(No Model.)

W. W. DAVIS.

LOCK.

No. 521,366. Patented June 12, 1894.

Fig. 1.

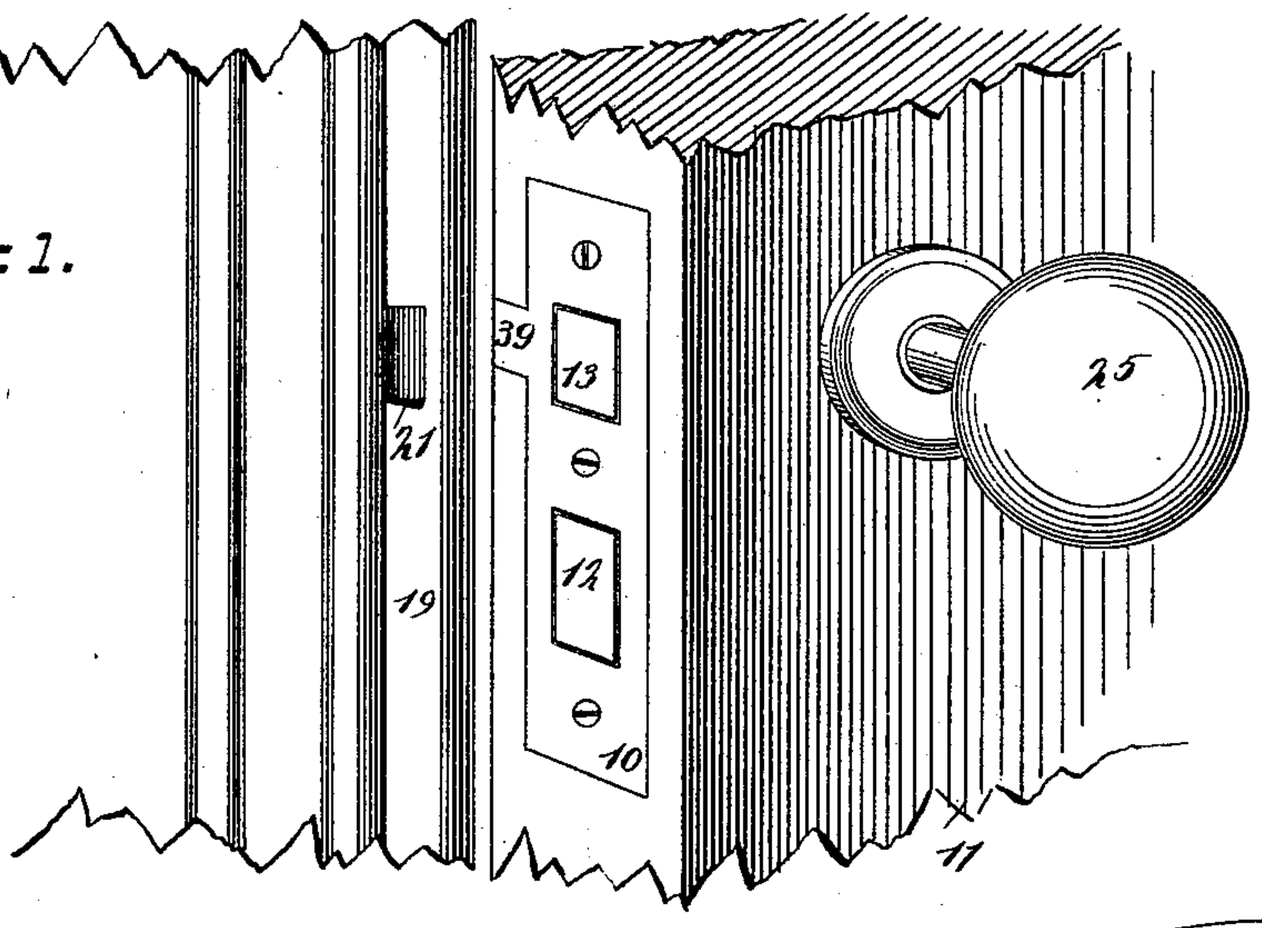


Fig. 2.

