(No Model.)

J. DENNIS.

LOCK.

No. 543,679. Patented July 30, 1895.

Fig. 1.

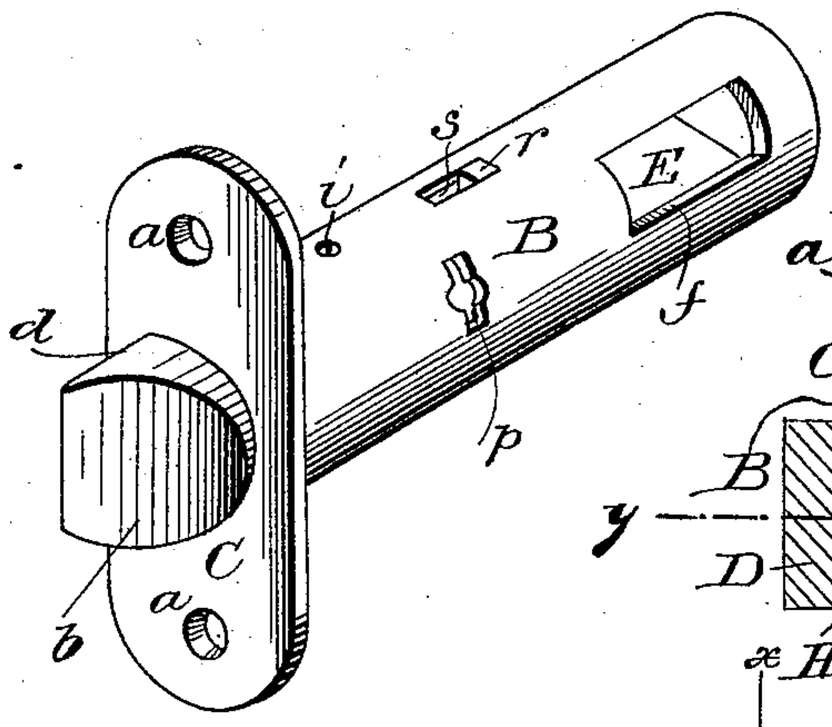
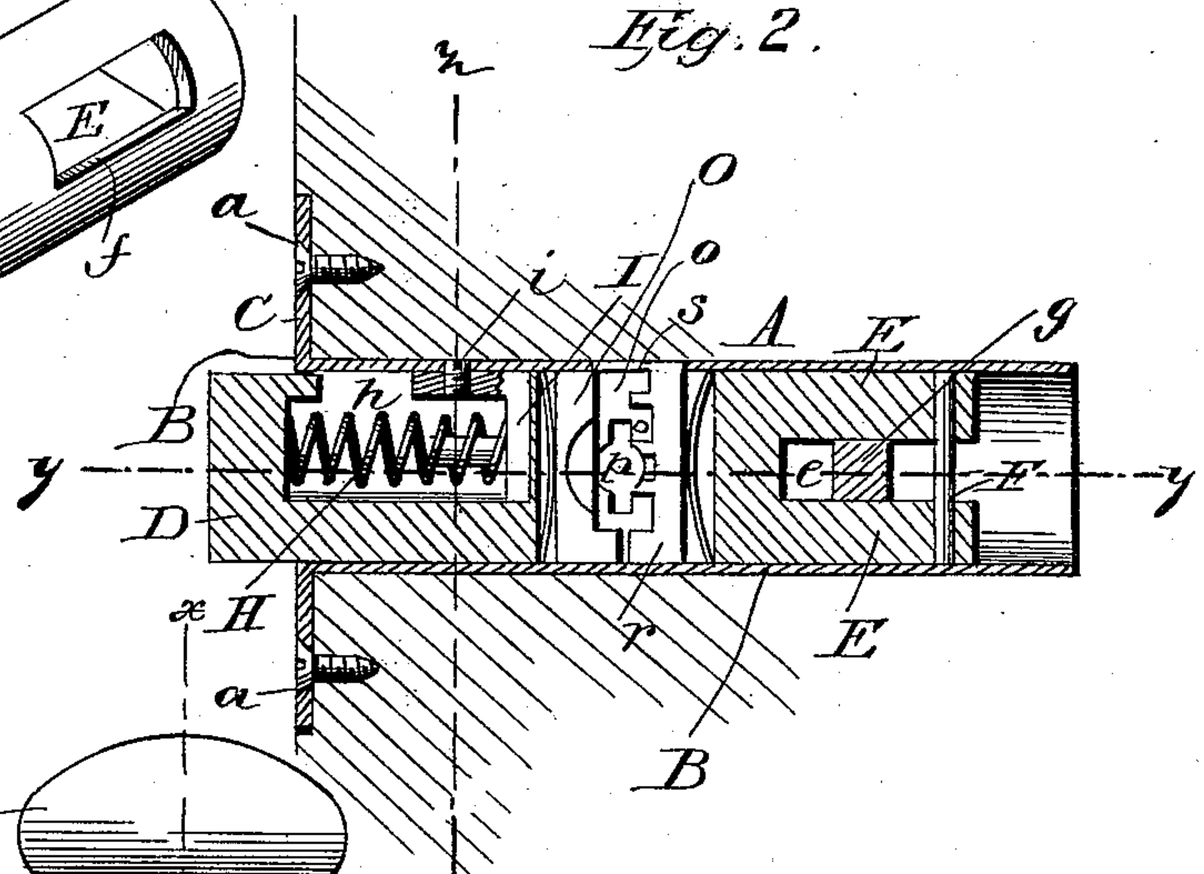


