

1,024,603.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

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UNITED STATES PATENT OFFICE.

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DOOR-LOCKING MEANS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK SCHMIDGALL, a citizen of the United States, and a resident of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Door-Locking Means; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the drawing, which accompanies this application and forms a part thereof.

This invention relates to new and useful improvements in door-locking means, particularly intended for use on doors for refrigerators and cooling rooms. Doors of this kind are usually provided with beveled edges which are fitted to seat against a correspondingly shaped jamb, the object being to obtain a closure as near air-tight as is possible. To seat such a door properly, requires a certain amount of pressure and it also requires a certain effort to release such a door when closely fitted from its seat for the purpose of opening it.

My invention consists of a construction whereby in addition to the mere locking device, manipulating means are provided which permit the door to be tightly forced into closing position and whereby it may also be quickly released for opening.

In the following specification and particularly pointed out in the claims at the end thereof, will be found a full description of my invention, together with its operation, parts and construction, which latter is also illustrated in the accompanying drawing, in which:—

Figure 1, shows a front-view of a door which may be the door of a cooling room, seated and held in closed position by the means provided by my invention. Fig. 2, is a vertical section of this door. Fig. 3, is an enlarged horizontal section of the closing means and as they appear in Fig. 1, the line of section being indicated at 3—3 thereat. Fig. 4, in a similar view shows the door moved from its seat. Fig. 5, is a top-view of Fig. 3. Fig. 6, shows a front-view of the parts as they appear in Figs. 3 and 5. Fig. 7, illustrates possibility of simultaneous manipulation of several closing devices, a part of the door only being shown. Fig. 8, is a vertical section on line 8—8 of Fig. 5 and illustrates means for positively locking the door.

In the drawing, 10 indicates a door of

the kind here in view secured by hinges 11 and fitted with its beveled edge 12 against a complementary jamb 13.

A is a keeper secured adjacent to the free edge of the door and B is a latch operating in conjunction therewith. This latch is pivotally mounted in a housing C attached to the door opposite the keeper. It is manipulated by an angle-lever D, also mounted in housing C by means of a pivot 14. At one of its ends it carries a pin 15, which occupies a slot 16 in the latch and at its other end is a handle 17 for manipulation. That part of the latch which projects beyond the housing is shaped to form two fingers 18 and 19 which co-act with the keeper, one for closing and one for opening of the door. If handle 17 is moved as shown in Fig. 3, finger 18 bears against the inner side of the keeper and latch B becomes a lever and by means of its pivot and through housing C re-acts against the door and forces the same home to its seat. If the handle is moved as shown in Fig. 4, finger 19 bears against the outer side of the keeper and by analogous re-action of the latch on the door pulls the same from its seat. In either case handle 17 may be used in the further manipulation of the door, that is to open it to the full extent required or to move it the other way. In order to hold the handle rigid on the door during this time there is a locking pin 21 carried on an arm 22 and pivotally supported in an extension *e* of the housing and which pin drops into a socket 23 properly located on the latch when the latter moves into the position shown in Fig. 4. The latch is thereby held immovable so that finger 19 remains in a position in which it may again readily co-act with the keeper when the door is being closed. This pin may drop into position by mere action of gravity, or a spring may be added adapted to act upon arm 22 to accelerate the action if found necessary. This aforesaid coaction requires a release of the latch from this locking-pin, so that the former may respond to manipulation of handle 17. For such purpose the end of arm 22 is caused to pass over the inclined surface of a stationary cam 24 which for convenience sake is provided at the upper end of the keeper (see Fig. 6.) Manipulation from the other side of the door is made possible by means of a supplementary handle 25, connected to lever D which it reaches through an opening 26 in the door.

The action of latch B with reference to the door for the purpose of properly seating the same depends on the position of the keeper and to guard against variations and particularly changes due to shrinkage of wood, the position of the keeper is made adjustable. For such purpose it is slidably fitted into a housing 27 which is flanged for attachment adjacent to the door. A screw 28 is provided in longitudinally fixed position within this housing upon which the keeper is seated. The outer end of this screw is accessible for manipulation by an implement, so that the keeper may be correctly positioned for proper co-action with the latch.