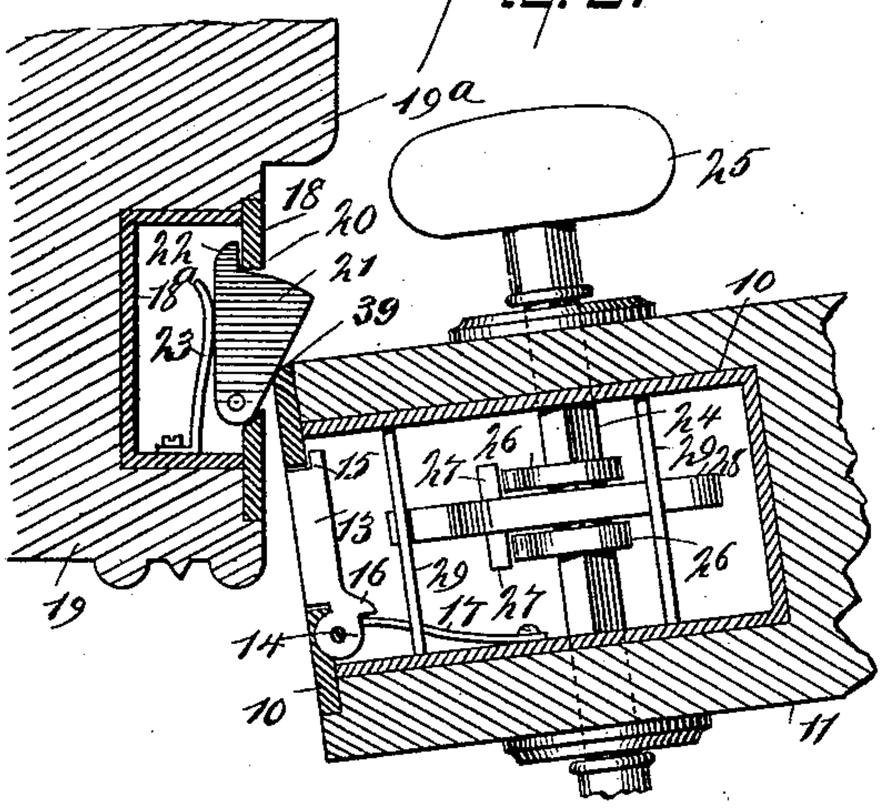


Fig. 3.

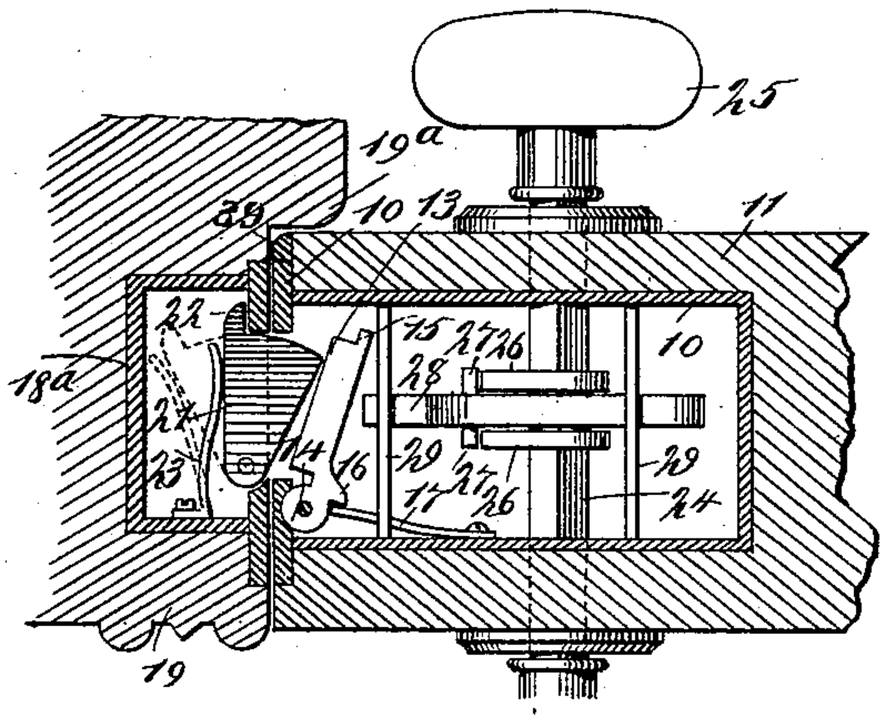


Fig. 4.

