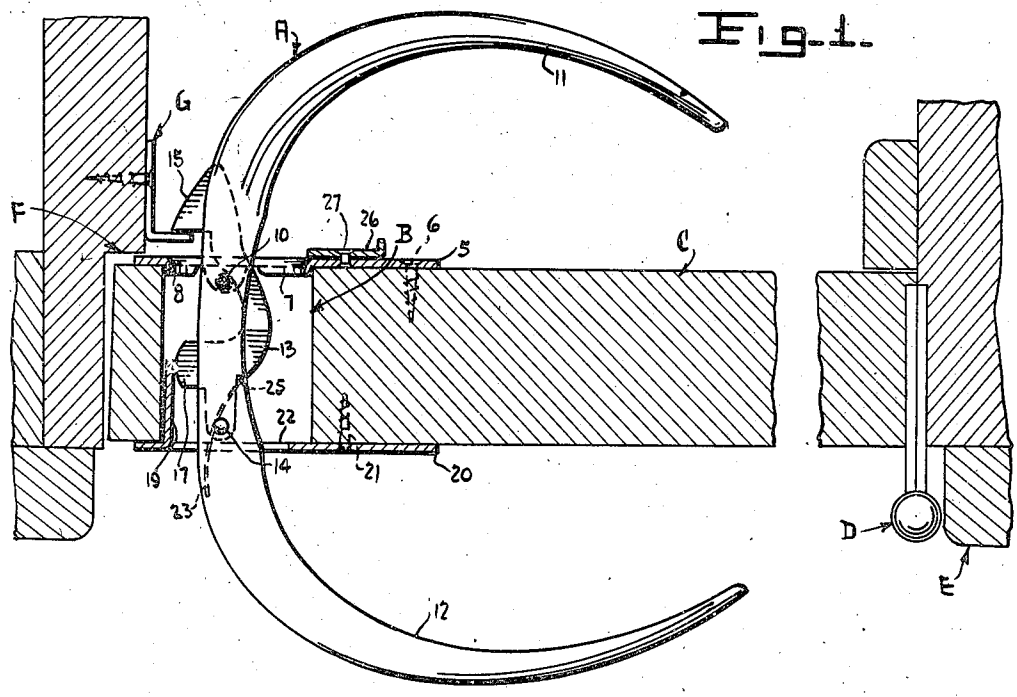
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DOOR LATCH

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Fig. 1.



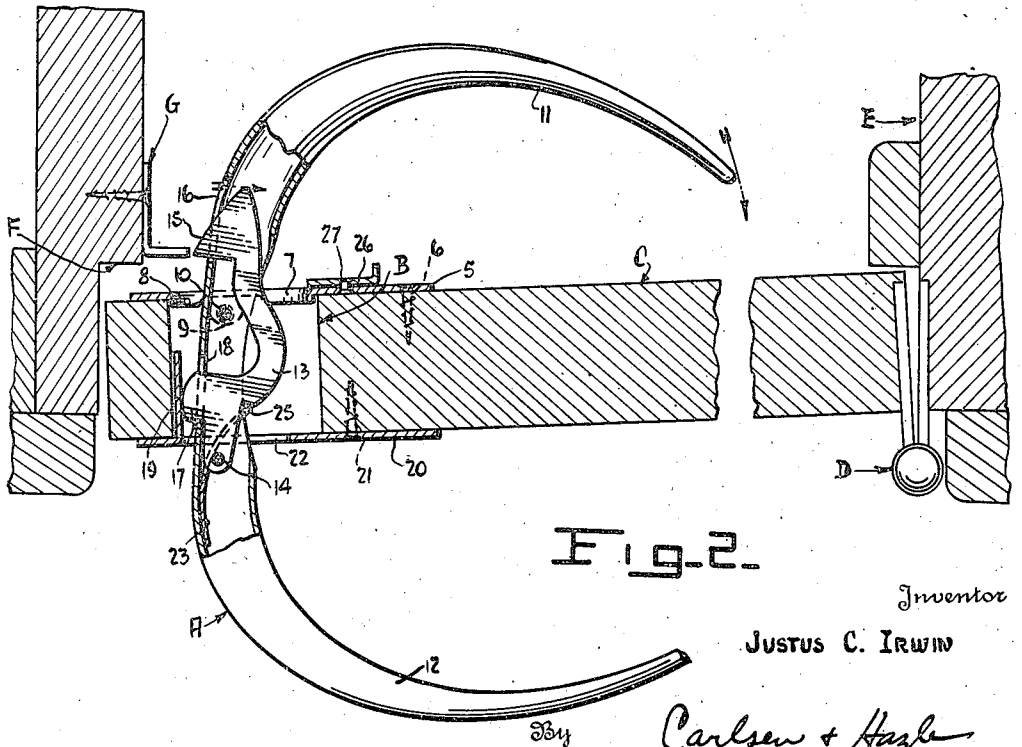




Fig. 2.

