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2,853,114

DOOR OR PANEL FASTENING DEVICE WHEREBY A SCREW
ELEMENT IS CARRIED BY THE DOOR OR PANEL

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FIG. 1 -

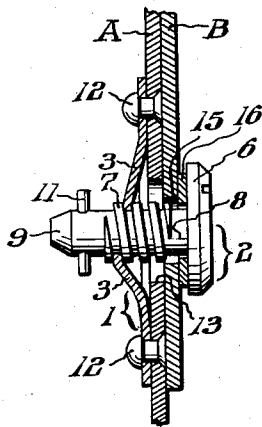


FIG. 2 -

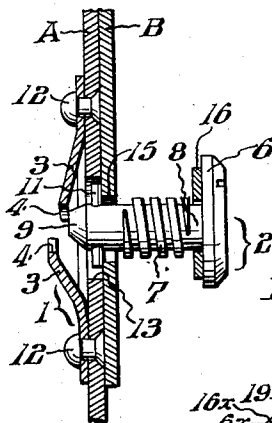


FIG. 3 -

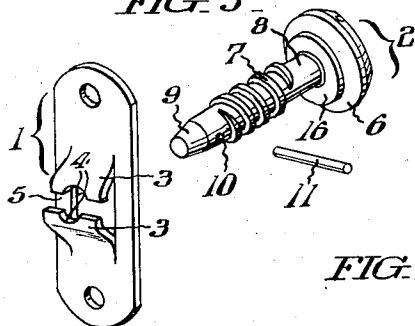


FIG. 12 -

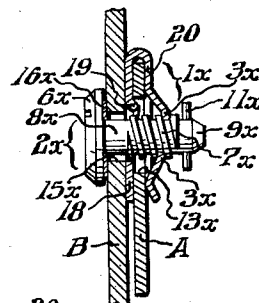


FIG. 13 -

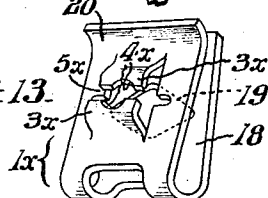


FIG. 4 -

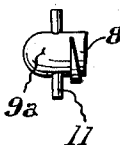


FIG. 5 -

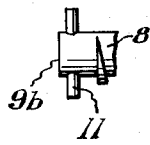


FIG. 6 -

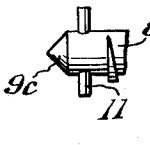


FIG. 7 -

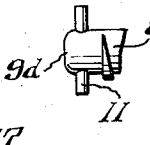


FIG. 8 -

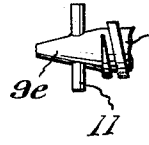


FIG. 9 -

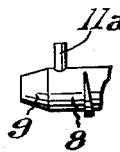


FIG. 11 -

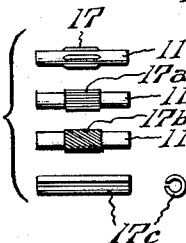
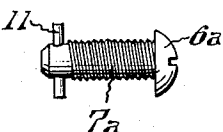


FIG. 10 -



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DOOR OR PANEL FASTENING DEVICE WHEREBY A SCREW ELEMENT IS CARRIED BY THE DOOR OR PANEL

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4 Claims. (Cl. 151—69)

This invention relates to fastening devices. More particularly, it is concerned with fastening devices of the nut and screw type useful, for example, in removably securing doors or panels over openings in the walls of cabinets, machine housings and the like.

The chief aim of my invention is to provide a simple and inexpensive device of the kind referred to whereof the nut element is adapted to be affixed to the wall, and whereof the screw element is carried by the door or panel and so constructed as to be permanently held assembled with the door or panel after having been initially applied thereto.

Other objects and attendant advantages will appear from the following detailed description of the attached drawings, wherein:

Fig. 1 is a fragmentary view, in section, of a wall with a door or panel secured thereto by means of a fastening device conveniently embodying my invention.

Fig. 2 is a view similar to Fig. 1, showing the screw element of the device backed off in readiness for removal of the door or panel.

Fig. 3 is an exploded view in perspective showing the component parts of the device in juxtaposed relation.

Figs. 4-10 are fragmentary views showing alternative forms of the screw element.

Fig. 11 shows alternative forms of a stop pin—one of the components of the device—through the medium of which the screw element is held permanently assembled with the panel as hereinafter more fully explained.

Fig. 12 is a view similar to Fig. 1 showing a modification of my invention; and

Fig. 13 is a perspective view of the nut element of the modified embodiment shown in Fig. 4.

As exemplified in Figs. 1 and 2, my improved fastening device comprises a nut element 1 and screw element 2, these being separately illustrated in Fig. 3. The nut element 1 is shown as being of a well-known variety fashioned to elongate configuration from suitably stiff strip material with offset spring tongues 3 which are mutually shaped as at 4 to conform to the helical contour of a screw thread, and which are spaced by a transverse slot 5 for a purpose presently explained. The screw element 2 is shown as having a flat head 6 and a square threaded portion 7 medially of its shank 8 for engaging the internal thread 4 of the nut element 1, the distal end portion of the shank being tapered as at 9 and provided at a distance beyond the threaded portion with a small diametral bore 10 for receiving a stop pin 11 with force fit.

