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Corrigan

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[54] **SAFETY LOCK**

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[52] **U.S. Cl.** **292/289**
[51] **Int. Cl.** **E05c 19/18**
[58] **Field of Search** 292/289–298

[56] **References Cited**

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[57] **ABSTRACT**

A readily installable and removable safety lock device is provided for locking a closure such as a door in closed relation to an opening in a frame, said device comprising an elongated plate one end of which is of such thinness as to be disposed between a margin of the closure and a surface of the frame that is in proximate spaced abutting relation to the said margin of the closure when it is in position to close said opening, there being an integral holding hook adjacent said end of said plate that projects laterally from the face of the plate and penetrates substantially into a recess in said surface of said frame so as to be held thereby and prevent removal of said plate when said end of said plate is disposed between said margin of said closure and said surface of said frame. The other end of the plate projects outwardly and substantially normal to the plane of the closure so as to be clear of said closure and of said frame and so that a substantial portion of the plate is exposed. Said exposed portion of the plate has a plurality of apertures therein which are located, respectively, at a succession of incrementally greater distances from the holding hook and through any of which a stop member such as a split ring or an arm of a padlock may be selectively and readily positioned so as to prevent the closure from being moved out of the opening in the frame when the end of the plate has been placed in position between said margin of said closure and said surface of said frame with said holding hook inserted in said recess.

