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JAMES ADAIR.

Improvement in Combined Latch and Lock.

No. 122,794.

Patented Jan. 16, 1872.

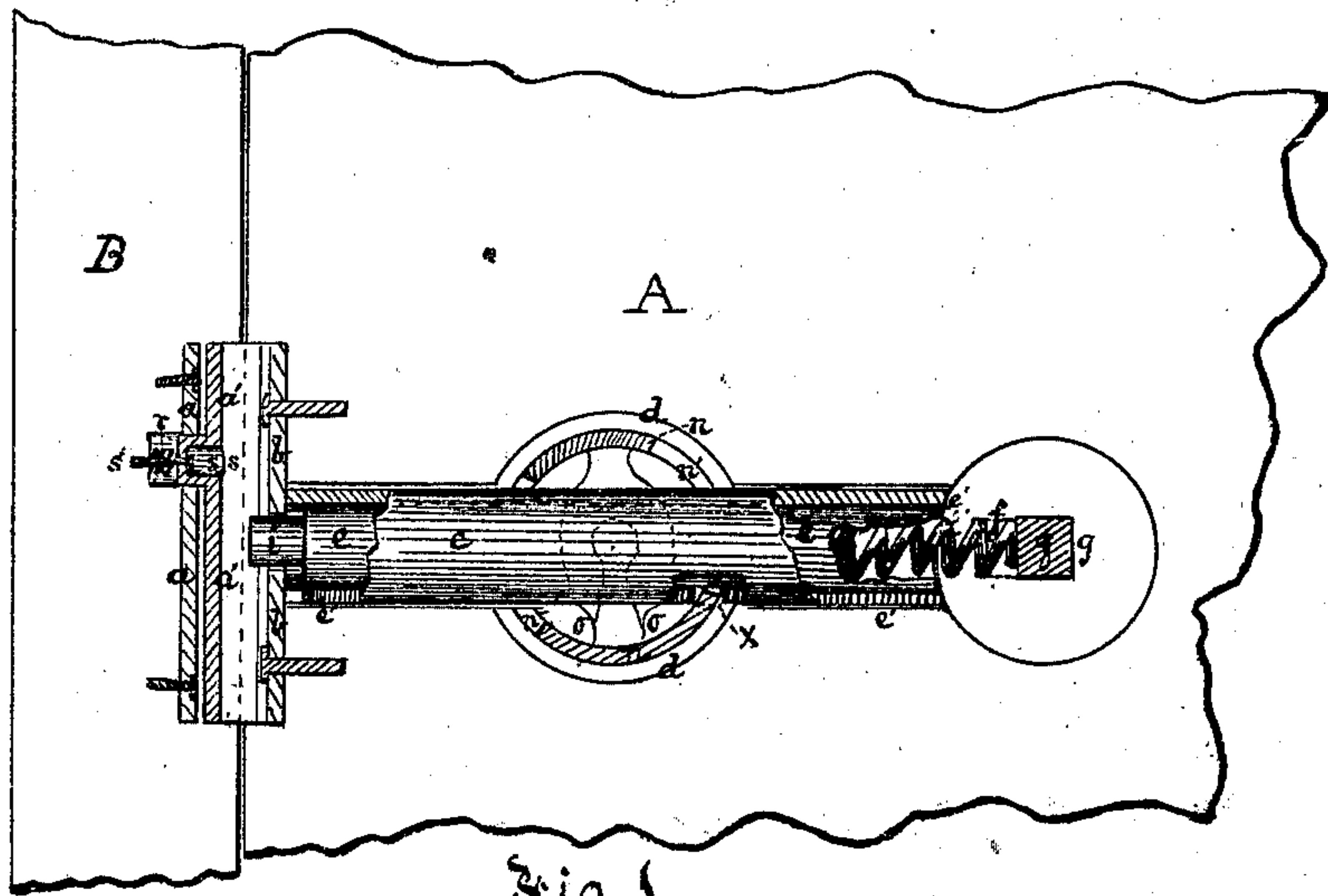


Fig. 1.

