

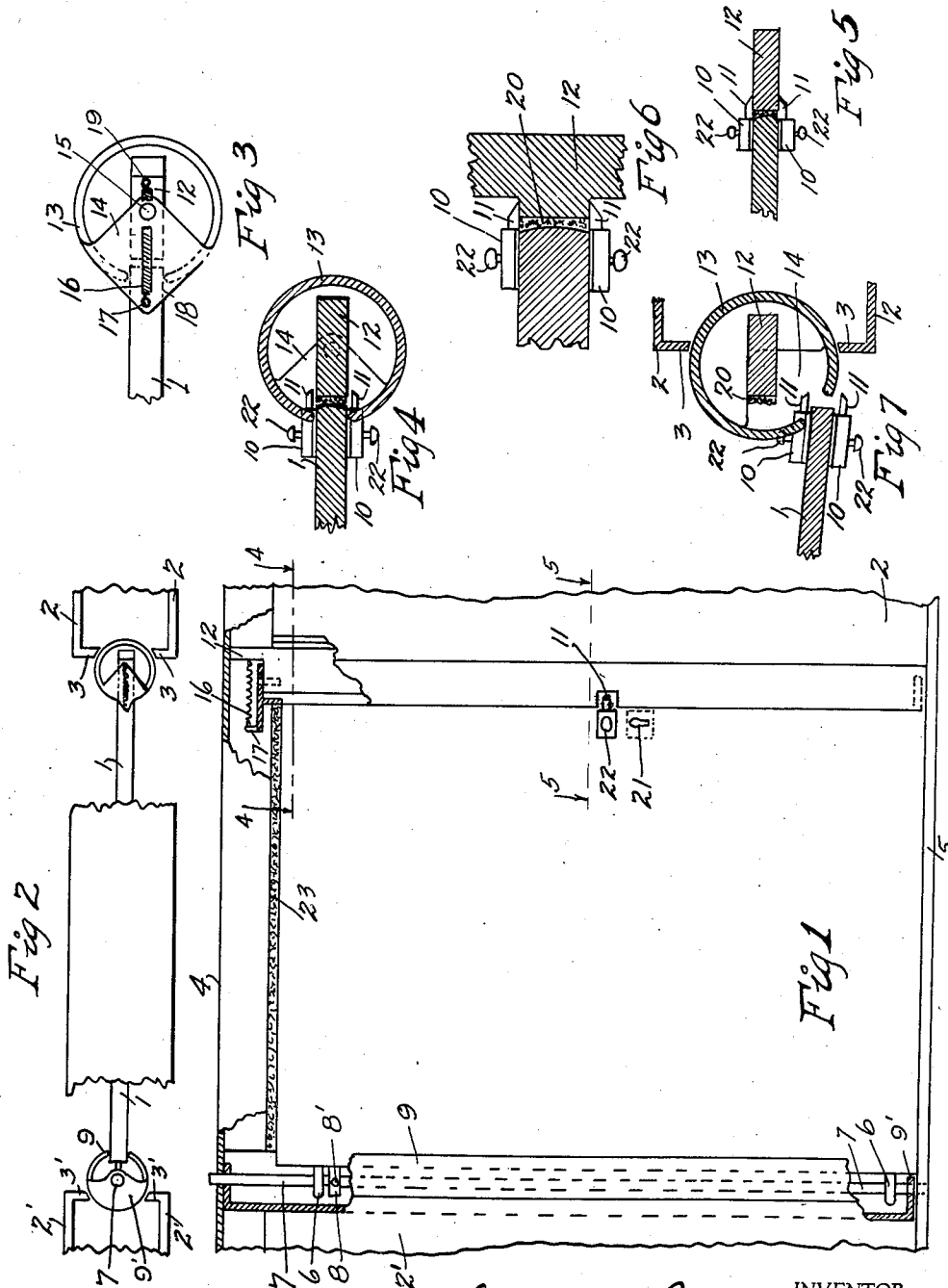
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DOUBLE-ACTING DOOR AND FASTENING

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DOUBLE-ACTING DOOR AND FASTENING

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4 Claims. (Cl. 20—16)

My invention relates to double-acting doors and the mountings and fastenings therefor.

