L. HUFFMAN.

KNOB LOCK.

APPLICATION FILED FEB. 19, 1919.

1,395,414. Patented Nov. 1, 1921.

4 SHEETS—SHEET 1.

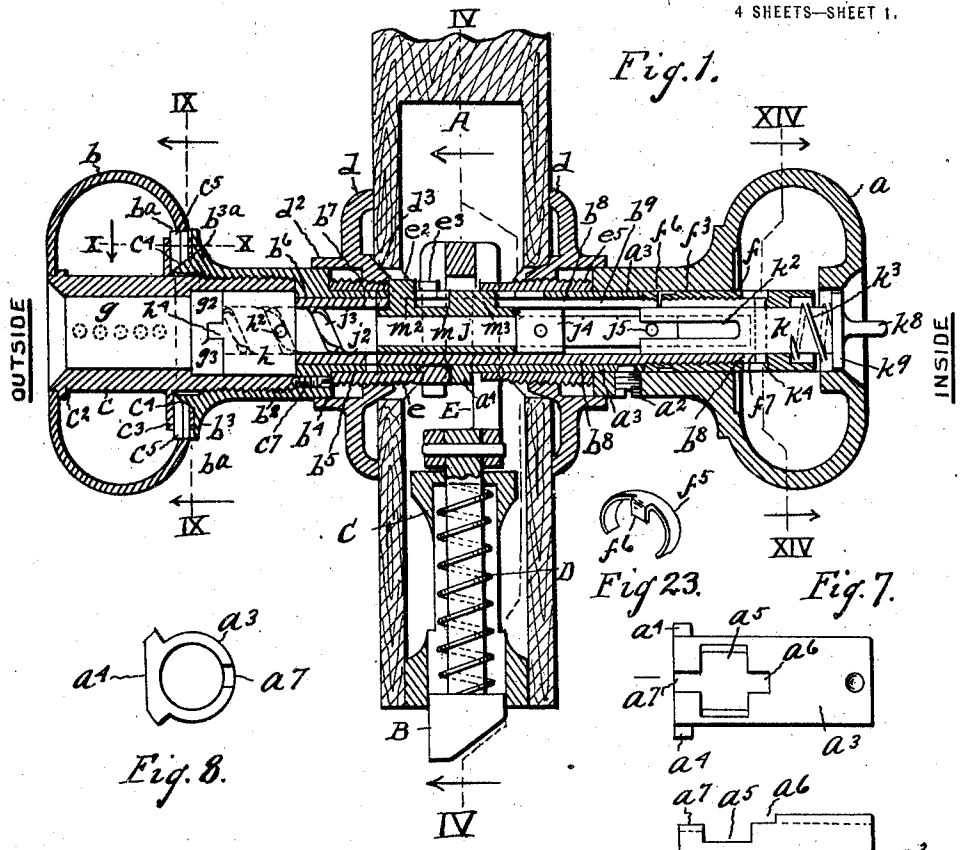


Fig. 1.

Fig 23.

Fig. 8.

Fig. 7.

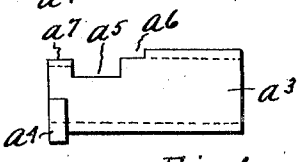


Fig. 6.

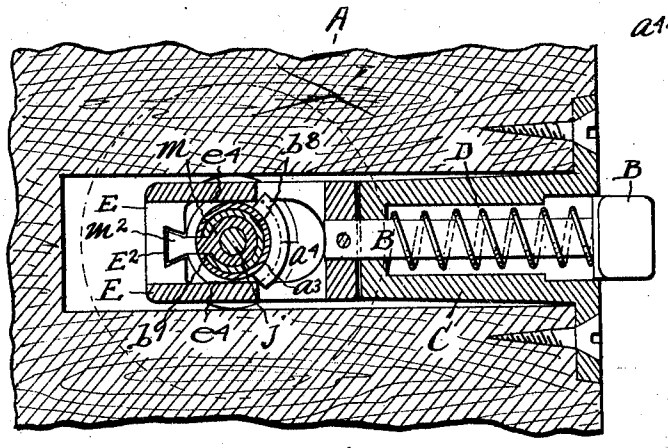


Fig. 4.

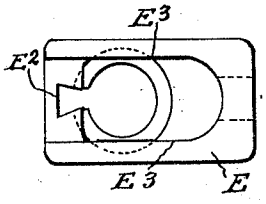


Fig. 5.

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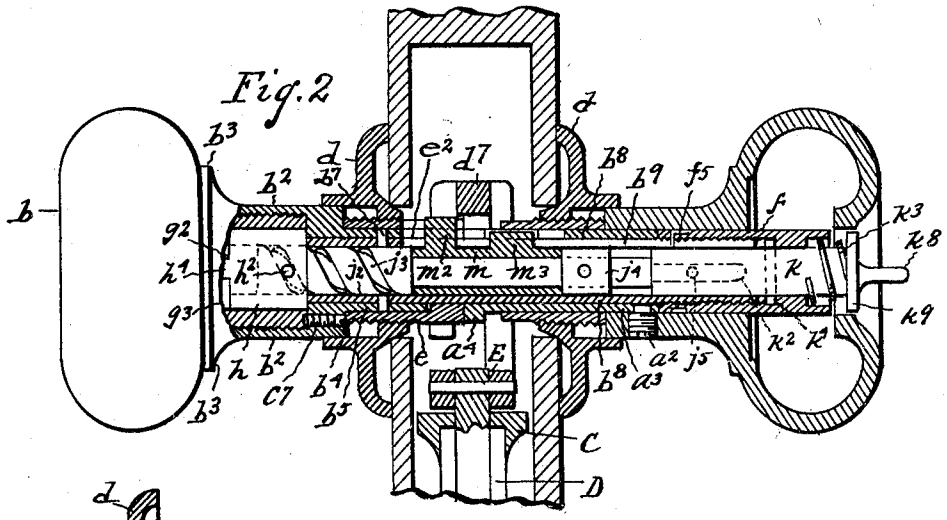
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4 SHEETS—SHEET 2.

