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E. C. HALL ET AL

2,285,273

RETAINING DEVICE

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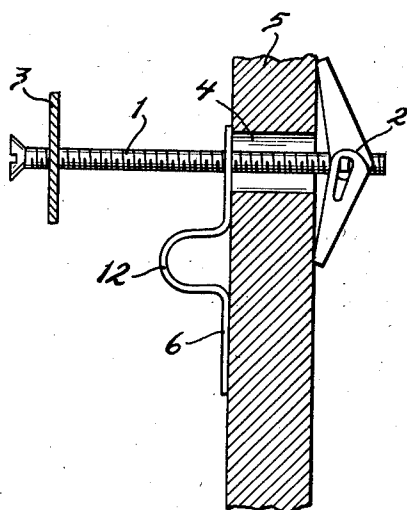


Fig. 1.

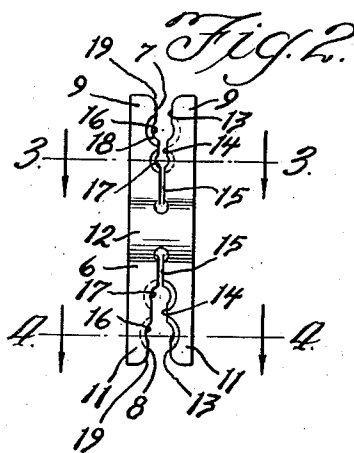


Fig. 2.

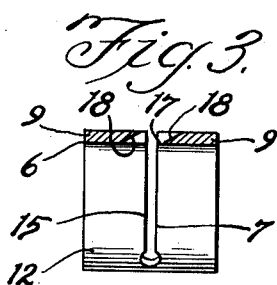


Fig. 3.

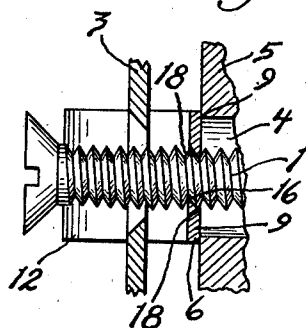


Fig. 5.

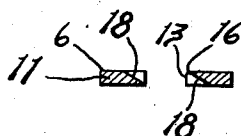


Fig. 4.

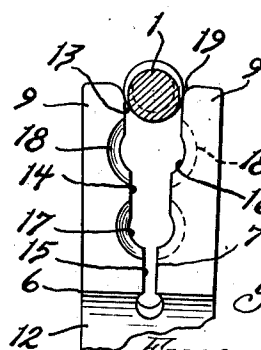


Fig. 6.

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UNITED STATES PATENT OFFICE

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RETAINING DEVICE

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4 Claims. (Cl. 85—32)

Our invention relates particularly to a retaining device for retaining a toggle bolt in position on a wall structure or the like during the operation of securing by means of the bolt although not limited to this use alone, the general object of the invention residing in the provision of a retaining device of the above character which is simple and effective particularly with reference to the installation of toggle bolts, and which is preferably adapted to accommodate various sizes of securing screws or the like.

With this object in view our invention consists in certain features of novelty in the construction, combination and arrangement of parts by which the said object and certain other objects, hereinafter appearing, are effected, all as fully described with reference to the accompanying drawing and more particularly pointed out in the appended claims.

In the said drawing—

Figure 1 is a side elevation of a toggle bolt and a retaining device of our invention engaged thereon and showing them in process of securing an article on a wall structure or the like, the article and wall structure being shown in section;

Figure 2 is a top plan view of the retaining device of our invention;

Figure 3 is an enlarged sectional view substantially on the line 3—3 of Figure 2;

Figure 4 is an enlarged section substantially on the line 4—4 of Figure 2;

Figure 5 is an enlarged sectional view in elevation similar to Figure 1 and showing the parts in further progress of installation; and

Figure 6 is an enlarged partial top plan view of the retaining device and showing it in process of its engagement on the toggle bolt screw which is shown in section.