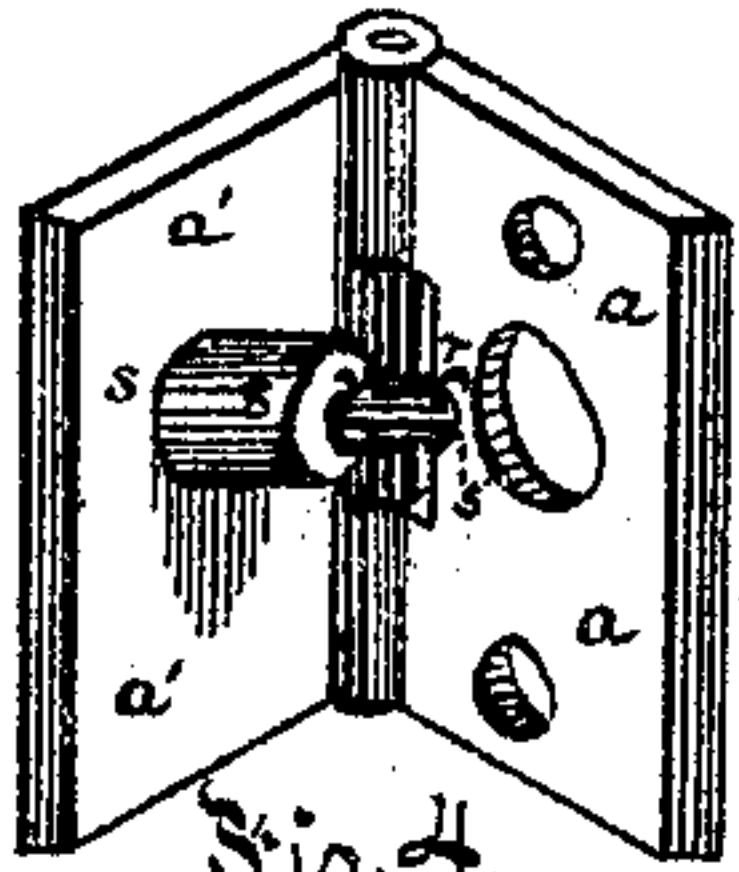


Fig. 4.



Fig. 5.