Fig. 2



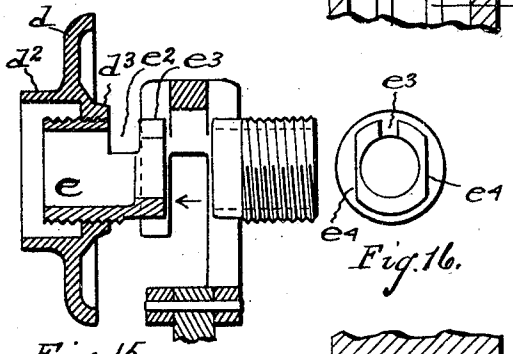


Fig. 15.

Fig. 16.

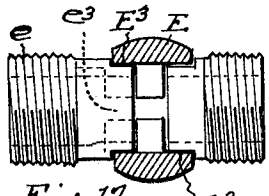


Fig. 17.

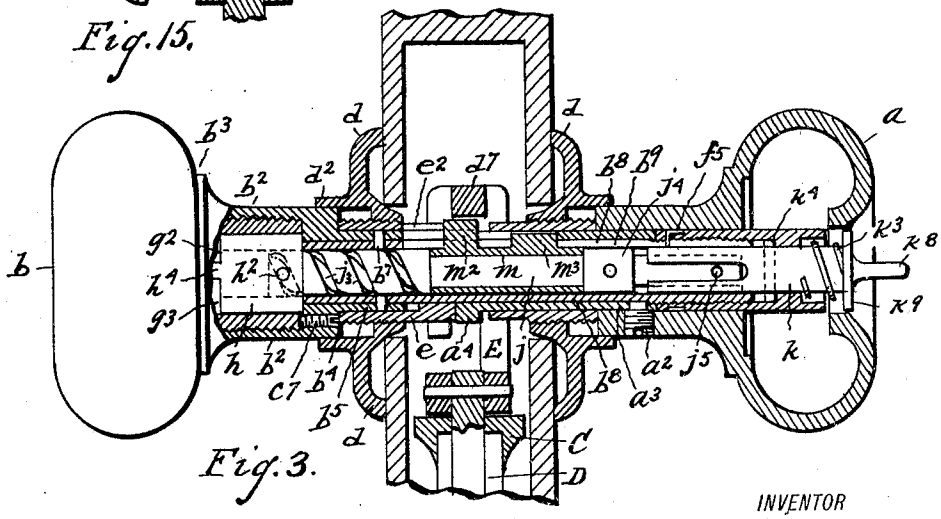


Fig. 3.

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4 SHEETS—SHEET 3.

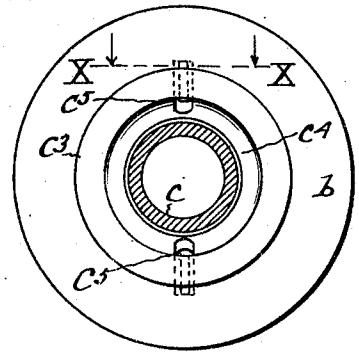


Fig. 9.

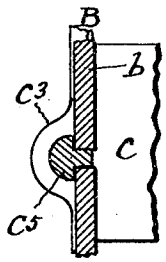


Fig. 10.

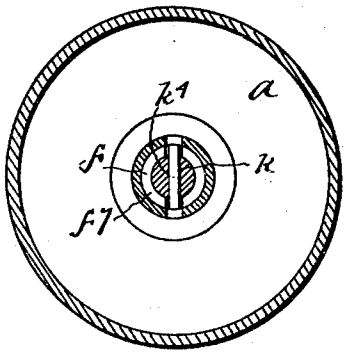


Fig. 14.

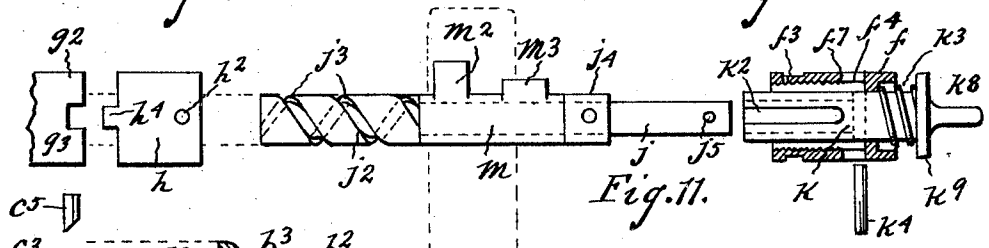


Fig. 11.

