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(54) **A closure device for a wing of closet and the like.**

(57) A closure device for a closet wing (2) comprises a closure hook (5) cooperating with a striker (6,8) and being driven by means of a rod (3a,b). The hook (5) is associated with the rod (3a,b) through a screw (22) and nut (23) coupling whereby the nut (22) can be rotated when a linear displacement movement of the screw (22) occurs.

Description

This invention relates to a closure device for a wing of a closet and the like, of a type which comprises a closure hook cooperating with a striker on a post of said closet and being operated through a rod mounted to said wing.

As is known, closets are widely used wherein the wing doors are locked closed by means of rods provided with hooks; by moving said rods angularly, each hook is brought to engage in a respective socket on the closet, thereby the wing door is held closed.

Such a closure design is becoming increasingly more popular because it is the best for use with wing doors formed from wood-based materials other than solid wood, such as chipboards, laminated boards, plywood; these relatively inexpensive materials are, in fact, likely to buckle over time, and rod-and-hook closures resist buckling because, with the closet shut, they hold the wing doors under constant stress.

The prior art has proposed closure devices including a small drive cylinder wherein a rotor is movable angularly by means of a key and is connected drivingly to a closure rod for driving the rod angularly.

The closure rod and hook are generally a unitary construction, whereby the angular displacement of both the rod and the hook is accomplished by applying a torque to the rod through the complex linkage between said driving cylinder and the rod itself.

That approach has the apparent disadvantage of being rather expensive to manufacture.

A second prior approach provides for the use of less expensive, but still fairly complex closure devices; in fact, while being only comprised of simple and inexpensive parts, these are provided in such a high number as to make the resulting mechanism complicated and cumbersome. Other drawbacks come from that such prior closure devices are difficult to mount flush with the interior surface of a closet wing door and noisy in operation.

It is the object of this invention to provide a closure device for a wing of a closet and the like which has such constructional and operational features as to obviate the prior drawbacks mentioned above.

This object is achieved by a closure device for a wing of a closet and the like, being of a type which comprises a closure hook cooperating with a striker on a post of said closet and driven by a rod mounted to said wing, and characterized in that said hook is associated with said rod by means of a screw and nut coupling operative to rotate said nut as said screw is shifted axially.

Further features and the advantages of this invention will be more clearly understood from the following description of an exemplary embodiment thereof, given by way of illustration and not of limitation with reference to the figures of the accompanying drawings.

In the drawings:

Figure 1 is a perspective view showing schematically a closet which incorporates a device according to the invention;

Figure 2 is an exploded detail view in perspective of the device on the closet of Figure 1, as viewed from the point II; and

Figure 3 is a perspective detail view of the device shown in Figure 2.

With reference to the drawing figures, the numeral 1 designates a closet, only depicted schematically, having a wing door 2 on whose inside there is mounted a closure rod 3. The rod 3 is split in two sections 3a and 3b aligned axially, and is driven linearly to move the two sections 3a and 3b axially toward and away from each other by a device, comprehensively designated 4, which is interposed to said sections 3a and 3b.

Advantageously, and as explained in detail herein-after, each rod section, 3a or 3b, is adapted to drive at least one closure hook angularly which engages with a respective striker to hold the wing 2 of the closet 1 shut. In particular, the strikers, indicated at 6, comprise, in the instance of a two-wing door, pegs attached to the closet 1 itself. Another example of this same striker, in the instance of a single wing door, is embodied by an offset hole 28 formed in a circular plate 8 which can be positioned adjustably and secured in place by means of a screw 31, respectively to oppositely located inside ends of a post 9 of the closet 1 in the vicinity of the outside abutment molding 10 of the post 9.

Advantageously, each hook 5 will engage said hole 28, which is a square hole in the embodiment shown, from the inside.

The device 4 is of a type known per se and comprises a small drive cylinder 7 which is accessible from the closet 1 outside through a hole formed in the wing 2. The cylinder 7 is provided with an internal rotor, not shown, which can be moved angularly by means of a key 11.

