, in turning, abuts against the inserted coin protruding into its path, thereby also turning the wheel from the position in Fig. 5 to that shown in Fig. 6, in which latter position the coin coincides with the mouth of the coin-chute 27 and drops through the chute into the box 28. The hood, in attaining its advanced position, in which it is held, until released, by engagement of the pawl 44 with the ratchet 40, by turning the wheel 33 causes the cam-face of

the adjacent ratchet-teeth 37, and thereafter the wedge-shaped edge 43 of the hood, to attack the pawl 47^a and turn the bell-crank 47 to the position shown in Fig. 4. This movement of the bell-crank depresses the bar 48 against the resistance of the spring 51 and depresses the finger 50 from the scale-beam to permit the latter to oscillate. Then the weights 17 and 19 may be moved on the respective beam-members to proper positions to poise the beam under the weight of the object on the platform. Only that portion of the weight of the object will be displayed, however, which is indicated by the position of the adjusted weight 17 on its beam-member, and the exact weight of the aforesaid object will not be shown, since the indications on the rod 32 are hidden. To disclose them, the push rod 45 is pressed inwardly to turn the bell-crank and withdraw its pawl-arm from the ratchet 40, when the spring 40^a turns to their normal positions, ready for another operation, the ratchet 40, the hood, and the rod; and by thus turning the hood back to its normal position, it is withdrawn from the pawl-head 47^a, permitting the spring 51 to restore the bell-crank 47 to its normal position by raising the bar 48 to bring the finger 50 against the lower edge of the scale-beam for locking it against vibration until released by a repetition of the described operation.

As will thus be seen, the primary purpose of my present improvement is to hide the characters used for indicating that portion of the weight of the object imposed on the scale-platform, which is denoted in units and fractions of pounds, until the beam has been poised, as hereinbefore explained, so that the weight can not be accurately ascertained without restoring the mechanism to its normal condition for another operation. It will be observed that in the present embodiment of my invention the slot 52 in the bar 48 is of importance, since it prevents operation of the mechanism without the insertion of a coin. The scale-beam can easily be raised at its forward or free end to depress its opposite end against the finger 50 and thus lower the bar 48; but with the slot in the latter the bell-crank 47 remains unaffected, and turning of the hood will not move it, since the hood will at its advance-edge abut against the top of and thus be obstructed by the pawl-head 47^a. If, however, that bell-crank were pivoted to the bar at its upper end and not through a slot therein, such manipulation of the scale-beam, by depressing the bar 48, would turn the bell-crank 47 on its fulcrum and retract the pawl-head, so that by turning the operating handle the advance end of the hood would be brought to the position of obstructing the return of the pawl-head and the beam would be left free to be vibrated and poised

by sliding the weights upon it, so that by manipulating the push-rod, the parts would be restored to normal condition, involving the turning of the rod 32 to its display-

5 position.
What I claim as new and desire to secure by Letters Patent is—

10 1. In a weighing-scale, a scale-beam comprising lower and upper members, a slotted tube extending above said upper member, a rotatable rod housed in said tube and provided with weight-indications normally displayed at the slot, a weight on the lower beam-member and a weight on the upper
15 beam-member, a spring-pressed locking member normally engaging the beam to lock it against movement, a bell-crank pivotally connected at one end with said locking-member and terminating at its opposite end
20 in a pawl, and means connected with said rod for rotating it to turn the indications thereon out of their display-position, and operating to trip said bell-crank to withdraw said locking-member from the beam to
25 unlock it.

2. In a weighing-scale, a scale-beam comprising lower and upper weight-carrying members, a rod provided with normally-dis-
30 played weight-indications and rotatably supported above the upper beam-member, a spring-pressed arm having a slot in its upper end and a finger normally engaging the beam to lock it against movement, a bell-

crank pivotally connected at one end with said arm at its slot and terminating at its
35 opposite end in a pawl, and a hood secured on said rod and operating by turning it to rotate the rod to turn the indications thereon out of display-position and engage said pawl
40 to turn the bell-crank and depress the arm to withdraw the finger from the beam and unlock it.

3. In a weighing-scale, a scale-beam comprising lower and upper weight-carrying
45 members, a rod provided with normally-displayed weight-indications and rotatably supported above the upper beam-member, a spring-pressed locking-member normally engaging the beam to lock it against move-
50 ment, a bell-crank pivotally connected at one end with said locking member and terminating at its opposite end in a pawl, a spring-retracted ratchet-carrying hood secured on said rod and operating by turning
55 it to rotate the rod to turn the indications thereon out of display-position and engage said pawl to turn the bell-crank and depress said locking member from the beam to un-
60 lock it, and a push-rod-operated pawl-device cooperating with said ratchet to hold it and release it for permitting the parts to return to normal position.

BERTIE E. MILLS.

In presence of—
O. C. AVISUS,
A. J. FLOYD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."