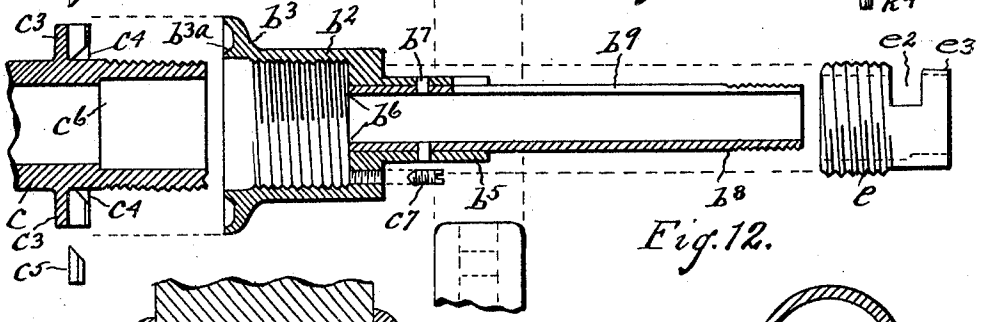


Fig. 12.

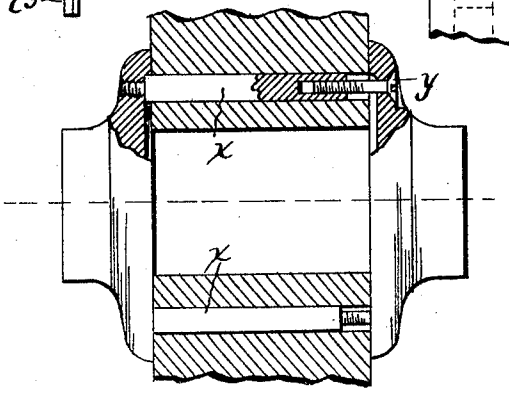


Fig. 22.

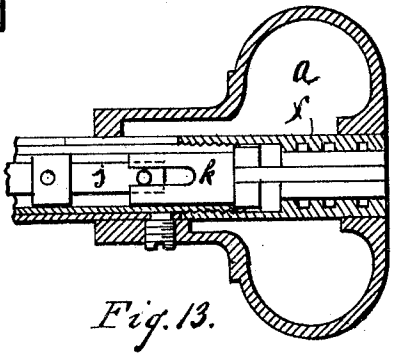


Fig. 13.

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4 SHEETS—SHEET 4.

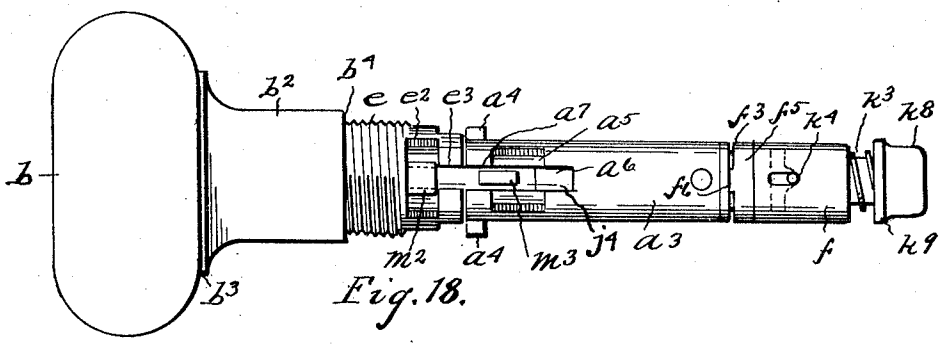


Fig. 18.

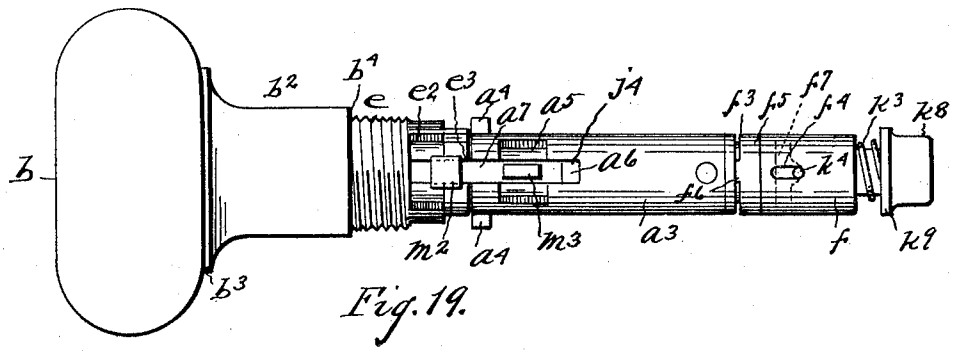


Fig. 19.

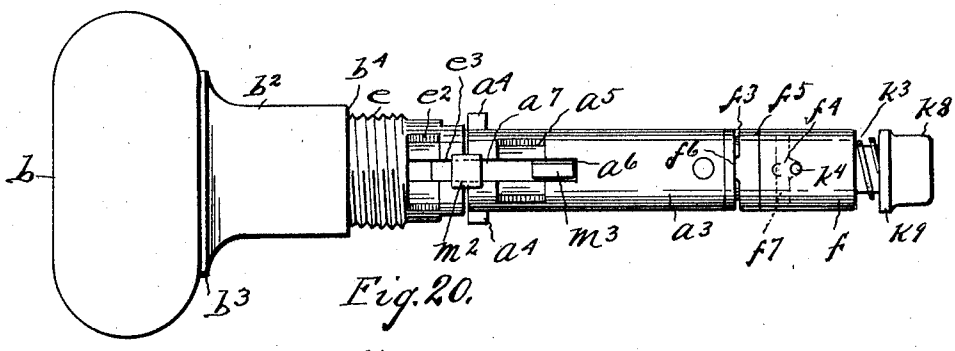


Fig. 20.

