June 12, 1962 M. M. CHECK ET AL 3,038,749

MOUNTING FOR CYLINDER LOCK

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Fig. 1.

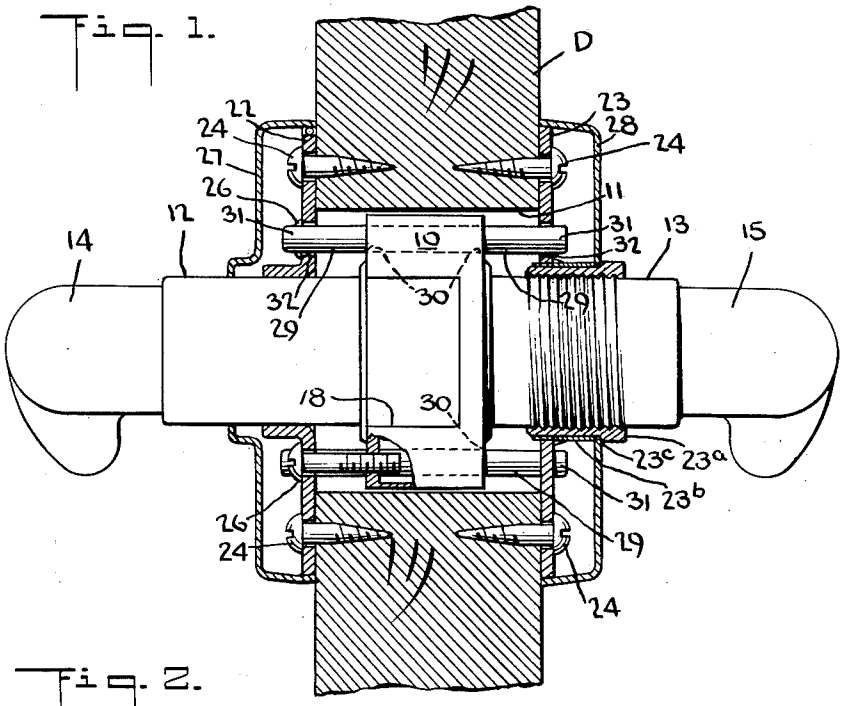
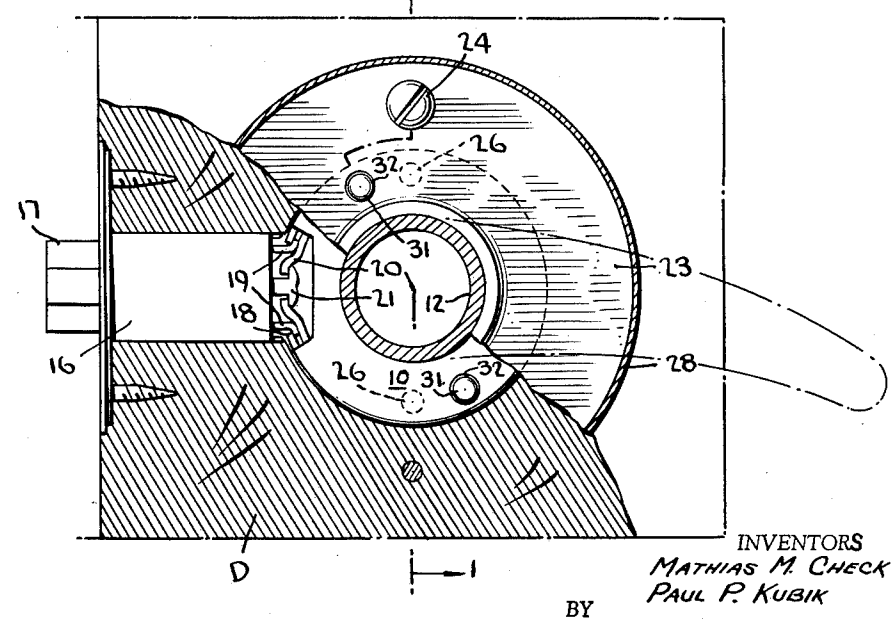


Fig. 2.



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Fig. 5.

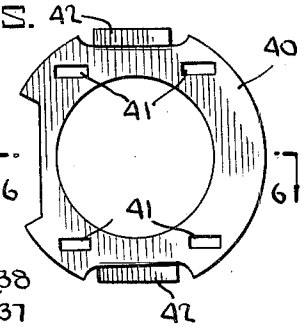


Fig. 3.