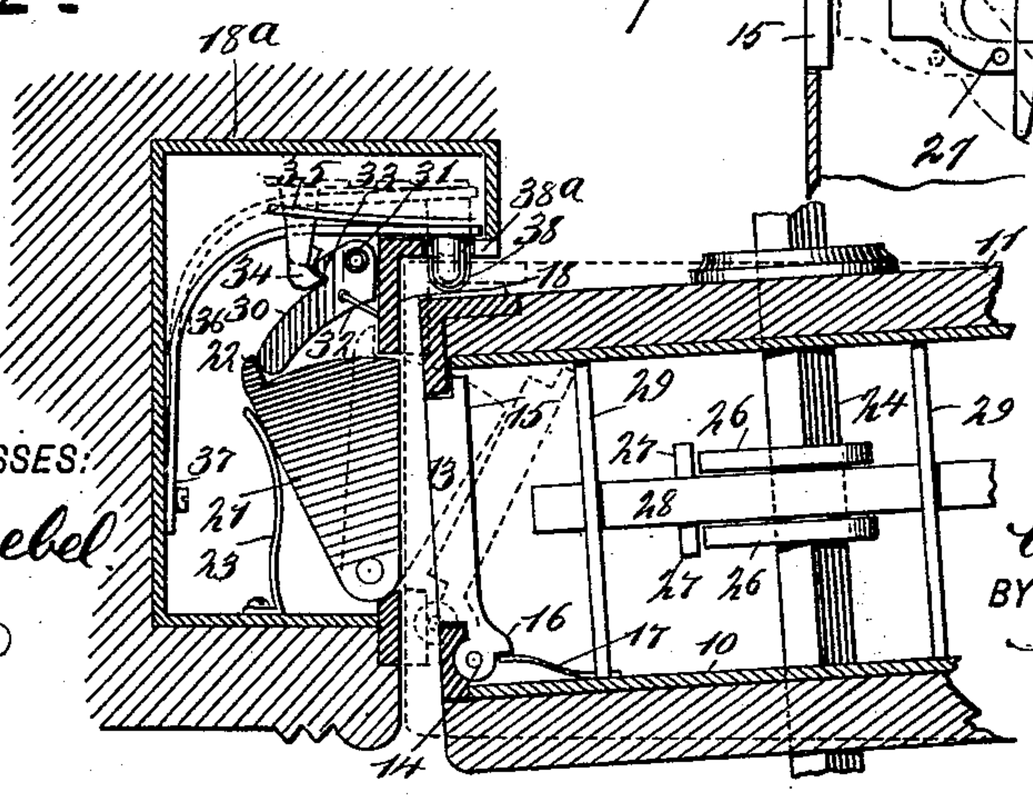
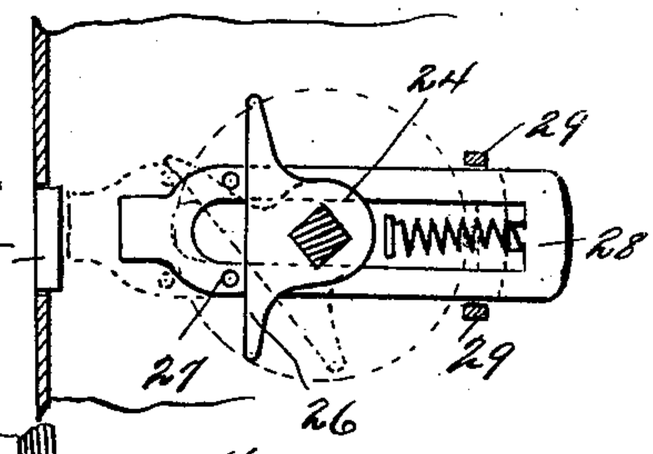


Fig. 5.



WITNESSES:
William Goebel
C. Dodgwick

INVENTOR
W. W. Davis
BY Munn & Co
ATTORNEYS.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM W. DAVIS, OF NEW YORK, N. Y.

LOCK.

SPECIFICATION forming part of Letters Patent No. 521,366, dated June 12, 1894.

