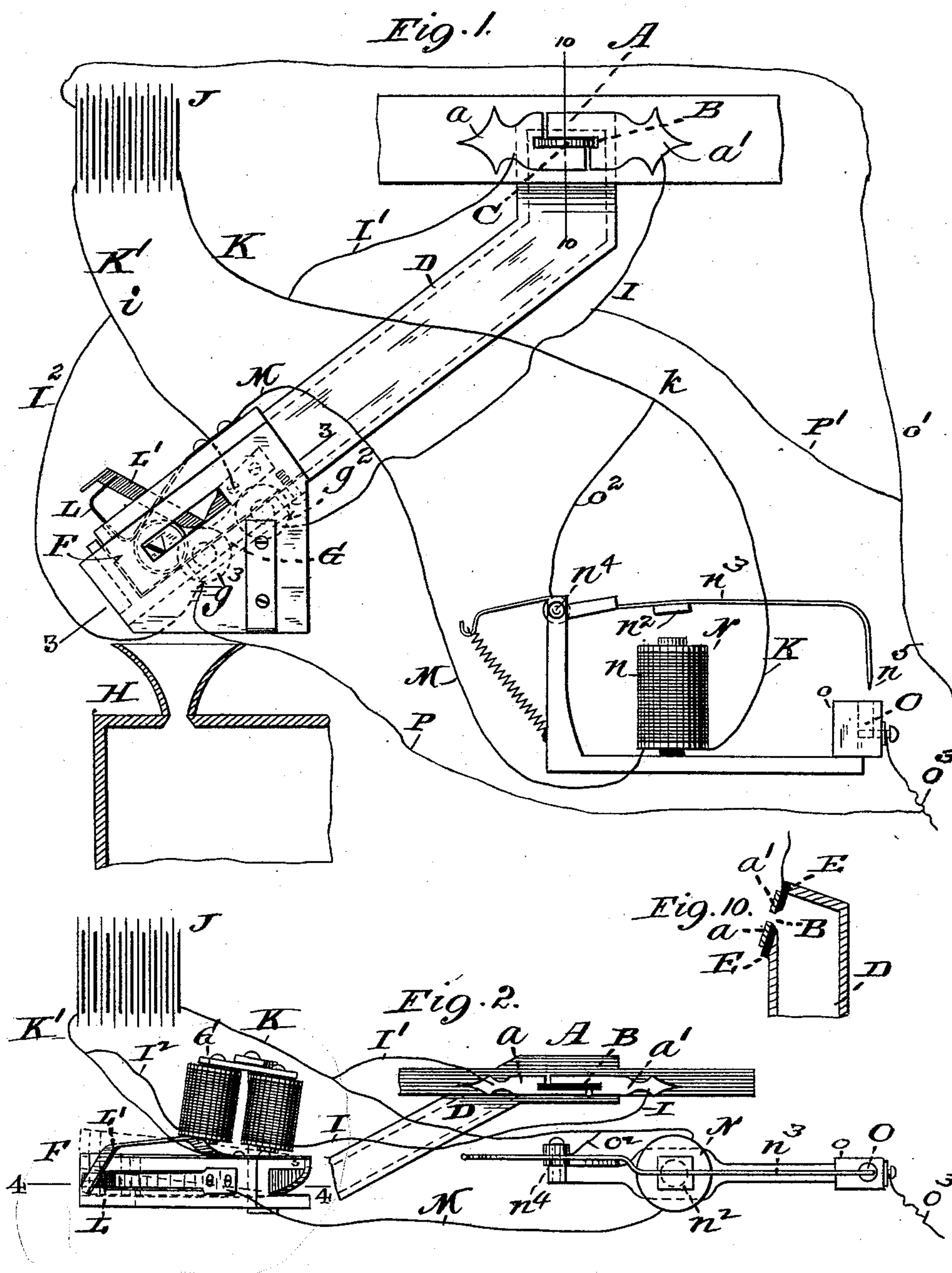


2 Sheets—Sheet 1.

No. 452,068.

Patented May 12, 1891.



