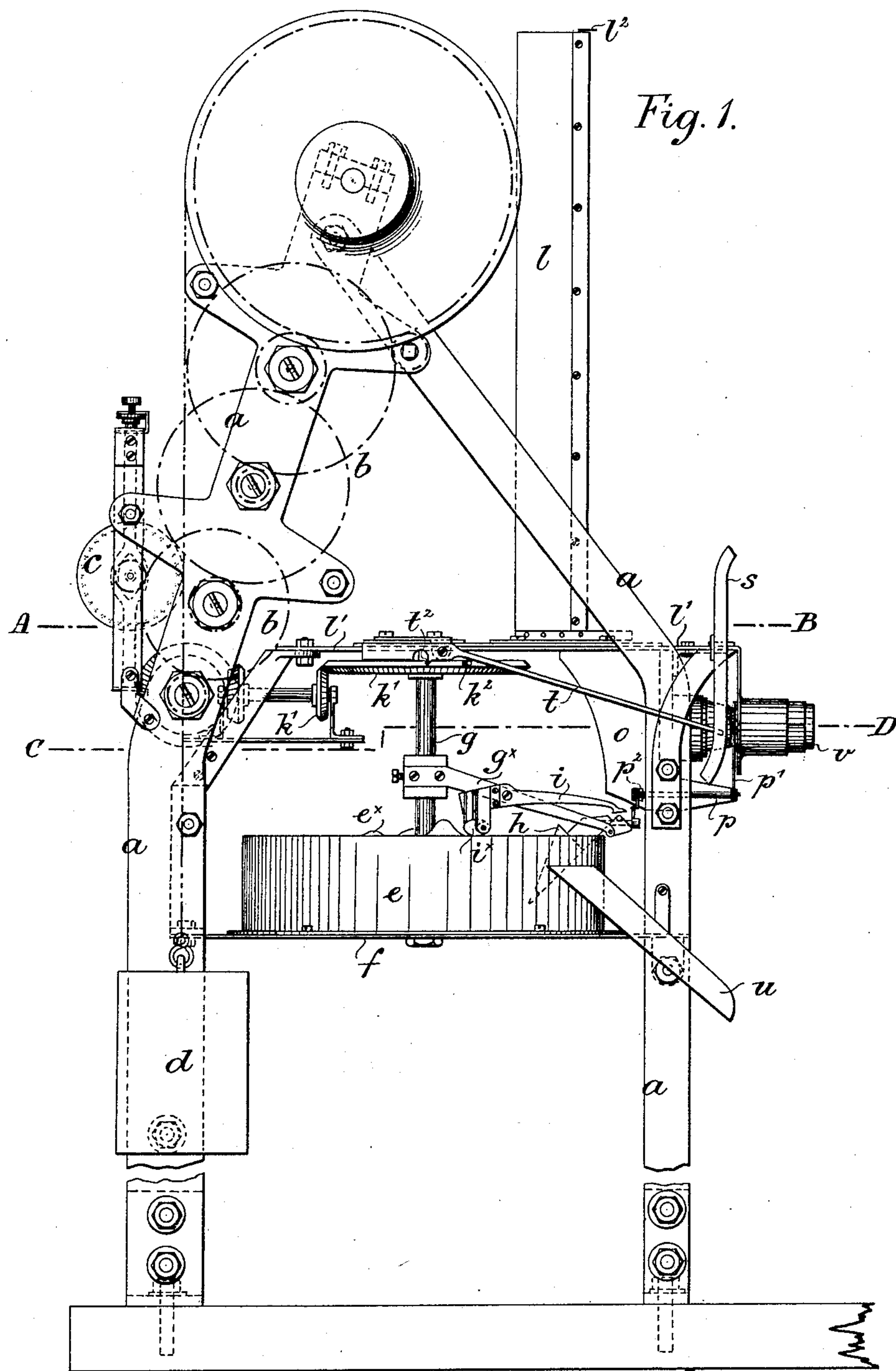


J. SACCO.

APPARATUS FOR AUTOMATICALLY PHOTOGRAPHING, DEVELOPING,
AND DELIVERING THE FINISHED PICTURES.

No. 432,903.

Patented July 22, 1890.



Witnesses:
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Geo. H. Reed

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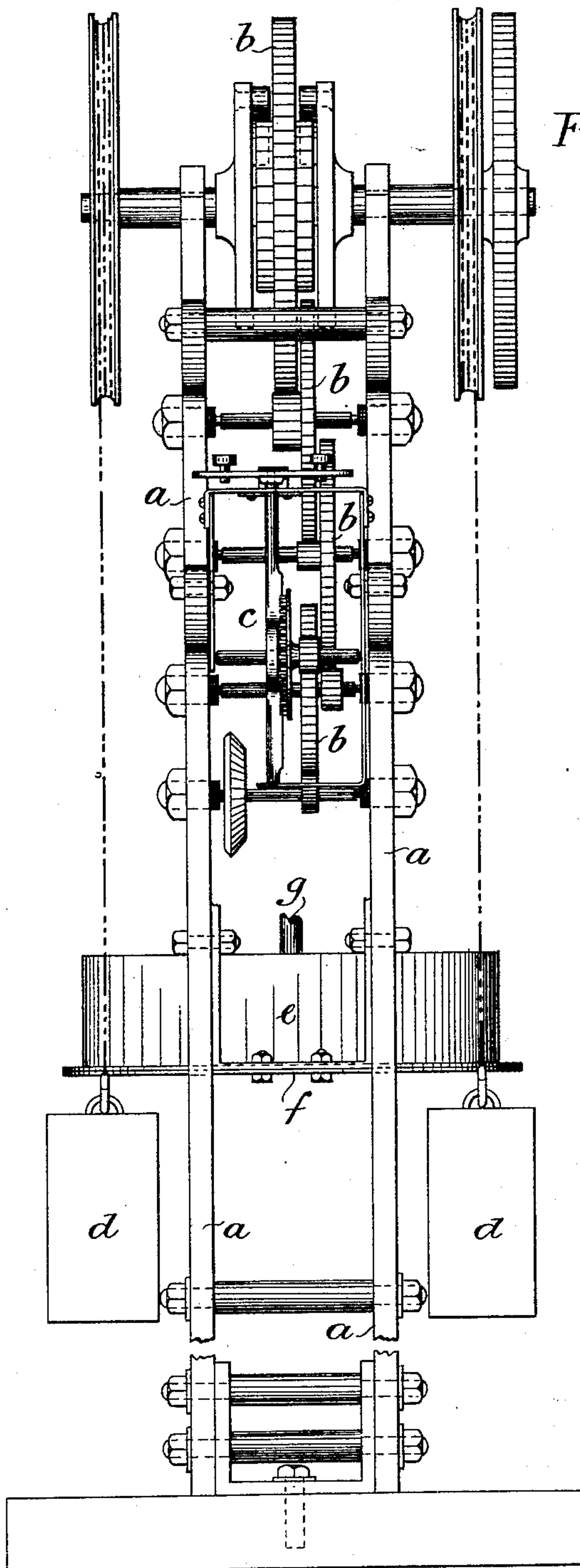


Fig. 2.

