

Oct. 8, 1940.

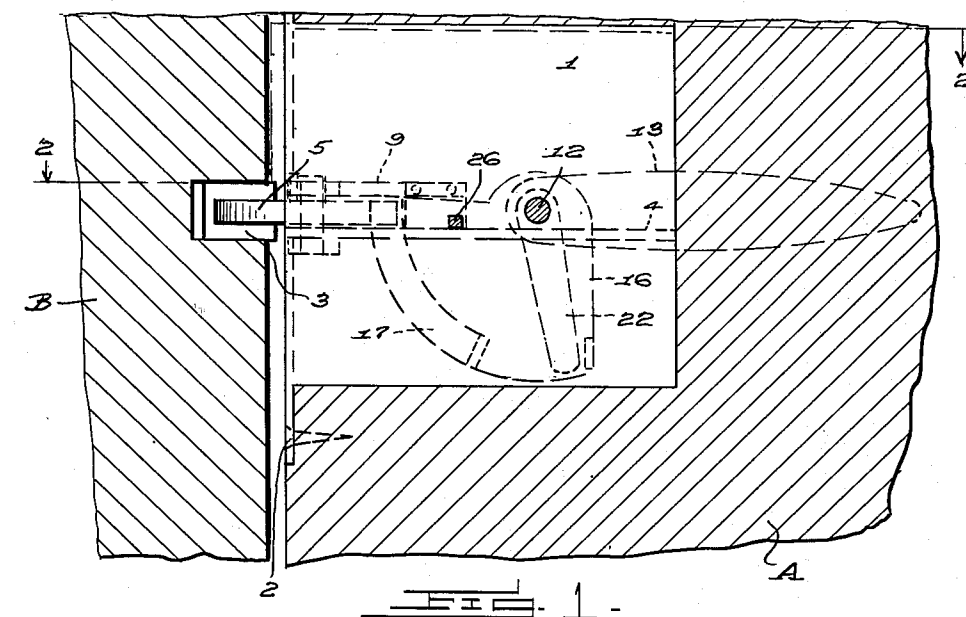
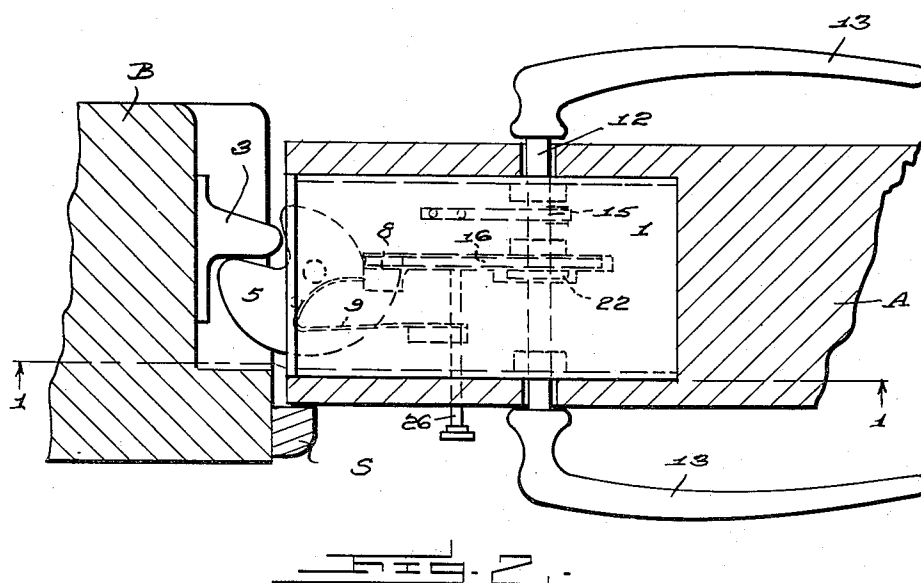
F. T. BROWNNE