8 Claims, 6 Drawing Figures

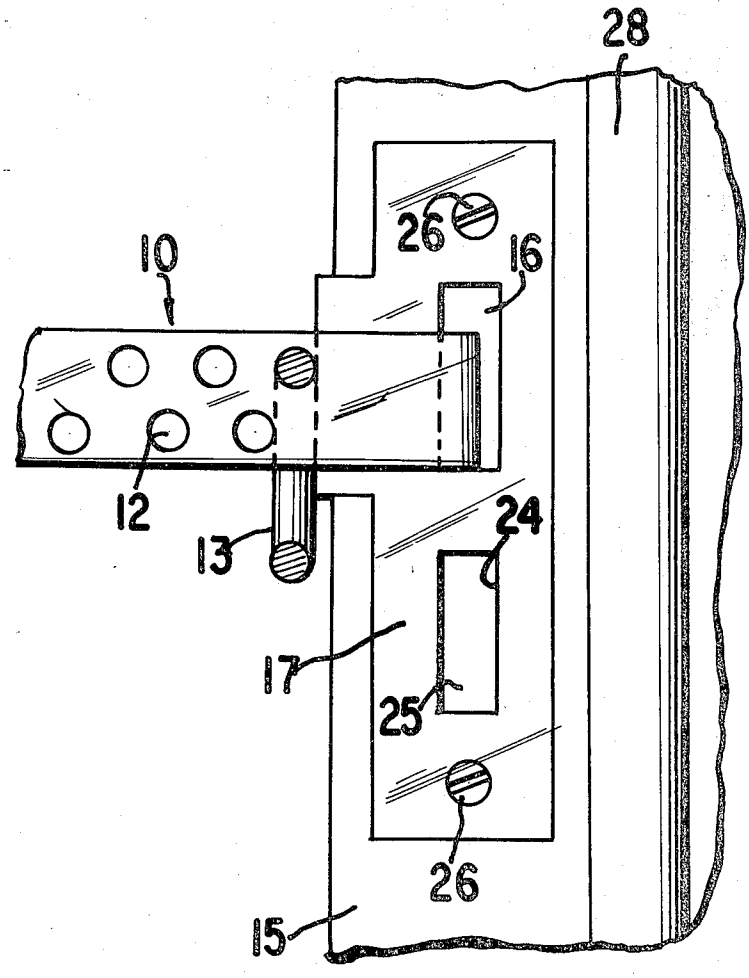


FIG. 1

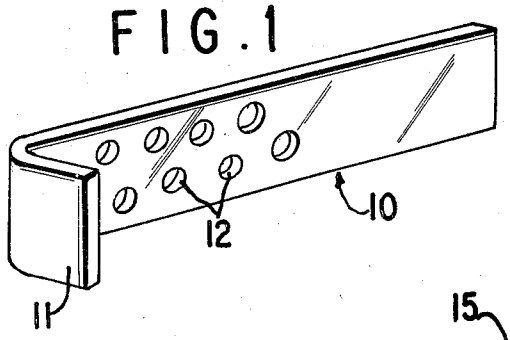


FIG. 2

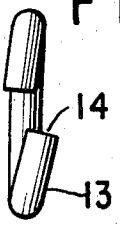


FIG. 3

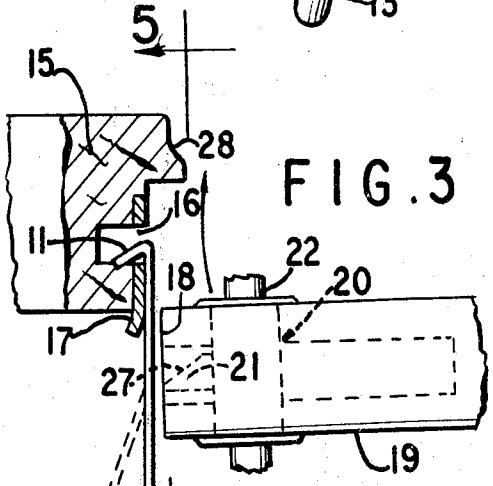


FIG. 4

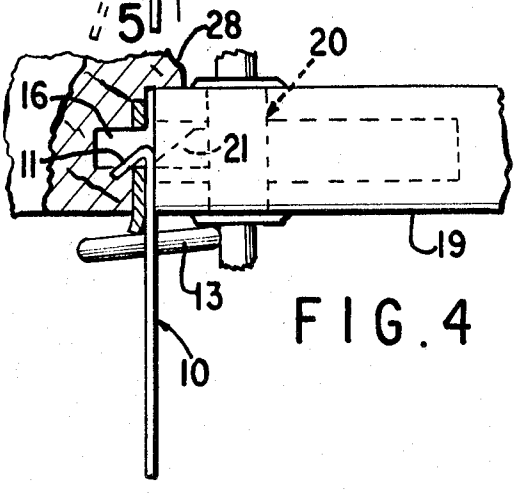


FIG. 5

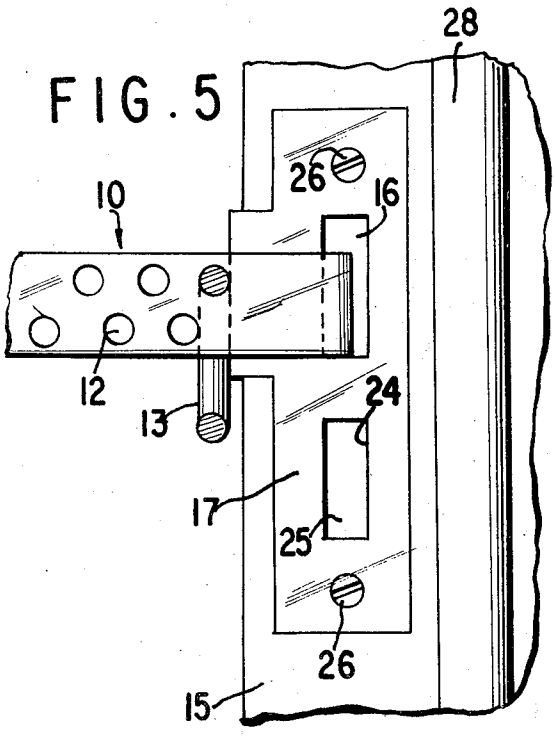
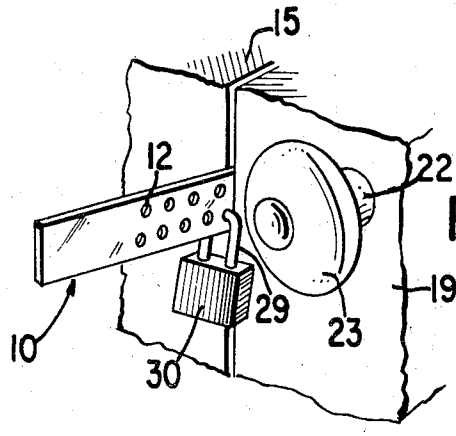


FIG. 6



SAFETY LOCK

FIELD OF THE INVENTION

This invention relates to locks and relates specifically to a lock device for a door or other closure for an opening in a frame, the device being adapted to be readily installed in and removed from position for locking the closure in place in the opening in the frame.

