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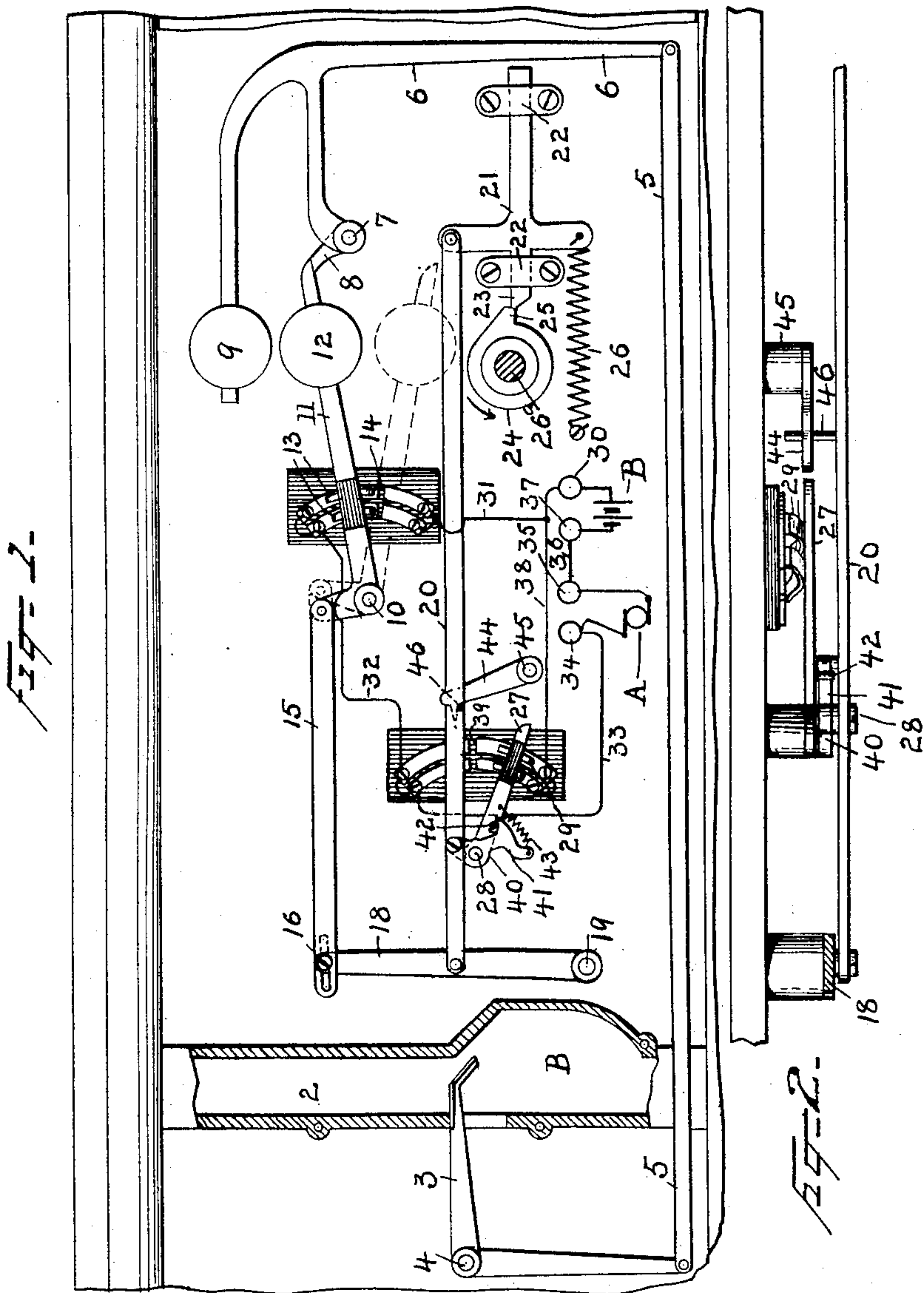
Patented Nov. 7, 1899.