Referring to the drawing, 1 designates a headed screw which has screwthreaded engagement with a typical expansion toggle, generally designated at 2, to form the toggle bolt. The screw being engaged through an apertured article 3 to be secured is screwthreaded into the toggle 2, and the toggle in contracted condition is inserted through an aperture 4 of a wall structure 5 or the like after which the toggle expands, as shown in Figure 1, to be engaged against the inner surface of the wall structure, all as is usual.

As shown, the retaining device of our invention is utilized to position the toggle bolt on the wall structure during the rotation of the screw into securing position and consists as follows:

An elongated member 6 of flat resilient mate-

rial, such as spring steel, is provided with separate slots 7 and 8 therethrough and extending inwardly from the ends thereof to form pairs of resiliently connected portions 9 and 11. See particularly Figure 2. The intermediate portion of the member 6 is formed facewise into a laterally extending U-shape, as designated at 12, to provide a grasp formation for the convenient manipulation of this member.

The slots 7 and 8 decrease by steps 13, 14 and 15 inwardly from the open ends thereof, the steps 13 and 14 of the slot 7 being less in width than the steps 13 and 14 of the slot 8. The slots 7 and 8 are provided with enlargements 16 and 17 between the steps 13, 14 and 15, the outer enlargements 16 being larger than the inner enlargements 17, and the enlargements 16 and 17 of the slot 7 being less in size than the corresponding enlargements 16 and 17 of the slot 8. The opposing edge regions of each slot enlargement 16 and 17 are beveled, as designated at 18, one from one face and the other from the opposite face of the member 6. The outer end portions of the slots 7 and 8 are enlarged outwardly, as designated at 19, to provide entry throats.

The member 6 is engageable on the screw 1 by engaging the screw in one of the slots 7 and 8 and bringing the screw into engagement with one of the enlargements 16 and 17, the resiliency of the portions 9 permitting passage of the screw therebetween, as will be seen in Figure 6, and effecting frictional engagement of the screw when the screw is engaged in one of the enlargements 16 and 17. When the screw is engaged in one of the enlargements 16 and 17, the tapered or beveled slot edge regions 18 thereat engage in the threads of the screw to form a threaded engagement therewith, so that as the screw is rotated it threads through the member 6 whereby the member 6 retains the toggle bolt in position as shown in Figures 1 and 5 during the securing operation thereof.

The different sizes of the enlargements 16 and 17 accommodate for different sizes of screws, the different widths of the steps 13 and 14 also accommodating for different diameters of screws.

In the form shown, the retaining device is removed from the screw just before clamping action of the screw.

While we have thus described our invention, we do not wish to be limited to the precise details described as changes may be readily made without departing from the spirit of our invention, but having thus described our invention

we claim as new and desire to secure by Letters Patent the following:

1. A device of the character described comprising a member of flat material provided with a slot therethrough and extending inwardly from the edge thereof to form resiliently connected portions, said slot being provided with an enlargement disposed intermediately of the ends thereof and the opposing edge regions of said slot enlargement being beveled, one from one face and the other from the other face of said member, to threadedly engage a screw engaged between said portions at said enlargement.

2. A device of the character described comprising a member of flat material provided with a slot therethrough extending inwardly from the edge thereof to form resiliently connected portions and said slot decreasing in width by steps inwardly from the open end thereof and the slot edge region of one or the other of said portions being beveled at several of said steps to threadedly engage screws of different sizes.

3. A device of the character described comprising a member of flat material provided with a

slot therethrough extending inwardly from the edge thereof to form resiliently connected portions and said slot decreasing in width by steps inwardly from the open end thereof and the opposing slot edge regions of said portions being beveled, one from one face and the other from the other face of said member, at several of said steps.

4. A device of the character described comprising a member of flat material provided with a slot therethrough and extending inwardly from the edge thereof to form resiliently connected portions and said slot decreasing by steps inwardly from the open end thereof and provided with enlargements between said steps which enlargements decrease in size inwardly from said open end, the opposing edge regions of each slot enlargement being beveled, one from one face and the other from the other face of said member, to threadedly engage screws of different sizes engaged between said portions at correspondingly sized enlargements.

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