2,217,098

LOCK

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2 Sheets-Sheet 1



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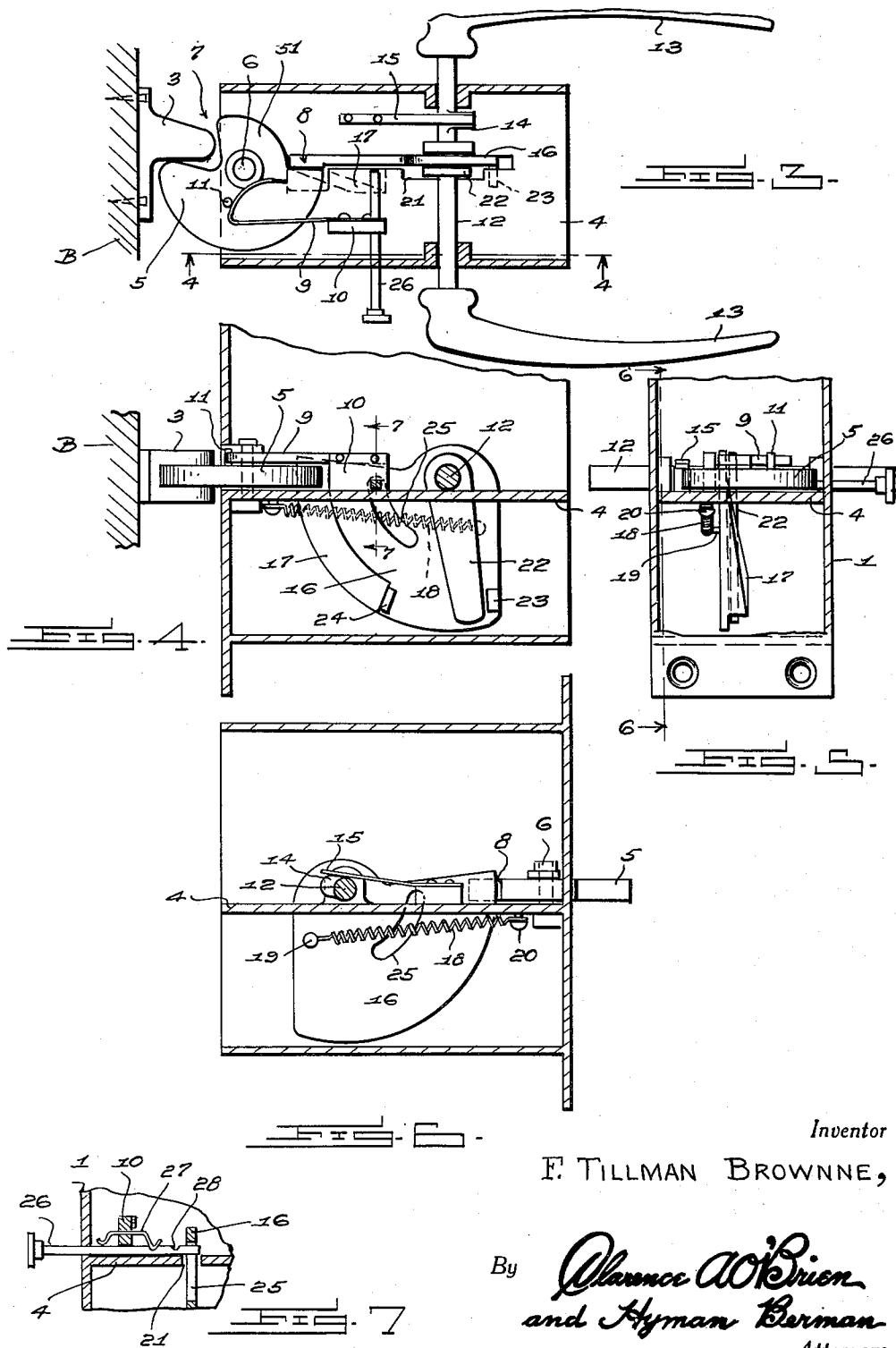
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UNITED STATES PATENT OFFICE

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LOCK

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3 Claims. (Cl. 292—198)

This invention relates to a lock, the general object of the invention being to provide a lock which will tightly close a door or other member when the handle is turned, thus rendering it unnecessary to slam the door.

Another object of the invention is to so construct and arrange the parts that after the parts have been moved to latching position the door can only be opened by raising the handle so that accidental pushing or falling against the handle only serves to close the door more tightly and thus eliminating the danger of accidental opening of the door, this latter feature being desirable especially when the lock is used in motor vehicles or other moving vehicles.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a fragmentary vertical sectional view through a portion of a door and its frame, the section being taken on the line 1—1 of Figure 2.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a view similar to Figure 2 but showing the case in section and the parts in the case in elevation or plan.