A. E. WATKINS.
COIN CONTROLLED MECHANISM.

(Application filed Nov. 14, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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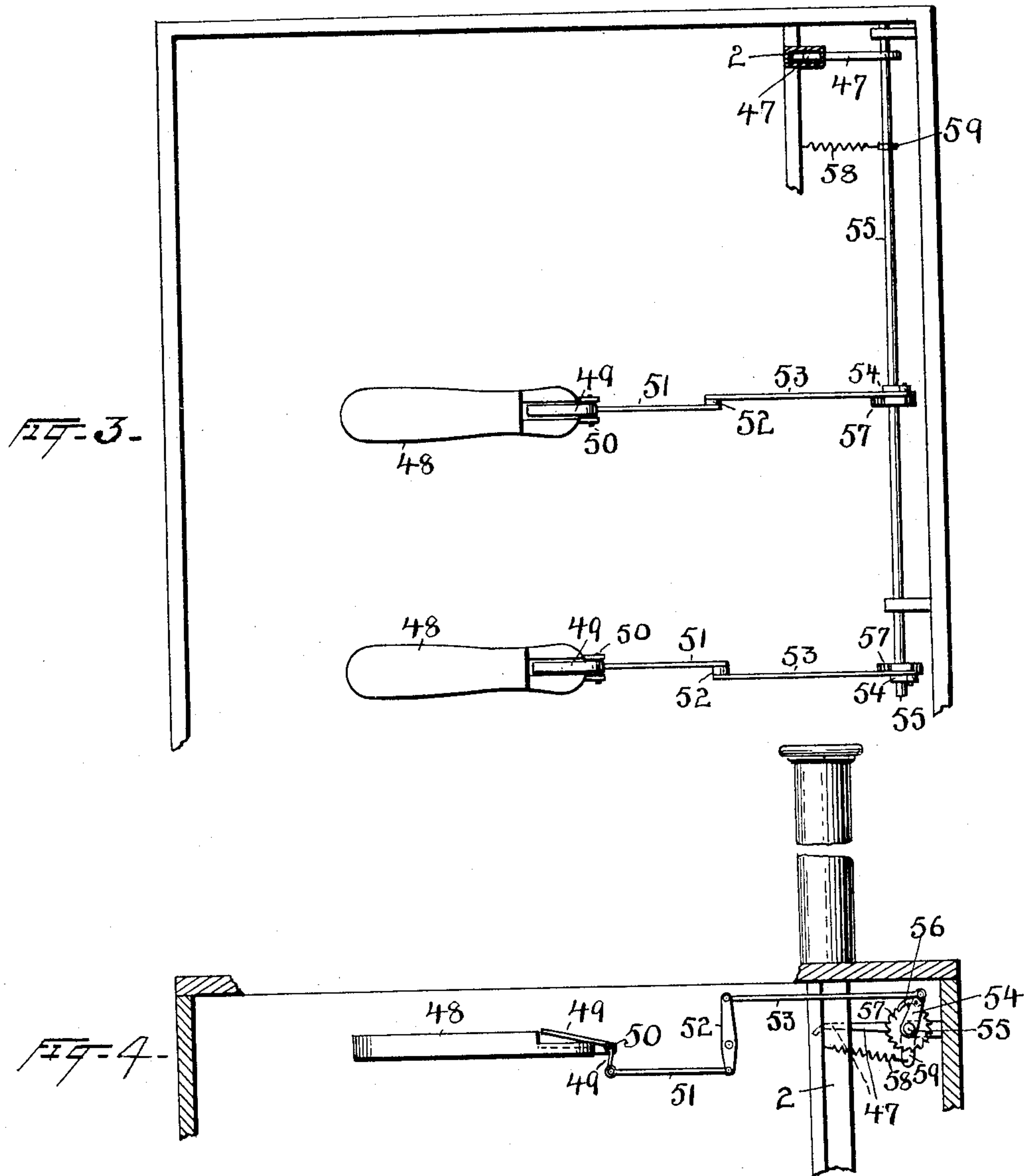
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2 Sheets—Sheet 2.

(No Model.)



UNITED STATES PATENT OFFICE.

ALFRED E. WATKINS, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF SEVEN-EIGHTHS TO BERNARD F. SEADLER, OF NEW YORK, N. Y.

COIN-CONTROLLED MECHANISM.

SPECIFICATION forming part of Letters Patent No. 636,420, dated November 7, 1899.

Original application filed February 23, 1898, Serial No. 671,252. Divided and this application filed November 14, 1898. Serial No. 696,347. (No model.)

To all whom it may concern:

Be it known that I, ALFRED E. WATKINS, of Jersey City, Hudson county, New Jersey, have invented a new and useful Improvement in Coin-Controlled Mechanism, of which the following is a specification.

My invention relates generally to coin-operated devices for controlling automatic machinery, and more particularly to devices whereby a coin is made to operate mechanism for closing and opening the circuit through an electric motor which actuates the machinery.