BACKGROUND OF THE INVENTION

The ordinary type of lock that is conventionally used in hotels, motels and homes is quite vulnerable to being opened by a lock-picking device in the hands of a prowler or sneak thief. Moreover, in motels and hotels the lock for a room door is such that it normally is of such design that it may be opened by a passkey. It also is the case that the key to a lock for a door in a public accommodation may fall in the hands of a thief. In order to provide security against intrusion, intricate locks are available but even these are vulnerable to being opened by an experienced thief and, of course, any such lock can be opened by a passkey. Many hotel doors are provided with a chain, one end of which is secured to the door frame and the other end of which is provided with a sliding member that engages the inturned flanges of a slide track that is secured to the door. However, such devices inherently are such that the chain, in order to permit the insertion of the slide member in the track, must be of such length as to likewise permit the door to be opened a substantial distance, thereby enabling this type of locking device either to be opened or to be broken by cutting the chain. There is a need, therefore, for a safety lock device which is so constructed that it may be readily installed and removed and which at the same time provides a very high degree of security against unwanted intrusion. There is also a need for a device which may accomplish the said purposes and which is so small that it can easily be carried in one's pocket or in a purse or other bag.

It is a primary object of this invention to provide a safety lock device having the aforesaid utility and advantages. It is a further object of this invention to provide a safety lock device which, while simple in construction, is easily installed and provides a high degree of security against intrusion in that the door or other closure is locked in closed position so effectively that the door or other closure cannot be opened without actual destruction of a portion of the door or the ripping out of a portion of the door frame.

GENERAL DESCRIPTION OF THE INVENTION

According to this invention, a safety lock device is provided for locking a closure such as a door in closed relation to a frame such as a door frame having an opening therein that is closed by the closure when the closure is in closed position. The safety lock device comprises an elongated plate one end of which is of such thinness as to be disposed between a margin of the closure and a surface of the frame member that is in proximate spaced abutting relation to said margin of the closure when the closure is in closed position. At and adjacent said end of the plate there is an integral holding hook that projects laterally from the face of the plate and that is adapted to penetrate substantially into a recess in said surface of the frame so as to be held against movement in the plane of the plate. The longitudinal extent of the plate is such that when it is disposed so as to project outwardly normally to the plane of the closure the other end of the plate is clear of both the closure and the frame, leaving a substantial portion of the plate exposed. The exposed portion of the plate has at least one aperture therein which is positioned so as to be in close proximity to the margin of the closure when the closure is in closed position. The lock device also comprises a stop member which passes through the aperture in the plate so as to project from the opposite faces of the plate. The stop member may consist, for example, of a ring which has an opening therein of such width that the plate may be freely moved when inserted in said opening and so that the ring may be inserted in and through the aperture. The stop member may take other forms, e.g., the locking arm of a padlock.

A suitable plate for effectively locking doors may be only 3 or 4 inches long and may have a width of around ½ to 1 inch. The aperture in the plate may be of the order of a ¼ inch diameter hole and the ring that provides the stop member may be of a slightly lesser diameter so as to permit its easy insertion in the aperture in the plate. It is to be understood, however, that these dimensions are not critical and are merely illustrative of what is normally desirable for use with a closure such as a door in a building wall. It is thus seen that the entire device is small and compact and can be readily carried with one's personal belongings.

Virtually all doors, for example, have some type of latch which may be operated as by the use of the conventional doorknob. Ordinarily the latching or locking member is resiliently depressible so as to permit the door to be closed without turning the doorknob. In the door frame opposite the latch member there is a recess which is entered by the resilient latching member when the door reaches completely closed position. Turning of the doorknob enables one to retract the latch so that the door may be opened. Often a lock device of this type has associated therewith means which can be actuated to prevent at least one of the knobs from being turned to release the latch. However, in such a device one side of the conventionally used latching member is inclined so as to enable it to become automatically retracted when closing the door and it is this structural aspect of the latching member which is particularly responsible for the vulnerability of a latch of this type to being opened by the use of a thin piece of metal or the like. One way of practicing the present invention is to place the elongated plate of the lock of this invention in position with the holding hook inserted in the recess which normally is entered by the resilient latch of the latching mechanism. Upon closing the door, which is hinged along the margin opposite the latch, with the elongated plate in this position the plate becomes held so that it cannot be withdrawn. As aforesaid, the plate is sufficiently long so that when the longitudinal extent of the plate is substantially normal to the plane of the door the aperture in the plate is exposed so that the ring or other stop member may be inserted therein. It is apparent that when the lock of this invention has thus been installed, the door cannot be opened since the margin of the door strikes the ring that is in position in the aperture in the plate which is held by virtue of the fact that the holding hook is securely held in the recess in the margin of the door frame.