The objects of my invention are to provide a door with a double latch whereby it will be caught and held in closed position when swung shut from either side by double latches so arranged that the latch on either side can be released by a person approaching from that side and the door can then be opened in the direction opposite to that from which such approach was made, but cannot be swung toward or opened in the direction of the latch so actuated. Other objects will appear from the description.

I attain these objects by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 is a side elevation of a door with its mountings and fastenings built in accordance with my invention, but with part of the casing broken away;

Figure 2 is a top or plan view of a door with the top member of the casing broken away;

Figure 3 is an enlarged detail of the top of the stop post and housing, but with part of the spring 16 broken away.

Figure 4 is an enlarged sectional detail on the line 4—4 of Figure 1;

Figure 5 is an enlarged sectional detail of the door latch and stop post on the line 5—5 of Figure 1;

Figure 6 is a similar detail of an alternate form of framing;

Figure 7 is an enlarged sectional detail on the line 4—4 of Figure 1, but showing the door in partially open position.

Similar numerals refer to similar parts throughout the several views.

My invention comprises a door 1 mounted in a frame comprising side members 2 and 2' having end members 3 and 3' united thereto and with a boxlike or hollow lintel 4 extending from one side member to the other. The sill 5 may be mounted upon the floor under the door in the usual manner. The upper frame member of the door is formed in hollow or boxlike form and is united to the side members 2 and 2' at the upper end thereof.

The door may be hinged in any suitable manner with double-acting hinges, but I have shown screw eyes 6—6 united to the door through which a pivot bar 7 passes to form a hinge, the lower end of the pivot bar 7 being pivoted in the sill 5 or in the floor, the upper end of it being pivoted in the top of the lintel 4. A large washer 8 is secured to the rod 7 by a set screw 8' or

other suitable means to secure the door at the proper height.

A cylindrical housing 9 is united to the hinged edge of the door 1 and may be pivoted upon the rod 7 by forming lugs 9' at the upper and lower ends of the housing 9 with openings therein to embrace the rod 7.

The function of the housing 9 is to form a fairly tight joint with the end members 3' to limit the movement of air therethrough. The end members 3' may be cushioned with felt to form a tight joint with the housing 9 or the housing 9 may be formed of or covered with resilient material, if desired.

The free edge of the door is provided with latches 10, having latch bars 11 which are beveled on their outer faces so as to be retracted when swung into contact with the post or stop 12. The post 12 is rigidly mounted in the door frame in a position to contact the free edge of the door when in closed position.

A cylindrical housing 13 is pivoted upon the post 12 at both ends and is provided with an opening adjacent the door whereby it may receive the free edge of the door and contact it on both sides when in closed position so as to prevent the movement of air past the edge of the door.

The cylindrical housing 13 may be formed with lugs 14 formed integral therewith by which the housing 13 may be mounted upon the pivots 15 in the upper and lower ends of the post 12, a portion of the post 12 being cut away to permit the entrance of the lugs 14.

In order to permit the door to work freely in the housing 13, it is necessary for the housing 13 to revolve upon its pivots 15 as the door swings to either side and in order to retain the housing 13 in its lateral position (as shown in Figure 7), a tension spring 16 is provided one end of which is mounted upon a pin 17 secured in a lug or extension 18 formed integral with the top of the housing 13 and the other end of which is secured to a pin 19 mounted in the post 12.