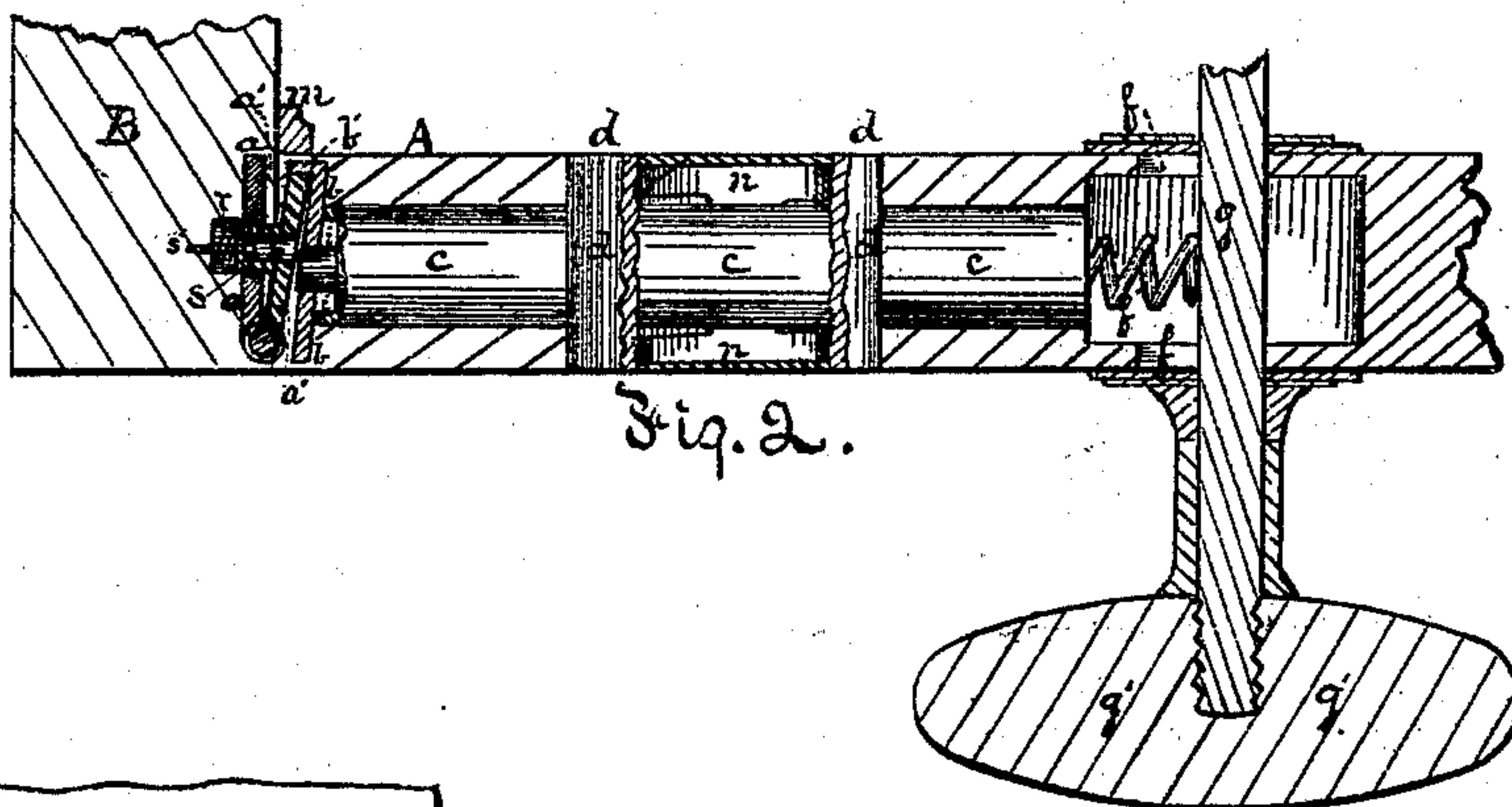


Fig. 2.