In conventional construction the recess for the door latch normally is surrounded by a metal plate which

usually is made of a very strong metal such as steel and which is fastened in place as by screws or the like so that the exposed surface thereof is flush with the surface of the door frame. It is apparent, therefore, that in order to force an entry it is necessary either to break off a substantial portion of the margin of the door or else rip out the very substantial portion of the door frame to which the metal plate is secured.

It is preferable that the ring or other stop member which passes through the aperture in the elongated plate be in close proximity to the margin of the door. Since doors or other closures may be of differing thicknesses, it is preferable in the practice of the invention that the elongated plate be provided with a plurality of apertures which are positioned at a succession of incrementally increased distances from the holding hook. In such case the ring or holding member is adapted to be passed through any of the apertures so that the aperture selected for completing the safety lock may be that which is in closest proximity to the margin of the closure.

Hereinabove it has been pointed out that the lock device of this invention is such that it is adapted to be employed in combination with the recess for the latch that ordinarily is provided in the margin of the door. It is apparent, however, that any other recess into which the holding hook may be disposed may be availed of to lock the door or other closure in closed position. In many residences and apartments the precaution is taken of providing a second lock in addition to a lock that is associated with the doorknob. The second lock usually is of the type wherein a bolt is caused to be projected into a recess in the door frame by the action of a key or the turning of a small knob which is used solely for this purpose. Locks of this type are quite expensive and also are quite difficult to install. It is one of the advantages of the lock device of this invention that it lends itself to providing a second lock that is very inexpensive both to purchase and to install. Thus, all that is required to provide a second lock which is highly effective to prevent unwanted intrusion is to provide in the door frame a recess the mouth of which preferably is surrounded by a metal plate and which is adapted to receive the holding hook of the device of this invention. By inserting the holding hook in this recess, closing the door and inserting the stop member in an aperture in the elongated plate the door can be very securely locked so as to prevent entry from the outside.

The foregoing as well as other objects, features and advantages of this invention will be apparent in connection with the following description of the preferred illustrative embodiment of this invention that is shown in the accompanying drawings, wherein:

FIG. **1** is a perspective view of the elongated plate comprised in the safety lock device of this invention;

FIG. **2** is a side view of the split ring which provides one form of stop member that is insertable through any of the apertures in the elongated plate to complete the device;

FIG. **3** is a side elevation showing the location of the elongated plate after having been placed in position while the door or other closure is being moved into closed position;

FIG. **4** is similar to FIG. **3** except that the door is shown as having been moved into completely closed position and except that the ring stop member has been put in place for completing the lock;

FIG. **5** is a front view of the lock device taken on the line **5–5** of FIG. **3**, the ring stop member being shown in the position shown in FIG. **4**; and

FIG. **6** is a perspective view showing a modified form of the lock device of this invention wherein the locking arm of a padlock is employed as the stop member which passes through an aperture in the elongated plate for preventing the opening of the door.

Having reference to the drawings, the principal working element of the lock device of this invention is the elongated plate **10** having an integral holding hook **11** at one end thereof projecting laterally therefrom and having a plurality of apertures **12** therein that are disposed at successively incrementally greater distances from the holding hook **11.** The split ring **13** shown in FIG. **2** is adapted to pass through any of the apertures **12.** The ring **13** is split so as to provide the opening **14** therein that is of sufficient extent to permit the plate **10** to be inserted in the opening and to enable the ring to be selectively moved into position to pass through any of the apertures **12.**