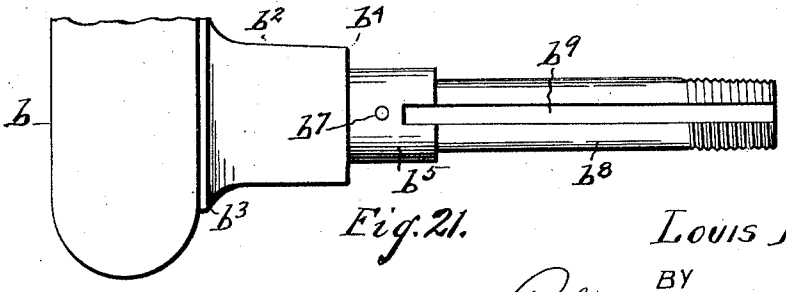


Fig. 21.

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UNITED STATES PATENT OFFICE.

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KNOB-LOCK.

1,395,414. Specification of Letters Patent. Patented Nov. 1, 1921.

Application filed February 19, 1919. Serial No. 278,102.

To all whom it may concern:

Be it known that I, LOUIS HUFFMAN, a subject of the King of Great Britain, residing at Toronto, county of York, Province of Ontario, Canada, have invented a certain new and useful Improvement in Knob-Locks, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to knob locks and an object of my invention is to provide an article having an improved construction and mode of operation.

I secure this object in the device illustrated in the accompanying drawings in which,

Figure 1 is a sectional view of a knob construction embodying my invention with the parts of the door adjacent thereto and cooperating therewith, the parts being so arranged that the latching bolt may be withdrawn by manipulating either knob.

Fig. 2 is a view similar to Fig. 1, the parts being adjusted so that the outside knob is locked and the latching bolt may be operated by manipulating the knob on the inside of the door.

Fig. 3 is a view similar to Figs. 1 and 2, the parts being adjusted to a position in which both knobs are locked.

Fig. 4 is a detail sectional view on the line IV—IV Fig. 1.

Fig. 5 is a side elevation of the latch operating yoke.

Fig. 6 is a side elevation of the sleeve-like spindle of the inner knob.

Fig. 7 is a plan view of the part shown in Fig. 6.

Fig. 8 is an end elevation of the part shown in Fig. 7, looking from the left thereof.

Fig. 9 is a section on the line IX—IX Fig. 1.

Fig. 10 is a detail section on the line X—X Fig. 9.

Fig. 11 is a disassembled view partly in section of the parts directly concerned in the locking and unlocking operation.

Fig. 12 is a disassembled view of the parts composing the outer knob and spindle construction together with the bearing sleeve therefor.

Fig. 13 is a sectional view showing a modified construction of a part of the inner knob assembly.

Fig. 14 is a section on the line XIV—XIV Fig. 1.

Fig. 15 (Sheet 2) is a sectional view of the escutcheon on the outside of the door the bearing sleeve therefor and the yoke for operating the latching bolt, the bearing sleeve for the inner escutcheon being shown in full.

Fig. 16 is an end elevation of the escutcheon-bearing sleeve shown in Fig. 15 looking in the direction of the arrow of said figure.

Fig. 17 is a detail view showing the escutcheon-bearing sleeves on both sides of the door and illustrating their engagement with the latching bolt operating yoke.

Fig. 18 is a plan view of the assembled knob spindle of the outer knob, removed and the parts adjusted to the position shown in Fig. 1.

Fig. 19 is a view similar to Fig. 18 with the parts adjusted to the position shown in Fig. 2.

Fig. 20 is a view similar to Figs. 18 and 19 with the parts adjusted to the position of Fig. 3.

Fig. 21 is a plan view of the outer knob assembly.

Fig. 22 (Sheet 3) is a sectional view showing the modified form for adjustably attaching the escutcheons.

Fig. 23 (Sheet 1) is a perspective view of the ring for securing the sleeve f in place.

A indicates the door, B the latching bolt thereof, D the spring of the bolt engaging against an inner end of the casing C in which the bolt B reciprocates. E is a yoke pinned to the inner end of the bolt B. The yoke E permits the knob spindles to pass through it and an operating lug a^4 engages against lugs upon said yoke to retract the yoke against the action of the spring D when the knob spindle is turned to oscillate said lug. The above is a known construction.

Each of the knobs is extended in a hollow cylindrical spindle, the spindle of the inside knob fitting over the spindle of the outside knob.