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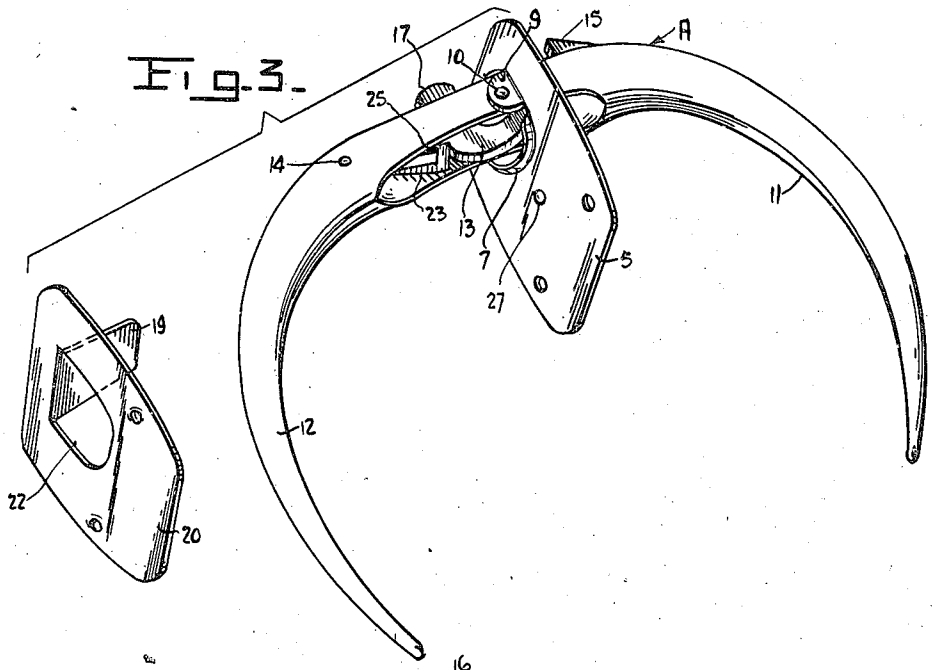
Attorneys

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Fig. 3.



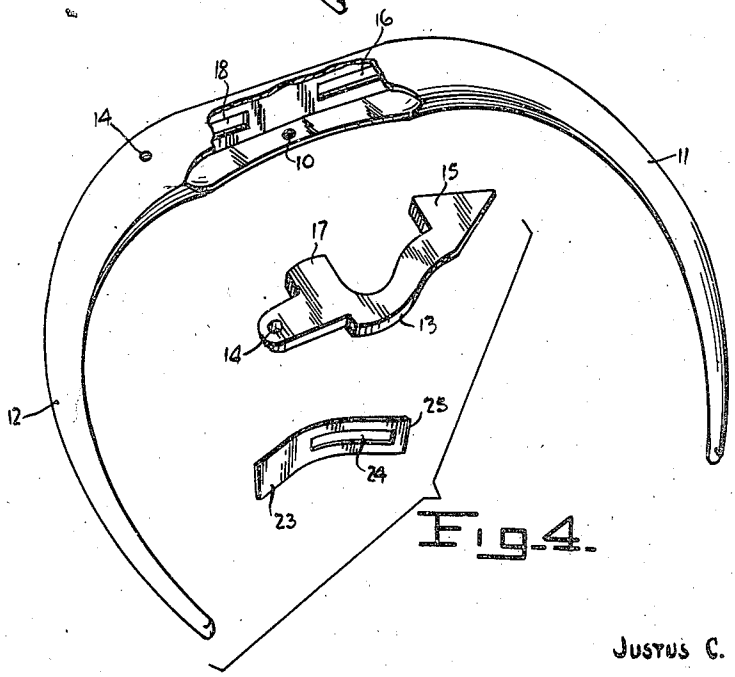




Fig. 4.