FIG. **3** illustrates how the lock device of this invention may be readily installed. The door frame **15** has a recess **16** therein, the mouth of which is surrounded by the steel plate **17** that is held in place by screws **26** and is recessed in the conventional manner in the surface of the door frame that is in opposed abutting but slightly spaced relation with respect to the margin **18** of the door **19.** Adjacent the margin **18** of the door **19** a conventional door latching device is generally indicated by the reference character **20.** This device comprises the resiliently extensible latching member **21** which can be resiliently retracted by turning the short shaft **22** to which a doorknob **23** is attached as illustrated in FIG. **6.** The latching member **21** presents the inclined face **27** whereby the latching member may be automatically retracted during movement of the door into closed position without turning the knob. When the lock device of this invention is not being used the resiliently extensible latch **21** enters the recess **16** as soon as the margin of the door has been brought home to the substantially completely closed position that is governed by the jamb **28** that is comprised in the door frame.

In the drawings the lock device is shown for purposes of illustration as utilizing the recess **16** which would normally be penetrated by the latch **21.** All that is required is to hold the plate **10** manually in position normal to the plane of the door with the holding hook **11** in the recess **16,** as illustrated in FIG. **3.** When the door thereafter is moved so as to become completely closed the plate **10** is held in position and while the presence of the plate prevents the latch **21** from penetrating the recess **16,** there is no need for such penetration since the device of this invention in and of itself serves to lock the door very securely when the ring **13** is placed in position to serve as a stop member, as shown in FIGS. **4** and **5.** If desired, the plate **10** may be bent slightly just beyond the region occupied by the apertures **12,** as shown in dotted lines in FIG. **3,** so as to make it somewhat easier to manually hold it in place while closing the door.

It is an advantage of this invention that virtually all doors have some kind of latch mechanism which cooperates with a recess in the surface of a door frame that abuts the margin of the door. Any such recess is available for the installation of the lock device of this inven-

tion. However, it is apparent that any other recess in the surface of the frame that abuts the margin of the door may be used with equal effectiveness. In. FIGS. **5** and **6** the lock device of this invention is shown as having been installed using the recess that normally coacts with the knob-operated resilient latching member. However, it also is the case that in many installations the steel plate **17** which surrounds the recess **16** has another opening **24** therein which surrounds a second recess **25.** This second recess in many instances is adapted to receive a bolt which is operated by a lock mechanism adjacent the margin of the door that utilizes a key. The key for operating such a lock very often is of a relatively crude type such that the bolt may be operated to retract it from locking position by a skeleton key of one kind or another. When a second recess is available such as the recess **25,** the lock device of this invention may with equal facility be used so as to coact therewith, thereby providing a much more effective lock for preventing the opening of the door by an intruder than that which is provided by the key-operated lock.

When in using the safety lock of this invention it is desired to maintain the existing latching and locking mechanisms in an existing installation and likewise retaining their utility, it is a relatively simple matter to provide a recess in the door frame which is especially adapted for use with the locking device of this invention and thereby provide an additional and very secure lock at very little expense.

In the device as hereinabove described the stop member which passes through an aperture in the elongated plate is shown in the form of a split ring and this is desirable since a stop member in the form of a ring can be provided at very little expense while at the same time providing an extremely effective pick-proof lock. However, the ring is only useful in a hotel room or the like when the safety lock is not accessible to anyone other than the occupant or occupants of the room. If it is desired to provide a lock for a closet or the like so as to make it difficult to open the door to anyone having access thereto, the stop member which is passed through an aperture **12** in plate **10** may be the locking arm **29** of a padlock **30.** When the lock device of this invention is used in this manner the effectiveness of the lock depends on the effectiveness of the padlock **30.** However, it is one of the advantages of the safety lock of this invention that it also lends itself to utilization under such circumstances.

While this invention has been illustrated in connection with the provision of a safety lock for a door, it is apparent that it also may be used in connection with other closures for an opening in a frame such as the front panel of a desk drawer.

