(No Model.) 2 Sheets—Sheet 1.

G. E. RUTTER.

COIN FREED WEIGHING OR SIMILAR MACHINE.

No. 454,529. Patented June 23, 1891.

Fig. 1.

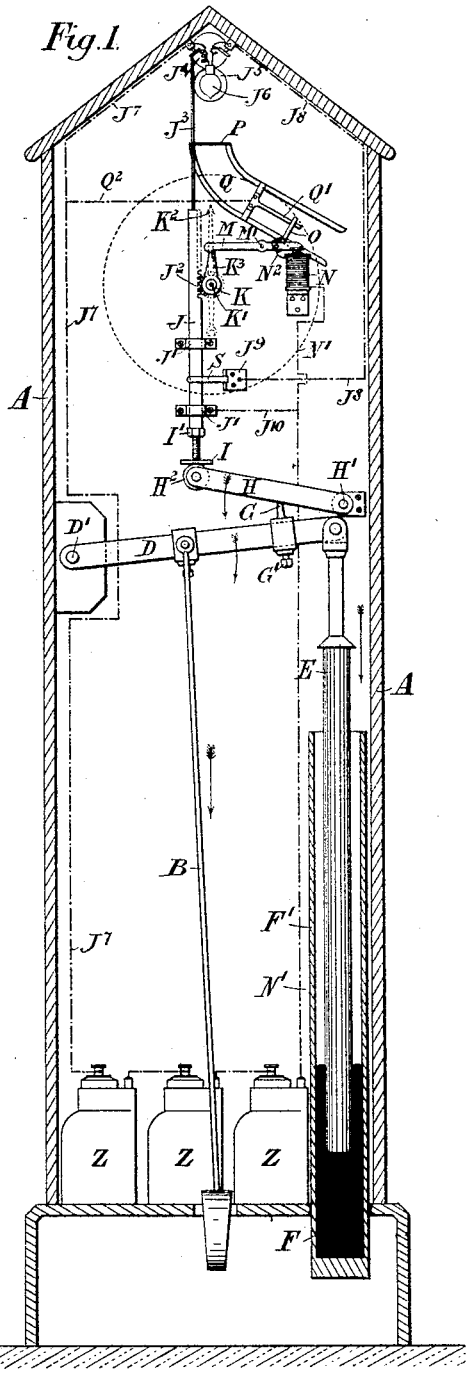


Fig. 4.

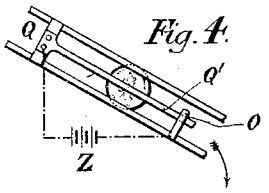


Fig. 5.

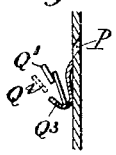


Fig. 6.

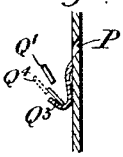


Fig. 8.

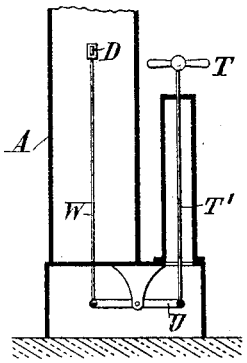
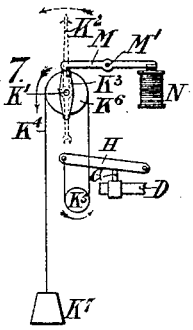


Fig. 7.



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(No Model.) 2 Sheets—Sheet 2.

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COIN FREED WEIGHING OR SIMILAR MACHINE.

No. 454,529. Patented June 23, 1891.

Fig. 2.

