Sept. 29, 1964 L. R. POE 3,150,893

DRAW LATCH

Filed Oct. 29, 1962

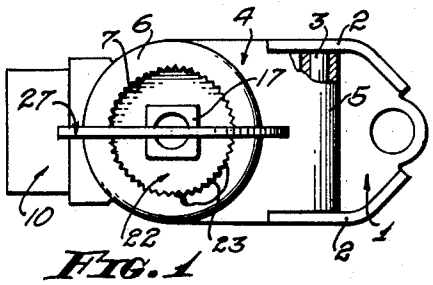


FIG. 1

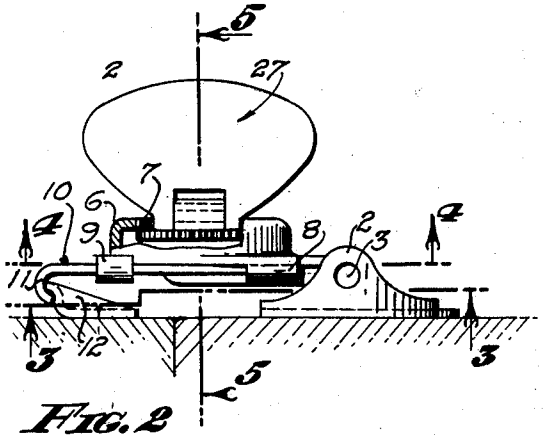


FIG. 2

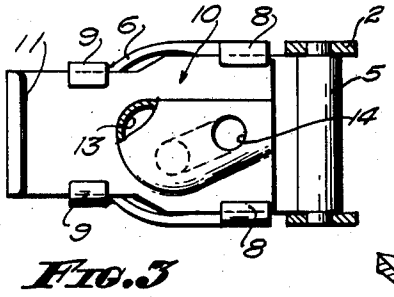


FIG. 3

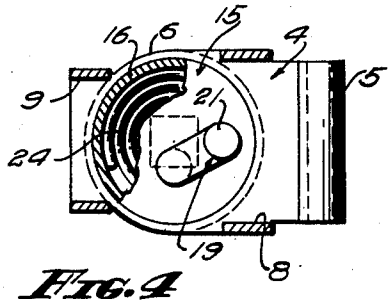


FIG. 4

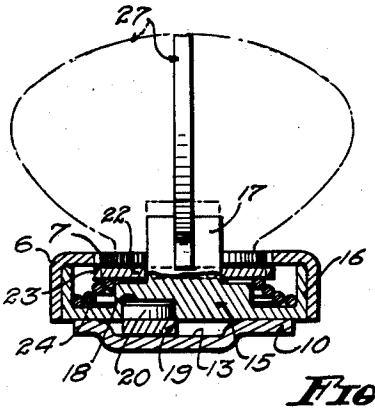


FIG. 5

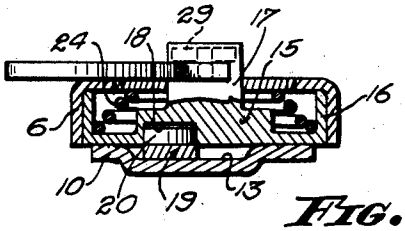


FIG. 6

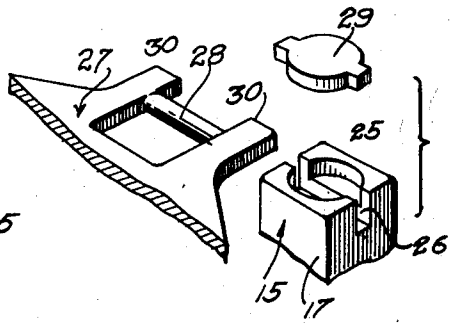


FIG. 7

INVENTOR.
LLOYD RICHARD POE
BY
Lyon & Lyon
ATTORNEYS

United States Patent Office 3,150,893 Patented Sept. 29, 1964



3,150,893

# DRAW LATCH

Lloyd Richard Poe, Los Angeles, Calif., assignor to Hartwell Corporation, Los Angeles, Calif., a corporation of California

Filed Oct. 29, 1962, Ser. No. 233,691
6 Claims. (Cl. 292—111)

This invention relates to draw latches, that is to latches, which by turning a handle, move a hook-type latch axially to engage a keeper so that the parts on which the latch and keeper are mounted are drawn together.

Included in the objects of this invention are:

First, to provide a draw latch which incorporates a novel locking means, whereby the latch may be readily locked to the keeper, when the parts on which the keeper and latch are mounted, are drawn together.

Second, to provide a draw latch of this type which does not require close tolerances in the spacing between the latch and keeper and between the member on which they are mounted, the locking means being such that the latch may be locked in a multiplicity of positions differing in spacing by only a few thousandths of an inch.

Third, to provide a draw latch which incorporates a novel locking means normally maintained in a locked position by a spring, and adapted to be released by a cam means, carried by a handle, employed to operate the latch.