Application filed October 5, 1893. Serial No. 487,260. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. DAVIS, of the city, county, and State of New York, have invented a new and Improved Door-Lock, of which the following is a full, clear, and exact description.

My invention relates to improvements in door locks. The ordinary door lock is provided with a slide bolt which projects when the door is open, and which is quite likely to catch with its sharp edges or corners upon the clothing or hands of people passing the door; and the object of my invention is to obviate these objections and to produce a simple and inexpensive lock mechanism which may be readily applied to any door and door frame, which is constructed in such a way that the door and frame will be perfectly or substantially smooth, offering no projections to catch the clothing of passers-by, and further, to construct the said mechanism in such a manner that the door may be readily operated by precisely the same motions as are customarily used with the ordinary knob and the usual arrangement of mechanism.

To these ends, my invention consists of certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken perspective view of a door and frame, provided with my improved lock. Fig. 2 is a sectional plan of the lock mechanism with the door ajar. Fig. 3 is a similar section, but with the door closed. Fig. 4 is a sectional plan of a modified form of the lock mechanism, and Fig. 5 is a detail side view of the knob spindle mechanism.

The lock is provided with a case 10, of substantially the usual kind, which is adapted to be countersunk in the ordinary way in the door 11, and the lock may be provided with the customary bolt 12 operated in the usual way by a key or it may be used without the said bolt if desired, and the hole in which slides the ordinary spindle-operated bolt is, in my apparatus, closed by a swinging fly 13, the bolt being dispensed with, and this fly is provided with a knuckle 14 at one side which is hinged to the inner portion of the case 10 and at its free edge the fly is provided with a shoulder 15 which is adapted to close against the lock case so as to permit the fly to exactly fill the hole in the case and lie flush with the face plate of the case and with the edge of the door. The fly 13 has on its back side a lug 16, which is pressed by a light spring 17 so as to hold the fly normally closed. It will will thus be seen that the edge of the door, when the door is open, is perfectly smooth and there is no obstruction to catch upon the clothing or to present an unsightly appearance. The door swings opposite the usual keeper plate 18 which is fixed in the frame 19, which keeper plate is preferably provided with a casing 18^a which is countersunk in the frame and as the door closes opposite the keeper plate it swings against a jamb or shoulder 19^a. The keeper plate is provided with a hole 20 which comes exactly opposite the fly 13 of the door when the latter is closed, and in the hole of the keeper plate is pivoted a swinging latch 21 which is of a generally triangular shape, being pivoted at its smaller end and having its larger end pressed normally outward, as illustrated in Fig. 2, but by reference to said figure it will be seen that the outer edge of the shoulder 19^a and the outer edge of the latch so nearly align that there is but little opportunity for the clothing of a person to catch on the latch, and this is further obviated by rounding the end and edges of the latch. The latch 21 is provided on its inner side and at its free edge with a projecting shoulder 22, which, by engaging the back side of the keeper plate 18, prevents the latch from being pressed out too far by a spring 23, which is secured to the case 18^a and which presses against the back of the latch 21 so as to hold one side of the latch in an extended position, as shown in Fig. 2. The spring 23 is stiffer than the spring 17, and consequently when the door 11 is closed, the latch 21 is first pushed inward, as in Fig. 2, by the edge of the door which strikes it and which is here protected by an extension 39 of the case 10, which extension 39 is flush with the edge of

the door 11 and offers no projecting corners or edges; but when the fly 13 comes opposite the latch, the spring 23 pushes the latch outward and forces the fly 13 inward while the latch 21 projects into the hole of the lock case 10, and the door is thus held closed. It may be opened and the latch thrown back by means of the door knob in the usual way, as described below. The door is provided with the usual lock spindle 24, which projects through the case 10 in the customary manner, and has at its outer ends the knobs 25 by which it may be turned. The spindle is provided also with tumblers 26, which are of substantially the usual kind, and these are adapted to engage studs 27 on the slide bolt 28 which is held in suitable guides 29, and is adapted to be thrown endwise against the back of the fly 13, so as to force the same outward until it shall be flush with the face of the case 10, and thus push the latch 21 back within the case 18^a of the keeper plate 18, after which the door may be opened. When the knob is released by the hand, it resumes its normal position, with the bolt 23 so retracted as to be always ready for a similar operation precisely like any ordinary knob and its arrangements.

