July 13, 1954 C. A. HILLGREN 2,683,367

LATCH CONSTRUCTION FOR CYLINDER LOCKS

Filed Dec. 22, 1950 3 Sheets-Sheet 1

Fig. 1.

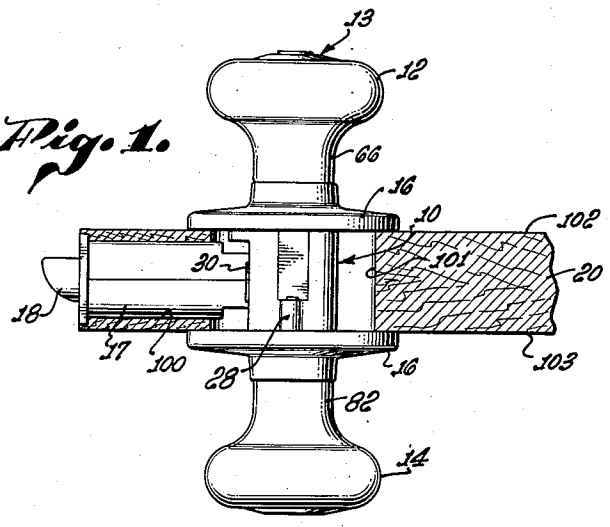
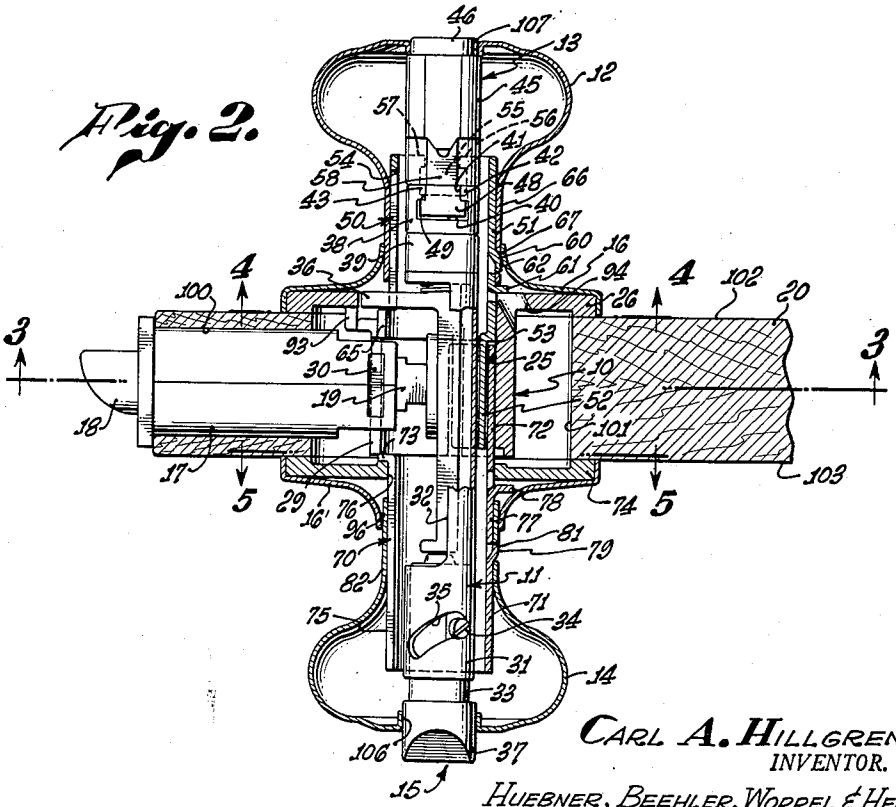


Fig. 2.



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Fig. 3.

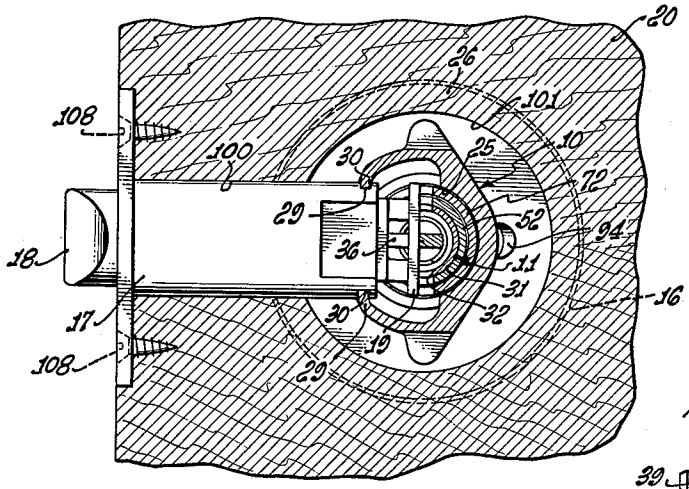


Fig. 6.

