

No. 748,377.

PATENTED DEC. 29, 1903.

H. HOTZ.
HINGE.

APPLICATION FILED MAY 18, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.

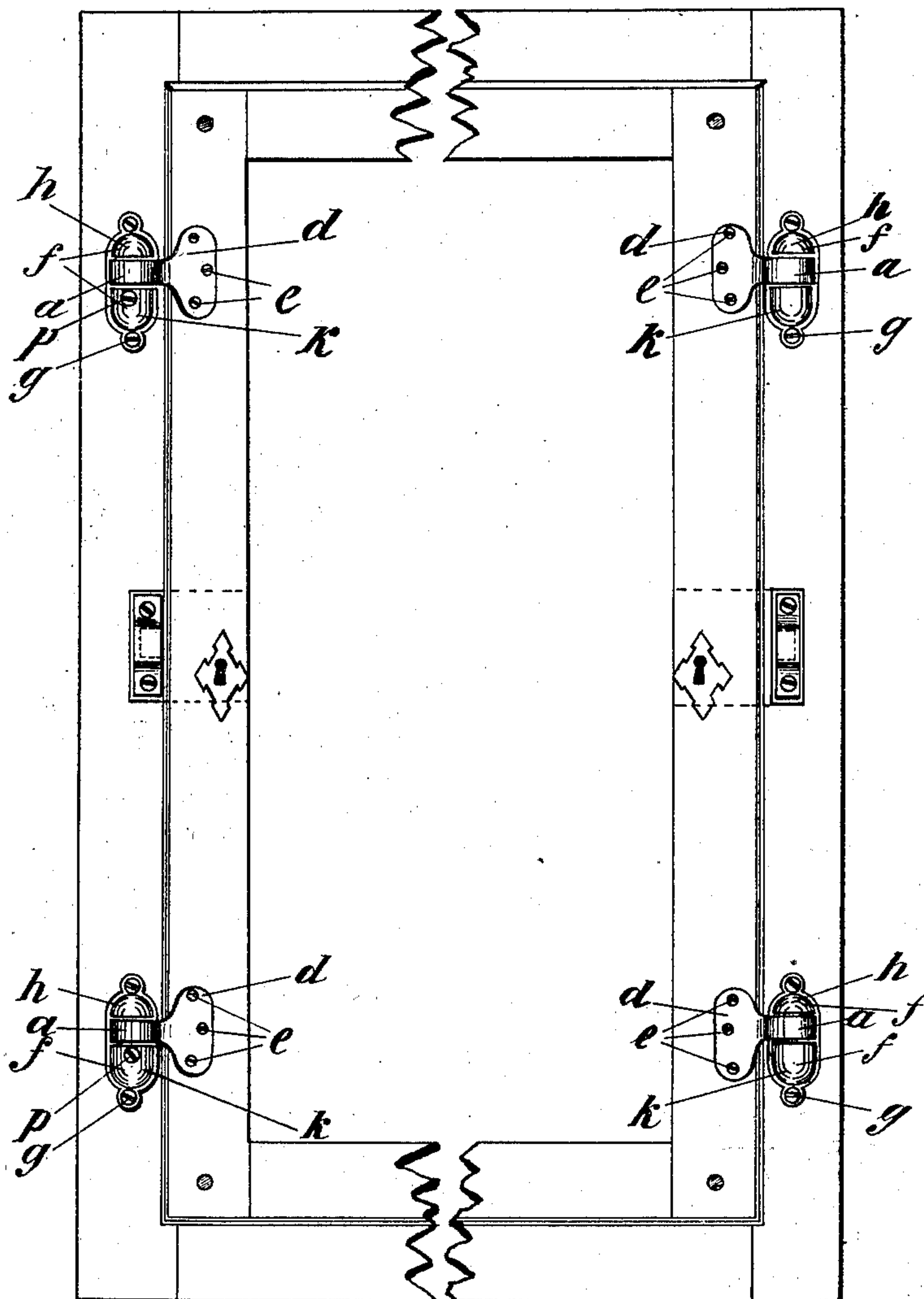
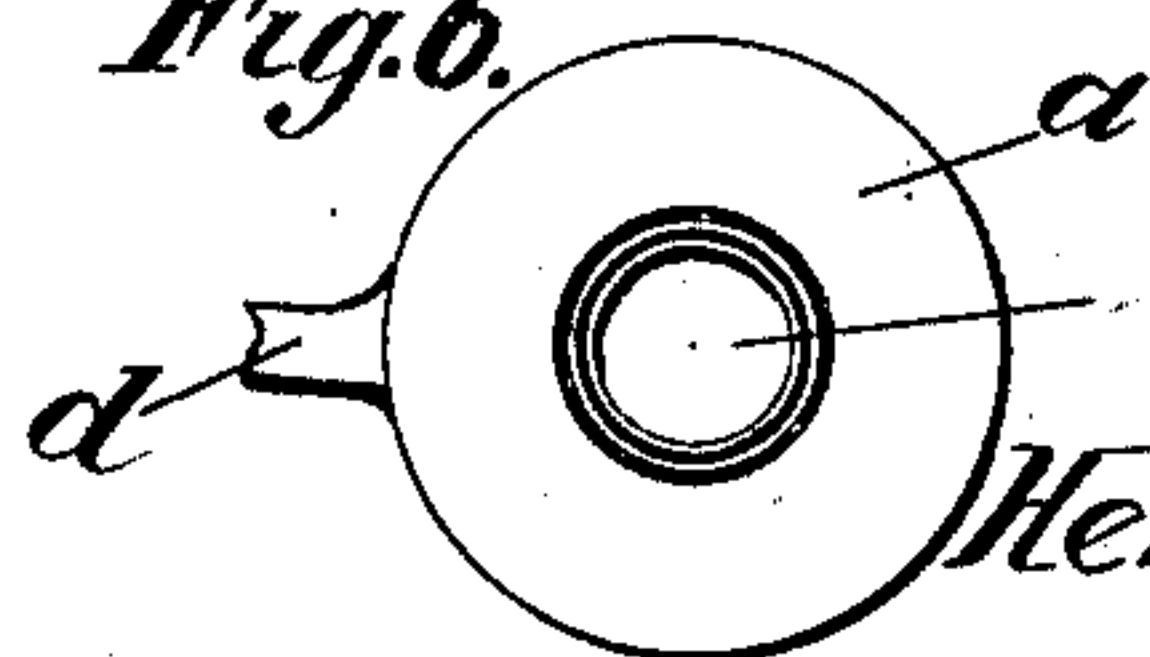