Possibility of simultaneous use of several locks is shown in Fig. 7 in which pivot 14 is extended to assume the form of a rod upon which all angle-levers are mounted, so that when one lock is manipulated by means of its handle all locks act. One lock only needs to have a handle 17, the outer part of the angle-levers being omitted in the other locks. Or all locks may be without handles and a general handle 29 may be provided to operate the pivot-rod.

Inasmuch as beveled surfaces involving the use of a sill are inapplicable at the lower edge of the door for where heavy loads carried on trucks are moved through such doors, a movable weather-strip 31 is frequently provided on the lower edge of the door which is supported to have a limited vertical movement to and from the floor and mechanism is provided to cause this movable weather-strip to move against and in contact with the floor when the door closes, and to move away therefrom when the door opens. My lock may be readily used in such connection and if this is to be done racks 32 are provided for such purpose on said strip supported for vertical movement in bearings 33. Gear-segments 34 are engaged in these racks and mounted on a shaft 35, supported in bearings 36. A bevel-gear 37 is also mounted on this shaft 35 and in mesh with another bevel-gear 38 which is mounted on the downwardly extended pivot 14 of the lock. Inasmuch as this pivot 14 and the angular lever are rigidly attached to each other it follows that manipulation of handle 17 for the purpose of operating the lock, operates also at the same time the movable weather-strip. If the lock is manipulated to close the door, strip 31 moves against the floor and if the lock is operated to open the door it moves upwardly and away from the floor.

The door is positively locked in its closed position by key-controlled means arranged to be capable of engaging latch B in a manner which prevents it from being moved to clear the keeper. This is done by a lock-screw 39 seated in a fixed position with ref-

erence to the latch, which latter is provided with a socket 41, so located as to be below the end of the lock-screw when the latch is in the position shown in Figs. 3 and 5 and adapted to receive said end when the screw is manipulated accordingly. The upper end of this screw has a particular formation requiring a key fitted to it for manipulation. This screw may be seated in the housing or as shown, it being carried in pin 21. Its end is accessible through an opening 42 provided in the extended housing c.

Having described my invention, I claim as new:

1. In door-locking means, the combination of a keeper attached adjacent to a door, a latch provided on one end with two fingers and with a slot at its other end, a housing in which it is pivotally mounted and whereby it is attached to said door, an angle-lever also pivotally mounted in said housing and provided at one end with a pin which occupies the slot in the latch and at its other end shaped to form a handle for manipulation and whereby when said angle lever is moved on its pivotal connection the latch may be actuated to co-act by means of either of the fingers thereon with the keeper to either seat or unseat the door.

2. In door locking means, the combination of a keeper attached adjacent to a door, a latch provided with a socket adapted to co-act therewith to either seat or unseat the door, a housing attached to said door in which this latch is pivotally supported, a handle also mounted in said housing to operate the latch, a locking-pin adapted to drop into the socket on the latch mentioned after the same has been moved to position for unseating the door to hold the same in this position while the door is open, an arm fulcrumed in the housing on which this pin is supported and means provided on the keeper and adapted to co-act with this arm for the purpose of releasing the latch from the locking pin when the door is moved into closing position.

3. In door-locking means, the combination of a latch pivotally mounted on a door, an angle-lever in operative engagement therewith, and having one of its members formed to constitute a manipulating handle whereby the latch may be operated from one side of the door and a supplementary manipulating handle connected to the other member of the angle-lever permitting manipulation of the latch from the other side of the door.

4. In door-locking means, the combination of a rocker-rod supported in a vertically fixed position adjacent to the edge of a door and parallel thereto, a plurality of locking latches pivotally mounted on said door between the edge thereof and the rod mentioned, levers rigidly mounted on said rod and whereby all these latches are operatively

connected thereto and a handle on this rod whereby all latches may be simultaneously manipulated.

5 5. In door-locking means, the combination of a keeper attached adjacent to a door, a latch adapted to co-act therewith to either seat or unseat the door, it being in engagement with the keeper when holding the door seated, a housing attached to the door in
10 which this latch is pivotally supported, a key-controlled lock-screw carried in this

housing and a socket provided in the latch and so located, as to be opposite the end of the lock-screw and adapted to receive the same when the latch is in engagement with 15 the keeper.

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

FREDERICK SCHMIDGALL.

Witnesses:

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