My invention has for its object to improve and simplify coin-operated devices to render them more certain in operation.

It consists in the devices herein shown and described.

This is a divisional application of application Serial No. 671,252, filed by me February 23, 1898, for boot and shoe polishing machines.

In the drawings forming part of this specification, in which like reference letters and numerals designate like parts in the several views, Figure 1 is a front elevation of coin-operated devices embodying my invention in its preferred form. Fig. 2 is a plan of a detail of the same. Fig. 3 is a plan of stop mechanism for preventing the coin from actuating the mechanism, and Fig. 4 is a vertical section through the same.

The coin-operated devices are as follows: A coin is dropped through slot 2 and strikes an arm of bell-crank lever 3, which projects through an opening in the wall of the slot. Bell-crank 3 is pivoted at 4 and at its other end is pivotally secured to rod 5. Rod 5 is pivotally secured to frame 6. This frame 6 is pivoted at 7 and carries a toe 8 and a weight 9. The long arm of bell-crank 11, which is pivoted at 10 in the framework of the machine and which carries weight 12, rests normally on toe 8. When the coin is dropped, it presses the end of bell-crank 3 and pulls toe 8 upward from under the end of arm of bell-crank 11, thus permitting the bell-crank 11 to fall. In its downward movement through brushes 13 the bell-crank closes the break 14 in the circuit through the electric motor and starts the operation of the ma-

chine. The circuit through the motor is not shown in full detail, as it may be constructed in any suitable manner. There is preferably a rheostat and governor of suitable construction in the circuit with the motor. Toe 8 acts as a stop to hold circuit-controller 11 open and is withdrawn by the coin falling upon bell-crank 3. After depressing bell-crank 3 the coin falls into the chamber B, and through weight 9, the bell-crank 3, toe 8, and intermediate connections are immediately restored to their normal operative position.

In practice I have found it expedient to cause bell-crank 11 to be promptly restored to its normal position after falling, so that the end of its long arm will again rest upon toe 8, as shown in the drawings. This is accomplished by means of the following-described mechanism: Secured to the short arm of bell-crank 11 is rod 15. The other end of this rod is pivoted at 16 to the upper end of lever 18, fulcrumed at 19. A rod 20 is pivotally secured to this lever at or near its center and is secured at its other end to frame 21, adapted to slide in guides 22. This frame has a nose 23, which bears against cam 24 or its toe 25, against which it is pressed by a spring 26, fastened to frame 21. Cam 24 is mounted on shaft 26^a, which is driven by motor A, either directly or indirectly. As the motor stops at each revolution of cam 24 the gearing between it and the motor is so adjusted that the cam will have made one revolution when it is desired that the motor shall stop.

When the machine is at rest, toe 25 of cam 24 rests against nose 23 of frame 21 and keeps that frame pressed back, with spring 26 stretched. As soon as the machine begins to operate cam 24 begins to rotate in the direction shown by the arrow. Nose 23 soon drops off from toe 25, whereupon spring 26 pulls frame 21 and rod 20 to the left, as seen in Fig. 1, the rod 20 pushing lever 18 in the same direction through rod 15, pulling bell-crank 11 upward into its original position, with the end of the long arm resting upon and held by toe 8. The circuit is thus broken at 14 shortly after the machine commences its operation.

In order, however, to preserve the circuit unbroken through the electric motor, I provide another and second circuit-controller besides lever 11 and its brushes 13, arranged in circuit with the motor, but also arranged in a parallel branch circuit with but not including the first controller. This second circuit-controller is the arm 27, pivoted at 28, carrying brushes 29. The circuit through the motor, with its two branches, one through each of the circuit-controllers, is as follows: from one pole of the source of electrical energy, here shown as a battery B, to binding-post 30, to wire 31, brushes 13, wires 32 33, to binding-post 34, then through motor A, binding-post 35, wire 36, binding-post 37 back to the other pole of the battery. The circuit through the second branch is as follows: binding-post 30, wire 38, brushes 29, wire 33, and back again, as before. When a coin depresses arm 3, the circuit is closed through the first branch and the motor is started; but almost immediately thereafter the circuit is broken at 14 by the rising of bell-crank 11, as already described. Before this break occurs, however, the circuit through the second branch is closed at 39 by the rising of arm 27 and its brushes 29, as will be now described, thus uninterruptedly maintaining the circuit through the motor. Loosely mounted on pivot 28 is bell-crank 40, one end of which is pivoted to rod 20. The other end has a forked arm 41 bearing against pin 42 on arm 27 and has a spring 43, also fastened to arm 27. As rod 20 is pressed to the left when nose 23 slips off toe 25 bell-crank 40, through arm 41 and pin 42, forces arm 27 and its brushes 29 upward until the end of arm 27 rests upon and is held by a stop 44, loosely pivoted at 45, at which time brushes 29 close break 39 in the second branch. Arm 27 and brush 29 are held in this position by stop 44 until released, as hereinafter described. Thus the circuit through the motor is maintained at 39.

