

No. 685,221.

Patented Oct. 22, 1901.

S. QUINCEY.

PHOTOGRAPHIC SENSITIZING AND DEVELOPING APPARATUS.

(Application filed Jan. 9, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 2.

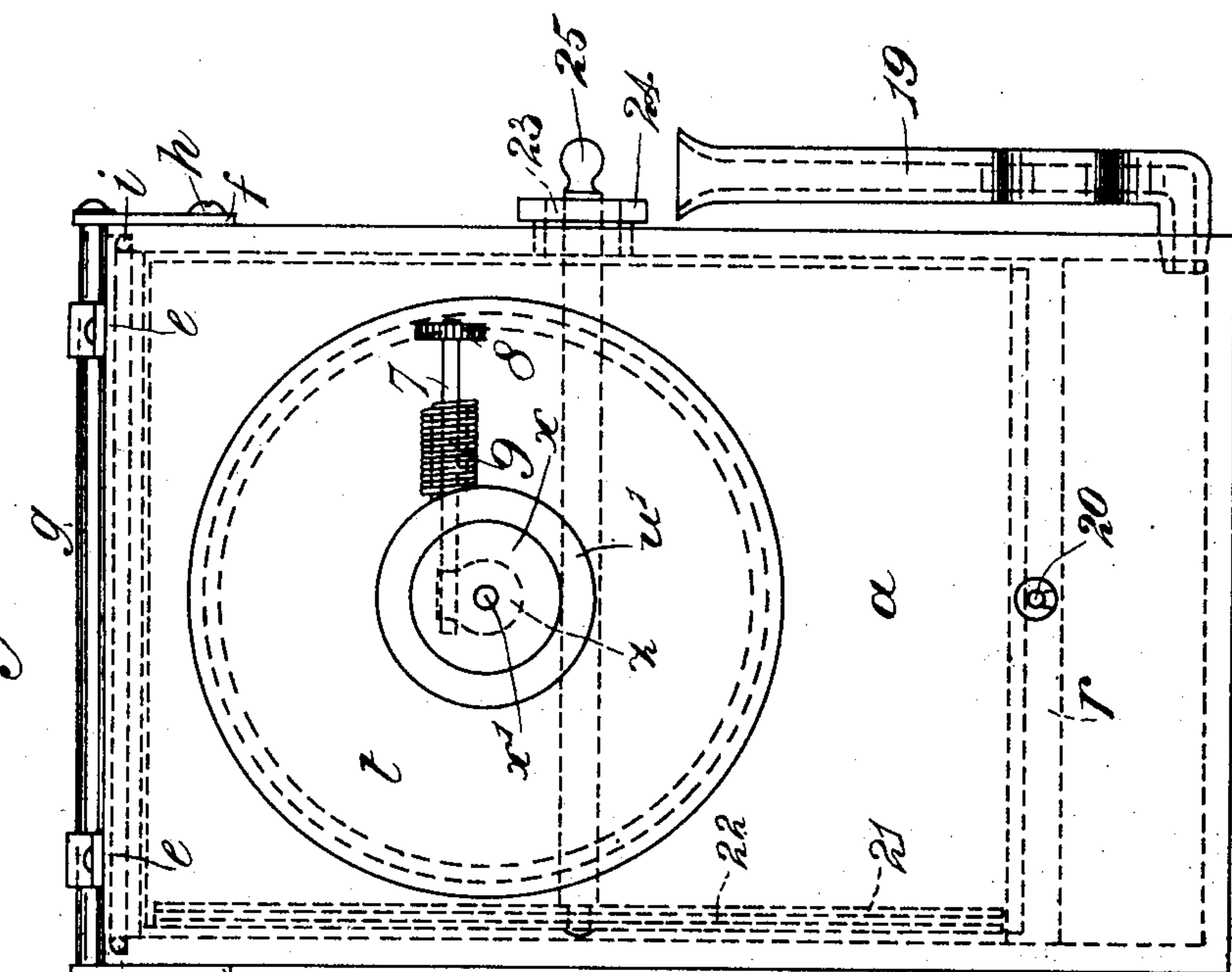
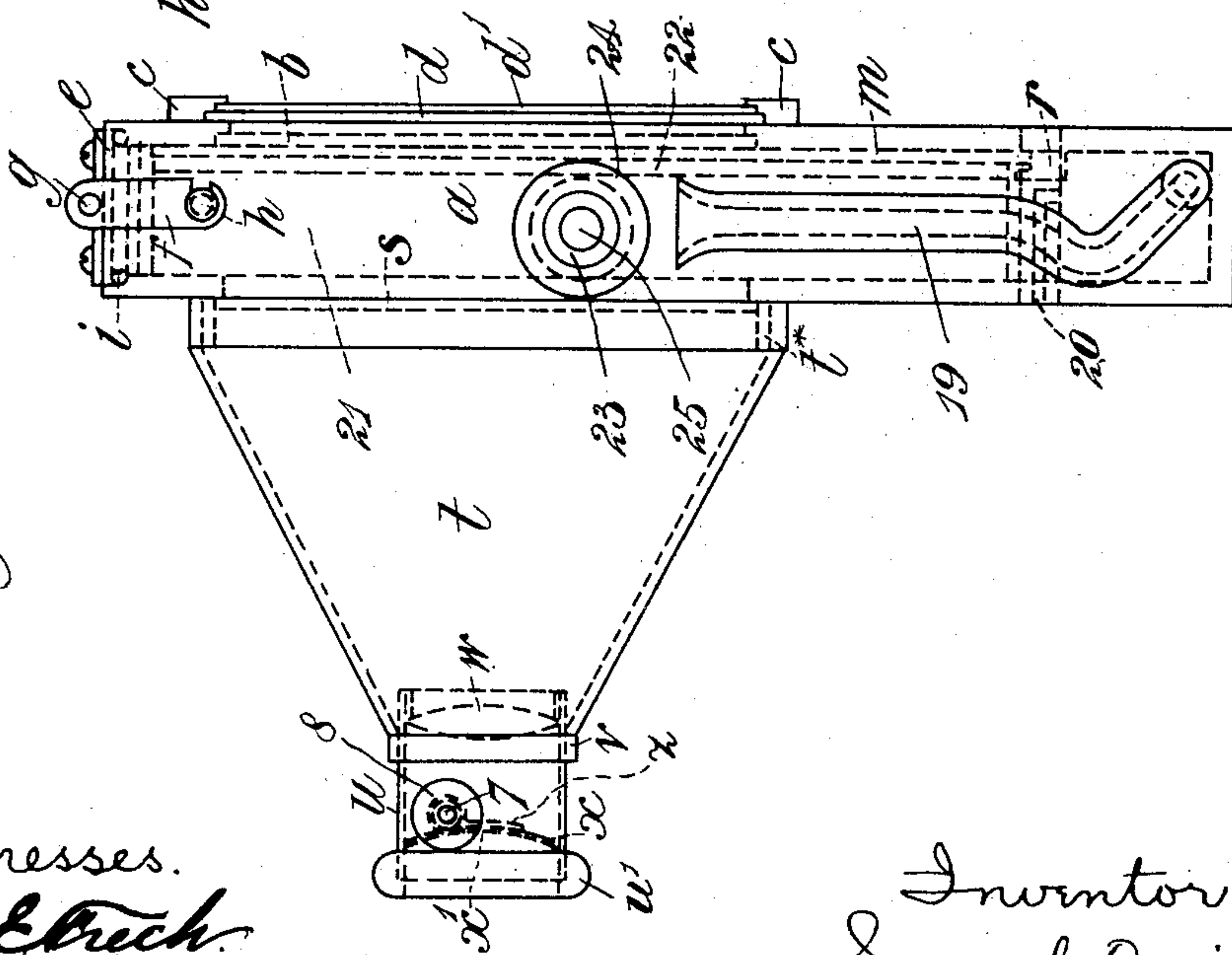


Fig. 1.