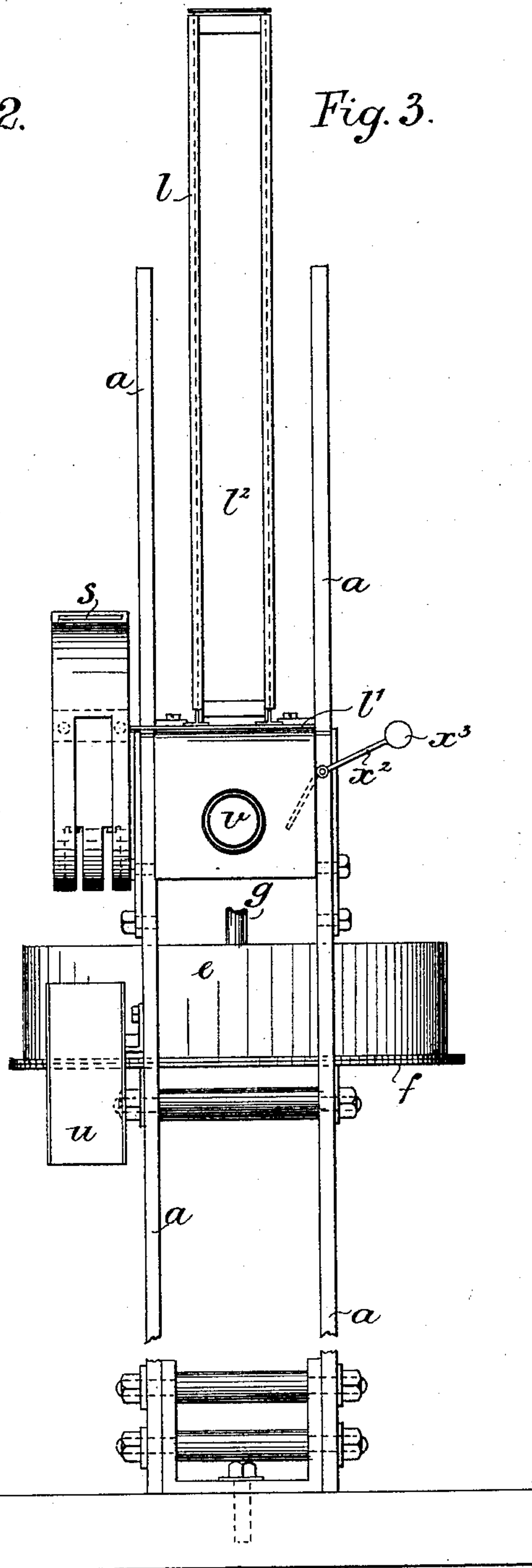


Fig. 3.

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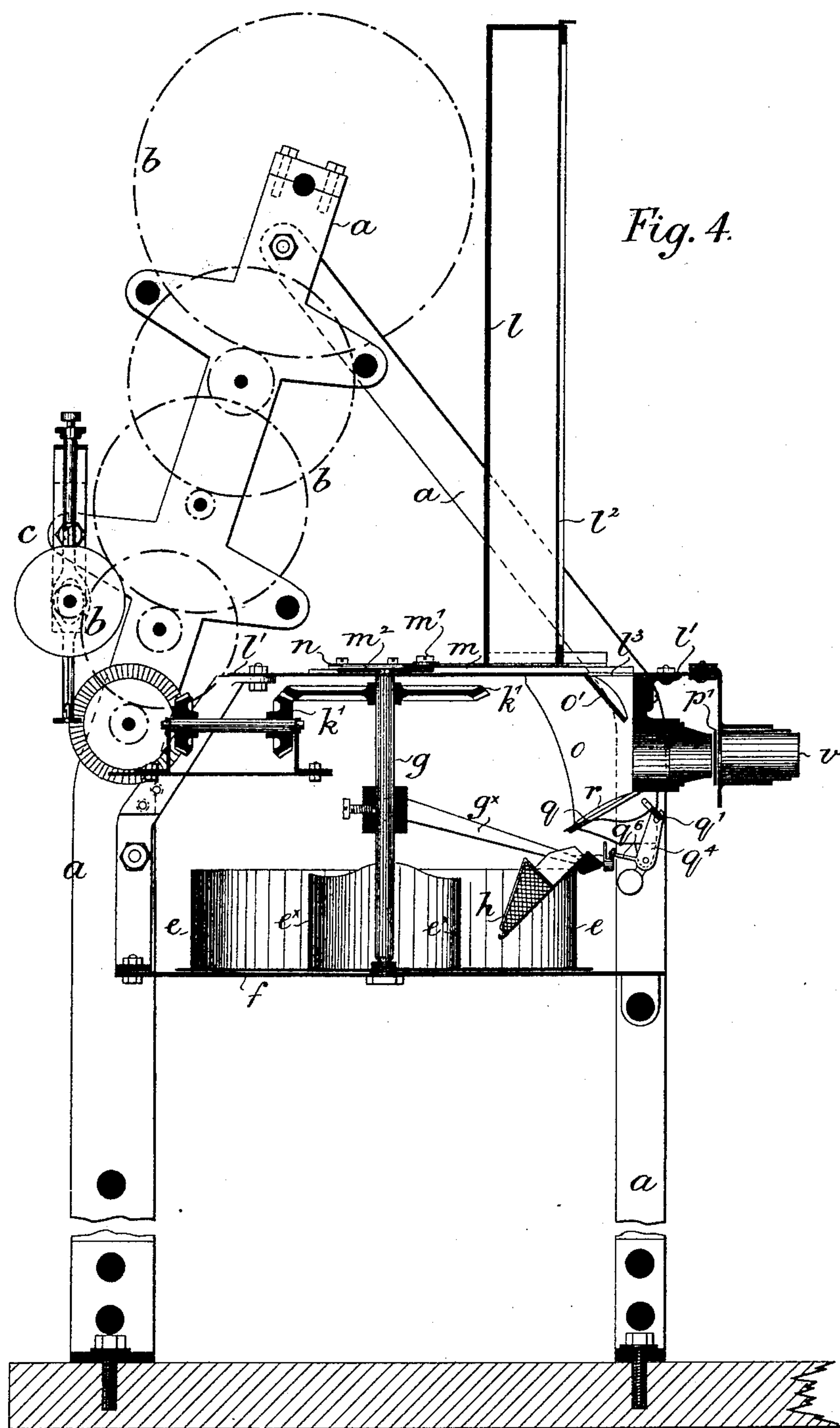
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(No Model.)

6 Sheets—Sheet 4.

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Fig. 5.

