Sept. 29, 1931. D. P. HYNES 1,824,895

HOOD LATCH

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Fig. 1

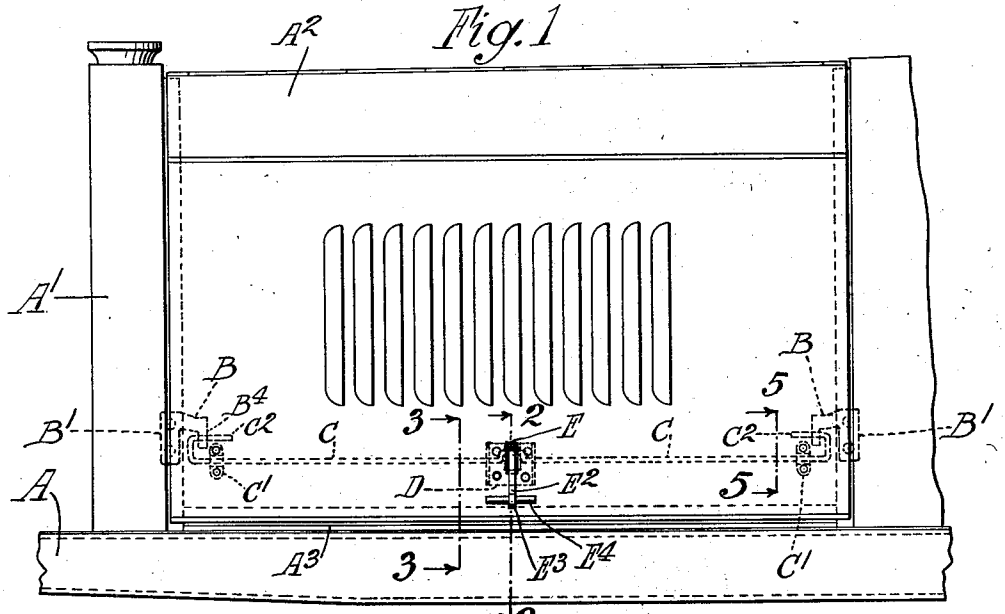


Fig. 2

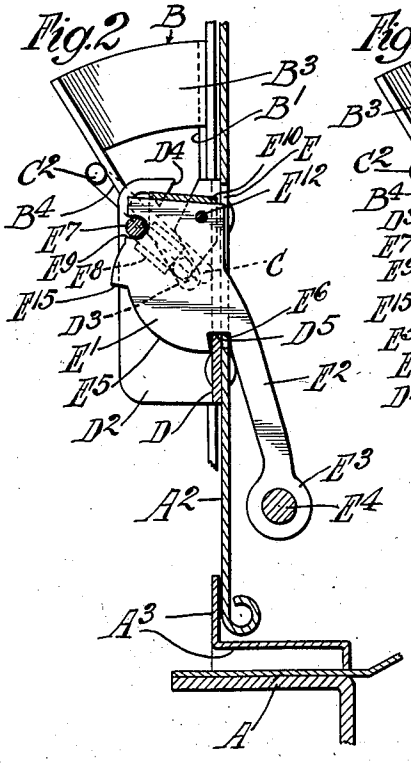