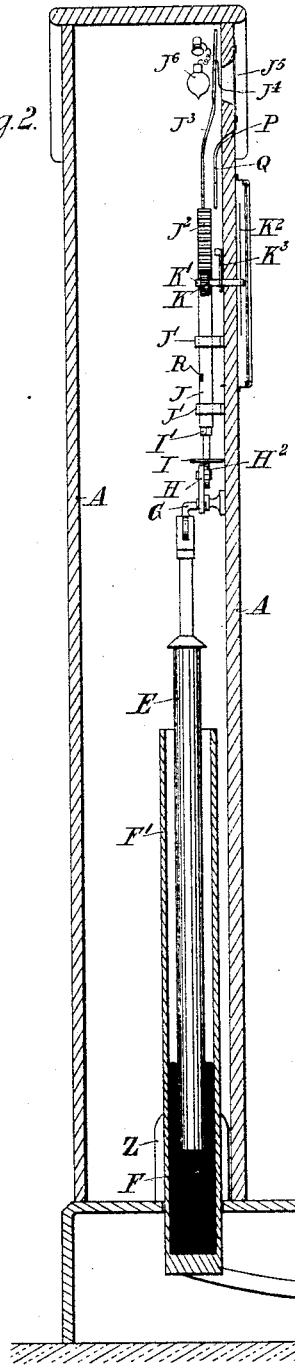
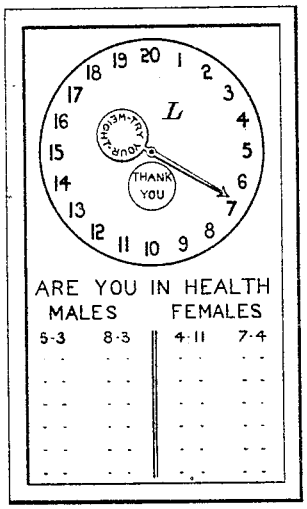


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE EVAN RUTTER, OF LONDON, ENGLAND.

COIN-FREED WEIGHING OR SIMILAR MACHINE.

SPECIFICATION forming part of Letters Patent No. 454,529, dated June 23, 1891.

Application filed November 22, 1890. Serial No. 372,363. (No model.) Patented in England May 16, 1890, No. 7,659.

To all whom it may concern:

Be it known that I, GEORGE EVAN RUTTER, a subject of the Queen of England, residing at Brixton Hill, Surrey, England, have invented certain new and useful Improvements in Automatic or Coin-Freed Weighing or Similar Machines, (for which I applied for Letters Patent in Great Britain May 16, 1890, No. 7,659,) of which the following is a specification.

This invention relates to that class of weighing, strength-testing, or similar machines in which the mechanism is caused or permitted to operate by the insertion of a coin, and will be best understood by reference to the accompanying drawings, in which—

Figure 1 is a back view of the machine, partly in section, and with the back of the casing removed. Fig. 2 is a vertical cross-section; Fig. 3, a partial front exterior view. Figs. 4, 5, and 6 are details of the coin-chute. Fig. 7 is a detail of one form of the freeing mechanism; and Fig. 8 shows the application to a strength-testing machine.

Like letters indicate like parts throughout the drawings.

A is the outer casing or frame-work, and B the rod connecting the weighing mechanism with the platform C.

D is a lever pivoted to the frame at D′, and carrying at its free end a plunger E floating in a mercury bath F carried in a cylinder F′ fixed within the apparatus. As the load forces down the platform the rod B is pulled in the direction of the arrow, thus drawing down the lever D and forcing the plunger E into the mercury bath, which thus provides the necessary counterpoise. This portion of the apparatus is, however, the subject of another application filed by me November 22, 1890, Serial No. 372,362, and need not be further described here; but it should be explained that any other form of counterpoise—such as the ordinary springs or weights—may be employed instead of that shown in these drawings.

The lever D carries a movable stop G, the position of which upon the lever D can be adjusted and fixed by the set-screw G′. Above the point G is a lever H, pivoted to the frame at H′ and carrying at its free end an anti-friction roller H^2, adapted to bear upon the plate I, screwed into the rack-rod J, so that the relative positions can be adjusted and secured therein by the nut I′. The rack-rod J is fitted to work in bearings J′, of which there may be any desired number, and carries the rack J^2, the teeth of which engage with the toothed pinion K, fixed upon the spindle K′, which carries the index K^2 for the purpose of indicating upon the dial L the weight upon the platform C. The rack-rod J carries at its upper end the rod J^3, to which is secured the plate J^4, of glass, porcelain, or other transparent or semi-transparent material bearing the words "Thank you," which may be seen through a glazed or plain opening J^5 in the case. Behind the plate J^4 is a small incandescent lamp J^6, connected by the wire J^7 with the battery Z and by the wire J^8 with the plate J^9, secured to the framing and whose function will be subsequently explained. The spindle K′ also carries the arm K^3, which is normally engaged by the detent M, pivoted to the frame at M′, and serving at its other end as the armature of an electro-magnet N, secured to the frame. This electro-magnet is in direct communication with the battery Z by the wire N′ and with the fixed contact-piece O by the wire N^2. The slit P in the outer casing leads the coin into the coin-chute Q, in passing down which it presses upon the spring-arm Q′, which thus makes electrical contact with the contact-piece O.