Fig. 2.



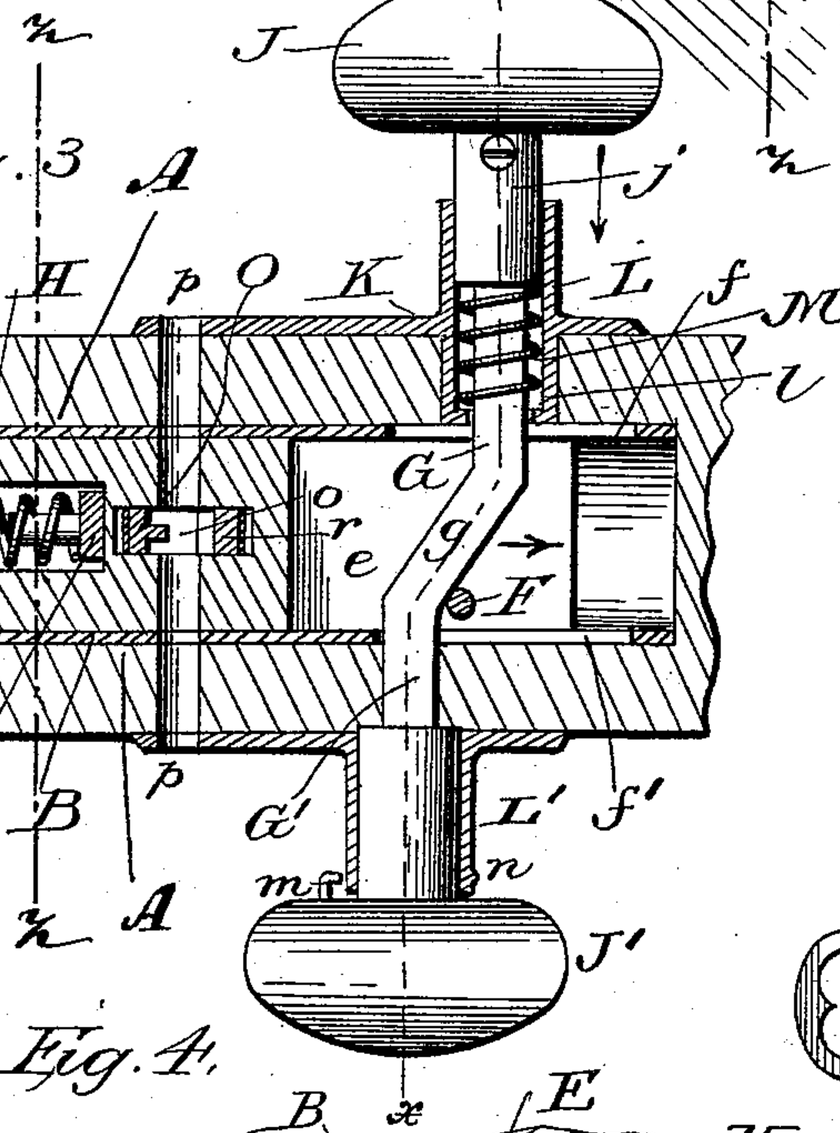


Fig. 3

Fig. 4.

Fig. 6.

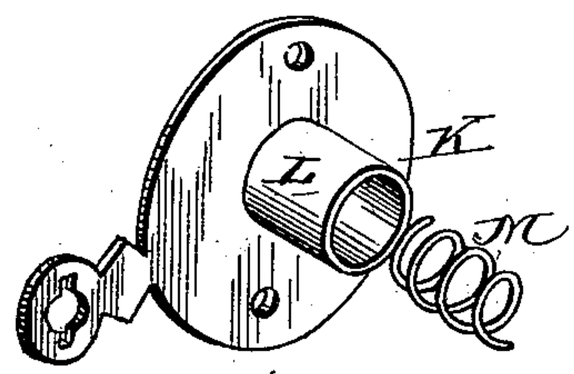
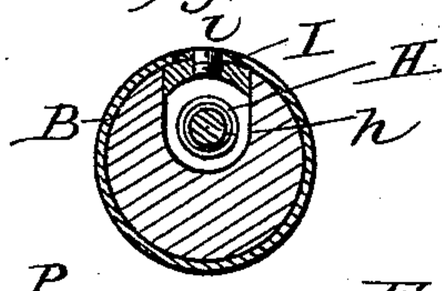


Fig. 5



