

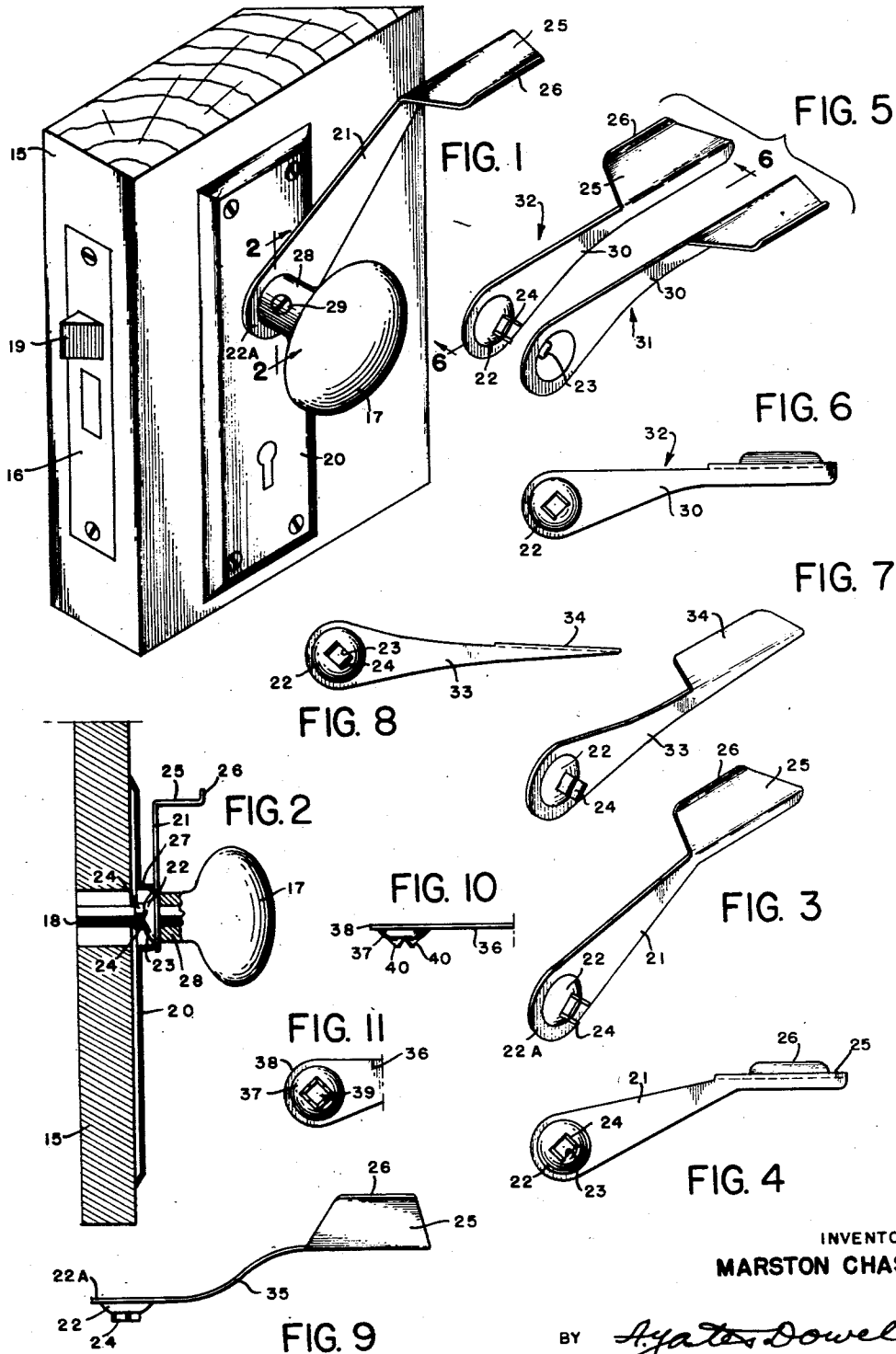
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DOOR LATCH LEVER

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1

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DOOR LATCH LEVER

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The present invention relates to a lever attachment for door latch operating mechanism particularly useful on existing door knob operated latches providing for unlatching without requiring gripping by the hand.