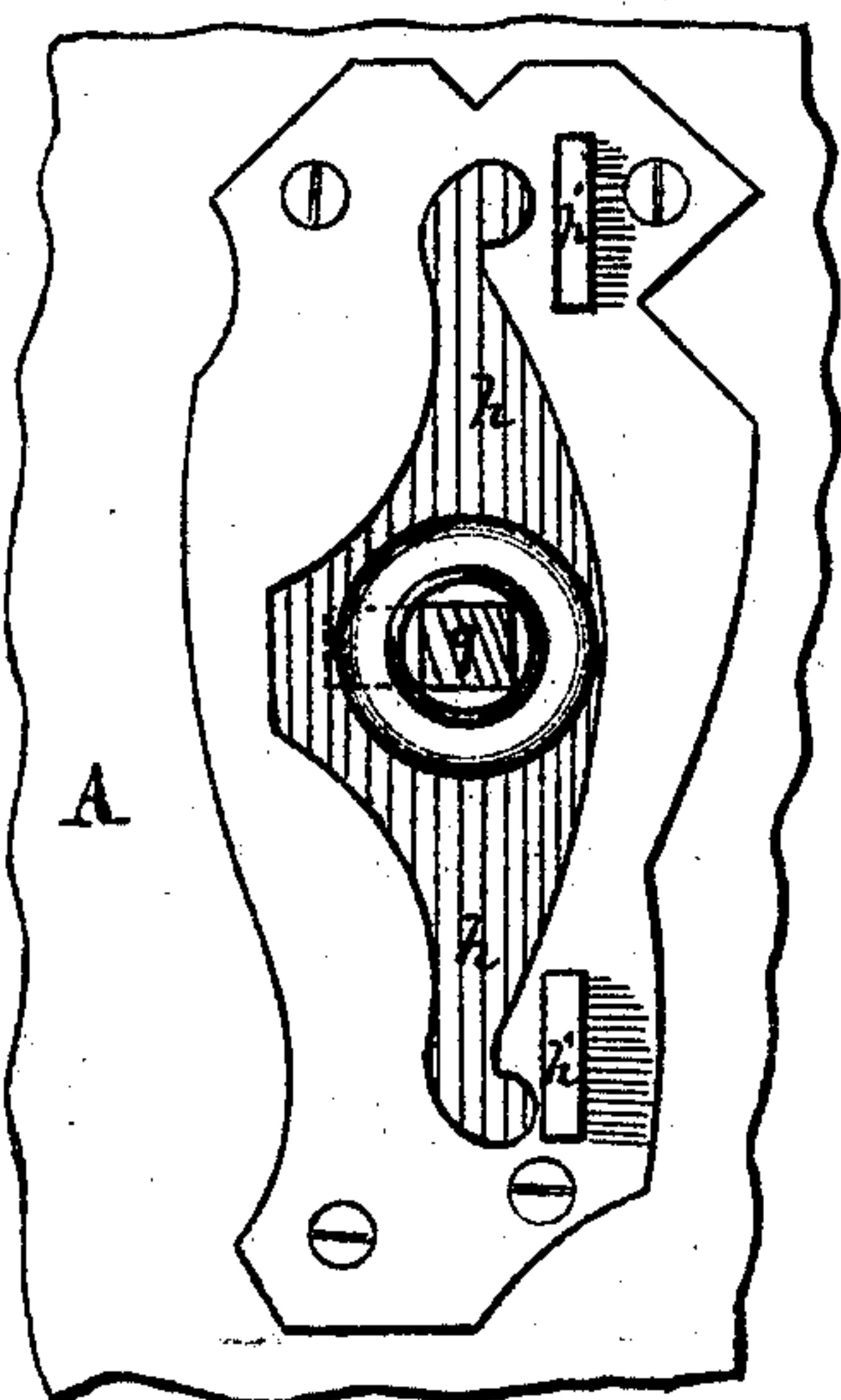


Fig. 3.