Fig. 6.



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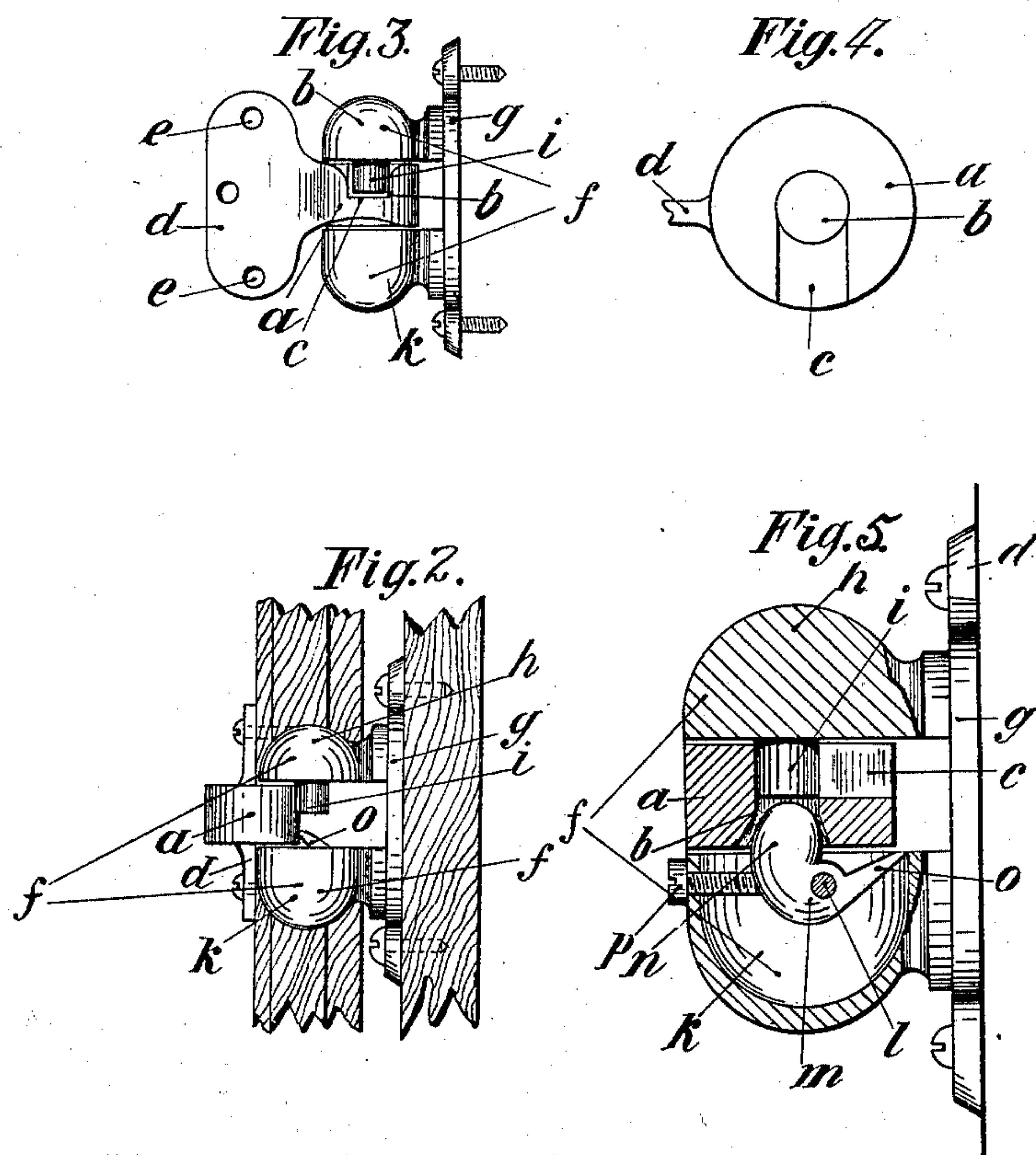
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 7.

