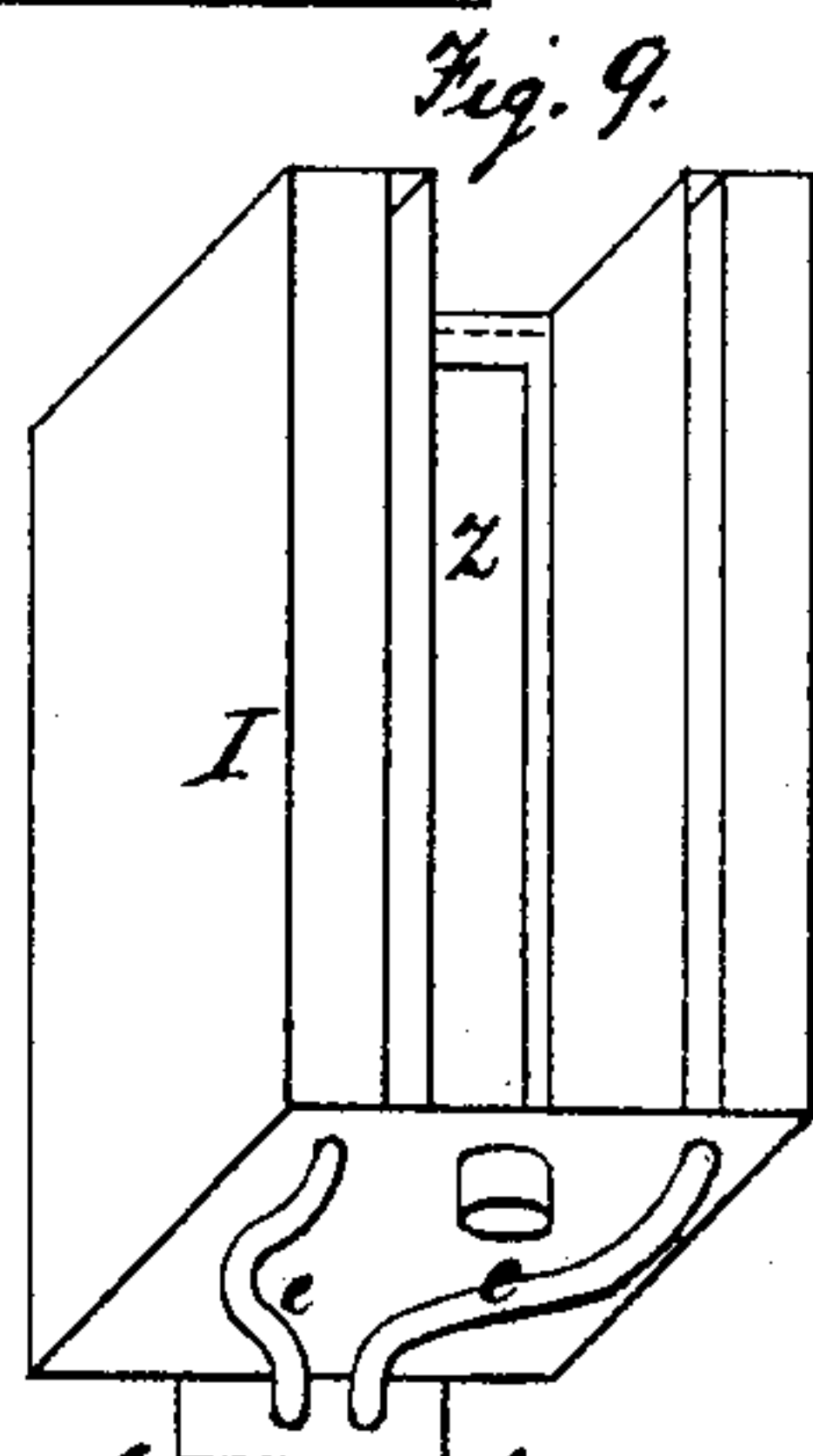
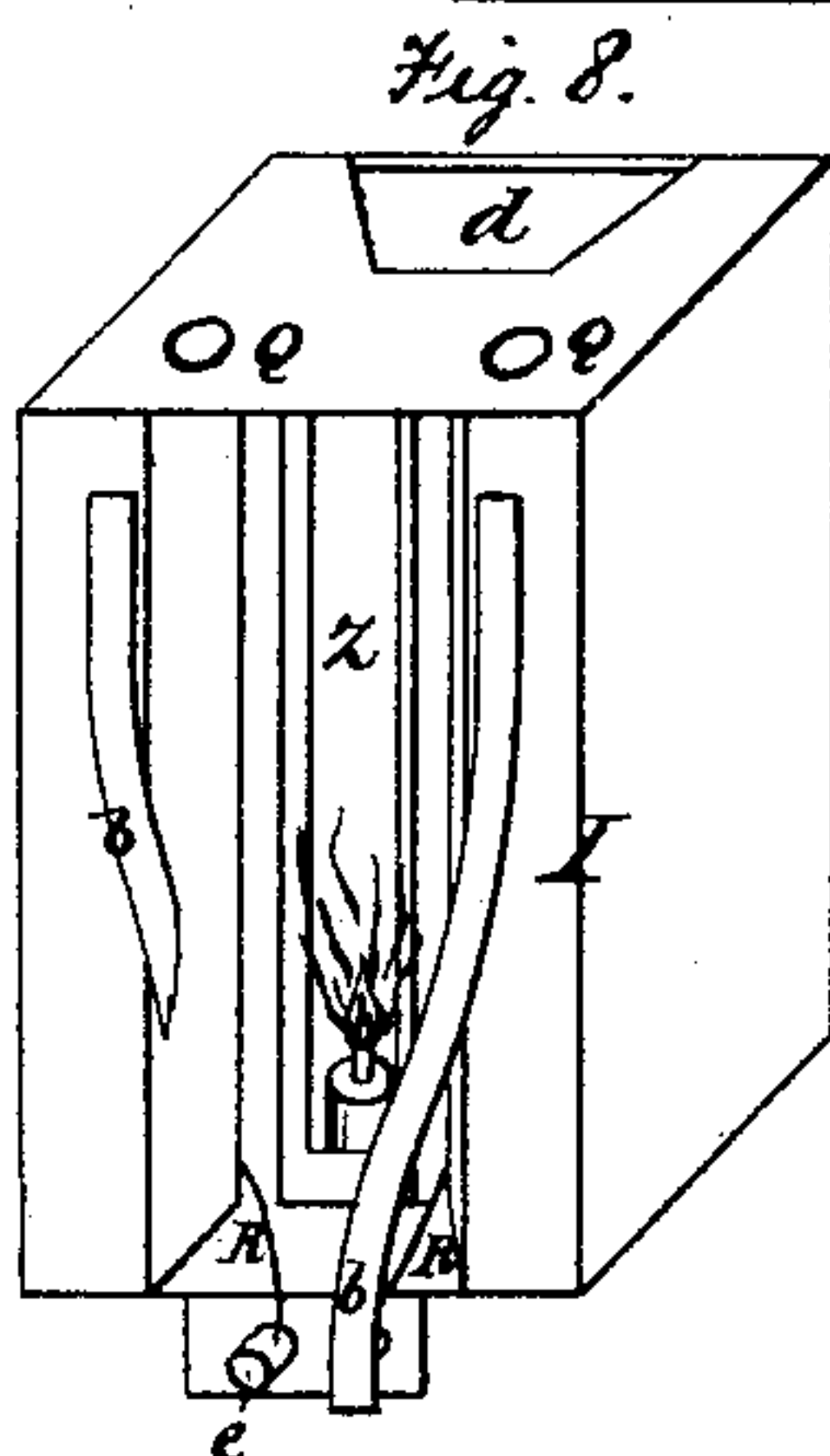
