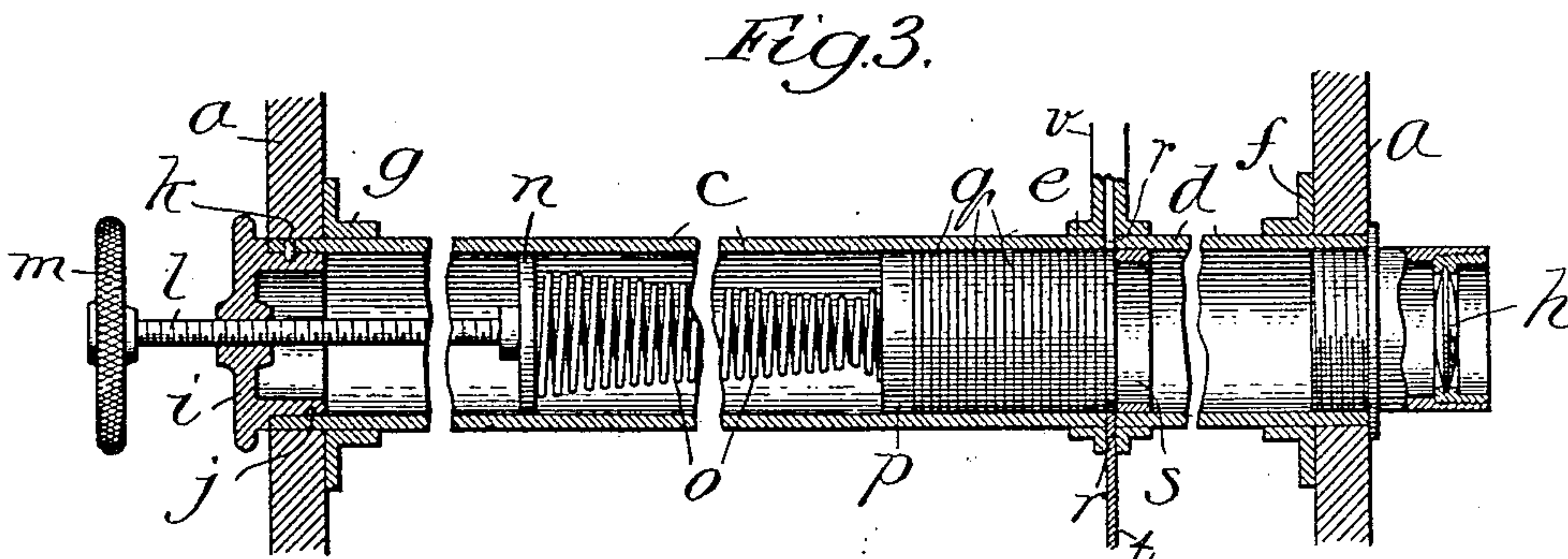
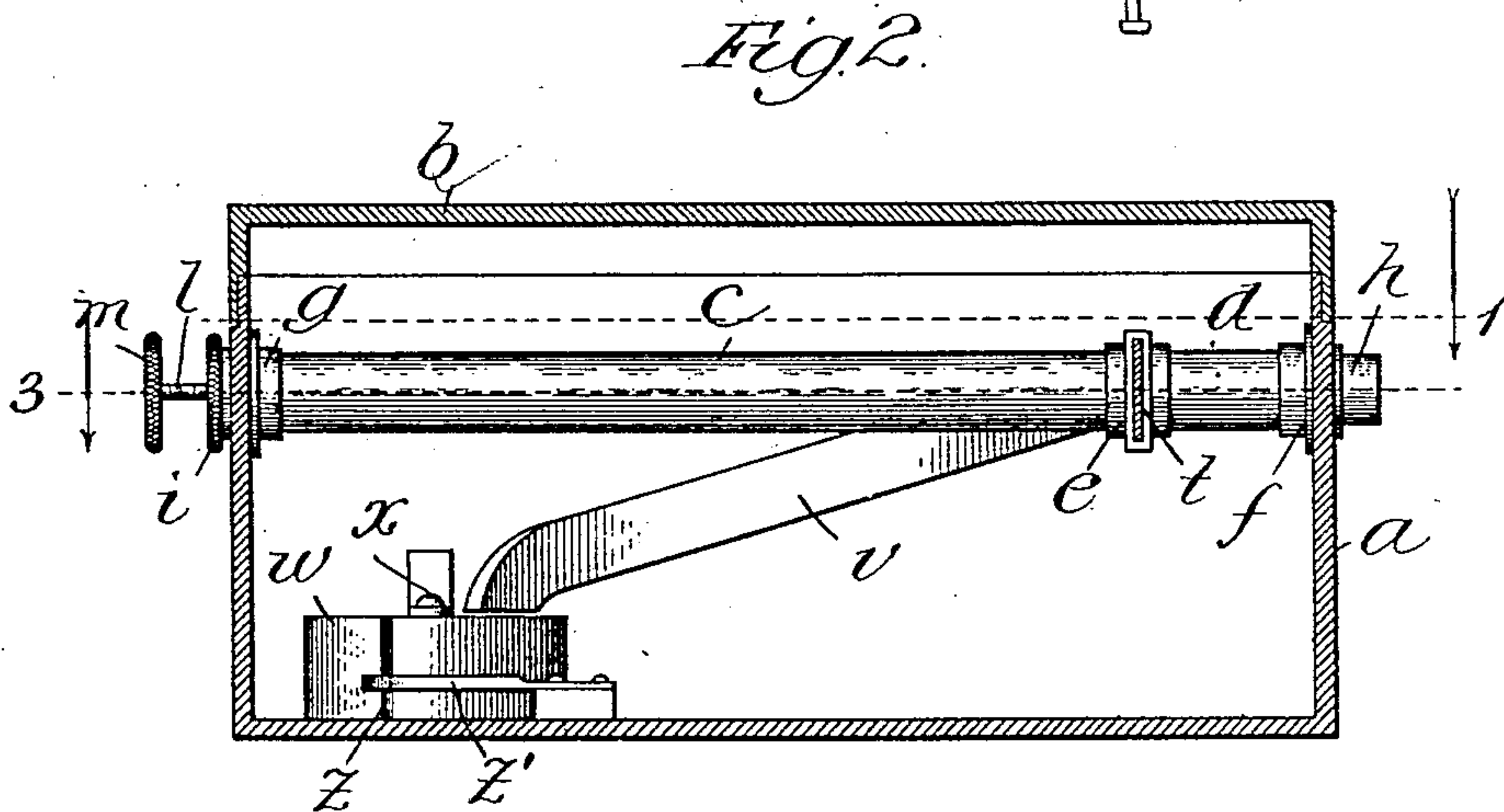
