

(No Model.)

2 Sheets—Sheet 1.

C. H. C. FÖGE, C. H. GRIESE & J. L. F. RADERS.

COIN OPERATED PHOTOGRAPHIC APPARATUS.

No. 437,104.

Patented Sept. 23, 1890.

Fig. 1.

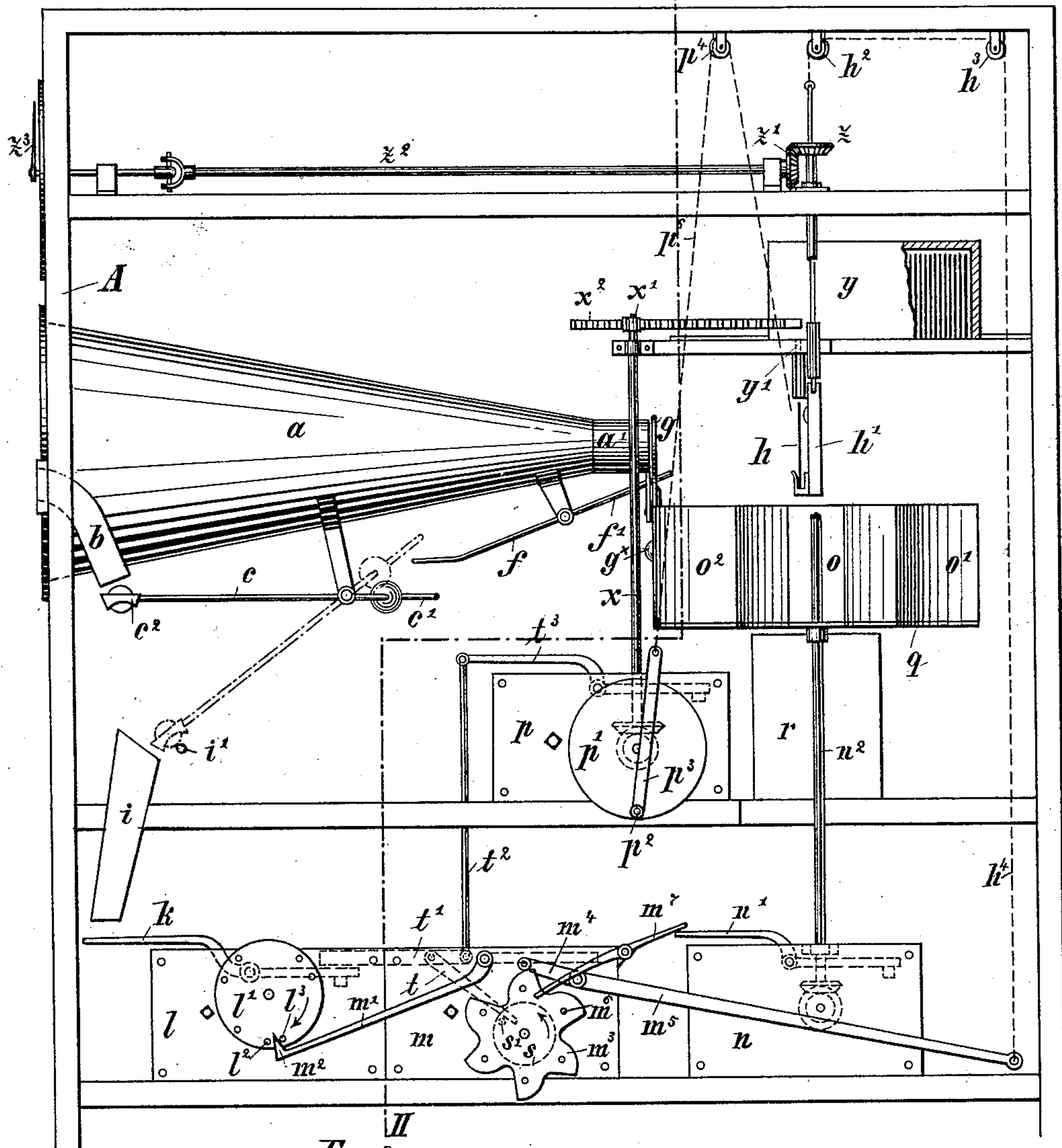
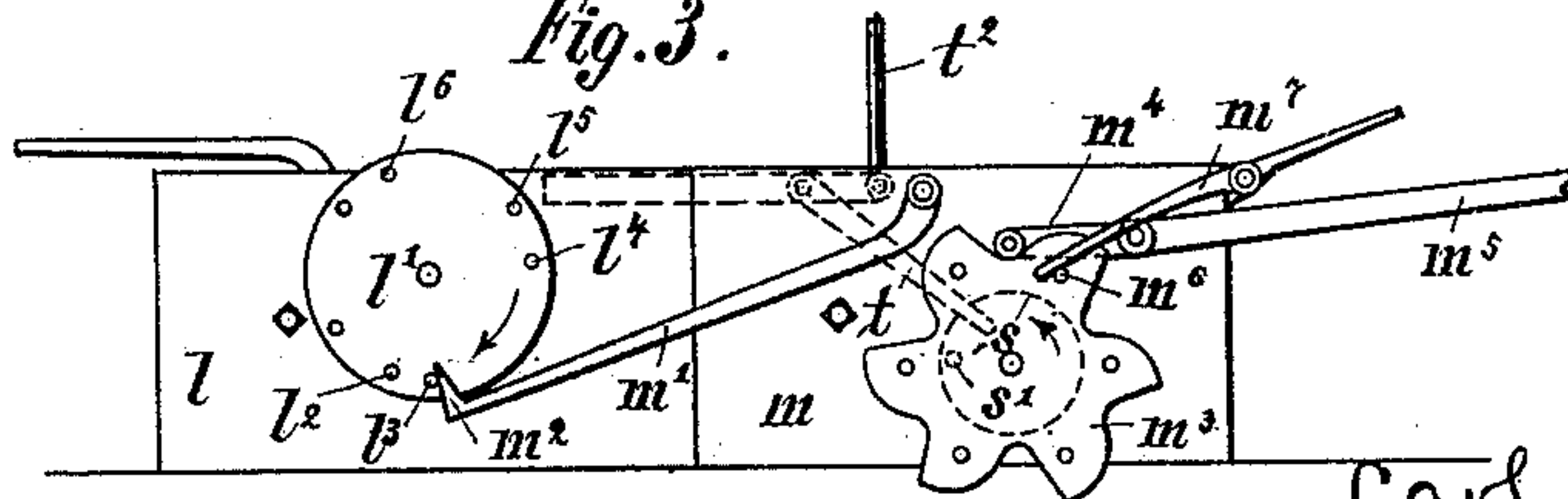


