70. LOCKS,

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No. 817,713. PATENTED APR. 10, 1906.

W. H. HOPE.

DOOR LOCK AND LATCH.

APPLICATION FILED FEB. 18, 1904.

2 SHEETS—SHEET 1.

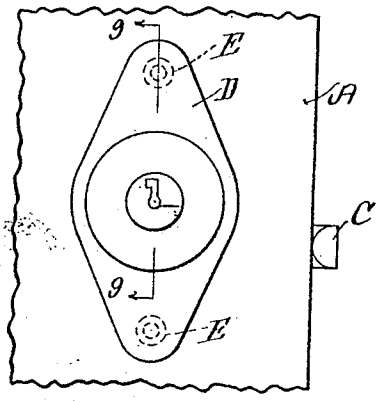


FIG. 1.

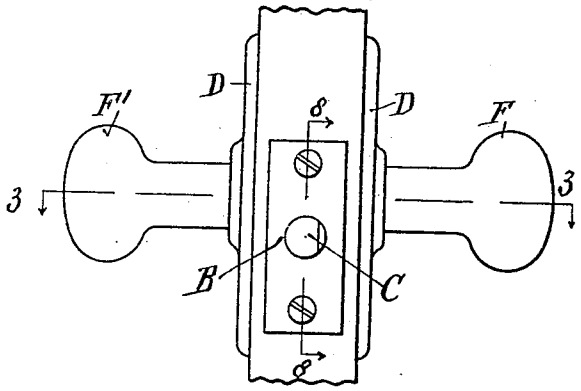


FIG. 2.

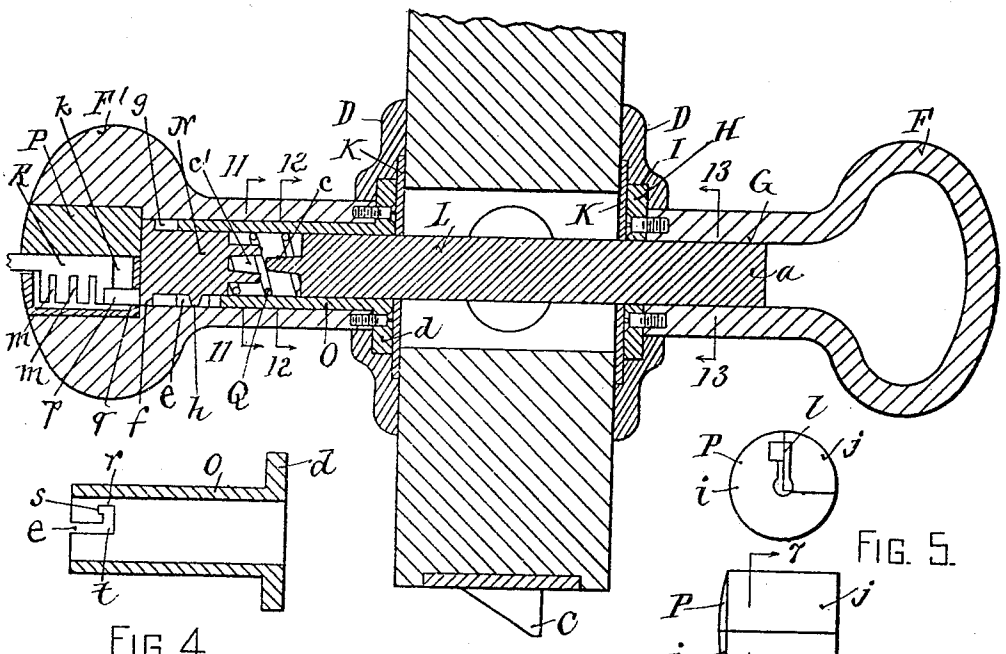


FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

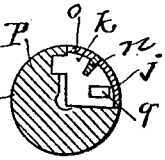


FIG. 7.

WITNESSES

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2 SHEETS—SHEET 2.

