P. STEUERWALD.

DOOR FASTENING.

APPLICATION FILED JAN. 28, 1918.

1,399,167.

Patented Dec. 6, 1921.

3 SHEETS—SHEET 1.

Fig. 1

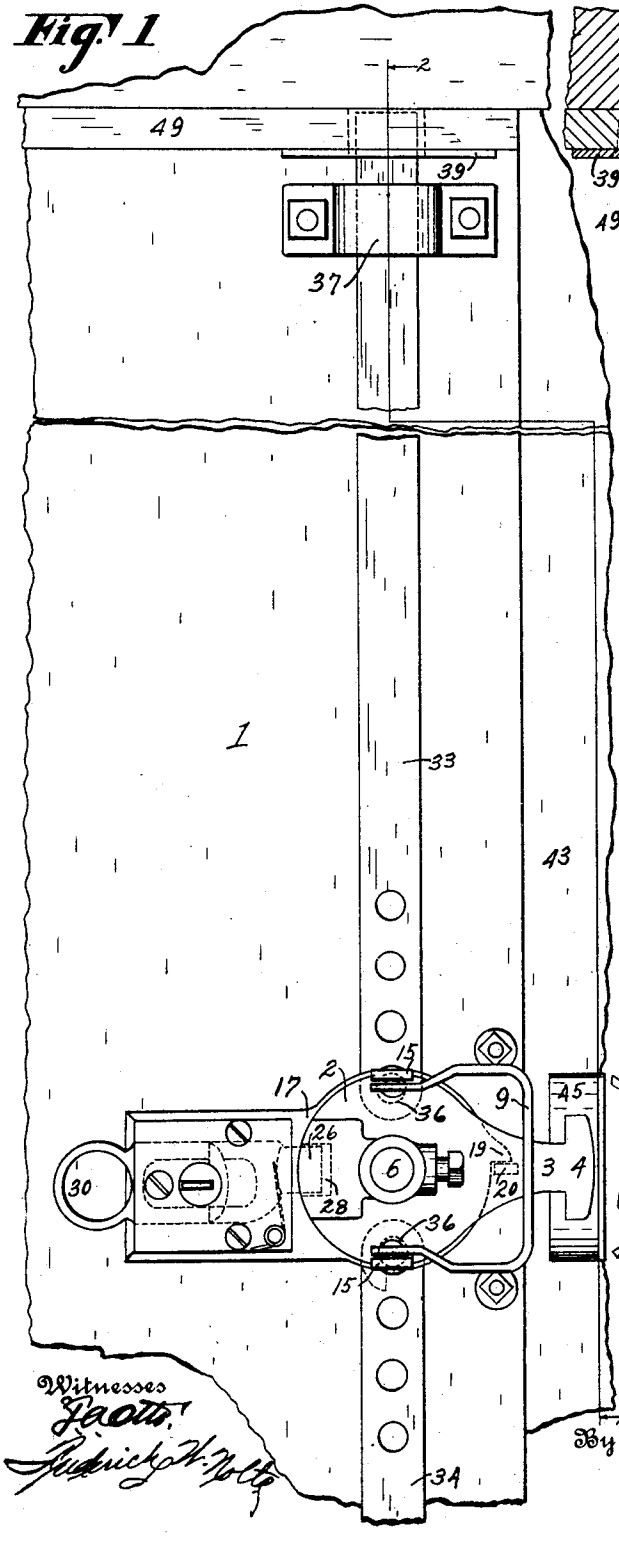
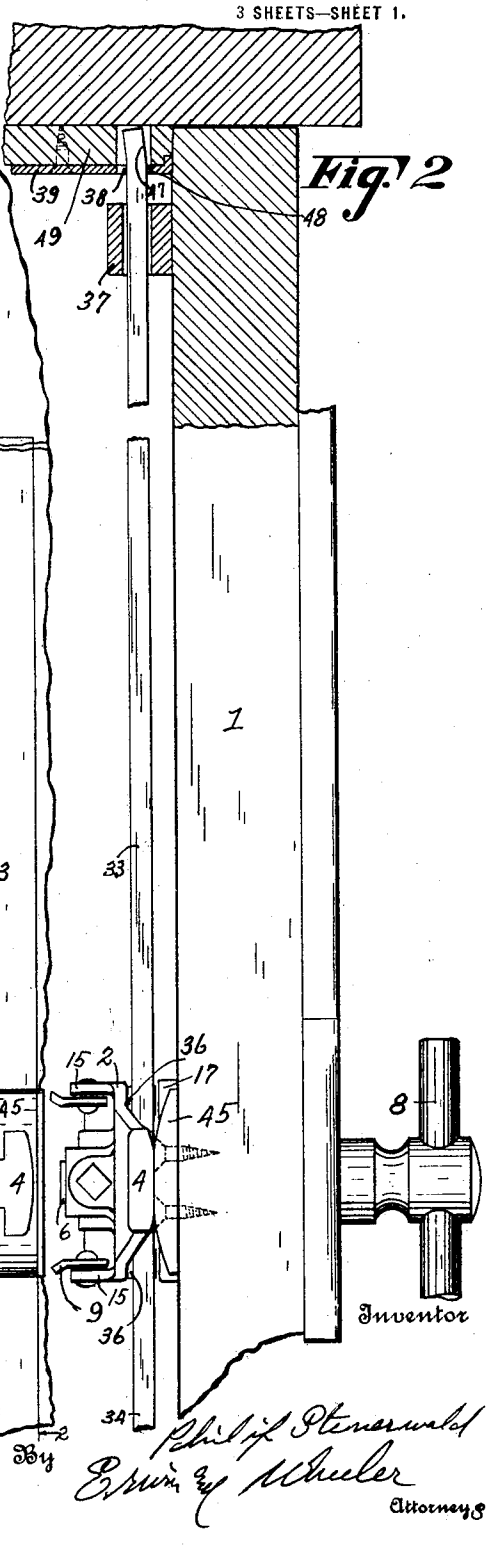


