

May 7, 1968

A. J. FRIESEN
FASTENING DEVICE

3,381,992

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2 Sheets-Sheet 1

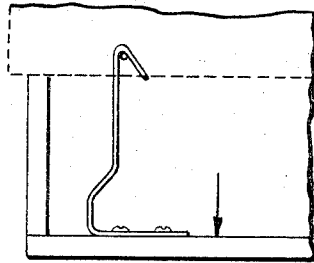


FIG. 5

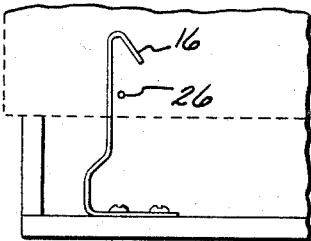


FIG. 6

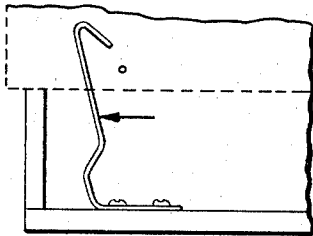


FIG. 7

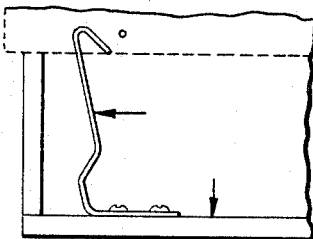


FIG. 8

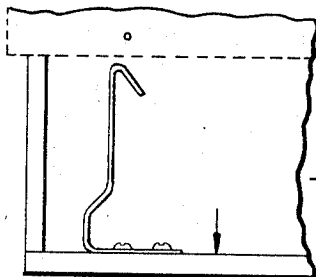


FIG. 9

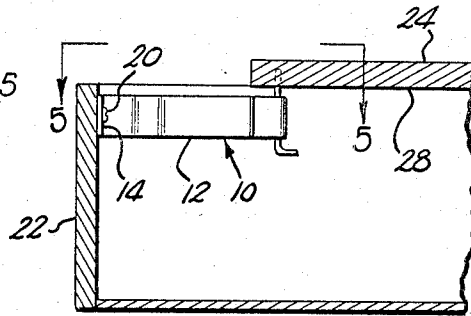


FIG. 1

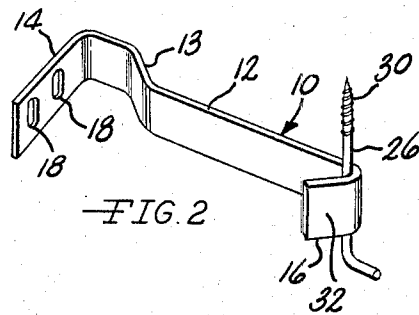


FIG. 2

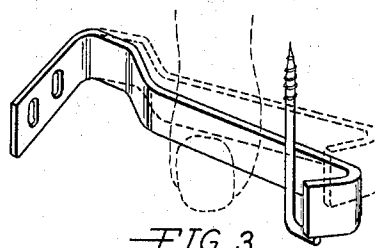


FIG. 3

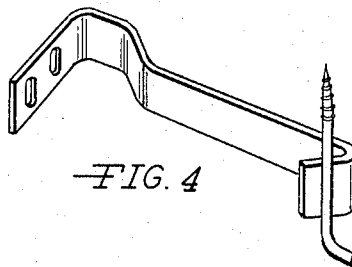


FIG. 4

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FASTENING DEVICE

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2 Sheets-Sheet 2

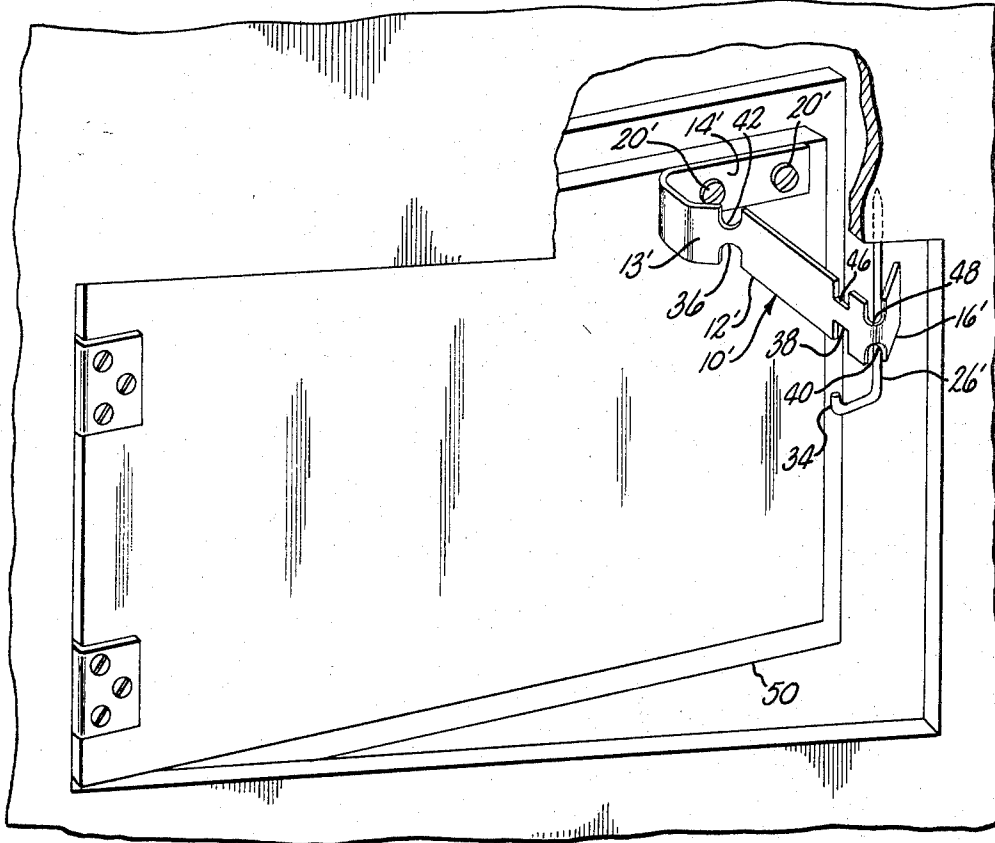


FIG. 14

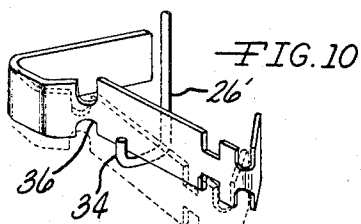


FIG. 10

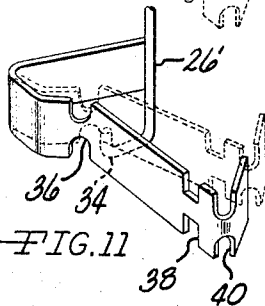


FIG. 11

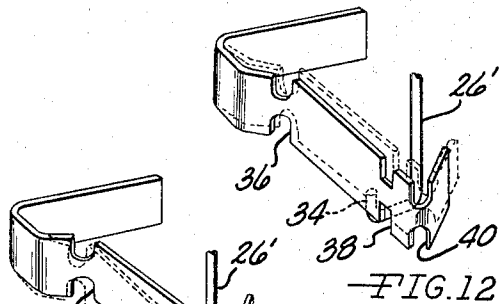


FIG. 12

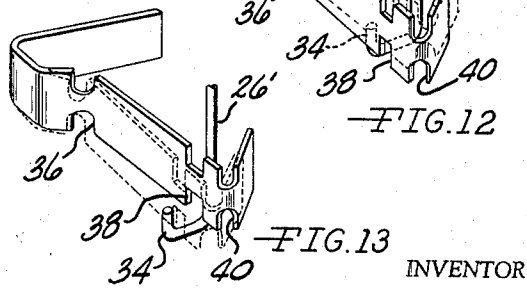


FIG. 13

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1 Claim. (Cl. 292—87)

This invention relates to fastening devices and more particularly to a device, readily operable by older children and adults but not by young children, for fastening a drawer or door of a cabinet.

It has been found that a substantial need exists for a fastening device for cabinet drawers and doors, which may be simply and inexpensively constructed and installed, and which may be easily opened by older children and adults but which younger children cannot open.

It is accordingly an object of the present invention to provide an improved fastening device for releasably fastening cabinet drawers and doors.

Another object is to provide a fastening device for cabinet drawers and doors which is readily operable by older children and adults but not by young children.

A further object is to provide a fastening device for cabinet drawers and doors, which is completely disposed within the cabinet when the cabinet is closed, and which requires intelligence exceeding that of a young child to be unfastened.

Broadly, my invention is characterized by a resilient latch member adapted for mounting upon the inner surface of a drawer front, or the inside of a cupboard door, and extending within the cabinet, a hook at the end of said resilient member, and a pin mounted within the cabinet and disposed to be engaged by said pin and thereby to prevent more than partial opening of the drawer or door. The latch member is arranged to be sufficiently exposed by partial opening of the drawer or door so that it may be manually sprung to bring the hook out of a path of engagement with the pin and thereby to permit the drawer or door to be fully opened.

