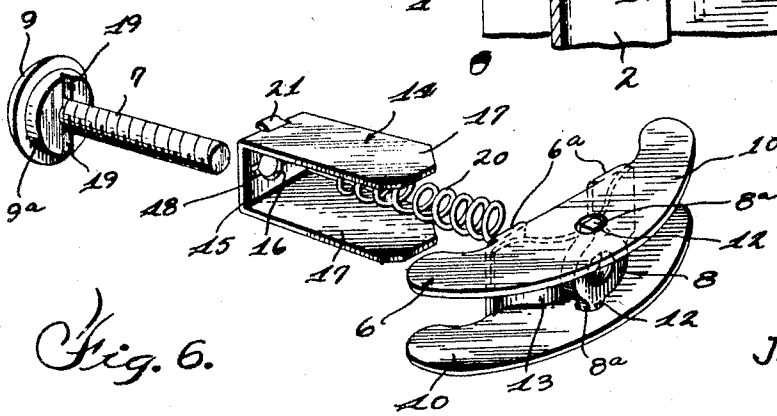
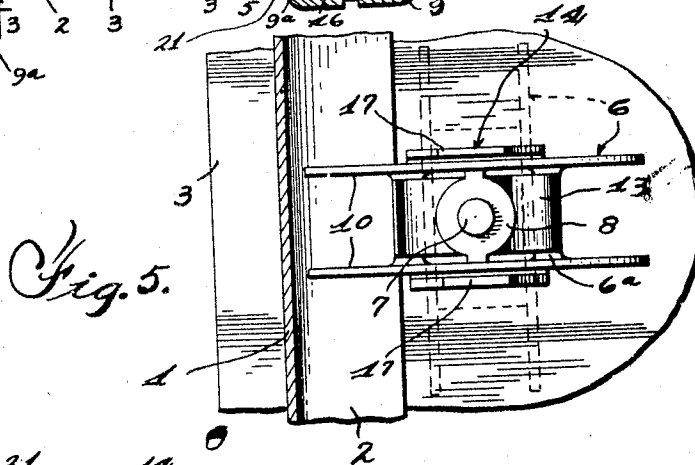
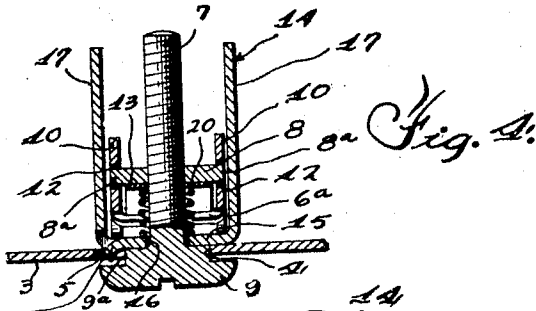
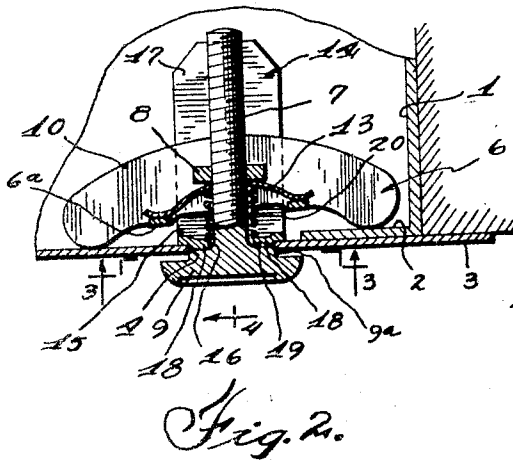
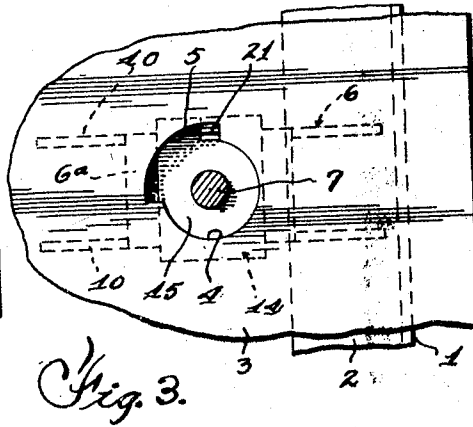
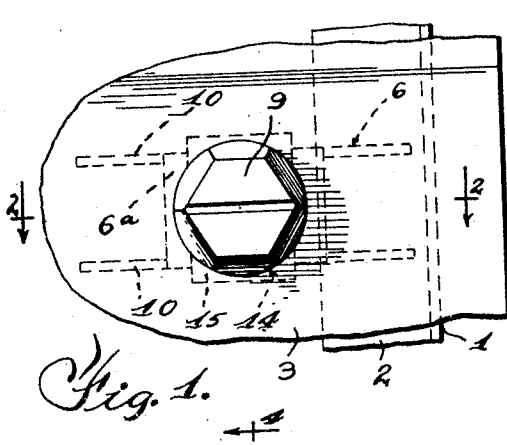