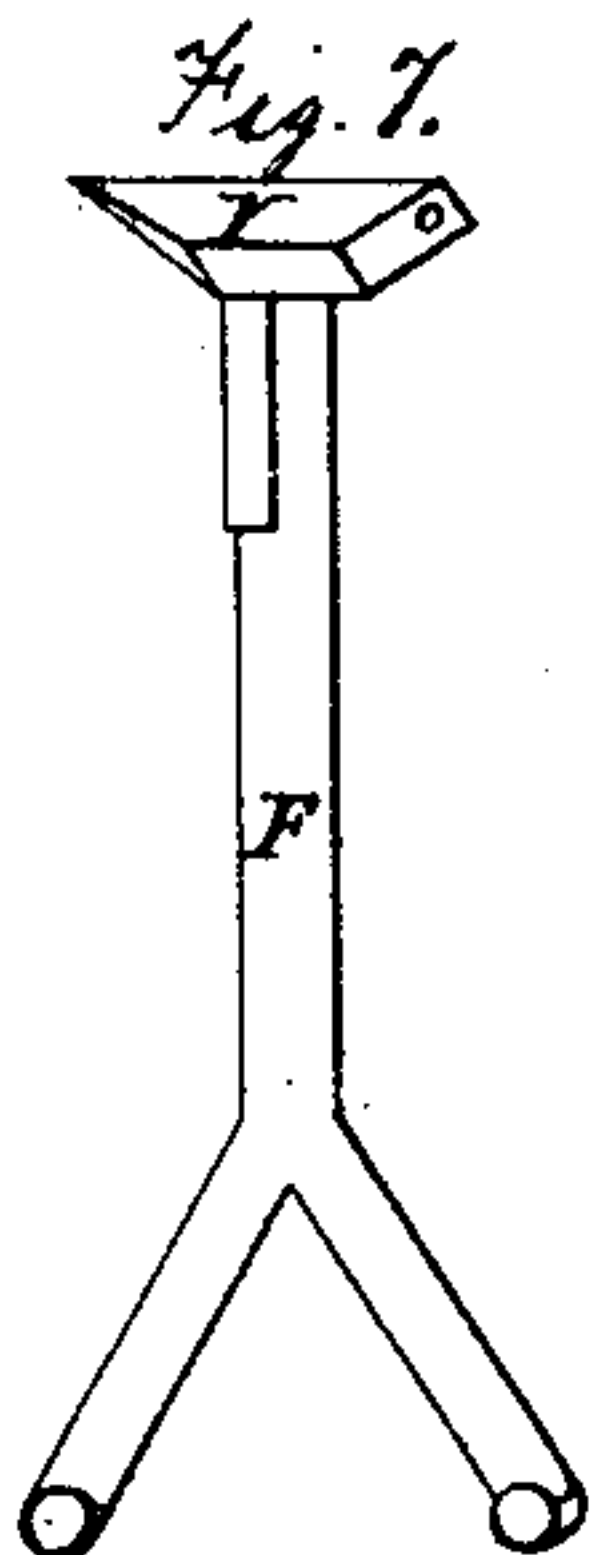