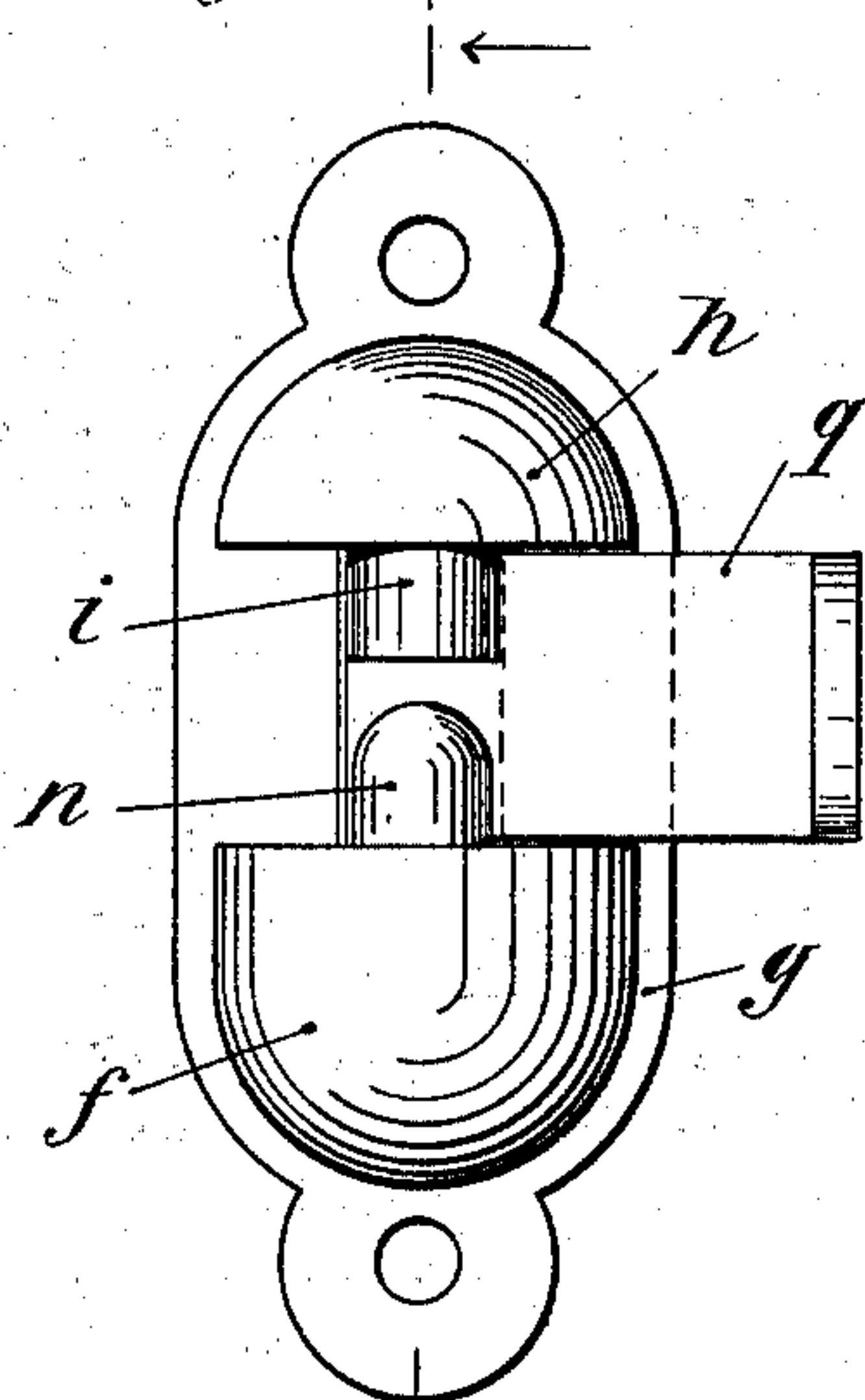


Fig. 8.

