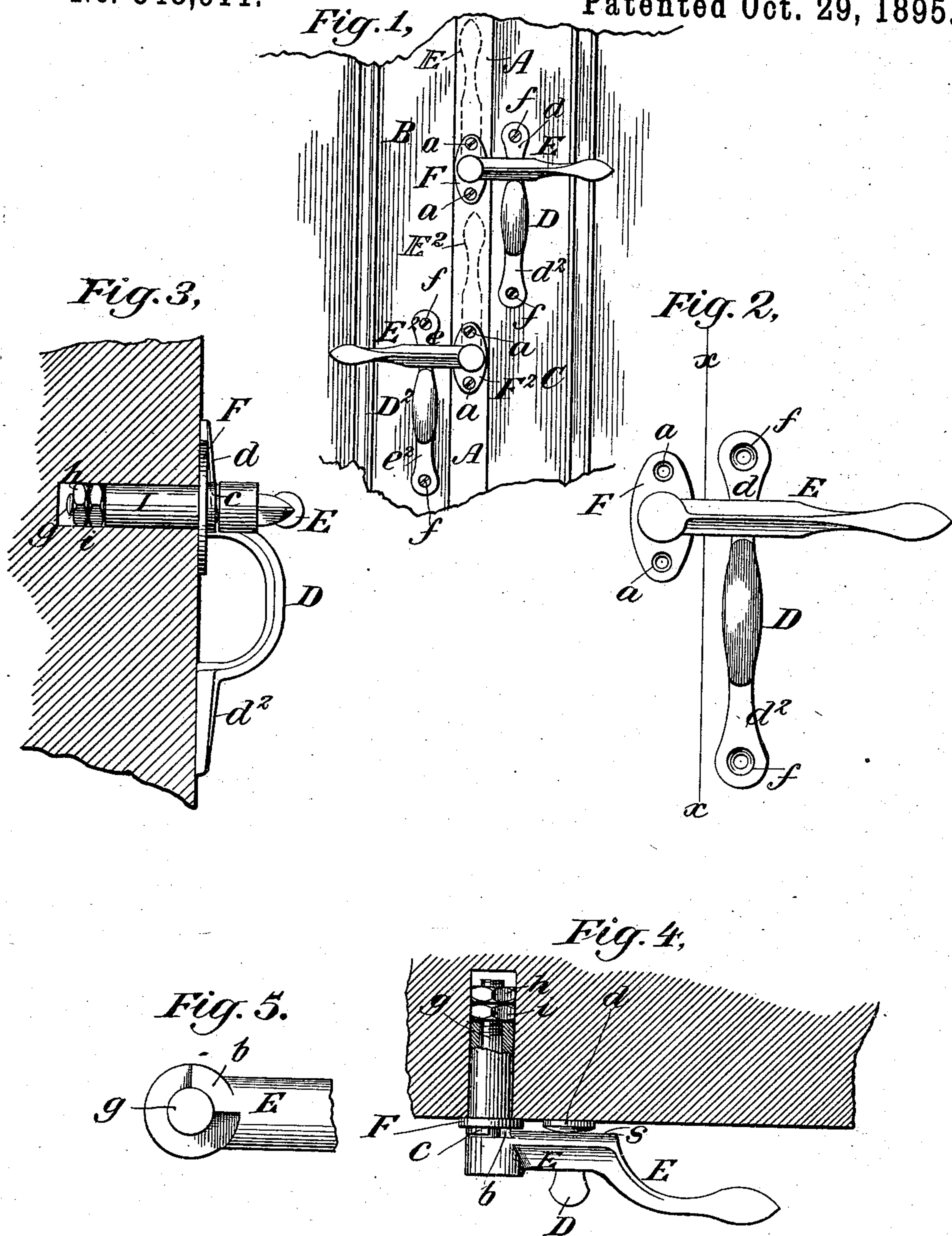


(No Model.)