The outside knob construction assembly is shown in plan view in Fig. 21. There is a knob part proper b and there is a separate shank piece b^2 secured thereto as hereinafter described. The shank piece b^2 is reduced in diameter toward its end forming an annular

shoulder b^4 and is extended in the part b^5 of reduced diameter. Within the part b^5 is secured the cylindrical tube b^8 by means of a pin or short screw b^7 extending through the walls of the two parts. The tubular part b^8 is slotted longitudinally to form the slot b^9. The knob b has a cylindrical opening coaxial therewith through its outer wall (Fig. 1) and there is a pin-lock casing c in the knob b and coaxial therewith, its end closing said opening in the outer wall of the knob, with an annular flange c^2 resting upon the inside wall of said knob around said opening. There is a larger coaxial opening ba through the inner wall of the knob b, and the casing c is provided with an annular flange c^3 of slightly less diameter than the last mentioned opening fitting in said opening when the casing is in place. At the periphery of the flange c^3 there are radially extending and reciprocating pins c^5 having their inner ends chamfered. The flange c^3 is cut away within its periphery and at its outside wall as shown at c^4 so that the pins c^5 extend into the opening formed in so cutting away the material of the flange. This construction is illustrated more distinctly in Fig. 9.

The inner end of the casing c is screw threaded on its outer wall. The shank piece b^2 is provided with internal threads which engage the threads upon the casing c and said piece is provided with a flange b^3, which comes adjacent to the opening in the inner wall of the knob b and closes said opening. The shank piece b^2 is provided at its inner end with the annular conical extension b^{3a}. This extension fits into the annular opening c^4, its conical surface engaging the chamfered inner ends of the pins c^5 and forcing said pins outward, the outer ends of the pins then engage against the inner surface of the wall at the edge of the opening in the inner wall of the knob b and prevent the removal of said knob. The engagement of the pin c^5 with the wall of the knob b is illustrated in Fig. 10. This not only prevents the removal of the knob b axially but prevents a rotation of the knob upon the casing c by engaging in a slot in the knob b as illustrated in the last mentioned figure.

The inner end of the casing c abuts against a shoulder b^6 in the shank piece b^2. There is a screw c^7 inserted through a screw hole in the radial face of the shoulder b^4 which engages the inner end of the casing c. The outer escutcheon d extends over the inner end of the shank piece b^2 so as to prevent access to the screw c^7. Thus when the knob is assembled and in place the parts cannot be removed from the outside of the door to permit unauthorized access to the operating mechanism.

e is a sleeve screw-threaded on its outer wall. (See especially Figs. 15, 16 and 17.) The outer escutcheon d is provided with internal screw-threads which engage the screw-threads upon this sleeve and the spindle of the knob b turns in said sleeve as a bearing. The inner end of the sleeve e is milled off at its inner end, as shown at e^1 e^1 Fig. 16, and fits between the flanges E^3 on the yoke E so as to prevent the rotation of the sleeve e. Said sleeve fits upon the part b^5 its end engaging the shoulder b^4. By rotating the escutcheon d its position longitudinally of the knob spindle may be adjusted so as to bring its inner peripheral surface firmly and accurately against the outer surface of the door.

The above construction as far as the sleeve and escutcheon are concerned is the same both at the outside and inside of the door but the sleeve e adjacent to the inner surface of the door is provided with a slot e^2 through its wall of considerable lateral extent, and a slot e^3 of less extent extending from the slot e^2 to the outer edge of said sleeve. See also Figs. 18, 19 and 20.

g is a pin-lock in the casing c, its inner end g^2 being enlarged and resting against a shoulder in the interior of said casing to prevent the removal of said lock. g^3 is a diametrically extending slot in the outer end of the pin-lock g. h is a hollow cylindrical part having a lug h^4 extending from its inner end, the part h fits into the inner end of the casing c, its lug h^4 engaging in the slot g^3 in the inner end of said pin lock. The cylindrical part h is held in position by a shoulder on the shank piece b^2 and by the engagement of the inner end of the tubular extension b^8 of the outer knob.

a is the inner knob, this is secured to a tubular sleeve a^3 by the conventional set screw a^2 extending through the wall of the shank of said knob and engaging the outer wall of said sleeve. The sleeve a^3 forms an extension of the knob a constituting the spindle of said knob and at its inner end is provided with the lug a^4 for actuating the bolt B through engagement with lugs on the yoke E as above described and illustrated in Fig. 4.

As shown most distinctly in Figs. 6, 7 and 8 the sleeve or spindle a^3 is provided with a broadly extending aperture a^5 through its wall and a narrow slot a^6 extending outward from the center of the slot a^5 and a corresponding slot a^7, in line with the slot a^6, extending from the slot a^5 to the inner end of said sleeve or spindle. The sleeve a^3 fits over and may rotate upon the tubular extension b^8 of the knob b, the slots a^6 and a^7 normally registering with the slot b^9 in the tubular portion b^8.

f is a sleeve screw-threaded on its inner wall which engages, with its interior screw threads, the screw threads at the end of the tubular portion b^8 of the spindle of the knob b. The inner end of the sleeve f engages

against the outer end of the sleeve or spindle a^3. The sleeve f is provided with an annular groove f^3 around its outer surface and in this groove is placed a spring-clamp f^5 (Fig. 23, Sheet 1). The lug f^6 from said spring extends through an aperture in the wall of the sleeve f and engages in the slot b^9 in the tubular extension b^8 thus locking the sleeve f from relative rotation.

h^2 is a radial pin extending through and fixed in the wall of the part h and projecting into the cylindrical bore of said part.

j is a rod located within, and coaxial with, the spindles of the knobs above described, and provided with the enlarged cylindrical end j^2. In the outer wall of this enlarged end of the rod j is cut the spiral thread g^3, in which engages the pin h^2.