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Patented Oct. 29, 1946

2,410,347

# UNITED STATES PATENT OFFICE

2,410,347

## DOOR LATCH

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Application January 29, 1944, Serial No. 520,235

15 Claims. (Cl. 292—126)

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This invention relates to door latches and the main object is to provide a simple, efficient and practical type of latch that may be operated from either side of the door, and which is particularly designed and intended for use in screen door and storm doors where comparatively simple and economical hardware is desired.

A further object is to provide a novel latch of the bored-in type, which means that it is unnecessary to cut into the edge of the door by saw and chisel methods to install the latch, and that it is only necessary to bore a hole in the door, an operation that can be done easily and quickly, thus greatly shortening installation time while increasing the accuracy with which the work can be done.

A further object is to provide a bored-in type of latch which, within predetermined limits, may be used in doors of various thicknesses, and which in fact is self adjusting to doors of any thickness size within standard or conventional practices, thus eliminating the necessity for different sizes of latches or mechanically adjustable features as has heretofore been customary.

Other and more detailed objects will be disclosed in the course of the following specification, refeference being had to the accompanying drawings wherein—

Fig. 1 is a horizontal section through a door and door casing and through my improved latch which is fastened in the door and shown as engaged with the keeper plate to hold the door closed.

Fig. 2 is a sectional view similar to Fig. 1, but showing the latch mechanism adjusted to open position, this view also showing additional parts of the device in section, and showing the latch as applied to a thinner construction of door than in Fig. 1.

Fig. 3 is a perspective view of the latch unit removed from the door.

Fig. 4 is a perspective view of parts of the latch in disassembled positions, and with a portion of the handle member broken away.

Referring to the drawings more particularly and by reference characters A designates generally my improved latch which is mounted in the cylindrical hole B bored in the door C which is hinged at D in the door frame E so as to swing toward and away from a stop F and a keeper G which keeper is disposed to be releasably engaged by the latch to hold the door closed.

The latch proper comprises an inner escutcheon plate 5, mounted upon the inner surface of the door and is secured thereto by suitable screws 6.

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This plate surrounds the bore B and has inwardly projected flanges or arcuate lips 7 and 8 which fit snugly into one end of the bore, it being understood that these lips are formed to fit into a bore or hole B of predetermined diameter. Punched inwardly from the escutcheon 5 are also a pair of ears 9 which serve as a fulcrum supports for the pivot pin 10 of a handle member 11—12. This handle member is substantially U-shaped and extends through the bore B to provide inner and outer latch handles 11 and 12, respectively, by which the latch is operated.

The handle member 11—12 is preferably of hollow construction, as shown, and in any event is centrally slotted or recessed to receive a latch dog 13 which is pivoted in the handle member, as at 14, and has a hooked end 15 extending through a slot 16 to releasably engage the keeper G. The latch dog is further provided with a lug or extension 17 which projects through a slot 18 in the handle member to contact an abutment tongue 19 which is preferably punched inwardly from an outer escutcheon plate 20 secured to the outer surface of the door C by suitable means such as screws 21. The hole thus left in the escutcheon 20, by the punching and bending out of the abutment 19, provides a recess 22 through which the handle 12 projects and is of sufficient size to permit oscillating action of the handle member about the pivot center 10. A spring 23 is arranged to exert constant pressure on the latch dog 13, and is formed, as shown in Fig. 4, with a slot 24 to receive the adjacent or pivoted end of the latch dog. One end of the spring contacts the latch dog, as at 25, and the other end engages the inner handle (12) surface, while the intermediate portion passes under and is held in place by the pivot pin 14. This spring serves the double purpose of holding the latch hook 15 in projected position for engagement with the keeper G, and, by pressing the extension 17 against the abutment 19, serves to hold the handle member in normally inoperative position since such action causes the pivot connection 14 to urge the handle end 12 to the right, as seen in Figs. 1 and 2, about the pivot axis 10.

To install the latch it is preferable to first mount the keeper G at the desired elevation and in close proximity to the inner surface of the door when closed. The center of the hole B, to be bored, is then marked on the door at the proper predetermined position with respect to the keeper, whereupon an ordinary auger and bit may be employed to drill the hole. When this is done the escutchean plate 5, which carries the handle

member 11—12 and latch 13 as shown in Fig. 3, is properly located by the flanges 7 and 8, as above noted, the handle end 12 having first been projected through the bore, and this unit is then fastened in place by the screws 6.

The outer escutcheon plate 20 is then passed over the length of the handle 12 and the abutment tongue 19 is then inserted in the bore as shown in Figs. 1 and 2. It may be noted that since the spring 23 is pressing the lug 17 toward the circumference of the bore it will yieldingly contact the tongue 19 and will hold it and the plate 20 in proper position while the attaching screws 21 are being secured.