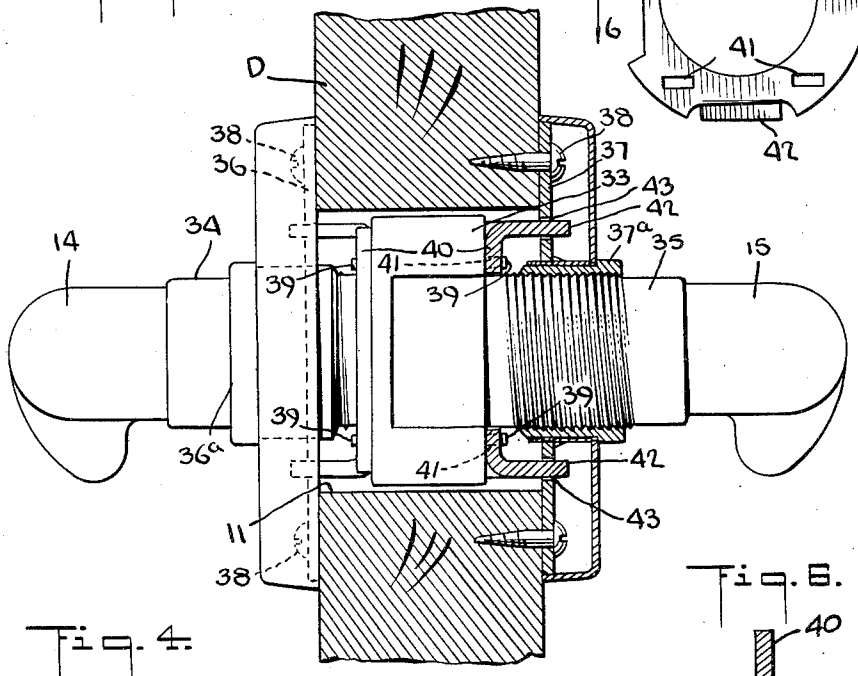


Fig. 6.

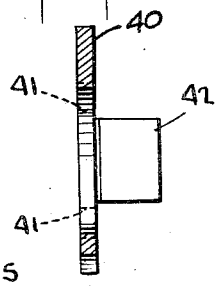


Fig. 4.

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MOUNTING FOR CYLINDER LOCK

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This invention relates to the mounting of cylindrical locks.

Locks of the particular class have a case that is substantially cylindrical and positioned in a bore formed in a door. When inserted in the bore, the cylindrical lock case moves into coacting relation to a latch tube on the door, with mechanism in the case then adapted to control a bolt in the latch tube. The lock case has a spindle sleeve on each opposed end thereof, and roses are mounted on those sleeves. Generally, at least one of the roses is secured to its corresponding sleeve against endwise motion relatively thereto, through screw threads or equivalent means, the roses being free for rotation relatively to the lock case. The roses lie against the opposed faces of the door, and through axial pull on the case hold the case relatively to the door, relying partly on friction between the roses and the case and partly on the coacting relation of the case and latch tube to hold the case in position. We contribute by our invention an exceedingly novel lock mounting that will act positively to hold the lock case in position, without relying upon friction or on the latch tube.

Those persons skilled in the art will appreciate that the locks of the class described have considerable advantages and have won widespread acceptance. Nevertheless, in the cylindrical locks of the prior art, it is sometimes found that the mounting of the lock case is not fully satisfactory. Thus, since the lock case is held in position simply through the application of the roses to the opposed faces of the door, the case will no longer be held firmly in its proper position should the roses become loose, and the movement of the lock case then will be resisted only by the latch tube.

That places considerable strain upon the latch tube, and this is particularly true in those instances in which the lock is equipped with a lever handle in lieu of a knob, because of the use of such handles naturally tends to increase the rotating force that must be accepted by the lock. The strain that is thus applied to the latch tube not only will destroy the smooth functioning of the lock mechanism, but will make the lock subject to attack. Through the novel lock mounting that we have conceived, it is possible to mount a cylindrical lock case very securely, so that it cannot move relatively to a door. Moreover, the lock case cannot rotate even though one or both roses may become somewhat loose, and the case will be maintained in its proper aligned relation to the latch tube.