The above and other objects of the invention which will later become apparent as the following description proceeds, are attained by the present invention, a preferred embodiment of which has been illustrated, by way of example only, in the accompanying drawings, forming a part of this specification in which like characters are employed to designate like parts throughout the same, and wherein:

FIGURE 1 is a side sectional view of a cabinet drawer with a first embodiment of my fastening device operatively mounted therein.

FIGURE 2 is a perspective view of the first embodiment of my invention showing the latch member engaged with the pin.

FIGURE 3 is a perspective view of the first embodiment of my invention showing the latch member being manually sprung to bring the hook out of a path of engagement with the pin.

FIGURE 4 is a perspective view of the first embodiment of my invention in unlatched disposition.

FIGURE 5 is a top plan view, taken along line 5—5 of FIGURE 1.

FIGURE 6 is a view similar to FIGURE 5 but showing the drawer partially closed to station the latch member in a position where it may be sprung.

FIGURE 7 is a view similar to FIGURE 5 but showing the latch member in sprung position.

FIGURE 8 is a view similar to FIGURE 5 but showing the drawer being opened with the latch member retained in sprung position.

FIGURE 9 is a view similar to FIGURE 5 but show-

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ing the latch member returned to unsprung position and the drawer being fully opened.

FIGURE 10 is a perspective view of a modified form of my invention showing a post in process of springing the latch member during closure of a door.

FIGURE 11 is a view similar to FIGURE 10 but showing the latch member returning to its unsprung position when the post has passed through a first notch therein as the door is further closed.

FIGURE 12 is a view similar to FIGURE 10 but showing the post springing the latch member in an opposite direction during partial opening of the door.

FIGURE 13 is a view similar to FIGURE 10 but showing the latch member returning to unsprung position the post passes through a second notch therein when the door is further opened.

FIGURE 14 is a perspective view of the modified form of my invention mounted upon a cabinet door and engaged with the pin to prevent full opening of the door.

Referring now to FIGURES 1, 2 and 5, I provide a latch member generally indicated at 10, formed of resilient material such as stainless steel or the like, and having an arm 12, a foot 14 at one end disposed at substantially a right angle to the arm, and a hook 16 at the other end, formed by bending arm 12 backwardly upon itself at an acute angle. To give increased spring action to arm 12 and to make latch member 10 more compact, the arm is preferably offset near its junction with foot 14, as shown at 13. A pair of apertures 18, 18 are provided in foot 14 to receive a pair of screws 20, 20 or the like for the purpose of fastening the foot securely to the inside of the front panel of a drawer 22 of a cabinet 24. When foot 14 is thus secured, arm 12 and hook 16 extend within the interior of cabinet 24 at substantially a right angle to the front panel of drawer 22.

A pin 26 is mounted securely to the top or superior shelf 28 of cabinet 24 by threads 30 or similar means, and extends vertically downward. Pin 26 is arranged to be engaged by hook 16 when drawer 22 is partially opened after having been previously substantially closed. While I have showed pin 26 as being L-shaped, it is to be understood that it may have any desired shape whatsoever so long as it is adapted to be engaged by hook 16.

In operation, as drawer 22 is closed, pin 26 is first contacted by the sloped forward face 32 of hook 16 and cams the hook and arm 12 of latch member 10 outwardly until the hook clears the pin, whereupon the arm springs resiliently back to its unsprung position. The inside of hook 16 then rests in a position such that pin 26 lies within the path of travel thereof when the drawer is subsequently opened. When drawer 22 is thereafter partially opened, hook 16 then engages pin 26 and prevents further opening thereof as best shown in FIGURES 1, 2, and 5.

To open the latched drawer, it must be first partially reclosed, as shown in FIGURE 6, to a position wherein hook 16 lies completely rearward of pin 26 and hence is fully disengaged therefrom. Digital pressure is then applied to the inside of arm 12, as best shown by the arrow in FIGURE 7, thereby springing arm 12 and hook 16 outwardly so as to cause the hook to clear pin 26. With arm 12 thus maintained in its sprung position, drawer 22 is drawn forward, as shown in FIGURE 8, until hook 16 lies forward of pin 26 and hence cannot engage the pin when the arm is thereafter released. The pressure on arm 12 may then be released and the arm allowed to assume its unsprung position as shown in FIGURE 4. Drawer 22 may then be freely and completely opened as shown in FIGURE 9.

While my invention is thus simply and inexpensively constructed, installed, and operated, it requires a level of intelligence above that of a young child to detect, upon

opening the drawer to the position shown in FIGURES 1, 2, and 7, the necessity of first reclosing the drawer to the position shown in FIGURE 6, and thereafter springing arm 10 and further opening the drawer as shown in FIGURES 7 and 8, in order to completely open the drawer. Younger children, whose mechanical ability has not yet developed sufficiently to solve this problem without instruction, cannot open the drawer, but older children and adults can easily do so.

