

(Model.)

2 Sheets—Sheet 1.

F. H. RICHARDS & E. KEMPSHALL.

FASTENER FOR MEETING RAILS OF SASHES.

No. 370,891.

Patented Oct. 4, 1887.

Fig. 1

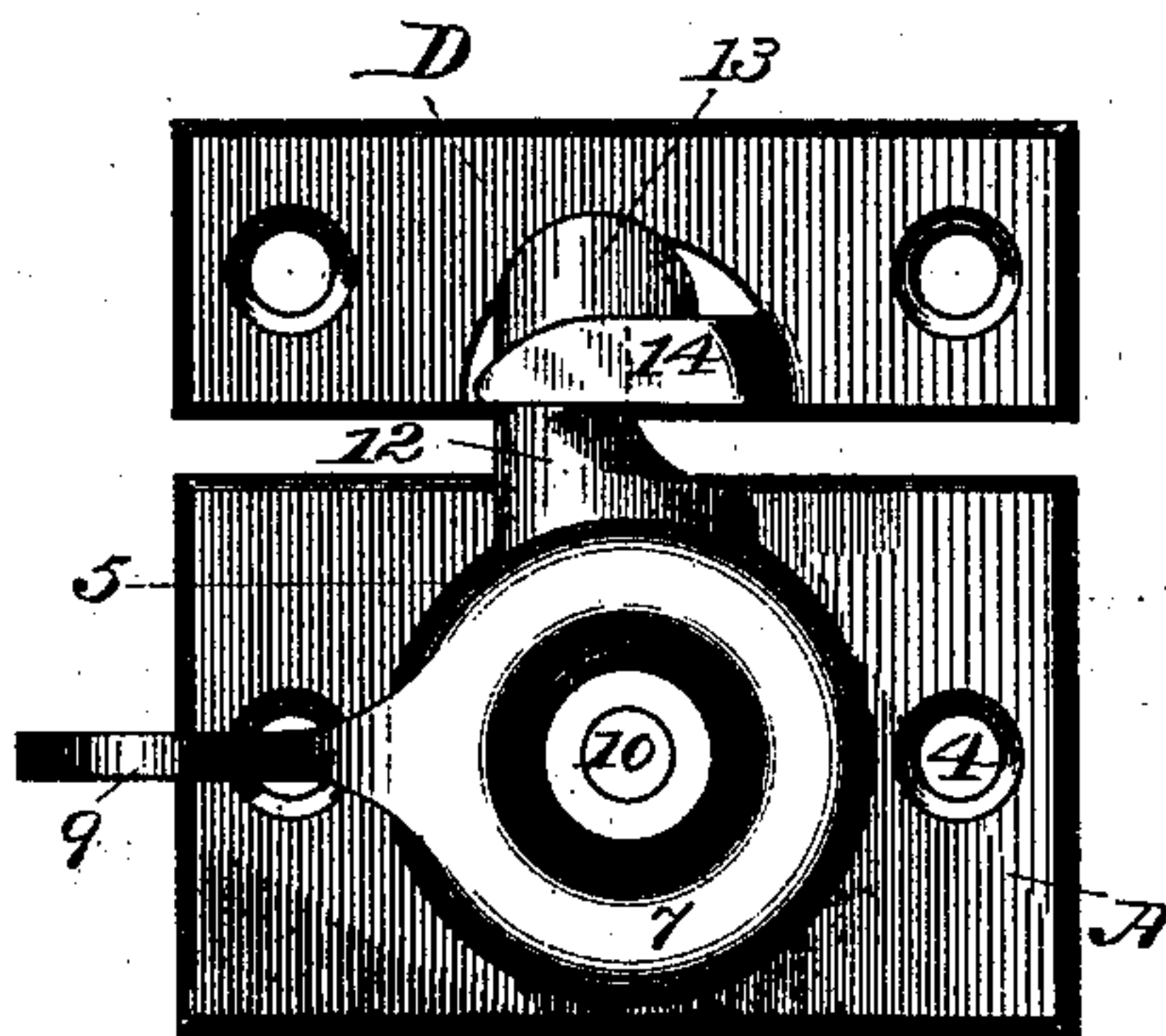


Fig. 2