As is rather usual in the art, we utilize roses that have a rose plate lying directly against the face of the door, the roses further having decorative parts that are secured relatively to the rose plates. Usually, the rose plates are formed of steel and the decorative parts may be formed of brass or aluminum, as the case may be, finished in accordance with the style of hardware. As a feature of our invention, we utilize means that secure at least one of the roses or its rose plate to a face of the door and that holds the rose plate against rotation relatively to the door. We then utilize means to lock the case and rose plate against rotation relatively to one another. Those means may be an integral part of the lock case, but we do contemplate utilizing a separate part that has surfaces in interlocking relation to the case and rose. We prefer to form one of the rose plates with an opening in which is positioned an interlocking part extending from one end of the case. That part can slide in the plate

opening to allow the rose plate and lock case to be assembled relatively to one another, but with the surfaces of the opening coacting with the part so that the part will be effective to prevent any rotation between the rose and the cylindrical lock case.

Obviously, by so interlocking the case and the rose plate, it becomes impossible for the lock case to rotate relatively to the door, since the rose plate cannot rotate. Moreover, through the particular utilization of the interlocking part and rose plate, the proper position of the lock case will be assured, and there will be no possibility that the procedure of mounting the case will draw it away from its intended position on the door. Actually, we may equip the lock case with parts that interlock with both roses, each rose being secured to the door and acting to hold the lock case in position. That is not essential, however. Whether we utilize one or more than one part, our invention enables us very effectively to secure a cylindrical lock case against movement. Thereby we are able to mount and to hold the lock case in its proper predetermined aligned relation to the latch tube, despite the fact that one or both of the roses may become loose relatively to the door and lock case.

We have thus outlined rather broadly the more important features of our invention in order that the detailed description thereof that follows may be better understood, and in order that our contribution to the art may be better appreciated. There are, of course, additional features of our invention that will be described hereinafter and which will form the subject of the claims appended hereto. Those skilled in the art will appreciate that the conception on which our disclosure is based may readily be utilized as a basis for the designing of other structures for carrying out the several purposes of our invention. It is important, therefore, that the claims be regarded as including such equivalent constructions as do not depart from the spirit and scope of our invention, in order to prevent the appropriation of our invention by those skilled in the art.

Referring now to the drawings:

FIG. 1 is a view on the line 1—1 in FIG. 2 showing a cylindrical lock that utilizes our novel mounting.

FIG. 2 is a cross section showing our invention.

FIG. 3 shows a cylindrical lock embodying our invention in a different form.

FIG. 4 is a sectional end view of the mounting shown in FIG. 3.

FIG. 5 shows an interlocking plate utilized in FIGS. 3 and 4.

FIG. 6 is a cross section on line 6—6 in FIG. 5.

For the purpose of describing our invention, we show in FIG. 1 of the drawings a lock of the cylindrical type having a cylindrical lock case 10 that is positioned in a bore 11 formed in a door D. As is usual in a lock of the particular class, the cylindrical lock case 10 has on its opposed ends a pair of spindle bearing sleeves 12, 13, with knobs or lever handles 14, 15, mounted to rotate on the end portions of those sleeves. As shown in FIG. 2, a latch tube 16 is mounted on the front portion of the door, with a latch bolt 17 movable in that latch tube to coact with a strike, not shown. When the cylindrical lock case 10 is inserted into the bore 11, an opening 18 in that case will interlock with portions 19 on the latch tube 16 whereby to assemble the case and tube relatively to one another, with retractor mechanism 20 in lock case 10 in coacting relation to a bolt tail 21.

As is customary in locks of the particular class, we utilize inside and outside rose plates 22, 23, FIG. 1, that are mounted about the spindle sleeves 12, 13, and that have decorative parts 27, 28, secured relatively thereto. Each rose plate 22, 23, lies against a face of the door D, and at

least one of those plates generally is held against outward movement relatively to the corresponding spindle sleeve. Thus, for purposes of disclosure, we show in FIG. 1 a nut 23*a* that is threaded on spindle sleeve 13, with a part 23*b* on the nut engaging the rose plate 23 to hold it against outward movement. The nut 23*a* has also a shoulder 23*c* that holds the decorative rose part 28 in assembled position. We show the threaded nut 23*a* merely by way of example, and it is conceivable that other means may be utilized for securing the rose plate 23, such as the slot and detent arrangement shown in the patent to Biblin, No. 2,751,243.