A. D. FRITTS.
DOOR FASTENER.

No. 548,911.

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DOOR-FASTENER.

SPECIFICATION forming part of Letters Patent No. 548,911, dated October 29, 1895.

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To all whom it may concern:

Be it known that I, ATWOOD D. FRITTS, a citizen of the United States, residing at Hoboken, in the county of Hudson and State of New Jersey, have invented a certain new and useful Improvement in Door-Fasteners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that type of door-fasteners (used on refrigerators or ice-boxes and elsewhere) in which a lever-like device attached to a stationary part coacts with some sort of cam-plate or striking-plate on the door and operates to first force the door home or into a tightly-closed condition and to then retain it in such forcibly-closed position.

Numerous door-fasteners of this type have heretofore been devised and used, all of which, however, to the best of my knowledge, have one or another objection or defect in practical operation. Some are objectionable because of their construction being such that in order to take up any end-play (caused by wear) in the spindle or shank, about the axis of which the lever vibrates, it is necessary to remove the lining or some other permanent part of the refrigerator or other thing with which said spindle may be connected. Some are objectionable in cases where a pair of doors have their movable edges contiguous to the opposite edges of one stile, especially where the latter is quite narrow, by reason of a liability of an interference of the lever designed to fasten one door, when said lever is thrown out of its operative position with the opening and closing of the other door; and in some the construction is such that even with a very large and clumsy cam-like striking-plate the lever will not always force the door home tight or will be hard of manipulation, which renders the fasteners objectionable in practice.

I propose to provide for use a fastener of the type above alluded to which shall not only be free of the above-mentioned and other defects, but which shall be more desirable in every respect of construction, while at the

same time economic of manufacture and neat in appearance.

To these main ends and objects my invention consists in the improved construction of fastener hereinafter described, the novel structural features of which will be found particularly pointed out in the claims of this specification.

To enable those skilled in the art to make and use my improved fastener, I will now proceed to more fully describe the same, referring by letters to the accompanying drawings, which form part of this specification, and in which I have shown my invention carried out in that precise form of the device in which I have so far practiced it.

In the drawings, Figure 1 is a front view of so much of a double-door ice-box as is necessary to be shown in order to illustrate the application thereto of a pair, or two, of my improved fasteners. Fig. 3 is a front view, on a larger scale, of one of said fasteners. Fig. 3 is an edge view of the same, looking in the direction indicated by the arrow at Fig. 2. Fig. 4 is a top view of the same. Fig. 5 is a view of part of the lever and its pivotal spindle detached.

At Fig. 1 I have shown the two fasteners in full lines in the condition for holding the doors closed tightly, while by the dotted lines the swinging levers are drawn in the positions they occupy when the doors are free to open and close, while at Fig. 4 I have shown some of the parts partially in section.

In all the figures the same part will be found designated by the same letter of reference.

At Fig. 1, A is part of the stile or frame of an ice-box located intermediately of the two doors B and C of said box, and to which stile are securely fastened the pivotal devices F F² of the levers E and E² of a pair of my improved door-fasteners, the handles D and D² of which are secured, respectively, to the doors C and B. As clearly shown at said figure, the stile A is an exceedingly narrow one, or is such that it barely affords a sufficient bearing-surface widthwise for the base of the securing plate or flange F of the spindle-socket of the lever, said part F being fastened

in place by two ordinary wood-screws *a a*; but at the same time it will be observed when the lever of either fastener is turned up into its position of disuse, as illustrated by the dotted lines, it no where projects laterally beyond either edge of the stile A, and hence when the lever of either fastener is thus turned up (into a nearly vertical position) it can in no manner interfere in the least with the front edge of either one of the doors. The particular construction by which this desirable mode of action is attained I will presently explain by reference more particularly to the other figures of the drawings.