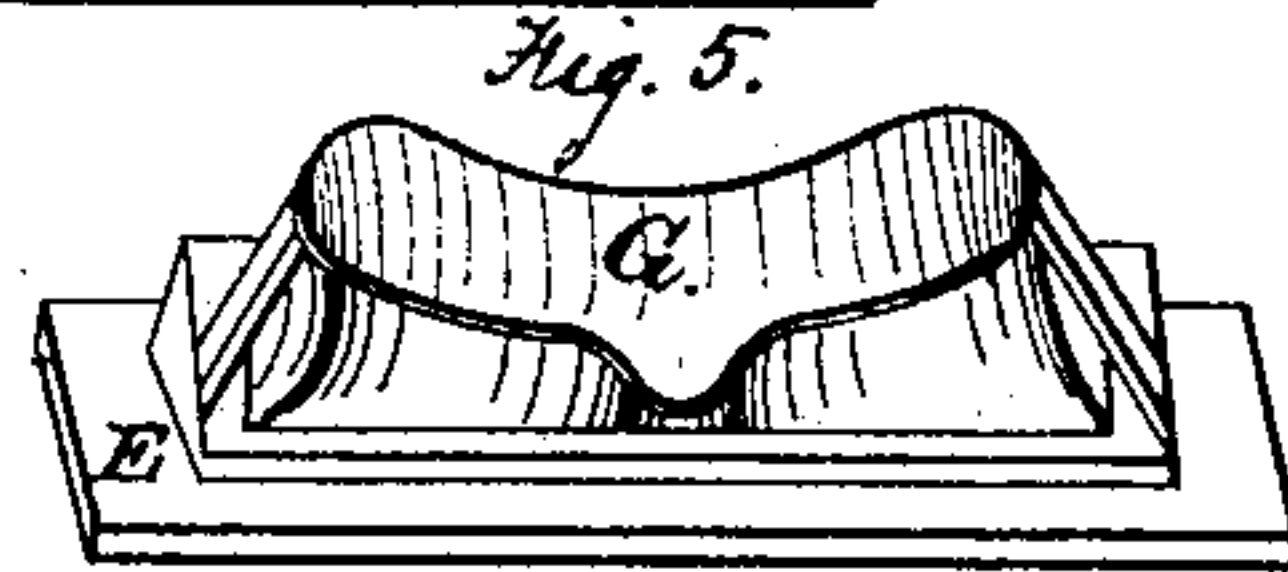
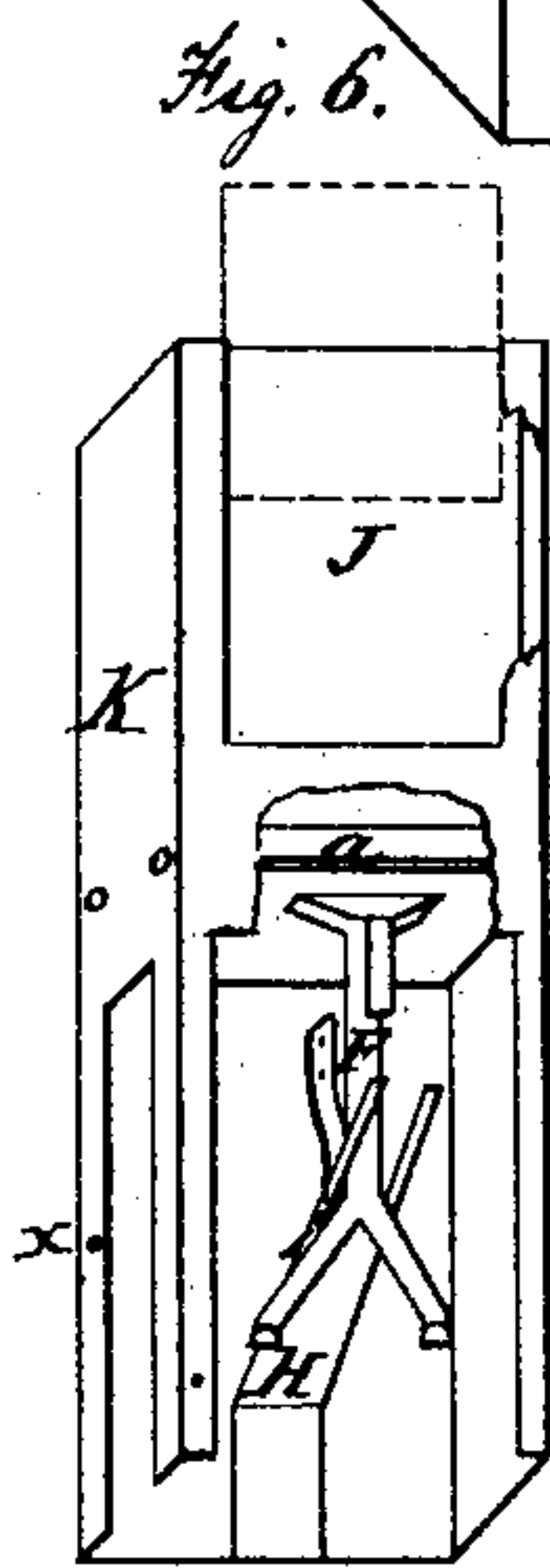