It will thus be seen that I have not only developed an extremely simple form of latch, but one which can be accurately installed with a minimum number of tools and with a minimum amount of effort.

It will also be noted that this latch mechanism is particularly valuable from a practical point of view for the reason that it is self-adjustable to various door thicknesses and thus eliminates the necessity for providing several different sizes as has heretofore usually been necessary. Thus it will be seen that since the entire latch mechanism is mounted on the escutcheon 5, and the tongue 19 is in slidable contact with the lug 17 the plate 20 can always be secured flush with the outer surface of the door by first pushing the tongue 19 into its innermost position. The advantage so resulting from this design can readily be appreciated by considering Figs. 1 and 2 wherein different door thicknesses are illustrated.

While the operation and advantages of the latch as thus described are no doubt obvious, the following explanation may be made.

With the latch fully and properly installed the spring 23 operates to hold the various parts in the positions shown in Fig. 1. If the person desiring to open the door is on the inside he pushes the handle 11, and if he is on the outside he pulls the handle 12. In either case the handle member 11—12 is moved to the position shown in Fig. 2, and this movement causes the latch dog pivot center 14 to move to the left. Since the lug 17 cannot so move it acts as a fulcrum and causes the hook end of the dog to move to the right thus freeing it from the keeper G. Thereupon the door can be swung to fully open position.

When the handle member is released the parts automatically resume their original positions, and as the door is again closed the latch dog will snap into place as will be evident. If it is desired to lock the latch this may be accomplished by a small locking lever 26 pivoted as at 27 to escutcheon 5, and adapted, when turned to engage adjacent parts of handle 11 and latch 13, to prevent them from moving. Locks of this nature are well known in the art, one illustration being found in Olson Patent No. 2,311,686, issued February 23, 1943.

It is understood that suitable modifications may be made in the structure as discosed, provided such modifications come within the spirit and scope of the appended claims. Having now therefore fully illustrated and described my invention, what I claim to be new and desire to protect by Letters Patent is:

1. A latch for operation in a hole bored in a door at a point spaced from the edge thereof, comprising a handle member extending through the hole and pivotally mounted for swinging movement about an axis disposed adjacent to the inner surface of the door, a latch dog pivotally secured to a swingable part of the handle member at a point spaced substantially outwardly with respect to said first pivot axis and having a hook end extending inwardly and to a point beyond the inner surface of the door for engagement with a keeper.



2. A latch for operation in a hole bored in a door at a point spaced from the edge thereof, comprising an escutcheon secured upon the door surface about one end of the hole and having a projection for guiding engagement in one end of the hole, a generally U-shaped handle member pivoted to the escutcheon at a point adjacent the door surface on which the escutcheon is secured and having handles at both ends for manipulation at opposite sides of the door, a latch dog pivoted to a swingable part of the handle member at a point spaced from the pivot connection between the handle member and escutcheon and having a hook at its other end extending from the handle member for engagement with a keeper.

3. A door latch comprising a generally U-shaped handle member extending through an aperture in the door with handle portions at inner and outer sides of the door, pivot means forming a vertical fulcrum for the handle member at a point adjacent the plane of the inner surface of the door, a latch dog pivoted to the handle member at a point spaced from said handle member fulcrum toward the outer side of the door, said latch dog extending inwardly beyond said handle member fulcrum and beyond the inner surface of the door for engagement with a keeper, and spring means acting on the handle member and latch dog to hold the latter in releasable engagement with the keeper.

4. A door latch comprising a generally U-shaped handle member extending through an aperture in the door with handle portions at inner and outer sides of the door, pivot means forming a vertical fulcrum for the handle member at a point adjacent the plane of the inner surface of the door, a latch dog pivoted to the handle member at a point spaced from said fulcrum toward the outer side of the door, said latch dog extending inwardly beyond said handle member fulcrum and beyond the inner surface of the door for engagement with a keeper, and spring means creating tension between the handle member and latch dog.

5. A door latch comprising a generally U-shaped handle member extending through an aperture in the door with handle portions at inner and outer sides of the door, pivot means forming a vertical fulcrum for the handle member at a point adjacent the plane of the inner surface of the door, a latch dog pivoted to a swingable part of the handle member at a point spaced from said fulcrum toward the outer side of the door, said latch dog extending inwardly beyond said fulcrum and beyond the inner surface of the door for engagement with a keeper, and means for moving the latch dog with respect to the handle member about the second mentioned pivot when the handle member is actuated on its fulcrum.