Fig. 3

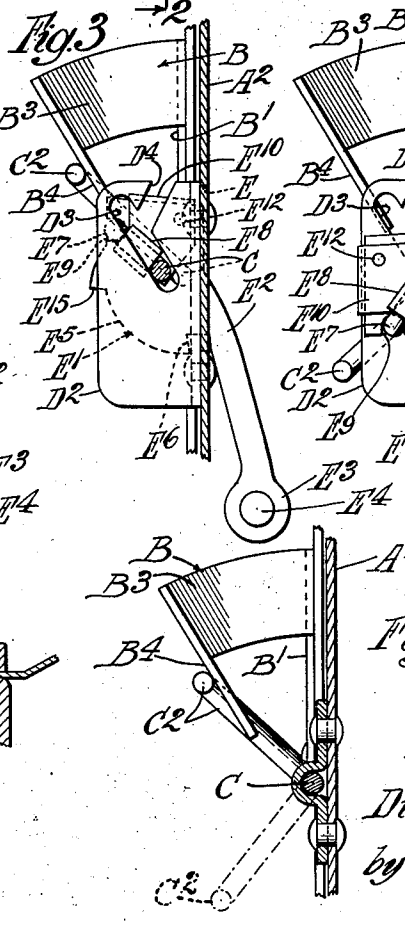


Fig. 4

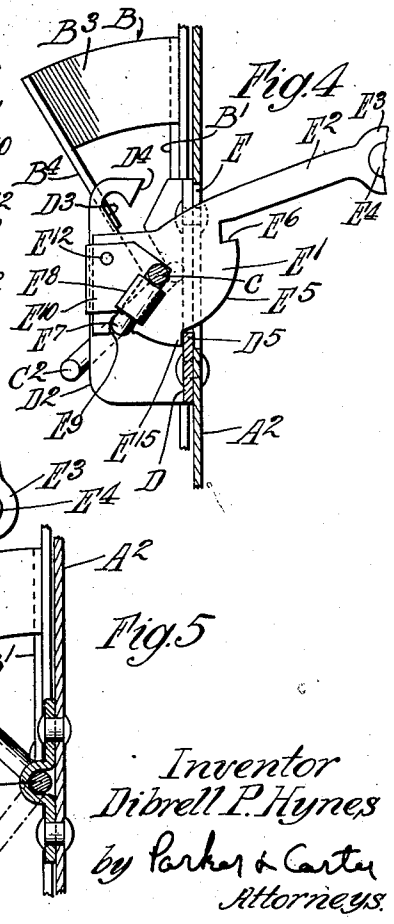


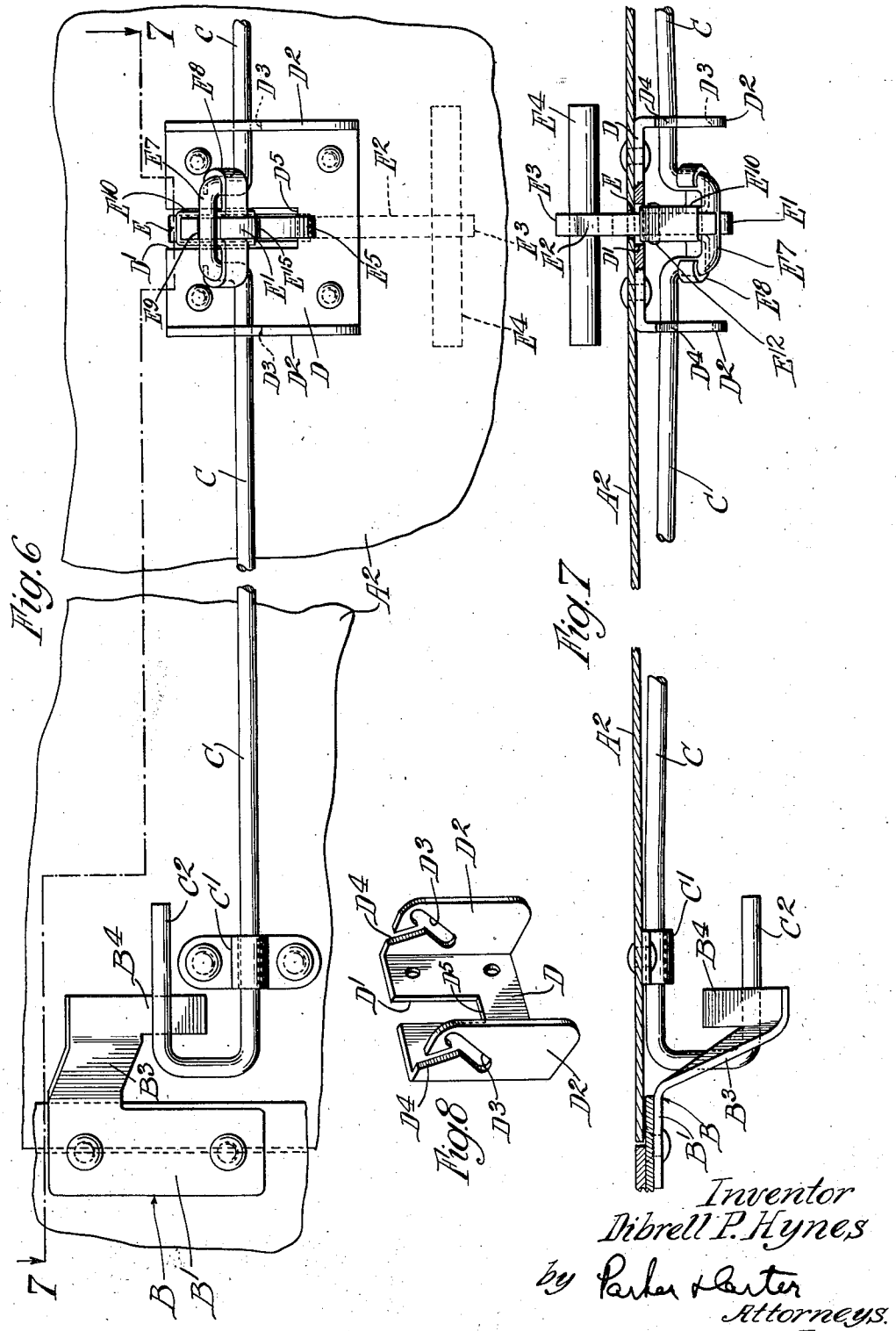
Fig. 5