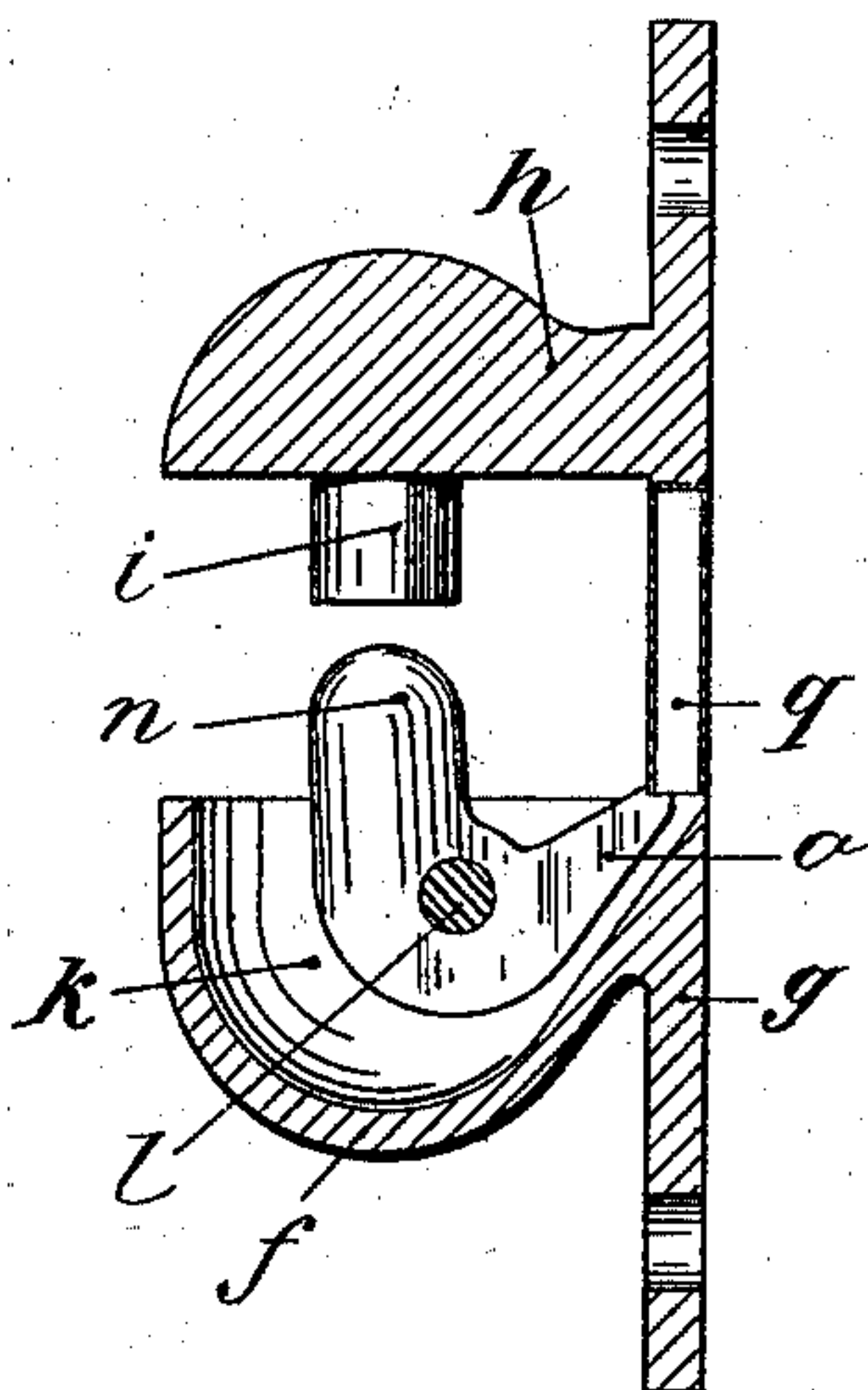


Fig. 9.