Fig. 3.



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Fig. 2.

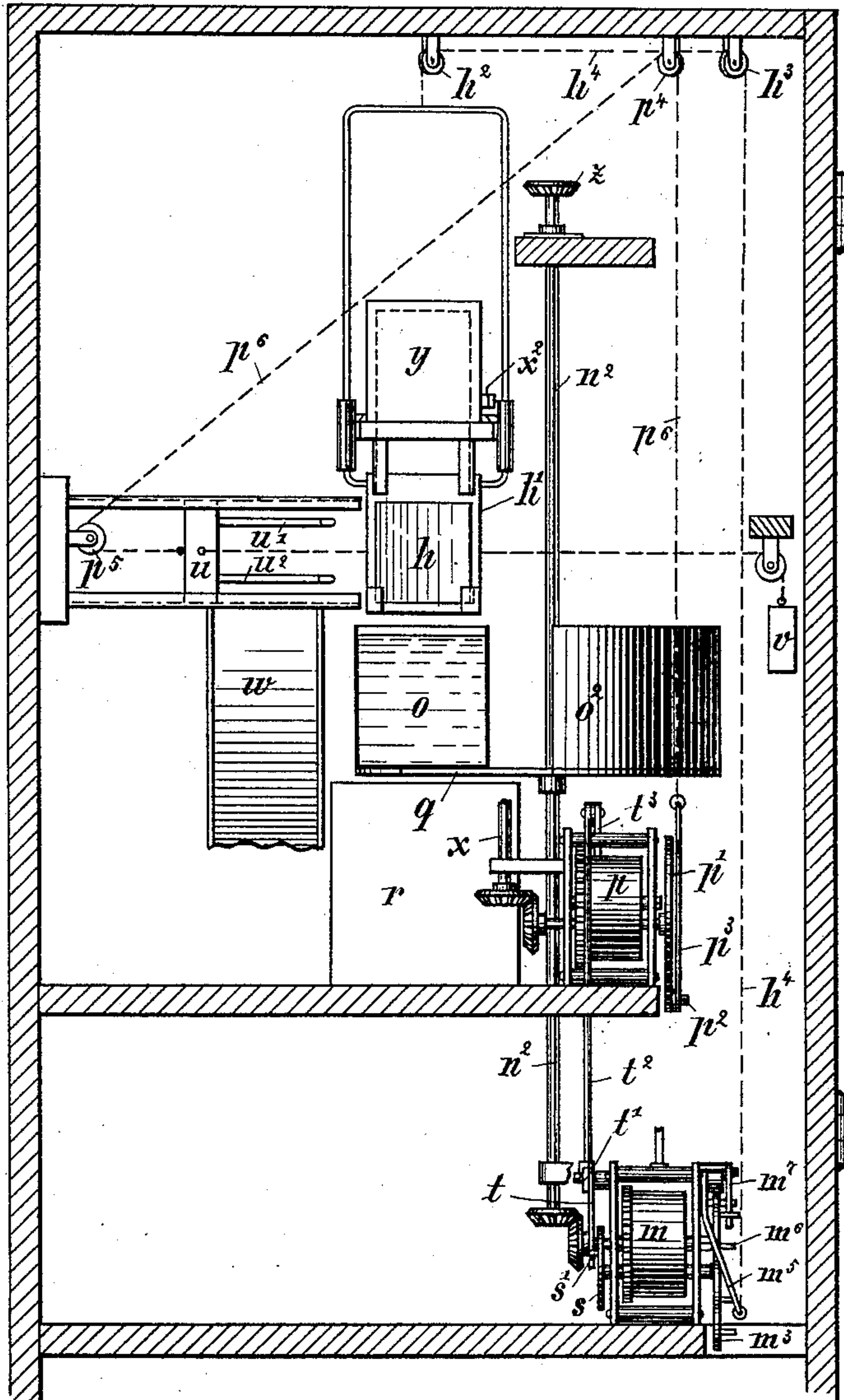


Fig. 4. *Fig. 5.*