I claim:

1. In a readily installable and removable safety lock device for locking in closed position a closure for an opening in a frame which closure when in place so as to close said opening is received within said opening with a margin of said closure in proximate abutting spaced relation with respect to a surface of said frame, said device comprising an elongated plate having at least a portion thereof at and adjacent one end of said plate that is sufficiently thin to permit said portion of said plate to be disposed between said surface of said frame and said margin of said closure when said closure is in position to close said opening, the length of said plate being such that when said portion of said plate is disposed as aforesaid and with the longitudinal extent of said plate disposed substantially normally with respect to the plane of said closure the other end of said plate is clear of said frame and said margin of said closure leaving a substantial portion of said plate exposed, a holding hook adjacent said one end of said plate and integral therewith which is adapted to project into a recess in said surface of said frame and which when so positioned is adapted to hold said plate against withdrawal of said plate when said closure is in position to close said opening, said plate having at least one aperture in the portion of said plate that is exposed as aforesaid when said closure is in closed position and a stop member which passes through said aperture and protrudes laterally substantially from said plate so as to obstruct said margin of said closure and prevent removal of said closure from closed position with respect to said frame, the improvement according to which said stop member is in the form of a ring having an opening therein defined by ring ends which are separated from each other so as to clear said plate in close proximity thereto for permitting said ring to be readily moved into position for its passage through said aperture, said ring ends being substantially parallel to the respective surfaces of said plate when said plate is inserted therebetween and being offset so as to be in substantial nonalignment with each other.

2. A safety lock device according to claim **1** wherein said closure is a door for the opening in a door frame and wherein said safety lock device is adapted for locking said door in closed position with respect to said door frame.

3. A safety lock device according to claim **1** wherein said aperture is one of a succession of similar apertures disposed at incrementally greater distances from said holding hook along the longitudinal extent of said portion of said plate that is exposed when said closure is in closed position, said stop member being adapted to be selectively readily positioned in and removed from position passing through any of said plurality of apertures.

4. In combination with a door and a door frame wherein said door along one margin thereof is attached to said door frame by hinges which permit the door to be swung betwen open position and closed position with respect to said frame, wherein the opposite margin of said door is in proximate abutting space relation with respect to a surface presented by said door frame when said door is closed, wherein said surface has a recess of substantial depth therein in opposed relation to said opposite margin of said door when said door is closed, and wherein an elongated jamb is comprised in said frame when said door is moved to closed position which limits movement of said opposite margin of said door beyond a position at which said margin is opposite said recess; of a safety lock device comprising an elongated plate which at and adjacent one end thereof is disposed between said margin of said door when in closed position and said surface of said door frame, a holding hook adjacent said one end of said plate and integral therewith which projects into said recess in said surface, said plate having a portion thereof at and adjacent the other end thereof that when the door is in closed position protrudes from said frame and from said margin of said door on the side thereof opposite said jamb, said portion of said plate having an aperture therein that is in

proximate spaced relation to said frame and to said margin of said door when said door is in closed position, and a stop member passing through said aperture which coacts with said holding hook within said recess to prevent the opening of said door, the improvement according to which said stop member is in the form of a ring having an opening therein defined by ring ends which are separated from each other so as to clear said plate in close proximity thereto for permitting said ring to be readily moved into position for its passage through said aperture, said ring ends being substantially parallel to the respective surfaces of said plate when said plate is inserted therebetween and being offset so as to be in substantial non-alignment with each other.

5. In a readily installable and removable safety lock device for locking a closure in closed position with respect to an opening in a frame which device comprises an elongated thin plate, a holding hook adjacent one end thereof that protrudes laterally from one of the faces of said plate and is integral therewith, a plurality of apertures through said plate disposed at successive incrementally greater distances from said holding hook, and a stop member passing through one of said apertures so as to protrude substantially from the faces of said plate, the improvement according to which said stop member is in the form of a ring having an opening therein defined by ring ends which are separated from each other so as to clear said plate in close proximity thereto for permitting said ring to be readily moved into position for its passage through said aperture, said ring ends being substantially parallel to the respective surfaces of said plate when said plate is inserted therebetween and being offset so as to be in substantial non-alignment with each other.

6. The safety lock device according to claim **1** wherein said ring ends are offset relative to each other so as to be in non-alignment by a distance corresponding approximately to the transverse thickness of the ring.

7. The safety lock device according to claim **4** wherein said ring ends are offset relative to each other so as to be in non-alignment by a distance corresponding approximately to the transverse thickness of the ring.

8. The safety lock device according to claim **5** wherein said ring ends are offset relative to each other so as to be non-alignment by a distance corresponding approximately to the transverse thickness of the ring.

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