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Fig. 9.

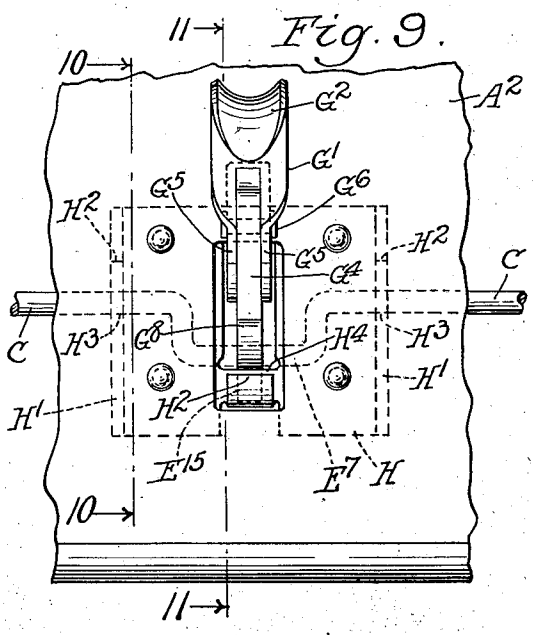


Fig. 10.

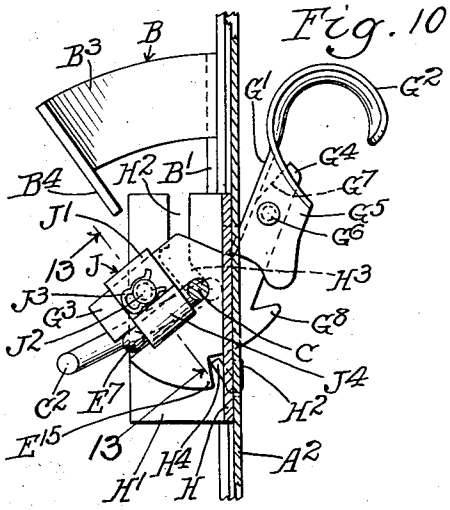


Fig. 11.

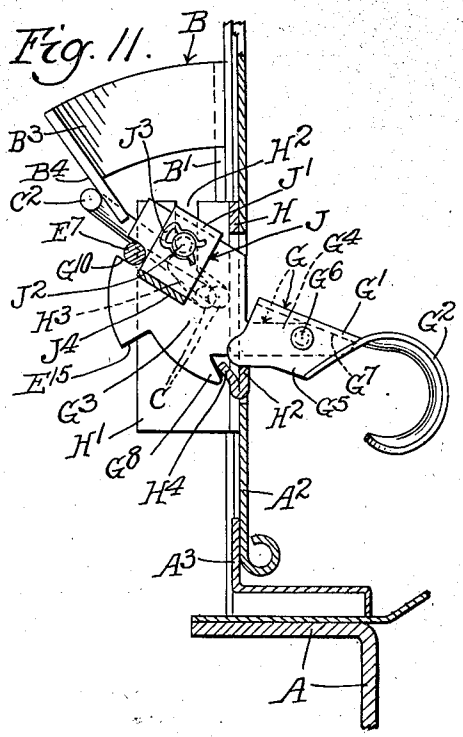


Fig. 12.