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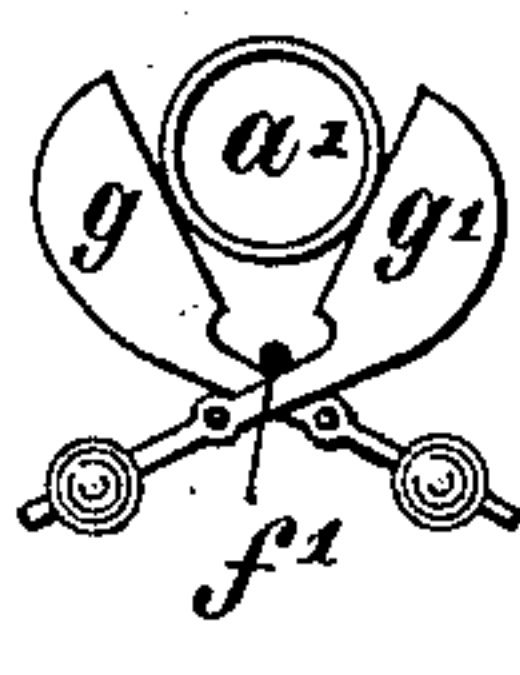
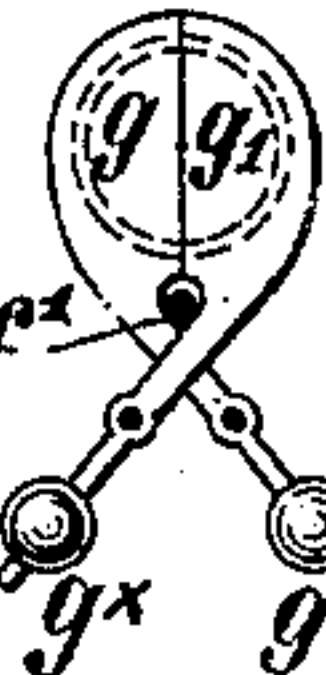
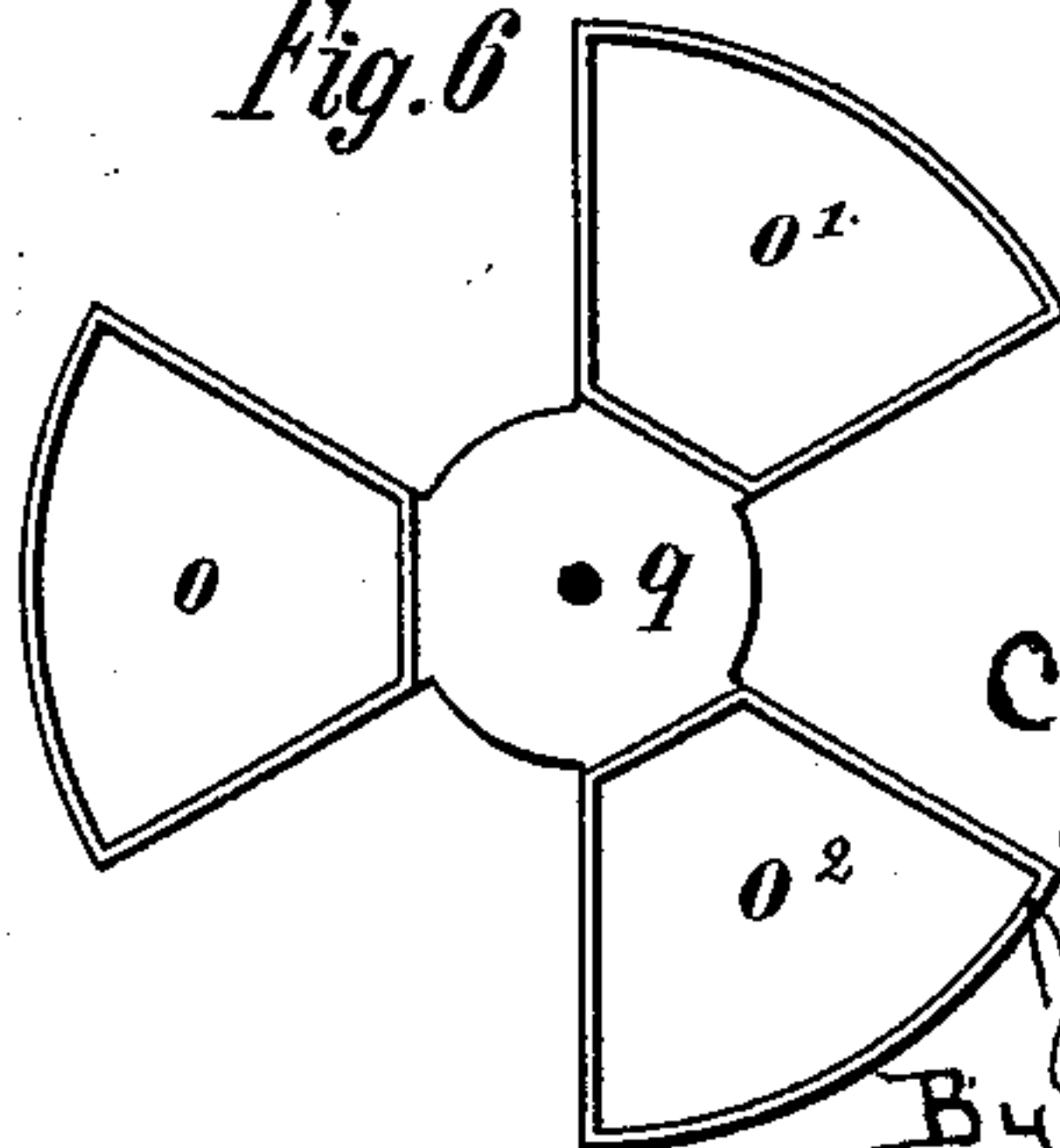