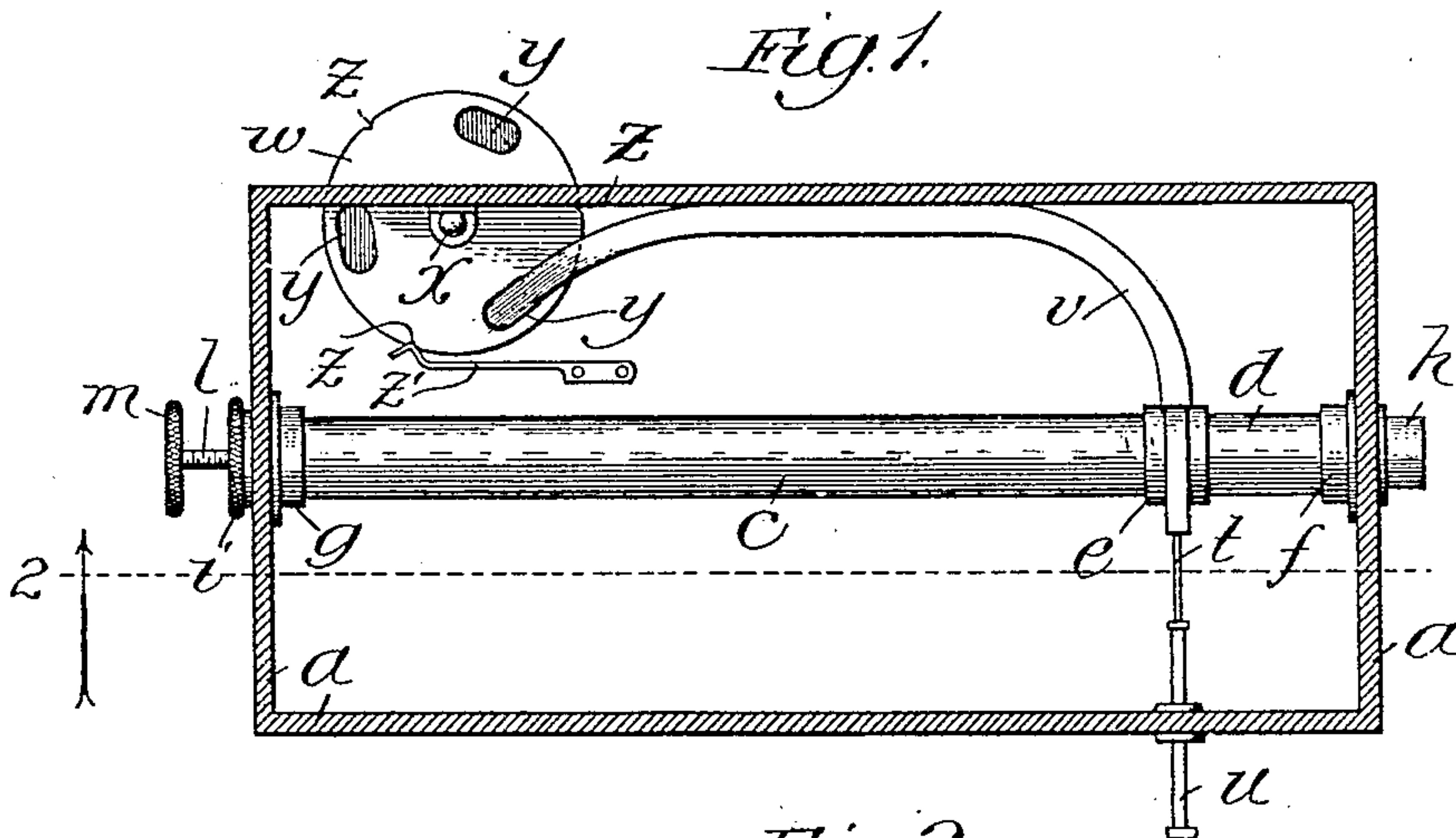