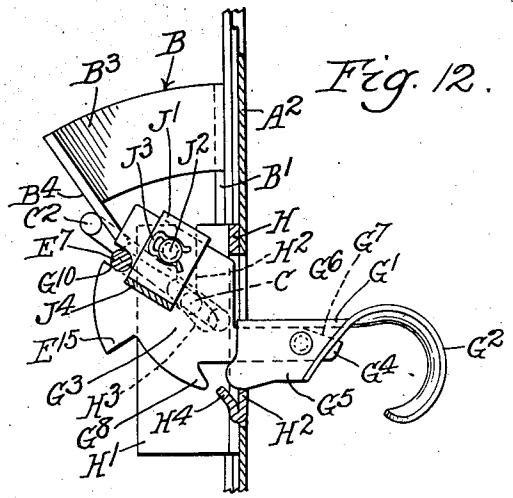
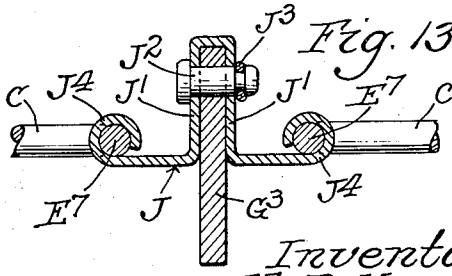


Fig. 13.



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Patented Sept. 29, 1931 1,824,895

UNITED STATES PATENT OFFICE

DIBRELL P. HYNES, OF CHICAGO, ILLINOIS, ASSIGNOR TO CHICAGO FORGING & MANUFACTURING CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

HOOD LATCH

Application filed November 21, 1930. Serial No. 497,163.

My invention relates to securing means for a closure and has for one purpose or use the provision of means for securing an automobile hood closure in closed position. One object is the provision of such holding or securing means which shall be efficient in use and cheap to manufacture. Another object is the provision of such means which shall be positive in action and shall automatically adjust for variation any size of opposed parts. Another object is the provision of such means which shall not only hold the closure in position but which will prevent rattling of one opposed part against another. Other objects will appear from time to time in the course of the specification and claims.

I illustrate my invention more or less diagrammatically in the accompanying drawings, wherein—

Figure 1 is a side elevation;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a section on the line 3—3 of Figure 1;

Figure 4 is a section similar to Figure 3 illustrating the parts in a different position;

Figure 5 is a section on the line 5—5 of Figure 1;

Figure 6 is an inside elevation of the parts, on an enlarged scale;

Figure 7 is a section on the line 7—7 of Figure 6;

Figure 8 is a detail;

Figure 9 is a front side elevation of a variant form of the device;

Figure 10 is a section on the line 10—10 of Figure 9;

Figure 11 is a section on the line 11—11 of Figure 9, showing the parts in locked position;

Figure 12 is a similar section showing the initiation of the unlocking movement; and

Figure 13 is a section on the line 13—13 of Figure 10.

Like parts are indicated by like symbols throughout the specification and drawings.

Referring to the drawings, A generally indicates an automobile frame, A^1 the radiator and A^2 any suitable hinged hood closure the lower edge of which may abut against the abutment flange A^3, as shown for example in Figure 2.

Mounted on the automobile frame adjacent the ends of the closure A^2 are the locking abutments B, B, each of which includes a base portion B^1, and an inclined forward extension or flange B^3 at the end of which is an inclined abutment portion B^4. This structure is clearly indicated in Figures 1 to 5. The abutment portion B^4 is positioned substantially within the plane of the closure A^2 and is inclined upwardly and inwardly in relation thereto.