In Figs. 1 and 2, the part designated A may be assumed to be the wall of a cabinet or the like, and the part designated B the removal door or panel. In installing the fastening device the nut element 1 is permanently secured at opposite ends by rivets, screws, welds, clips or other means 12 to the back of the part A with its threaded opening 4 coaxial with an aperture 13 in said part, said

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aperture having a diameter slightly larger than the length of the stop pin 11 referred to above.

The screw element 2 is inserted through an aperture 15 in the part B which is slightly larger in diameter than the threaded portion 7 of said screw element but smaller than the length of the stop pin 11. The stop pin 11 is then inserted through the cross bore 10 in the distal end portion of the shank 8 of the screw element so as to project to equal distances beyond opposite sides of said shank.

To engage the screw assembly with the nut, part B is brought up or positioned so that the aperture 15 registers with the aperture 13 in part A and the distal end portion of the screw shank inserted through the hole 4 in the nut element 1. The screw is then rotated so that the stop pin 11 can pass through the diametrical slot 5 in the nut element 1 permitting the screw thread 7 to engage with the thread of said nut element. The screw element is then further rotated until the head 6 bears, with or without interposition of a washer 16, upon the part B as in Fig. 1.

To release the part B, the screw element 2 is backed off until its thread 7 clears the thread 4 of the nut element 1, then oriented to align the stop pin 11 with the slot 5 of said nut element, and finally drawn forwardly, but prevented from being detached from the part B by said pin as will be readily understood from Fig. 2. The screw element 2 is thus maintained in permanently assembled relation with the part B.

By way of modification, the distal end of the shank 8 of the screw element 2 may be variously shaped as at 9a, 9b, 9c, 9d and 9e respectively in Figs. 4, 5, 6, 7 and 8, and the stop pin made to project only from one side of the screw shank 8 as at 11a in Fig. 9.

For security against subsequent accidental displacement from the shank of the screw element 2, the stop pin 11 may be fluted or otherwise roughened as at 17, 17a and 17b in Fig. 10; or it may be in the form of a longitudinally split spring tube as shown at 17c in Fig. 11.

As another alternative, the screw element of the device may have a rounded head as at 6a in Fig. 10, and the thread on the shank may be of the V type as at 7a in Fig. 10.

In the modified embodiment shown in Figs. 12 and 13, the nut element 1x has the form of a clip which is fashioned to U-shaped configuration from suitably stiff sheet material. One leg 18 of the clip 1x has a medial aperture 19 so formed as to permit passage of the screw shank with stop pin 11x installed. The other leg 20 of the nut element 1x has tongues 3x which are mutually shaped as at 4x and which are spaced by a transverse slot 5x to permit passage of the stop pin 11x of the screw element 2x. The nut element 1x is installed by slipping over the panel A with one leg of the U-shaped configuration on each side of the panel until the lip on the aperture 19 drops into the opening 13x in panel A. With the leg 18 then lying between the wall A and the panel B, the screw element is inserted through the aperture 19 and engaged with the nut in the same manner as hereinbefore described in connection with the nut element 1 in Fig. 1. Except for having a somewhat longer shank 8x, the screw element 2x is identical with the screw element 2 of the first described embodiment of my invention.

While in accordance with the provisions of the statutes, I have illustrated and described the best forms of embodiment of my invention now known to me it will be apparent to those skilled in the art that changes may be made in the form of the apparatus described without departing from the spirit and scope of the invention, as set forth in the appended claims, and that in some cases certain features of my invention may be used to advantage without a corresponding use of other features.

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Having thus described my invention, I claim:

1. In a fastener device useful for example in retractably securing a door or panel over an opening in a wall, a headed screw element having a shank comprising a screw-threaded portion adjacent the head and a smaller distal end portion passed through a clearance aperture of corresponding diameter to said screw-threaded portion in the door or panel and a retaining pin of a length greater than the diameter of said aperture engaged crosswise through the said distal end of the shank spaced from said screw-threaded portion; and a cooperative nut element having a threaded portion of less thickness than said space and a diametral slot crosswise of its threaded hole of a size to clear the cross pin of the screw element and being affixed to the wall at the inside thereof with its hole axially aligned with an aperture in the wall of a diameter in excess of the length of the cross pin on the shank of the screw element, whereby, upon backing out the screw element to release its threads from the nut element and aligning the cross pin in its shank with the diametral slot of the nut element, the screw can be retracted completely from the nut element without warping or straining the door or panel, and then the door or panel can be retracted or opened with the screw retained by

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engagement of its cross pin with the back face of the door or panel.

2. A fastening device according to claim 1, wherein the diametrically-reduced distal end portion of the shank of the screw element is tapered to facilitate its passage initially through the hole in the nut element.

3. A fastening device according to claim 1, wherein the nut element is fashioned to elongate configuration from stiff sheet material and fixedly secured at its opposite ends to the wall.

4. A fastening device according to claim 1, wherein the retaining pin is force fitted into said diametral hole in the distal end of the screw shank to project for some distance beyond the reduced portion of the screw shank on either side.

References Cited in the file of this patent

UNITED STATES PATENTS

2,233,230	Tinnerman	Feb. 25, 1941
2,302,940	Denson	Nov. 24, 1942
2,341,829	Tinnerman	Feb. 15, 1944
2,396,142	Allen	Mar. 5, 1946
2,470,927	Hale, Jr.	May 24, 1949
2,637,567	Singleton	May 5, 1953