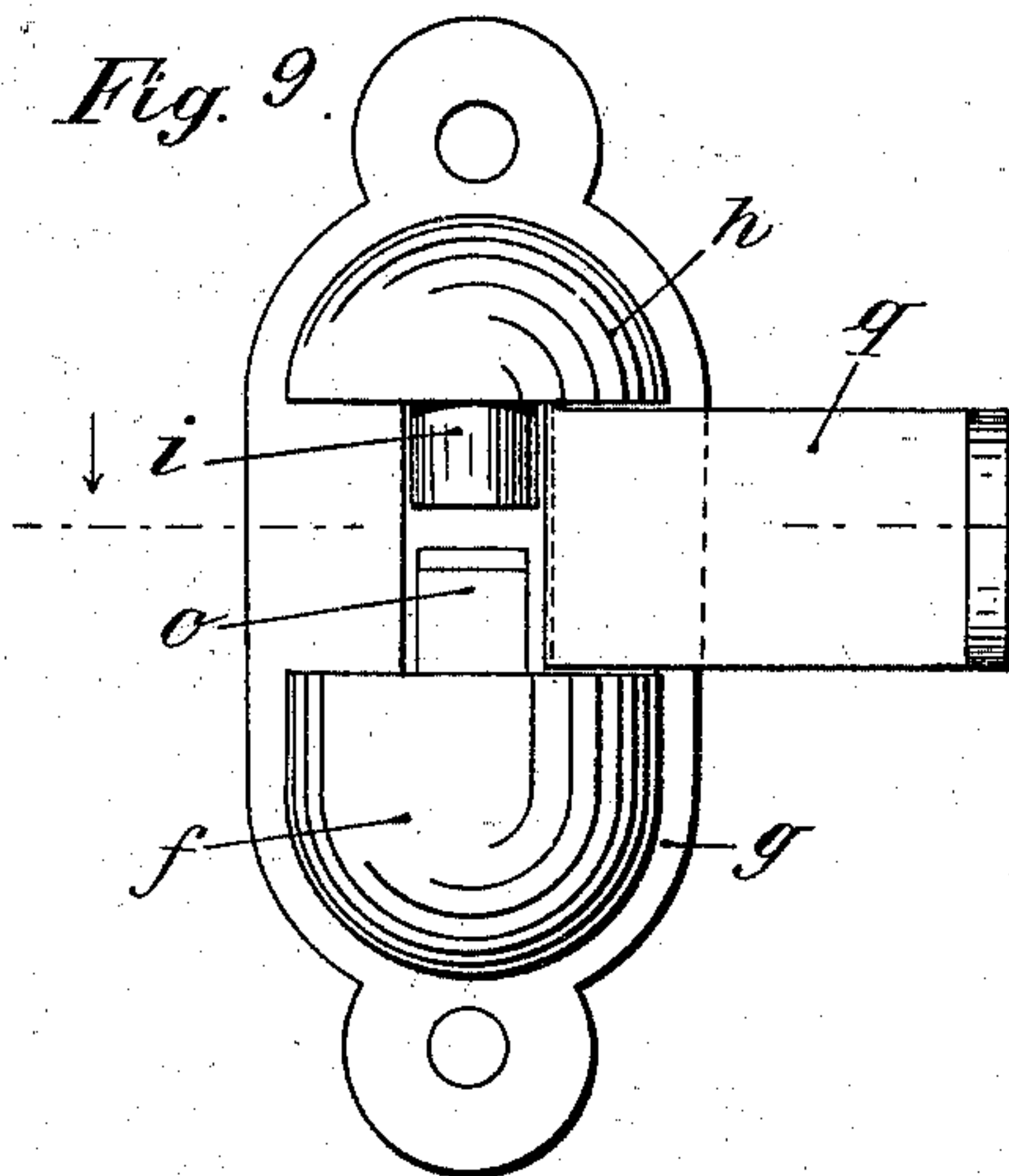