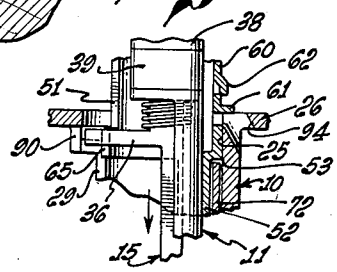


Fig. 4.

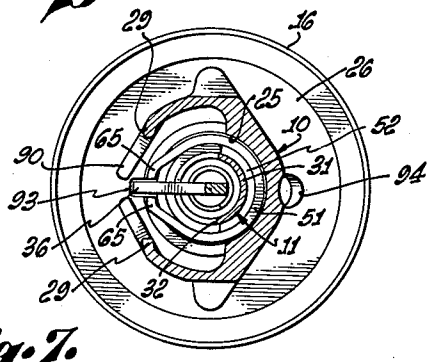


Fig. 5.

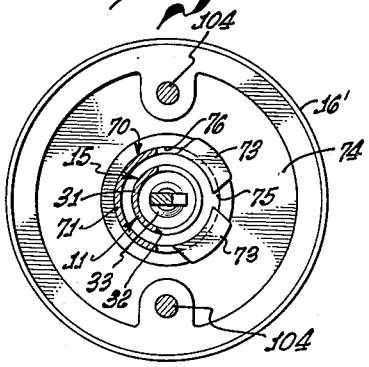
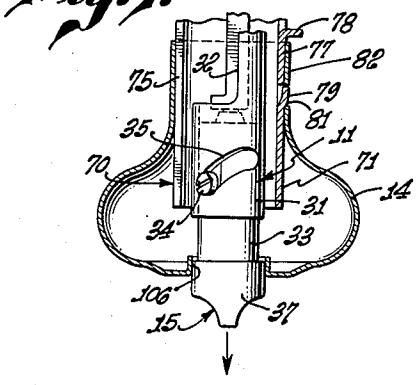


Fig. 7.



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LATCH CONSTRUCTION FOR CYLINDER LOCKS

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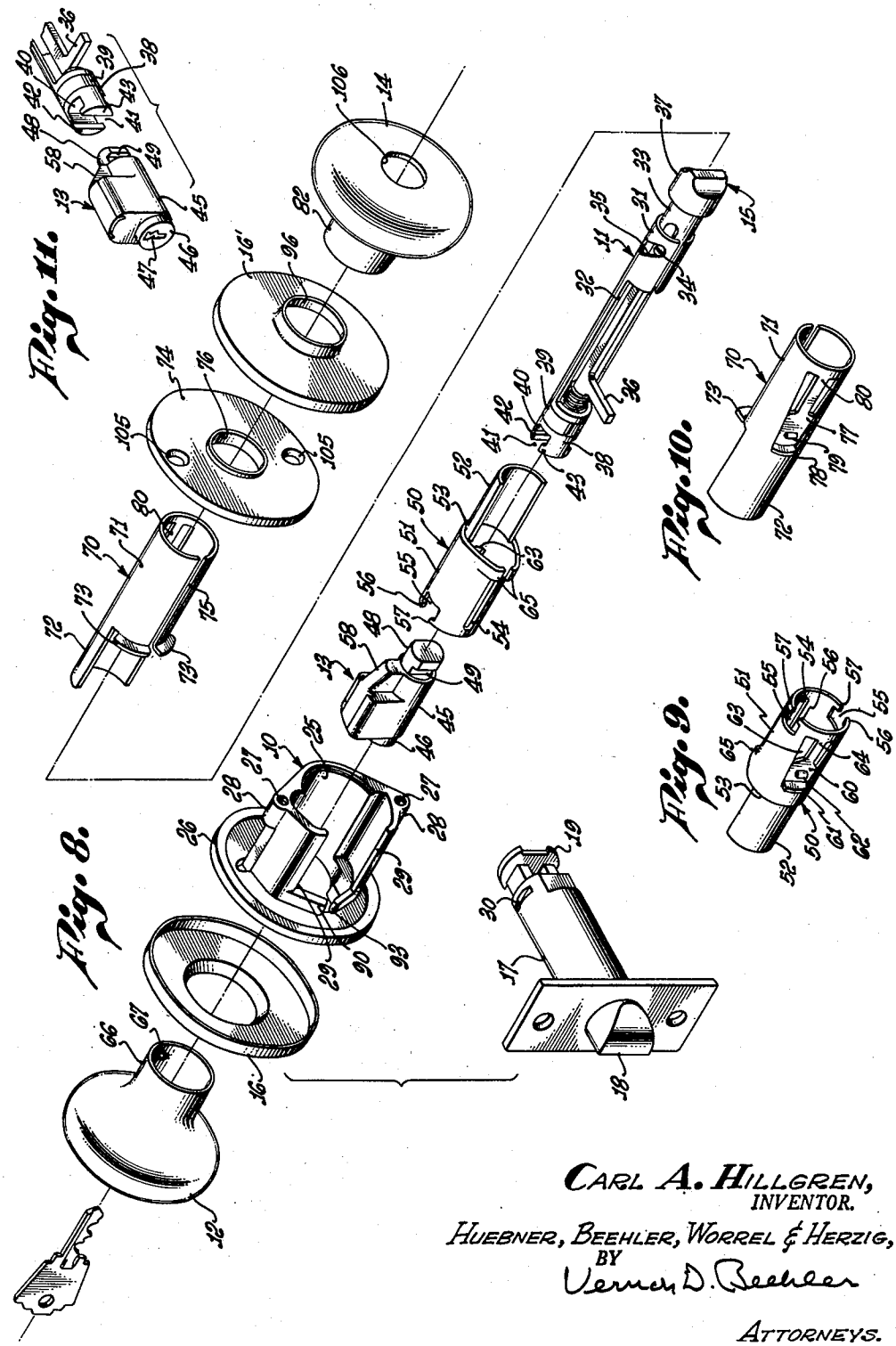