WITNESSES  
A. Bonville  
Edward W. Sturcell

INVENTOR  
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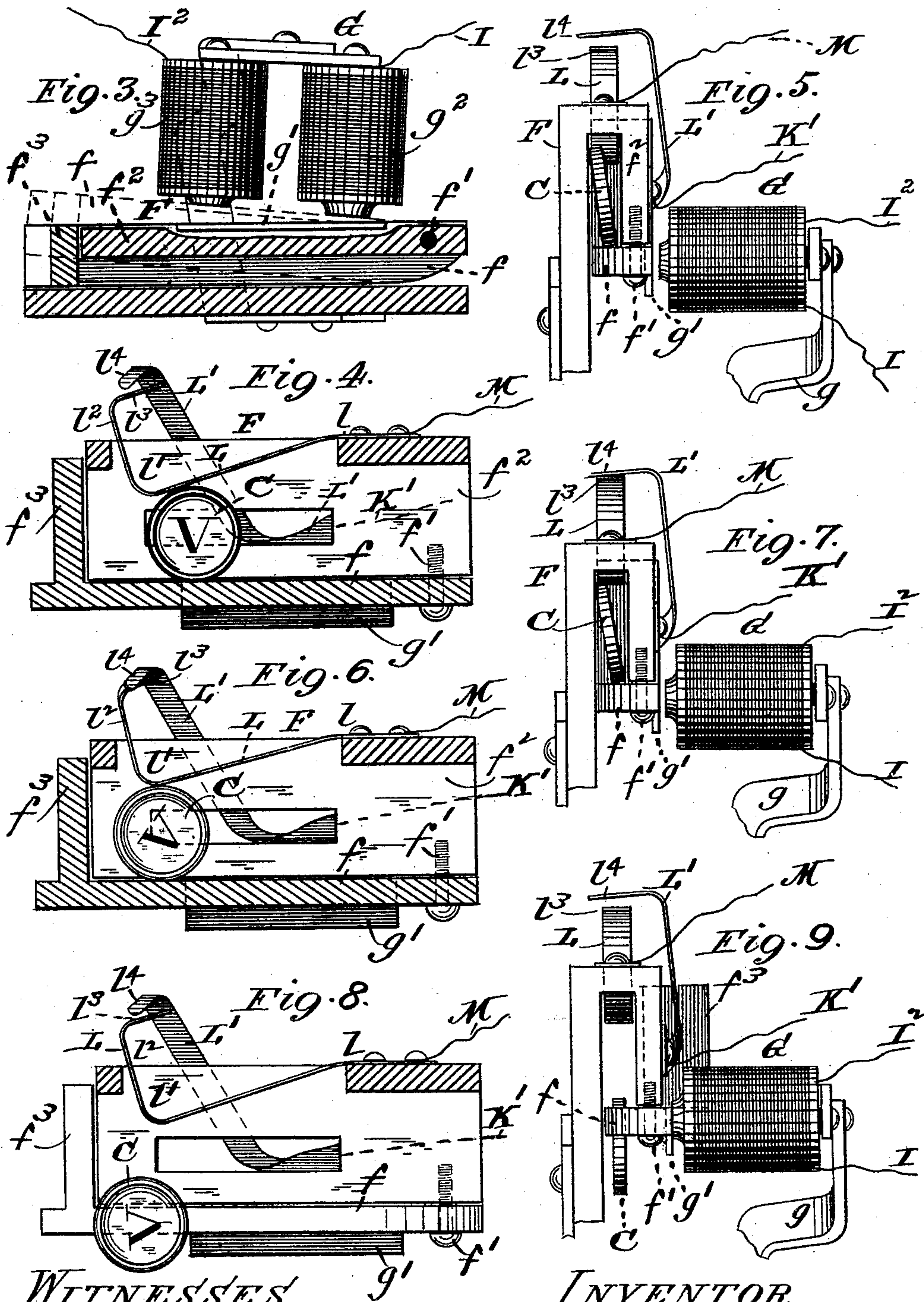
(No Model.)

2 Sheets—Sheet 2.

W. H. ASHWELL.  
COIN OPERATED MACHINE.

No. 452,068.

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# UNITED STATES PATENT OFFICE.

WILLIAM H. ASHWELL, OF ST. LOUIS, MISSOURI.

## COIN-OPERATED MACHINE.

SPECIFICATION forming part of Letters Patent No. 452,068, dated May 12, 1891.

Application filed November 12, 1890. Serial No. 371,144. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. ASHWELL, of St. Louis, Missouri, have made a new and useful Improvement in Coin-Operated Machines, of which the following is a full, clear, and exact description.