Sept. 6, 1932.

J. G. JACKSON
FASTENING DEVICE
Filed Oct. 6, 1930

1,876,237



INVENTOR
John G. Jackson

BY
Whittemore, Hulbert, Whittemore & Belknap
ATTORNEYS

UNITED STATES PATENT OFFICE

JOHN G. JACKSON, OF DETROIT, MICHIGAN, ASSIGNOR TO SQUARE D COMPANY, OF
DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN

FASTENING DEVICE

Application filed October 6, 1930. Serial No. 486,855.

This invention relates generally to fastening devices for detachably securing a plurality of members together, and more particularly to a fastening device which is especially adapted and designed to secure the trim or cover-plate upon an electrical panel board cabinet or housing.

The invention has among its objects to produce a device of the above character which is strong and durable and simple and dependable in operation.

The invention has for a further object to improve generally devices of this character and the above, as well as other objects, advantages and novel details of construction of the invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawing wherein:

Figure 1 is a fragmentary front elevation of an electrical panel board cabinet with my improved fastening device applied thereto.

Figure 2 is a horizontal sectional view on the line 2—2 of Figure 1.

Figure 3 is a section on the line 3—3 of Figure 2.

Figure 4 is a vertical section on line 4—4 of Figure 2.

Figure 5 is a fragmentary elevation of a panel board housing as viewed from the interior showing the device in its applied position.

Figure 6 is a group perspective of the device.

Referring to the drawing, the numeral 1 designates the forwardly projecting side wall of an electrical panel board box or casing having a marginal in-turned flange 2 upon which a trim or cover plate 3 is adapted to rest, the trim plate preferably projecting beyond the cabinet wall 1 for concealing the joint between the cabinet and the building wall opening in which the cabinet is arranged. As shown in Figures 2 and 4, the plate 3 is provided with a circular opening

4 and an arcuate opening 5 communicating with the circular opening, the ends of the arcuate opening defining spaced stops or abutments for a purpose to be hereinafter made clear.

The fastening device comprises essentially a clamping member 6 and an actuating element or screw 7, the clamping member being arranged upon the inner side of the cover plate 3 and provided with a nut 8 threadedly engaged by the screw 7 which extends through the circular opening in the cover and has its head 9 located exteriorly of the housing and adapted to be engaged by a suitable tool such as a screw driver whereby the screw may be rotated to cause the clamping member to move longitudinally thereof toward or away from the inner surfaces of the flange 2 and cover 3.

As herein shown, the clamping or locking member 6 is substantially channel-shaped and is formed from a single piece of material and comprises the intermediate or base portions 6A, and the longitudinally extending sides 10 arranged at right angles to the portions 6A. The sides 10 preferably decrease in width from their central portion toward their opposite ends to provide the requisite strength to withstand the clamping force to which they are subjected, and the ends are rounded so as to have a limited contact area with the parts to be clamped. The sides 10 are provided at points substantially midway between their ends and longitudinal edges with aligned apertures 12 which are adapted to receive the ears 8a projecting from opposite sides of the nut 8 for forming a pivotal mounting for the clamping member 6 whereby said member may rock or pivot to insure proper contact with the surfaces to be engaged thereby even though these surfaces are in different horizontal planes without resulting in canting or tilting of the actuating screw 7.