The motor is stopped when desired by breaking the circuit in the following way: Cam 24 is rotating slowly all the time the motor is running. When it has nearly completed one revolution, the cam-surface of toe 25 begins to push frame 21 to the right, as seen in Fig. 1. This draws rod 20 to the right and forces bell-crank 40 downward, but as arm 27 is caught by stop 44 spring 43 is strained until a pin 46 on rod 20 in its movement to the right trips stop 44, whereupon arm 27 and brushes 29 fly downward, breaking the circuit at 39 so quickly that all danger of sparking is avoided. The circuit being thus broken in both branches the motor stops for want of current.

In Figs. 3 and 4 I have shown a stop for preventing the coin from actuating the motor and other mechanism until the shoes to be blacked by the polishing-machine have been placed in the proper position in the machine. I will now proceed to describe this mechanism.

47 is a stop adapted to project into a slot 2 of the machine. This stop normally projects into the slot and prevents the coin from proceeding farther down the slot or chute until it is withdrawn in the following-described manner: The means for withdrawing the stop in order to permit the coin to fall farther to actuate the devices are operated by the placing of the shoe to be blacked in proper position upon the foot-rests 48 and preferably not until after both shoes have been placed upon these foot-rests and have been placed there successively. Upon each foot-rest is placed a lever 49, fulcrumed at 50, at the rear of the foot-rest. These levers 49 are held normally in their upper position, as shown in Fig. 4, and are adapted to be depressed by the shoe or foot. When thus depressed, the bell-crank lever 49, through rod 51, lever 52, rod 53, arm 54, loosely mounted on shaft 55 and provided with a pawl 56, causes ratchet-wheel 57, rigidly mounted on shaft 55, to be fed forward a certain distance. This motion of the ratchet-wheel slightly rotates shaft 55 and throws downward a certain distance stop 47, which is rigidly fastened to the shaft 55. This movement is so regulated as not to remove stop 47 entirely from slot 2, but to move it slightly downward, so that it will still act as a stop to any coin that may happen to be placed in the chute. The purpose of this is to prevent the mechanism from being actuated by the placing of the first foot on the foot-rest. When the second foot is placed upon the second foot-rest, its lever 49 is similarly depressed, and thus, through another series of rods and levers 51 52 53 54 and pawl 56, rotates another ratchet-wheel 57, rigidly secured to shaft 55. This throws stop 47 still farther downward, permitting the coin to descend down slot 2, so as to strike lever 3 and actuate the machine, as above described.

My device shown in Fig. 1 is intended for use with any mechanism which it is desirable to drive by an electric motor.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a coin-controlled apparatus, the combination with an electric motor and a circuit through the motor, of a circuit-controller adapted to close the circuit through the motor to set said motor in operation, a stop for holding said circuit-controller open, means actuated by a coin to withdraw the stop and permit the circuit-controller to close, means for returning the stop to its operative position to hold the circuit-controller open, a second circuit-controller in a branch circuit through the motor parallel to but not including the first circuit-controller, and adapted when closed to close the circuit through the motor, means actuated by the motor for closing the second circuit-controller before the first circuit-controller is opened, whereby the circuit through the motor will be uninterruptedly maintained, and means for open-

ing said circuit-controller to break the circuit through the motor when it is desired that the motor shall stop, substantially as set forth.

2. In a coin-controlled apparatus, the combination with an electric motor and a circuit through the motor, of a circuit-controller adapted to close the circuit through the motor to set said motor in operation, a stop for holding said circuit-controller normally open, 5 a lever projecting into a coin-chute and adapted to be depressed by a coin passing through the chute, connections between the lever and stop whereby the latter will be withdrawn to permit the circuit-controller to close whenever the lever is depressed by a coin, means 10 for returning the stop to its operative position to hold the circuit-controller open, a second circuit-controller in a branch circuit through the motor parallel to but not including the first circuit-controller, and adapted 20 when closed to close the circuit through the motor, means actuated by the motor for closing the second circuit-controller before the first circuit-controller is opened, whereby the circuit through the motor will be uninterruptedly maintained, and means for opening the 25 said circuit-controller to break the circuit through the motor when it is desired that the motor shall stop, substantially as set forth.