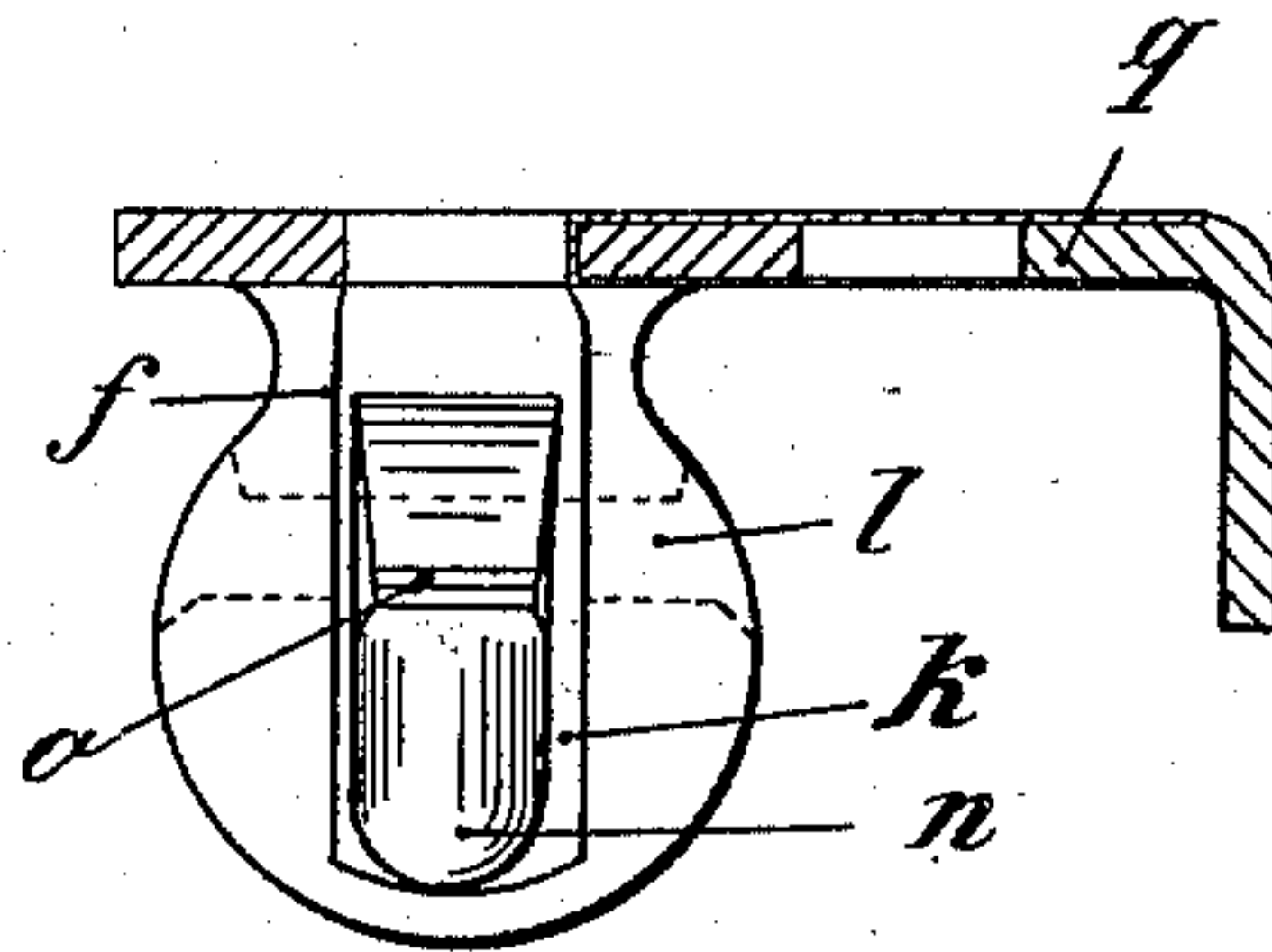