It will be seen from the above description that the door is adapted to lock automatically in the usual way when closed, that it may be opened in the ordinary manner and that when opened there is nothing about the lock to catch and tear the clothing of any person passing it.

The lock shown in Figs. 1 to 3 is adapted for common use and may be cheaply built, but the form of lock shown in Fig. 4 may be built for nicer doors at a little more expense, and this form is arranged so that both the keeper plate and the free edge of the door are perfectly smooth. The modification relates entirely to the mechanism in the keeper plate, as that in the door is exactly similar to the mechanism described above.

The latch 21, as shown in Fig. 4, is held within the keeper case 18^a by a pawl 30, which engages the shoulder 22, this pawl being pivoted at 31 and pressed normally inward by a spring 32. This arrangement leaves the flat face of the latch 21 flush with the face of the keeper plate 18. On the inner side of the pawl 30 is a shoulder 33, which is automatically engaged by a catch 34 which is carried by a spring 35, this being secured to a bent spring 36 which, at one end, is fastened to the back of the case 18^a at 37, and at its free end carries a smoothly rounded button or other smooth projection 38, which projects outward through a shoulder 38^a in the case 18^a and into the path of the door, so that the door will strike it endwise when the door is closed. The shoulder 38^a, it will be seen, forms merely a continuation of the shoulder 19^a of the door frame. When the door is closed it strikes against the button 38, thus pushing the button inward, and this lifts the catch 34, which, acting on the shoulder 33, swings the pawl 30 out of engagement with the shoulder 22 of the latch 21, and the latter, impelled by the spring 23, swings outward into the hole of the lock case, displacing the fly 13 and locking the door, as heretofore described. When the door is to be opened, the spindle 24 is turned and the slide bolt 28 thrown against the fly 13 so as to push the fly and the latch 21 back to their normal positions, and as the latch 21 swings inward, it passes the free end of the pawl 30 which is pressed against it by the spring 32, and the pawl engages the shoulder 22 of the latch and holds the latter in the position shown in Fig. 4. It should be noticed that after the door has left the casing or frame, the button 38 is forced again outward to its normal position by the spring 36, which in turn carries with it the spring 35, and its catch 34, which catch immediately engages with the shoulder 33 of the pawl 30, thus leaving all again in readiness for another similar operation. It should be also noted that if the button 38 should by any accident be pressed in while the door is open, it will merely throw out the latch 21 ready to be pressed into its normal place when the door shall next be closed and opened.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A door lock, comprising the usual case and lock spindle, a fly hinged in the opening of the lock case to swing at right angles to the plane of the face plate, a spring-pressed latch in the keeper plate of the door frame, adapted to press inward against the fly, and a slide bolt carried by the lock spindle and disconnected from the fly but adapted to move the fly against the latch, substantially as described.

2. A door lock, comprising a lock case in the door, the usual knob spindle arranged transversely in the case, a fly hinged in the case to work at right angles to its face plate and adapted to close an opening therein, a slide bolt disconnected from, but arranged to move endwise against the fly, means, as the tumblers and studs, for moving the bolt from the knob spindle, a keeper plate arranged in the usual way in the door frame, and a spring-pressed latch hung in the keeper plate and adapted to displace the fly when the door is closed, substantially as described.

3. A door lock, comprising the usual lock case, a fly hung on the opening of the case, means for closing the fly from the lock spindle, a keeper plate arranged in the door frame opposite the lock, a spring-pressed latch pivoted in an opening in the face of the keeper plate, a pawl to hold the latch within the keeper plate, and mechanism for releasing the pawl by the closing of the door, substantially as described.

4. The combination, with the door, the lock case therein, the lock spindle, the fly in an opening of the lock case, and means for closing the fly from the spindle, of a keeper plate

arranged in the door frame opposite the lock case, a spring-pressed latch adapted to swing outward through an opening in the keeper plate, a pawl to hold the latch within the keeper plate, a spring-pressed catch to engage the pawl, and a button extending into the path of the door and adapted to operate the catch so as to lift the pawl and release the latch, substantially as described.

WILLIAM W. DAVIS.

Witnesses:
WARREN B. HUTCHINSON,
EDGAR TATE.