Heretofore the conventional latches used on doors included circular knobs on the inside and outside of the door with such knobs mounted on a generally square shaft with the shaft operatively connected to the spring pressed latching slide bolt which normally maintains a door in closed position. Such door knobs have been difficult to operate particularly when a person had both hands filled with packages or other articles. A person with a load frequently had to partially unload the articles placing them on the floor or the ground and then open the door. This involved delay and increased possibility of injury to persons.

An object of the present invention is to provide a simple attachment readily applicable to existing installations of door latches and providing for operation without requiring gripping of the usual handle and permitting operation of the door latch by a movement which can be accomplished even with the hands filled.

Another object is to provide operating mechanism for existing latches which can be applied by the home owner without requiring the services of a skilled mechanic.

A further object is to provide an operating means which may be used on practically all latch mechanisms.

Other and further objects will be apparent as the description proceeds and upon reference to the drawing wherein:

Fig. 1 is a perspective of a fragment of a door showing the door latch with its operating knob and a preferred form of the lever handle devices in operative position;

Fig. 2, a section taken on line 2-2 of Fig. 1 showing the interconnection of the lever and the knob carrying shaft;

Fig. 3, a perspective view of the lever attachment for use on the unseen side of the door shown in Fig. 1;

Fig. 4, an elevational view of the lever attachment of Fig. 3 as observed from the door side thereof;

Fig. 5, a perspective of another form of the invention showing a pair of lever devices;

Fig. 6, an elevational view of one of the lever devices shown in Fig. 5;

Figs. 7 and 8, a perspective, and elevational views respectively, of another form of the invention adapted for use on either side of the door;

Fig. 9, a plan view of a further modification in which the intermediate portion of the lever is reversely bent to provide additional spacing between the handle lever device and the door;

Fig. 10, a fragmentary plan view of a modified form of shaft mounting end for the lever handle device; and

Fig. 11, a fragmentary elevational view of the portion of the lever attachment device in Fig. 10.

Briefly, the present invention comprises a lever having a concave-convex portion at one end with a poly-

2

gonal opening preferably punched through such concave-convex portion of a shape to fit existing square shafts which carry conventional doorknobs, the lever projecting radially and in some case axially outwardly from such concave-convex portion and terminating in a hand or body engaging handle portion spaced sufficiently from the doorknob and outwardly from the door to permit operation by simple engagement with the hand, by engagement with an object carried in the hand, and/or by engagement with the knee or the like, whereby a person wanting to pass through the door may oscillate the latch operating shaft without requiring unloading of his burden. The concave-convex end is adapted to fit between the conventional escutcheon plate or ornamental rose and the doorknob being retained in place by such rose and doorknob whereby no modification of the existing doorknob is required, the concave-convex end portion serving to partially cover the shoulder or bearing surface on the doorknob.

Upon more detailed reference to the drawing, a door 15 having a mortised latch 16 therein is operated by a conventional doorknob 17 fixed to the square latch operating shaft 18 which is operatively connected through suitable mechanism to the bevelled bolt 19 in a well known manner, the usual face plate 20 providing the ornamental covering for the key hole and latch operating shaft. The doorknob is gripped by the hand and turned to withdraw the bevel bolt 19 to permit opening of the door 15. However, when a person is carrying a load it is difficult to grip and operate the conventional doorknob and the present invention provides an attachment including a lever 21 formed of a flat sheet of metal having a concave-convex portion 22 projecting inwardly toward the door 15 at one end with a radially extending rim portion 22A. A square opening 23 extends through the concave-convex portion and is preferably formed by a punching operation in which the metal of the concave-convex portion 22 is displaced inwardly from the convex surface toward the door to provide tongues 24 which engage opposite sides of the square shaft 18 to provide a substantial area of contact between the said one end of the flat lever member 21 and the shaft 18.