As the axis of the housing 13 is in line with the pivots 15, the spring 16 is adjusted so it will be under tension when the door is in closed position and the housing in the position shown in Figure 3, and this tension will shorten the spring when the door is opened and the housing rotated into the position shown in Figure 7. The spring will thus act to retain the housing in its open position so that the edge of the door 1 will readily enter the opening in the housing 13 when

it is swung back to close it. If desired, the housing 13 may be provided with a cap for its upper end to carry the lug 18 instead of having that lug formed integral with the housing. The portion of the housing 13 adjacent the latches 10 is cut away to a depth equal to the thickness of the latch bars 11 so as to prevent the housing 13 from striking the latch bars 11 before the edge of the door 1 strikes the housing.

In Figure 6 I have shown an alternate form of frame in which the cylindrical casing 13 is omitted and in place thereof the edge of the door is slightly rounded and a felt pad or cushion 20 is superimposed upon the post 12 to prevent the ingress of air. If desired, a lock may be mounted in the door 1 to be actuated by a key in the ordinary way through the keyhole 21.

The latches 10 may be provided with ordinary door knobs 22 or with any desired form of knob adapted to slide the latch bars 11 back into their housings.

The lintel 4 is preferably provided with a felt cushion or weather strip 23 and the edges of the cylindrical housing 13 may likewise be provided with felt cushions or any desired form of weatherproofing to contact the sides of the door 1.

In the operation of my door, the party approaching the door turns the knob and thus retracts the latch bar on the side of the door nearest to him. He is then free to swing the door in the direction he is moving and as the door swings open it will carry the housing 13 around on its pivot until the door will clear the adjacent edge of the housing. Any desired means may be utilized to hold the door in its open position, but as such devices are well-known and in common use, I do not make any claim for them in this application.

If the door is provided with springs to spring it shut, when released after being opened, the door will swing shut and the latch bar nearest the post will strike the post and be retracted by the action of the bevel upon the end of the latch bar so that the door may swing into its closed position, but as it swings into its position, it will be stopped by the latch on the opposite side of the door which will strike the post or a metal stop or plate attached to the post as desired.

When the door is thus stopped, the latch bar first striking the post will spring back into place so that both latches will be in engagement with the post and will prevent motion of the door in either direction.

I am aware that double-acting doors and gates have heretofore been used, but when constructed with a single latch, the latch is very likely not to engage and will permit the door to swing

past instead of being stopped thereby. My arrangement provides a positive stop so that the door cannot swing past its closed position in contact with the post accidentally.

As soon as the door has swung to its closed position, it is secured by the latches against movement in either direction until one of the latches is manually retracted and the door can then be pushed open from that side.

In many situations, by reason of lack of space or other obstructions, it is not convenient for a person opening a door to swing the door toward him, but with my form of door, it never becomes necessary for a person desiring to open a door, to swing the door toward him, but he can at all times open it by turning the knob and pushing the door in the direction in which he is going.

It is obvious that various modifications may be made in the form and arrangement of the parts without departing from the spirit of my invention and I do not limit my claims to the precise forms shown in the drawing.

I claim:

1. A double-acting door comprising a supporting post, a door hinged thereto to swing in either direction, a stop post to contact the free edge of the door in its closed position, and a cylindrical housing pivoted upon and surrounding the stop post and extending the full height of the door with a longitudinal opening upon one side thereof to receive the free edge of the door when swinging into closed position and to contact the door and the frame to limit ingress of air.

2. A door as described in claim 1 and resilient means united to the stop post and the housing to retain the housing in the rotated position to which it is moved by opening the door until the door in closing rotates it back to its normal closed position.

3. A door as described in claim 1 and resilient means united to the stop post and the housing to retain the housing in the rotated position to which it is moved by opening the door until the door in closing rotates it back to its normal closed position, said resilient means comprising a tension spring.

4. In a double-acting door, the combination with a supporting post, of a door hinged thereto to swing in either direction, a stop post to contact the free edge of the door in its closed position, and a cylindrical housing pivoted upon and surrounding the stop post and extending the full height of the door with a longitudinal opening upon one side thereof to receive the free edge of the door when swinging into closed position and to contact the door and the frame to limit ingress of air.

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