Fig. 2



Witnesses

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3 SHEETS—SHEET 2.

Fig. 3

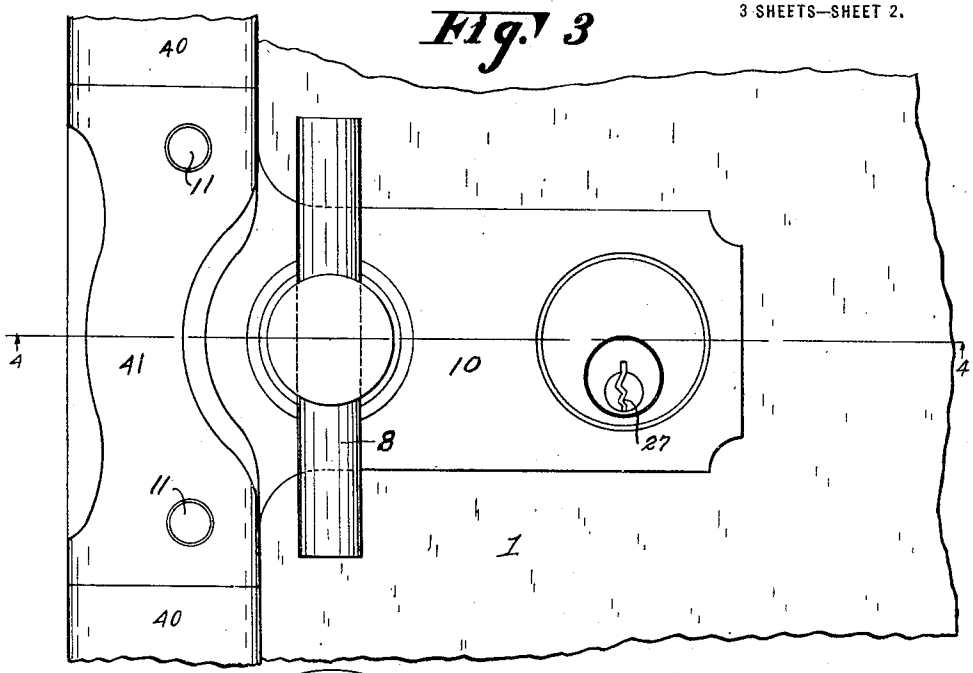
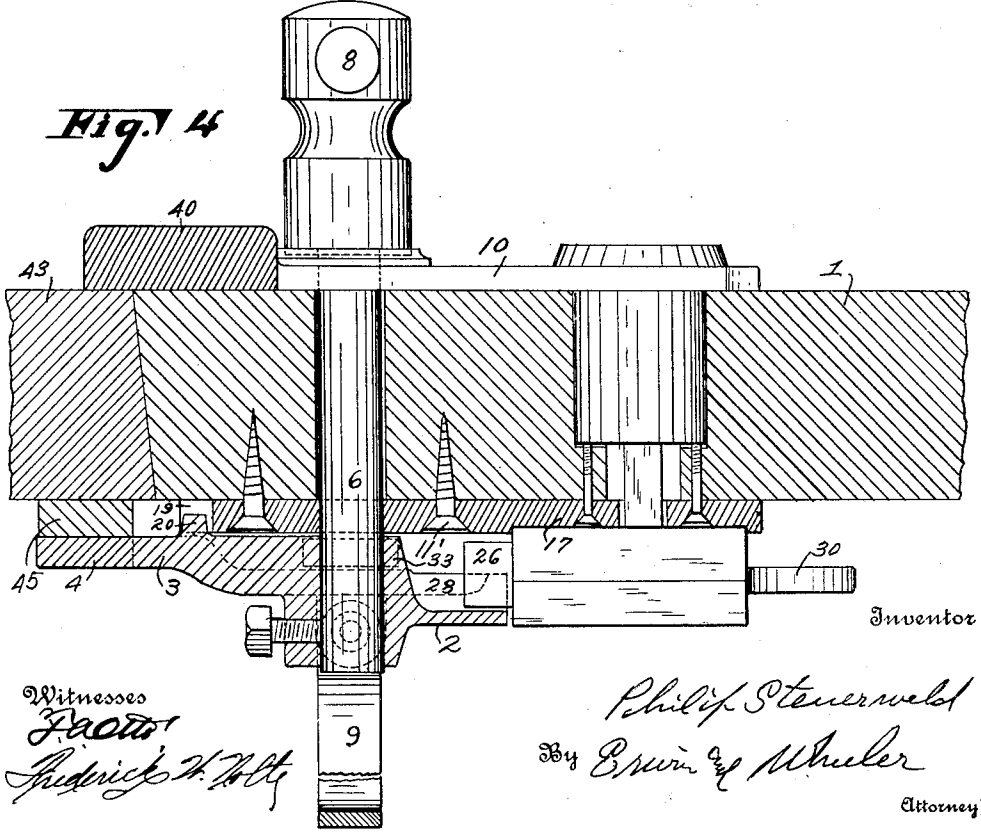


Fig. 4



Witnesses

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3 SHEETS—SHEET 3.