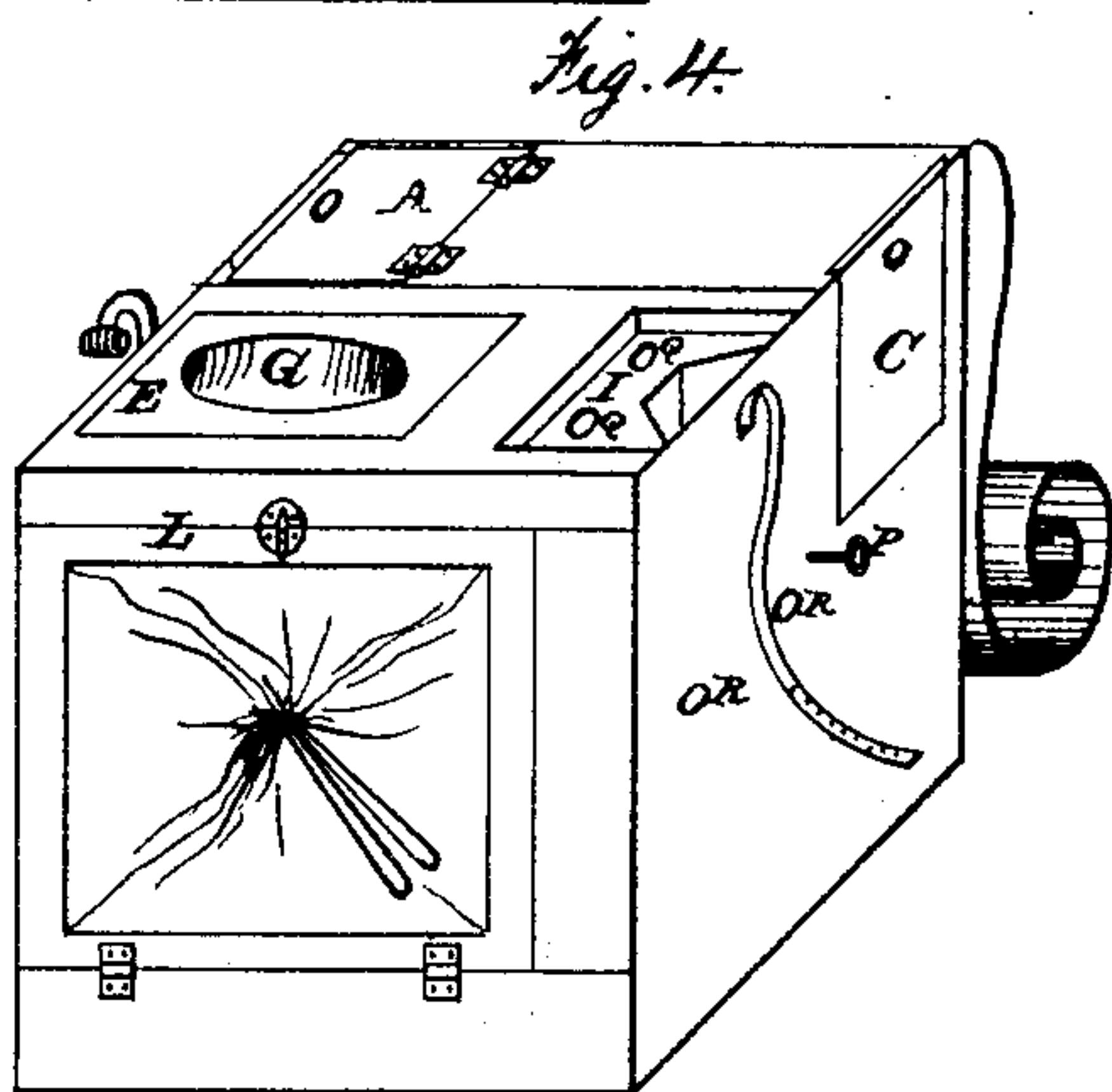