A modified and preferred form of my invention is shown in FIGURES 11 through 14, inclusive, and includes a J-shaped pin generally indicated at 26' and which bears an upstanding post 34 spaced from and parallel to the main shank of the pin. In this modified form of my invention, arm 12' of resilient member 10' is provided with a first notch 36 at or near offset portion 13', a second notch 38 near and slightly spaced from the forward end of arm 10', and a third notch 40 at the vertex of hook 16'. In manufacture, three additional notches 42, 46 and 48 are provided in member 10', identical with and positioned symmetrically opposite from notches 36, 38 and 40, respectively, to serve the same function should member 10' be mounted in reverse position.

As best shown in FIGURE 10, when a closure such as a cabinet door 50 bearing latch member 10' is closed, the sloped forward face 32' of hook 16' clears pin 26' (as distinguished from the operation of the first form of the invention wherein face 32 strikes pin 16), and post 34 contacts the outside of arm 12', slides along it, and springs it resiliently inward. As door 50 continues to close, post 34 continues to spring arm 12' inwardly and to slide rearwardly upon the arm until the post passes through notch 36, whereupon, as best shown in solid lines in FIGURE 11. Door 50, at this point nearly closed, may then continue to be closed until it seals the cabinet.

When door 50 is subsequently attempted to be opened, post 34 contacts and slides forwardly along the inner surface of arm 12', as shown in FIGURE 12, springing the arm outwardly until the post reaches notch 38. When post 32 reaches notch 38, arm 12' is permitted to spring back inwardly until it contacts and is stopped by the shaft of pin 26', as shown in FIGURE 13, while the post passes through the notch. Slight further opening of door 50 then brings the inside of hook 16' into engagement with the shank of pin 26', which retains member 10' and door 50 from further opening.

When it is desired to open door 50, the door is first partially opened to expose a portion of arm 12' to digital pressure. With such pressure applied to the inside of arm 12' to urge it outwardly in the same manner as in the first form of my invention shown in FIGURE 3, door 50 must then be moved carefully to a position wherein post 34 is aligned with and may pass through notch 38, whereupon arm 12' may be manually sprung further outwardly. Post 32 is spaced from the main shank pin 26' such a distance that when the post passes thus through notch 38 at this stage of the opening process, the main shank of the pin will completely clear hook 16', whereupon door 50 may be further opened. Post 34, however, still lies within the path of embracement of hook 16', but as door 50 continues to be opened the post is guided by the inside of the hook and arm 12' toward notch 40 through which it easily passes, whereupon door 50 is free of the latching device and may be completely opened.

This modified and preferred form of my invention thus requires slightly more intelligence and manual dexterity to operate than the first form of the invention, but still may be managed by older children and adults. While I

have shown and described the first form of my invention employed with a cabinet drawer and the modified and preferred form employed with a cabinet door, it is to be understood that they may each be employed with either form of closure and with other closures, such as cupboards, chests, and screen doors, within the spirit and scope of my invention.

It is also to be understood that the forms of the invention herewith shown and described are to be taken as preferred embodiments of the same and that resort may be had to various changes in construction without departing from the scope of the subjoined claim.

What is claimed is:

1. A fastening device for compartment closure means, comprising:
 - a pin adapted for mounting upon a wall of said compartment and to extend within said compartment;
 - a resilient member having a hook thereon adapted for mounting upon said closure means and to extend within said compartment at substantially a right angle to said closure means when said closure means closes said compartment;
 - said resilient member being adapted to permit said hook to pass said pin during closure of said closure means, to yieldingly dispose said hook, during further closure of said closure means, in a path which will engage said pin upon subsequent reopening of said closure means, and said resilient member being further adapted to be manually sprung to bring said hook out of said path of engagement with said pin when said closure is partially reopened, said pin being substantially J-shaped and including a post spaced from and parallel to the main shaft thereof and disposed to contact the outer side of said resilient member during closure of said closure means and to contact the inner side of said resilient member during opening of said closure means, and said resilient member having a first notch arranged to permit said post to pass from the outer side to the inner side of said member under urging by said resilient element during closure of said closure means, a second notch arranged to permit said post to pass from the inner side to the outer side of said resilient member and said hook positioned in a path which will engage the main body of said pin under urging by said resilient element when said closure means is thereafter partially reopened, and, further, permitting said post to pass from the outer side of said resilient member to the inner side thereof when said resilient member subsequently is manually sprung outwardly, and a third notch near the vertex of said hook arranged to permit said post to pass said hook when said resilient member is thus subsequently manually sprung outwardly and said closure means is thereafter opened still further.

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