Fig. 6



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UNITED STATES PATENT OFFICE.

CARL HEINRICH CHRISTEL FÖGE, CARL HINRICH GRIESE, AND JOSEPH LEONHARD FRIEDRICH RADERS, OF HAMBURG, GERMANY.

COIN-OPERATED PHOTOGRAPHIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 437,104, dated September 23, 1890.

Application filed August 15, 1889. Serial No. 320,828. (No model.)

To all whom it may concern:

Be it known that we, CARL HEINRICH CHRISTEL FÖGE, CARL HINRICH GRIESE, and JOSEPH LEONHARD FRIEDRICH RADERS, all subjects of the German Emperor, and residents of Hamburg, in the German Empire, have invented certain new and useful Improvements in Self-Cashing Photographic Apparatus, of which the following is a specification.

Our invention relates to automatic apparatus for producing and delivering photographic pictures on the insertion of coin; and the objects of the same are to provide means for operating the shutters of the objective for the purpose of producing upon the sensitized plate the picture, for dipping the said plate into the different baths for developing, fixing, coloring, and rinsing the picture, and finally for delivering the latter and replacing the plate by a fresh one. We attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the apparatus, the wall of the casing being removed to better show the enclosed mechanism and its operation; Fig. 2, a vertical section at the line I II of Fig. 1; Fig. 3, a detailed side view of a clock-work operating the mechanism of the apparatus on the insertion of a coin. Figs. 4 and 5 are special shutters at the rear of the objective in the open and closed positions, and Fig. 6 is a top view of an intermittently-rotated disk carrying the different baths for developing, fixing, and coloring the pictures.

Similar letters refer to similar parts throughout the several views.

In the apparatus constructed according to our invention the objective is placed in a short cylindrical part a' of a funnel-shaped tube a , which extends so far into the box of the apparatus that the person who stands in front of the latter and inserts a coin into the channel b in the box will be just at a proper distance from the said objective to obtain a clear picture. The coin inserted into the aforesaid channel b drops into a holder c^2 , which is open below and is arranged on one arm c of a weighted lever $c c'$. As the coin presses the said arm c downwardly the other

arm c' of the lever will strike against one arm f of a second lever $f f'$ and move it upwardly. The other arm f' of the latter extends between the halves $g g'$ of shutters, which are supported independently of each other, Figs. 4 and 5. In the downward movement of this arm of the second lever the said halves $g g'$ will be opened for a short time, whereupon the other arm of the second lever will be released, so that the shutter can be automatically closed under the action of small counterweights g^x . This short operation is sufficient for the purpose of producing upon the sensitized plate h , which is held at a suitable distance from the objective in a frame h' , the picture, which must then be developed, fixed, and colored.