Said device 4 is of a type commonly employed to drive said rod sections 3a and 3b toward and away from each other; for this purpose, the device 4 is provided with a pair of straps 12 and 13 connected drivingly to said rotor 9 by coupling means not shown and movable toward and away from each other. Said straps 12 and 13 are each provided with a pin 14 and 15, respectively, which extends perpendicularly thereto, being each adapted to engage with respective holes 16 and 17 formed at the ends 18 and 19 in each of said rod sections 3a and 3b.

Mounted close to each of the opposed ends 20 of said rod sections 3a and 3b is a yoke-like end fitting 21 which comprises, on one side, a screw segment 22, and on the other side, a guide pin 29. Advantageously, the screw 22 is coarse pitch one.

A closure hook 5 is associated with each said ends 20 of the rod sections 3a and 3b via a screw and nut coupling between said coarse pitch screw 22 and a nut 23 formed in the body of the closure

hook 5.

Said coarse pitch screw 22 and said guide pin 29, forming the yoke on the end fitting 21, are carried movingly in a track 25 formed in a cylindrical insert 26 molded from a synthetic plastics material integrally with a mounting plate 30. Each closure hook 5 is pivoted to an insert 26 set flush with the wing 2 such that said track 25 is aligned axially to said yoke-like end fitting 21; said insert 26 is also formed with a slot 27 whereinto the closure hook 5 protrudes for angular movement.

Advantageously, the device 4, rod 3, and both end fittings 21 are set flush inside grooves specially provided in the wing 2 and being hidden from view by an inside veneering of the wing 2 excepting at said insert 26 and mounting plate 30.

The device according to the invention is operated as follows. On the rotor 9 of the drive cylinder 7 being moved angularly by means of the key 11, the straps 12 and 13 of the closure device 4 will cause the rod sections 3a and 3b to move toward or away from each other. In the vicinities of the opposed ends 20 of the rod 3 the linear motion of the rod sections 3a and 3b is converted to an angular displacement of the closure hooks 5 through the screw and nut coupling between the screw segment 22 of each end fitting 21, respectively connected to each end 20 of said rod sections 3a and 3b, and the nut formation 23 of each closure hook 5.

The sliding movement of the yoke-like end fitting 21, composed of the screw segment 22 and the guide pin 29, in the track 25 makes then for a smooth motion free of stumbles.

By properly sizing the parts, it should be easy to arrange for the linear travel distance of the rod sections 3a and 3b to be as required to have the hooks 5 fully engaged with or disengaged from their respective strikers, 6 or 8, on the closet 1.

Furthermore, each circular striker plate 8 for the hook 5 may be adjusted in position on the post 9 such that the wing 2 can fit snugly against the abutment molding 10 of the post 9 when closed.

The primary evident advantage afforded by this invention is that the angular actuation of the closure hooks takes place at a location close to the hooks themselves, which enables a conventional closure device to be utilized as originally designed for a substantially latch-like linear movement of the rod sections 3a and 3b. This facilitates manufacturing and assembling the inventive device, which is also actually so compact as to allow the rods, and in part the closure hooks as well, to be set flush.

The device according to this invention is then simple in design, it including a small number of component parts, and its operation is smooth and very quiet.

Claims

1. A closure device for a wing (2) of a closet and the like, being of a type which comprises a closure hook (5) cooperating with a striker (6,8) on a post (9) of said closet and driven by a rod

(3a,b) mounted to said wing (2), and characterized in that said hook (5) is associated with said rod (3a,b) by means of a screw (22) and nut (23) coupling operative to rotate said nut (23) as said screw (22) is shifted axially.

2. A closure device according to Claim 1, characterized in that said screw (22) is attached to one end of said rod (3a,b), and that said nut (23) is formed in the body of said hook (5).

3. A closure device according to Claims 1 and 2, characterized in that said one end of said rod (3a,b) is provided with a yoke-like end fitting (21) including, on one side, said screw (22), and on the other side, a guide pin (29) carried movingly in a track (25) aligned axially to said end fitting (21).