To secure the opposed rose plate 22 in FIGS. 1 and 2, we show screws 26 that extend from that plate 22 to the lock case 10. Those screws 26 when tightened force the two rose plates 22, 23, toward one another with the door D between them, thus holding lock case 10 relatively to the door. The decorative part 27 will be snapped over rose plate 22 whereby to conceal the screws.

We have thus far described a construction that is rather conventional in itself, and that is likely to become loose relatively to the door, as we have already indicated. Thus, in the prior art, any loosening of threaded holding means like the screws 26, or some relieving of the friction between the nut 23*a* and the rose plate 23 or threaded sleeve 13, will allow for a gradual rotation of the rose plate 23 relatively to lock case 10, so that the lock case gradually becomes more and more loosely related to the door. Therefore, it sometimes happens that the lock case in the earlier constructions is held against rotation relatively to the door simply through the latch tube 16 and the latch bolt mechanism at 19 and 20. However, the lock case will still be required to accept very considerable rotating forces, particularly when equipped with lever handles such as we show at 14, 15.

As an important part of our invention, we secure at least one of the rose plates 22, 23, against rotation relatively to the door. In the particular construction that we have chosen to show in FIGS. 1 and 2, we utilize screws 24 that secure both rose plates 22, 23, against rotation, but only one rose need be so secured. It will be appreciated also that pins or barbs can be utilized, provided they are of sufficient strength and depth.

Further, we utilize in FIGS. 1 and 2 a pair of pins 29 that are arranged in transverse openings 30 in the lock case 10. Each pin 29 has end parts 31 that extend relatively to opposed ends of the case 10 in an axial direction, and in offset relation to the axis of spindle sleeves 12, 13. To coact with the pins 29, each of the rose plates 22, 23, has an opening 32 that accepts the corresponding part 31 of each pin 29. The arrangement is such that the end parts 31 can slide in the openings 32 so that the rose plates 22, 23, and pins 29 can move into assembled relation to one another.

When so assembled, surfaces on the pins 29 will be in interlocking relation to the openings 30 in lock case 10, while each part 31 of the pins 29 will be in coacting relation to one of the openings 32 in rose plates 22, 23. Where merely one of the rose plates 22 is secured by screws 24, it will be appreciated that the pins 29 need extend merely from the corresponding end of lock case 10, but we do prefer to utilize the construction we have described, with both ends 31 on each pin engaged with both rose plates.

It is important to realize that the pins 29 will interlock the cylindrical lock case relatively to rose plates 22, 23, and thereby will act positively to prevent any rotation between plates 22, 23, and the lock case 10. Since the rose plates 22, 23, cannot rotate on the door, those plates will be fully effective not only to support lock case 10, but to hold lock case 10 against rotating movement relatively to the door D. Therefore, our invention enables us to hold the cylindrical lock case 10 in its predetermined aligned relation to the latch tube 16. In fact, we are able through that construction to hold lock case 10 in its proper aligned relation despite the fact that one or both of the rose plates 22, 23, may become loose.

Referring now to FIGS. 3 to 6 of the drawings, we show a further form of my invention utilized with a cylindrical lock that has a cylindrical case 33 similar to that we have already described in connection with FIG. 1, that case 33 having opposed spindle sleeves 34 and 35. Rose plates 36, 37, are assembled about those sleeves, the rose plates being held in position through threaded nuts 36*a*, 37*a*, like the nut 23*a* in FIGS. 1 and 2. We utilize screws 38 to secure the rose plates 36, 37, to opposed faces of the door and against rotating movement relatively to the door. In the particular construction that we show in FIGS. 3 to 6, the lock case 33 has a series of lugs 39 on each end of the case. We equip at least one end, and preferably each end of the lock case 33 with a part 40, shown in detail in FIGS. 5 and 6, that is formed with openings 41 to accept the lugs 39. Thus, each part 40 when assembled to the lock case 33 will be in interlocking relation to the case.

We further form each part 40 with a pair of legs or portions 42 that extend in an axial direction. The legs 42 are adapted to slide to assembled position in openings 43 that we form in each rose plate 36, 37, those legs then extending between the lock case 33 and the corresponding rose plate. Thus, while in interlocking relation to lock case 33, each part 40 will coact with a rose plate 36 or 37 to hold case 33 against rotating movement, in the manner that we have described in connection with FIG. 1.