Fig. 11.

Fig. 10.

Fig. 9.

Fig. 8.

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UNITED STATES PATENT OFFICE

2,683,367

LATCH CONSTRUCTION FOR CYLINDER LOCKS

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Application December 22, 1950, Serial No. 202,177

7 Claims. (Cl. 70—216)

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The application relates to door hardware of a kind commonly designated as cylinder lock sets or cylinder latch sets. The construction herein involved is more particularly applicable to the manner of attaching a cylinder lock to a spindle accompanied by a quick and easy device or mechanism by means of which the knob and escutcheon plate containing the cylinder lock may be secured in position about the spindle and by utilization of a comparable means on another knob, whether or not including a privacy lock, cooperable in such fashion that the parts of the lock set are not only easy to install but also easy to separate and remove whenever occasion should require.

Although the design of lock sets of the cylinder type have been productive of a great variety of mechanisms directed to, among other things, improving the operation, economizing in the construction and otherwise rendering the device more efficient, progressive changes in the overall design of cylinder lock sets have prompted an ever increasing development in the association of the parts. Advantages and improvements developed in the past for certain constructions, while to some extent satisfactory for those constructions, have proved inadequate as other changes have taken place. Also the consuming public has become more insistent on the provision of more efficient lock sets necessitating a constant improvement in order to meet competitive conditions.

It is therefore among the objects of the invention to provide a new and improved lock set particularly well adapted to cylinder locks wherein the cylinder lock itself may be applied and secured in place more quickly and more efficiently and also by means of a connection or attachment particularly rugged in its structure so as to maintain its efficiency during operation over long periods of time.

Another object of the invention is to provide a new and improved door lock set wherein the cylinder lock may be attached to the spindle by what might readily be described as a floating connection at least to the extent that friction is substantially minimized, thereby making the door easy to unlock with the proper key and the latch parts easy to rotate, construction also taking into consideration a ready and convenient means of permitting the position of the key hole slot to be reversed as conditions may require.

Still another object of the invention is to provide a cylinder lock set wherein the parts have been reduced in number and simplified in their

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construction while at the same time building a more durable quality into the parts and also by so constructing the parts that both the escutcheon plate and handle may be snapped in place and there secured by spring pressed detents so arranged that the tension of the escutcheon plate and knob between detents cannot be disturbed from the locked side of the door.

The invention here involved is a continuation in part of co-pending application Serial No. 128,595, filed November 21, 1949.

With these and other objects in view, the invention consists in the construction, arrangement and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter set forth, pointed out in the appended claims and illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a plan view of an assembled lock set in place in a door with the door shown in section.

Figure 2 is a horizontal sectional view of the door lock set in assembled position mounted in a door.

Figure 3 is a vertical cross-sectional view of the assembled lock set taken on the line 3—3 of Figure 2.

Figure 4 is a vertical cross-sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a vertical cross-sectional view taken on the line 5—5 of Figure 2.

Figure 6 is a fragmentary view showing details of the detent arrangement for holding the knob and escutcheon plate in place.

Figure 7 is a fragmentary sectional view of the knob housing a privacy latch mechanism.

Figure 8 is an exploded view showing the proportion and relationship of parts prior to but positioned for assembly.

Figure 9 is a perspective view of one of the parts by which the knob is held in place.