Fig. 5

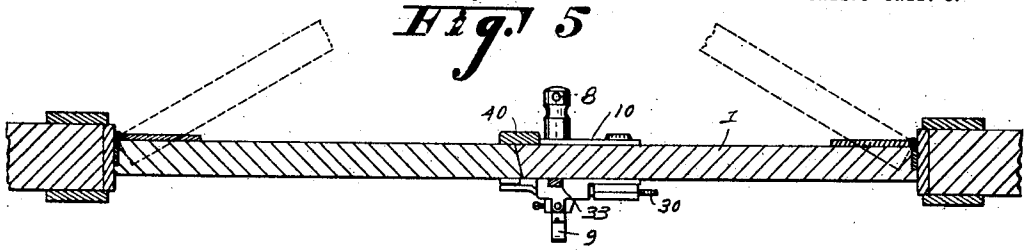


Fig. 6

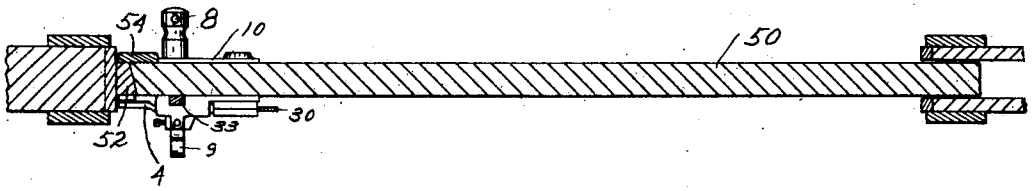
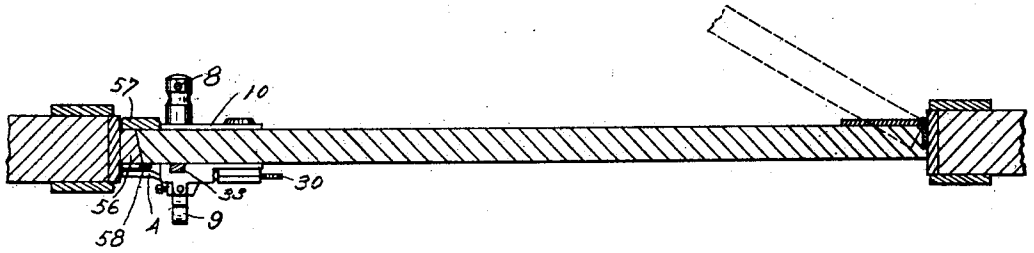


Fig. 7



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UNITED STATES PATENT OFFICE.

PHILIP STEUERWALD, OF MILWAUKEE, WISCONSIN.

DOOR-FASTENING.

1,399,167. Specification of Letters Patent. **Patented Dec. 6, 1921.**

Application filed January 28, 1918. Serial No. 214,191.

To all whom it may concern:

Be it known that I, PHILIP STEUERWALD, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Door-Fastenings, of which the following is a specification.

My invention relates to improvements in door fasteners.

One object of my invention is to provide means for locking the meeting margins of a set of swinging double doors in such a manner that one door, provided with locking mechanism, overlaps the other door on the outer side, in such a manner as to hold it in closed position, the two doors being clamped together at their meeting margins in binding pressure contact, by means of a clamping arm which will be locked in clamping position simultaneously with the movement of locking bolts, adapted to secure the lock carrying door to the sill and lintel, respectively.

My invention, however, is adapted for use also in connection with sliding doors, either single or double, and it may also be used in connection with a single swinging door, for not only locking such a door to the lintel and sill, but for clamping it to the jamb at an intermediate point, and then securing the clamping devices and the sill and lintel locking members, by means of a key operated locking bolt, which instead of engaging a keeper in the opposing members or jambs, in my improved construction, is merely used to engage and lock a rotary plate with which the other locking mechanism is operatively connected.

A further object of my invention is to provide means whereby the sill and lintel locking bolts, and also a clamping arm, may be actuated directly from the door handle when the key controlled locking bolt is retracted, the handle being prevented from turning when the key controlled bolt is in locking position.

In the drawings—

Figure 1 is a fragmentary view, in elevation, showing the meeting marginal portions of two swinging doors to which my invention has been applied, the latter being shown in locking position.

Fig. 2 is a fragmentary view, in elevation, of the margin of the lock carrying door, showing the locking mechanism in position and a portion of the inner handle being broken away, the lintel, together with the upper portion of the door, being shown in vertical section exposing the slot in the upper keeper plate.