It will be noted that the flat lever 21 extends an appreciable distance beyond the outline of the doorknob 17 and in the normal position of the shaft 18, such lever projects upwardly and toward the hinge edge of the door at approximately 45° to the horizontal so that the upper end of the lever 21 is substantially above the doorknob 17 with which the attachment cooperates.

A web portion 25 projecting outwardly from the door and the flat lever member 21 forms a handle, a vertically projecting flange 26 on the outer edge of handle portion 25 providing for a positive engagement with a person's hand or fingers for either pushing or pulling the door as desired.

The handle portion 25 is located above the top of the doorknob 17 whereby a person may place an object such as a box being carried on top of the handle web portion 25 and allow the weight of the box to move such handle web portion downwardly with resulting rotation of the shaft 18, whereby the bolt 19 will be released, the doorknob 17 serving as an automatic stop to prevent the box from being dropped during the door opening operation.

Although the structure is particularly useful for pushing a door open a person may push his hand or a projection on the box in a position to engage the flange portion 26 to permit pulling of the door while the box or other load is being carried by the person who is passing through the door.

It will be noted that the face plate 20 is provided with

3

a sleeve portion 27 which normally receives the stem portion 28 of the doorknob 17 serving as a bearing for such doorknob, the doorknob being held in place by a conventional set screw 29 whereby after loosening of the set screw 29 the doorknob 17 may be removed and the lever handle device of the present invention applied with the convex surface and tongues 24, 24 extending inwardly toward the door and being hidden by the sleeve portion 27 of the face plate 20, the concave-convex portion 22 serving to cover the inner end of the shank portion 28 of the doorknob and the various parts serving to maintain the lever handle device in a fixed operative location relative to shaft 18 so the parts are accurately guided to assure the operative location of the lever handle device at all times.

It will be noted that the showing in Figs. 3 and 4 illustrates the lever handle device for application on the hidden side of the door as viewed in Fig. 1, the parts thereof being identified with the same reference numerals although the lever handle device of Figs. 3 and 4 are mirror images of the lever handle device shown in Fig. 1.

The modification shown in Figs. 5 and 6 is similar to that shown in Figs. 1 to 4 inclusive but the flat lever portion 30 thereof extends approximately horizontal from the concave-convex portion 22, the other parts being identified by the reference characters previously used, the one lever handle device 31 being the mirror image of the lever handle device 32.

Referring to Figs. 7 and 8, a modified form of the invention includes a lever portion 33, the concave-convex portion 22 with the opening 23 therein and tongues 24 being substantially the same as structure previously described, the flat lever portion 33 extending substantially horizontally from the opening 23 and carrying a web handle portion 34. With this modification shown in Figs. 7 and 8, the same lever handle device may be used on each side of the door since the web handle portion 34, 34 will extend substantially horizontal on either side of the door.

In Fig. 9 a further modification includes a lever portion 35 which is shown as bent outwardly from the plane of the radially extending rim portion 22A and out of the plane thereof away from the convex surface and then bent in a generally parallel relation to such rim portion 22A with a web handle portion 25 and a flange portion 26 similar to that previously described, the construction providing for greater clearance between the surface of the door and the handle portion 25 whereby a person's hand or fingers may extend between the lever portion and the door to provide for pulling on the handle device without regard to the presence or absence of the flange 26.

Upon reference to Figs. 10 and 11, the lever portion 36 of the handle is provided with a concave-convex portion 37 with radially projecting rim portion 38, the concave-convex portion being punched to provide a square aperture 39, formed with triangular tongue portions 40 on each edge thereby providing a tongue for engaging each surface of the square shaft 18. This structure is usable on any of the lever handle devices previously described providing for a positive engagement with the shaft and sufficient area of contact on each surface to assure that lever 36 remains in a definite radial plane under all conditions of operation.

