(No Model.) 2 Sheets—Sheet 1.

F. MARTIN.

COIN CONTROLLED PHOTOGRAPH APPARATUS.

No. 456,673. Patented July 28, 1891.

Fig. 1.

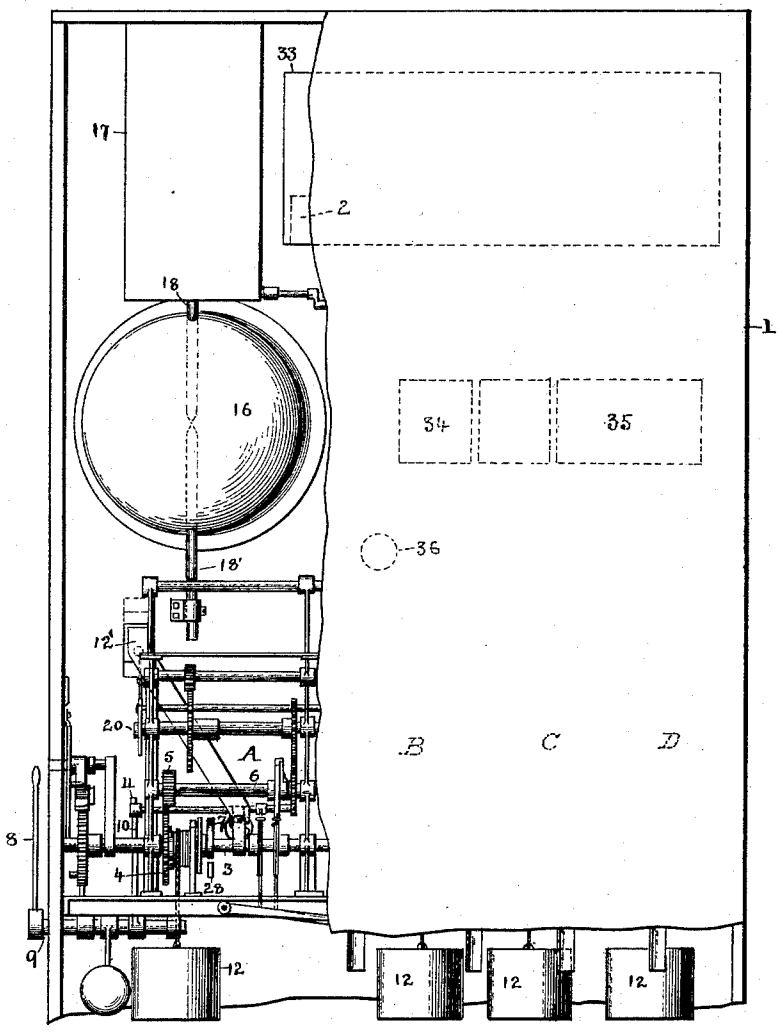
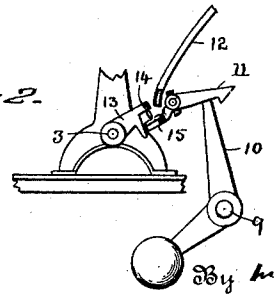