Figure 10 is a perspective view of another of parts by which another of the knobs is held in place.

Figure 11 is an exploded perspective view showing the cylinder lock and adjacent end of the spindle prior to assembly from an angle opposite to the view of corresponding parts in Figure 8.

The problems involved in the manipulation of cylinder lock sets may be classed in two categories. One involves the actual manufacture of the lock sets at a cost which makes it possible to use them as readily as may be desired and another is involved in the engineering of the assembly of the

parts not only from the point of view of factory assembly or sub-assembly but also from the point of view of mounting the lock sets in a door by carpenters or other construction mechanics in the manner which makes certain that they are installed quickly and efficiently so as to render efficient service over a long period of time. Since only portions of the mechanism involved in the locks sets constitute the inventions herein disclosed, the other operative parts of the lock set will be referred to by a general description, having in mind that those other parts are already known in the art either through actual manufacture and use or as comprising parts of the subject matter of patents and patent applications, one of which has already been identified herein. The patent application of which this is a continuation in part reveals a lock set mechanism of the general description herein disclosed combining a latch housing of somewhat cylindrical form adapted to be slid into cooperative engagement with a cylinder lock set, the lock set in turn being provided with a privacy latch, details of which are disclosed in considerable particular in the pending application, and a cylinder lock housing of somewhat conventional overall construction mounted for operation with the spindle and the latch device actuated thereby.

The general construction of cylindrical door lock sets as suggested particularly in Figures 1 and 2 consists of a spindle housing 10 containing a spindle 11 of some appropriate design at one end of which is a knob 12 housing a cylinder lock casing 13 and at the other end of which is a knob 14 here indicated as housing a privacy latch 15. Rosettes 16 and 16' are mounted in place to give a finished appearance to the device when installed.

Extending transversely from the spindle housing is a latch housing 17 containing a latch mechanism, typical details of which are shown in copending application Serial No. 128,595. A latch 18 extends from the latch housing, operation of which is initiated by an actuator 19. These latch parts are designed to be mounted on a door 20 which has appropriate apertures formed therein for reception of the cylinder lock parts. The parts just described are also shown to good advantage in the exploded view, Figure 8.

To understand the assembly of the parts as depicted in Figures 2 through 7, inclusive, attention is first directed to the exploded view, Figure 8, where all of the parts are illustrated individually and in perspective and in the axial relationship which those parts will have after being assembled together endwise into the operative position best illustrated in Figure 2.

The spindle housing 10 is here illustrated as having a recess 25 extending through the spindle housing and through an escutcheon plate 26 which in this instance is integral with the spindle housing. The spindle housing is provided with threaded holes 27 in appropriate lugs 28 for the reception of bolts when the spindle housing is to be secured in the door. At one side of the spindle housing is an end opening aperture or recess defined by inwardly turned side edges 29 which are adapted to be received in recesses 30 in the latch housing 17. The assembled relationship of the latch housing with the spindle housing may be seen to good advantage in Figure 3.

The spindle indicated generally by the reference character 11 is a somewhat composite device as shown in the present invention in that it mounts operative parts of a privacy latch, structural details and mode of operation of which are described in co-pending application Serial No. 128,595. For the purpose of the present description the spindle may be defined as constituting a cylindrical sleeve 31 having a cut-away portion 32 and within which a core 33 is adapted to slide and rotate a distance limited by operation of a set screw 34 in an oblique slot 35. A spring-pressed privacy lock element 36 is illustrated as being manipulatable by a handle 37 forming a part of the privacy latch previously indicated generally by the reference character 15.

The end of the spindle opposite from the handle 37 is specially formed in that it is provided with what may be described as a bushing 38 crimped in place by bent-over sections 39 of the hollow cylinder 31 in which position the bushing may be pinned non-rotatably in place. In the bushing there is provided a transverse recess 40 which has an inwardly extending slot 41, the width of which is made less than the width of the recess 40 by inwardly turned flanges 42 and 43. Further details of the bushing 38 are shown in Figure 11.

The cylinder lock casing 13 shown both in Figures 8 and 11 to good advantage comprises a barrel-like portion 45 adapted to receive a cylinder 46 which contains a keyhole slot 47. The cylinder extends through the barrel-like portion so that an end 48 of the cylinder protrudes outwardly beyond the casing as indicated in both Figures 8 and 11 as well as in Figure 2. The end 48 has oppositely disposed recesses 49 formed therein. These recesses 49 are of such width to receive the inwardly turned flanges 42 and 43 of the bushing 38 at the end of the spindle. From the structure described up to this point it will become apparent that the bushing 38 is designed to engage the end of the cylinder by reason of the overlapping of the flanges 42 and 43 with the walls of the recesses 49. The parts can be slid into engagement by lateral movement and once in engagement they cannot be pulled apart endwise and furthermore are anchored against rotation one with respect to the other. The axis of rotation of the spindle is the same as the axis of rotation of the cylinder 46.