As will be observed at Fig. 1, each door is provided with a handle D and D², fastened securely thereto by wood-screws *f f*, and, as will be presently explained, the straight portions *d* and *d*² or *e* and *e*² of these door-pulls or loop-like handles constitute the striking-plates with which the operative surfaces of the levers coact to force home and hold fast the doors.

Referring now more particularly to the other figures of the drawings, it will be understood that the hand-lever E is provided with a spindle *g*, which is arranged to turn freely, pintle-like, within the tubular box or housing I, that is let into the stile or stationary part A of the ice-box, (or other thing on which the door-fastener may be used,) and which is formed (see Figs. 2, 3, and 4) with a plate-like portion or flange F, that lies flush against and is fastened by wood-screws *a a* to the face of the said stile. It will also be seen that the inner end of said spindle *g*, which protrudes some distance beyond the inner end of the socket I, is threaded and carries two nuts *i* and *h*, one of which *i* operates to effect the retention endwise of said spindle within the tubular part I, (without interfering with its rotation therein,) and which may be adjusted or turned to take up any unnecessary end-play of the spindle in the socket, while the other one *h* acts merely as a jam-nut to prevent the first-named nut from working loose.

On the outer face of the plate-like portion F of the spindle-socket is a semicircular projection *c*, against which works the inner vertical surface of the spindle end of the lever E, and with the ends of which coacts a lug-like projection *b* (see Figs. 4 and 5) of the lever. The curved projection *c* has its end surface located in a plane which is about coincident with the axis of the spindle *g*, while the lug *b* on the lever E is of such size and shape, as seen, that when the lever is in a nearly-horizontal position one end of lug *b* comes into contact with one end of the projection *c*, and so that when turned up into a nearly-vertical position, as shown in dotted lines at Fig. 1, the opposite end of said lug comes into contact with the other end of the stop-like projection *c*. By these means the extent of vibration of the lever E is restricted to a movement

through an arc about equal to or a very little more than one-quarter of a circle, so that whenever the said lever may be turned up into the position seen in dotted lines at Fig. 1 to permit the opening and closing of door C, it will be sufficiently out of plumb to cause the upper left-hand end of the curved lug *b* to contact with the upper coacting end of the semiannular projection *c* of plate F, and thus the said lever will be supported or maintained in this nearly-vertical position, its tendency being to turn by gravity still farther, which is, however, prevented by the stop-like devices *b* and *c*, and in the event of the said lever E being turned in the direction of its locking position, instead of making a movement by gravity through an arc of half a circle, so as to hang down in a vertical position, as do the levers of other fasteners that I know of, it cannot move farther than into about or nearly the horizontal position in which it is shown at Fig. 2.

The advantage of regulating the movement of lever E for unfastening door C, so that it is stopped in the position shown by dotted lines at Fig. 1, is that in such position (which it automatically retains by gravity) its upper end will not interfere with the other door B, and the effect of preventing said lever from ever dropping below the horizontal position shown is that in case of the lever being accidentally tipped over or knocked down out of the dotted-line position while the door C may be open said door cannot be closed at all without first turning said lever back into the dotted-line position in which it is ready for use. In the case of fasteners made as heretofore the door C could be closed with lever clear down, and then, as the lever could not be turned inwardly into a position for use, (because it could not pass the handle D,) the door had to be reopened for the purpose of getting the lever E back in a position for reuse, and such reopening of the door, especially in the case of an ice-box or cold-storage apartment, is of course very undesirable.