Witnesses.
Geo. C. Beck.
Chas. R. Wright.

Inventor.
Samuel Quincey,
by A. S. Pattison,
att'y.

No. 685,221.

Patented Oct. 22, 1901.

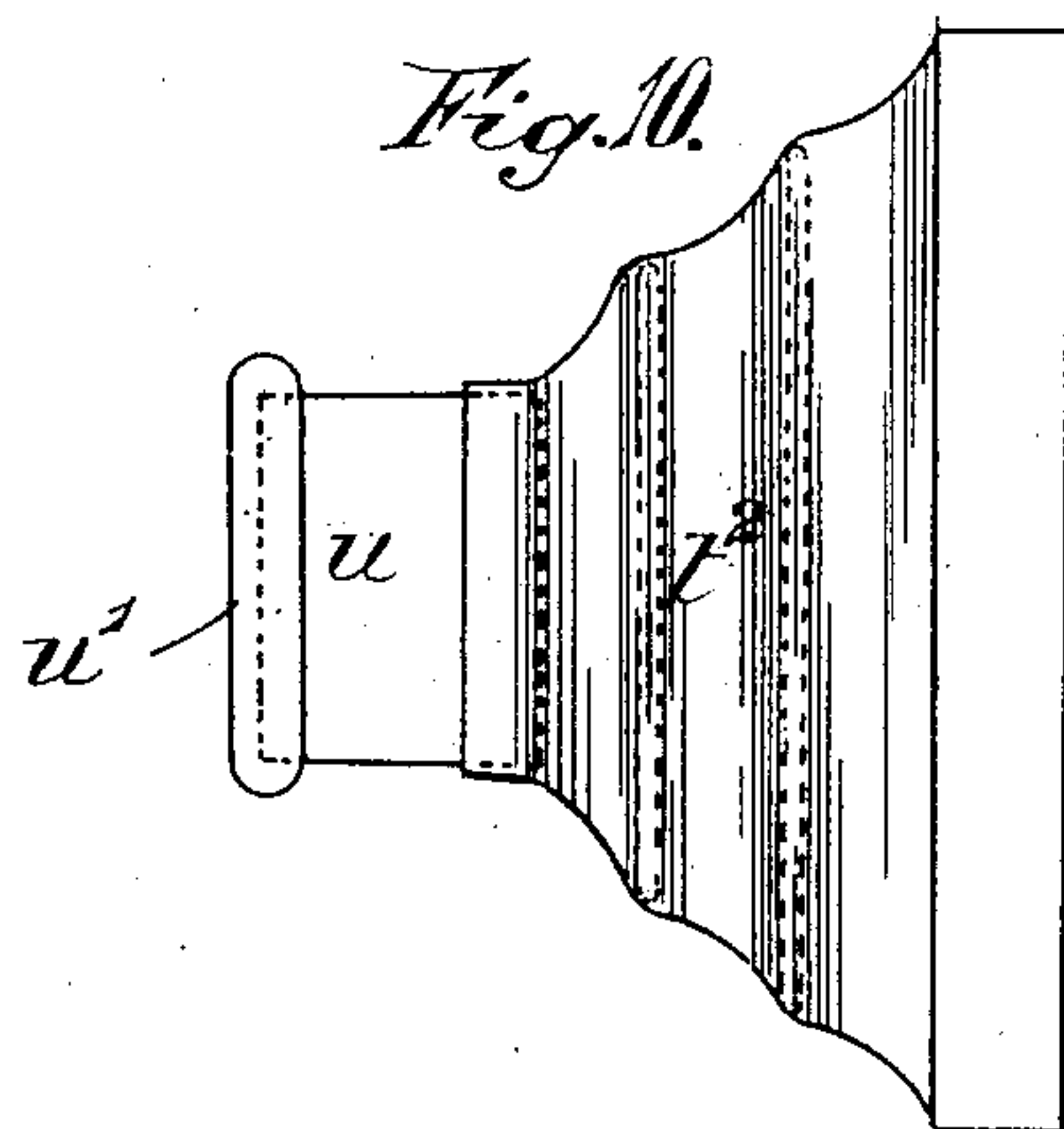
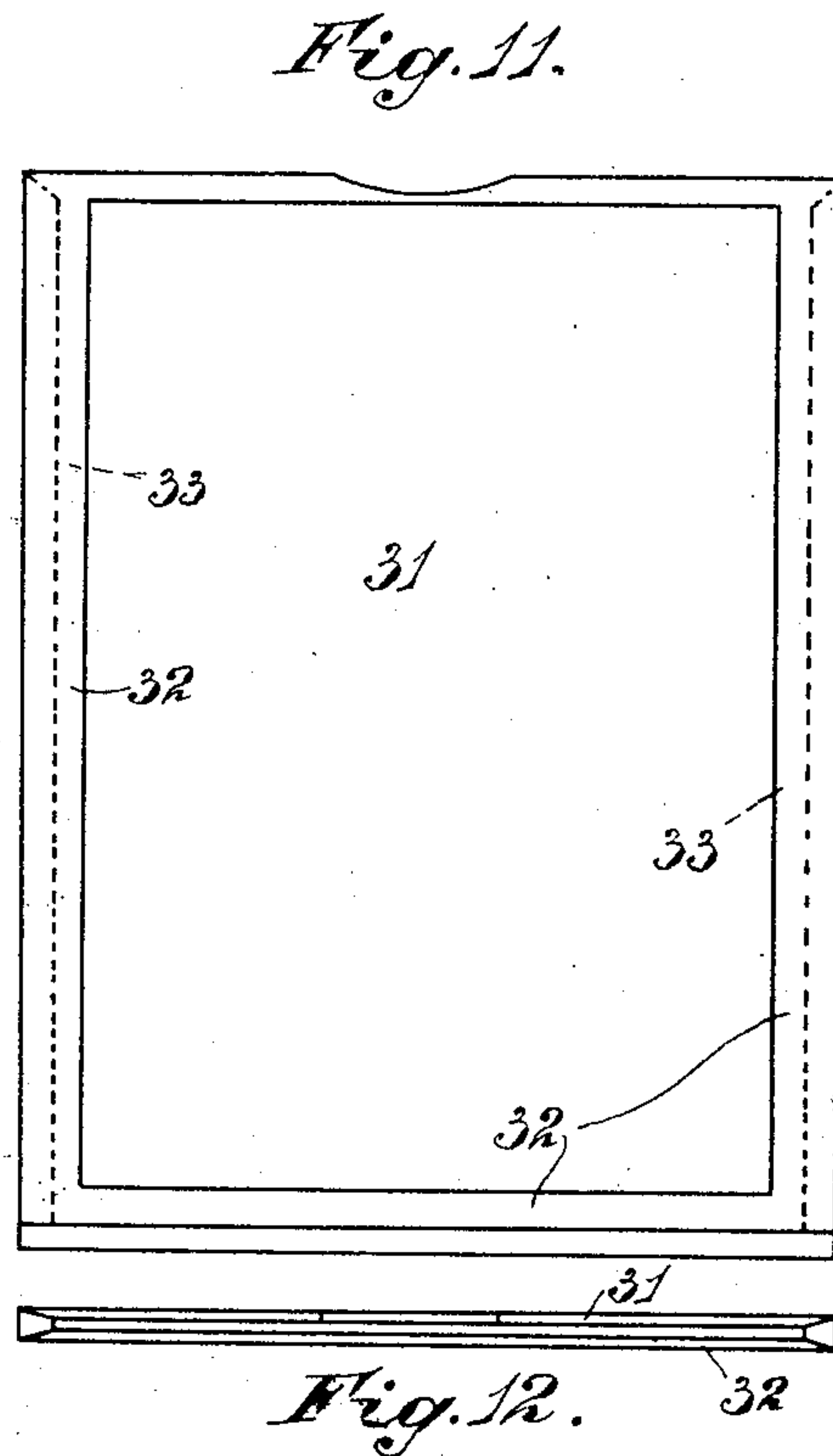
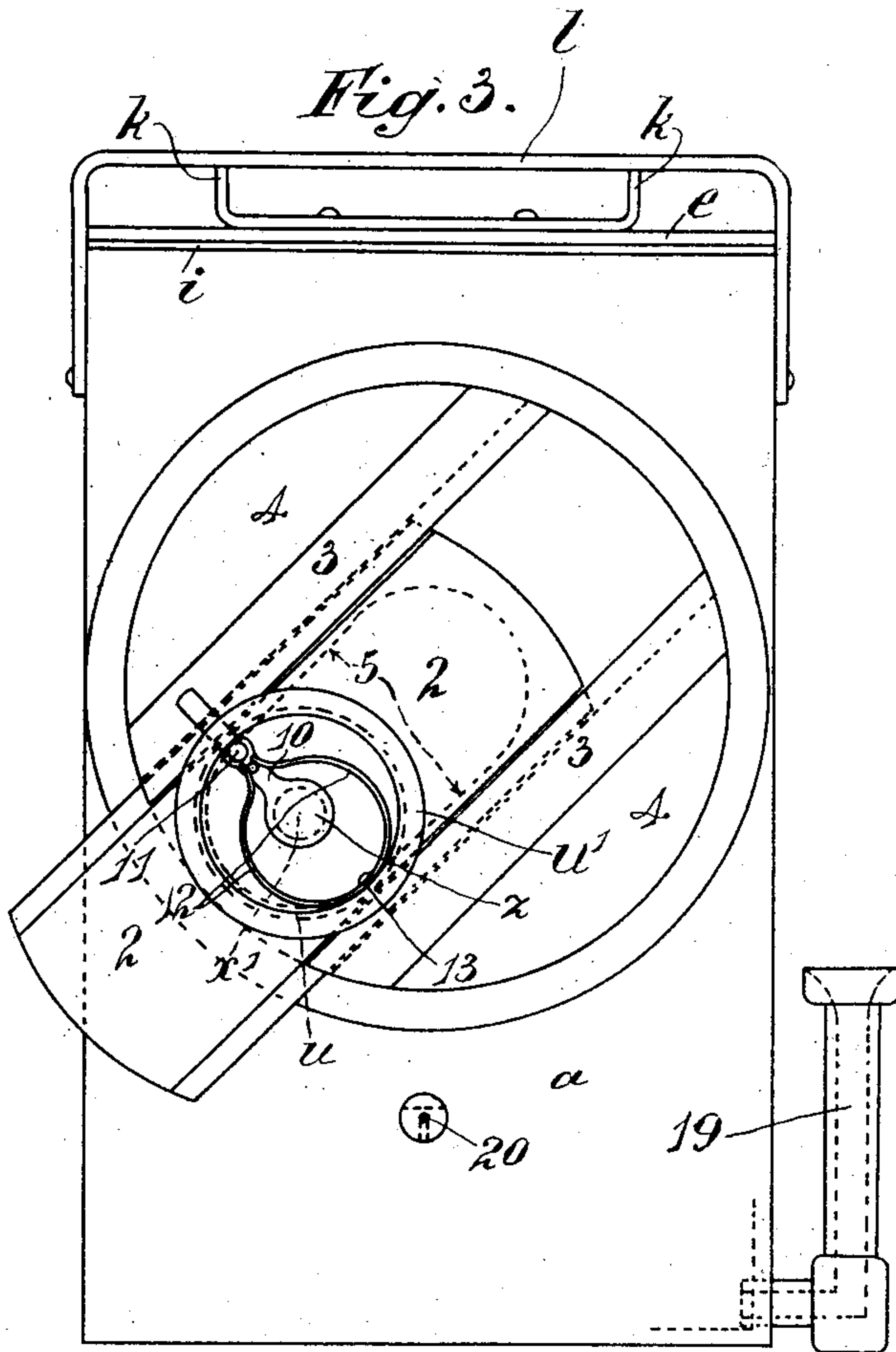
S. QUINCEY.