The improvement relates more especially to that class of coin-operated machines in which electric currents are employed, and the improvement is applicable to nearly if not quite all such coin-operated machines.

A leading feature of the improvement is the provision whereby the passage traversed by the coin is automatically cleared of obstructions.

Another feature is the provision by which the coin is enabled to effect the operation of an electric current sufficiently strong to accomplish the ultimate movements of machines such as are under consideration.

An additional feature is the means for discharging the coin after it has effected the operation of the electric current, all, together with minor features of the construction, substantially as is hereinafter described and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a front elevation exhibiting a sufficient portion of a coin-operated machine for an understanding of the improvement in question. The receptacle into which the coins may be discharged is shown in vertical section. Fig. 2 is a plan of the parts of Fig. 1, saving the receptacle referred to; Fig. 3, a section on the line 3 3 of Fig. 1; Fig. 4, a section on the line 4 4 of Fig. 2. The coin has entered the chamber which forms the lower end of the passage traversed by the coin and has passed far enough thereinto to come into contact with the movable part of the circuit-closer; Fig. 5, an end elevation looking toward the inlet end thereof of the chamber of Figs. 3 and 4 and the parts being as in Fig. 4; Figs. 6 and 7, views respectively similar to those of Figs. 4 and 5, but showing the coin advanced far enough into the chamber to effect the closing of the parts of the circuit-closer; Figs. 8 and 9, additional views respectively similar to those of Figs. 6 and 7, but showing the coin being discharged from

the chamber and the circuit-closer opened, and Fig. 10 a section on the line 10 10 of Fig. 1. Some of the views are upon an enlarged scale.

The same letters of reference denote the same parts.

In coin-operated machines difficulty is experienced by reason of improper articles being introduced into the passage traversed by the coin in effecting the operation of the machine. Many forms of such improper articles are introduced, and until they are removed they interfere more or less with the proper coin subsequently introduced, and the operation of the machine is accordingly interfered with or arrested. I overcome the difficulty referred in the following manner substantially:

A represents the escutcheon or plate which contains the slot B, which is the inlet through which the coin C is introduced into the passage D. The novel feature of the inlet is the division of the escutcheon or plate into separated parts *a a'*, which in themselves are suitable conductors of an electric current, but which by means of suitable non-conductive material E are electrically insulated. The passage D leads downward to cause the coin delivered into the upper end of the passage, as described, to roll or slide downward and be delivered into a chamber F, which forms or is at the lower end of the passage. Whatever is introduced through the slot B finds its way into this chamber, and whether it is a proper coin or whether it is any article or other coin improperly in the chamber it must be removed from the chamber to enable the subsequently-introduced proper coin to act. To this end the chamber is so contrived that it may open and its contents be discharged whenever the proper coin is inserted in the slot at the upper end of the passage, and this is accomplished, preferably, in the following manner: By causing the proper coin as it is introduced into the slot B to serve as a circuit-closer by coming into contact with both of the escutcheon parts *a a'* simultaneously and thereby causing an electric current to pass through the escutcheon parts and coin and to actuate a magnet which in turn coacts



with an armature attached to the movable part of the chamber, and in consequence causes such movable part to move and open the chamber and thereby effect the discharge  
5 of the contents of the chamber.

G represents a suitable magnet for the purpose in question. It is suitably supported, as by means of the arm  $g$ , from some fixed part of the construction. The armature  $g'$  is  
10 secured to the bottom  $f$  of the chamber F. Said bottom is pivoted at  $f'$  to the side  $f^2$  of the chamber, thereby adapting it to be swung aside, as indicated by the broken lines in Fig. 3. The lower end wall  $f^3$  of the chamber is  
15 preferably attached to said bottom and moves with it. As the bottom is thus drawn side-wise whatever is resting upon it is, by coming against the side  $f^2$  of the chamber, dislodged from off the bottom to drop into any suitable  
20 receptacle H.