No. 840,786.

PATENTED JAN. 8, 1907.

L. MANDEL.
MAGAZINE DEVELOPING CAMERA.
APPLICATION FILED MAR. 26, 1906.



Witnesses:
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UNITED STATES PATENT OFFICE.

LOUIS MANDEL, OF CHICAGO, ILLINOIS.

MAGAZINE DEVELOPING-CAMERA.

No. 840,786.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed March 26, 1906. Serial No. 308,086.

To all whom it may concern:

Be it known that I, LOUIS MANDEL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Magazine Developing-Cameras, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding letters of reference in the different figures indicate like parts.

The object of my invention is to provide a magazine developing-camera adapted more especially for exposing and developing sensitive plates of the disk or "button" variety and constructed to hold a large number of plates which may be exposed directly from the magazine.

To this end my invention consists, among other things, in providing means for regulating the pressure of the plate-follower in the magazine to render the same substantially uniform, and also in providing simple and novel means for exposing, shifting, and developing the plates, all of which is hereinafter more particularly described, and definitely pointed out in the claims.

In the drawings, Figure 1 is a horizontal sectional view in plan of a camera embodying the features of my invention, said section being taken upon the line 1, Fig. 2. Fig. 2 is a vertical sectional view thereof, taken upon the line 2, Fig. 1, viewed in the direction of the arrow there shown; and Fig. 3 is an enlarged sectional view in plan of the magazine, taken upon the line 3, Fig. 2.

Referring to the drawings, *a* represents a camera-case, which is made light-tight and provided with a hinged lid *b*, Fig. 2. Extending horizontally from end to end of the case is a tube formed in two sections *c* and *d* and rigidly connected to each other by means of a union-fitting, (generally designated by *e*,) and which will be hereinafter more particularly described. The section *d* is coincident with or projected through a lens-opening in the end of the case *a*, being attached to said case by means of a collar *f*, while the end of the section *c* is attached in like manner to the opposite end of the case by means of a collar *g*. A lens *h* of any well-known type is attached to the case in front of the open end of the tube-section *d*.

A detachable cap *i*, having a screw-thread *j*, Fig. 3, therein adapted to engage a pin *k* in the interior of the tube *c*, is arranged to fit

within and normally close the rear end of said tube. A screw-threaded rod *l*, having a hand-wheel *m* rigidly attached to its rear and a follower *n* swiveled upon its forward end, is tapped in the cap *i*, as clearly shown in Fig. 3. Secured to the front face of the follower is a spiral spring *o*, having a follower *p* attached to its forward end. Sensitive plates *q* are placed in front of the follower *p* and are adapted to be pushed forward thereby.

A space *r*, slightly wider than the width of one of the plates *q*, is left between the meeting ends of the tube-sections *c* *d*, and a ring *s* is formed in the tube *d* adjacent thereto, which forms a shoulder against which the foremost plate may abut. The fitting *e* is formed with a guideway which coincides with the space *r* between the tube-sections for the reception of a laterally-sliding gate *t*, Figs. 1 and 2, which is adapted to be operated by means of a rod *u*, arranged to project through the side of the case. Upon the opposite side of the fitting *e* and extending laterally therefrom is secured a tubular runway, (generally designated by *v*,) the passage-way in which is arranged to coincide with the slideway of the gate.