Fig. 2.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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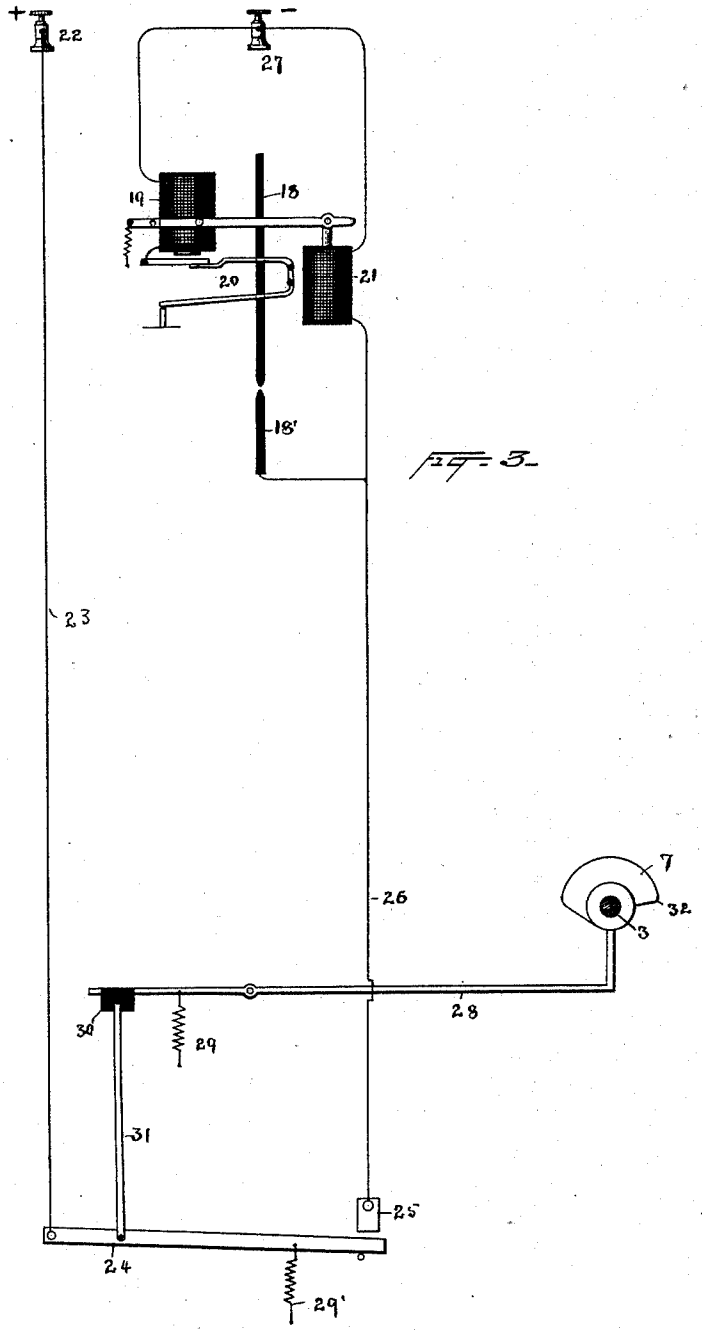

Fig. 3.

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UNITED STATES PATENT OFFICE.

FRANK MARTIN, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO PIERRE V. W. WELSH AND WILLIAM F. FREEMAN, BOTH OF NEW YORK, N. Y.

COIN-CONTROLLED PHOTOGRAPH APPARATUS.

SPECIFICATION forming part of Letters Patent No. 456,673, dated July 28, 1891.

Application filed April 8, 1891. Serial No. 388,121. (No model.)

To all whom it may concern:

Be it known that I, FRANK MARTIN, a citizen of the United States, residing in Newark, county of Essex, and State of New Jersey, have invented a certain new and useful Improvement in Coin-Controlled Photograph Apparatus, of which the following is a specification.

The object of this invention is to provide practical means for applying an electric light in a simple and efficient manner to that class of machines in which photographs are taken and prepared, the use of machines being controlled by a suitable coin deposited therein.

In the accompanying drawings Figure 1 is a rear view of an apparatus of the character indicated, a part of the casing being broken away to show the interior mechanism; Fig. 2, a detail view of the coin apparatus; and Fig. 3 is a view, partly in diagram, showing the circuits through the lamp and through the circuit-changer and the means for operating the circuit-changer.

I have shown my improvement applied to the machine set forth in patent to Fisher and McFarlane, No. 444,488, January 13, 1891. Said apparatus comprises in general terms a suitable plate-holder that is loaded with a number of prepared plates upon which the pictures are to be taken, a camera to which the plates are passed from the plate-holder and in which they are exposed, a flash-light, and a series of plate-carriers which take the plates after they have been exposed in the camera and cause them to be subjected first to a suitable developer, then to be washed, then to be subjected to a fixing-solution, then to be washed again, and, finally, to be ejected from the machine, these various operations taking place automatically, and the entire mechanism is adapted to be put in operation by a single movement of a lever after a coin of the required value has been put in the machine. In said apparatus the light is furnished by an alcohol-lamp onto which a quantity of magnesium or similar powder is dropped at the proper time, said lamp being ignited by a smaller alcohol-lamp, which is kept continuously burning and which is moved toward and away from the larger lamp for this purpose, the large lamp being extinguished by a cap brought down onto the flame by suitable mechanism. This lighting arrangement is found quite effective in actual use, but is open to the objection that it is expensive, owing to the materials employed, and is complex in construction, and therefore liable to get out of order.