The preferable method of operating the magnet G is as follows: I represents the wire connecting the escutcheon part  $a'$  with the pole  $g^2$  of the magnet. I' represents an-  
25 other wire leading from the escutcheon part  $a$ . It does not lead directly to the other pole  $g^3$  of the magnet, but through the battery J and thence to the magnet, and preferably as follows: The wire I' leads to the wire K  
30 and thence along that wire to the battery. From the battery the current passes along a wire K' and at a point  $i$  thereon the current is taken onto a wire I<sup>2</sup>, which leads to the pole  $g^3$  of the magnet. By this means  
35 or by any other equivalent means a proper coin—say a nickel—when introduced into the slot B, as shown in Fig. 1, serves to close the described circuit, and the magnet G, before the coin can reach the chamber F, acts  
40 not only to effect the opening of the chamber and to discharge its contents, but also to allow of the chamber being closed again, for as soon as the coin has passed the escutcheon parts the circuit opens again and the magnet  
45 in consequence ceases to act upon the chamber-bottom, whereupon a suitable means—such as a spring not shown—acts to effect the closing of the chamber-bottom, and all before the coin finds its way into the chamber.

50 On reaching the chamber the coin C effects the closing and opening of another electric circuit. In performing this last-mentioned work the coin does not act as an electric conductor, but as a means for moving another  
55 part which in turn effects the closing and opening of the circuit last referred to. This is accomplished by means of some dimension of the coin—that is, its thickness or its diameter. Its diameter is preferably uti-  
60 lized in the following manner: The coin rolls along upon the chamber-bottom  $f$  until its upper edge encounters a light springy strip L, Figs. 4 and 5, of metal suitable for conducting an electric current and attached  
65 at one end  $l$ , say, to the chamber F or other support. The other end  $l'$  of the strip is free, and the shape, stiffness, and weight of

the strip are such that in connection with the weight of the coin and the position of the chamber-bottom the coin as it continues to  
70 descend in the chamber is enabled to wedge the strip upward or so as to cause the free end of the strip to come into contact with another conductor L', and thereby effect the closing of  
75 the last-named circuit. To more effectually carry out this particular part of the construction the end  $l'$  of the strip is turned upward at  $l^2$  and then backward at  $l^3$ , and the part L' is not strictly a fixed part, but is preferably a  
80 strip of springy material having a free end  $l^4$ , adapted to form a contact for the strip L and to yield slightly as such contact is made, by which means the coin in its action can more  
85 surely effect the desired closing of said circuit. This last-described position of the coin and circuit-closer is represented in Figs. 6 and 7. The coin has uplifted the free end of the strip  
L, and the circuit last referred to is closed. The chamber F, or so much of it as the coin comes  
90 in contact with at the time it is effecting the closing of the circuit is of non-electric conductor material to prevent the electric current from passing in the wrong direction. The  
95 electric current referred to is preferably derived from the same battery J, and it is conducted, preferably, in the following manner: The current passes along the wire K' to the  
strip L'. Another wire M leads from the strip L to one pole  $n$  of a magnet N. The wire K,  
100 which, as stated, connects with the battery, leads to the other pole of the magnet N. Hence when the strips L L' are brought into contact the magnet N is excited and acts to draw its armature  $n^2$  toward it. This last-  
105 named armature is attached to an arm  $n^3$ , which is pivoted at  $n^4$ , and whose free end  $n^5$ , when the armature is drawn toward the magnet, forms a contact with mercury O in a cup  
o. By this means another heavier electric circuit is closed, and preferably as follows: 110  
The current, as before, is derived, preferably, from the same battery J. The magnet used in said heavier circuit is not shown, but the current is conducted to its poles from the bat-  
115 tery by means of a wire  $o'$ , which leads from the battery to one of said poles, and to the other of said poles the course is from the bat-  
120 tery along the wire K to the point  $k$  thereon, and thence along a wire  $o^2$  to the arm  $n^3$ , thence along said arm to the mercury O and cup o, and thence onto a wire  $o^3$ , which leads to said last-named pole. As this last-re-  
125 ferred-to magnet is in its size, style, location, and immediate connections and surroundings variously constructed, arranged, and modified according to the various forms of duty  
to be performed by it, and as for the purposes of the present application it is unnecessary,  
and as one such construction is set forth in a pending application for Letters Patent, Serial  
130 No. 371,731, filed November 17, 1890, I do not here exhibit anything in addition to the wires leading to the magnet last referred to; but whatever mechanism the present improve-