PHOTOGRAPHIC SENSITIZING AND DEVELOPING APPARATUS.

(Application filed Jan. 9, 1900.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses:
Geo. C. Cook
Chas. R. Wright Jr.

Inventor:
Samuel Quincy,
by *A. S. Pattison, atty*

S. QUINCEY.

PHOTOGRAPHIC SENSITIZING AND DEVELOPING APPARATUS.

(Application filed Jan. 9, 1900.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 4.

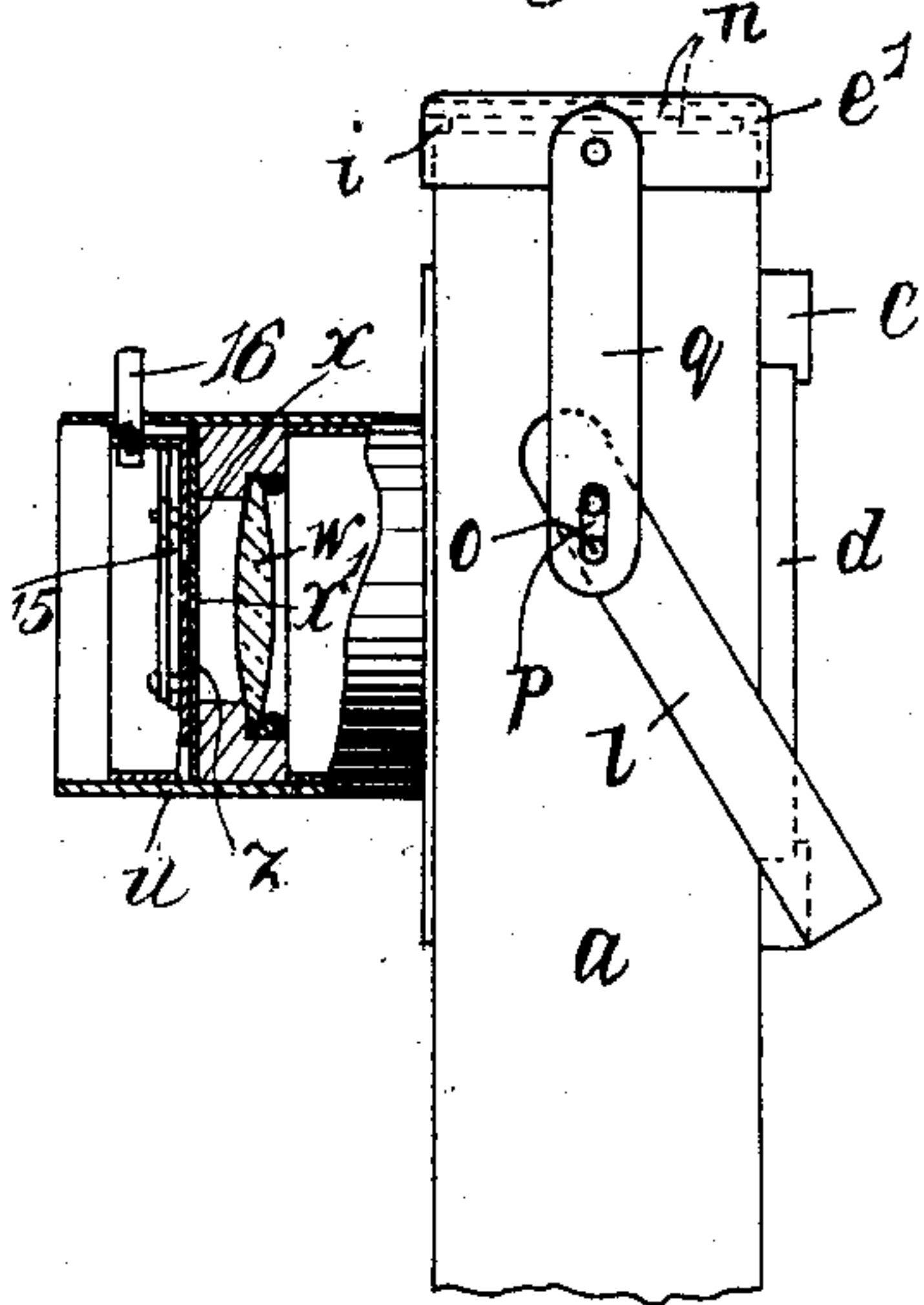


Fig. 5.

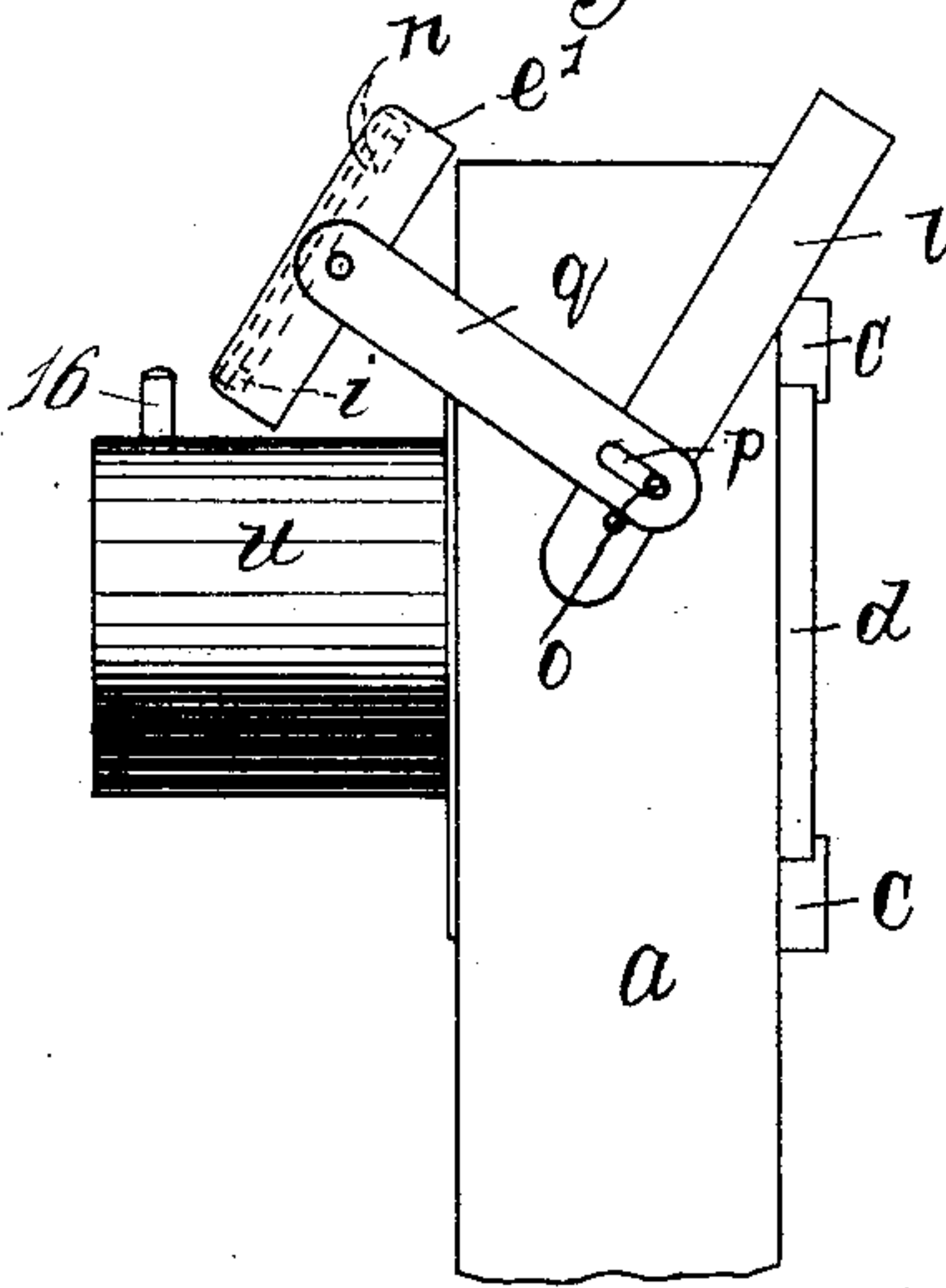


Fig. 6.