In the oscillating movements of the first-mentioned lever c the coin protruding from the lower end of the said holder strikes upon a stationary pin i' , and is thereby thrown into a second channel i , whence it drops upon another lever k , and finally into the collecting box or drawer.

By the movement of the last-mentioned lever k , which is caused by the coin, the disengagement of a so-called "time-disk" l' , driven by a clock-work l , is effected. This time-disk l' , commencing to turn, will disengage a finger m^2 on an arm m' from pins $l^2 l^3$ on the said disk l' , press the said arm downwardly and cause a pattern-disk m^3 , which is driven by the clock-work m , to leave its original position. This pattern-disk m^3 causes the movements of a lever $m^4 m^5$, which bears, by means of a friction-roller, upon the periphery of the disk m^3 . The longest arm m^5 of the aforesaid lever, being connected by a chain h^4 , which passes around rollers $h^2 h^3$, with the frame h' , carrying the sensitized plate h , is lifted by the weight of the frame, so that the shortest arm m^4 of the said lever will always remain in contact with the periphery of the pattern-disk m^3 . As soon as in the turning movement of this disk the friction-roller on the shortest arm of the above-mentioned lever m^4 enters the first depression the longest arm m^5 will be raised, and the frame h' , carrying the plate h , is in the first instance lowered into a developing-bath o , supported upon a rotary

plate q . When the friction-roller arrives at the lowest part of the said depression, the pattern-disk m^3 is stopped, so that the plate will be held in the developing-bath until the finger m^2 of the above-mentioned arm m' reaches the next pin l^4 on the time-disk l' , and the said arm m is pressed downwardly to discontinue the arrest of the pattern-disk m^3 , in order that in the further turning movement, which can then take place, the shorter arm m^4 of the above-mentioned lever will be raised and the frame h' , carrying the plate h , can be drawn from the developing-bath. In this movement of the pattern-disk m^3 a pin m^6 on the same strikes against an intermediate lever m^7 , which will press another lever n' downwardly, so as to discontinue the arrest of a vertical axis n^2 , driven through the medium of the clock-work n . This axis n^2 is thus caused to make one-sixth of a revolution, so that instead of the developing-bath o a clearing in the above-mentioned disk q will be below the frame h' , through which clearing the latter in the further turning movement of the pattern-disk m^3 can dip into a rinsing-vessel r placed below, inasmuch as the short arm m^4 of the lever $m^4 m^5$, connected by a chain with the said frame h' , as hereinbefore described, is lowered into the next depression in the pattern-disk m^3 , which is much deeper than the last depression. The plate remains in the rinsing-vessel r until the finger m^2 on the arm m' , acting in conjunction with the time-disk l' , reaches another pin l^5 on the latter, and the pattern-disk m^3 is again liberated, so as to turn and raise the frame. Then the next pin m^6 on the pattern-disk m^3 , acting upon the two levers m^7 and n' , hereinbefore described, will discontinue the arrest of the said vertical axis n^2 , which, together with the disk q , secured on the same, will once more perform one-sixth of a revolution and cause a fixing-bath o' , supported on the said disk q , to pass below the frame h' . This frame, carrying the picture, having been lowered into this fixing-bath o' , is raised therefrom in a similar manner, as above described, as soon as the time-disk l' strikes with its pin l^6 against the finger m^2 on the arm m' , acting in conjunction with the said disk m^3 , and after the disk q on the vertical axis n^2 has again been caused to turn one-sixth of a revolution, the frame h' holding the plate is lowered a second time into the rinsing-bath r . After its removal from the latter the frame is caused to dip into a coloring-bath o^2 , and after the lapse of the proper time the plate rinsed in the above-mentioned vessel r for the last time. While the plate h is raised from this last bath r a pin s' on a disk s , which is placed upon the same axis as the pattern-disk m^3 , strikes against one end of an arm t , which is thereby raised, together with a lever t' , to which the other end of said arm is rigidly connected, which also raises rod t^2 and another lever t^3 , in order to release a crank-disk p' , driven by a fourth clock-work p , thus en-

abling the said disk p' to make a complete revolution.