ment may be associated with it is desirable that the coin be discharged from the chamber F after the described contact of the parts L' L has been effected. To this end the last-described circuit is brought into requisition, and preferably in the following manner: P represents a wire leading from the wire  $o^3$  to one of the poles of the magnet G, and P' represents another wire leading from the wire  $o'$  to the other pole of the magnet G. Hence as soon as the current flows along said wires  $o' o^3$  the magnet G is excited and its armature is drawn, as before, to effect the opening of the chamber F, and thereby to discharge the coin, as before. I desire not to be limited in effecting the last-described movement to any special means for conducting the current to the magnet G, and said wires P P', in place of leading directly to the magnet G, may connect with other wires, respectively, which in turn lead to the poles, respectively, of said magnet. The magnet N is in effect a relay-magnet, and its value in the present connection consists in this: The momentum of the coin as it passes through the machine is usually insufficient to effect the operation of a circuit-closer of an electric circuit strong enough to accomplish the various operations which coin-operated machines are required to perform. While such momentum is occasionally great enough to accomplish the movement of a circuit-closer whose parts in size and weight are proportioned to the strength of the circuit referred to, it cannot be relied upon. I overcome the difficulty by means of the described interposition of a lighter circuit whose circuit-closer the coin in its movement can surely operate, and then utilizing said lighter circuit to effect the closing of a heavier circuit beyond.

It will be observed that the chamber into which the coin finds its way must be both opened and closed during the interval which occurs between the introduction of the coin into the slot at the upper end of the passage and the arrival of the coin at the lower end of the passage. This interval, therefore, must be sufficiently prolonged to enable the chamber to be thus opened and closed. To this end the passage which the coin traverses is made sufficiently circuitous, as by inclining the passage sidewise as well as downward, as described, to retard the movement of the coin long enough to give time for said chamber to be closed after the coin has entered the passage at the upper end thereof.

I claim—

1. In a coin-operated machine, a coin-slot in separated electrically-insulated parts, for the purpose described.

2. In a coin-operated machine, the combination of the coin-slot, a chamber into which the coin passes after leaving said slot, and a magnet, said slot being in separated electrically-insulated parts, said chamber having a

movable part for the purpose described, and provided or connected with an armature which coacts with said magnet, and the poles of said magnet, respectively, being electrically connected with said slot parts, respectively, for the purpose described.

3. In a coin-operated machine, the combination of the coin-slot, a passage beyond said slot, to which said slot is an inlet, a chamber at the lower end of said passage, and a magnet, said slot being in separated electrically-insulated parts, said chamber having a movable part, for the purpose described, and provided or connected with an armature which coacts with said magnet, and the poles of said magnet, respectively, being electrically connected with said slot parts, respectively, for the purpose described.

4. In a coin-operated machine, a coin-slot and a magnet, said coin-slot being in separated electrically-insulated parts and the poles of said magnet being electrically connected with said slot parts, respectively, for the purpose described.

5. In a coin-operated machine, the combination of the coin-slot, a passage beyond said slot, to which said slot is an inlet, a chamber forming or at the lower end of said passage, and a magnet, said slot being in separated electrically-insulated parts, said chamber having a movable part, for the purpose described, and provided with or connected with an armature which coacts with said magnet, the poles of said magnet being electrically connected with said slot parts, respectively, and said passage being inclined downward and extended to said chamber, substantially as and for the purpose described.

6. In a coin-operated machine, the combination of the coin-slot, a chamber into which the coin passes after leaving said slot, a magnet, and a battery, said slot being in separated electrically-insulated parts, said chamber having a movable part, for the purpose described, and provided or connected with an armature which coacts with said magnet, and the poles of said magnet being electrically connected with said slot parts, respectively, and with said battery, substantially as described.

7. The combination, in a coin-operated machine, of a passage which is traversed by the coin, a relay-magnet, and a circuit-closer for said magnet, the parts of said circuit-closer being electrically connected with the poles, respectively, of said magnet, and one of said circuit-closer parts being in the path of the coin traversing said passage, for the purpose described.

8. The combination, in a coin-operated machine in which electric currents are employed, of a lighter circuit and a heavier circuit, said lighter circuit having its circuit-closer in the path traversed by the coin, substantially as described, and for the purpose set forth.

9. The combination, in a coin-operated machine, of the passage traversed by the coin, a relay-magnet, and a heavier circuit, the circuit-closer of said relay-magnet being in the  
5 path of said coin, substantially as described.

10. A coin-operated machine in which electric currents are employed, having a relay-magnet whose circuit-closer is actuated by

the coin in its movement through the machine, substantially as described. 10

Witness my hand this 10th day of November, 1890.

WILLIAM H. ASHWELL.

Witnesses:

C. D. MOODY,

A. BONVILLE.