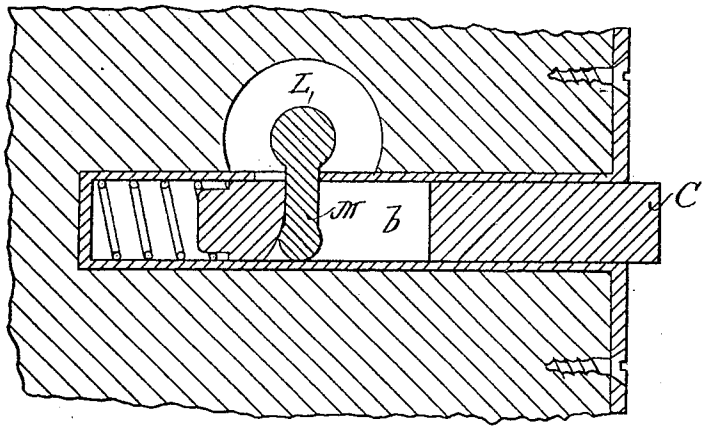


FIG. 8.

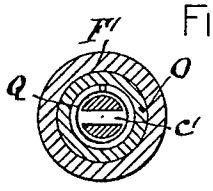


FIG. 11.

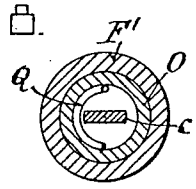


FIG. 12.

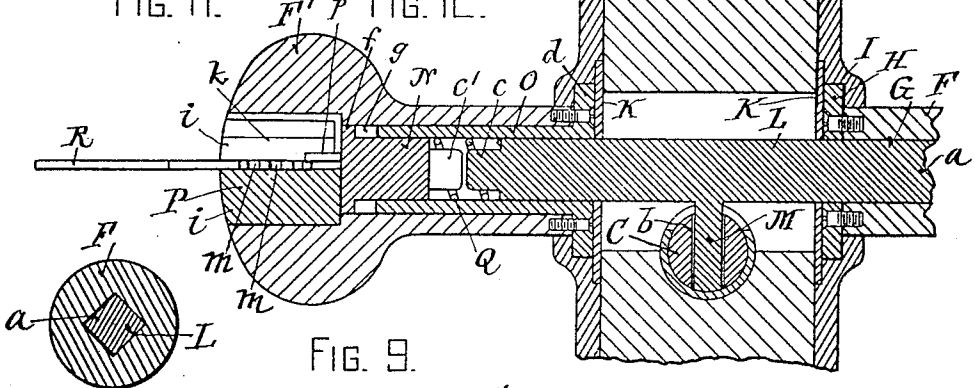


FIG. 9.

FIG. 13.

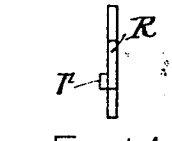


FIG. 14.

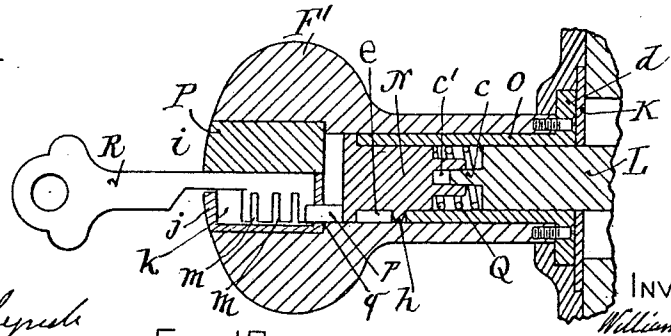


FIG. 10.

WITNESSES

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UNITED STATES PATENT OFFICE.

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DOOR LOCK AND LATCH.

No. 817,713. Specification of Letters Patent. Patented April 10, 1906.

Application filed February 13, 1904. Serial No. 194,267.

To all whom it may concern:

Be it known that I, WILLIAM H. HOPE, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Door Locks and Latches, of which the following is a specification.

The nature of my invention consists in the improved construction and arrangement of the parts of the lock and latch, whereby it is made adapted for ready attachment to doors of different thicknesses, and in the improved construction of the lock mechanism of the knob, as hereinafter fully set forth.

