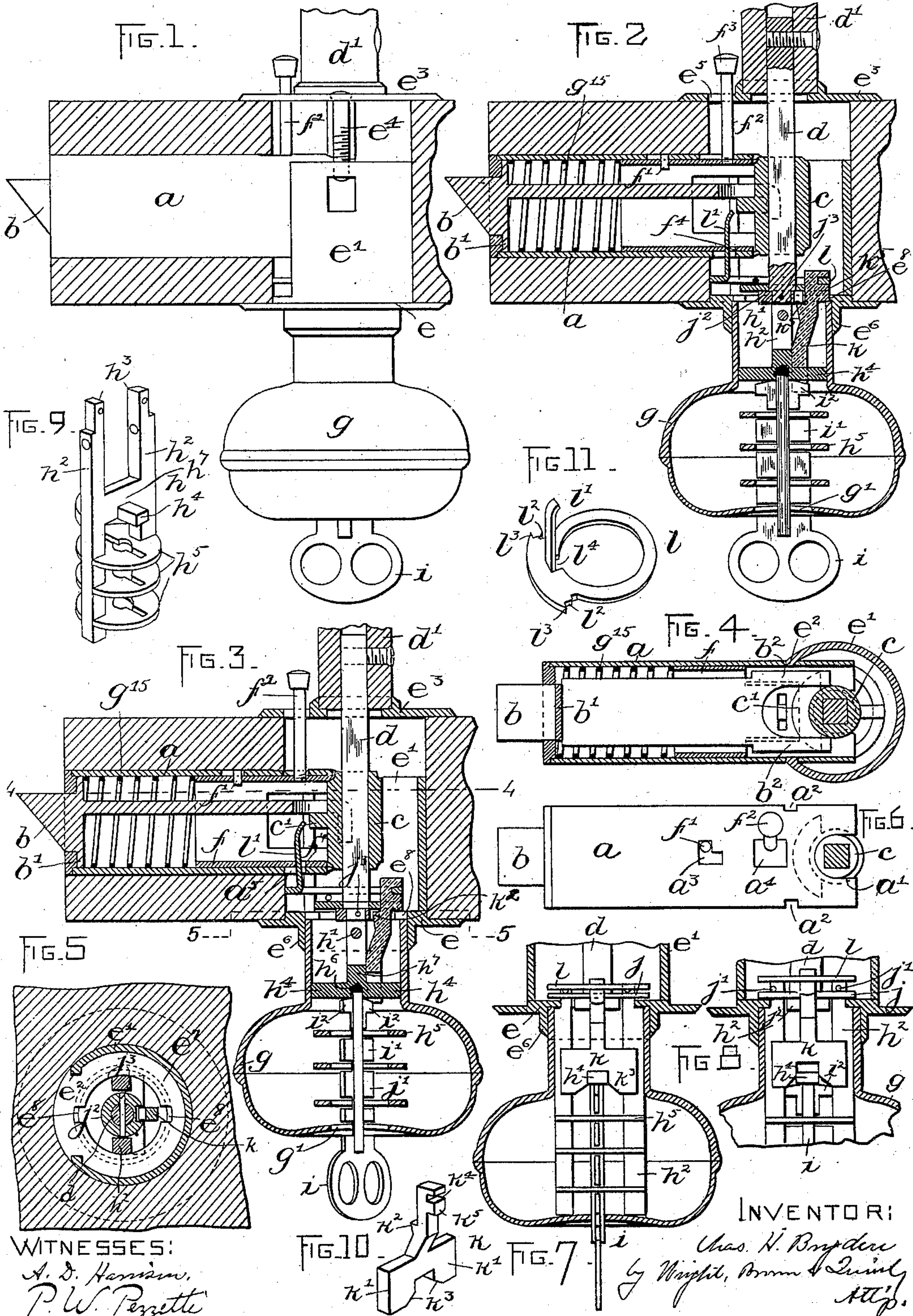


No Model.)

C. H. BRIGDEN.
NIGHT LATCH.

No. 598,472.

Patented Feb. 1, 1898.



WITNESSES:
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UNITED STATES PATENT OFFICE.