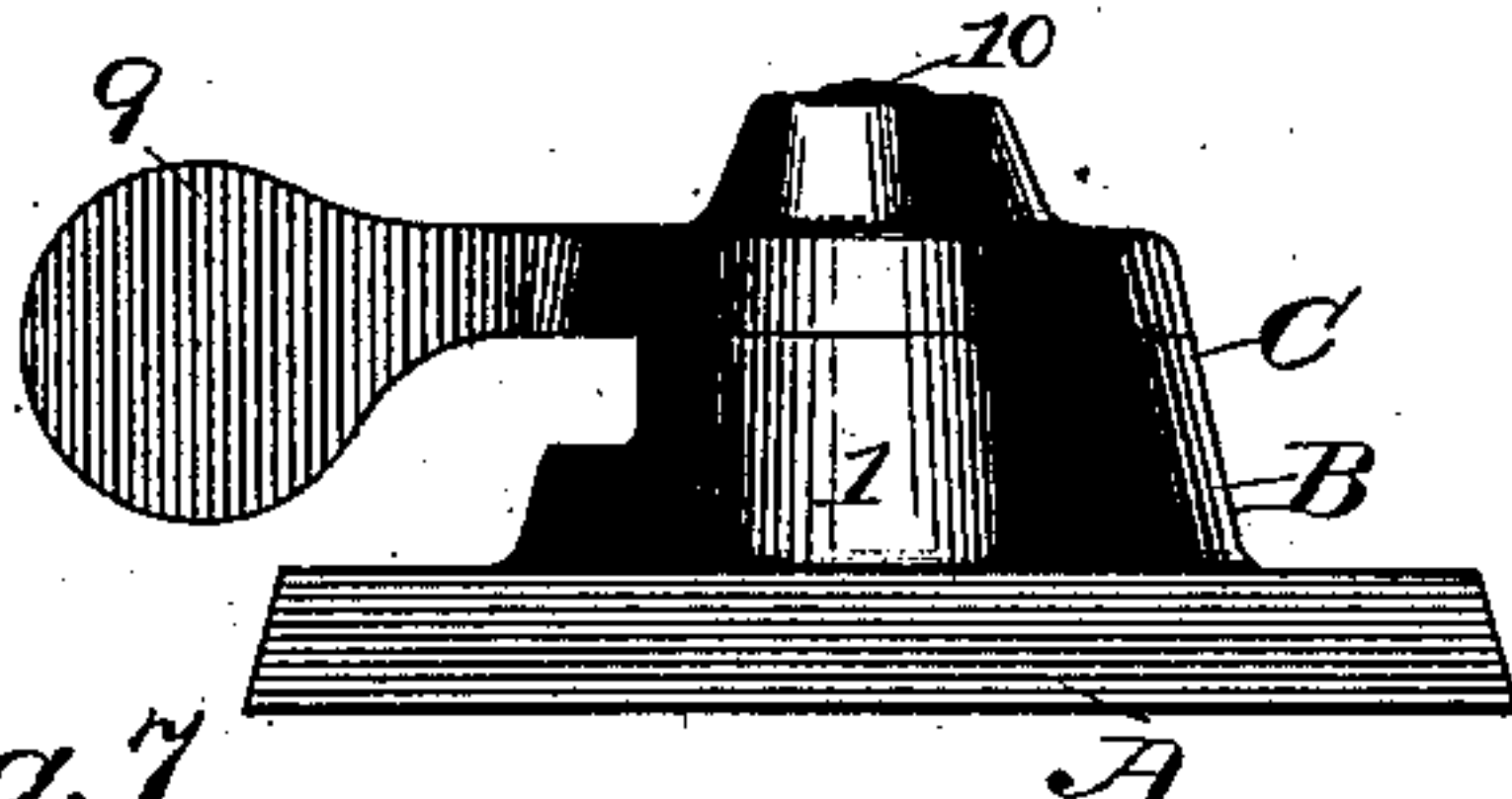


Fig. 4

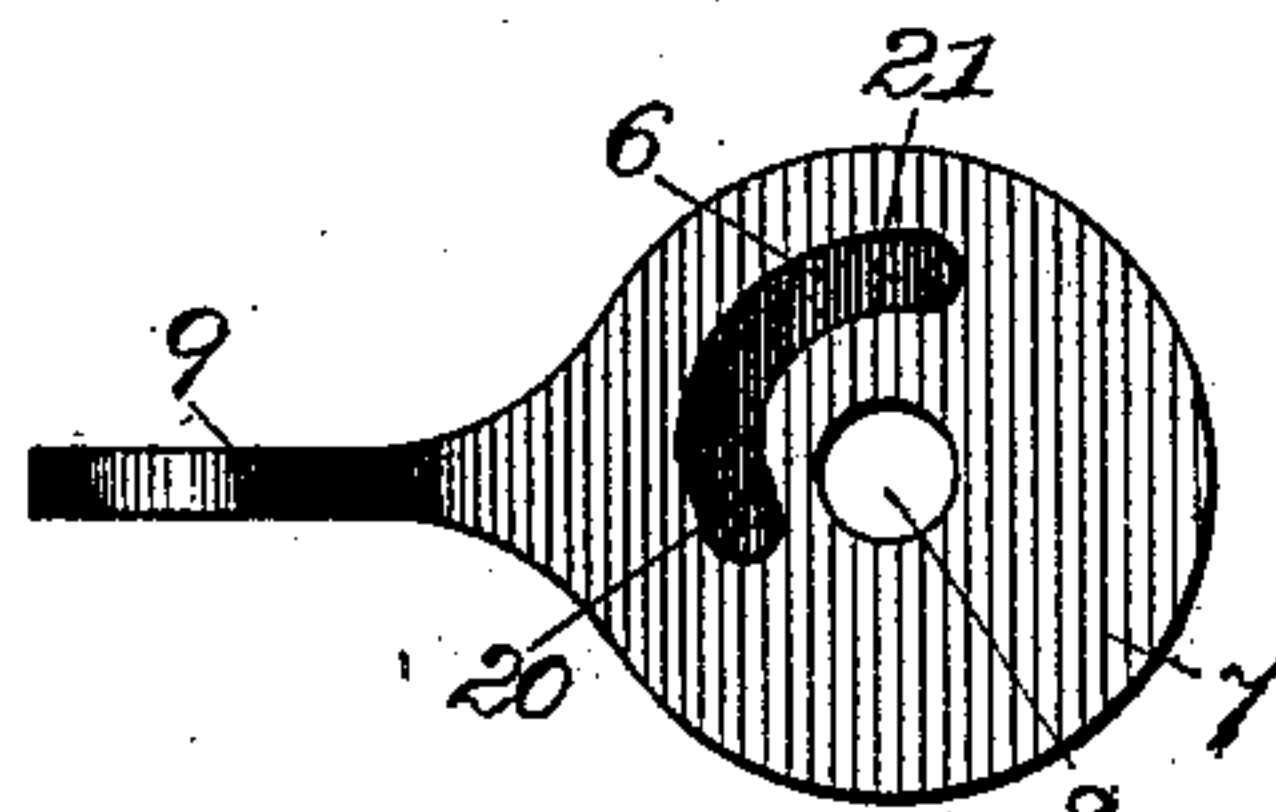


Fig. 5

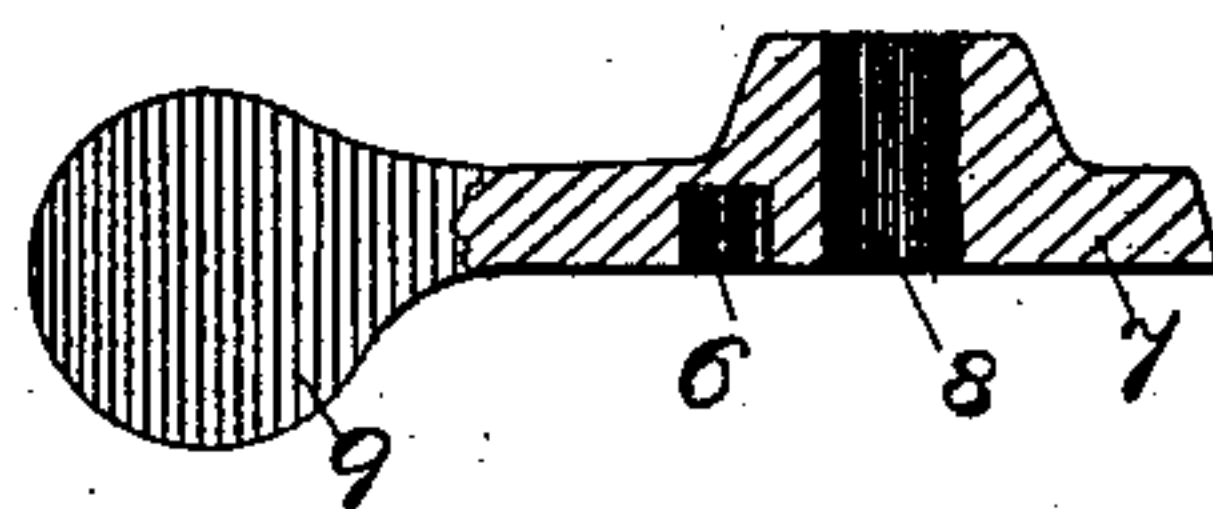