In the accompanying drawings, Figure 1 represents the outer side view of a portion of a door to which my improved lock and latch is attached. Fig. 2 represents the edge view of the door, showing the end of the latch-bolt. Fig. 3 represents a horizontal section taken on the line 3 3 of Fig. 2. Fig. 4 represents a horizontal section of the slotted locking-tube of the outer knob. Fig. 5 represents an end view of the key-receiving case removed from the knob, showing the form of the keyhole. Fig. 6 represents a side view of the same. Fig. 7 represents a section taken on the line 7 7 of Fig. 6. Fig. 8 represents an enlarged section taken on the line 8 8 of Fig. 2. Fig. 9 represents an enlarged detail section taken on the line 9 9 of Fig. 1. Fig. 10 represents a detail section, as in Fig. 3, but showing the position of the parts of the latch mechanism when the inner and outer knobs are locked together for simultaneous movement. Fig. 11 represents a section taken on the line 11 11 of Fig. 3. Fig. 12 represents a section taken on the line 12 12 of Fig. 3. Fig. 13 represents a section taken on the line 13 13 of Fig. 3. Fig. 14 represents an end view of the key for the lock of the outer knob.

In the drawings, A represents a portion of the stile of the door, to which the lock and latch is attached.

B represents the latch-holding tube, and C the sliding latch-bolt held within the tube.

The side plates D D of the lock and latch are secured to each other by means of the screws E E, as shown in Fig. 1 and in the detail section Fig. 9, and the inner knob F is provided with an opening G of square cross-section and with the screw-attached collar H, which is held in the circular recess I of the plate D, and between the inner end of the knob F and the side of the stile A of the door is placed the loose washer K. The inner end portion *a* of the spindle L is squared to fit loosely within the squared opening G of the knob F, and the lower side of the spindle L is provided with the arm M, which enters the slot-opening *b* of the sliding latch-bolt C, as shown in Figs. 8 and 9. The outer end of the spindle L is provided with the flattened projection *c*, which enters the notch *c'* in the inner end of the sliding locking-piece N, the said locking-piece being held for sliding movement within the bore of the locking-tube O. The tube O is provided with the flange *d*, which is screw-attached to the inner end of the outer knob F' and also provided at its outer end with the angular hook-formed slot-opening *e*. The sliding locking-piece N is provided at its outer end with an annular flange *f*, which is adapted for movement back and forth within the limiting-space *g* between the outer end of the tube O and the inner end of the key-receiving case P, the said locking-piece being also provided with the guiding-pin *h*, which is held in the angular slot-opening *e* of the tube O and actuated in the outward direction by means of the spiral spring Q. The key-receiving case P is made in two parts *i* and *j*, which when placed together and held within the bore of the knob F' will form the key-receiving chamber *k* and also form the keyhole *l*. The key R is provided with the notches *m m*, adapted to receive pins *n*, which project inward from the peripheral wall *o* of the chamber *k*, and also provided with the offset lip *p*, projecting forward from one side of the key R, as shown in Figs. 10 and 14, and the inner end of the case P is provided with an opening *q*, which is offset from the side of the chamber *k* and through which the projecting lip *p* passes when the key is properly inserted into the chamber *k*.

The key is to be inserted into the chamber *k* when the keyhole is in the vertical position shown in Fig. 1 and then turned to a horizontal position past the pins *n*, which pass through the notches *m m* of the key, as shown in Figs. 9 and 10. Then by pushing forward on the key the projecting lip *p* will pass through the opening *q* and serve to force back the sliding locking-piece N against the reverse action of the spring Q, and by this

means the flattened projection *c* of the spindle L will be caused to engage with the notch *c'* of the sliding locking-piece N, as shown in Fig. 10, and then upon turning the knob F' the guiding-pin *h* will be caused to strike the side *r* of the slot-opening *e*, and then upon withdrawing the key R the pin *h* will be forced by the action of the spring Q back to the end *s* of the hook-formed slot *e*, with the flattened projection *c* of the spindle L and the notch *c'* of the sliding locking-piece N still in engagement, and then the movement of either of the knobs F F' will serve to withdraw the latch-bolt C to open the door. Now in order to prevent the withdrawal of the latch-bolt by means of the outer knob F' the key is to be again inserted and the sliding locking-piece forced back as before to its extreme limit of movement and the knob F' then turned in the reverse direction, so as to bring the guiding-pin *h* back to the portion *t* of the slot-opening *e*, and then upon drawing back the key R the notch *c'* of the sliding locking-piece N will be carried back out of engagement with the flattened projection *c* of the spindle L, and then the outer knob F' may be turned without acting upon the latch mechanism to withdraw the bolt, and entrance from the outer side of the door will be prevented.