CHARLES H. BRIGDEN, OF CANTON, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO S. M. HAWES, JR., OF YONKERS, NEW YORK.

NIGHT-LATCH.

SPECIFICATION forming part of Letters Patent No. 598,472, dated February 1, 1898.

Application filed June 21, 1897. Serial No. 641,547. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BRIGDEN, of Canton, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Night-Latches, of which the following is a specification.

This invention has relation to latches of the class in which the outer knob may be disconnected from the spindle at will and locked against movement and in which the coupling mechanism is operated by a key thrust into a keyhole in the knob, being designed as an improvement upon the latch illustrated and described in Letters Patent No. 562,373, granted to me on the 23d day of June, 1896.

The object of the present invention is to provide such improvements in latches of the character described as to enhance their efficiency, render them more secure against being "picked" by evilly-disposed persons, and provide for their being constructed of a minimum of parts, thereby simplifying them and reducing their cost.

To these ends my invention consists of a latch possessing the features of construction and relative arrangement and relation of parts which I have illustrated upon the drawings and shall now proceed to describe in detail and then point out in the claims hereto appended.

Reference is to be had to the accompanying drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 represents a horizontal section through a door so as to show my improved latch. Fig. 2 represents a horizontal longitudinal section through the latch and the outer knob disconnected from the spindle and locked to one of the roses on the door. Fig. 3 represents a similar section with the outer knob connected to the spindle and disconnected from the rose. Fig. 4 represents a section on the line 4 4 of Fig. 3. Fig. 5 represents a section on the line 5 5 of Fig. 3. Fig. 6 represents a rear elevation of the latch-casing, showing the pin for effecting the coupling of the outer knob with the spindle. Figs. 7 and 8, respectively, represent the clutching devices when locked and when unlocked by

the key. Figs. 9, 10, and 11 are detail views illustrating some of the parts detached.

Referring to the drawings, the latch-casing *a* is cylindrical in shape, with the outer end closed except for a square aperture to receive the end of the latch-bar *b* and with the rear end open.

The latch *b* projects through the square aperture in the end of the casing *a* and is formed with stops *b'*, which engage the said end of the casing to limit its forward movement, and at its rear end is recessed to form two arms *b²*, which project on either side of the barrel *c*, through which the angular spindle *d* passes. The ends of the arms *b²* are bent at an angle to extend on either side of a fin or web *c'*, extending out from the barrel, so that when the barrel is turned by the spindle the latch is withdrawn. The barrel is reduced at its ends and is journaled in slots *a'* in the rear end of the casing *a*, the bent ends of the latch-bar tending to hold the said barrel in place.

The casing is inserted in a cylindrical aperture which is bored in the edge of the door, and it is held in place by the semicylindrical sleeve *e'*, projecting inward from a rose *e*, inserted in a cylindrical aperture in the door at right angles to the aperture in which the casing *a* is inserted. The edges *e²* of the inwardly-projecting portion of the rose extend into notches or slots *a²* in the casing *a*, as shown in Figs. 4 and 6, so as to retain the casing *a* in place and hold it firmly against movement. The rose *e³* is placed upon the inner side of the door and is secured to the rose *e* by screws *e⁴*, as shown in Fig. 1.

On the end of the knob-spindle *d* is secured the shank *d'* of the inner knob, so that when the said knob is turned the barrel *c* is also partially rotated, so as to withdraw the latch and permit the door to be opened.

Within the cylindrical casing *a* is placed a bushing *f*, having an outwardly-projecting pin or stud *f'*, extending into an angular slot *a³* in the casing *a*, (see Fig. 6,) and between the forward end of the bushing and the stops *b'* on the latch-bar is placed a strong spiral spring *g¹⁵*, which tends to yieldingly hold the latch against rearward movement and the bushing against forward movement. The

said bushing is capable of only a limited longitudinal movement by reason of the pin entering the angular slot a^3 ; but it may be held forward at the end of its movement by partially rotating it, so as to throw the stud into the lateral-extending portion of the said slot. This may be accomplished at will from the inside of the door by a small pin f^2 , having its inner end threaded into an aperture in the bushing and extending through an aperture a^4 in the casing a and through an aperture e^5 in the rose e^3 . (See Fig. 3.) The outer end of the pin f^2 is equipped with a knob f^3 to render it more easy to be grasped and moved.