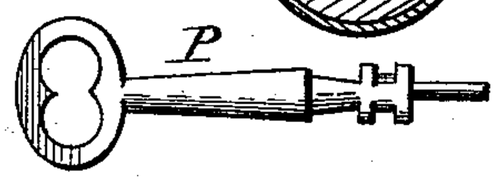
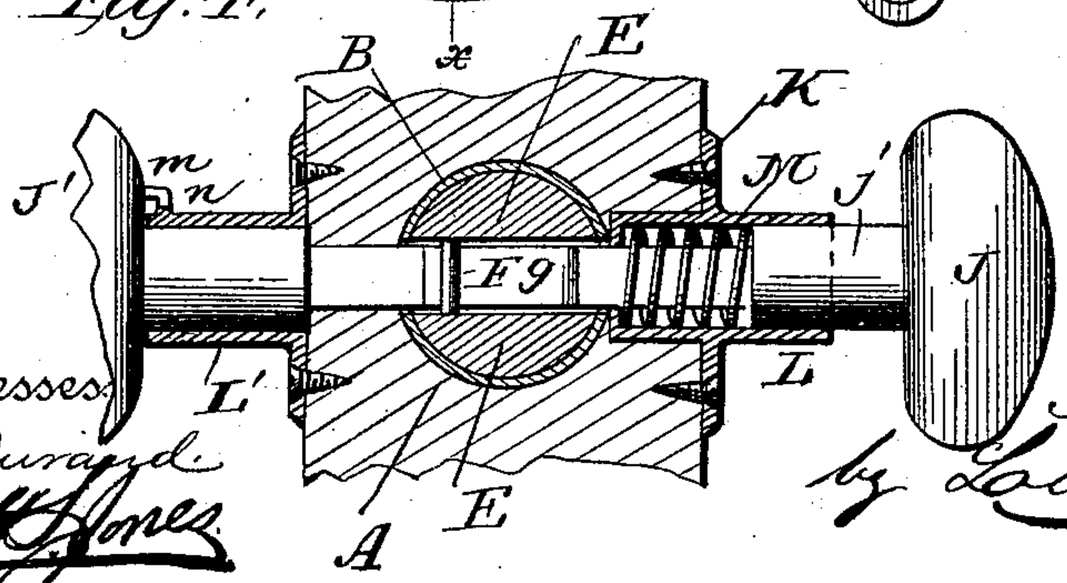


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOSEPH DENNIS, OF HOT SPRINGS, SOUTH DAKOTA.