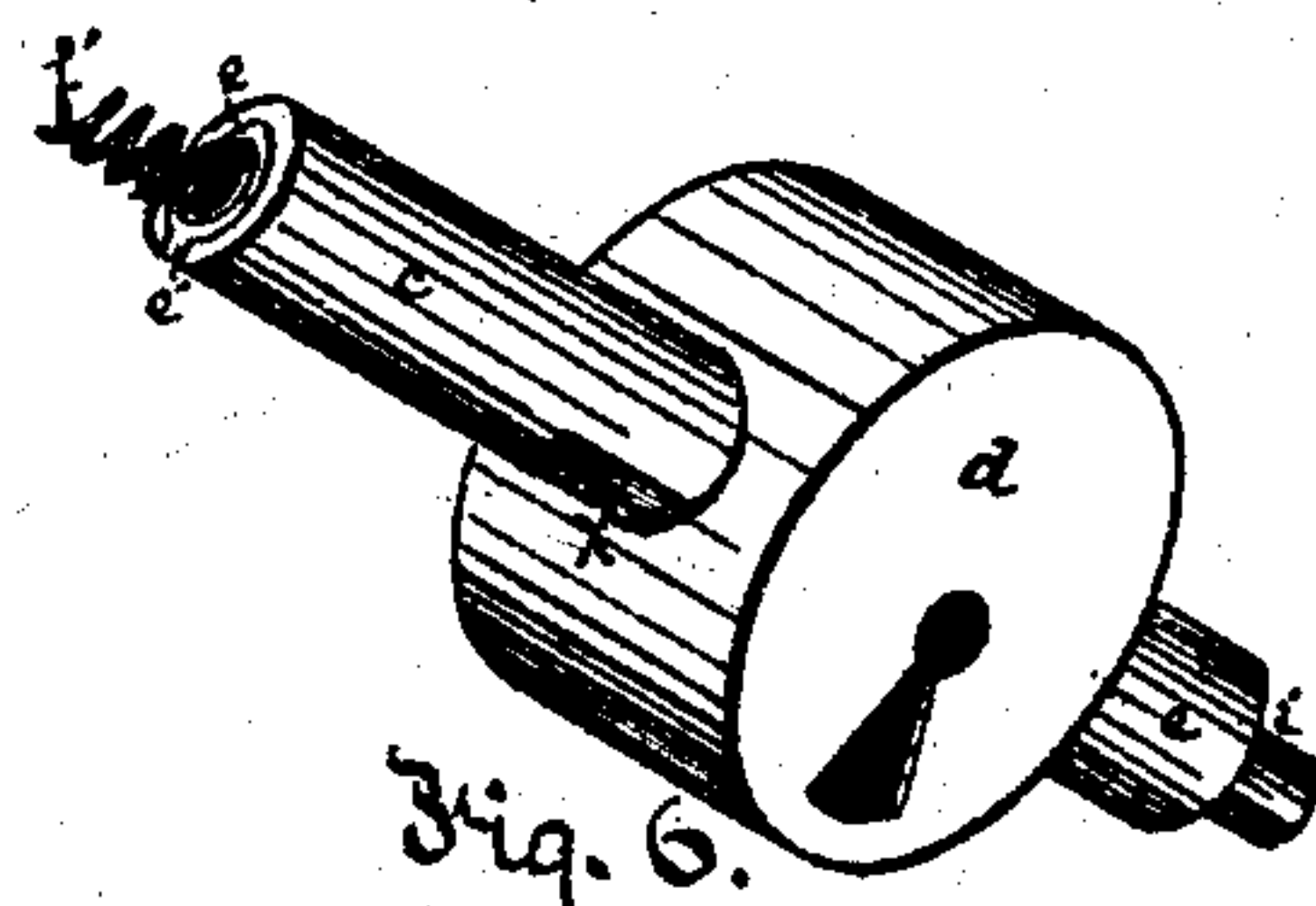


Fig. 6.

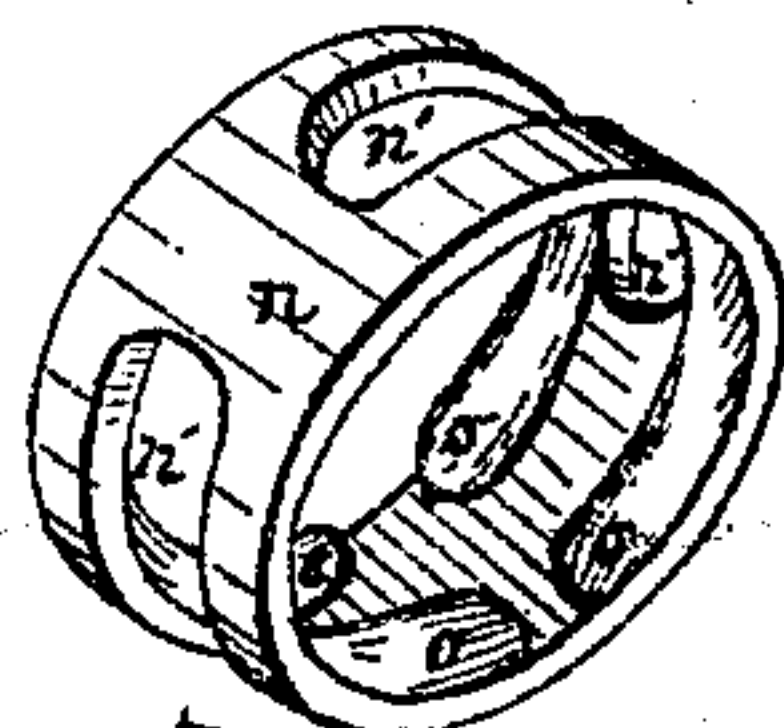


Fig. 7.

Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES ADAIR, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN COMBINED LATCHES AND LOCKS.