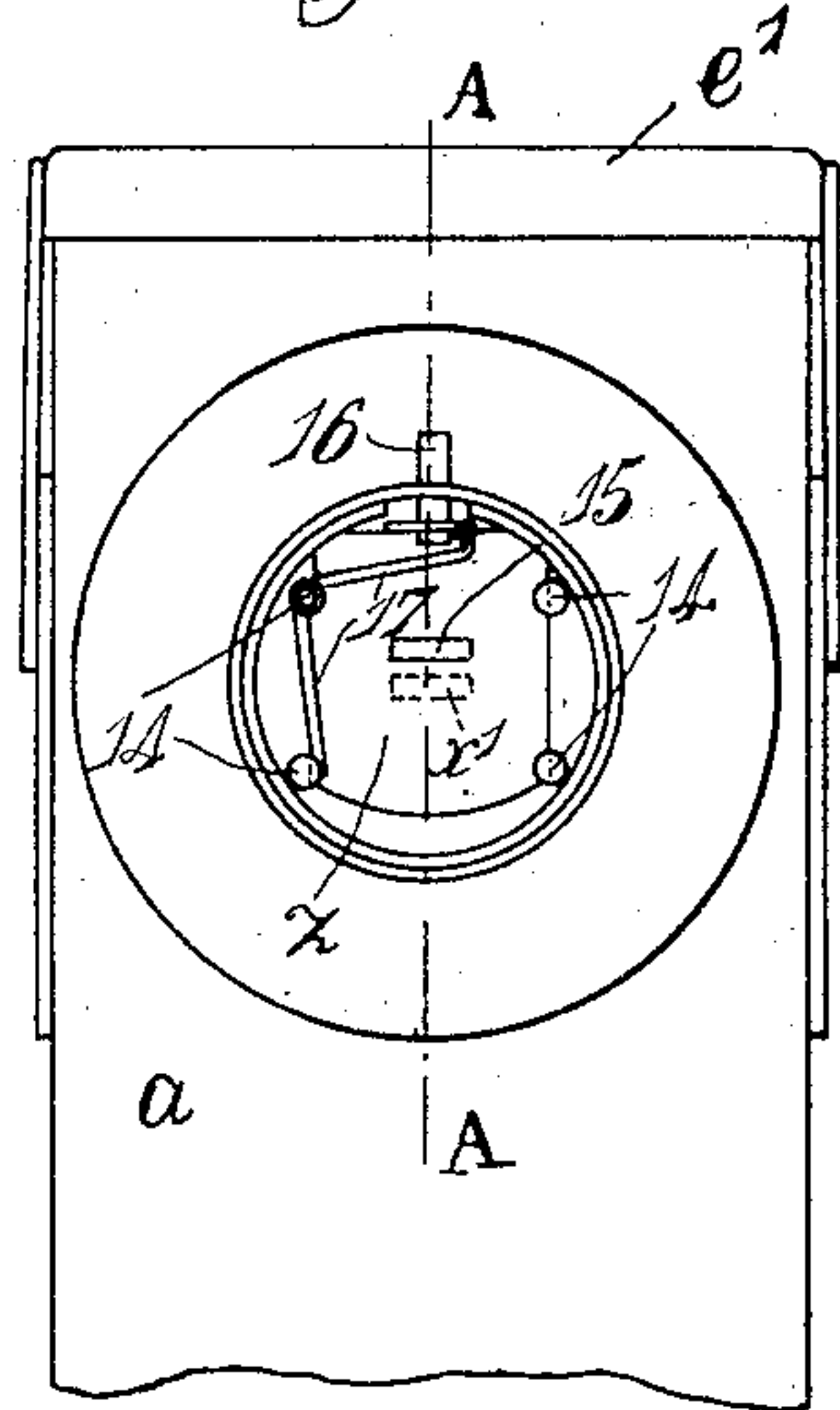


Fig. 7.

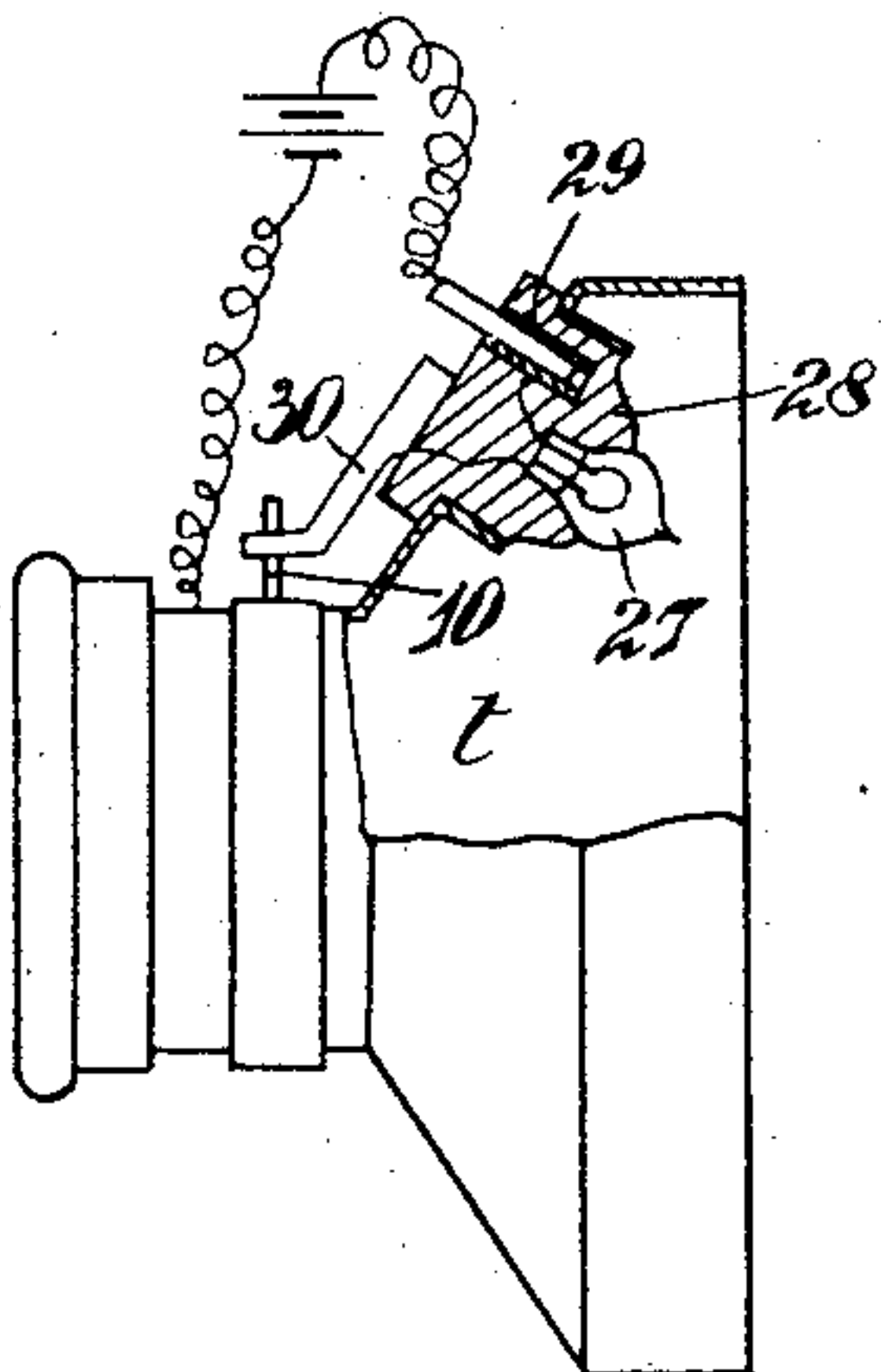


Fig. 9.