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is a view looking into the lock from the front edge thereof.

Figure 6 is a section on the line 6—6 of Figure 5.

Figure 7 is a section on the line 7—7 of Figure 4.

In these drawings the numeral 1 indicates the lock case which is adapted to be placed in a recess in a door A with the recess opening out through the front side edge of the door and said case may be held in the recess in any suitable manner such as by the fastening means 2 passing through extending parts of the front of the case into the door as shown in Figure 1. A recess is also formed in the door frame B for receiving the keeper member 3 which includes a base plate suitably connected with the frame and an outwardly extending lug which is slightly tapered

to its rounded free end. A partition 4 extends horizontally in the case and the latch member 5 is placed above the partition and the pivot 6 of this latch member passes through the partition. This latch member 5 is provided with a substantially semi-circular portion, the flat part of which roughly lies in the plane which intersects the pivot 6 and on the opposite side of the pivot is a cam part 5' which includes an arcuate edge and a substantially straight edge which forms with a part of the straight edge of the semi-circular portion a notch 7 for receiving the keeper lug 3. The other portion of the straight edge forming a wedge engaging part 8 which is opposite the notch 7. A substantially hook-shaped spring 9 has its shank attached to a bracket 10 on the partition 4 and the bent part of this spring engages an eccentric pin 11 extending upwardly from the member 5 and this spring and pin act to hold member 5 in open position or with the straight edge of the part 5' in position to strike the keeper member 3 when the door closes. As this takes place the keeper member engaging the straight edge of the part 5' causes rotary movement of the latch member 5 and the pin 11 slides along the curved part of the spring 9 forcing said spring part inwardly or toward the shank until finally the spring acts on the pin 11 to cause acceleration of the rotary movement of the member 5 under the action of the keeper member 3 until the adjacent end of the semi-circular part of the member 5 engages the keeper member as shown in Figures 2 and 3 with pressure to hold the door closed.

A transverse shaft 12 passes through the door and through the casing and is supported for rocking movement and has a handle 13 attached to each end thereof, these handles being spaced from the door one on one side and one on the other and said shaft has a cam 14 thereon which is engaged by a spring 15 which tends to hold the shaft 12 in the position shown in Figures 2 and 3. A sector-shaped member 16 of plate-like form is pivoted at its corner on the shaft 12 and a portion of the arcuate edge of this member is formed with a wedge 17 which gradually increases in thickness from the top edge of the arcuate part to the lower end of the wedge shaped part as shown in Figures 4 and 5. A spring 18 has one end connected to a pin 19 on the member 16 and its other end to a part 20 on the partition, this spring tending to move the member 16 upwardly. The partition is formed with a slot 21 through which the member 16 passes and the spring 18 tends to move the mem-

ber 16 upwardly through the slot and to cause the small end of the wedge 17 to engage the straight edge 8 of the member 5 and as the member 16 moves upwardly the wedge will act to force the member 5 into latching position and the more the member 16 rises the greater will be the wedging action so that the member 5 pressing against the keeper member 3 will tightly hold the door in shut position and against the jamb strip 8 of the frame as shown in Figure 2. An arm 22 is connected with the shaft 12 and extends downwardly therefrom and this arm has limited movement between the stop lug 23 on the member 16 and the lug 24.

An arcuate-shaped slot 25 is formed in the member 16 for receiving a locking pin 26 which is slidably supported in the case and passes through an opening on the inner face of the door so that by pressing this pin 26 inwardly into the slot 25 it will engage the upper end of the slot 25 and the upper surface of the partition 4 when the latch 5 is in locking position and thus prevent movement of the parts so that the door is held in locking position and cannot be opened until the pin 26 is pulled outwardly. A spring detent 27 for engaging notches 28 in the pin 26 serves to hold the pin in operative or inoperative position as shown in Figure 7.