To restrain pivotal movement of the

clamping member and normally maintain the same in a horizontal position at substantially right angles to the actuating screw 7, a bowed leaf spring 13 is sleeved upon the screw and as clearly shown in Figure 2, has its central portion engaging the nut 8 and its opposite ends engaging the spaced base portions 6A of the clamping member.

For the purpose of holding the clamping member from rotating on the screw, a plate-like or yoke member 14 is employed. The base 15 of the yoke is formed with an aperture 16 for loosely receiving the screw 7 whereby the yoke member may be sleeved thereon and the arms 17 of the yoke are adapted to be arranged at right angles to the clamping member and upon and adjacent opposite sides thereof. The base 15 of the yoke is formed with a pair of diametrically opposite pressed out bosses 18 which are adapted to seat in correspondingly located notches 19 formed in the head of the actuating screw. Interposed between the leaf spring 13 and the base 15 of the yoke is a coiled compression spring 20 functioning to constantly urge the yoke toward the head of the screw and maintain the bosses 18 in engagement with the notches 19 so as to provide a yieldable clutch or drive between the yoke and screw. As clearly apparent from Figure 2, the spring 20 also urges the base 15 of the yoke into engagement with the inner side of the cover 3 and the end of the cylindrical portion 9a of the head of the actuating screw which is journaled in the circular opening 4 for holding the device in position on the cover-plate.

It will be seen that when the screw 7 is actuated to an extent to relieve clamping pressure on the member 6, that the yieldable drive will be effective to form an operative connection between the screw and yoke whereby these members and also the clamping member will be moved as a unit with the screw to shift the clamping member to an operative position as indicated by the full lines in Figure 5, or to an inoperative position as indicated by dotted lines in this figure.

To limit or arrest movement of the clamping member when rotated to an operative or inoperative position, the base of the yoke is provided with a struck-out tongue 21 which is adapted to travel in the arcuate slot 5 and engage the opposite ends of the slot for arresting movement of the clamping member when the same has reached an operative or inoperative position. Should the clamping member 6 occupy an operative or clamping position when the rotary movement thereof is arrested, further rotation of the screw 7 will break or render the yieldable clutch connection ineffective so that the yoke and clamping member will no longer rotate with the actuating screw 7 and continued rota-

tion of the screw will move the clamping member 6 toward the inner surfaces of the flange 2 and cover 3.

While the device is herein illustrated and described as used for detachably securing the trim plate upon a panel board cabinet, it should be distinctly understood that the same is not necessarily limited to such use as obviously the device may be employed in numerous connections where a plurality of parts are to be detachably secured or fastened together.

What I claim as my invention is:

1. A fastening device comprising a clamping member, a rotatable actuating element adjustably connected to said clamping member for moving the same toward and away from the parts to be clamped, and a plate-like member carried by said actuating element and operatively connected thereto when said clamping member is substantially free of clamping pressure for shifting said clamping member into and out of clamping position.
2. A fastening device comprising a clamping member, a rotatable actuating element adjustably connected to said clamping member for moving the same toward and away from the parts to be clamped, a plate-like member carried by said actuating element and operatively connected thereto when said clamping member is substantially free of clamping pressure for shifting said clamping member into and out of clamping position, and means associated with said plate-like member and engageable with one of the parts to be fastened for limiting shifting movement of said clamping member.
3. A fastening device comprising a clamping member, a nut pivotally connected thereto, a threaded actuating element threadedly connected with said nut for moving said clamping member toward and away from the parts to be clamped, a substantially U-shaped member sleeved upon said actuating element and straddling said clamping member, and co-acting means on said U-shaped member and said actuating element operable before or after the clamping member is moved toward or away from the parts to be clamped for establishing a yieldable driving connection therebetween for swinging the clamping member into and out of clamping position.
4. A fastening device comprising a clamping member, a nut pivotally connected thereto, a threaded actuating element threadedly connected with said nut for moving said clamping member toward and away from the parts to be clamped, a plate-like member sleeved upon said actuating element and having a portion adapted to engage said clamping member, co-acting means on said plate-like member and said actuating element for establishing a yieldable driving connection therebetween for swinging the clamping

member into and out of clamping position, and means carried by said plate-like member and engageable with one of the parts to be fastened for limiting swinging movement of said clamping member.