m is a sleeve around the rod j at the center thereof in which sleeve said rod is free to rotate. One end of the sleeve m engages against the inner end of the enlargement j^2 of the rod j. j^4 is a collar surrounding the rod j and pinned thereto so that its inner end engages the other end of the sleeve m and thus the sleeve m is held from longitudinal motion relative to the rod j. m^2 is a lug extending radially outward from the sleeve m through the slot b^9 in the tubular portion b^8 of the spindle of the knob b and through any slot registering therewith in surrounding sleeves. m^3 is a second lug extending radially outward through said slots. The lug m^2 is longer than the lug m^3 and the latter is of sufficient length to just pass within the bore of the sleeve e.

j^5 is a pin extending radially outward from the end of the rod j which is adjacent to the inner surface of the door.

k is a sleeve provided with a slot k^2 in its wall extending parallel to the axis thereof. The sleeve k fits over and is adapted to slide on the end of the rod j, the pin j^5 being engaged by the edges of the slots k^2. k^8 is a thumb piece by which the sleeve k may be turned. There is a slot f^4 through the wall of the sleeve f extending parallel to the axis of said sleeve and there is a laterally extending slot f^7 around the inner wall of the sleeve f extending on each side of the slot f^4 at the inner end of the same. There is a pin k^4 extending from the sleeve k, its end engaging in the slots f^4 f^7. k^3 is a compression spring surrounding the inner end of the sleeve k, engaging against a flange k^9 on said sleeve and against the sleeve f, thus tending to force the sleeve k to its outer position, its motion in this direction being limited by the pin k^4 engaging against the outer end of the slot f^4. There is a coaxial opening through the outer wall of the knob a which is filled by the flange k^9 against which the spring k^3 acts.

In the position shown in Figs. 1, 2 and 3, (see also Figs. 18, 19 and 20) the sleeve k and consequently the rod j is prevented from rotating by the pin k^4 resting in the outer end of the slot f^4. If, however, the sleeve k is pressed inward and then turned a half revolution the pin k^4 passes into the lateral portion f^7 of the grooves in the part f and the rod is turned a half revolution, the other end of the pin k^4 then engaging in the slot f^4 and on being released returning to the locked position as at first described. In this way the rod j may be rotated at will by the operator on the inside of the door.

The turning of the rod j causes the longitudinal movement thereof by the pin h^2 engaging in the spiral slot j^3 in the enlarged end of said rod.

In the position of the parts shown in Figs. 1 and 18 the rod j has been turned until said rod is drawn to its position farthest to the left. In this position the lug m^2 extending from the sleeve m passes through the slot b^9 in the tubular extension b^8 of the spindle of the knob b and the laterally enlarged slot e^2 in the sleeve or tubular bearing e adjacent to the outer surface of the door, and the lug m^3 extends through said slot b^9 and into the slot a^7 in the sleeve or spindle a^3, thus the spindles of the two knobs are locked together, by the lug m^3 engaging in a slot in each of said sleeves, and both knobs are free to turn. the lug m^2 oscillating in the broad slot e^2.

By turning the rod j to the left it is moved longitudinally toward the right to the position shown in Fig. 2 in which the lug m^2 engages (Fig. 19) in the narrow slot e^3 in the tubular bearing or sleeve e and the lug m^3 extends into the laterally broad slot a^6 in the spindle a^3 of the knob a. In this position the knob b is locked from rotation by the engagement of the lug m^2 in the slot e^3 and the knob a is free to turn thus reciprocating the latching bolt B so that the door is locked from the outside but may be opened from the inside.

By further rotating the rod j a half turn to the left it is again moved toward the right and the lug m^2 (Figs. 3 and 20) engages both in the slot e^3 in the stationary sleeve or bearing e and in the slot a^7 in the sleeve a^3, the lug m^3 then engaging in the slot a^6. In this position the spindles of the two knobs are locked and prevented from rotating by the lugs m^2 m^3 engaging in slots in the spindles of both of said knobs and in a slot e^3 in the stationary part or bearing e.

The lug m^2 is enlarged toward its outer end and in this position engages in a dovetailed slot E^2 in the end of the yoke E as shown in Fig. 4. Thus both knobs are prevented from rotating and the latching bolt B cannot be pushed back because it is prevented from longitudinal movement by engagement of the large end of the lug m^2

in the dovetailed slot E^2 in the cross piece of the yoke E.

If the door is locked from the outside, it may be unlocked by inserting a key in the pin-lock *g* and rotating the cylinder thereof thus rotating the cylindrical part *h* which carries the pin h^2 with it, thus moving the rod *j* longitudinally thereof. The barrel of the pin-lock will necessarily be rotated to a definite position in order to insert or withdraw the key and the parts are so adjusted that one of these positions of the barrel shall correspond to a relative arrangement of the parts which shall correspond to an unlocked position.

If desired, the sleeve *f* may be formed at its outer end to receive and coöperate with the barrel of a pin-lock which shall engage the sleeve *k*, this modification being illustrated in Fig. 13, and thus instead of the end setting arrangement above described, a key and lock may be used.

For setting the escutcheon accurately to place a construction shown in Fig. 22, may be adopted instead of employing the screw threads on the outer surface of the bearings *e*. That is to say, from one of the escutcheons there may extend rods *x x* having internal threads, the rods *x* being less than the thickness of any door that it shall be required to adjust the escutcheon to, and a screw *y* may be inserted through a properly located hole in the other escutcheon, its screw threaded shank engaging with the internal threads of a rod *x*, as shown in Fig. 22. When the screw *y* is tightened up the escutcheons will be firmly placed against the surface of the door and the distance apart of the escutcheons may vary to correspond to the thickness of the door.