3. In a coin-controlled apparatus, the combination with an electric motor and a circuit through the motor, of two circuit-controllers in said circuit, arranged in parallel branches thereof, each adapted upon closing to close 35 the circuit through the motor, the first circuit-controller adapted to close the circuit through the motor but normally restrained from closing the circuit by a stop, a stop for normally holding said circuit-controller open, 40 means adapted to be actuated by the passage of a coin through a coin-chute to withdraw the stop and to close the circuit and start the motor in operation, means for opening said circuit-controller after the motor has started, 45 means actuated by the motor to close the second circuit-controller before the first circuit-controller is opened, whereby the circuit through the motor will be uninterruptedly maintained, and means for opening said 50 second circuit-controller to break the circuit when it is desired that the motor shall stop, substantially as set forth.

4. In a coin-controlled apparatus, the combination with an electric motor and a circuit 55 through the motor of two circuit-controllers therein arranged in parallel branches of said circuit, each adapted upon closing to close the circuit through the motor, a stop for normally holding the first circuit-controller open, 60 a lever projecting into a coin-chute and adapted to be depressed by a coin passing through the chute, connections between the lever and the stop whereby the latter will be withdrawn to permit the first circuit-controller to close 65 whenever the lever is depressed by a coin, means for opening the said circuit-controller

after the motor has started, means actuated by the motor for closing the said second circuit-controller and adapted to close the second circuit-controller before the first circuit-controller is open, whereby the circuit through 70 the motor will be uninterruptedly maintained, and means for opening the said second circuit-controller to break the circuit and stop the operation of the machine, substantially 75 as described.

5. In a coin-controlled apparatus, the combination with an electric motor, and a circuit through the motor, of two circuit-controllers arranged in parallel branches in said circuit, 80 each adapted upon closing to close the circuit through the motor, a stop for normally holding the first circuit-controller open, a lever projecting into a coin-chute and adapted to be depressed by a coin in its passage through 85 the chute, connections between the lever and the stop whereby the latter will be withdrawn to permit the circuit-controller to close whenever the lever is depressed by a coin, means 90 actuated by the motor for opening the first circuit-controller, means for returning the stop to its operative position to hold the first circuit-controller open, means actuated by the motor for closing the second circuit-controller 95 before the first circuit-controller is opened, whereby the circuit through the motor will be uninterruptedly maintained, a spring fastened to the said second circuit-controller, means for stretching said spring 100 so as to cause it to exert a pull upon the said circuit-controller to tend to open it, a stop adapted to catch said second circuit-controller as it closes and to hold it closed against the action of the spring, and means 105 actuated by the motor for tripping said stop, whereby the second circuit-controller will certainly break the circuit, substantially as described.

6. In a polishing-machine, the combination with devices for putting the machine into op- 110 eration, adapted to be actuated by the dropping of a coin in a slot, of a stop for the coin adapted normally to prevent the coin from actuating the said devices, and means for withdrawing the stop in order to permit the 115 coin to actuate the devices, operated by the placing of a shoe to be blacked in proper position in the machine, substantially as set forth.

7. In a polishing-machine, the combination 120 with devices for putting the machine into operation, adapted to be actuated by the dropping of a coin in a slot, of a stop for the coin adapted normally to prevent the coin from actuating the said devices, a lever adapted to 125 be depressed by the foot when placed in position for blacking and connections between the lever and the stop whereby the latter will be withdrawn to permit the coin to actuate the said devices when the said lever is de- 130 pressed by the foot, substantially as set forth.

8. In a polishing-machine, the combination

with devices for putting the machine into operation, adapted to be actuated by the dropping of a coin in a slot, of a stop for the coin adapted normally to prevent the coin from
5 actuating the said devices, a lever for each foot adapted to be depressed by said foot as it is placed in position for blacking, connections between the levers and the stop whereby the latter will be withdrawn to permit the
10 coin to actuate the said devices when said

levers have been successively depressed, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED E. WATKINS.

Witnesses:

EDWIN SEGER,

GEO. W. MILLS, Jr.