5 A fastening device comprising a clamping member, an actuating element adjustably connected to said clamping member for moving the same longitudinally of the element, means for preventing rotation of said clamping member with respect to said actuating element including a yoke sleeved upon said actuating element and having its arms arranged upon and adjacent opposite sides of said clamping member, and means carried by the first mentioned means for limiting the rotating movement of the clamping member relative to the parts to be fastened.

6 The combination with a flanged container and a cover adapted to be secured to the flange of said container, said cover being provided with a circular and an arcuate opening, of a fastening device comprising a clamping member adapted to engage the inner faces of said flange and cover, a headed actuating element extending through the said circular opening and having a cylindrical portion journaled therein, said actuating member being adjustably connected to said clamping member for moving the same toward or away from the inner faces of said cover, a yoke sleeved upon said actuating element and having its arms disposed upon opposite sides of said clamping member, and means for establishing a yieldable driving connection between the actuating element and said yoke whereby said actuating element, yoke and clamping member will be moved as a unit, and a projection upon said yoke extending into said arcuate opening and engageable with the ends thereof for limiting unitary movement of said actuating element, clamping member and yoke.

7 A fastening device comprising an actuating screw, a nut adjustable longitudinally of the screw upon rotation of the latter, a member having a separable clutch engagement with the screw whereby the latter may move in unison with or independently of said member, and having a projection engageable with a part to be clamped whereby the movement of the member may be limited, and a clamping member carried by the nut, movable by the member aforesaid about the screw when said member and screw move in unison, and movable by the nut longitudinally of the screw and relative to said member when the screw is actuated independently of the member.

8 A fastening device comprising an actuating screw, a nut adjustable longitudinally of the screw upon rotation of the latter, a clamping member pivoted on the nut, and a connection between said screw and clamping member operable to initially swing the clamp-

ing member and to subsequently move the nut and clamping member longitudinally of the screw, including a member straddling the clamping member, having a separable clutch engagement with the screw, and having a projection engageable with one of the parts to be clamped.

9 A fastening device comprising a clamping member, an actuating element connected to said clamping member, a member having a separable clutch engagement with said actuating element and operable to swing said clamping member into and out of clamping position, and means associated with said members for maintaining the clutch engagement between said second member and element whereby said members may move in unison with said element and yieldable to permit declutching of the element from the second member after the members have moved a predetermined distance whereby the element may then move independently of said members to cause the first member to be moved relative to the second member to operative clamping position.

10 A fastening device comprising a rotary operating member having an exteriorly threaded portion, a nut adjustable longitudinally of the exteriorly threaded portion, a clamping member pivotally mounted on the nut, a substantially U-shaped member straddling the clamping member and having the base of the U sleeved upon the rotary operating member and adapted to be turned thereby for imparting turning movement to the clamping member, and spring means associated with portions of the rotary operating member and clamping member for holding the clamping member in a position permitting it to be turned by the U-shaped member aforesaid into clamping position.

11 A fastening device comprising a rotary operating member having an exteriorly threaded portion, a nut adjustable longitudinally of the exteriorly threaded portion, an elongated clamping member pivoted intermediate its ends upon said nut, a member sleeved upon a portion of the rotary operating member and operable by the operating member for imparting turning movement to the clamping member, and spring means mounted on a portion of the operating member and having a part holding the clamping member in a position permitting it to be turned by the member aforesaid into clamping position.

12 A fastening device comprising a rotary operating member having an exteriorly threaded portion, a nut adjustable longitudinally of the exteriorly threaded portion, an elongated clamping member pivoted intermediate its ends upon said nut, a substantially U-shaped member straddling the clamping member whereby movement may be imparted from one to the other, the base

of the U being sleeved upon a portion of the rotary operating member, and means holding the clamping member in a position permitting it to be turned by the operating member aforesaid into clamping position, including a spring mounted on a portion of the operating member between the legs of the U-shaped member and having an end portion engaging a part of the clamping member.

10 In testimony whereof I affix my signature.
JOHN G. JACKSON.

15

20

25

30

35

40

45

50

55

60

65