The rack-rod J carries a piece of non-conducting material R, Fig. 2, upon which, when the machine is in its normal position and at rest—that is, with the rack-rod J at its highest position—rests the spring-contact S, which is in electrical continuity through its plate J^9 with the wire J^8.

The operation will now be readily understood. As the stop G descends, when the load is placed upon the platform, the arm H also descends by its own weight and the weight of the rack-rod J, which rests upon it. As the rack-rod J descends, its rack-teeth J^2, engaging with the toothed pinion K, revolve the spindle K′ and with it the index K^2, this latter denoting by its position upon the graduated dial the amount of the load upon the platform. Before, however, this movement can take place the arm K^3 must be released from the detent M, and this is accomplished in the following manner: The

coin entering by the slit P falls down the chute Q and presses the spring-contact Q′ against the fixed contact-piece O, which thus permits the current from the battery Z to flow by the wire N′ through the electro-magnet, the fixed contact-piece O, the spring-contact Q′, and the wire Q^2 to the wire J^7, and so back to the battery; or the current may flow in the opposite direction, according to the arrangement of the battery. The electro-magnet M, being thus energized, attracts the armature of the lever M, turning the latter upon its pivot M′ and releasing the arm K^3, which thus allows the spindle K′ to revolve and the previously-described movement to take place. The descent of the rack-rod J has, as already explained, brought the plate J^4 opposite the opening J^5 in the case; or, if preferred, it may simply have removed a shutter from behind the said opening, in which case the words "Thank you" would be placed upon the glass of the opening J^5 or immediately behind it. The descent of the rack-rod J has removed from the spring-contact S the non-conducting piece R, upon which it previously rested, and has thus made electrical contact between the spring-contact S and the rack-rod J. In consequence of this the current from the battery Z passes by the wire J^7 through the lamp J^6, wire J^8, plate J^9, spring-contact S, rack-rod J, bottom bearing J′, and wire J^{10} to the wire N′, by which it returns to the battery. By this means the thank-you plate is illuminated by the lamp J^6.

Upon the removal of the load from the platform C the plunger E is forced up by the return of the counterpoise F to its normal position, the lever D and stop G are raised, carrying with them the arm H, which in its turn restores the rack-rod J and its appurtenances, including the index K^2, to their normal positions, when the spring-contact S again rests upon the non-conducting material R and the lamp J^6 is extinguished.

The current which energized the electro-magnet N ceases to pass as soon as the coin leaves the chute or ceases to press upon the spring-contact Q′; but as the energizing of the electro-magnet is only required momentarily, so as to release the arm K^3, the mere passage of the coin is sufficient to effect this, the load being placed upon the platform before the coin is inserted in the slit P.

Figs. 5 and 6 show an arrangement which can be adopted for the disposal of coins smaller than the standard size, so as to prevent them operating the machine. In Fig. 5 is shown a coin of the proper size bearing against the contact Q′, which in this example need not be a spring, the coin itself completing the circuit through its body between Q′ and the contact-piece Q^3, and thus energizing the electro-magnet N, as before described. In Fig. 6 is shown a coin below the standard size, which has fallen clear of the contact Q′ without operating it, and which thus falls down the chute without releasing the detent M, and, if desired, this smaller coin may be caused to make a distinct contact between Q^3 and Q^4, so as to give a signal or warning or operate any other supplementary device.