Specification forming part of Letters Patent No. 122,794, dated January 16, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, JAMES ADAIR, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Door-Locks and Latches; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a vertical section of part of a door and door-frame illustrative of the construction and operation of my improved door-fastening. Fig. 2 is a horizontal section of the same. Fig. 3 is a face view of a part of the door illustrative of the operation of the spindle; and Figs. 4 to 7 are detached perspective views of some of the working parts.

Like letters of reference indicate like parts in each.

To enable others skilled in the art to make and use my improvement, I will proceed to describe its construction and mode of operation.

The door is represented at A, and the door-frame or casing at B. At the proper point in the latter I attach a keeper, *a a'*, which is made preferably of the form of the ordinary butt-hinge. One leaf or half-hinge, *a*, is fastened securely to the casing B. A hole, however, is made in it of suitable size for admitting a cup-shaped depression, *s*, which is made in the outer leaf *a'*. A hole is made in the bottom of this cup-shaped depression, of proper size to admit the shank but not the head of a set-screw, *s'*. This screw is set so that the outer leaf *a'* may have a slight motion, working on its hinge or pivoted edge, which is arranged toward the side the door opens on. A spiral spring, *r*, is arranged on the shank of the screw *s'*, so as to press the leaf *a'* outward, and such outward motion is limited by the head of the screw *s'*. In connection with this device I employ a catch, *b*. This catch is fastened to the edge of the door in proper position, so that its lip *b'* shall, in closing the door, press the leaf *a'* downward and pass it, and then the leaf *a'* is thrown out by the spring *r*, and its rear edge engages the lip *b'*. The only way now to get the door open is by pressing back the leaf *a'* so that it shall disengage the lip *b'*. To do this I make use of a bolt-case, *c*, a bolt, *e*, a

cylindrical box, *d*, and inside the latter a revolving locking-ring, *n*. To insert the box *d* a round hole is simply bored through the door at the proper point, and for the bolt-case *c* a hole is bored from the edge of the door, beneath the catch *b*, at right angles to the hole for the box *d*, so that the axial lines of the two holes shall intersect each other. The hole for the bolt-case *c* is carried back to a mortise, *f*, made for the spindle *g*. The bolt-case *c* is made of suitable size to carry the bolt *e*, and has a slot along its lower side, as shown in Fig. 6, in which operates a guiding-feather or rib, *e'*, on the bolt *e*. The end of the bolt *e* is shouldered, as at *i*, the forward end projecting through the catch *b* and working against the hinged leaf *a'*, and the length of its outward motion being limited by the shoulder *i* coming against the back of the catch *b*. The rear end of the bolt *e* extends back to or nearly to the mortise *f*, so as to be acted on by the spindle *g*, though I prefer to arrange between the two a spiral spring, *f'*. The mortise *f* is oblong in the direction of the bolt *e*, so that the spindle *g* may have lateral play therein, so as, bearing against the spiral spring *f'*, to force the bolt *e* out so far as may be necessary to press back the leaf *a'* and release it from the lip *b'*, and thus permit the door to be opened. When it is closed again the spring *r* on the screws *s'* presses the leaf *a'* out and forces the bolt *e* back or in. The box *d* has a hole through it, as shown, so as to admit the bolt-case *c*. Like holes *n'* are made in the locking-ring *n*, but these holes are oblong in the direction of the circumference of the ring, so as to admit of a slight rotatory movement. On the inner face of the ring *n*, at suitable points to be acted on by a key, are the lugs or projections *o*, and by the key bearing against these the rotary motion referred to is given to the ring. The under side of the bolt-case *c* and the feather *e'* of the bolt *e*, are notched or cut away, as shown at *x*, at a point such that when the bolt *e* is back the ring *n* can be turned and the edge of the hole *n'* is brought into such recess whereby the bolt *e* will be securely locked against an outward thrust. The locking of the door is thus effected by fastening the bolt *e* back, so that it cannot be pressed against the leaf *a'* to force the latter free of the lip *b'*. By a reverse move-

ment of the ring *n* the bolt *e* is unlocked and is free to be thrust forward, so as to open the door in the manner already described.