Fig. 3 is a fragmentary view of the exterior face of the lock carrying door, showing the lock as it appears from the exterior.

Fig. 4 is a sectional view, drawn generally on line 4—4 of Fig. 3, but showing the latch operating outer handle and the locking mechanism in full.

Fig. 5 is a horizontal sectional view, on a reduced scale, showing the relation of the hinges to the locking mechanism, when applied as illustrated in Figs. 1 to 4 inclusive.

Fig. 6 is a similar sectional view, showing my invention as it is applied to a single sliding door.

Fig. 7 is a similar sectional view, showing my invention as applied to a single swinging door.

Like parts are identified by the same reference characters throughout the several views.

The door 1 is provided on its inner face near its swinging vertical margin with a rotatable disk-shaped member 2 having a clamping arm 3, preferably provided with a cross piece or head 4. The member 2 is connected with the door by a central pivot bolt 6 which extends through the door and is adapted to be rotated by means of exterior and interior handles 8 and 9 respectively.

The exterior handle 8 may comprise a cross pin or bar extending through an aperture in the enlarged outer end of the pivot bolt 6. This enlarged outer end of the pivot bolt seats against a metallic plate 10, which is secured by screws or bolts 11 to the outer face of the door. The interior handle 9 comprises a stirrup shaped member having its legs pivotally connected to ears 15 on the rotary member 2, whereby the handle 9 may, when not in use be swung to the position in which it is shown in Fig. 1, and when in use, may be swung to a position at right angles thereto. The metallic plate 17 is fixed to the inner face of the door and may be secured thereto by the screws 11′. This inner plate is provided with a stop 19, against which, a projection 20, carried by the arm 3, is adapted to seat when the arm is in clamping position.

Spring actuated locking mechanism, of ordinary type, is secured to the rear end of the plate 17 and provided with a locking bolt

26, which may be retracted from the exterior of the building by a key inserted through the key hole 27, (Fig. 3). The locking mechanism being of ordinary type, specific illustration and description is deemed unnecessary, except to point out that the locking bolt 26 is employed to lock the member 2 with the arm 3 in the position in which it is shown in Fig. 1, the member 2 being provided with a socket 28 to receive the bolt 26 when the arm 3 is in the Fig. 1 position. By inserting the key through the key hole 27 and retracting the locking bolt 26, the exterior handle 8 may then be actuated to rotate member 2 and swing the arm 3 downwardly, whereupon the key may be withdrawn from the key hole 27, the extremity of the locking bolt 26 then being allowed to bear upon the circular margin of the member 2, which holds the locking bolt in the retracted position until arm 3 is again swung to holding position with stop 20 engaging the shoulder stop 19. The locking bolt 26 preferably has its rear end provided with a projection or handle 30, whereby it may be manually operated from the inner side of the door independently of the key.

It will be observed that the door 1 is a swinging door, which, when closed, may be locked to the lintel and sill respectively by vertically movable locking bolts 33 and 34, these bolts being pivotally connected with the rotary plate or member 2 by pivot pins 36. The outer ends of these locking bolts are guided by suitable clips 37 and are adapted to enter slots 38 in keeper plates 39 secured to the lintel and sill respectively. When the plate 2 is swung to releasing position, these locking bolts 33 and 34 will be retracted, thereby allowing the door 1 to be swung upon its hinges.