Fig. 10.



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UNITED STATES PATENT OFFICE.

HERMANN HOTZ, OF BASLE, SWITZERLAND.

HINGE.

SPECIFICATION forming part of Letters Patent No. 748,377, dated December 29, 1903.

Application filed May 18, 1903. Serial No. 157,670. (No model.)

To all whom it may concern:

Be it known that I, HERMANN HOTZ, merchant, a citizen of Switzerland, residing at Leonhardstrasse 26, Basle, in the Republic of Switzerland, have invented certain new and useful Improvements in Hinges, of which the following is a full, clear, and exact description.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 shows a closed door with my invention applied to it. Figs. 2 to 6 show the hinge-fittings according to my invention in detail. Fig. 7 represents the socket with the securing or safety device attached, but without snapping. Fig. 8 is a vertical section through Fig. 7. Fig. 9 shows the socket with the securing device withdrawn, while Fig. 10 represents details of the securing device.

Referring to the drawings, *a* represents a "snap-ring," which is attached to the door or flap to be closed. It consists of a disk pierced either cylindrically or conically in order that the aperture *b* may be wider on the under side of the disk than at the upper side. On the upper side the disk is provided with a square groove *c* of a depth of about equal to half the thickness of the disk and extending from the aperture *b* to the periphery of the disk. The disk is attached to a holder *d*, provided with holes *e*, through which screws are passed and by means of which the holder may be screwed onto the door.

f represents a slotted socket which is fastened to the frame of the door or window, &c. It is cylindrical in shape and may be rounded off at the top and bottom. A portion of the socket of suitable size and shape to receive the ring *a* is cut out right through to the back plate *g* of the fastening. The upper part *h* of the socket *f* is solid and from it protrudes a pin *i*, which fits exactly into the groove *c* and hole *b* of the ring *a*. The lower part *k* of the socket *f* is hollowed out, and in this cavity a pivot-pin *m* is rotatable on an axis *l*. One arm of this lever is in the form of a ball, while the other arm carries a pin *o*, slanting toward the back, so that when the pin *o* is turned downward the ball *n* rises, and vice versa. In the position of rest, however, the ball is always at the bottom, due to its weight.