The handle D, instead of being cast with or having applied to it a bulky metallic cam plate or surface located at the upper portion of the loop-like handpiece, has its two straight parts (one at either end of the loop or handpiece proper) *d* and *d*² formed so that the outer surfaces of these parts are tapered or inclined (see Fig. 3) from the extreme ends of the handle-casting outward and toward the loop of the handle, so that no matter which end of the handle be placed uppermost when the casting is secured to the door by its screws *f f* this oblique surface of the upper wedge-shaped part of the handle will perform the function of a cam-like striking-plate, into contact with the oblique outer surface of which the slightly-rounded surface *s* (in cross-section) of the straight part of the lever E will come to wedge or force home the closed door. Furthermore, I make these two wedge-shaped

parts or end portions d and d^2 of the handle of different thickness, so that, as shown, the one lettered d^2 will have its inclined surface located farther away from the plane of the door to which the handle is screwed than is the oblique surface of the other part d . This detail of construction is important, since thereby I gain this advantage in practice, viz: In applying this type of fasteners it is found that the door to be fastened sometimes has the surface to which is attached the handle with its striking-plate located in one plane relatively to the plane of the stile A and sometimes in another, and with the handle provided with the parts d and d^2 of different thickness said handle may be applied to the door with whichever of its two cam-like surfaces is uppermost, according to which one will make the fasteners work best. Again, it often happens that in a case in which the fastener worked all right for some time it will eventually fail, on account of a shrinkage of the wood of the door or a wearing away of the contacting surface of the lever and cam-plate, or from both causes, to force the door home or close it tightly. In such case my new form of handle may be reversed in position, so as to bring the thicker end piece d^2 into play, the handle having been first applied with the thinner portion d uppermost. Thus the handle made as shown not only serves purposes which cannot be accomplished with the old-fashioned form, but, furthermore, is cheaper, having less stock in it, and much more unique in appearance. In fact, it presents the appearance only of a tastily-designed door handle or pull.

As shown, (see Fig. 4,) that part of the lever E which has to be grasped in the hand to force the lever down into the position seen at Figs. 1 and 2, to forcibly close and secure in a tightly-closed condition the door C, is curved outward or away from the outer surface of the door, and is otherwise so shaped that a person can comfortably grip this part of the lever without interference of the hand with the door.

It will be seen that in the event of any wear of the working parts and any consequent end play to the spindle g in its socket I, tending to impair the perfect action of the device, such wear and backlash may be taken up or overcome by simply removing the two wood-screws a , removing the assembled parts, drawing the spindle g farther home in socket I by turning up the nut i , and then refastening said nut against accidental movement with the jam-nut H, and it will be understood

that with the cylindrical socket I simply inserted in a hole of the same diameter in the stile or frame A there will be no material or injurious strain on the mere retaining-screws a , since the strain to which the lever E is subjected when acting on the cam-plate d operates initially to cramp or bind the socket within its cylindrical seat in A, and thus the screws a are relieved of any strain that would tend to pull them out or loosen them.

Of course the patterns or designs of the parts, as well as their proportions and some of the details shown, may be varied without departing from my invention, and in so far as the novel structural features of my improved fastener are separable less than the whole of my invention may be used with some advantage. Therefore, without restricting myself to the precise forms and proportions of all the parts and wishing to cover independently the separable parts of my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. In a door fastener, a reversible handle D formed with two wedge-shaped end portions, d and d^2 , that are adapted to operate as cam-like striking-plates, and that are made of different thickness; substantially as and for the purposes set forth.

2. In a door fastener of the type shown, the combination with the lever and the spindle, or pintle, on which it turns, of a tubular socket, within which said pintle is housed and which is formed, or provided, with flanges adapted to be fastened by screws to the outer surface of the stationary part of the thing on which the fastener may be used; and means for taking up any wear, or end play, of the spindle in said socket; all substantially as hereinbefore set forth.

3. The combination with the lever E having a spindle g , of a tubular housing, or socket, within which said spindle is held endwise while free to rotate, and which is adapted to be fastened to the stationary part of the thing, to which the fastener may be applied at its outer end only; whereby the combined lever with its spindle and the said socket may be removed from said stationary part by simply removing the securing screws a , as set forth.

In witness whereof I have hereunto set my hand this 24th day of July, 1895.

ATWOOD D. FRITTS.

In presence of—

W. F. HENDRICKSON,
J. J. LOGUE.