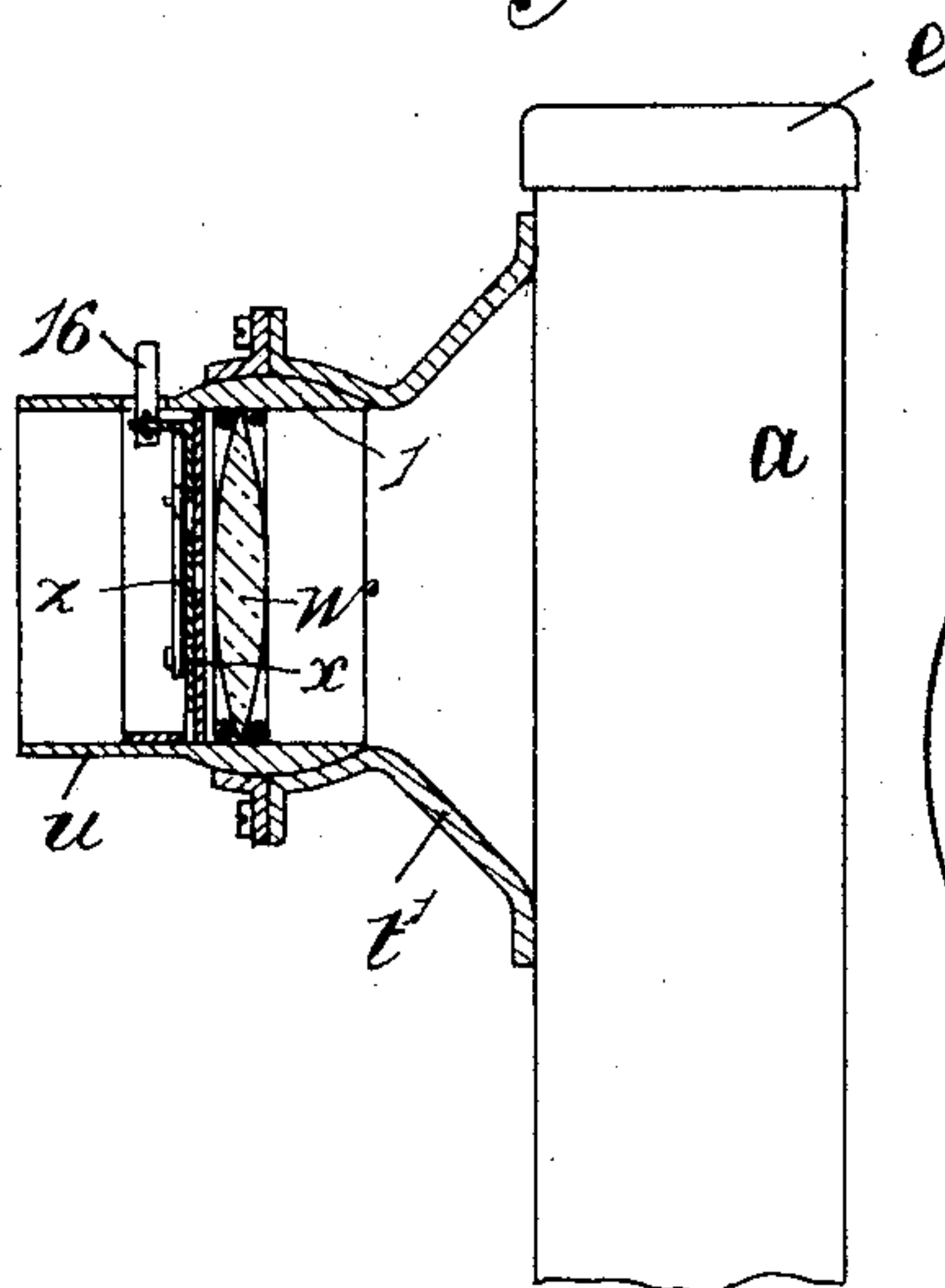
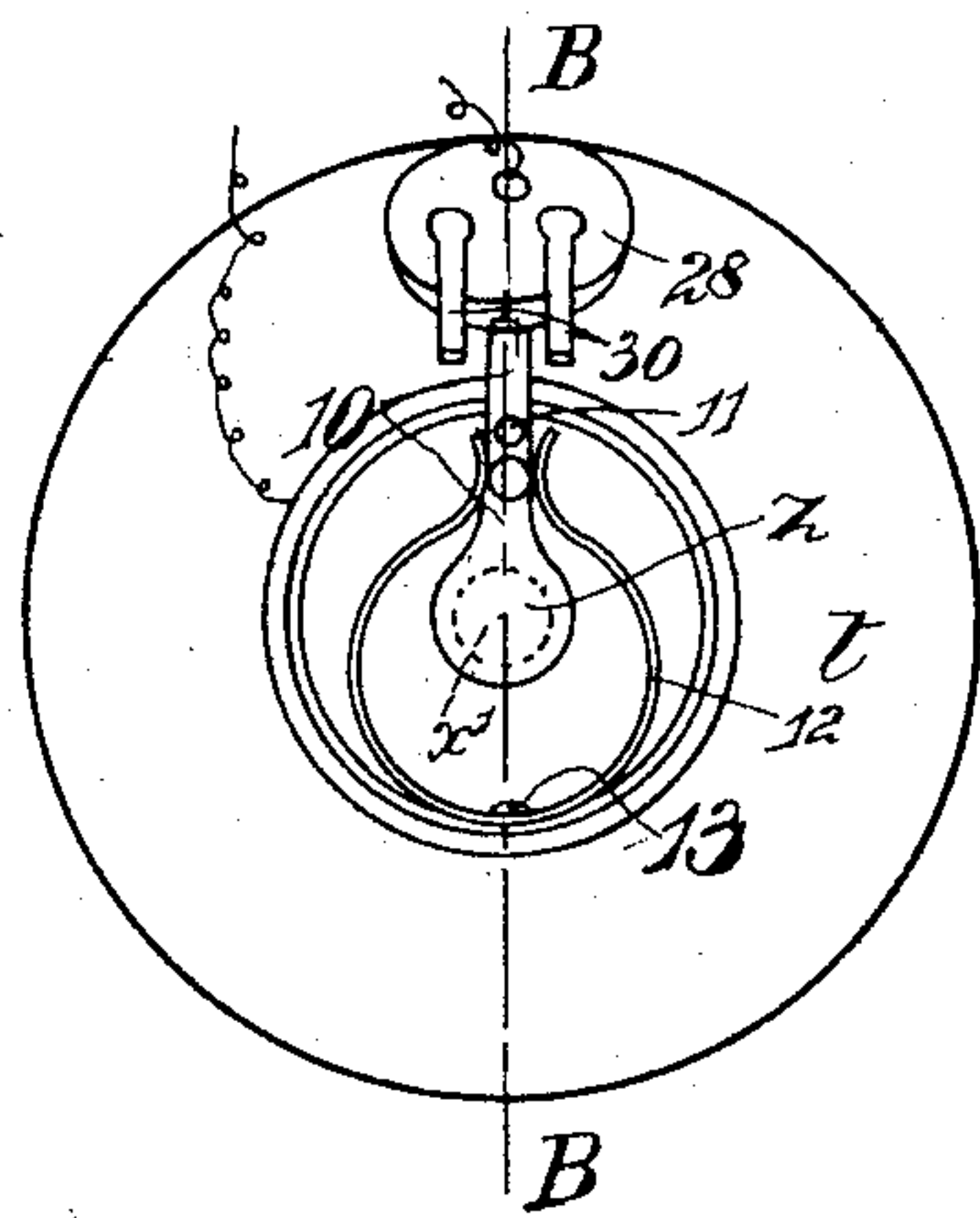


Fig. 8.



Witnesses,
Geo. E. Treck
Chas. M. Wright

Inventor,
Samuel Quincey
by A. S. Pattison
att'y

UNITED STATES PATENT OFFICE.

SAMUEL QUINCEY, OF LONDON, ENGLAND.

PHOTOGRAPHIC SENSITIZING AND DEVELOPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 685,221, dated October 22, 1901.