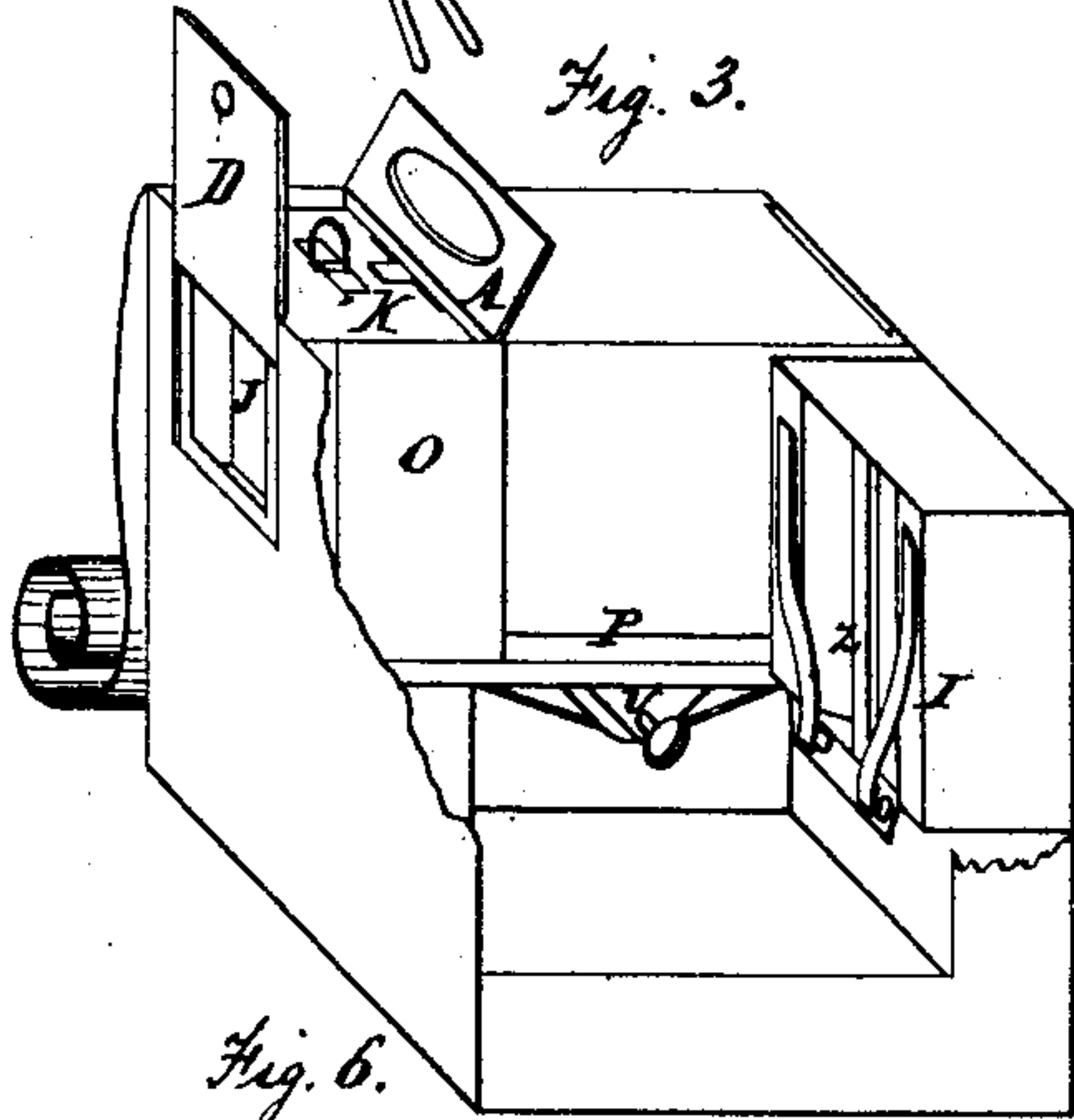
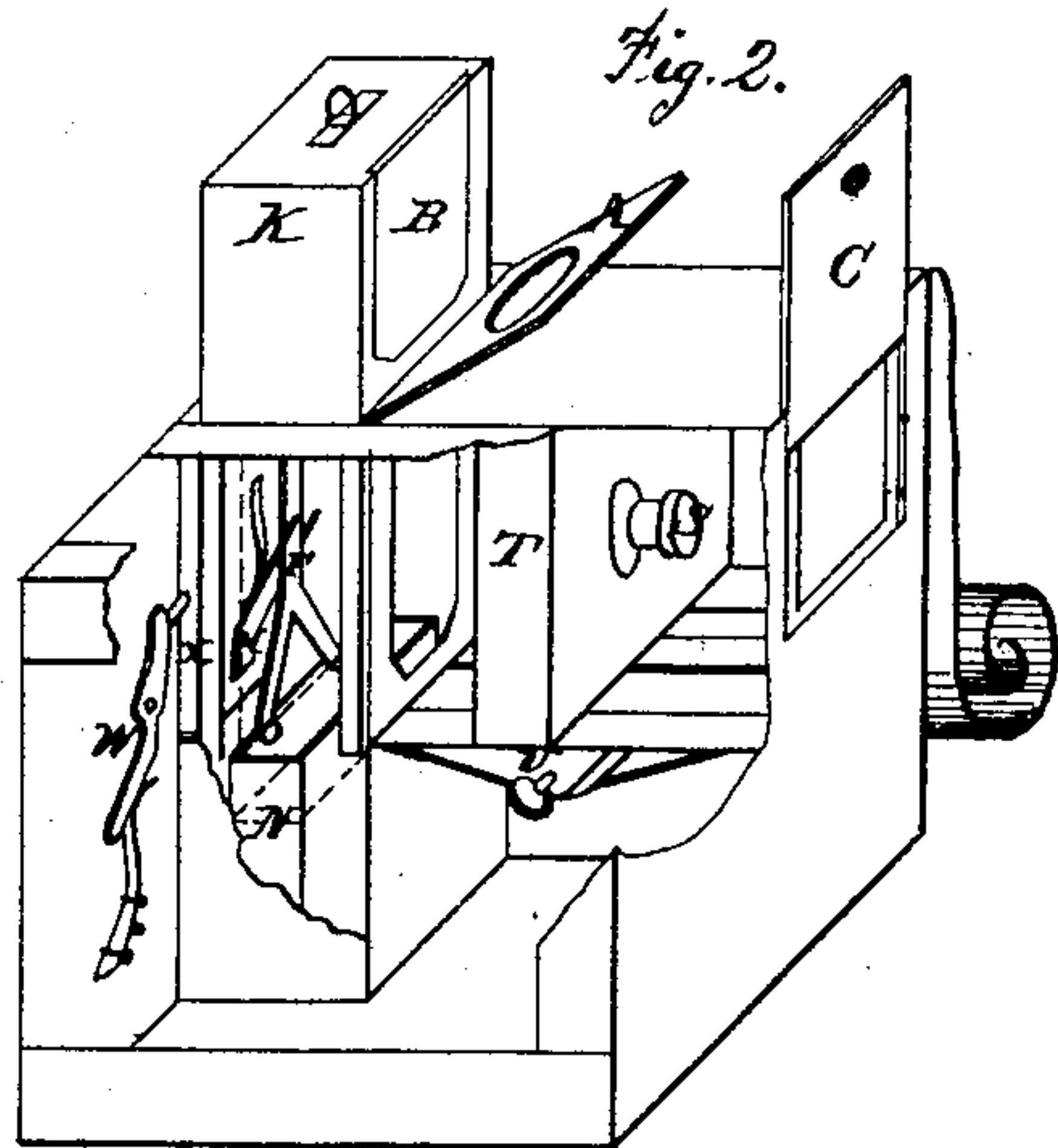