One advantage is that it is not necessary to turn or rotate the knob *g'* to open the door. Housekeepers often have both hands full on coming to a door, and in such case it is only necessary to press on the knob *g'* so as to throw it forward. This brings the spindle *g* against the spring *f'* and unfastens the door, as already described. But the device is adapted to the use of those who are accustomed to turn door-knobs by means of a plate, *h*, which is fixed on the spindle *g* against the face of the door, in connection with the stops *h'*, against which they act. By turning the knob either way one end or the other of the plate *h* is brought against the stop *h'*, and thereby the spindle is thrown forward against the spring *f'* with the result already described.

It will be observed that the inner leaf *a* is not essential, as the outer leaf *a'* may be hinged by a staple or other suitable device to the casing *B*; also, that the catch *b* may be varied in form, it being only necessary that it or a substitute therefor embrace two devices—viz., a lip to engage the edge of the leaf *a'* and a stop to keep the bolt *e* from coming too far out; also, that the spring *f'* may be dispensed with and the spindle *g* be made to bear directly against the bolt *e*.

Among other advantages the following additional may be enumerated: First, the door is not weakened by cutting away a considerable part of it, as is the case with the use of ordinary mortise locks. Second, the door cannot be opened by taking the lock off, since the lock-box or case, though inserted laterally into the door, is held in place by the bolt and bolt-case passing through it. Face-plates, escutcheons, screws inserted in the side of the door are not necessary to hold the lock on. Third, cheapness and simplicity of construction. Fourth, the door shuts with greater ease than doors fitted with locks in ordinary use. The lip *b'* in closing the door acts along the inclined outer face of the outer leaf *a'*, presses it back by compressing the spring *r*, which spring need not possess a very great degree of rigidity. The leaf *a'* can be made of a considerable breadth, much greater than the length of bevel in the ordinary lock-bolts or bolt-keepers, and, consequently, presents a long wedge-face for the lip *b'* to act on. Hence the compression of the spring *r* is effected more gradually and easily. The hinged keeper *a a'* may be set in the cas-

ing as shown, or attached like the ordinary butt-hinge, with the hinging edge projecting outside the casing, with any desired style of ornamentation. Fifth, another advantage is this: that when the doors and casings shrink they sometimes separate so far that the ordinary locks, if used, have to be reset or the door remade to insure locking or catching. But with my improvement the set-screws *s'* may in such case be turned out a little, so that the leaf *a'* shall stand out further and engage the lip *b'*. Sixth, as the inner edge of the projecting leaf *a'* does not project beyond the face of the finishing-strip *m*, against which the door shuts, I have no projecting catch, bolt, or other device which is likely to catch and tear the garments of persons passing through the doorway. Seventh, the same devices are also applicable as fasteners to gates, drawers, windows, &c., with like utility.

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

1. A self-locking leaf, *a'*, hinged to the door-post, and stop *b* arranged on the door, in combination with a sliding bolt, *e*, which unlocks the door by an outward thrust, substantially as set forth.

2. The sliding bolt *e*, shouldered as at *i*, for limiting its outward motion, and arranged relatively to and in combination with the lock-case *d* and locking-ring *n*, whereby the door shall be locked when the bolt is thrust back and secured and unlocked by the outward thrust of the bolt, substantially as described.

3. A lock-box or case, *d*, having a rotating locking-ring, *n*, both perforated from side to side and arranged to be inserted laterally into a door, in combination with locking-bolt or bolt-tube, which, passing through the perforations from the edge of the door, shall hold the lock-case in place without the necessary use of face-plates or escutcheons for that purpose.

4. The combination of box *d*, locking-ring *n*, slotted and notched tube *c*, and feathered and notched bolt *e*, substantially as described.

5. A spring, *f'*, arranged to bear against the rear end of the locking-bolt *e*, in combination with a spindle, *g*, which is susceptible of a direct motion against the spring, so as to throw the bolt without necessarily revolving the spindle.

In testimony whereof, I, the said JAMES ADAIR, have hereunto set my hand.

Witnesses:

JAMES ADAIR.

W. N. PAXTON,

G. H. CHRISTY.

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