To anchor the spindle 11 in its proper position within the spindle housing there is provided an intermediate part serving several functions identified in a sleeve indicated generally by the reference character 50. The sleeve 50 has a substantially cylindrical portion 51 at the outside end in the illustration chosen somewhat larger in radius than a semi-cylindrical portion 52, the parts thereby forming a shoulder 53 therebetween. The cylindrical portion 51 in addition to providing a slot 54 for reception of the spring-pressed lock element 36 has provided therein recesses 55, one of which is shown in Figure 8, the recess in each case being partially closed by inwardly turned edges 56 and 57. It will be noted that the recesses 55 are larger than the largest portion of the end 48 of the cylinder and moreover that the inwardly turned edges 56 and 57 are small enough so as to be able to slide within the recesses 49 of the end 48 of the cylinder. This allowance is necessary for assembly and disassembly purposes. It might also be noted in this connection that there is provided an offset portion 58 slightly less in thickness than the space between the inturned edges 56 and 57. The offset portion 58 may therefore fit between the inturned edges thereby to prevent rotation of the cylinder casing 13 once the parts are assembled.

In order to have the sleeve 50 properly secured within the spindle housing the sleeve is provided

with a resilient tongue 60 shown to good advantage in Figure 9 as being on a side of the sleeve 50 opposite from the slot 54. The perspective view in Figure 9 shows the sleeve positioned in a direction reverse to the direction illustrated in Figure 8 which last position is the true relationship of the sleeve when engaging the other portions of the device.

The tongue as illustrated is an integral portion of the sleeve and may be stamped from the wall of the cylindrical portion 51 while the sleeve is in unhardened condition. While in that condition two projections may also be formed thereon, a projection 61 being located at the end of the tongue and adapted to engage the outer face of the escutcheon plate 26, and a projection 62 adapted to engage the knob. The tongue lies within a cut-out portion 63 of the sleeve where it is free to move transversely to an extent limited by the spring of the tongue about its base 64 where it is joined to the sleeve.

There also appears on the cylindrical portion of the sleeve a protruding flange 65 forming a shoulder adapted to press against the inside of the escutcheon plate 26.

The knob 12 is provided with a neck 66 having an inside diameter adapted to slide freely over the exterior of the cylindrical portion 51 of the sleeve 50. The neck portion is provided with a hole 67 slightly larger than the projection 62 and adapted to receive the projection thereby to anchor the knob to the sleeve against both rotation and endwise movement once assembled.

For holding the opposite knob 14 on the spindle there is provided a second sleeve indicated generally by the reference character 70 shown in perspective view in Figure 10 and shown also in the exploded view, Figure 8, in the relationship which the sleeve has to the other parts of the device prior to assembly.

The sleeve 70 as here shown has a substantially cylindrical portion 71 at the end which will extend outwardly into the knob in assembled position and a semi-cylindrical portion 72, of the same radius, at the opposite end. Protruding flanges 73, both of which are visible in Figure 8, extend outwardly along the circumference of the sleeve where the cylindrical portion is separated from the semi-cylindrical portion. The flange is designed to abut the inside surface of an escutcheon plate 74 when in assembled position. It will be noted that the cylindrical portion 71 has a longitudinally extending slit 75 which permits a certain circumferential flexing so that a smooth though snug fit may be provided between an axial hole 76 in the escutcheon plate and the exterior of the cylindrical portion.

The cylindrical portion has extending along one side a tongue 77 similar in most respects to the tongue 60 of the sleeve 50. On the tongue 77 are outwardly extending projections 78 and 79. The tongue 77 is also connected to the cylindrical portion 71 at only one end 80 and lies within a cut-out slot in the cylindrical portion. When assembled the projection 78 lies adjacent the outside face of the escutcheon plate 74 cooperating with the flanges 73 to hold the escutcheon plate between them. The projection 79 is adapted to be received within a hole 81 in a neck 82 as best seen in Figure 2. By this means the knob 14 is locked releasably upon the cylindrical portion of the sleeve 70.

When the parts are assembled at the factory for boxing and shipment to the cabinet shop or building where the hardware is to be installed in a door, certain of the parts are assembled in what may be termed sub-assemblies. For example, all of the parts directly connected to the latch housing 17 are completely assembled but the latch housing 17 is left unassembled with relation to the other parts of the device. Two other sub-assemblies are usually made up, one comprising the knob 12, the spindle housing 16, within which are positioned the spindle 11, sleeve 50 and cylinder casing 13, and the other comprising chiefly the knob 14 and sleeve 70 with attendant parts.