If now the ring *a* is pushed into the socket *f*,

the pin *i* will slide along in the groove *c* until it enters the aperture *b*. The lower part of the ring in the meantime moves along in front of it the pin *o*, and thereby presses it down. Consequently the ball rises, and as the ring is pushed farther into the socket *f* the ball will be gradually introduced into the lower part of the aperture *b* of the ring *a*, so that as soon as the ring *a* is pushed entirely into the socket *f* said ring *a* is able to turn round the ball *n* in aperture *b*. The hinge is then ready for use. If the hinges are placed on two parallel sides of a door, window, or other flap-like closing appliance, as shown in Fig. 1, the same may be opened from either side, the hinges on one side of the door or window acting as pivots therefor and enabling it to swing, while the devices *a m* of the hinges on the opposite side of the door disconnect the same, so that it may be swung—that is to say, either set of the hinges may be employed as such to enable the door to swing from one of its side edges, while the devices *a m* of the hinges on the opposite side or edge of the door serve to disconnect the latter from its frame.

It will be understood that the members of the hinges on the side or edge of the door which is swung outwardly in opening the door will by the initial outward movement of the disk *a* on that side from the sockets *f* serve to depress the pivotal portions *n* of the pivotally-mounted pivot-pins *m* to automatically release said portions *n* from the apertures *b* in the disks *a*. This causes the pins *o* to rise to such a height that when the disks reënter the sockets on the reverse movement of the door they will engage the said pins *o*, restore the pivot-pins *m* to their normal positions, and hence reëngage their pivotal parts *n* with the apertures *b* in the disks. Devices are hereinafter described to lock the pivot-pins *m* against movement, so that either set of the hinges may be permanently employed as such when it is desired that the door shall swing in opening or closing only from one side.

In order that the door when closed may not be knocked out of the frame by pressure inward from without, an ordinary closing-handle or the like which snaps together with the hinge is arranged on both sides of the door, and thereby the door is held firmly in position.

Underneath the bolt of the lock the door

or window frame is so hollowed out that one side may be opened while the bolt on the other side is closed. If it is desired that the door be opened only on one side, the ball *n* is secured in its raised position by means of a screw *p*, and thereby it is kept in the aperture *b* of the snap-ring *a*, so that said ring *a* must turn on the ball and cannot be withdrawn. This may also be more simply effected in the manner represented in Figs. 7, 8, 9, and 10. Here the slide *q* encompasses the back plate *g* and may be moved or slid backward or forward to such extent as to either depress the pin *o* or to release the same.

When the pin *o* is depressed, the ball *n* is raised into the aperture *b*, so that the door or window can rotate upon a rigid ball without the risk or possibility of falling out.

The advantage of the invention just described consists in the considerable simplification and cheapening of the production of flap-like closing appliances and hinges of all kinds.

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

1. A hinge comprising separable members, one having a pivot-opening, and a movable pivot-pin in the other member having means, coacting with the first-mentioned member to automatically engage the pivot-pin with the pivot-opening, when the members are assembled, substantially as described.

2. A hinge comprising a member having a pivot-opening, a member to support the first-

mentioned member, and a pivotally-mounted pivot-pin in the said supporting member, adapted to enter the pivot-opening of the first-mentioned member and having an arm coacting with the first-mentioned member to automatically operate said pivotally-mounted pivot-pin, substantially as described.

3. A hinge comprising a member having a pivot-opening, a member to support the first-named member; a pivotally-mounted pivot-pin in the said supporting member, adapted to enter the pivot-opening of the first-named member, and having an arm coacting with the first-named member to automatically operate said pivotally-mounted pivot-pin, and means to lock said pivot-pin in position when engaged with the pivot-opening of the first-named member, substantially as described.

4. A hinge comprising a member having a slotted socket, a fixed pivot-pin *i* and a pivotally-mounted pivot-pin *n*, having an arm *o*, and a member having a part adapted to enter said socket and provided with a pivot-opening to receive said pivot-pins, and a slot to clear the fixed pivot-pin *i*, said part also coacting with the arm *o* to automatically operate the pivotally-mounted pivot-pin *n*, substantially as described.

In witness whereof I subscribe my signature in presence of two witnesses.

HERMANN HOTZ.

Witnesses:

GEORGE GIFFORD,
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