From the above description it is believed evident that applicant has provided a latch operating lever handle device which can be readily applied on all doors by relatively unskilled persons without special tools, thereby converting a conventional doorknob operated latch to a lever operating latch.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated

4

in the drawing and described in the specification, but only as indicated in the accompanying claims.

What is claimed is:

1. A device for attachment to a doorknob shaft of a conventional latch operating mechanism, said attachment including an elongated relatively flat member having a concave-convex portion at one end with a square opening extending therethrough, flat portions extending outwardly from the edges of said opening to form an extended surface area of contact with the square shaft of said latch operated mechanism said member projecting radially from the concave-convex portion a substantial distance beyond the outline of a conventional doorknob, the square opening in said attachment being arranged so that when the attachment is on a doorknob shaft the member extends upwardly and laterally at substantially 45° toward the hinge edge of the door so that the upper end thereof is substantially above the doorknob with which the attachment cooperates, a handle web portion projecting laterally from the other end of said body in the direction opposite the convex surface of said one end, said handle web portion having a vertically projecting flange generally parallel with the plane of said concave-convex portion whereby a person may grip said handle and move the same to release the latch and either push or pull the door, the handle web portion being located so that an object may be placed upon the handle to move the handle downwardly thereby rotating the shaft and releasing the latch to permit a person to open the door without unloading the object from his hands.

2. The invention according to claim 1 in which the member is offset to space the handle outwardly from a door a greater distance than the plane of the concave-convex end.

3. In a releasable latch operated by a door knob, the combination of a face plate having a sleeve bearing portion and a latch operating rectangular shaft extending through said face plate, of a lever handle device including a relatively flat lever member having at one end a concave-convex formation with a rectangular aperture and said rectangular shaft inserted therein, said convex formation providing engagement with the sleeve bearing portion of said face plate whereby the flat lever member will be maintained in a path extending radially from the shaft, said lever handle having tongues adjacent said aperture and extending from said concave-convex portion to provide for substantial areas of contact with the shaft to prevent relative movement thereto, and the other free end of the flat member extending outwardly to a point remote from said door knob and shaft and having a horizontal web handle portion mounted on the free end whereby the flat lever member may be readily operated by merely placing an object on the web handle portion of the lever independently of and without interfering with operating the latch by grasping the door knob, the handle web portion being movable upwardly or downwardly about the axis of the door knob shaft and fixedly connected thereto for turning the shaft and operating the latch.

4. A lever device for non-rotatable attachment directly to a non-circular shaft in a knob operated door latch having a face plate knob receiving bearing, said lever device comprising an elongated lever body, said lever body having a concave-convex portion near one end thereof projecting therefrom and a non-circular aperture with tongues at the edges thereof projecting laterally outwardly of the convex surface for insertably receiving the shaft in non-rotatable relation, the concavity and convexity of the concave-convex portion being of a size and shape to be at least partially received within the face plate knob bearing and of a size to receive a portion of the shank of a door knob whereby the lever will be maintained in a definite radial position with respect to the shaft and the door knob and face plate while permitting the lever to pivot with the shaft, an intermediate portion of the lever body extending away transversely from the axis of the shaft and terminating in a web handle portion for engagement with the

5

hand, said web handle portion projecting from the face of the lever opposite to the face from which the concave-convex portion projects, said web handle portion and said intermediate portion serving as a lever with a mechanical advantage to provide for ease of operation of the door latch.

5. A lever handle for attachment to the shaft of a door latch device between a face plate of the latch and a door knob comprising an elongated lever having a concave-convex formation and a non-circular opening at one end thereof and of a size and shape to be at least partially received within the face plate and adjacent the door knob and to snugly engage the latch operating shaft and having means to prevent angular movement of said lever with respect to said shaft, and means at the other end of the lever for engagement by a person or article for causing angular movement whereby a door may be opened or

6

closed by engagement with the handle portion of said lever.

6. The invention according to claim 5 in which a handle portion projects substantially radially from the aperture to provide for use of identical levers on both sides of the door.

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