In the assembly of the parts accompanying the knob 12 it will be found that it is convenient first to insert the sleeve 50 into the spindle housing forcing it inwardly while in about the rotational position illustrated in Figure 8 until the shoulder 65 abuts an oppositely disposed shoulder 90 on the inside face of the escutcheon plate 26 which is in actuality a part of the spindle housing. The abutment of these shoulders limits the movement of the sleeve into the escutcheon plate. Meanwhile the wall of the interior of the spindle housing will serve to depress the tongue 60 by pressing on the projections 61 and 62 which pressure will be released when the projection 61 passes beyond the outside face of the escutcheon plate, in which position it will snap outwardly and lock the sleeve in position within the spindle housing. The rosette 16 may be snapped in place over the exterior of the escutcheon plate 26 either before or after insertion of the sleeve 50 therein.

The spindle 11 may then be inserted within the sleeve 50 by extending the end carrying the bushing 38 through the interior of the sleeve in a position such that the lock element 36 falls in line with a slot 93 of the spindle housing 16 but is held in position in the slit between the shoulders 65. The spindle may be thus pushed through the spindle housing and escutcheon plate 26 far enough so that it lies within the cylindrical portion 51 of the sleeve 50 to have the recess 40 coincide with the slots 55 of the sleeve 50. When thus positioned the cylinder casing 13 may be applied to the spindle by inserting the end 48 of the cylinder laterally through one of the slots 55 until it engages with the bushing 38 on the spindle within the slot 40. The recesses 49 of the end of the cylinder during this operation slidably receive the inturned edges 42 and 43 on the bushing.

It will be readily apparent that the cylinder casing may be set in one position or another, one position being 180 degrees to or directly opposite the other so that the keyhole slot may be turned upside down if desired. In one position or another of the cylinder casing 13 with relation to the sleeve 50 the offset portion 58 is adapted to be drawn part-way into the slot 55 in which position it is held after the knob 12 has been applied so that the cylinder casing can no longer rotate.

After the cylinder casing has been thus applied the knob 12 is slid into place by sliding the neck 66 over the exterior surface of the cylindrical portion 51 as shown in Figure 2 wherein the projection 62 will find its way into the hole 67 at the neck of the knob and there anchor the knob to the assembly.

It may be noted that this sub-assembly of parts can be readily disassembled at any time except when the sub-assembly is installed in the door. To facilitate disassembly there is provided an access passage 94 which extends through the escutcheon plate 26 as viewed in Figure 2. The access passage is made big enough to accommo-

date the end of an ordinary screw driver by means of which the projection 61 is depressed a distance sufficient to release the projection 60 from its position within the hole 67 of the knob. The knob can thus be removed. In this connection it may be noted that the knob 12 cannot be removed from the locked side of the door so long as the rosette is anchored in its position on the escutcheon plate 26. When the knob is removed the cylinder casing can then be slid laterally outwardly to remove the cylinder casing either for replacement or to invert it to a new position for the keyhole slot.

To take apart the remaining portions of the sub-assembly the screw driver point may be again inserted in the access hole and the projection 61 pryed downwardly far enough so that it slips free of its engagement with the exterior of the escutcheon plate 26, thereby permitting the sleeve 50 to be withdrawn.

The sub-assembly at the opposite end is more simple in that it consists only of the escutcheon plate 74, the decorative rosette 17, the knob 14 and the sleeve 70. To assemble these parts the sleeve 70 is slid through the hole 76 of the escutcheon plate and a hole 96 of the rosette 17 which under ordinary circumstances is merely snapped into place so that it can be removed. The sleeve 70 is pushed through until the flanges 73 abut the inside face of the escutcheon plate as shown in Figure 2. In this position the projection 78 will snap outwardly and engage the outside face of the escutcheon plate.

With the sleeve thus positioned in assembled condition within the escutcheon plate and rosette, the knob 14 is applied to the sleeve by sliding the neck 82 of the knob over the cylindrical portion 71 of the sleeve until the projection 79 is received in a hole 81 in the knob. It will be noted that contrary to the position of corresponding parts of the knob 12 the hole 96 on the knob 14 is exposed so that the knob can be released from the cylinder from the side of the door opposite the lock side of the door, thereby to facilitate removal of the parts from the door.