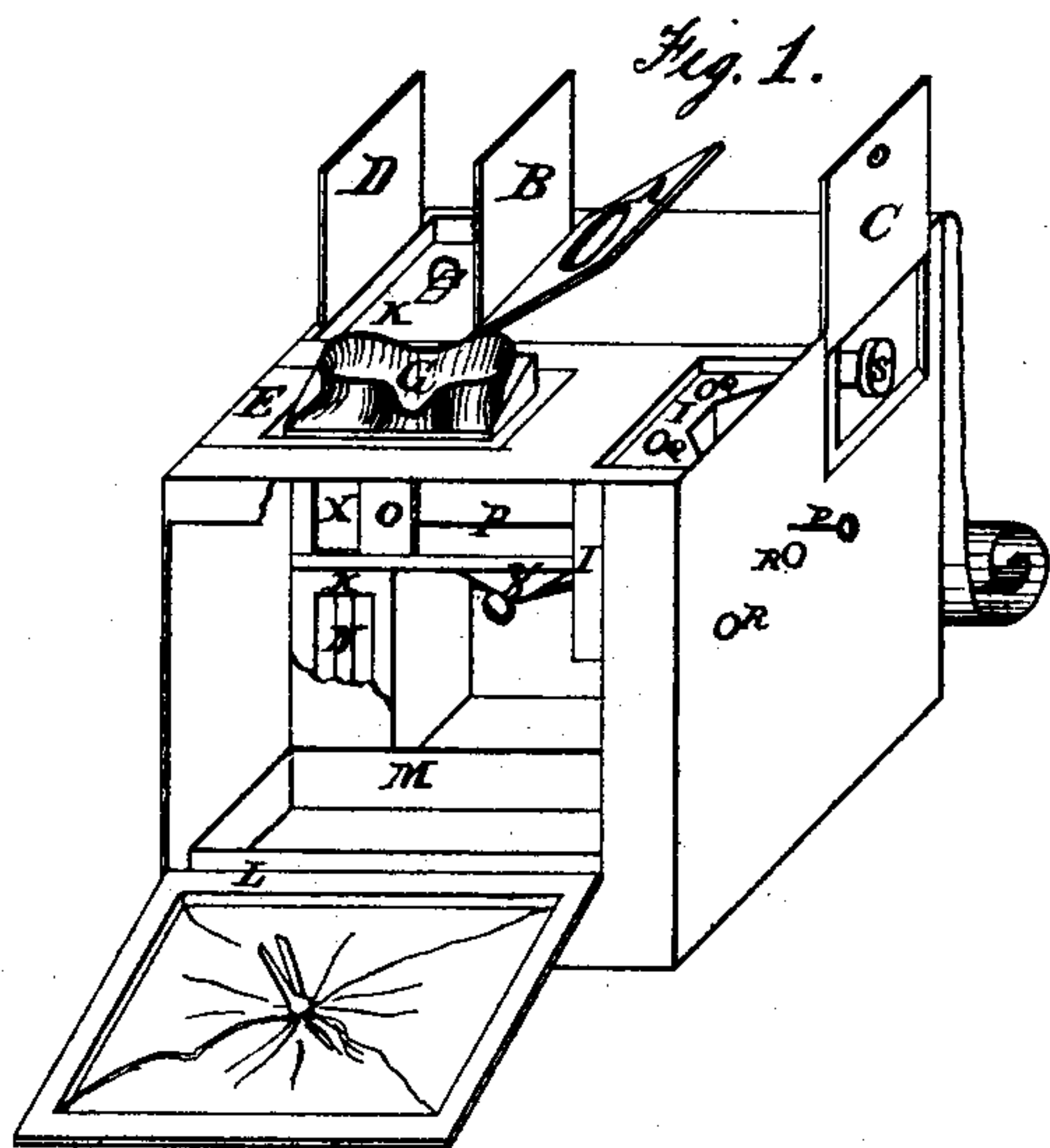