4. A closure device according to Claim 1, characterized in that said rod (3a,b) and said hook (5) are set flush with said wing (2) of said closet.

5. A closure device according to Claim 1, characterized in that said striker (8) is in the form of an offset hole (28) formed in a circular striker plate mounted on said post (9) in a position adjustable manner.

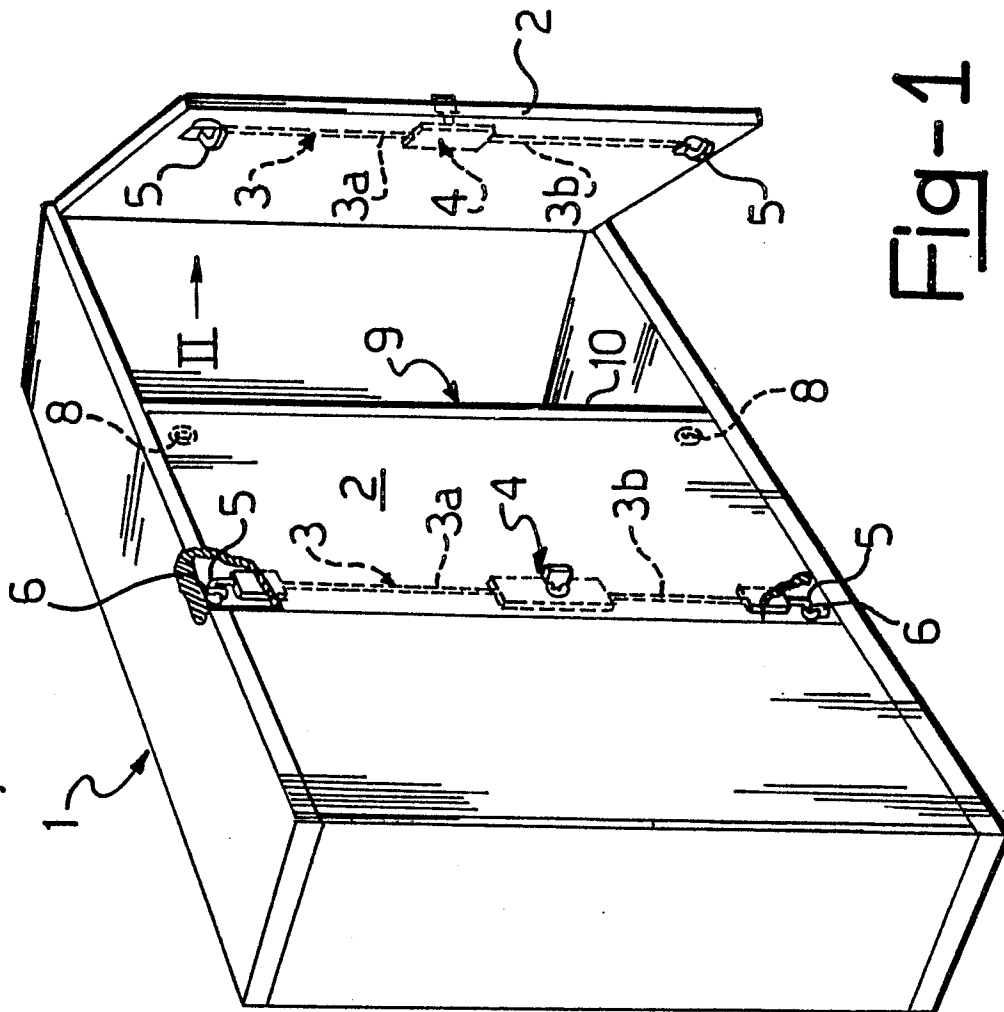


Fig-1

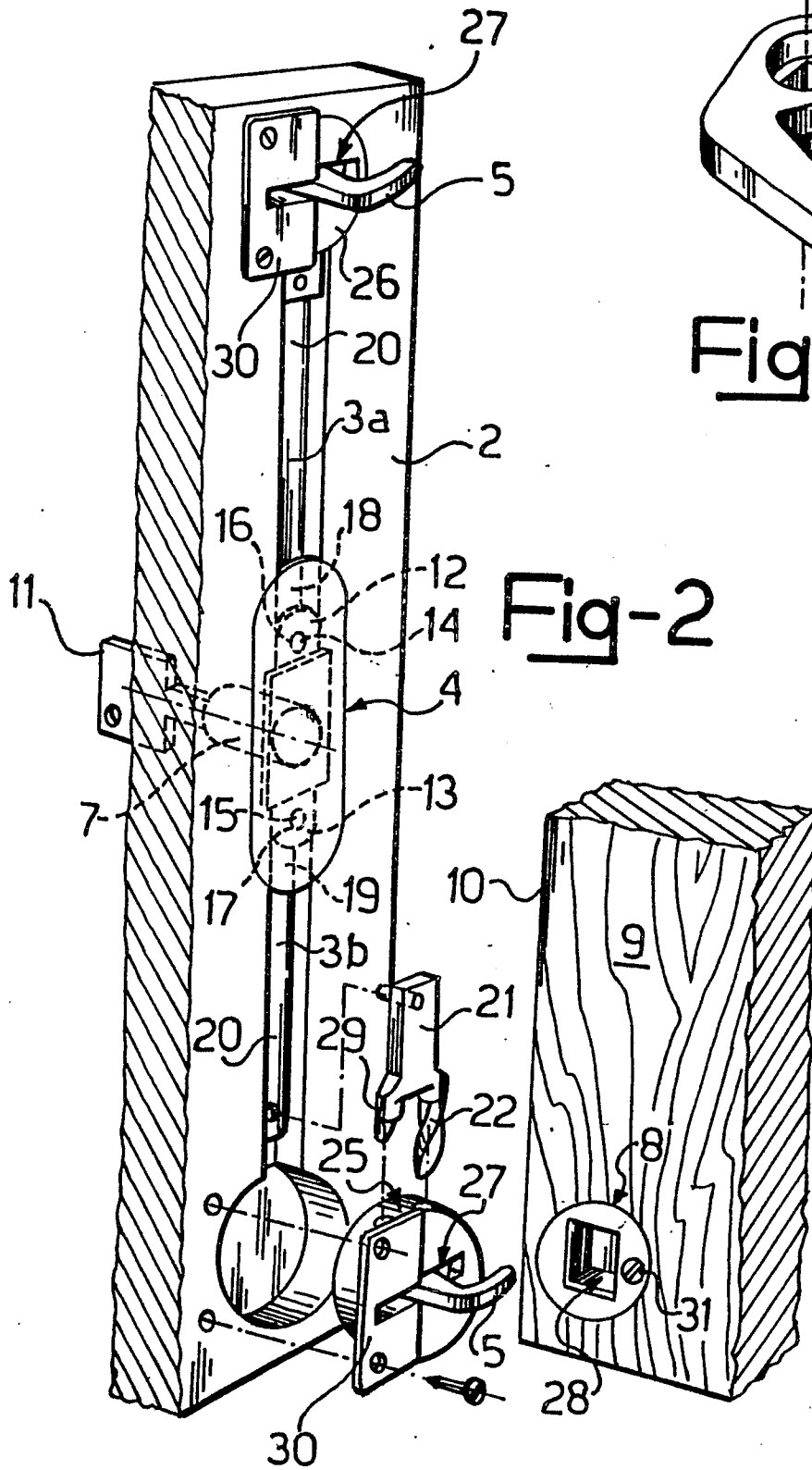


Fig-2

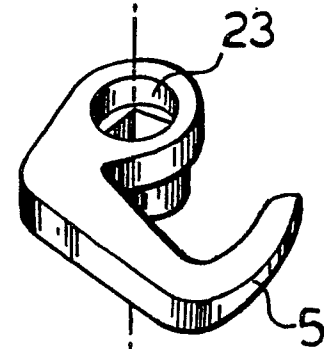


Fig-3