When the sub-assembled parts are to be applied to the door 20, the customary holes are cut in the door, namely, a hole 100 inwardly from the edge of the door for accommodation of the latch housing 17, and a transverse hole 101 communicating with the hole 100, the transverse hole being for the accommodation of the cylinder housing. The parts may be attached by first inserting the latch housing 17 in place orienting it with respect to the recesses 30 in the position shown in Figure 2, or in a position exactly the reverse, depending on which way the door is going to swing. Next the sub-assembly comprising the spindle housing 10 and knob 12 together with the spindle is applied by extending the spindle and spindle housing into the door from a side 102 so that it occupies the position shown in Figure 2 and also Figure 1. During this portion of the installation the inwardly turned side edges 29 of the spindle housing will slide in the recesses 30 of the latch housing somewhat loosely to facilitate ready installation. Once in place the latch housing will be locked to the spindle housing. To anchor these two sub-assemblies in place the escutcheon plate 74 carrying the sleeve 70, but with the rosette 15' removed, is applied to the other side 103 in the door 20 and bolts 104, shown only in section in Figure 5, extend through bolt holes 105 of the escutcheon plate 74 into threaded holes 27 previously indicated as having been provided in the spindle housing 10. Since both escutcheon plates 26 and 74 overlie the corresponding surfaces of the door, the spindle housing and escutcheon plate 74 will be drawn together and anchored fast. No amount of tightening will, however, disturb the cooperation of the latch housing 17 with the spindle housing due to freedom of the latch housing to slide along its connection to the spindle housing.

After the escutcheon plate and latch housing have been thus installed, the rosette 16' may be snapped into place and the knob 14 subsequently applied to the sleeve 70. A hole 106 is adapted to receive the handle 37 at the corresponding end of the spindle. The spindle together with the cylinder casing 13 and cylinder 46 will thus be centered with respect to the knobs, the cylinder 13 being received in a corresponding central hole 107 of the knob 12. After the parts are thus positioned, wood screws 108 may be installed to finally anchor the latch housing in its proper position.

By resorting to the structure herein described there has been provided a construction readily adapted to cylinder lock sets which makes the lock sets particularly easy to assemble prior to shipment and to subsequently install as building hardware in a door. The connection between the cylinder casing and the spindle being a relatively loose fit, makes what might be readily described as a floating connection between these two parts. Operation does not depend upon any frictional contact and at the same time the interlock of the cylinder and the spindle is depended upon entirely to prevent endwise movement between these two parts, thereby dispensing with all auxiliary attaching expedients.

Also by providing sleeves having spring pressed tongues as described, sub-assembly is greatly facilitated in that the parts need only be snapped into place. At the same time the parts can be disassembled with equal facility by having it necessary to do no more than depress the spring-pressed tongues. The same spring-pressed tongues perform a double function in that they also facilitate a snap attachment of the knobs releasable also, though only under appropriate circumstances, by depression of the tongues. The general application of the sub-assembled parts to the door is further facilitated by the assembled relationship of the semi-cylindrical parts 52 and 72 of the respective sleeves 50 and 70 in that the semi-cylindrical part 72 is adapted to receive nested within it the semi-cylindrical part 52 so that one is free to rotate independently of the other. The relationship of these parts just described is readily apparent in Figures 2 and 3 and it will be further apparent from this that the parts can be accommodated to a door of greater thickness without impairing their function or operation.

While I have herein shown and described my invention in what I have conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of my invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a cylinder lock set comprising a spindle housing, a spindle extending therethrough and a knob the combination of a cylinder adapted to be mounted within said knob having an outwardly open key slot at one end thereof and at

an opposite end thereof having a spindle-engaging device, said spindle at one end adjacent the cylinder having a cylinder-engaging device, one of said devices including a transverse end opening slot with an inturned side edge, and the other of said devices including an undercut recess adapted to slidably receive said inturned side edge, a cylinder casing for the cylinder having a shoulder thereon, and a retaining sleeve adapted to secure the knob in rotatable position on the spindle housing, said retaining sleeve having means non-rotatably engageable with said shoulder and adapted thereby to restrict rotation of said cylinder casing relative to the sleeve.

2. In a cylinder lock set comprising a spindle housing, a spindle extending therethrough and a knob for the spindle the combination of a cylinder casing assembly adapted to be received within said knob having an outwardly open key slot at one end thereof and having at an opposite end thereof a rotating portion having a transversely disposed undercut recess means, said spindle having a portion at one end thereof adjacent the cylinder casing assembly having a transversely disposed open slot with an inturned edge means adapted to loosely and slidably engage in said undercut recess means in either upright or inverted position of the cylinder casing assembly, a retaining sleeve for said knob surrounding said one end of the spindle having oppositely disposed recesses adapted to accommodate said rotating portion of the cylinder casing assembly, mutually cooperating portions on said cylinder casing assembly and said sleeve adapted to restrict rotation of said cylinder casing assembly relative to the sleeve with the cylinger casing assembly in either upright or inverted position, and means for holding said lock set in a door.