What I claim is:

1. In an apparatus of the kind described, a locking and unlocking mechanism, a rod adapted to be adjusted longitudinally to operate said mechanism by turning said rod about its longitudinal axis, and a rotatable part engaging said rod to rotate the same for the purpose described.

2. In an apparatus of the kind described, a locking and unlocking mechanism, a longitudinally reciprocating rod to operate said locking and unlocking mechanism, and a rotary part connected with said rod so that the rotation of said part and rod shall reciprocate said rod for the purpose described.

3. In an apparatus of the kind described, a locking and unlocking mechanism, a rod adapted to be adjusted longitudinally to operate said mechanism by turning said rod about its longitudinal axis, and a part adapted to be manipulated to rotate said rod while permitting the rod to move longitudinally.

4. In an apparatus of the kind described, the combination of a reciprocating yoke having a longitudinal guide thereon, a sleeve having exterior screw threads having its inner end shaped to engage said guide to prevent the rotation of said sleeve, and an escutcheon threaded upon said sleeve for the purpose described.

5. In an apparatus of the kind described, the combination of a reciprocating yoke having a longitudinal guide thereon, a sleeve having exterior screw threads having its inner end shaped to engage said guide to prevent the rotation of said sleeve, an escutcheon threaded upon said sleeve for the purpose described, and an adjustable locking means adapted to connect the outside knob with said sleeve so as to prevent the rotation of the knob.

6. In an apparatus of the kind described, the combination of a reciprocating yoke having a longitudinal guide thereon, a sleeve having exterior screw threads having its inner end shaped to engage said guide to prevent the rotation of said sleeve, and an escutcheon threaded upon said sleeve for the purpose described, and an adjustable locking means adapted to connect the outside knob with said sleeve so as to prevent the rotation of the knob and leave the inside knob free to turn to reciprocate the latching bolt.

7. In an apparatus of the kind described, a reciprocating yoke, a transversely extending part, said transversely extending part being provided with a dovetailed groove, and a locking means having a lug with an enlarged end adapted to engage in said groove to prevent the reciprocation of said yoke.

8. In an apparatus of the kind described, a knob, a lock casing, said knob being provided with an aperture through its wall, said casing being adapted to be inserted through said aperture. a radially reciprocating pin in said casing adapted to pass within the wall of said knob and to engage the wall to prevent the removal of said casing when said pin is forced outward, said lock casing extending outward through said aperture in the knob, a shank piece adapted to fit over the extending part of said casing and engage said pin to hold it to its outer engaging position, means for securing said shank piece in position, and means for covering said securing means to prevent access thereto, substantially as and for the purpose described.

9. The combination of a spindle part b^8 having a longitudinal groove therein and having a screw thread on its wall, a sleeve having screw threads engaging the screw threads on the spindle part, an arcuate groove in the wall of said sleeve, an aperture extending through the wall of said sleeve from said groove, and a spring clamp having a lug extending therefrom adapted to engage in said groove, said lug passing through said

aperture and into the slot in the spindle part.

10. In an apparatus of the kind described, an outer knob and an inner knob, a spindle extending from said outer knob and having a longitudinal slot in its wall, a spindle extending from said inner knob and having a slot in its wall having two narrow end portions and a laterally extending central portion, a stationary part forming an extension of the inner knob spindle, a narrow slot in said stationary portion forming an extension of a narrow slot in said spindle, a laterally enlarged slot in said stationary part forming an extension of said narrow slot, a movable piece inside of said spindles having two lugs adapted to extend through the slots therein, one of said lugs engaging in the broad portion of the slot in said stationary part when the other of said lugs is engaging in a narrow slot in said inside knob spindle, said first named lug being adapted to engage in the narrow portion of the slot in said stationary part when the other of said lugs engages in the laterally extended portion of the slot in the inside knob spindle, said first named lug being adapted to engage in the narrow portion of the slot in the stationary part and in a narrow portion of the slot in the inside knob spindle when the other of said lugs engage in a narrow portion of the slot in the inside knob spindle, the slot in the innermost spindle being of such a breadth as to always engage said lugs, and means for reciprocating the part carrying said lugs.

11. In an apparatus of the kind described, a knob, a sleeve serving for a bearing for said knob, an escutcheon on said sleeve, means for preventing said sleeve from rotating, and means for engaging and disengaging said knob from said sleeve for the purpose described, said sleeve being mounted in said escutcheon and said escutcheon engaging the door.

12. In an apparatus of the kind described, a knob, a sleeve serving for a bearing for said knob, an escutcheon on said sleeve, means for preventing said sleeve from rotating, and means for engaging and disengaging said knob from said sleeve for the purpose described, said sleeve being provided with exterior screw threads and said escutcheon having internal screw threads engaging said sleeve, said sleeve being mounted in said escutcheon and said escutcheon engaging the door.

13. In an apparatus of the kind described, a locking and unlocking mechanism, a rod adapted to actuate said locking and unlocking mechanism by moving in the direction of its axis, a rotatable part surrounding said rod, said rod being provided with a screw thread engaging a portion of said surrounding rotatable part, a means for rotating said rod to move the same longitudinally and means for turning said rotatable part to move said rod longitudinally.