6. A door latch comprising inner and outer escutcheons adapted to be secured on inner and outer surfaces of a door, respectively, and about a recess therein, a handle member extending through both escutcheons and through said recess for operation at either side of the door, a fulcrum connecting the handle member to the inner escutcheon, a latch dog pivotally connected to the

handle member at a point spaced from said fulcrum, and an abutment extending from the outer escutcheon into the recess for contact with the latch dog to actuate the latter with respect to the handle member when the handle member is manually operated.

7. A door latch comprising inner and outer escutcheons adapted to be secured on inner and outer surfaces of a door, respectively, and about a recess therein, a handle member extending through both escutcheons and through said recess for operation at either side of the door, a fulcrum connecting the handle member to the inner escutcheon, a latch dog pivotally connected to the handle member at a point spaced from said fulcrum, and an abutment extending from the outer escutcheon into the recess for contact with the latch dog to actuate the latter with respect to the handle member when the handle member is manually operated, said abutment having sliding contact with the latch dog in a direction perpendicular to the inner escutcheon whereby the latch may be adjusted to doors of various thicknesses.

8. A door latch for a door having a cylindrical bore near its swinging edge, comprising a handle member extending through the bore for operation at either side of the door, mounting means for fulcruming the handle member about a vertical axis adjacent the inner end of the bore, a latch pivoted to the handle at a point adjacent the outer end of the bore, said latch extending inwardly beyond said mounting means for engagement with a keeper, an abutment member slidably inserted in the bore and for contact with the latch dog to release the latter from such keeper when the handle member is actuated on its fulcrum.

9. A door latch comprising a generally U-shaped handle extended through an aperture in the door for operation at either side thereof, means for fulcruming the handle for movement in a horizontal plane, a latch dog disposed within the handle and pivoted thereto at a point spaced from said fulcrum, means forming an abutment within the door aperture, and a lug projecting from the latch dog for engagement with said abutment to actuate the latch dog with respect to the handle member when the latter is manually actuated on its fulcrum.

10. A door latch comprising a generally U-shaped handle extended through an aperture in the door for operation at either side thereof, means for fulcruming the handle for movement in a horizontal plane, a latch dog disposed within the handle and pivoted thereto at a point spaced from said fulcrum, means forming an abutment within the door aperture, and a lug projecting from the latch dog for engagement with said abutment to actuate the latch dog with respect to the handle member when the latter is



manually actuated on its fulcrum, said handle member having a slot through which said lug extends to contact the abutment.

11. A door latch comprising apertured plates adapted to be secured upon opposite surfaces of a door having a recess extending therethrough, a handle member extending through the plate apertures and door recess for operation at either side of the door, said handle member being pivotally mounted on one of said plates, a latch dog pivoted to said handle member, and an abutment extending from the other of said plates into the door recess for operative engagement with the latch dog.

12. A door latch comprising apertured plates adapted to be secured upon opposite surfaces of a door having a recess extending therethrough, a handle member extending through the plate apertures and door recess for operation at either side of the door, said handle member being pivotally mounted on one of said plates, a latch dog pivoted to said handle member, and an abutment extending from the other of said plates into the door recess for operative engagement with the latch dog, said abutment being formed by a part of the plate cut and bent therefrom to provide the aperture in said plate.

13. A door latch comprising a handle member adapted to extend through a door recess for operation from either side of the door, an escutcheon secured upon one surface of the door and providing a fulcrum for the handle member, a latch dog pivoted to the handle member at a point spaced from the fulcrum, and a spring connected at one end to the handle member and at its other end to the latch dog to place the latter under tension.

14. A door latch comprising a handle member adapted to extend through a door recess for operation from either side of the door, an escutcheon secured upon one surface of the door and providing a fulcrum for the handle member, a latch dog pivoted to the handle member at a point spaced from the fulcrum, and a spring connected at one end to the handle member and at its other end to the latch dog to place the latter under tension, said spring also being operative to yieldably hold the handle member in predetermined position in the door recess.

15. A door latch comprising a handle member adapted to extend through a door recess for operation from either side of the door, an escutcheon secured upon one surface of the door and providing a fulcrum for the handle member, a latch dog pivoted to the handle member at a point spaced from the fulcrum, and a spring connected at one end to the handle member and at its other end to the latch dog to place the latter under tension, said spring having contact with the pivot connecting the latch dog to the handle member.

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