With the above and other objects in view as may appear hereinafter, reference is directed to the accompanying drawings in which:

FIGURE 1 is a top or planned view of the latch.

FIGURE 2 is a side view thereof indicating in section and fragmentarily a door and frame on which a latch is mounted.

FIGURE 3 is a partial sectional, partial bottom view of the latch with the keeper omitted, the view being taken through 3—3 of FIGURE 2.

FIGURE 4 is a sectional view taken through 4—4 of FIGURE 2, showing particularly the body member and a drive disk.

FIGURE 5 is an enlarged, transverse, sectional view taken through 5—5 of FIGURE 2 showing particularly the locking means in its disengaged position, and showing the handle by solid lines in one position and by broken lines in a position at right angles to the solid lined position.

FIGURE 6 is an enlarged, transverse, sectional view similar to FIGURE 5, but showing the locking means in its locked position.

FIGURE 7 is a fragmentary, exploded, perspective view showing the manner in which the handle is mounted in the drive disk stem.

The draw latch includes a base plate 1 having upstanding ears 2 which receive a pivot pin 3. The base plate is adapted to be fastened by one or more screws, not shown, to a door or other member on which it is desired to mount the latch. A body member 4 is provided which may be in the form of a sheet metal stamping having a rolled end 5 adapted to receive the pivot pin 3.

Formed in the body member 4 is a shallow circular housing 6, its underside forming a shallow recess or cavity. The upper side of the housing is provided with a large opening, the margins of which are provided with serrations or teeth 7 to form a fixed locking means.

At the sides of the body member 4, between the housing 6 and the rolled end 5, the body member is provided with a pair of inturned guide lugs 8. A similar pair of guide lugs 9 are provided at the opposite side of the housing.

The two pairs of guide lugs serve to support and guide the latch plate 10 underlying the body member 4. The guide lugs 9 may be closer spaced than the guide lugs 8, and the corresponding portion of the latch plate which extends forwardly with the body member is reduced in width.



The forwardly extending portion of the latch plate terminates in a hooked end 11, which is adapted to engage a keeper 12 mounted on the door frame or the other member cooperating with the member on which the base plate 1 is secured.

The portion of the latch plate 10 underlying the housing 6 is provided with a downwardly offset clearance recess 13. Within the recess the latch plate is provided with a perforation 14 which forms a bearing.

Rotatably mounted within the housing 6 is a latch drive disk 15 having a peripheral flange 16 journaling within the circular walls of the housing. The drive disk 15 is provided with a central boss or stem 17 which extends upwardly through the upper side of the housing 6.

The underside of the drive disk 15 is provided with a bearing recess 18. A connecting link 19 having upwardly and downwardly extending journal lugs 20 and 21 at its extremities interconnects the bearing recess 18 and bearing perforation 14. The bearing recess 18 is eccentrically located so that on rotation of the drive disk 15, the latch plate 10 is moved longitudinally.

The upper portion of the central boss or stem 17 is preferably square in cross-section and slidably receives a locking disk 22 having a square opening so as to rotate with the drive disk 15. The locking disk 22 is provided with peripheral serrations or teeth 23 adapted to fit within the marginal serrations 7 to lock the drive disk 15 against rotation relative to the housing 6.

A spring 24 surrounds the stem 17 and bears against the disk 15 and locking disk 22 to urge the locking disk into locking engagement with the fixed locking means formed by the serrations 7.

The extremity of the stem 17 is provided with a recess 25 having a cross-slot 26. A handle member 27 formed of a flat plate is provided with a bifurcated end connected by an integral cross bar 28. The bifurcated end straddles the stem 17 and the cross bar 28 journals within the cross slot 26. A retainer disk 29 closes the recess 25 to retain the cross bar and handle in place, and in turn is held by forcing the portions of the extremities of the stem over the disk by what is commonly termed "a staking operation."

The bifurcated portion of the handle member projects beyond the cross bar 28 to form a pair of cam lugs 30 which, when the handle member is pivoted from a horizontal position shown in FIGURE 6 to a vertical position shown in FIGURE 5, engages the locking disk 22 to depress the locking disk clear of the serrations 7.

The location of the cross slot 26 in the stem 17 is such that, when the handle is at its folded position shown in FIGURE 6, the underside of the handle is essentially flush with the top side of the housing 6 so that the locking disk is restrained against upper displacement beyond the marginal serrations 7.

Operation of the draw latch is as follows:

When the handle is in its upright position shown in FIGURES 1, 2, and 5, the locking disk 22 is disengaged from the fixed locking means or serrations 7 and is held out of engagement by the cam lugs 30. The handle, when in this position, may be used to turn the drive disk 15 so that the connecting link 19 may move the latch plate 10 longitudinally.

When the latch plate has engaged its keeper 12 and drawn the two members to which the base plate 1 and keeper 12 are mounted into mutual engagement, as indicated in FIGURE 2, the handle may be pivoted to its folded position as shown in FIGURE 6 so that the locking disk 22 engages the marginal serrations 7 and locks

the drive disk against rotation, thereby locking the latch plate 10 against longitudinal displacement.