*E. C. Katzell,*

*Camera Box.*

*No. 112380.*

*Patented Mar. 7. 1871.*



*Witnesses.*  
*Samuel J. Winfield.*  
*Geo W. Lawrence.*

*Inventor.*  
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# United States Patent Office.

EANEAS C. RATZELL, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 112,380, dated March 7, 1871.

## IMPROVEMENT IN COMBINATION CAMERAS AND DEVELOPING-BOXES.

The Schedule referred to in these Letters Patent and making part of the same.

I, EANEAS C. RATZELL, of the city and county of Philadelphia and State of Pennsylvania, have invented a certain Improvement for Photographic Use, of which the following is a specification.

I combine the camera and developing-box in such a manner as to make it compact and portable, and at the same time answer every purpose for taking all manner of out-door negatives, and for general photographic use where it is not convenient to have the ordinary dark room.

I will first describe the general construction of the combination.

### *The Camera.*

This is arranged as shown in Figure 2, the partition or front being broken away. It will be seen that the camera and the box containing the bath-holder are connected and only separated by the carrier, Figure 6, and shown at K, Figures 1, 2, and 3, coming down between them.

The lens is fastened on a box or block, T, fig. 2, which slides back and forth, by means of a strap being attached on both sides of T and passing to each end of the camera-box, thence underneath to the arrangement for adjusting the focus, shown at U, figs. 1, 2, and 3.

### *The Bath-Holder.*

This is made of glass or any suitable substance. It should be perfectly level at the top, and sufficiently large to admit the dipper and plate with ease. The height should be about one-quarter inch more than its receptacle in the carrier.

### *The Carrier, Figure 6.*

This is ground glass, dark slide, bath-cover, and dipper combined in one.

J is the ground glass, and directly underneath is the dipper F, which is firmly fastened to cushion and board a.

This dipper is a common gutta-percha dipper, only it has Y, Figure 7, attached to it, the whole being made in one piece, somewhat stronger than usual.

The cushion a is made of two or three thicknesses of cloth, covered with oil-cloth; and when the carrier is pressed down on the bath this cushion forms a water-tight cover.

The top of the back of the carrier is open, as shown in fig. 3, at J, which shows the back of the ground glass.

The front of the carrier, at the top is opened and closed by a slide, shown by dotted line, fig. 6, and at B, figs. 1 and 2. This, however, is only opened when adjusting the focus.

The spring H, fig. 6, is so arranged as to hold the

plate in its place while exposing, and passes behind the bath out of the way when sensitizing the plate.

The small hole X, fig. 6, is to receive the spring W, fig. 2, which holds the carrier in place while exposing the plate.

### *Separating the Camera and Bath from the Developing Department.*

This is best shown in fig. 3. The camera and bath-box are entirely closed.

O is a slide, which runs in grooves.

P is a wire attached to O, and goes outside of the combination.

This slide is moved back and forth from the outside, and when the carrier is up the plate is opposite this slide, and by opening it the plate can be taken out into the developing department.

### *The Tank, Figures 8 and 9.*

This is also a combination of three parts in one, the lamp, the developer, and water. It is made of tin. The part holding the developer is coated with acid-proof cement. The lantern is placed between the developer and water, with a space between them so as prevent them from becoming hot.

Front of the lamp is a yellow glass, figs. 8 and 9, at z.

d is a mirror, shown in fig. 8.

e, figs. 8 and 9, are two pieces of rubber hose, extending to the front, and covered at the mouth water-tight with two springs. Two pieces of wire coming from outside of the combination press those springs open when the developer or water is wanted. The springs close again of themselves.

The wires are shown at R, Figures 1, 4, and 8.