LOCK.

SPECIFICATION forming part of Letters Patent No. 543,679, dated July 30, 1895.

Application filed April 11, 1895. Serial No. 545,347. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DENNIS, a citizen of the United States, and a resident of Hot Springs, in the county of Fall River and State of South Dakota, have invented certain new and useful Improvements in Door-Locks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved door-lock removed from the lock mortise or recess in the door. Fig. 2 is a longitudinal sectional view of the same, showing it in position in the door on a vertical plane through the axis of the cylindrical barrel or casing. Fig. 3 is a sectional view of the same on the horizontal plane indicated by the broken line marked *y y*. Fig. 4 is a transverse vertical sectional view through the barrel and bolt on line *x x*. Fig. 5 is a similar view of the same parts on the parallel transverse plane indicated by the broken line marked *z z*. Fig. 6 is a detail view of the sleeve with its spring appertaining to one of the door-knobs, and Fig. 7 is a view of the keys.

Like letters of reference designate corresponding parts in all the figures.

This invention has relation to door-locks of that type in which the bolt is withdrawn to open the door either by pulling or pushing upon the lock knobs or handles instead of turning them, as usual; and it consists in the novel construction and combination of parts of a door-lock of that particular type and construction, as will be hereinafter more fully described and claimed.

On the accompanying drawings the reference-letter A denotes the mortise or recess in which the lock shown at B is inserted. The box or casing containing the lock mechanism is cylindrical, terminating at its front end in the bolt-shield C, which is an oblong metal plate having a central aperture through which the locking-bolt D plays, and smaller countersunk appertures *a a* for the insertion of the screws by which the plate is fastened upon the front edge of the door, as usual.

Inserted movably within the hollow cylinder B is a cylindrical bolt D, the forward end of which is reduced on one side *d* and beveled on the opposite side *b*, as usual, to enable it to easily enter and interlock with the catch-plate on the door jamb or casing. (Not shown.) The rear end of bolt D is bifurcated, so as to form two parallel limbs E E, connected by a cross-pin F. The cylindrical casing B, opposite to this pin F, has two oblong apertures *f* and *f'* for the insertion of the spindle G G', which, at the point where it passes through the recess *e* formed in the rear end of the bolt by the limbs F F and in alignment with the transverse pin F, has a jag or offset *g* formed by bending it to form a slanting middle section between and connecting the two straight ends G and G', the said slanting offset *g* bearing against the pin F, as clearly illustrated in Fig. 3.

The forward end of bolt D, just back of its beveled end or tongue, has a vertical recess *h* containing a helical spring H, the inner end of which bears against a shoe I, fitting loosely within the recess *h* at the farthest end of the same, and fastened to the top of the cylindrical lock-casing B on the inside by means of a small screw *i*. Thus it will be seen that the force or tension of spring H operates normally to force the beveled end or tongue of the locking-bolt D out of its casing, causing it to engage or interlock with the registering lock-plate and mortise on the adjacent door-jamb (not shown) when the door is closed; but the bolt may be easily and instantly withdrawn from this locking position simply by either pushing the handle-knob J in the direction of the arrow—*i. e.*, toward the lock—or (what of course amounts to the same thing) pulling upon the opposite knob J', the jag or middle offset *g* in the knob-spindle G G' in either case bearing against the cross-pin F in the bifurcated rear end of the bolt, so as to (overcoming the tension of spring H) push the bolt back within its casing, and thus release it from its interlocking fastening, thus opening the door by pushing or pulling upon the handles, instead of turning these, as in door-locks of the usual construction. To facilitate this sliding movement of the knob-spindle and knobs or handles, the lock-plate K on one side of the door is constructed with the sleeve L, one end of which