The outer knob g is swiveled or loosely connected to the spindle d and is normally locked to the door against movement, there being means for disconnecting the knob from the door and connecting it fixedly to the spindle, which are operated by a key thrust through a keyhole g' in the center of the knob, as indicated in Figs. 1, 2, and 3.

The shank of the knob fits closely in the annular flange e^6 , projecting outwardly from the rose e , and in the knob are rigidly secured by a pin h' the inwardly-projecting bars h^2 of a device which acts as a bearing for the key i . The reduced ends h^3 of the said bars pass through apertures in a collar j , fitted on the rounded end d^3 of the spindle, and through the said ends are passed pins j' to hold the collar and the bars h^2 together. The collar or ring j is secured in place by a collar j^2 , fastened on the reduced end of the spindle by a pin j^3 , as shown in Fig. 5. The ring or collar j is revoluble about the spindle and is connected to the knob by the means just described, so that the knob is held in place against longitudinal movement and at the same time is free to revolve without affecting the spindle b .

The device h in the knob is provided with the laterally-extending lugs h^4 , which abut against the inner walls of the shank and hold it in the central longitudinal line of the knob, and is also provided with any desired number of circular wards h^5 , each of which has an aperture to receive the key i . The wards may be differently spaced and the key may be provided with corresponding wards i' of different lengths to fit between them, as will be readily understood. The projecting end of the key may be partially inserted in an aperture h^6 in the said device, by which it is journaled when it is turned.

A tumbler k extends through a notch in the ring j and is provided at its outer end with laterally and vertically projecting fingers k' k' , lying on either side of one of the lugs h^4 and sliding upon the bars h^2 and upon the cross-bar h^7 , which connects them and out from which the said lugs h^4 extend. The tumbler is provided with a projection k^2 , which is adapted to enter a notch in the collar j^2 when it is thrust inward by the key. The said key has upon its extreme end wards

i^2 , which when the key is first inserted in the keyhole lie at a right angle to the fingers k' , as shown in Fig. 7; but when the key is turned the outer edge of one of the wards i^2 engages the beveled ends k^3 of the fingers k' in such way as to wedge or force the tumbler k inward, as will be apparent by examining Figs. 7 and 8.

A bell-crank lever fulcrumed in notches in the opposing edges of the inwardly-projecting semicylindrical portion of the rose connects the bushing with the tumbler k , whereby the said tumbler may be operated from the inside of the door and the spring g^{15} may be employed for holding said tumbler in position to lock the knob to the rose. The lever consists of a ring l , lying in a slot k^4 in the inner end of the tumbler and having the arm l' projecting through an aperture a^5 in the casing a and through a transverse slot f^4 in the bushing. The edges l^2 of the ring project into notches (not shown) in the edges e^2 of the semicylindrical portion of the rose e , and the ring is held against inward movement by the projections l^3 . The ring is provided with an interior notch l^4 , so that it may be inserted in place. This is accomplished by turning the knob until the tumbler k is in a position diametrically opposite to that in which it is shown in Fig. 5, then inserting the ring in place with the edges l^2 in the notches (not shown) in the edges of the part e' of the rose, then by means of the key forcing the tumbler inward until it enters the notch l^4 , and then, finally, turning the knob so as to carry the tumbler around to its operative position with the said ring l in the notch k^4 in the tumbler.

The rose e has an inwardly-projecting flange e^7 , with notches e^8 e^8 diametrically opposite to each other, (see Fig. 5,) one of the notches e^8 being in alinement with the projection k^5 , into which the latter extends when said tumbler is in its normal position, as shown in Fig. 2. Under normal conditions the pin f^2 is in the position shown in Fig. 2, with the bushing at its inner extreme of movement. The spring g^{15} through the bushing and the lever holds the tumbler outward with the projection k^5 in the slot or notch of the rose and with the projection k^2 out of the notch in the collar j^2 .