3. In a cylinder lock set comprising a spindle housing, a spindle extending therethrough, a knob at each end of the spindle, an escutcheon plate adapted to engage the door and a latch housing extending transversely from the spindle housing having a latch mechanism therein the combination of a cylinder casing assembly adapted to be received in one of said knobs having an outwardly open key slot at one end thereof and an opposite end thereof having opposite undercut recesses, an offset portion on said opposite end, said spindle at one end thereof adjacent the cylinder casing assembly having a transverse laterally opening slot with inturned longitudinal side edges loosely and slidably receivable in said undercut recesses in either upright or inverted position of the cylinder casing assembly, a retaining sleeve surrounding said one end of the spindle having a portion thereof extending through the escutcheon plate and adapted to be secured to the knob, said sleeve having at the outer end thereof laterally oppositely disposed recesses adapted for alignment with the slot in the spindle and having inturned side edges adapted to accommodate said undercut recesses, either of said oppositely disposed recesses being adapted to accommodate said offset portion of the cylinder casing assembly and said offset portion being adapted thereby to be positioned in either upright or inverted position, and means for holding said lock set in a door.

4. In a cylinder lock set comprising a spindle housing, a spindle mounted rotatably within and extending through the housing and a knob and escutchean plate on an end of the spindle having each an opening for reception of the spindle end, the combination of means for releasably holding the knob and escutcheon plate on the spindle comprising a sleeve surrounding the end of the spindle, said sleeve having an outward substantially cylindrical portion adapted to be received within the escutcheon plate and knob and having a shoulder engageable with the inside of the plate, an inner portion of the spindle adapted to be received within the spindle housing, a pair of resilient normally outwardly pressed detents in the wall of the cylindrical portion, one of said detents being adapted to be located outside of and to contain the escutcheon plate between said one detent and the shoulder, said knob having means adapted to be releasably engaged by the other detent.

5. In a cylinder lock set comprising a spindle housing, a spindle mounted rotatably within and extending through the housing, a knob and escutcheon plate on each end of the spindle each having openings for reception of the respective spindle end, the combination of means for releasably holding the knobs and escutcheon plates on the spindle comprising a sleeve for each end of the spindle, each said sleeve having an outward substantially cylindrical split portion adapted to be received within the respective escutcheon plate and knob and having a protruding flange engageable with the inside of the plate, an inner semi-cylindrical latch actuating portion of each spindle adapted to be received within the spindle housing adjacent to but movable rotatably and longitudinally with respect to the semi-cylindrical portion of the other spindle, an elongated resilient tongue forming part of the wall of the cylindrical portion, said tongue being secured at one end to the cylindrical portion, and a pair of outwardly extending projections on the tongue, one of said projections being adapted to be positioned outside and to contain the escutcheon plate between said one projection and the flange, said knob having a hole adapted to receive the other projection, and said spindle housing having a screw driver access passage communicating between the interior thereof and a point adjacent the tongue in one of said sleeves for releasing the tongue and sleeve from engagement with the respective knob and escutcheon plate.

6. In a cylinder lock set comprising a spindle housing, a spindle rotatably mounted within and extending through the housing and a knob and escutcheon plate on each end of the spindle the combination of releasable means for holding the knobs and escutcheon plates in assembled condition comprising a pair of sleeves having inner ends adapted to nest slidably and rotatably one with respect to the other, each sleeve having an outer portion adapted to fit within the respective escutcheon plate and knob, a shoulder at the inner end of the sleeve adapted to engage the inside face of the escutcheon plate, and a pair of spring-pressed detents in the wall of the outer portion of each sleeve normally pressed transversely outwardly and adapted one to engage the outer face of the escutcheon plate when said shoulder is in engagement with the inside face of the escutcheon plate, and the other detent being adapted to engage the knob.

7. In a cylinder lock set comprising a spindle housing, a spindle extending therethrough, a hollow knob and escutcheon plate for each end of the spindle the combination of releasable means for holding the knobs and escutcheon plates in assembled condition comprising a pair of sleeves having inner semi-cylindrical ends of different diameters adapted to nest slidably and rotatably

one within the other, an outer substantially cylindrical portion on each sleeve adapted to fit within the respective escutcheon plate and knob, said outer portion having a longitudinal slit on one side, a shoulder at the inner end of the sleeve adapted to engage the inside face of the escutcheon plate, a resilient tongue forming part of the wall of the cylindrical portion attached at the outer end of and extending throughout substantially the length of said cylindrical portion, said tongue being spring-pressed transversely outwardly, and projections on the tongue adapted one

to engage the outer face of the escutcheon plate and the other to engage the knob, said knob having a hole adapted to receive said other projection.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,971,580	Schlage	Aug. 28, 1934
2,007,350	Schlage	July 9, 1935
2,542,117	Cerf	Feb. 20, 1951