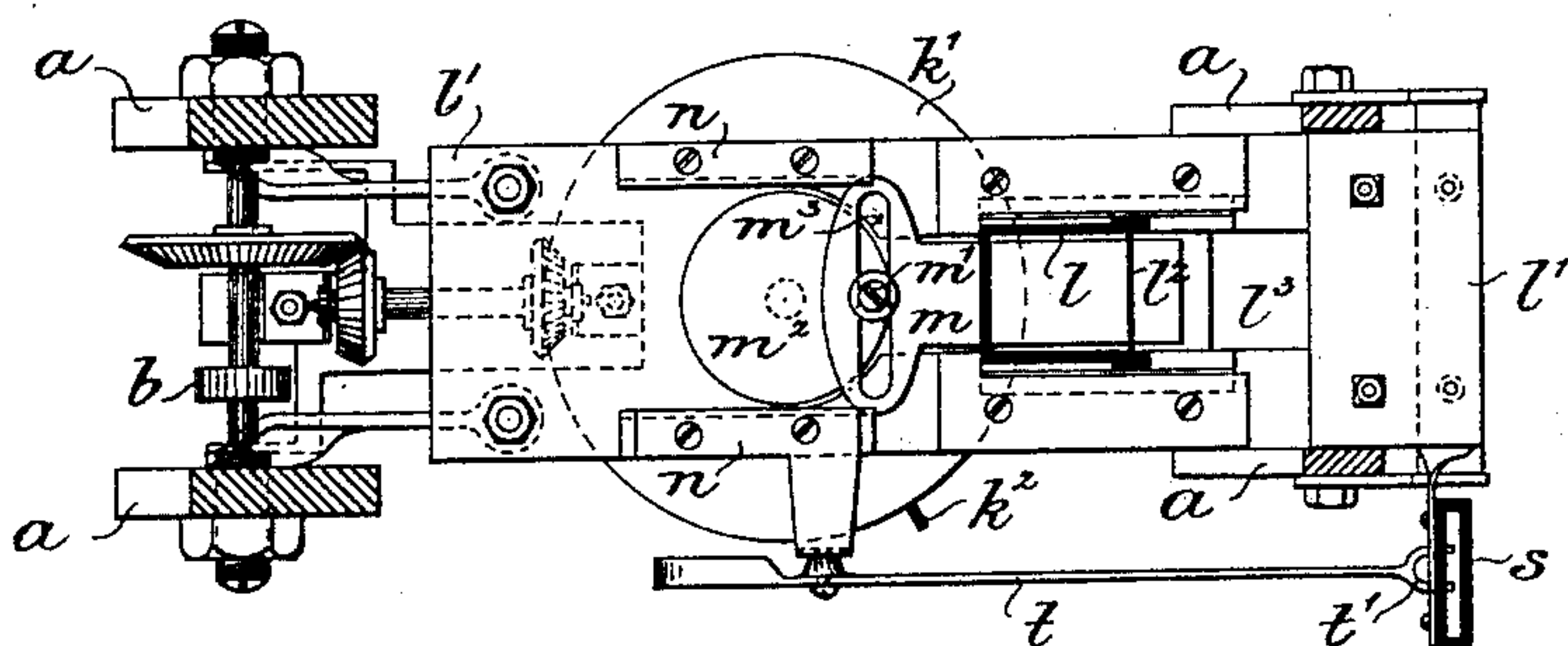
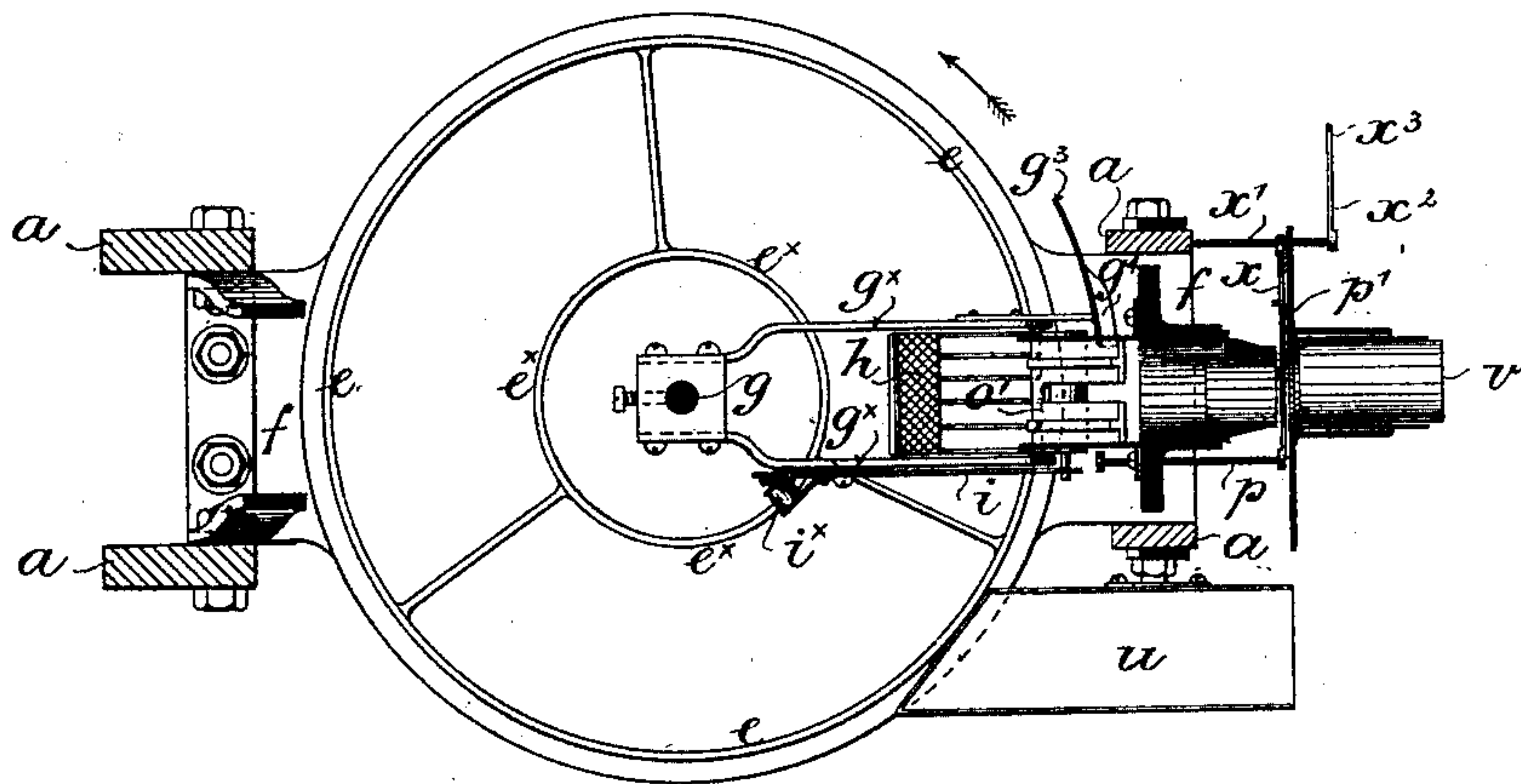


Fig. 6.