Fig. 6

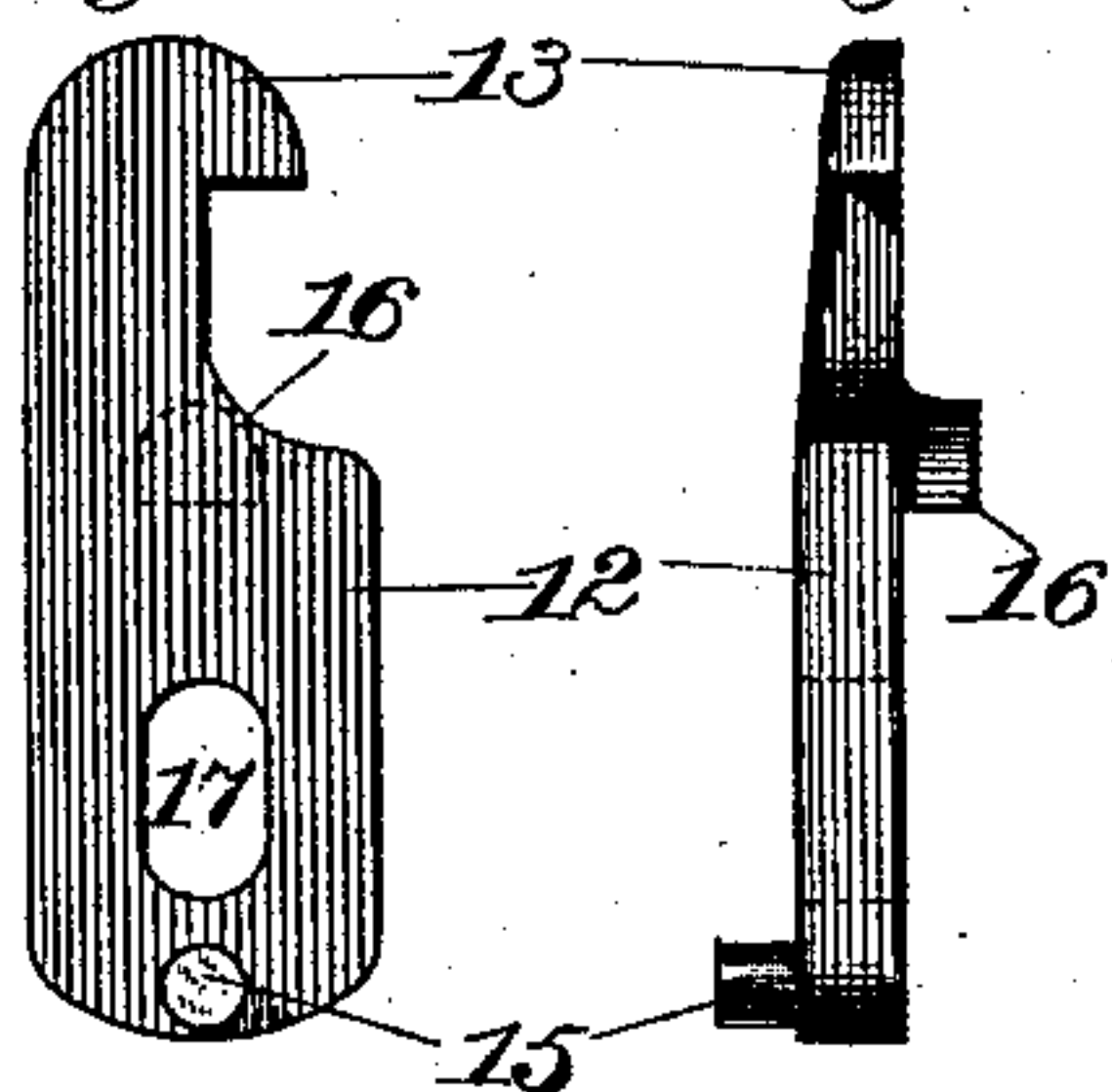
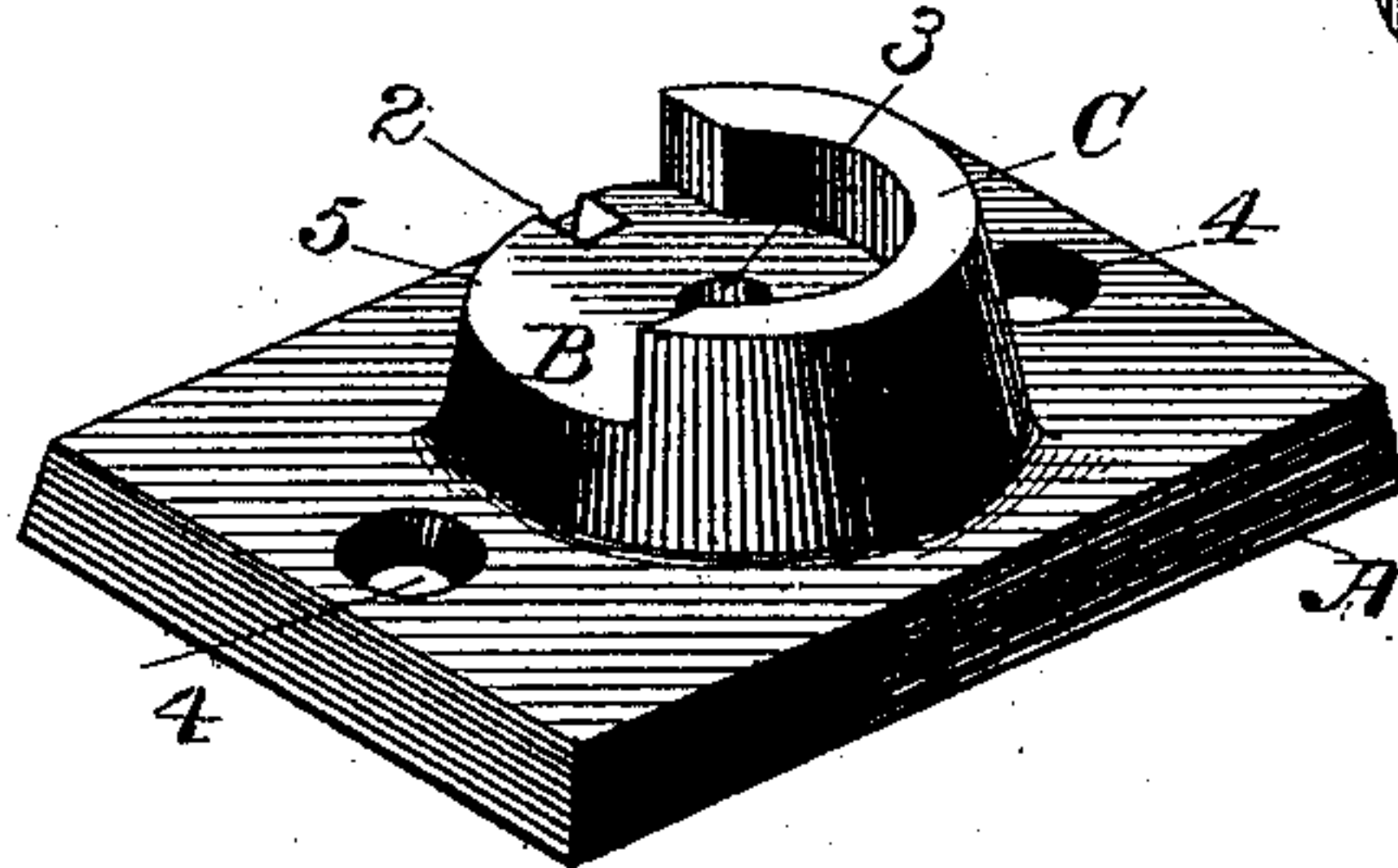