It will be observed that the large number of serrations or teeth 7 and 23 may be provided so that, at virtually any position of the latch plate 10, the latch plate may be securely locked so as to insure that the members joined by the draw latch are held in tight abutment.

While a particular embodiment of this invention has been shown and described, it is not intended to limit the same to the exact details of the construction set forth and it embraces such changes, modifications, and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

What is claimed is:

1. A draw latch comprising:
(*a*) a latch plate;
(*b*) a body member slidably receiving said latch plate;
(*c*) a rotatable drive member journalled in said body member;
(*d*) a drive linkage operatively connecting said drive member and latch plate to effect longitudinal movement of said latch plate on rotation of said drive member;
(*e*) interengageable locking means interposed between said body member and drive member for securing said drive member and said latch plate against movement;
(*f*) and a handle connected with said drive member and including an element for disengaging said locking means to free said drive member for operation of said latch plate.

2. A draw latch comprising:
(*a*) a latch plate;
(*b*) a body member slidably receiving said latch plate;
(*c*) a rotatable drive member journalled in said body member;
(*d*) a drive linkage operatively connecting said drive member and latch plate to effect longitudinal movement of said latch plate on rotation of said drive member;
(*e*) locking means including mutually engageable locking elements interposed between said body member and drive member;
(*f*) a spring urging said locking elements into mutual engagement thereby to secure said drive member and latch plate against movement;
(*g*) and a handle pivotally connected to said drive member about an axis transverse to the axis of rotation of the drive member and including cam means engageable with said clutch to effect disengagement thereby to free said drive member and latch plate for movement.

3. A draw latch comprising:
(*a*) a latch plate;
(*b*) a body member slidably receiving said latch plate;
(*c*) a rotatable drive member journalled in said body member;
(*d*) a drive linkage operatively connecting said drive member and latch plate to effect longitudinal movement of said latch plate on rotation of said drive member;
(*e*) locking means including fixed and movable locking elements having a multiplicity of intenengaging teeth whereby said locking elements are engageable in a multiplicity of relative positions;
(*f*) and a handle connected with said drive member and including an element for disengaging said locking means to free said drive member for operation of said latch plate.

4. A draw latch comprising:
(*a*) a latch plate;



(*b*) a body member slidably receiving said latch plate;
(*c*) a rotatable drive member journalled in said body member;
(*d*) a drive linkage operatively connecting said drive member and latch plate to effect longitudinal movement of said latch plate on rotation of said drive member;
(*e*) locking means including fixed and movable locking elements having a multiplicity of interengaging teeth whereby said locking elements are engageable in a multiplicity of relative positions;
(*f*) a spring urging said locking elements into mutual engagement thereby to secure said drive member and latch plate against movement;
(*h*) and a handle pivotally connected to said drive member about an axis transverse to the axis of rotation of the drive member and including cam means engageable with said clutch to effect disengagement thereby to free said drive member and latch plate for movement.

5. A draw latch comprising:
(*a*) a latch plate;
(*b*) a body member overlying and slidably receiving said latch plate, said body member having a circular recessed portion confronting said latch plate, and an annular fixed locking element concentric with said recessed portion;
(*c*) a latch drive disk journalled in said recess and having a central stem extending upwardly through said fixed locking element;
(*d*) a drive means interconnecting said drive disk and latch plate to effect longitudinal movement of said latch plate on rotation of said drive disk;
(*e*) a circular movable locking element rotatable with said drive disk and slidable on said stem for engagement with said fixed locking element;
(*f*) a handle connected to said stem for rotating said drive disk, said handle including a cam for disengaging said locking elements;
(*g*) and yieldable means urging said locking elements into engagement.

6. A draw latch comprising:
(*a*) a latch plate;
(*b*) a body member overlying and slidably receiving said latch plate, said body member having a circular recessed portion confronting said latch plate and an aperture concentric with said recessed portion, the aperture being bordered by a ring of fixed locking teeth;
(*c*) a latch drive disk journalled in said recess and having a central stem extending upwardly through said aperture;
(*d*) a drive means interconnecting said drive disk and latch plate to effect longitudinal movement of said latch plate on rotation of said drive disk;
(*e*) a locking disk rotatable with said drive disk and slidable on said stem, said locking disk having peripheral locking teeth;
(*f*) a spring urging said locking teeth into interengagement for locking said drive disk and latch plate in any of a multiplicity of positions;
(*g*) and a handle pivotally connected to said stem and including a cam means for urging said locking disk to disengage said locking teeth, thereby to permit movement of said drive disk and latch plate.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 2,820,995 | Schlueter | Jan. 28, 1958 |
| 2,853,751 | Schlueter | Sept. 30, 1958 |
| 2,853,752 | Schlueter | Sept. 30, 1958 |