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Fig. 7.

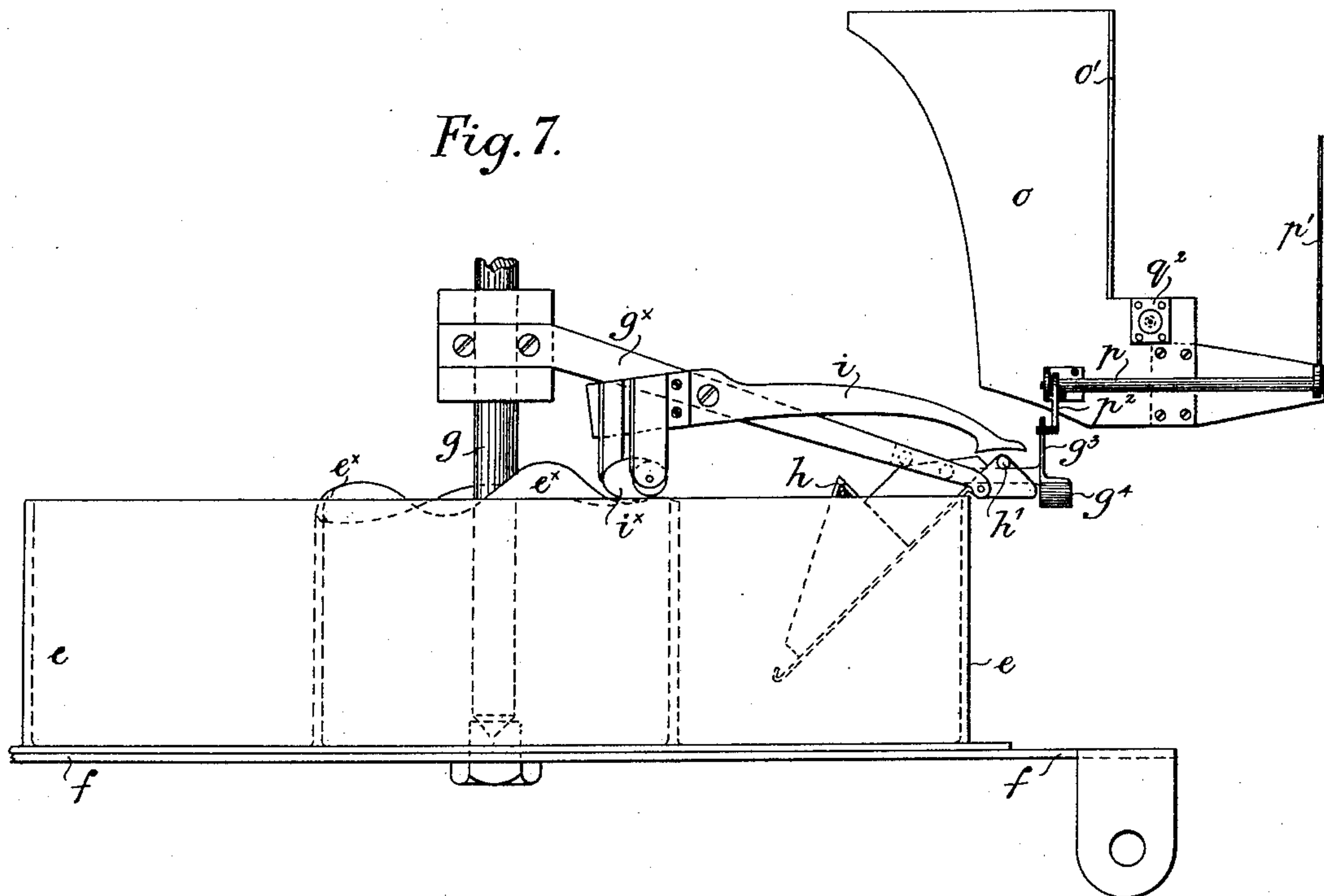
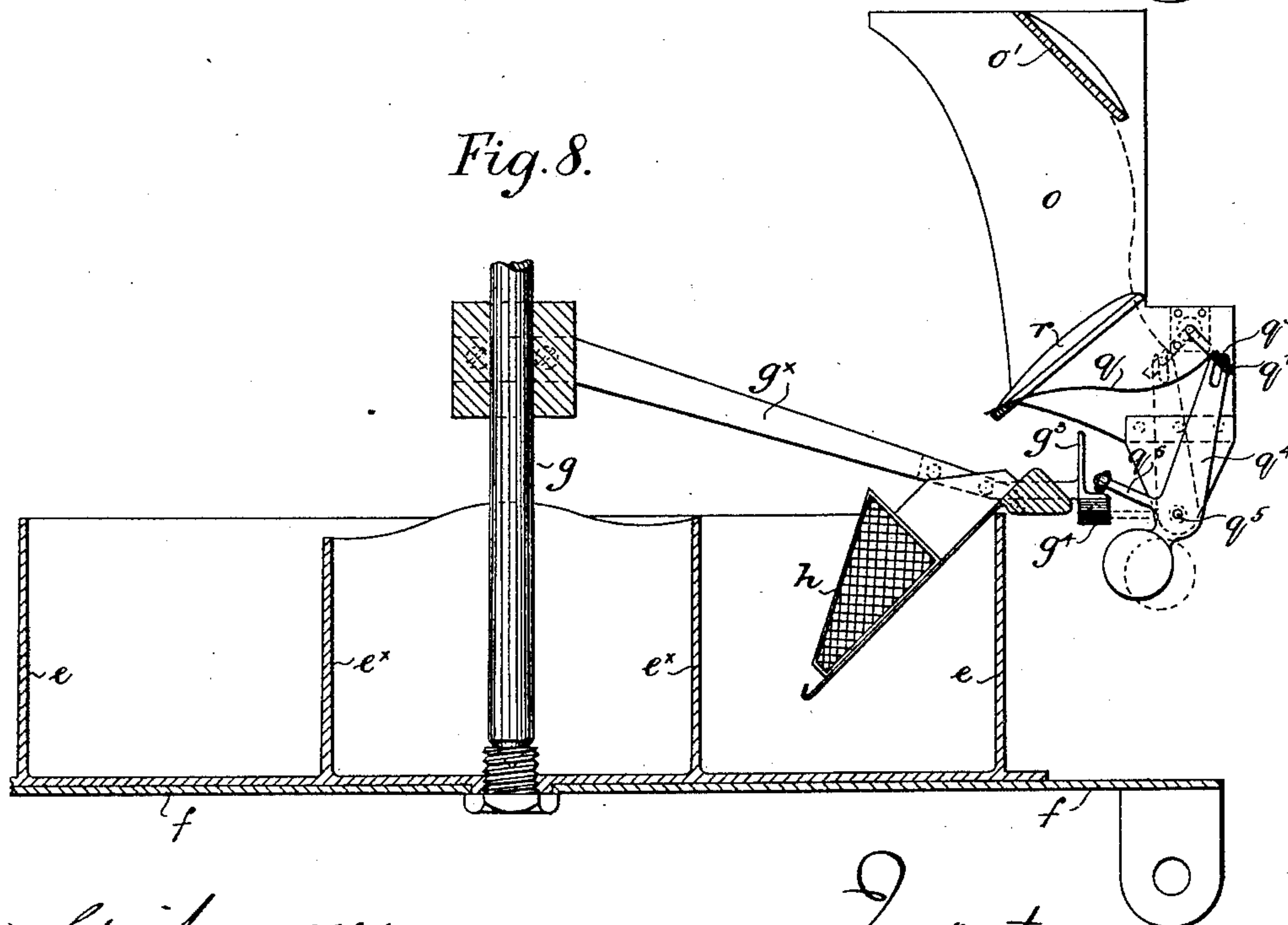