Fig. 7

Fig. 3



Witnesses:

Frank H. Pierpont
Geo. W. Drake

Inventor:

Francis H. Richards
Eliaser Kempshall

(Model.)

2 Sheets—Sheet 2.

F. H. RICHARDS & E. KEMPSHALL.

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Fig. 8

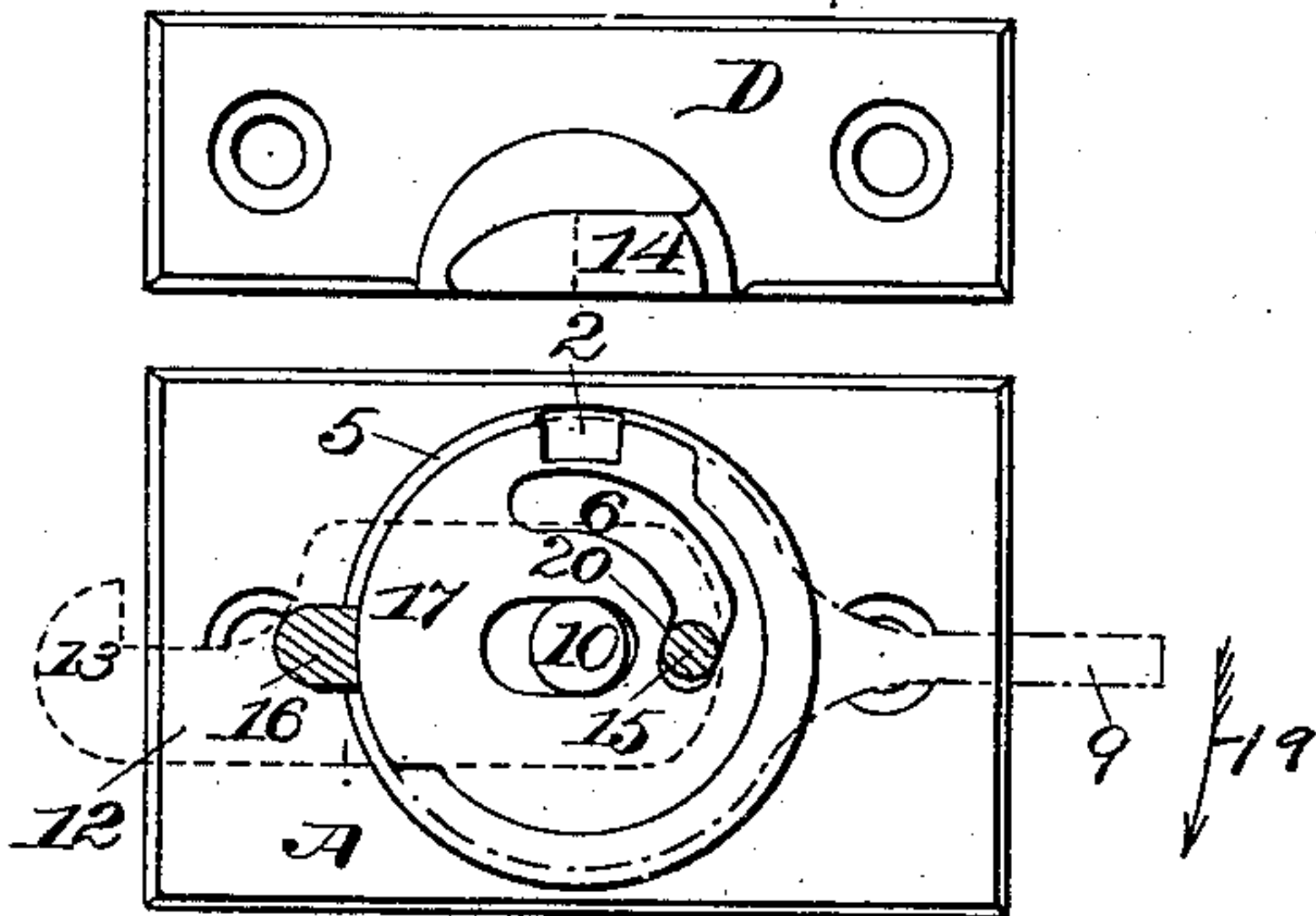


Fig. 9

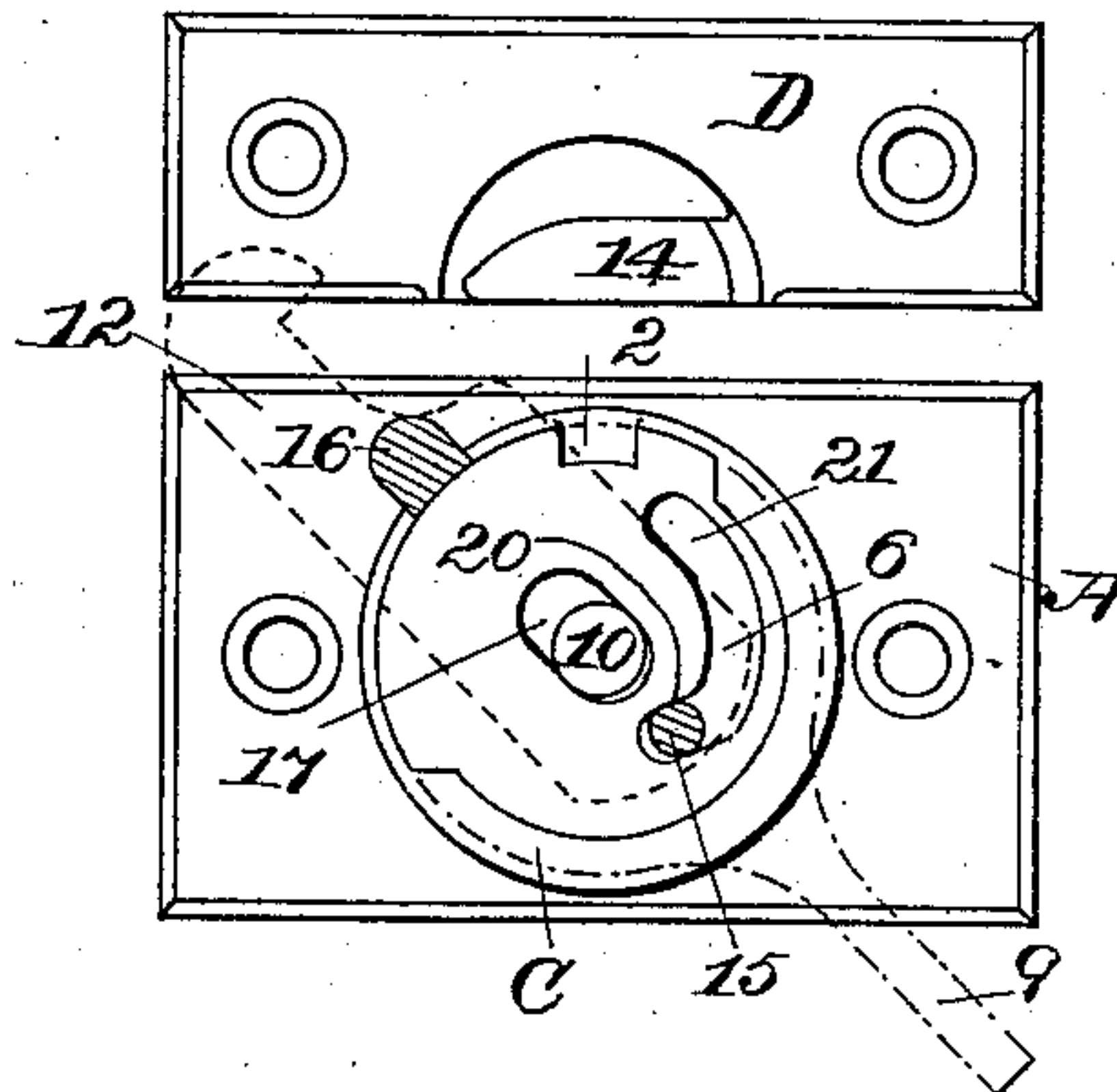


Fig. 10

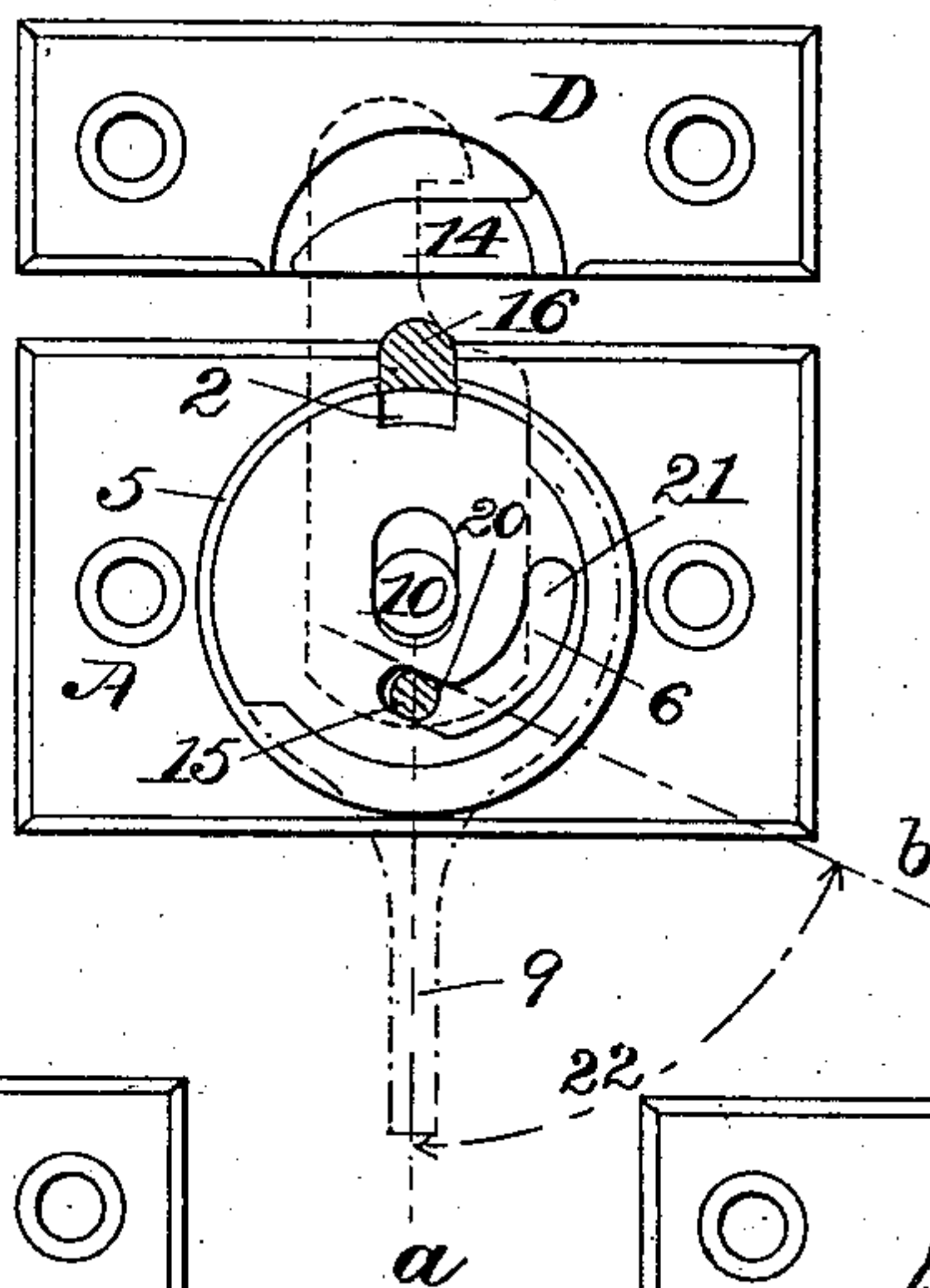


Fig. 11

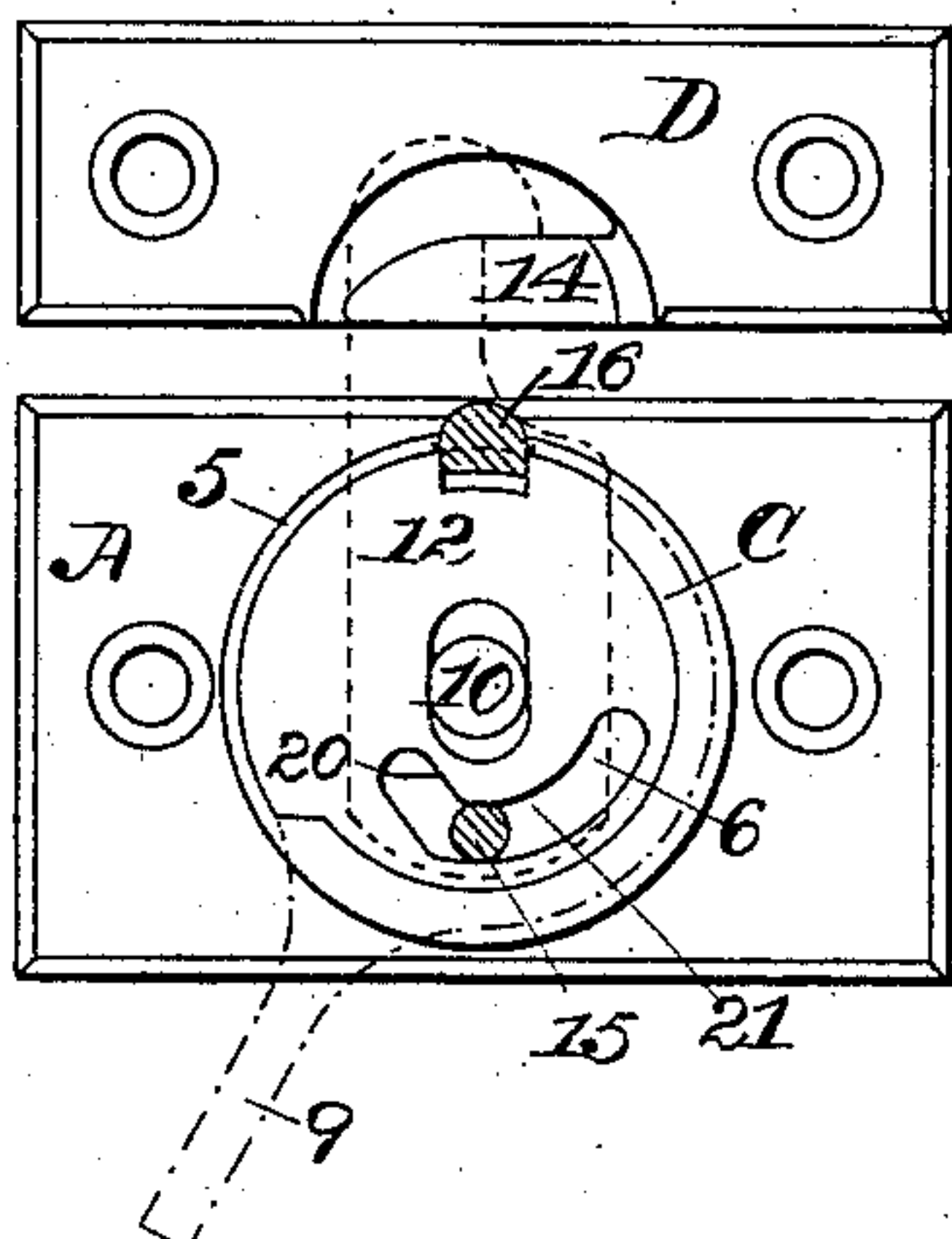
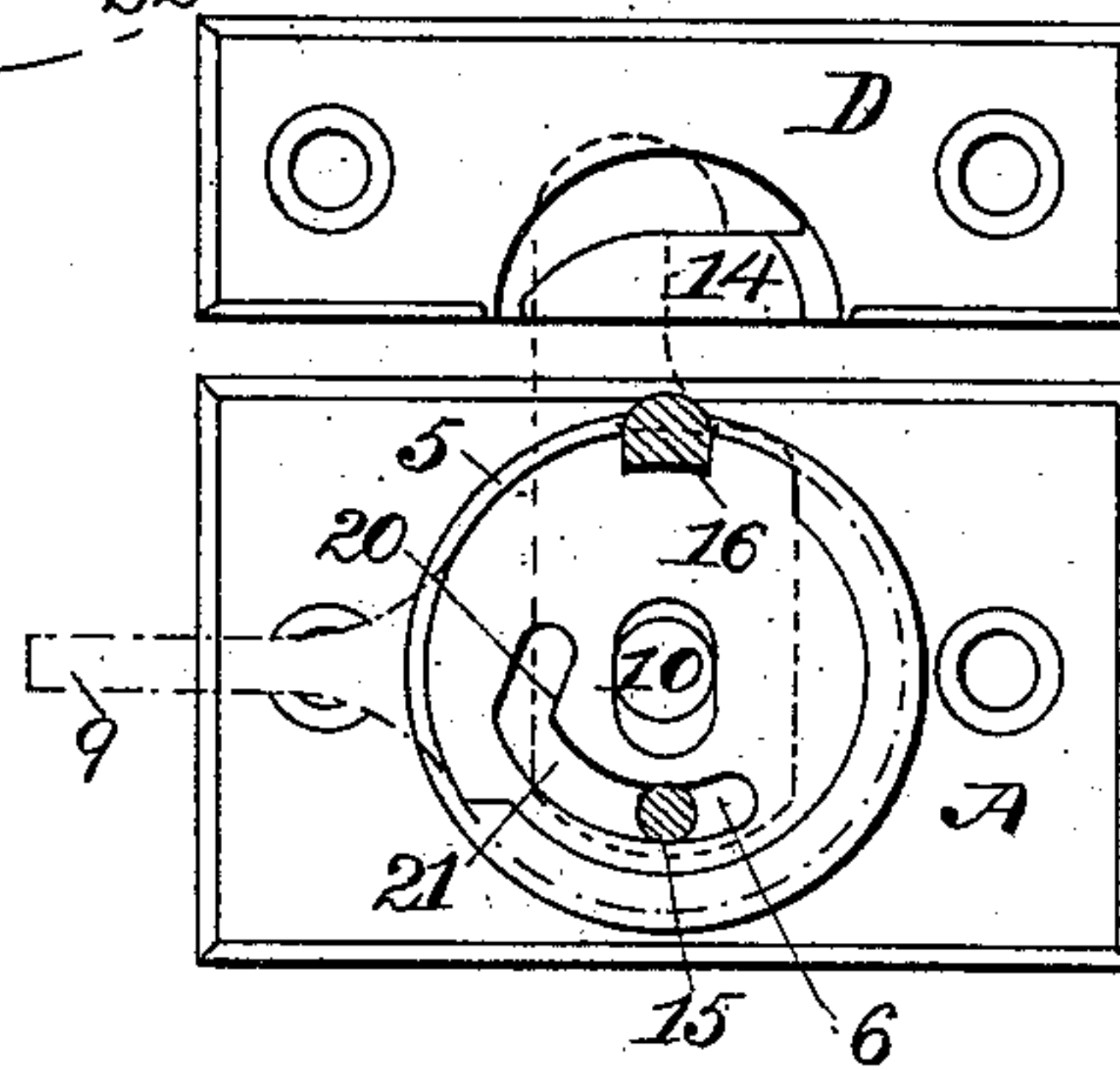


Fig. 12



Witnesses:

Frank H. Pierpont
Geo. W. Drake

Inventor:

Francis H. Richards
Eliaser Kempshall

UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF SPRINGFIELD, MASSACHUSETTS, AND ELEAZER KEMPSHALL, OF NEW BRITAIN, CONNECTICUT.

FASTENER FOR MEETING-RAILS OF SASHES.