A cylindrical bath vessel *w*, Figs. 1 and 2, mounted partially within the camera upon a vertical axis *x*, is provided with a series of preferably three equidistant bath-containing receptacles *y*, Fig. 1. Said vessel is so adjusted that a sufficient portion thereof will protrude from the camera-case, as shown in said last-named figure, to permit one of said bath-receptacles to stand outside of the case while the others are inclosed within. Notches *z* are formed upon the periphery of the cylindrical vessel at equal distances apart, which are adapted to be engaged by a retaining-spring *z'*, attached to the bottom of the case. Said spring, notches, and receptacles are so disposed with reference to each other that when the spring is in engagement with one of the notches one of the compartments *y* will always stand beneath the mouth of the inclined runway *v*.

The operation of said device is as follows: The cap *i* being removed, together with the rod *l*, spring *o*, and follower *p*, the sensitized plates *q*, which if not opaque in themselves should be properly backed, are placed in the tube or magazine *c* to the proper number, with the sensitive surfaces toward the lens and the spring-follower inserted in the manner shown in Fig. 3. The foremost plate

then rests against the gate *t*, which is normally pushed in to the full extent. The gate is then withdrawn by pulling out the rod *u*, as shown in Fig. 1, when the foremost plate is pushed forward by the follower until it rests against the shoulder formed by the ring *s*. The lens is then uncovered to make the exposure, when the rod *t* is pushed in, which causes the gate to push the exposed plate laterally from the magazine into the runway *v*, when it rolls downwardly into the bath-receptacle *y*, which is then located beneath the mouth of said runway. The receptacles *y* are each made of a size to enable them to hold an indefinite number of plates, and each is intended to contain a combined developing and fixing bath. When a predetermined number of plates have been exposed and deposited in the bath, the bath vessel *w* is rotated upon its axis a distance of one notch, which causes the receptacle containing the fixed plate or plates to be moved outside of the case. The plates are then removed and the operation repeated until the magazine is exhausted. When this occurs, the follower *p*, which is thicker than a plate, will rest against the ring *s*, and the gate being withdrawn cannot be returned until the follower is removed to refill the magazine.

The screw-rod *l* performs an important function in the device, in that it enables the tension of the follower-spring to be properly adjusted. I have found that without this device the pressure upon the plates in the magazine is liable to be too great at the outset and insufficient when the magazine is nearly empty. By means of the screw-rod, however, the tension may be kept substantially uniform. It will be noted that the withdrawal of the gate enables a plate to be automatically placed in an exposing position, while the insertion of the gate advances the plate to the inclined runway, from whence it drops into the developing-bath. This construction enables a maximum number of plates to be exposed in a given time, while the holding capacity of the magazine may be greatly increased by means of my adjustable follower.

Having thus described my invention, I claim—

1. A magazine-camera having a tubular magazine, a lens in alinement therewith, a spring-controlled follower within the magazine, a laterally-sliding gate at the forward end of the magazine, a runway in the plane of the gate upon the opposite side of the magazine therefrom, and a revoluble bath

vessel having a series of bath-receptacles, arranged to stand successively beneath the mouth of said runway, said vessel being partially projected from the case to permit one of said receptacles to be at all times without the case, substantially as specified.

2. The combination in a camera of a closed case, a magazine-tube, a spring-controlled follower, a lens in front of the tube, a laterally-slidable gate at the forward end of said tube, a lateral runway opposite to said gate, a revoluble bath-carrying element disposed upon a vertical axis, said element being partly within and partly without said case, a plurality of bath-holding receptacles disposed at equal distances from each other upon said carrying element and means for yieldingly holding said element in a predetermined position and governing the extent of its movement, substantially as set forth.

3. In a camera of the class described, the combination of a tubular magazine, a gate at its forward end for positively discharging the plates, a spring-follower a follower-spring and a screw-rod at the rear of said follower for adjusting the tension of the follower-spring, substantially as and for the purposes specified.

4. In a camera of the class described, the combination of a magazine and means for exposing and discharging plates therefrom, a bath-carrying element arranged to rotate upon a vertical axis partly within and partly without the camera-case, a series of receptacles therein arranged to pass beneath the discharge-exit from the magazine, and means for controlling and retaining said carrying element with one of its receptacles beneath said discharge-exit and one outside of the camera, substantially as specified.

5. The combination with a camera of the class described, of a plate-discharge runway, means for exposing and discharging plates therein, a bath-carrying element pivotally mounted upon a vertical axis, said element being in an opening in the side wall of the case, a series of equidistant bath-carrying receptacles in said element, notches in the periphery of said element and a retaining-spring for engaging said notches, as and for the purpose specified.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 24th day of March, 1906.

LOUIS MANDEL.

Witnesses:

D. H. FLETCHER,
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