Fig. 8.



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Fig. 10.

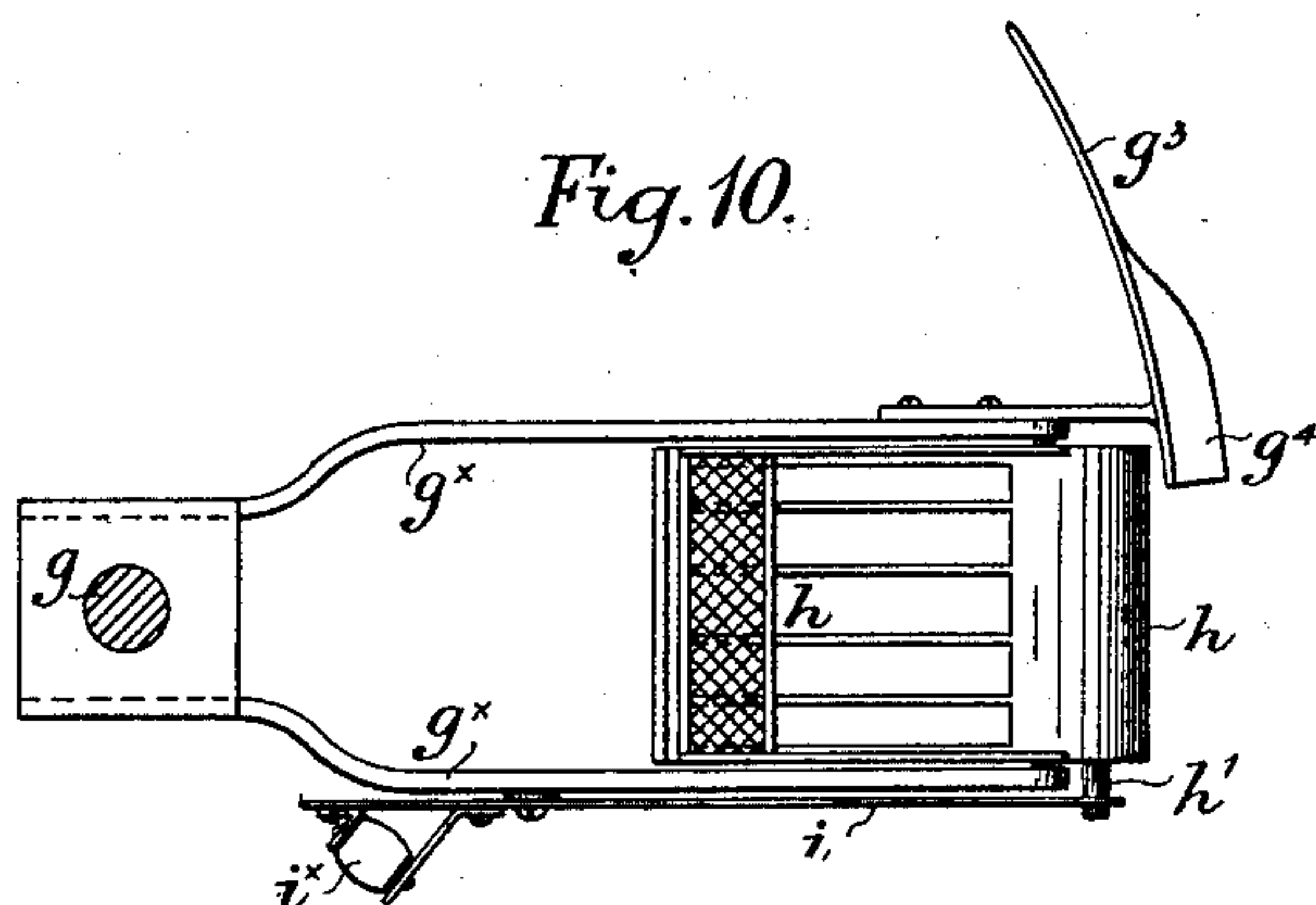


Fig. 11.