The door 1 is provided with member 40, which overlaps the margin of the opposing door, and which may be formed either by rabbeting the edge of the door, or providing the door with an overhanging astragal on the exterior side. The central portion 41 of this member is preferably formed of metal, and comprises a part of the exterior door plate 10. The swinging vertical margin of the opposing door 43 is received against this member when the doors are closed, and is engaged between the members 40—41 on one side, and the clamping arm 3 when the latter is in clamping position, the interior surface of the door 43 being preferably provided with a wear-plate 45 upon which the clamping head 4 is adapted to bear as best shown in Fig. 4. No metallic attachments are required for the swinging margin of the door 43, except the wear-plate 45, but it will be observed that, when the door 1 is closed and locking bolts 33 actuated to engage the keepers in the lintel and sill respectively, this door will be securely held in closed position, and if the swinging margin of the opposing door 43 is then engaged between the member 40,—41 and the clamping arm 3, it will also be securely held in the closed position. If the locking bolt 26 is in locking position, neither door can be opened until such locking bolt has been retracted and the plate 2 rotated to swing the arm 3 to releasing position. When closing the doors, the two doors may be simultaneously swung to closed position, or the door 43 may first be closed and door 1 then closed and locked, locking bolt 26 automatically moving to locking position as soon as the stop 20 engages the shoulder stop 19.

My invention is peculiarly adapted for use in locking the doors of barns, shops, garages, etc., since the locking mechanism may be wholly exposed upon the inner face of one of the doors where it can be easily inspected and repaired. The mechanism may be applied to a door without material weakening thereof, inasmuch as the mechanism of the lock is secured to the interior metal plate 17, and the locking bolt, instead of engaging a keeper mortised into the margin of the opposing door in the usual manner, is simply used to engage and hold the plate 2 in position.

It will be observed in Fig. 2 that the upper end of the locking bar 33 is formed with an oblique face 47, adapted to move with a wedging action upon the margin 48 of the slot in the keeper 39, whereby the door may be securely bound or clamped to the lintel 49. A similar construction is utilized at the lower end of the bar 34, whereby the door may be drawn to fully closed position both at the top and at the bottom, when its handle is swung to door locking position. It will be observed that all ordinary door latches are dispensed with, the door being secured entirely by rotating the handle to proper position when the door is closed.

Referring to Fig. 6, it will be observed that where my invention is applied to a single sliding door 50, the latter may be moved to closing position in contact with a special jamb plate 52 of the same width as the door, the door being provided with an astragal 54 which engages one side of said jamb plate, and the clamping head 4 being adapted to engage the other side of the jamb plate, which at this point is preferably provided with a wear-plate, similar to the wear-plate 41 above described.

Where my invention is applied to a single swinging door the latter may be closed in opposition to a similar jamb plate 56, the door being provided with an astragal 57 engaging one side thereof, and the clamping head 4 swinging into clamping engagement with the wear-plate 41 on the other side thereof. The ordinary jamb stop may be dispensed with, or, if desired, a jamb stop

58 may be employed for the upper and lower portions of the door, leaving the central portion unobstructed to a sufficient extent to allow the clamping arm 3 and its clamping head 4 to move into and out of clamping position.

I claim:

1. The combination with a pair of swinging doors one provided with a shoulder in its vertically disposed swinging margin, a clamping arm pivotally connected with the door and spaced from said shoulder in a position to receive the margin of the opposing door between it and the shoulder, key controlled locking mechanism provided with a bolt adapted to lock the clamping arm in a position to retain the other door, and locking bars operatively connected with said arm adapted to simultaneously lock the first mentioned door in closed position when the clamping arm is swung into position for engagement with the opposing door.

2. The combination with a pair of swinging doors, of a rotary plate secured to the inner face of one of the doors and provided with a curved margin socketed to receive a locking bolt when said plate is in one position of rotative adjustment, a key controlled lock having a locking bolt adapted to enter said socket, a jamb carried by said door, a clamping arm connected with a rotary plate in a position for clamping operations upon the opposing margin of the other door when the socket is in registry with said locking bolt, and means controlled by the rotary plate for holding the clamp carrying door from swinging, when the clamping arm is in clamping position.

3. The combination with the exterior surface of a swinging door, of a metal plate secured thereto and having a portion thereof projecting beyond the margin of the door to form a jamb against which an opposing swinging door may seat, a rotative handle mounted on said plate, an interior rotary plate connected with the handle and provided with a clamping arm adapted to span the meeting margins of the doors when the doors are closed and to bind the opposing door against said jamb, means connected with the plate for locking the door upon which it is mounted when the clamping arm is in clamping position, and a key controlled lock for holding the plate with said arm in clamping position.