I claim as my invention—

1. In a lock or latch, the combination of the sliding spring-actuted latch-bolt, the holding-tube for the latch-bolt, the bolt-actuating spindle squared at its inner end and provided at its outer end with means for clutch engagement, and also provided with an arm for operating the latch-bolt, the inner knob provided with a central opening adapted to loosely receive the bolt-actuating spindle, the recessed inner plate of the lock, the collar attached to the inner knob and held in the said recess of the inner plate, the recessed outer plate of the lock, the locking-tube provided at its outer end with an angular hook-formed slot-opening, and at its inner end with a peripheral flange loosely held within the recess of the said outer plate, the outer knob secured to the said locking-tube, the key-receiving case held in the outer knob, the sliding locking-piece held in the chamber formed between the inner end of the key-receiving case and the outer end of the bolt-actuating spindle within the bore of the locking-tube, the said locking-piece being provided at its inner end with means for clutch engagement with the outer end of the bolt-actuating spindle, and with a guiding-pin adapted to traverse the angular slot-opening of the said locking-tube and hold the said sliding locking-piece in its clutch engagement with the end of the bolt-actuating spindle, and the spring arranged between the abutting ends of the locking-piece and the bolt-actuating spindle, and adapted to carry the said locking-piece outward to engagement with the end of the hook-formed slot-opening of the locking-tube.

2. In a lock or latch, the combination of the latch-actuating spindle provided at its outer end with means for clutch engagement, the recessed outer plate of the lock, the locking-tube provided at its outer end with an angular hook-formed slot-opening, and at its inner end with a peripheral flange loosely held within the recess of the said outer plate, the outer knob secured to the said locking-tube, the key-receiving case held in the outer end of the outer knob, the sliding locking-piece held in the chamber formed between the inner end of the key-receiving case and the outer end of the bolt-actuating spindle within the bore of the locking-tube, the said locking-piece being provided at its inner end with means for clutch engagement with the end of the bolt-actuating spindle, and with a guiding-pin adapted to traverse the angular slot-opening of the locking-tube, and hold the said locking-piece in its clutch engagement with the bolt-actuating spindle, and the spring held in the bore of the locking-tube between the end of the locking-piece and the end of the bolt-actuating spindle.

3. In a lock or latch, the combination of the latch-actuating spindle provided at its outer end with means for clutch engagement, the recessed outer plate of the lock, the locking-tube provided at its outer end with an angular hook-formed slot-opening, and at its inner end with a peripheral flange loosely held within the recess of the said outer plate, the outer knob secured to the said locking-tube, the key-receiving case, made in two segmental parts in the outer end of the said knob, one of the said segments being provided with guard-pins, and also with the opening to receive the forwardly-projecting lip of the key, the sliding locking-piece held in the chamber formed between the inner end of the key-receiving case and the outer end of the bolt-actuating spindle within the bore of the locking-tube, the said locking-piece being provided at its inner end with means for clutch engagement with the end of the bolt-actuating spindle, and with a guiding-pin adapted to traverse the angular slot-opening of the locking-tube, and hold the said locking-piece in clutch engagement with the bolt-actuating spindle, and the spring held in the bore of the locking-tube between the abutting ends of the locking-piece and the said bolt-actuating spindle.

4. In a lock or latch, the combination of the locking-tube provided with the angular hook-formed slot-opening at its outer end, the outer knob attached to the said locking-

tube, and the sliding locking-piece provided with a guiding-pin adapted to traverse the said slot-opening of the locking-tube, with the key having a projecting lip, the key-receiving case made in two segmental parts and held in the end of the knob, one of the segments being provided with the guard-pins for the key and also with the offset opening to receive the offset forwardly-projecting lip of a key, by means of which the said sliding locking-piece is forced forward into locking engagement.

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Witnesses:
SOCRATES SCHOLFIELD,
GEO. C. CAMPBELL.