When the door is in open position the member 5 is in a position with the part 5' projecting from the edge of the door and the front end of the semi-circular portion located in the casing or approximately so. In this position of the latch member the upper edge of the sector-shaped member 16 is engaging the under face of the latch member as, of course, that portion of the latch member extends across the front end of the slot 21 in the partition 4. Then when the door is closed the keeper member 3 will engage the straight edge of the part 5' which causes rotary movement of the latch member which moves the position of the pin 11 relative to the curved end of the spring 9 for as before stated this spring 9 and pin 11 act to hold the latch member in open position but when the latch is rotating due to engagement of the part 5' with the keeper member 3 and after the latch member reaches a position about half way between open and closed position, the pressure of the spring 9 on the pin 11 will assist the rotary movement of the latch member to closed position. After the parts approach a closed position or that shown in Figure 3, the spring 18 will cause the member 16 to rotate on the shaft 12 so that the small end of the wedge will move between the wall of the opening 21 and the straight edge 8 of the latch member 5 which tends to further close the door and latch the same even though the door has not been tightly closed and all this takes place without movement of the handles. Then by turning one of the handles downwardly the shaft 12 is partly rotated which causes the arm 22 to engage the stop lug 24 to raise the member 16 which causes the wedge 17 to exert a wedging action on the straight edge 8 of the latch member 5 so that the pressure of the latch member against the keeper member 3 will tightly close the door against its jamb parts. As will be seen in order to open the door the handle member 13 must be lifted so that there is no danger of the door being accidentally opened by pressure upon the handle or one falling against the same so this device is well adapted for moving vehicles. When it is desired to keep the door from being unlocked from the exterior the pin 26 is pushed inwardly so that it will hold the

parts in the position shown in Figure 4 with the door latched. Any suitable locking means may be provided for locking the parts in latching position from the exterior of the building or structure.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts provided that such changes fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A latch device of the class described comprising a casing, a latch member pivoted in the casing and including a substantially circular part having a notch in a portion thereof and a straight edge opposite the notch, spring means for normally holding the latch member in position where one of the walls of the notch will engage a keeper member to impart rotary movement to the latch member to cause a corner at the other wall of the notch to engage a keeper member to latch the parts in closed position, opening movement of the door moving the latch member to releasing position, a manually operated shaft passing through the casing, a plate rotatably arranged on the shaft, wedge means carried by the plate for engaging the straight edge for tightly closing the door by engagement of the latch member with the keeper member, spring means connected with the plate for causing the wedge means to engage the straight edge when the latch member moves to closing position, a pair of spaced projections on the plate and an arm fastened to the shaft and extending between said projections for moving the plate in opposite directions as the shaft is turned in one direction or the other.

2. A door latch of the class described comprising a casing, a substantially semi-circular member pivoted in the casing and having a notch therein and a straight edge opposite the notch, spring means for holding the latch member in either open or closed position, a shaft journaled in the casing, handles at the ends of the shaft, a sector-shaped member pivoted on the shaft and having a wedge-shaped part on its arcuate edge for engaging the straight edge, the casing having an abutment therein between which and the straight edge the wedge operates, spring means tending to move the sector-shaped member upwardly and cause its wedge to engage the straight edge, the upper edge of the sector-shaped member engaging the lower face of the latch member when the same is in open position, stop lugs on the sector-shaped member, an arm fastened to the shaft depending therefrom and extending between the stop lugs for imparting movement to the sector-shaped member when the shaft is turned in either direction.

3. A door latch of the class described comprising a casing, a substantially semi-circular member pivoted in the casing and having a notch therein and a straight edge opposite the notch, spring means for holding the latch member in either open or closed position, a shaft journaled in the casing, handles at the ends of the shaft, a sector-shaped member pivoted on the shaft and having a wedge-shaped part on its arcuate edge for engaging the straight edge, the casing having an abutment therein between which and the straight edge the wedge operates, spring means tending to move the sector-shaped member upwardly and cause its wedge to engage the straight

edge, the upper edge of the sector-shaped member engaging the lower face of the latch member when the same is in open position, stop lugs on the sector-shaped member, an arm fastened to the shaft depending therefrom and extending between the stop lugs for imparting movement to the sector-shaped member when the shaft is turned in either direction, means for locking the

sector-shaped member with the latch member in closed position from the inside of the door, said means including an arcuate slot in the sector-shaped member, a pin slidably arranged in the casing and passing through the inner face of the door engaging the slot when the pin is pushed inwardly.

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