By inserting the key in the keyhole, as shown in Figs. 2 and 7, and turning it the tumbler k is forced inward, as shown in Figs. 3 and 8, so as to free the projection k^5 from the rose and force the projection k^2 into the notch in the collar j^2 . The inward movement of the said tumbler is against the stress of the spring g^{15} , and upon the key being returned into inoperative position the said spring forces the tumbler back to its normal position.

While the tumbler is in its innermost position, with the projection k^2 in the notch in the collar j^2 , the outer knob is fixedly connected with the spindle d , and hence by turning the said knob the latch-bar b may be drawn in-

ward and the door opened. Immediately upon the key being withdrawn, however, the parts resume their normal positions. The knob is disconnected from the spindle and is locked to the door. When it is desired, however, to connect the outer knob fixedly with the spindle for any length of time, it may be accomplished by forcing the pin f^2 toward the edge of the door in the slot a^3 , and then moving it laterally, so as to lie in the lateral portion of the said slot. This moves the bushing forward against the stress of the spring g^{15} , and through the lever, which is fulcrumed on the rose e , draws the tumbler into its operative position to lock the knob and the spindle together.

From the foregoing it will be seen that I have provided a very simple mechanism which is highly efficient in operation. Only one spring is required for holding the parts in their normal position, and the mechanism which is employed is easy of construction and consists of a limited number of parts. The latch is practically proof against burglars, and as the disks or rings h^5 are formed separately of the shank or device h they may be moved to any position, so that each latch will require a different key.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. A latch, comprising a latch-bar, a barrel therefor, a spindle passing through the barrel, an inner knob rigid with the spindle, an outer knob loose relatively to the spindle, key-actuated means normally locking the outer knob to the door, and adapted to fixedly connect said knob with the spindle, and a single spring for holding the latch-bar and the said key-actuated means in their normal positions.

2. A latch comprising a latch-bar, a spindle therefor, an inner knob on the spindle, an outer knob loose relatively to the spindle, and a tumbler out of alinement with the keyhole and moved longitudinally of the spindle by a rotary key for fixedly connecting the outer knob and the spindle.

3. A latch comprising a latch-bar, a spindle therefor, a knob loose relatively to the spindle, and a longitudinally-movable key-actu-

ated tumbler having beveled fingers k' to be engaged by a key.

4. A latch comprising a casing, a latch-bar, a spindle for operating the said bar, a knob loose relatively to the spindle, a key-actuated tumbler for connecting the knob to the spindle, a lever connected to the tumbler and projecting into the casing, and a spring arranged to exert its pressure against both the latch-bar and the said lever.

5. A latch comprising a casing, a latch-bar, a spindle for operating the said bar, a knob loose relatively to the spindle, a key-actuated tumbler for connecting the knob to the spindle, a lever connected to the tumbler and projecting into the casing, a bushing in said casing to which one end of the lever is connected, and a spring arranged to bear at its ends against the bushing and the latch-bar.

6. A latch comprising a casing, a latch-bar, a spindle for operating the said bar, a knob loose relatively to the spindle, a key-actuated tumbler for connecting the knob to the spindle, a lever connected to the tumbler and projecting into the casing, a bushing in said casing to which one end of the lever is connected, a spring arranged to bear at its ends against the bushing and the latch-bar, and a pin projecting from the inside of the door into the bushing, whereby the tumbler may be actuated from the inside of the door.

7. A latch comprising a latch-bar, a spindle therefor, a knob loose relatively to the spindle, a sliding tumbler rotatable with the knob, and a key, said tumbler being arranged and constructed whereby the rotation of the key slides it into engagement with the spindle.

8. A latch comprising a latch-bar, a spindle therefor, a knob loose relatively to the spindle, a sliding tumbler having a bevel, a support in the knob having transverse wards to hold the key against a longitudinal movement, and a key constructed, when rotated, to engage the bevel of the tumbler and slide said tumbler longitudinally.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 19th day of March, A. D. 1897.

CHARLES H. BRIGDEN.

Witnesses:

ALEX. K. IRELAND,
W. S. ROOT.