C generally indicates the locking rod rotatably mounted upon the inner face of the closure A^2. It may be mounted for example in the terminal bearings C^1 C^1. It is herein shown as having recurved ends C^2, which recurved ends are adapted to be opposed to the inclined abutments B^4. It will be understood that when the rod C is rotated in a clockwise direction, referring to the position of parts in Figures 2 to 5, this rotation causes the offset or recurved portion C^2 to engage the inclined abutment member B^4, which engagement tends to draw the closure A^2 downwardly toward the frame A and inwardly against the abutment A^3. The torsion or spring action of the rod provides a yielding locking effect. In normal use this yielding characteristic of the rod is sufficient to provide sufficient excess pressure to compensate for wear. The rod is sufficiently flexible, also, to compensate for assembly of variations in size, shape and position of parts.

In order to impart to the rod the necessary rotation, and in order to permit its control from without the hood, I provide the following structure. D generally indicates a plate or base which may be secured to the inner face of the closure A^2. It is centrally broken away as at D^1 and its edges are bent into the flanges D^2, each of which is provided with the upwardly and inwardly inclined slot D^3, through which passes the rod C. D^4 is an oppositely inclined entry slot. The member D is further provided with an abutment lip D^5, the purpose of which will be set out below.

The closure A^2 is apertured as at E, said

aperture being in line with the aperture D^1 in the plate D. Through this aperture passes the forward extension E^2 of the member generally indicated as E^1. This extension may terminate in the eye E^3 through which may pass a horizontal rod or handle E^4. A portion of the member E^1 which lies to the rear of the closure A^2 may be roughly arcuate, as at E^5, this arcuate portion being provided with an abutment E^6 formed by a notch or depression adjacent the lower side of the forward extension E^2. When the handle E^4 is in the downward position in which it is shown in Figures 1 and 2 the abutment E^6 is opposed to the abutment D^5. The member E^1 is held against rotation in relation to the shaft C. I illustrate as suitable means a central offset portion E^7 of the shaft C, which offset portion, and the adjacent portions of the shaft C are surrounded by a covering E^8, of sheet metal or the like, which covering forms in effect a lateral extension of the rod C. The central offset portion of the web seats in a slot E^9 in the member E^1. The cover portion E^8 may be laterally expanded as at E^{10}, on each side of the member E^1, and fastened to the member E^1 by suitable means as at E^{12}, in order to prevent longitudinal movement of the member E^1 along the rod C. The result of this structure is to prevent rotation of the member E^1 about the rod C and also to prevent longitudinal movement of the member E^1 along the rod C. I illustrate this structure as a satisfactory solution of this problem, but do not wish to be limited specifically to it, except so far as I precisely so limit myself in the claims. The ends of the slot E^9 may be crimped inwardly to lock the member E^1 upon the rod C, and in addition the member E^1 and the offset portion E^{10} may be joined together as at E^{12}.

Referring to the form of Figure 9 and following in the place of the handle or lever member E^1 I employ a compound member generally indicated as G which includes an exterior handle lever G^1 with the hand piece G^2. The member G^1 is pivoted to the interior locking and rock shaft actuating member G^3, as for example to its forward extension G^4 which passes outwardly through the aperture in the hood. The member G^1 may for example be upset as at G^5 G^5 to engage the opposite sides of the member G^4. G^6 indicates a pivot pin passing through the two members. The parts are so proportioned as to permit a slight or limited relative rotation of the two members. When the parts are in the position shown in Figure 12 the member G^1 engages the top of the member G^4 on the hood side of the pin G^6. When in the normal locking position the member G^1 engages the tapered portion G^7 of the top of the member G^4, as shown in Figure 11. The member G^3 is provided with a locking lip G^8 adapted to engage an opposed locking lip or abutment H^4 formed in the supporting plate generally indicated as H. This supporting plate includes side flanges H^1 H^1 projecting inwardly from the hood, these side flanges being slotted at their tops as at H^2, the slots H^2 communicating with the inclined slots H^3. Through these slots passes the rock shaft C, normally seating in the inclined slots H^3. The offset central or crank portion E^7 of the shaft C is held against rotation in relation to the member G^3, being for example seated in a slot therein G^{10}. Any suitable means may be employed for holding the member G^3 against movement in relation to the shaft C and the offset portion E^7, for example the yoke generally indicated as J and including a saddle portion J^1 passing over the member G^3 and pinned to it as by the pin J^2 with the securing clip J^3. The yoke includes outwardly extending portions G^3 curled about the offset E^7 as at G^4.