In Fig. 7 the releasing mechanism for allowing the indicator to work is shown in a form slightly modified from that previously described. The electro-magnet N, detent-lever M, and arm K^3 are similar; but the rack-rod J is dispensed with, and a cord or equivalent K^4 is substituted. One end of this cord K^4 is attached to the free end of lever H, passes down and round a pulley K^5, then up and round another pulley K^6, secured upon the spindle K′ of the index-hand. At its free end the cord K^4 carries a weight K^7. The opration is the same as with the rack-rod J. Upon the lever H descending the weight K^7 also falls, turning the pulley K^6 round with it, and so turning the index-hand. Upon the return of lever H to its normal position the weight K^7 is lifted by the cord K^4, the pulley K^6 is rotated in the opposite direction, and the index-hand returned to zero. The releasing mechanism by the electro-magnet is exactly the same as in the former case. In this arrangement no means appear for the illumination of the lamp J^6, which may either be dispensed with or illuminated by entirely independent means.

The arrangement shown in Fig. 3 is intended to be similar to that previously described with special reference to Fig. 1 of the drawings, the only difference being that whereas in Fig. 1 the thank-you plate is shown at a higher level than the indicator-dial, in Fig. 3 the thank-you plate appears within the indicator-dial, and is adapted to be ordinarily covered by a shutter fixed on the shorter arm of the indicating-hand. When the hand is turned during the operation of the machine, the thank-you plate is disclosed and the light appears behind it as before.

In Fig. 8 the handle T is connected with the rod T′ operating the lever U and rod W, whose upper end is connected with the lever D, the operation of which has already been explained, and is fully shown in Fig. 1 of the drawings. To use this device, instead of standing upon the platform C the operator takes hold of the handle T and pulls it up, which has the effect of forcing down the lever D, the result being the same as previously described in the case of the weighing-machine.

I claim—

1. In coin-freed mechanism, the combination, with a coin-chute fixed and spring contact-pieces, an electro-magnet connected therewith, and a pivoted detent, of an index-carrying spindle and an arm carried thereby, said detent being arranged to engage said arm to prevent the operation of the indicating mechanism, substantially as described.

2. In coin-freed mechanism, the combination, with the index-carrying spindle having a pinion, of a rack-rod meshing with the pin-

ion and a plate J^4 upon and carried by the rod, substantially as described, and for the purpose set forth.

3. In coin-freed mechanism, the combination, with the index-carrying spindle, of an arm whereby the spindle is prevented from rotating, a toothed pinion, and a rack-rod, the latter carrying plate J^4, substantially as described.

4. In coin-freed mechanism, the combination, with the rack-rod which operates the index-hand, of a thank-you plate and an electric lamp, substantially as described.

5. In coin-freed mechanism, the combination, with the rack-rod which operates the index-hand, of a plate J^4, an electric lamp, and an insulating-block, substantially as described.

6. In coin-freed mechanism, the combination, with the rack-rod which operates the index-hand and carries the thank-you plate J^4 and insulating-block, of a spring contact-piece which is always in contact either with the insulating-block or with the rack-rod, substantially as described.

7. In coin-freed mechanism, the combination of a coin-chute, a detent-operating electro-magnet, a thank-you plate, an electric lamp behind said thank-you plate, a rack-rod insulator-block, and a spring-contact, the whole substantially as described.

8. In coin-freed mechanism, the combination, with the testing mechanism, of a pivoted arm normally resting upon but disconnected from said testing mechanism and having a friction-roller at its free end, upon which rests the rack-rod which operates the index-hand, substantially as described.

9. In coin-freed mechanism, the combination, with the rack-rod which operates the indicating mechanism, and the pivoted arm H, which supports the said rack-rod, of an adjustable table-plate I upon the rack-rod and resting upon the free end of the arm, substantially as and for the purpose described.

10. In a coin-freed mechanism, the combination, with a moving part of the testing mechanism and the indicating mechanism, of a stop G, adjustable upon said moving part, and a supporting-lever for the indicating mechanism, arranged to rest upon said stop, substantially as described.

11. In a coin-freed mechanism, a coin-chute forming part of an electric circuit, in combination with contact-pieces Q' Q^4, arranged above and at one side of the chute at different distances therefrom, whereby an inserted coin will contact with one only of said pieces.

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

GEORGE EVAN RUTTER.

Witnesses:
HENRY HART,
HARRY B. BRIDGE.