14. In an apparatus of the kind described, a knob, locking and unlocking mechanism, a rod adapted to be moved longitudinally by its rotation and adapted to operate said locking and unlocking mechanism by its longitudinal movement, a rotatable part surrounding said rod, a screw threaded engagement between said rod and said surrounding part, a mechanism adapted to be actuated by a key at one side of the door engaging said rotatable part, and an apparatus adapted to be manipulated to rotate said rod at the other side of said door.

15. In an apparatus of the kind described, an outer knob and an inner knob, a spindle extending from said outer knob and having a longitudinal slot in its wall, a spindle extending from said inner knob and having a slot in its wall having two narrow end portions and a laterally extending central portion, a stationary part forming an extension of the inner knob spindle, a narrow slot in said stationary portion forming an extension of a narrow slot in said spindle, a laterally enlarged slot in said stationary part forming an extension of said narrow slot, a movable piece inside of said spindles having two lugs adapted to extend through the slots therein, one of said lugs engaging in the broad portion of the slot in said stationary part when the other of said lugs is engaging in a narrow slot in said inside knob spindle, said first named lug being adapted to engage in the narrow portion of the slot in said stationary part when the other of said lugs engages in the laterally extended portion of the slot in the inside knob spindle, said first named lug being adapted to engage in the narrow portion of the slot in the stationary part when the other of said lugs engages in a narrow portion of the slot in the inside knob spindle, the slot in the innermost spindle being of such a breadth as to always engage said lugs, and means for reciprocating the part carrying said lugs.

16. In an apparatus of the kind described, an outer knob and an inner knob, a spindle extending from said outer knob and having a longitudinal slot in its wall, a spindle extending from said inner knob and having a slot in its wall having two narrow end portions and a laterally extending central portion, a stationary part forming an extension of the inner knob spindle, a narrow slot in said stationary portion forming an extension of a narrow slot in said spindle, a laterally enlarged slot in said stationary part forming an extension of said narrow slot, a movable piece inside of said spindles having two lugs adapted to extend through the slots therein, one of said lugs engaging in the broad portion of the slot in said stationary part when the other of said lugs

is engaging in a narrow slot in said inside knob spindle, said first named lug being adapted to engage in the narrow portion of the slot in said stationary part when the other of said lugs engages in the laterally extended portion of the slot in the inside knob spindle, said first named lug being adapted to engage in the narrow portion of the slot in the stationary part and a narrow portion of the slot in the inside knob spindle, the slot in the innermost spindle being of such a breadth as to always engage said lugs, and means for reciprocating the part carrying said lugs.

17. In an apparatus of the kind described, an outer knob and an inner knob, a hollow cylindrical spindle extending from each of said knobs, said spindles engaging one within the other, a longitudinal slot of uniform breadth through the wall of one of said spindles, a longitudinal slot of varying breadth through the wall of the other of said spindles, a part adapted to reciprocate within said spindles and having a lug extending through said slots, said lug being adapted to fit between the edges of the slot of uniform breadth and in the narrow portion of the slot of varying breadth.

18. In an apparatus of the kind described, an outer knob and an inner knob, a hollow cylindrical spindle extending from each of said knobs, said spindles engaging one within the other, a longitudinal slot of uniform breadth through the wall of one of said spindles, a longitudinal slot of varying breadth through the wall of the other of said spindles, a part adapted to reciprocate within said spindles and having a lug extending through said slots, said lug being adapted to fit between the edges of the slot of uniform breadth and in the narrow portion of the slot of varying breadth, a stationary part forming an extension of the spindle, said stationary part being provided with a slot of the breadth of the narrower portion of the slot in the spindle and in line therewith, a lug extending from said reciprocating part through said slots in the spindles being adapted to engage in the slot in the stationary part.

19. In an apparatus of the kind described, an outer knob and an inner knob, a hollow cylindrical spindle extending from each of said knobs, said spindles engaging one within the other, a longitudinal slot of uniform breadth through the wall of one of said spindles, a longitudinal slot of varying breadth through the wall of the other of said spindles, a part adapted to reciprocate within said spindles and having a lug extending through said slots, said lug being adapted to fit between the edges of the slot of uniform breadth and in the narrow portion of the slot of varying breadth, a stationary part forming an extension of the spindle having a slot of varying breadth, said stationary part being provided with a slot of varying width, the narrower portion thereof being of the width of the narrower portion of the slot in said spindle and forming an extension thereof, and a lug extending from said part through the slots in said spindle adapted to engage in the slot in said stationary part.

20. In an apparatus of the kind described, an outer knob and an inner knob, a hollow cylindrical spindle extending from each of said knobs, said spindles engaging one within the other, a longitudinal slot of uniform breadth through the wall of one of said spindles, a longitudinal slot having narrower ends and a laterally extended intermediate portion through the wall of the other of said spindles, a part adapted to reciprocate within said spindles and having a lug extending through said slots, said lug being adapted to fit between the edges of the slot of uniform breadth and in the narrow portion of the slot of varying breadth, a stationary part forming an extension of the spindle, said stationary part being provided with a slot of the breadth of the narrower portion of the slot in the spindle and in line therewith, a lug extending from said reciprocating part through said slots in the spindles being adapted to engage in the slot in the stationary part.

In testimony whereof, I sign this specification.

LOUIS HUFFMAN.