It will be realized that whereas I have described and shown a practical and operative device, nevertheless many changes might be made in the size, shape, number and disposition of parts without departing from the spirit of my invention. I therefore wish my description and drawings to be taken as in a broad sense illustrative and diagrammatic rather than as limiting me to my specific showing.

The use and operation of my invention are as follows:

It being the function of the rod C, for example through the recurved portions C^2, to engage the locking abutments B^4, it is my purpose to provide unitary means for simultaneously raising and lowering the closure A^2 and at the same time unlocking and locking the closure. In other words I provide means whereby lifting upon the handle E^4 will release the locking connection against the abutment B^4, to permit the closure to be lifted in response to lifting force applied to the handle E^4. In the hood latch closures now currently employed it is necessary first separately to release one or more hood latches, and then to lift the closure by means of an independent handle, separate from the hood latches. In the present structure, assume that the handle E^4 is in the lower position in which it is shown in Figures 1 and 2. When the operator lifts upon the handle E^4 he tends to rotate the member E^1 and thus the shaft C. However, such rotation is at first prevented by the engagement between the abutments E^6 and D^5. Therefore, the handle E^4, carrying with it the structure E^1 and the central portion of the shaft C moves upwardly and somewhat inwardly, this movement being guided by the slot D^3. As soon as the abutment E^6 has cleared the opposed abutment D^5, the member E^2 may rotate into the position in which it is shown in Figure

4. Preferably the shaft is torsionally distorted by its engagement on the one hand with the abutments B^4 and on the other by the engagement of the abutment E^6 with the opposed lip or abutment D^5. As long as the abutment E^6 is opposed to the lip D^5 this torsion of the shaft keeps the recurved ends of the shaft yieldingly locked against the inclined abutments B^4. This tensional yielding locking is terminated by the lifting of the handle and the clearing of the said abutments E^6 and D^5. However, unless this lifting is manually done the position of the parts is such and the effect of the torsion of the shaft is such as to lock the shaft in position at the bottom of the slots D^3. As the slots are inwardly inclined, a lifting of the handle frees the abutment E^6 from the opposed lip D^5 and renders this lifting easy. As soon as the two abutments have cleared and as soon as the rotary movement of the member E^2 has been freed, then a further lift on the handle E^4 is effective to lift the closure A^2, which now is free to move upwardly, the locking connection having been terminated. Although the position of the abutment E^6 to the abutment D^5 does not impede the upward movement of the member E^1 and its subsequent rotation, in response to the exertion of an upward pull on the handle E^4, the spring action of the rod C, in connection with the torsion caused by the engagement of the offset portions C^2 with the abutments B^4, is sufficient to urge the abutment E^6 into normally firm contact with the opposed abutment D^5. The result is a firm locking action, the rod C being at all times under torsion, and also somewhat flexed from the shape it would naturally take. Preferably the rod may be slightly bowed in order to accentuate this flexure, although this bowing may be so slight as hardly to show in the drawings herein. Rotation of the member E^1 by lifting of the handle E^2 may be limited as by the offset portion E^{15} coming in contact with the lip D^5 as shown in Figure 4.

Referring to the form of Figure 9 and following I employ a break joint for the handle lever. Assume that the parts are in the locking position in which they are shown in Figure 11, when the operator lifts the handle G^2 it rotates about the center G^6 and its inner end presses downwardly upon the lip H^2, thus positively lifting the member G^3 and clearing the opposed locking members G^8 and H^4. A downward thrust upon the handle G^2 restores the parts to their original position and permits ready locking. The lifting or unlocking effect of raising the handle G^2 is illlustrated by the position of the parts as shown in Figure 12.