SPECIFICATION forming part of Letters Patent No. 370,891, dated October 4, 1887.

Application filed July 14, 1886. Serial No. 208,023. (Model.)

To all whom it may concern:

Be it known that we, FRANCIS H. RICHARDS and ELEAZER KEMPSHALL, citizens of the United States, residing, respectively, at Springfield, in the county of Hampden, State of Massachusetts, and at New Britain, in the county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Sash-Fasteners, of which the following is a specification.

Our invention relates to fasteners or locks especially adapted for locking together the meeting-rails of sashes, the object being to provide for that purpose an improved apparatus which shall so operate the latch that this can be unlocked only by turning the sash-lock handle.

The invention consists in the improvements hereinafter described and claimed.

In the drawings accompanying and forming a part of this specification, Figure 1 is a top view of a sash-fastener embodying our improvements. Fig. 2 is a front elevation of the same. Fig. 3 is a perspective view of the base. Fig. 4 is a plan view of the under side of the operating-cam. Fig. 5 is a sectional side elevation of the same. Fig. 6 is a top view of the latch, and Fig. 7 is an elevation thereof; and Figs. 8 to 12, inclusive, are five diagrams illustrating the mode of operation of our improved sash fastener or lock, some parts being here shown partly in solid and partly in dotted lines.

Similar characters designate like parts in all the figures.

Our improved sash fastener or lock consists of three principal parts—first, a base or frame having a pivot-stud, or a hole to form a bearing for one, and having a locking-notch; second, an operative cam pivoted on the base or frame and having a handle or lever whereby to turn it; third, a latch having a swinging and a sliding movement, it being constructed to engage with said cam as a means for producing said movements, and with said notch as a means for locking it. In their preferred form said parts are constructed as follows:

The base A has a raised table, B, and a guard-rim, C. It also has the usual holes, 4, for the screws holding it to one of the meeting-rails. The table B has a notch, 2, for receiv-

ing a part of the latch, and is perforated at 3 for a pivot or stud. One part, 5, of the periphery of said table, which adjoins the notch, is made substantially concentric with hole 3, for a purpose hereinafter more fully explained.

The rim or guard C, which is provided more especially to conceal to some extent the latch, serves also as a stop to limit the swinging movement thereof.

The cam consists in a groove, 6, of proper contour, formed in a disk, 7, which has a central perforation at 8, corresponding to hole 3 in the base, and a handle, 9, whereby the cam-disk is operated. This part lies on rim C, (or on the latch, if the rim is omitted,) and is pivoted to the base by any suitable pivot or pin, 10, fixed in one part and turning in the other, after a well-known manner.

The latch consists of a flat plate, 12, having a hook, 13, for engaging with another hook, 14, formed on the base D on the opposite meeting-rail. The latch also has a pin or part, 15, adapted to slide in the cam-groove or to properly engage with the cam used, whether this be a groove or not, a projecting part, 16, adapted to engage in notch 2 and to slide on the arc or track 5, and a slot, 17, through which passes the pivot 10.

Constructed as above described, and as shown in the drawings, the operation of our sash fastener or lock is as follows: Referring to the diagrams, in Fig. 8 the latch is shown in its full open position. Here the pin or stop 16 rests against arc 5, and pin 15 stands against the incline 20 of cam-groove 6. On now applying force to handle 9 in direction of arrow 19, said incline 20 obviously will act against pin 15, and, according to the natural law governing such cases, will tend to move said pin, and through it the latch, in two directions—first, toward the right hand, and, second, to turn it about pivot 10. This result first mentioned is, however, resisted by the pin 16, resting, as aforesaid, on arc 5; hence a movement of the cam in the direction of said arrow carries the latch along with it, first to the intermediate position shown in Fig. 9, and then to the latter position shown in Fig. 10. Reaching this position, pin 16 slides off from arc 5, whereby the resistance to the sliding of the latch is removed, and the incline 20 im-

mediately operates to draw the latch into notch 2, as in Fig. 11. Next, on further turning the cam-disk, pin 15 enters the slightly-eccentric part 21 of cam-groove 6, which now operates to slowly and powerfully draw hook 14 toward base A. The latch is now securely locked, and can only be unlocked by turning back the cam, which then operates in the reverse order to that above described, pin 15 being acted upon by the opposite side of the cam-groove.

In practice we have found it to be desirable that the angle 22, Fig. 10, between line *a* (which passes through the axes of pivot 10 and pin 15) and line *b* (which is parallel or tangential to incline 20) shall not be greater than forty-five degrees, and even less—from twenty to thirty-five degrees—will operate as well or better, especially if the surfaces are not smooth. The less is the amplitude of angle 22 the less pressure does pin 16 exert on arc 5 during the closing operation.

It will of course be understood that our improved sash fastener or lock may be gotten up in various styles and proportions, and that it, and especially the several details thereof, may be modified in various ways and degrees, after the manner of machines in general, without departing from our invention.

Having thus described our invention, we claim—

1. The combination, with a base having a locking-notch and a rim, as described, and a latch having a depending pin adapted to enter the locking-notch, and also having an upward pin and an oblong slot, of an operating-cam resting on the rim and adapted to engage the upward projection on the latch, substantially as set forth.

2. The combination, with a base having a guiding arc or track, a locking-notch, the latter being located at one end of the guiding arc or track, and an arc-shaped rim, one end of which latter is located at the opposite end of the guiding arc or track and forms a stop for the latch, of a swinging latch having a pin or projection adapted to slide on the guiding arc or track and enter the notch, and a movable cam for operating the latch, substantially as set forth.

3. In a sash-lock, the combination, with a base having an arc-shaped rim and a swinging and longitudinally-sliding latch seated on the base, of an operating-cam resting on the rim for operating the latch, substantially as set forth.

FRANCIS H. RICHARDS.
ELEAZER KEMPSHALL.

Witnesses:

WILBUR M. STONE,
GEO. W. DRAKE.