l enters a mortise made in the door to receive it, while the other end projects outwardly from and at right angles to the lock-plate, so as to form a collar for the cylindrical stem *j* of the knob or handle J on that side, a stiff helical spring M being inserted within the sleeve L *l*, so that it will push against the adjacent inner end of the cylindrical knob-stem *j*, which abuts against it within in collar L, and thus normally maintain the spindle G G′ in the position shown in Fig. 3, which leaves bolt D in its projecting or locked position; but by pushing upon the knob J, or pulling on the opposite knob J′, so as to overcome the force or tension of the spindle-spring M it will be perceived that the horizontal slanting offset *g* will be brought to bear sidewise against the adjacent transverse and horizontal cross-pin F, pushing this back and thus gradually withdrawing bolt D until it is entirely released from its catch and the door unlocked.

In order to, if desired, keep the door locked, the knob J′ is provided on its inner side with a small hook *m*, adapted to engage a catch or stud *n* upon the sleeve L′ appertaining to knob J′, so that by slightly turning the knob the hook *m* will overlap and engage the catch *n*, and thus prevent either knob J or J′ from being moved, thus keeping the door firmly locked without the use of the key. In Fig. 4 I have shown the stud *n* in engagement with this locking-hook *m*. In addition to this, however, and in order that the bolt may be locked, so as not to be opened by any manipulation of the knobs J J′ and spindle G G′, I provide a small recess *o* in the body of bolt D, just in front of its bifurcated limbs E E, into which a small tumbler-lock O is inserted, adapted to be operated by a key P, which may be inserted into the lock O through keyholes *p p*, from either side of the lock-casing, the key P being made with a shank of sufficient length to reach through the thickness of wood on both sides of the lock, so that the wards of the key may properly engage the tumblers which operate a bolt *r*, engaging a slat *s* in the top of the cylinder B. In this simple manner it will be observed that the bolt D may be locked independent of the side knobs or handles, and in such a way that it cannot be opened except with the aid of the key P; but by inserting this key into the bolt-lock O from either side, the small vertical bolt *r* may be withdrawn from its interlocking recess *s*, thus permitting the door to be again opened by pushing upon knob J or pulling the knob J′, as before.

From the foregoing description, taken in connection with the drawings, it will be seen that my improved lock occupies very little space, all its operative parts being confined within the cylinder B, which is of such shape and size that it can easily be inserted into an auger-hole bored into the door from the front edge, another hole being bored through the hole at right angles to and intersecting the lock bore or recess for the insertion of the spindle and its appurtenances.

Not only is this lock exceedingly solid and compact, but owing to its solidity and compactness, and the simplicity of its construction, it is not liable to get out of order, even if roughly used and handled.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The improved door-lock herein shown and described, comprising the cylindrical casing B; bifurcated bolt D sliding therein, having body-recesses *h* and *o* and provided with the cross-pin F at its bifurcated rear end; spring H fastened to casing B by the shoe I and its screw *i;* tumbler-lock O; and spindle G G′ having central slanting jag or offset *g* engaging the cross-pin F and provided with the end-knobs or handles J, J′; all constructed and combined to operate substantially in the manner and for the purpose shown and set forth.

2. The combination with the cylindrical lock-casing B, bifurcated sliding bolt D E F, and spindle G G′ having central horizontal slanting jag or offset *g* and provided with the end knobs J J′, of the sleeves L *l* and L′, spring M, and catch *n* fastened upon sleeve L′ and adapted to engage and interlock with a hook *m* upon the adjacent inner side or face of the knob J′ appertaining to sleeve L′; substantially as and for the purpose herein shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOSEPH DENNIS.

Witnesses:
E. B. WARREN,
JOHN W. BENTLEY.