4. The combination with the exterior surface of a swinging door, of a metal plate secured thereto and having a portion thereof projecting in the same plane beyond the margin of the door to form a jamb against which an opposing swinging door may seat, a rotative handle mounted on said plate, an interior rotary plate connected with the handle and provided with a clamping arm adapted to span the meeting margins of the doors when in clamping position with the doors closed, means connected with the clamping plate for locking the door upon which it is mounted when said arm is in clamping position, and a key controlled lock for holding the rotary plate with the clamping arm in clamping position, said plate being provided with a folding operating handle.

5. The combination with the exterior surface of a swinging door, of a metal plate secured thereto and having a portion thereof projecting beyond the margin of the door to form a jamb against which an opposing swinging door may seat, a rotative handle mounted on said plate, an interior plate connected with the handle and provided with an arm adapted to span the meeting margins of the doors when in one position with the doors closed, an opposing door provided with a wedge member upon which the clamping arm may move to clamping position, means connected with the plate for locking the door upon which it is mounted to the lintel and sill when the arm is in said position, and a key controlled lock for holding the plate with the arm in such position, said key controlled lock being provided with independent means for releasing it from the inner side of the door.

6. The combination with the exterior surface of a swinging door, of a metal plate secured thereto and having a portion thereof projecting beyond the margin of the door to form a jam against which an opposing swinging door may seat, a rotative handle mounted on said plate, an interior plate connected with the handle and provided with an arm adapted to span the meeting margins of the doors when in one position with the doors closed, means connected with the plate for locking the door upon which it is mounted when the arm is in said position, and a key controlled lock for holding the plate with the arm in such position, said key controlled lock being provided with a spring actuated locking bolt, and said plate being provided with a curved margin against which the end of the locking bolt may bear to hold the locking bolt retracted when the arm is in unlocking position, said plate having a socket adapted to receive the locking bolt when the arm is in locking position.

7. A door locking mechanism including the combination with the door, of a rotatable member pivotally connected with the inner face of the door and provided with a clamping arm, a relatively fixed door plate, stops on the door plate and rotatable member respectively, adapted for mutual engagement when the clamping arm is in clamping position, said arm projecting beyond the margin of the door for engagement with a bearing member, locking bars pivoted to the rotatable member, and projecting upwardly

and downwardly therefrom respectively, and slotted keepers on the lintel and sill of the door frame adapted to receive the working ends of said bars, said working end portions of the bars being oblique to the axes of the body portions and provided with obliquely inclined flat surfaces extending to their extremities and adapted to engage with a wedging action upon the margins of the keeper slots to draw the door to a fully closed position simultaneously with the movement of said arm upon its bearing member.

8. A door locking mechanism including the combination with the door, of a rotatable member pivotally connected with the inner face of the door and provided with a clamping arm, a relatively fixed door plate, stops on the door plate and rotatable member respectively, adapted for mutual engagement when the clamping arm is in clamping position, said arm projecting beyond the margin of the door for engagement with a bearing member, locking bars pivoted to the rotatable member, and projecting upwardly and downwardly therefrom respectively, and slotted keepers on the lintel and sill of the door frame adapted to receive the working ends of said bars, said working end portions of the bars being oblique to the axes of the body portions and provided with obliquely inclined flat surfaces extending to their extremities adapted to engage with a wedging action upon the margins of the keeper slots to draw the door to a fully closed position simultaneously with the movement of said stops into engagement with each other, and a spring actuated lock bolt adapted to automatically engage and lock the rotary member simultaneously with the engagement of said stops with each other.

In testimony whereof I affix my signature in the presence of two witnesses.

PHILIP STEUERWALD.

Witnesses:
A. J. McKERIHAN,
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