Application filed January 9, 1900. Serial No. 864. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL QUINCEY, a subject of the Queen of Great Britain and Ireland, residing at Seven Sisters road, London, in the county of Middlesex, England, have invented Improvements in Photographic Sensitizing and Developing Apparatus, of which the following is a specification.

This invention has reference to improvements in means or apparatus suitable for developing and fixing photographic or other sensitized plates, films, papers, or the like, (hereinafter called "plates,") and also for sensitizing the same, the object being to enable the developing, fixing, or sensitizing (hereinafter referred to simply as "developing") to be carried out by day or artificial light without the necessity of using the ordinary dark room.

For this purpose the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter fully described and then pointed out in the claims hereunto annexed.

Figures 1 and 2 of the accompanying illustrative drawings show, respectively, in side and front elevation one construction of apparatus according to this invention. Fig. 3 is a similar view to Fig. 2, showing a modified construction. Figs. 4, 5, and 6 show a further modified construction, Fig. 4 being a side elevation, partly in section, on the line A A of Fig. 6, Fig. 5 a side elevation with some of the parts in a different position, and Fig. 6 a front elevation. Fig. 7 shows, partly in side elevation and partly in section on the line B B of Fig. 8, and Fig. 8 in front elevation, a modified construction of lens-carrier and eyepiece. Fig. 9 shows, partly in side elevation and partly in central vertical section, a further modified construction of the apparatus. Fig. 10 shows in side elevation another construction of lens-carrier. Figs. 11 and 12 show, respectively, in front elevation and plan, a carrier suitable for holding films, papers, and the like within the apparatus.

a is a box made of any suitable shape, preferably rectangular, as shown, and of any suitable material—such, for example, as ebonite, celluloid, or the like—that will not be affected by the chemicals employed in the various processes to be carried out within the said box. Within an opening in the back of the

box is fitted in a liquid-tight manner a piece *b*, of clear or colored non-actinic glass or other clear or colored medium, that may occupy any desired proportion of the back of the box. Secured to the back of the box are upper and lower transverse guides *c* to allow of one or more slides *d*, of suitably-colored glass, being slid in position behind the piece *b*, of glass, for the purpose of decreasing more or less the quantity of non-actinic light that can enter the box during the examination of the plate under treatment therein. At other times a plate *d'*, of opaque material, is slid into the guides *c* behind the glass plate or plates *d* to prevent the entrance of any light there-through into the box. When treating an opaque film or paper in the box, the opaque plate *d* is maintained in place also during the examination of the film or paper, which is done by the aid of reflected light. The upper end of the box is provided with a removable cover *e*, which when in place is secured by suitable fastenings and made liquid-tight by a strip of india-rubber or other compressible material inserted between the box and cover, or the parts of the box and cover that come into contact may be ground to a true fit.

In Figs. 1 and 2 the cover *e* is made of opaque material and is detachably fixed in place by means of two hooks *f*, carried by the ends of a rod *g*, mounted lengthwise on the cover and engaging pins *h* on the sides of the box, a liquid and light tight joint being made between the cover and box by a strip *i* of india-rubber or like material.

In Fig. 3 the cover *e*, of opaque material, is provided with two projecting parts *k*, over and against which a stirrup-shaped spring-holder *l*, pivoted to the sides of the box, can be caused to bear when it is desired to secure the cover in place and which can be readily turned to one side to permit of removal of the cover.

Instead of using a cover of opaque material it is sometimes desirable to use a cover fitted with one or more pieces of clear or colored glass or an equivalent transparent non-actinic medium, so that light can be caused to impinge upon and be reflected from the surface of the plate under treatment within the box. Such a cover is shown in Figs. 4, 5, and 6. It consists of a cap-like frame *e'*, that is

adapted to fit over the top of the box *a*, and is fitted with two pieces of glass *n*, the inner of which is smaller than the outer and is surrounded by a strip *i*, of jointing material.

5 This cover may conveniently be held in place by the action of two pins *o*, that are fixed eccentrically to the side members of the stirrup-shaped spring-holder *l*, used for fixing the opaque cover in place, and work in slots *p* in
10 two spring-arms *q*, attached to the ends of the cover, the arrangement being such that upon placing the cover in position and engaging the slotted ends of the spring-arms *q* with the pins *o* when these are in a raised position
15 and then turning the holder *l* downward into the position shown in Fig. 4 the pins *o* will pull down the cover *e'* and securely lock the same in place. The sides and front of the box may also have pieces of glass or like
20 equivalent non-actinic material fitted therein in a similar manner for the purpose of using reflected light.

The box is fitted internally with means—such, for example, as a transverse grooved
25 bar *r*, fixed to the back of the box—for supporting the plate *m* that is under treatment in a vertical or inclined position, the supporting means being so arranged and the box being of such length that when the latter is held
30 in a vertical position the plate resting on the support *r* will be held clear of the active solution, which then remains in the bottom of the box.

The front of the box *a* is formed with an
35 opening fitted with a piece *s* of clear or suitably-colored transparent glass or equivalent medium, over and around which is secured, preferably in a movable manner, a carrier of opaque material provided at its free forward
40 end with an eyepiece fitted with a lens and a shutter or equivalent means that normally closes in a light-tight manner an aperture in the eyepiece, through which, when uncovered, and the lens and the piece of glass *s*
45 the plate *m* under treatment can be readily examined for the purpose of ascertaining the progress of the developing operation.

In the construction of apparatus shown in Figs. 1 and 2 the lens-carrier is in the form of
50 a hollow cone *t*, of opaque material, which may be formed in one piece with the front of the box, or, as shown, be rotatably and detachably mounted on a short tubular projection *t'* thereon. The eyepiece *u* consists of a tube
55 that is endwise adjustable in a tubular holder *v* on the carrier and is provided with a lens *w* of suitable shape and focus and with an opaque stop or diaphragm *x*, that is arranged outside the lens and formed with an aperture
60 *x'*, that is normally closed in a light-tight manner by a suitable shutter *z*. The outer end of the eyepiece *u* is fitted with a piece *u'* of soft compressible material—for example, india-rubber—so shaped that when applied to
65 the eye of the operator a light-tight joint will be formed between the two. In the construc-

tion shown in Fig. 9 the eyepiece *u*, with lens *w*, is connected to a tubular carrier *t'* by a universal or swiveling joint, such as a ball-and-socket joint 1, that will enable the eye-
70 piece and lens to be moved in any direction to cover a larger field of view; or the lens-carrier instead of being of rigid material may consist of a flexible light-tight bag *t''*, (see Fig. 10,) that will allow of the eyepiece *u*,
75 with lens, being moved over the different parts of the plate under treatment. Fig. 3 shows a further modified arrangement wherein the eyepiece, with lens, is mounted upon a slide 2, arranged to slide in ways 3 on a turn-table 4,
80 that is mounted to turn on the tubular projection *t'* upon the front side of the box and is formed with a slot 5, over which the lens travels, the arrangement being such that by adjusting the position of the slide and turn-
85 table the eyepiece and lens can be brought over all parts of the plate under treatment. This arrangement is specially suitable for apparatus of large size.