The main feature of my improvement is the combination, with an apparatus of the character described, of an arc lamp and a circuit-changer or circuit-closer so arranged that the circuit-changer shall be operated by the motor mechanism, controlled by the coin-operated mechanism, at the proper time to illuminate the person sitting before the camera while the shutter is open.

In the accompanying drawings, 1 represents a casing within which the mechanism of the machine is inclosed. Arranged within this casing is the clock-work mechanism by which the various parts of the apparatus are put in motion. This clock-work mechanism is divided into several parts, and is so arranged that the parts operate successively, the operation of one beginning just as or before the opposite one ceases. These several parts of the clock-work are indicated as A, B, C, and D. Since this mechanism may be constructed as fully set forth in the patent above referred to, it is considered unnecessary to show or describe the same in detail.

In Fig. 1 the propelling-weights of the motors A B, &c., are shown at 12. Clock-work A, which is the first to operate, controls the plate-reservoir 2, and feeds the plates to the camera, exposes them therein, operates a circuit-changer or circuit-closer, and discharges the plate from the camera. The other clock-works then operate one after the other to develop, wash, fix, and eject the picture, these operations being performed in the manner set forth in said patent.

The mechanism of the first motor will be briefly described.

12 is the motor-weight, which is connected by a rope to a drum mounted on shaft 3, and tending, when in the position shown, to cause said shaft to rotate, such movement, however, being prevented by any suitable detent. On shaft 3 is a gear 4, which engages with a gear 5 on shaft 6, and this shaft is in turn geared

with shaft 20. On shaft 3 is placed a cam 7, for a purpose hereinafter described.

8 is a lever on shaft 9, for simultaneously winding all of the weights 12. The shaft 9 has secured to it an arm 10, that is normally engaged by a catch 11.

12′ is a coin-chute that has its receiving end in a position to receive a coin from the outside of the casing. This chute terminates near the shaft 3. Upon said shaft is a projecting arm 13, having a stud 14 that projects above the coin-holder 15. When a coin is inserted it passes through the coin-chute and drops upon the coin-holder just below the arm 13. When a coin is deposited and the handle 8 moved, the latch 11 is raised and the motors wound.

Above the reflector 16 is a case 17, which incloses an arc lamp, 18 being the movable carbon, which is fed forward as it is consumed. The lamp is shown diagrammatically in Fig. 2, in which 19 is the series-magnet of the lamp, 20 the clutch for the movable carbon, which is raised by said magnet 19 to establish the arc, and 21 is the shunt-magnet, the strength of which increases as the length of the arc increases, and the movement of the armature of which causes the carbon 18 to feed forward, in the manner well known to those acquainted with arc lamps. The lower electrode 18′ may be of material which will not consume, in which case said electrode would be stationary, or it may be an ordinary carbon fed forward by suitable means as required to keep the arc in the focus of the reflector.

22 is the positive binding-post, and is connected by wire 23 to a pivot-lever 24, said lever forming a switch arm or terminal, and which is adapted to move on the stationary terminal 25, the latter terminal being connected by wire 26 to the lower carbon of the lamp, thence through the upper carbon to the clutch, to the series magnet, and to the negative post 27.