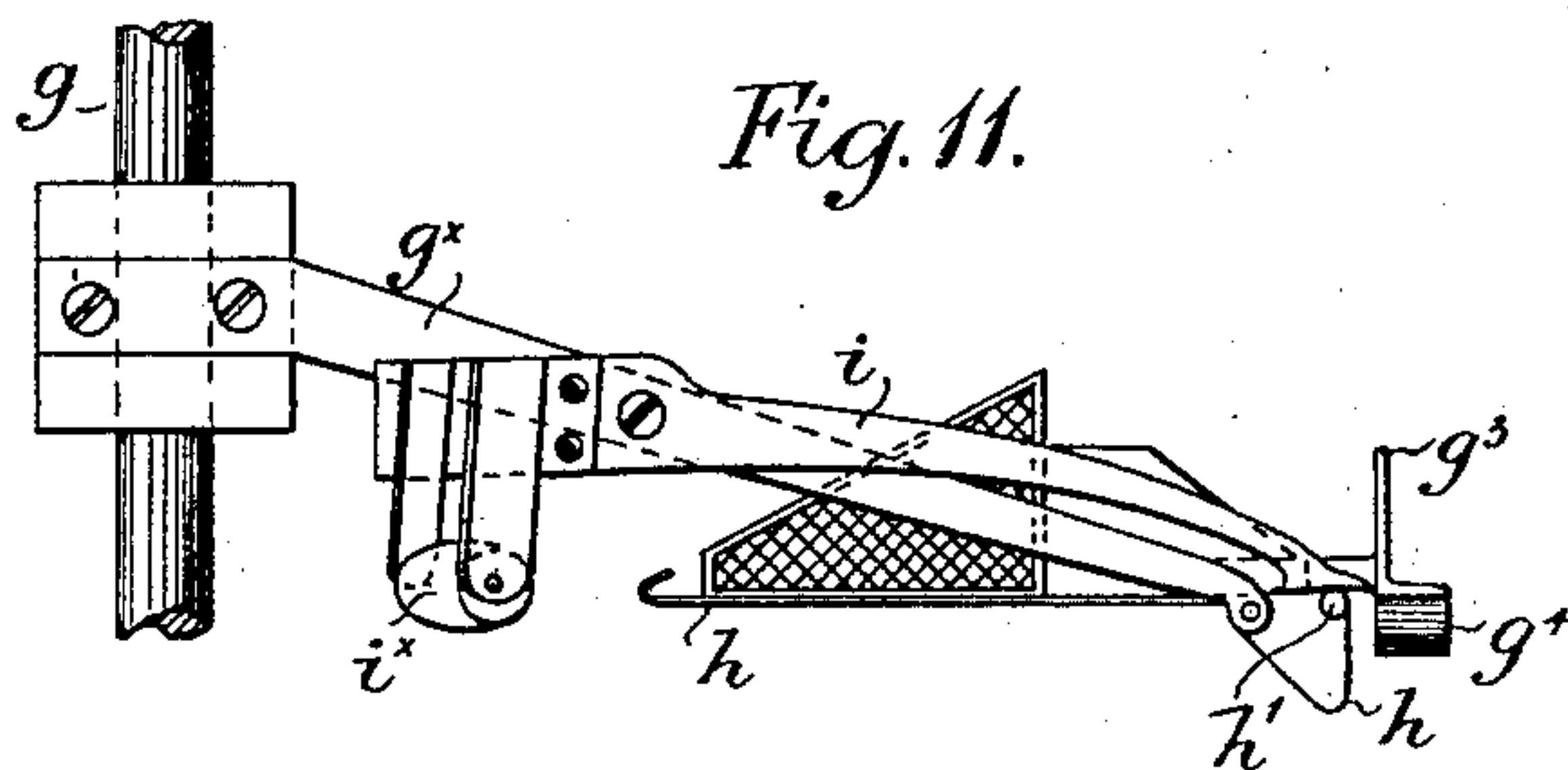


Fig. 9.

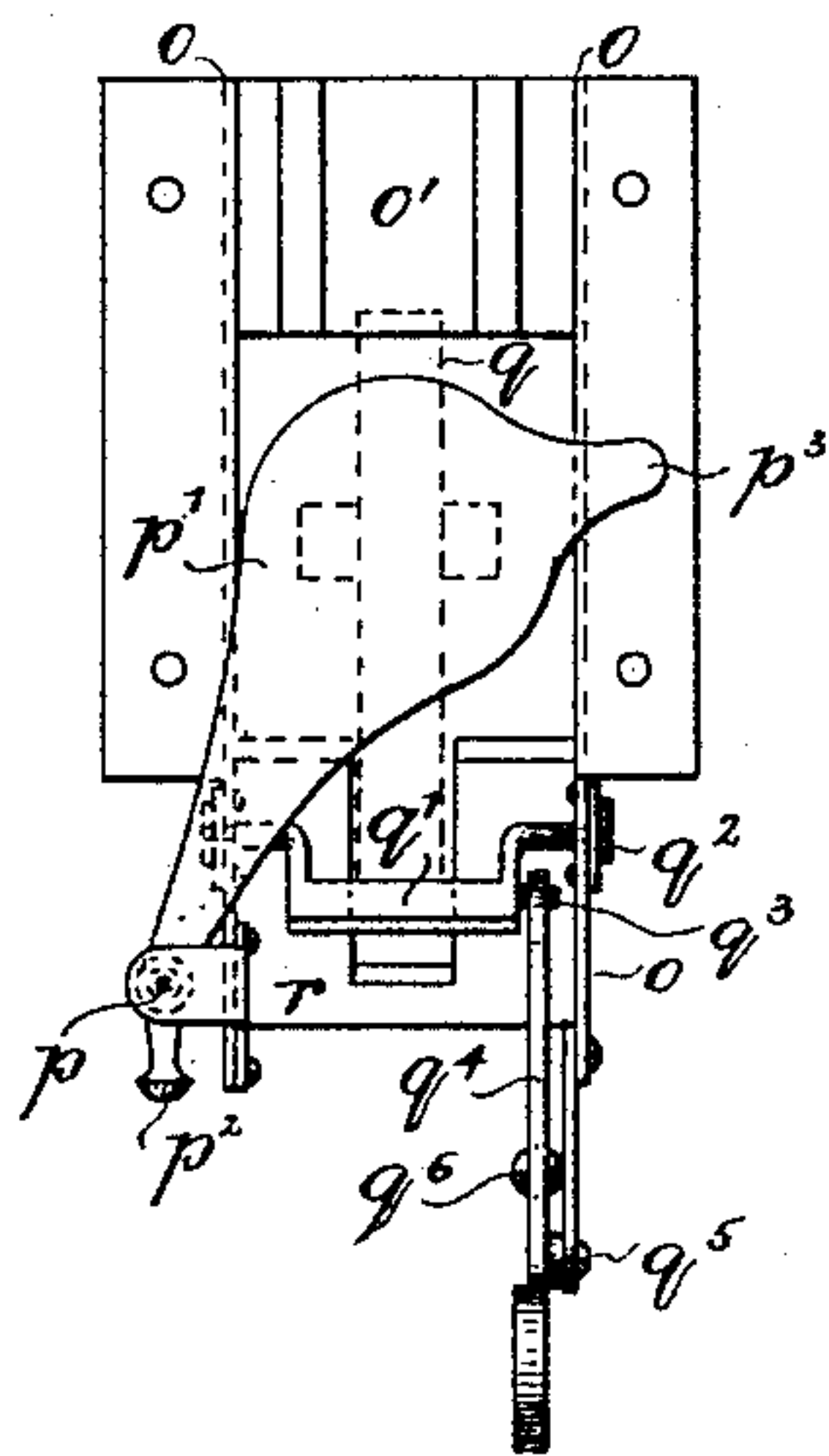
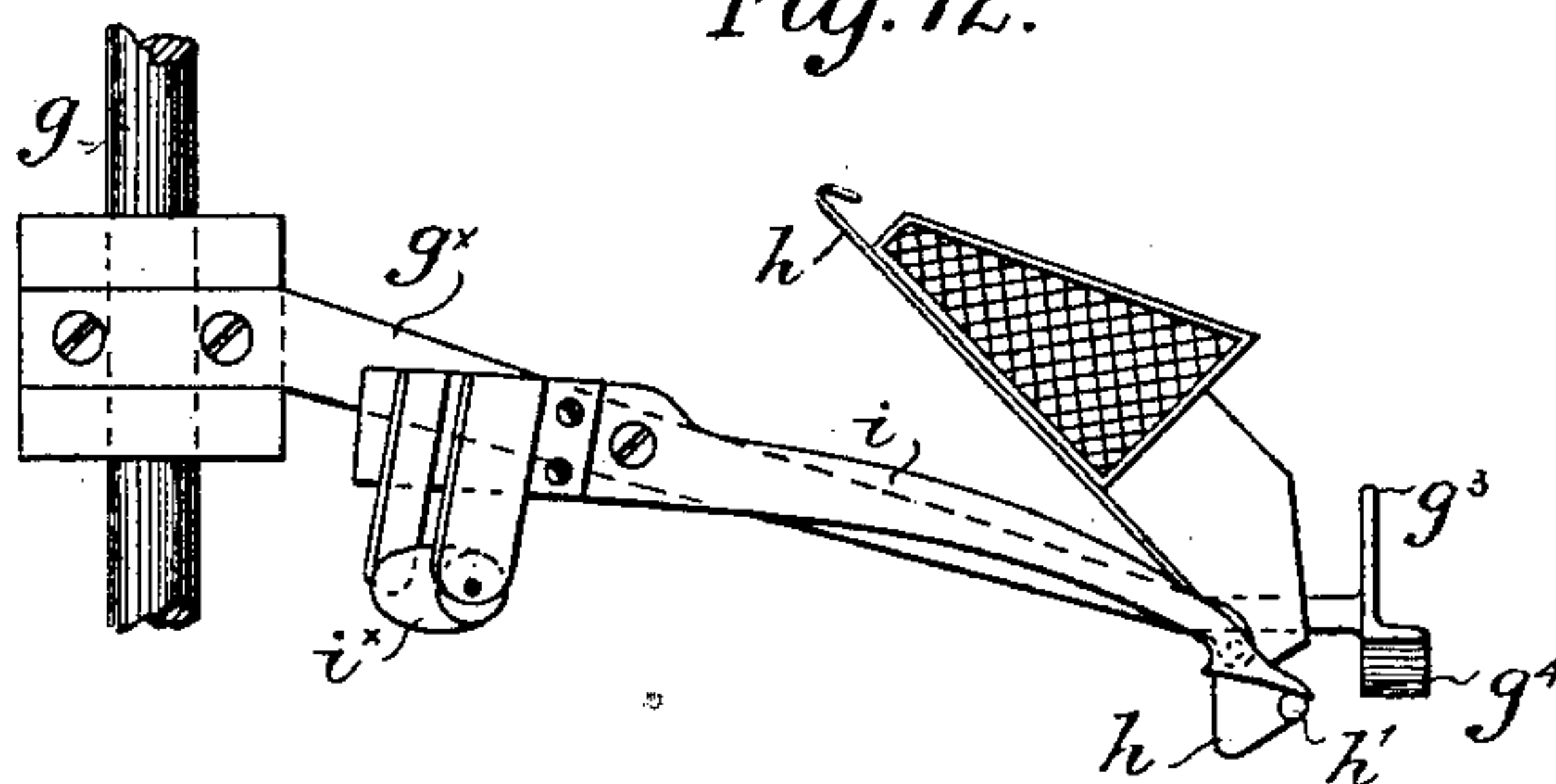