With the pin p^2 on the last-mentioned crank-disk p' is connected, by means of a rod and a chain passing around rollers $p^4 p^5$, a slide u , which, in the first half of the revolution of the crank-disk p' , is drawn by a weight v against the frame h' , and spring-hooks $u' u^2$, passing behind the finished picture h , will draw the same, in the next half of the revolution of the crank-disk p' , from the frame h' , and allow it to fall on an incline w , upon which the picture will slide to the point where it is delivered.

During the revolution of the aforesaid crank-disk the clock-work p , driving the latter, causes a toothed wheel x' , which is placed upon a vertical axis x and engages with a rack x^2 , to turn through the distance of one tooth, thereby moving a reserve box y , which is connected with the rack x^2 and contains the sensitized plates, one behind the other, a suitable distance to the front, so that each time a fresh plate h can fall through a slit y' in the box y , into the frame h' placed below.

The vertical axis upon which the disk q , for supporting some of the baths, is secured, as hereinbefore set forth, performs exactly one revolution in the operation of making one picture. It carries at its upper end a small bevel-wheel z , which, gearing with a similar wheel z' , actuates a shaft z^2 , provided with a hand z^3 . This hand is designed to indicate upon the front of the box the stage which the picture has reached in its production.

While the plate is under treatment the passage for the introduction of coin into the apparatus may be closed at its outer end by any known means, as, for instance, by a slide.

In the rinsing-basin can be arranged a small rose, having a valve which can be automatically closed, and which is opened by the descending frame carrying the plate.

The sensitized plates are preferably made of black or dark glass, whereby the pictures produced upon them will appear positive, inasmuch as the points of the bromic silver, which are decomposed to a greater extent by reason of the exposure, will become light upon the dark ground.

Having now particularly described and ascertained our said invention, and in what manner the same is performed, what we claim, and desire to secure by Letters Patent, is—

1. In an automatic apparatus for producing and delivering photographic pictures actuated on the insertion of a coin, the combination of a pattern-disk m^3 , intermittently rotated by a clock-work or other mechanism, a lever $m^4 m^5$, bearing upon the periphery of said disk m^3 , the frame h' , carrying the sensitized plate, and the several baths for developing, fixing, coloring, and rinsing the picture, substantially as set forth.

2. In an automatic apparatus for producing and delivering photographic pictures on the insertion of a coin, the combination of the

frame h' , adapted to be periodically lowered and raised, with a rotating disk q , mounted upon a vertical axis n^2 , said disk carrying the different baths, and having clearings through
5 which the frame h' may be dipped into a rinsing-vessel r , substantially as and for the purpose hereinbefore described.

3. In an automatic apparatus for producing and delivering photographic pictures on the
10 insertion of a coin, the combination of the frame h' , carrying the sensitized plate h , with a slide u , actuated by a clock-work, and having spring-hooks $u' u^2$, substantially as and for the purpose specified.

15 4. In apparatus for automatically producing and delivering photographic pictures on the insertion of a coin, the combination of the lever $c c'$, catching the inserted coins, with the shutters $g g'$, the stationary pin i' , and
20 the lever k , substantially as and for the purpose set forth.

5. In combination with an apparatus for automatically producing and delivering photographic pictures on the insertion of a coin, the funnel-shaped tube a , extending into the
25 apparatus and carrying at its narrowest end the objective, and having shutters located over said end in rear of the objective, substantially as and for the purpose hereinbefore described.
30

In testimony that we claim the foregoing as our invention, we have signed our names, in presence of two witnesses, this 10th day of July, 1889.

CARL HEINRICH CHRISTEL FÖGE.
CARL HINRICH GRIESE.
JOSEPH LEONHARD FRIEDRICH RADERS.

Witnesses:

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