I claim:

1. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, a handle for rotating the rod into and out of locking position, and means for holding the rod against rotation when it is in locking position, said means including an abutment substantially fixed in relation to the closure and an abutment adapted to move with the rod, said handle being adapted to bring said abutments into holding opposition when the rod has been rotated into locking position.

2. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, and a handle for rotating the rod into and out of locking position, and means for holding the rod against rotation when it is in locking position, said means including an abutment substantially fixed in relation to the closure and an abutment adapted to move with the rod, and means for bringing said abutments into holding opposition when the rod has been rotated into locking position.

3. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, abutments positioned within the closure, locking members on the rod adapted to be opposed to said abutments in response to rotation of the rod, means for rotating the rod into and out of locking position, including an exterior handle and a connection between said handle and said rod, the closure being apertured to permit the passage of said connection therethrough, and means for holding said rod against rotation when it is in locking position, including opposed abutments associated with rod and closure.

4. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, a locking member on the rod adapted to be moved into locking position in response to rotation of the rod, a keeper to which said locking member is opposed when in locking position, a handle for rotating the rod into and out of locking position, and a securing guide for said rod associated with the closure, said guide including a slot through which said rod passes, and means for holding said rod against rotation, effective when the rod is in a predetermined position in said slot.

5. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, a plurality of locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, keepers to which said locking members are opposed when in locking position, an exterior handle for rotating the rod into and out of locking position, and a securing guide for the rod, associated with the closure, said guide including a slot through which the rod passes, and means for holding the rod

against rotation, effective when the rod is in a predetermined position in said slot, including an abutment on the closure and an abutment associated with the rod, the latter abutment being yieldingly thrust against the former by the flexure of the rod itself, when the parts are in locking position.

6. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, and a handle rigid on the rod, for rotating the rod into and out of locking position, and means for holding the rod against rotation when it is in locking position, said means including an abutment mounted on the closure and an abutment adapted to move with the rod, said handle being adapted to bring said abutments into holding opposition when the rod has been rotated into locking position, and means for positively freeing said abutments from locking position in response to an upward movement of the handle.

7. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, a control member for rotating the rod into and out of locking position and a handle pivoted to said control member.

8. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, a control member for rotating the rod into and out of locking position and a handle pivoted to said control member, and means for limiting the rotation of said handle in relation to said control member to a predetermined arc.

9. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, and means for rotating the rod into and out of locking position including a compound handle, said handle including a member secured to the rod and an exterior handle member movably mounted upon said first mentioned member.

10. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, and means for rotating the rod into and out of locking position including a compound handle, said handle including a member secured to the rod and an exterior handle member pivoted in relation to said first mentioned member.

11. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, and means for rotating the rod into and out of locking position including a compound handle, said handle including a member secured to the rod and an exterior handle member pivoted in relation to said first mentioned member, said pivot being exterior to the closure.

12. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, and means for rotating the rod into and out of locking position including a compound handle, said handle including a member secured to the rod and an exterior handle member movably mounted upon said first mentioned member, means for holding said rod in locking position, including an abutment upon the closure and an opposed abutment associated with the compound handle.

13. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, locking members on the rod, adapted to be moved into locking position in response to rotation of the rod, and means for rotating the rod into and out of locking position including a compound handle, said handle including a member secured to the rod and an exterior handle member movably mounted upon said first mentioned member, means for holding said rod in locking position, including an abutment upon the closure and an opposed abutment associated with the compound handle, said movable handle member being adapted, in response to its initial upward movement from the locking position, to free said abutments.

14. In securing means for a closure, a rod rotatably mounted upon the inner face of the closure, abutments positioned within the closure, locking members on the rod adapted to be opposed to said abutments in response to rotation of the rod, means for rotating the rod into and out of locking position, including an exterior handle and a connection between said handle and said rod, the closure being apertured to permit the passage of said connection therethrough, and means for holding said rod against rotation when it is in locking position, including opposed abutments associated with rod and closure, the abutments being slidable in relation to each other and being adapted to hold the rod against rotation, while permitting non-rotary movement of the rod transversely of its axis.

Signed at Chicago, county of Cook and State of Illinois, this 6th day of November 1930.

DIBRELL P. HYNES.