Fig. 12.



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UNITED STATES PATENT OFFICE.

JOSEPH SACCO, OF PARIS, FRANCE, ASSIGNOR TO ISAAC JOEL, OF LONDON, ENGLAND.

APPARATUS FOR AUTOMATICALLY PHOTOGRAPHING, DEVELOPING, AND DELIVERING THE FINISHED PICTURES.

SPECIFICATION forming part of Letters Patent No. 432,903, dated July 22, 1890.

Application filed November 8, 1889. Serial No. 329,630. (No model.) Patented in France July 16, 1889, No. 199,608.

To all whom it may concern:

Be it known that I, JOSEPH SACCO, a subject of the King of Italy, residing at Paris, France, have invented a new and useful Improved Coin-Freed Apparatus for Automatically Photographing Persons and Objects and for Developing and Delivering said Photographs, (for which I have obtained patent in France, No. 199,608, dated July 16, 1889,) of which the following is a specification.

This invention relates to an improved coin-freed apparatus for automatically photographing persons and objects and for developing and delivering said photographs. By preference I use the ferrotype process.

The apparatus consists of a circular chamber or reservoir divided radially into any desired number of compartments containing the various chemicals or solutions suitable for developing and fixing the photographs and water for washing the same. The inner rim of this developing-reservoir is formed as a cam path, track, or surface, upon which travels a roller carried by a frame, in which is pivoted a tray or cage into which the plates fall after receiving the image, ready to be developed. A revolving motion is given to a spindle carrying the cage by means of any suitable clock-movement. The cam-surface upon the developing-reservoir gives to the cage a rising-and-falling motion, so that the plate therein is alternately dipped and withdrawn from each of the compartments as the cage rotates. One revolution is sufficient to complete the cycle of operations. Upon inserting a coin into the apparatus it falls upon and depresses a weighted pivoted lever, which, in its normal position, engages with a pin carried by one of the wheels of the clock-train, so preventing any motion; but so soon as the lever is depressed by the weight of the coin the mechanism is free to work and the cage or tray commences to rotate around the cam-track. As it rotates a cam upon it comes into contact with a disk covering the lens-aperture and causes it to be removed, thereby exposing the plate and permitting of the photograph being taken. The length of time that the plate is exposed is made to depend upon the shape and size of the cam. On the

further rotation of the cage another cam upon it causes the plate bearing the image to fall from its position behind the lens into said cage, and as the cage continues to revolve around the developing-reservoir the photographic image on the plate is developed by being successively dipped into each of the various compartments. Just before the cage completes its rotation it is caused to be tilted by the cam on the developing-reservoir, and the completed photograph falls into a chute and is delivered. The undeveloped plates are contained in a column (which forms a dark chamber) one above the other, and they are caused to fall into position behind the lens by means of a pusher coming behind the lowermost one and pushing it forward into a guide, which leads it into correct position to receive the image. The pusher receives a to-and-fro motion by means of a pin carried by the wheel above referred to and working in a slot in the plate, so giving a to-and-fro motion to such pusher.

As will be seen from the above, this apparatus is perfectly automatic in its action, there being no handle or handles to operate in order to assist the mechanism in any way, as in certain other arrangements heretofore constructed.

In order that the invention may be readily understood, I proceed to describe the same with reference to the accompanying drawings.