The developer and water are put in at the top of fig. 8, shown at Q, figs. 1, 4, and 8.

The lamp is also put in at the opening shown at d, fig. 8.

### *The Eye-Hood, Figure 5.*

This is also one separate piece, and is so made that it can be turned in when not wanted, entirely out of the way, shown in fig. 4, at E G. This hood is constructed of cloth, the top of which is encircled with a wire, forming an opening, as shown at G, fig. 5. This wire being pliable and springy can be adjusted so as to fit closely over the eye.

There are two small pieces of wood passing from the wire to the frame-work. These are fastened at each end but not firm. These keep the wire in place and at the same time leave it sufficiently springy to fit closely around the eyes and nose when the face is pressed on it.



*The Door and Pliers L, Figures 1 and 4.*

This is formed of oil-cloth, excepting the frame. The cloth is formed in shape of a funnel. The pliers, made from gutta-percha, are placed in the point and firmly tied there. Then the whole is fastened in the frame, as shown at L, figs. 1 and 4. The whole is closed by a button fastened on the frame.

*Waste-water Box, shown at M, Figure 1.*

This may be made of tin, well painted, and in one corner is a hole, rimmed in such a form as to pass through the bottom of the combination, which can be corked up when working in the house, and in the field left open so that the waste-water may run away.

Fig. 4 represents the combination as it is when closed, the oil-cloth cover thrown back. The strap represented in this figure is supplied with a buckle, and is used to carry the combination by.

*General Remarks.*

The position and place for the bath-holder are illustrated at N, figs. 1 and 2.

The camera can be arranged for one or two tubes, so that stereoscopic pictures can be taken. It also can be made of any size, the combination being made in proportion to the size of the picture.

*The Dipper, Figure 7.*

Of these you can have two or three, to suit the different sizes of the pictures.

The following is the mode of working with this combination.

The small lamp being in its proper place, the bath, developer, and water can be put in their places before starting out. A bottle containing collodion and one containing hyposulphite is also set in the inside of the combination, together with a small tray and cleaned plates. Now cork up the tank or developer and water-boxes, fasten down door A, fig. 1, adjust the oil-cloth and strap, take an empty pint bottle and put in your pocket, together with a small box for holding negatives, and you are ready to go. If you wish, you can take a heavy tripod-stand with you. (I have made out without one so far.)

When you get to the place you want to take, open the combination and light the lamp, uncork the tank, throw back small door A, fig. 1, open the large door, draw up the carrier until it catches. Now turn the eye-hood out, as shown in fig. 1, E G. Take out a plate and coat it with collodion. Withdraw slide O, figs. 1 and 3, by pulling out the wire P, figs. 1 and 4. This exposes the dipper to view. You place the plate thereon, and then again close slide O by means of wire aforesaid. Now press on spring W, fig. 2. This releases the carrier. You now press the carrier down into its first position. Now raise slides D, B, and C, and adjust the focus by means of focusing arrangement U, figs. 1 and 2. By this time your plate will

be sensitized. Now close slides B and C, draw up the carrier until caught by the spring, withdraw again slide C, and expose.

When sufficiently exposed press back slide C and close the door, put your head on the eye-hood, and withdraw the slide O by means of wire P on the outside of the combination. Take the pliers and take the plate off the dipper, and hold it under the taps. Now press on the proper one of the wires R R, and the developer will flow on the plate as nicely as if poured from a bottle. When sufficiently developed press on the other wire in the same way, and the water will wash it off. Now, if you prefer, you can put it into the tray you brought along and throw the fixing solution over it. This tray can be kept under the camera, out of the way.

I do not find it necessary to use this tray at all. I wash the plate well, and then take it out and coat it immediately with hyposulphite, and when sufficiently fixed give it a good washing from the bottle that I have in my pocket to carry water in. I have found no inconvenience in this way of working.

Your negative now only wants drying and placing in the small negative-holder and set into the combination. Now put the carrier down, and press the small door A down on it and fasten it tightly in place. Now extinguish the lamp and cork up the tank, close the door and fasten it, shove in the pliers, adjust the oil-cloth and strap, and you are ready to go home or for another view. When thus closed everything is perfectly tight. No bath or other solution can spill.

This combination can be kept always ready, and in case of a call to go out to take a picture of a corpse, for instance, all that is necessary is to take up your combination and go, and when you get there you are ready to go to work.

I claim—

1. The combining of the camera and developing-box in such manner as described, as a new article of manufacture.

2. The combination called the carrier, and the mode of placing the dipper and ground glass therein, the whole to be used in the manner and for the purpose set forth.

3. The arrangement of the camera and bath receptacle in such a manner as described, for use and purpose set forth.

4. The tank for holding the developer and water in the manner and for the purpose set forth.

5. The placing of the pliers in the center of the door, for the use and in the manner set forth.

6. The manner of arranging the eye-hood so that the head can be tightly placed thereon without the difficulty of fastening it to the head, the whole to be used in the manner and for the purpose set forth.

EANEAS C. RATZELL.

Witnesses:

ENOS MCALLISTER,  
HUGH COLLINS.