We believe that those persons skilled in the art will now understand that we have conceived a cylindrical lock mounting that is exceedingly novel and that has very positive advantages over the constructions of the prior art. Through our invention, we are able to utilize a cylindrical lock case and roses that may be assembled to the case in a usual way, yet we so support the cylindrical case that it positively cannot rotate relatively to the door on which it is mounted. Actually, the lock itself may have a construction that is conventional in cylindrical locks. Nevertheless, our novel mounting will prevent rotating movement of the cylindrical lock case relatively to the door. Thus, we can hold the case in predetermined aligned relation to the latch tube on the door. That enables us positively to eliminate the strain that will be applied to the latch tube and lock mechanisms in those locks in which the lock case sometimes may move out of its proper position. Therefore, we believe that the very considerable value of our invention will be fully appreciated.

We now claim:

1. In a cylindrical lock of the class described, a lock case adapted to be mounted in position in an opening formed through a door, the ends of the case being positioned inwardly from the faces of the door, said case having means interlocking with a latch tube when the case is in position in the door opening, a spindle bearing sleeve extending from each opposed end of the lock case outwardly in an axial direction in the door opening, anchor means carried on the lock case at the opposed ends of said case, said anchor means and case ends being formed with surfaces coacting to hold said means and case against relative rotation about the axis of the spindle bearing sleeve, end portions on said anchor means extending outwardly in the door opening toward both faces of the door, a rose plate having a central opening for each spindle bearing sleeve, means for holding said rose plates assembled on said bearing sleeves with the central openings of said plates about said sleeves, means fixing each rose plate to a face of the door and against rotation thereon, and openings in both rose plates engaged with said end portions of the anchor means to hold the lock case against rotation and twisting in the door opening and in predetermined aligned relation to the latch tube.

2. In a cylindrical lock of the class described, a lock case adapted to be mounted in position in an opening formed through a door, the ends of the case being posi-

tioned inwardly from the faces of the door, said case having means interlocking with a latch tube when the case is in position in the door opening, a spindle bearing sleeve extending from each opposed end of the lock case outwardly in an axial direction in the door opening, an anchor pin extending through the lock case and carried on the opposed ends of said case, said case ends having openings into which the anchor pin is inserted in a position offset from the spindle bearing sleeve, so as to hold the pin and case against relative rotation about the axis of said sleeve, end portions on said anchor pin extending from the ends of the lock case outwardly in the door opening toward both faces of the door, a rose plate having a central opening for each spindle bearing sleeve, means for holding said rose plates assembled on said bearing sleeves with the central openings of said plates about said sleeves, means fixing each rose plate to a face of the door and against rotation thereon, and openings in both rose plates engaged with said end portions of the anchor pin to hold the lock case against rotation and twisting in the door opening and in predetermined aligned relation to the latch tube.

3. In a cylindrical lock of the class described, a lock case adapted to be mounted in position in an opening formed through a door, the ends of the case being positioned inwardly from the faces of the door, said case having means interlocking with a latch tube when the case is in position in the door opening, a spindle bearing sleeve

extending from each opposed end of the lock case outwardly in an axial direction in the door opening, lugs extending from said ends of the lock case in positions offset from said spindle bearing sleeve, an anchor plate assembled against each opposed end of the lock case and carried on said case, said anchor plates being formed with openings that accept said lugs so as to hold said plates and said case against relative rotation about the axis of the spindle bearing sleeve, angular end portions on said anchor plates extending outwardly in the door opening toward both faces of the door, a rose plate having a central opening for each spindie bearing sleeve, means for holding said rose plates assembled on said bearing sleeves with the central openings of said plates about said sleeves, means fixing each rose plate to a face of the door and against rotation thereon, and openings in both rose plates engaged with said end portions of the anchor plates to hold the lock case against rotation and twisting in the door opening and in predetermined aligned relation to the latch tube.

References Cited in the file of this patent

UNITED STATES PATENTS

1,938,112	Schlage	Dec. 5, 1933
2,004,510	Schlage	June 11, 1935
2,642,302	Young	June 16, 1953
2,655,398	Birbaum	Oct. 13, 1953
2,751,243	Biblin	June 19, 1956
2,828,153	Ahlquist	Mar. 25, 1958