Figure 1 is a side elevation, Fig. 2 a rear elevation, and Fig. 3 a front elevation, of the apparatus, the casing being removed for the sake of clearness. Fig. 4 is a longitudinal vertical section; Fig. 5, a horizontal cross-section on the line A B of Fig. 1, and Fig. 6 a horizontal cross-section on the line C D of same figure. Fig. 7 is an elevation showing that portion of the apparatus which effects the uncovering of the lens. Fig. 8 is a longitudinal section showing that portion of the apparatus which effects the release of the plate after receiving the image and delivers it into the rotating cage, and Fig. 9 is a face view of the same. Fig. 10 is a detached view in plan of the cage, showing the double cam carried by it. Fig. 11 shows the position the

cage assumes when passing from one compartment of the developing reservoir or chamber to another. Fig. 12 shows the position the cage assumes when delivering the finished plate. Figs. 7 to 12, both inclusive, are drawn to a larger scale.

a is the frame-work of the apparatus.

b is a clock-movement of any convenient construction for actuating the mechanism, and provided with an escapement *c*.

d d are weights for driving the clock-movement, and which may, if desired, be replaced by a spring.

e is the circular chamber or reservoir, divided into three or more compartments for containing the solutions and water necessary for developing and washing the plates. It is preferably constructed of glass, glazed earthenware, or china, and is provided with pipes (not shown in the drawings) for introducing and drawing off the solutions and water. This developing-reservoir is carried by a plate *f*, firmly secured to the framing.

g is the spindle arranged concentrically within the reservoir *e* and carrying a forked frame *g^x*, at the outer extremity of which is pivoted the cage *h*. On one of the arms of the forked frame is pivoted a lever *i*, carrying at its inner end a bowl or roller *i^x*, which travels upon the cam-path formed on the inner wall *e^x* of the reservoir. The other extremity of the lever *i* acts upon a stud *h'* projecting from the cage *h*, and by means of which the dipping motion is imparted to said cage.

g³ g⁴ is the double cam carried by one of the arms of the forked frame *g^x*. When the spindle *g* is caused to rotate by means of the clock-movement and bevel-gearing *k' k'*, the cage is also caused to rotate and a dipping motion is imparted to it by the bowl or roller *i^x*, traveling upon the cam-path on the wall *e^x*, so causing an up-and-down movement of the lever *i*, which lever, by acting upon the stud *h'*, imparts the dipping motion to the cage.

l is a column or dark chamber carried by the plate *l'* and containing the superimposed prepared plates. It is provided with a shutter *l²*, which slides vertically to facilitate the ready refilling with prepared plates. A weight resting on these plates keeps the lowermost one always in position to be pushed forward by the pusher *m*, having a to-and-fro motion imparted to it by means of a pin *m'*, standing out from the disk *m²* and working in a slot *m³* in the pusher. The disk *m²* is secured to the upper end of the spindle *g* and receives its motion therefrom. *n n* are guideways for the pusher to work in.

l³ is a slot or opening in the plate *l'*, through which the prepared plates fall when pushed forward by the pusher. Beneath this opening *l³* is a guide *o'*, carried by wings *o o*, along which the prepared plates are guided into an upright position behind the lens *v*, ready to receive the image. Each of the prepared plates is held in this position by a bent metal

finger *q*, bearing against the back of the same. *p* is a spindle supported in bearings on one of the wings *o*. (See Fig. 7.) One extremity of this spindle carries a disk or shutter *p'* for covering the lens. The other carries a pendent finger *p²*, which, when acted upon by the portion *g³* of the double cam *g³ g⁴*, uncovers the lens and allows the image to fall upon the prepared plate. The finger *q* (see Figs. 8 and 9) before mentioned is secured to a rocking bar *q'*, carried in bearings *q² q²*. Standing out from this bar is a pin *q³*, which is acted upon by a weighted lever *q⁴*, having its fulcrum at *q⁵*. The lever *q⁴* in its normal position keeps the finger *q* in the position shown by dotted lines in Fig. 8; but when the cage during its rotation comes into position to receive the prepared plate the portion *g⁴* of the double cam *g³ g⁴* acts upon and raises the projecting arm *q⁶*, so causing the finger *q* to descend into the position shown by full lines in Fig. 8 and allow the prepared plate to fall down the inclined chute *r* into the cage.

The working of the apparatus is as follows: A coin having been inserted into the coin-slot 5, it falls onto the end *t'* of the lever *t*, and by depressing it so raises the projection *t²* out of the path of the pin *k²* and allows the mechanism to start. The cage *h* now commences to rotate and the pusher *m* advances and pushes forward a prepared plate, which falls through the slot or opening *l³* into position behind the lens, as before explained. The plate is here held until the portion *g³* of the double cam *g³ g⁴* acts upon the pendent finger *p²*, and, by removing the shutter *p'*, uncovers the lens, thus exposing the plate for a sufficient time to enable the photograph to be taken, such time of exposure depending upon the length of the cam *g³*. The cage, continuing to revolve, then brings the other portion *g⁴* of the double cam into position to act upon the projecting arm *q⁶* and causes the finger *q* to fall and allow the plate bearing the image to drop into the cage, where it is retained during the remainder of the rotation and dipped, respectively, into the several compartments of the developing-reservoir. When the plate has been dipped into all the compartments, the lever *i* causes the cage to be tilted into the position shown by Fig. 12 and the finished photograph is delivered down the chute *u* to the depositor. The cage, having arrived at this position, is prevented from further motion by the pin *k²* again coming into contact with the projection *t²* on the lever *t*, and the apparatus is stopped. It is, however, ready to again commence a fresh cycle of operations when another coin is inserted.

The shutter *p'* is shown with a projecting piece *p³*, Fig. 9, formed on it for the purpose of acting upon a lever *x*, carried by a spindle *x'*. Another lever *x²* on the same spindle is provided with a colored disk *x³*, which is visible through a glazed opening in the casing of the apparatus and indicates, by its move-

ment, (which may be a rising or a falling one,) to the person using the apparatus when the image has been received upon the plate, and he may move away from his position; but any other suitable indicator may be employed for the purpose.

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

1. In coin-freed apparatus for automatically photographing persons and objects, the means for dipping and delivering the prepared plates after they have received the image, consisting in the construction and arrangement of a radially-divided developing reservoir or chamber having a cam-path on its inner wall, together with a pivoted rotating cage, such as h , and with a pivoted lever carrying at one end a roller which travels around the said cam-path, and whose other end operates a stud or pin, such as h' , projecting from the cage so as to tilt the same, as required, all substantially as described, and shown in the accompanying drawings.

2. In coin-freed apparatus for automatically photographing persons and objects, the means for retaining the prepared plates in position behind the lens until after they have received the image and then conducting them into the rotating cage, consisting in the construction and arrangement of the bent finger q , carried by the pivoted rocking bar q' , the pin q^3 , engaging with the weighted lever q^4 ,

and the arm q^6 , acted upon by the portion q^4 of the double cam, all substantially as described, and shown by the accompanying drawings. 35

3. In coin-freed apparatus for automatically photographing persons and objects, the means for uncovering the lens, consisting in the construction and arrangement of the spindle p , carrying the disk or shutter p' , and the pendent finger p^2 , acted upon by the portion g^3 of the double cam, all substantially as described, and shown by the accompanying drawings. 40

4. In coin-freed apparatus for automatically photographing persons and objects, the means for bringing forward the prepared plates into position behind the lens so as to receive the image, consisting in the combination of the column or dark chamber l , the reciprocating pusher m , the aperture l^3 in plate l' , and the guide o' , all substantially as described, and shown by the accompanying drawings. 45

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses. 50

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