The shutter *z* for controlling the aperture
90 *x'* may be constructed and arranged in various ways. In Figs. 1 and 2 it is made in the form of a flap-valve fixed to spindle 7, that is provided with a milled head 8 and with a coiled spring 9, that normally holds the shut-
95 ter in the closed position. In Fig. 3 the shutter *z* is in the form of an oscillating slide carried by a lever 10, pivoted at 11 and normally held in the mid and closed position by the two oppositely-arranged end portions of a
100 bent flat metal spring 12, that is fixed at its central portion 13 within the eyepiece *u*. To prevent light entering the eyepiece through the slot therein, in which the outer end of the shutter-lever works, the eyepiece-tube is sur-
105 rounded by a ring *u'* of india-rubber that covers the slot and through which the said outer end of the shutter-lever extends. In Figs. 4, 5, and 6 the shutter *z* consists of a
110 flat sheet-metal slide arranged to work between guides 14 and formed with a slit 15, which by moving the slide by means of a pusher 16 against the action of a spring 17 can be brought opposite the aperture *x'* when it is desired to examine a plate within the box,
115 but which will be automatically moved out of line with the aperture by the spring 17 when the pusher 16 is released.

The box *a* is provided with suitable means for inlet and outlet of liquid. For this pur-
120 pose there may be attached in a rotatable manner to one side of the box a bent pipe 19, that is provided with a funnel-shaped upper end and can be turned into the upward position shown when it is desired to admit liquid
125 to the box and into a downward position when it is desired to discharge the liquid contents of the box.

20 is a vent-tube through which air can escape from the box when admitting liquid
130 thereto. The inner end of the bent passage through this vent-tube is directed toward the

bottom of the box in order to prevent light passing through the tube and impinging upon the plate under treatment.

For the purpose of effectually spreading the solution that is being used over the plate under treatment and removing all dust, dirt, and air-bubbles therefrom the box *a* is provided with a device herein called a "scavenger." This scavenger, Figs. 1 and 2, consists of a rectangular plate 21 of material such as ebonite, furnished with a strip 22 of soft india-rubber or the like to come into contact with the plate. At its middle portion the plate 21 is connected to an ebonite or other suitable rod that passes in a liquid-tight manner through a plug 23 of suitable material, such as cork, that is fitted into a bush 24, fixed in the side of the box, a handle 25 being formed on the outer end of the said rod to permit of the scavenger being readily drawn backward and forward over the face of the plate. To admit of the plate *m* under treatment being readily examined by means of reflected light, an electric or other lamp inclosed in a ruby glass or equivalent container may be arranged within the apparatus, so that light therefrom will fall upon the plate.

In Figs. 7 and 8 there is arranged within the conical lens-carrier *t* an electric lamp 27, having a ruby-glass receiver carried by a plug 28, of insulating material, that is inserted into a hole or socket in the carrier *t*. The plug 28 is provided with a metal socket 29, that is connected to one terminal of the lamp 27 and is adapted to receive a plug connected to one pole of an electric generator, the other pole of which is in connection with the eyepiece-tube *u* and shutter-lever 10. The plug is also provided with a pair of spring-arms 30, that are connected to the other terminal of the lamp and are located one on each side of the said shutter-lever 10. The arrangement is such that when the shutter-lever is moved in either direction to uncover the aperture *a'* it will come into contact with one of the spring-arms 30 and complete the circuit of the lamp and cause the same to glow, the circuit of the lamp being opened when the shutter and lever are returned to their mid and closed position.

For supporting sensitized films and papers in a flat state within the box there is employed a holder, such as shown in Figs. 11 and 12, that can be readily placed within and removed from the box *a*. It consists of a flat plate 31, provided on its front side with a rectangular frame 32, arranged to form with the plate 31 guideways 33, adapted to receive and hold the edges of a sensitized film or plate. The upper end of the holder, which is made of ebonite or like material, is of flaring shape to facilitate the insertion of a film or paper.

The operation of inserting a plate within and removing it from the apparatus may be effected within the ordinary changing-bag, as well understood.

What I claim is—

1. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a transparent front portion, and a liquid inlet and outlet, and an eyepiece arranged opposite said transparent front portion and provided with a lens and a closing shutter. 70 75

2. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a transparent front portion and a liquid inlet and outlet, a movable carrier arranged opposite said transparent front portion, and an eyepiece supported by said carrier and provided with a lens, a transverse diaphragm with sight-aperture, and a shutter whereby said aperture can be opened and closed. 80 85

3. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a transparent front and a liquid inlet and outlet, a rotary carrier mounted on the front of said box opposite said transparent front portion, and an eyepiece adjustably mounted on said carrier and provided with a lens, a transverse diaphragm with sight-aperture, and a shutter whereby said aperture can be opened and closed. 90 95

4. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a liquid inlet and outlet, a transparent back portion of non-actinic material and a transparent front portion, a lens-carrier arranged over said transparent front portion, and an eyepiece connected to said carrier and provided with a lens, a sight-aperture and means for opening and closing said aperture. 100 105

5. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a liquid inlet and outlet, a transparent back portion of non-actinic material and a transparent front portion, guides attached to the back of said box and adapted to support one or more detachable plates behind the transparent back portion of said box, a lens-carrier arranged over said transparent front portion, and an eyepiece connected to said carrier and provided with a lens, a sight-aperture and means for opening and closing said aperture. 110 115 120

6. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a transparent front portion, and a liquid inlet and outlet, an eyepiece arranged opposite said transparent front portion and provided with a lens and a closing shutter, and a scavenger device arranged within said box and adapted to be moved over and bear against the surface of the photographic plate supported therein. 125 130

7. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a

transparent front portion and a liquid inlet and outlet, an eyepiece arranged opposite said transparent front portion, and provided with a lens and a closing shutter, and a scavenger device arranged within said box and comprising a plate having a strip of soft material at one edge, a rod secured to said plate and adapted to work through one side of said box, and means for effecting a liquid-tight joint between said rod and box, substantially as described.

8. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a transparent front portion and a liquid inlet and outlet, a carrier arranged opposite said transparent front portion, an eyepiece supported by said carrier and provided with a lens, a transverse diaphragm with sight-aperture, and a shutter whereby said aperture can be opened and closed, and an illuminating device located within said carrier.

9. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a transparent front portion, and a liquid inlet and outlet, a carrier arranged opposite said transparent front portion, an eyepiece supported by said carrier and provided with a lens, a transverse diaphragm with sight-aperture, and a shutter whereby said aperture can be opened and closed, an electric lamp located within said carrier, and means for opening and closing the circuit of said lamp.

10. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a transparent front portion and a liquid inlet and outlet, and an eyepiece arranged opposite said transparent front portion and provided with a lens, a transverse plate or diaphragm arranged at the outer side of said lens and having a sight-aperture therethrough, a shutter adapted to move over said aperture and open and close the same, and means for operating said shutter, substantially as described.

11. Apparatus suitable for treating photographic plates comprising a box having a removable cover, an internal plate-support, a transparent front portion, a liquid inlet and outlet, and a transparent portion formed of non-actinic material through which non-actinic light can fall upon the front side of the plate within said box, and an eyepiece arranged opposite said transparent front portion and provided with a lens, a diaphragm arranged at the outer side of said lens and formed with a sight-aperture, and a shutter adapted to open and close said aperture, substantially as described.

Signed at London, in the county of Middlesex, England, this 22d day of December, 1899.

SAMUEL QUINCEY.

Witnesses:

WM. O. BROWN,
EDMUND S. SNEWIN.