28 is a pivoted lever normally held in the position shown by retracting spring 29. The lever 28 is provided with an insulating-block 30 at one end, said block serving to insulate the link 31, which connects 24 and 28 from the motor mechanism. The opposite end of lever 28 terminates near the cam 7, before referred to, and which is mounted on shaft 3, as shown in the drawings. This cam is adapted to strike the lever 28 and to bear down on the same during about one-third of a revolution of said shaft. The cam is so arranged on the shaft that the enlarged portion of the cam strikes the lever, turning it on its pivot against the stress of the springs 29 and 29′, and by raising switch-arm 24 closes the circuit through the arc lamp. This circuit is held closed during the time cam 7 is passing the lever 28; but when the abrupt shoulder 32 passes the end of the lever the springs instantaneously throw the lever and the switch-arm back to their normal position, breaking the circuit by a snap movement. I preferably arrange the cam on the shaft 3, so that it strikes the lever 28 just before the shutter of the camera is open and so that the shoulder 32 will pass the lever just after the shutter of the camera is closed. In this way the circuit is entirely open and the lamp extinguished, except for a moment, while the exposure of a plate is being made, and at all other times there is no heat or light in the casing and no current is being wasted.

33 is a water-tank.

The position of reservoirs for developing and fixing the picture and of the camera are merely indicated in Fig. 1 at 34, 35, and 36.

It is evident that the circuit-changer might be arranged in other ways than that described. It is also evident that the particular form of coin-operated mechanism is not essential.

Having thus described the invention, what I claim, is—

1. The combination, in an automatic picture-taking machine having a camera and suitable means for moving the plates on which pictures are to be taken and subjecting said plates to successive operations necessary to take and prepare the picture, of a coin-operated mechanism for controlling the use of said machine, an electric lamp in position to illuminate a person sitting for a picture, and a circuit closer or changer in the lamp-circuit, said circuit-changer being also controlled through the coin, substantially as described.

2. The combination, in an automatic picture-taking machine having a camera and suitable means for moving the plates on which pictures are to be taken and subjecting said plates to successive operations necessary to take and prepare the pictures, of a coin-operated mechanism for controlling the use of said machine, an electric lamp in position to illuminate a person sitting for a picture, a circuit closer or changer in the lamp-circuit and normally holding the lamp-circuit open, means for moving said circuit-changer to close the lamp-circuit just as or before the camera-shutter opens, and for moving said circuit-changer to open the lamp-circuit after the shutter is closed, substantially as described.

3. The combination, in an automatic picture-taking machine having mechanisms to move the plates and to subject them to the successive steps necessary to take and prepare pictures, of a motor for driving the mechanism, a coin-receiving tube or receptacle, and means operated by or through the coin for controlling said motor, an electric light normally inoperative, and a circuit-changer for said lamp also controlled by or through the coin, substantially as described.

4. The combination, in an automatic picture-taking machine having mechanisms to move the plates and to subject them to the success-

ive steps necessary to take and prepare pictures, of a motor for driving the mechanism, a coin-receiving tube or receptacle, and means operated by or through the coin for controlling said motor, an electric light normally inoperative, a circuit-changer for said lamp also controlled by or through the coin, said circuit-changer consisting of a pivoted switch-lever operated by means of a cam on one of the motor-shafts, and a circuit-terminal in the path of said lever, substantially as described.

5. The combination, in an automatic picture-taking machine having mechanisms to move the plates and to subject them to the successive steps necessary to take and prepare pictures, of a motor for driving the mechanism, a coin-receiving tube or receptacle, and means operated by or through the coin for controlling the said motor, an electric light normally inoperative, a circuit-changer for said lamp also controlled by or through the coin, said circuit-changer consisting of a pivoted switch-lever operated by means of a cam having an abrupt shoulder on one of the motor-shafts, a retracting-spring for the lever, and a circuit-terminal in the path of said lever, whereby as the cam turns the circuit of the lamp is made and held closed and then instantaneously broken, substantially as described.

6. The combination, in an automatic picture-taking machine having mechanisms to move the plates and to subject them to the successive steps necessary to take and prepare pictures, of a motor for driving the mechanism, a coin-receiving tube or receptacle, and means operated by or through the coin for controlling the said motor, an electric light normally inoperative, a circuit-changer for said lamp also controlled by or through the coin, and insulating material between the circuit-changer and mechanism, substantially as described.

7. The combination of a photograph apparatus, an electric lamp for illuminating the object to be photographed, and means controlled by a deposited coin for permitting use of the apparatus, substantially as described.

This specification signed and witnessed this 2d day of April, 1891.

FRANK MARTIN.

Witnesses:
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J. A. YOUNG.