Sept. 28, 1948. C. A. DE GIERS 2,450,330

FASTENING DEVICE FOR COVER PLATES

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Fig. 1.

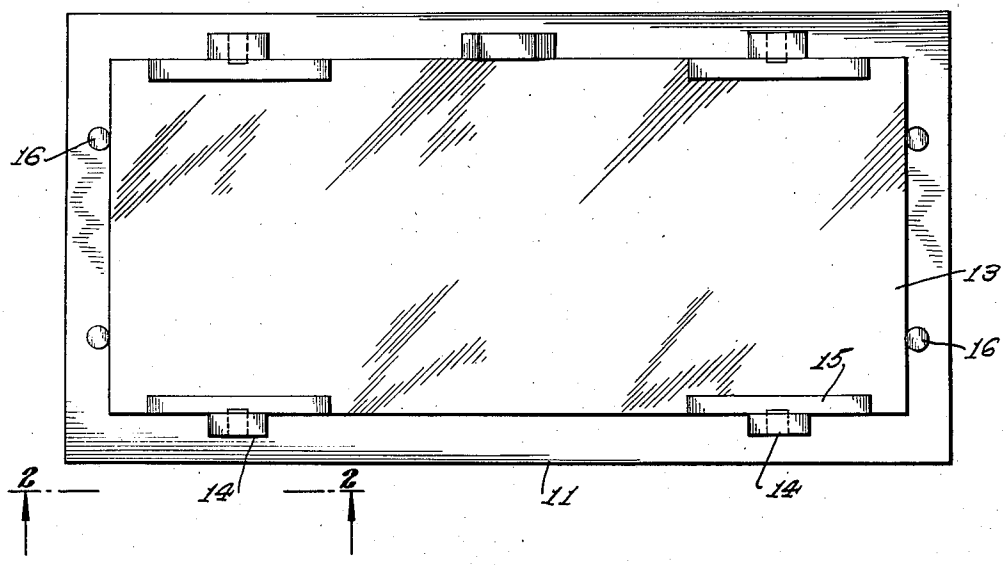


Fig. 2.

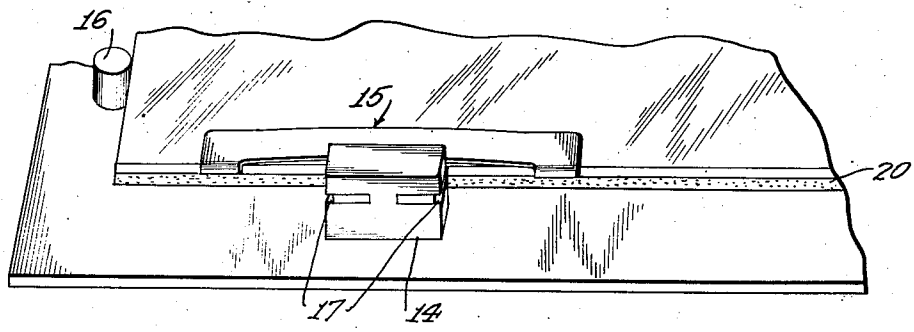
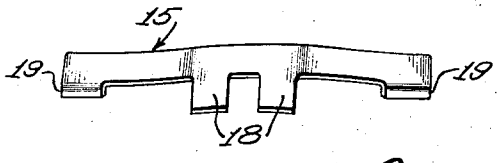


Fig. 3.



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Fig. 4.

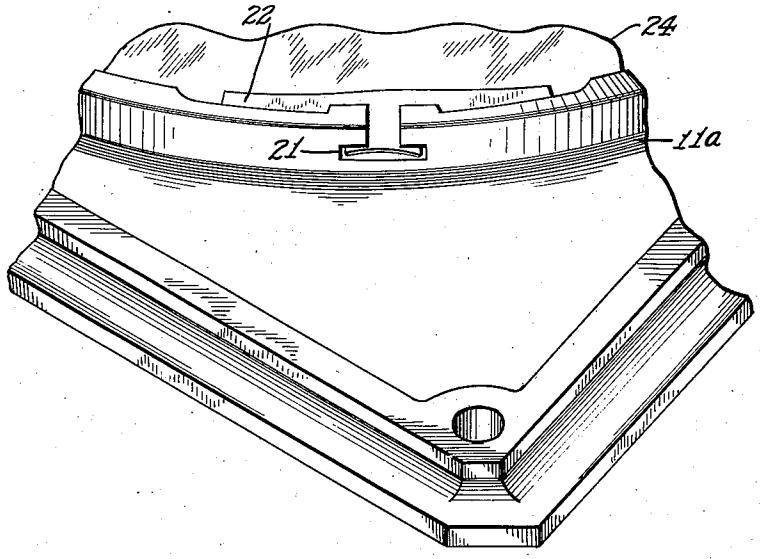
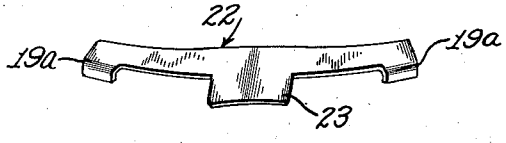


Fig. 5.



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Patented Sept. 28, 1948

2,450,330

UNITED STATES PATENT OFFICE

2,450,330

FASTENING DEVICE FOR COVER PLATES

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Application February 24, 1945, Serial No. 579,533

2 Claims. (Cl. 24—259)

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This invention relates to fastening devices and particularly to fastening devices for the mounting of plates such as glass plates and the like.

Instruments or devices requiring the mounting of a plate, for instance, of a glass over a window usually provide a snap ring or a system of clamps for retaining the glass in place. These devices have the disadvantage that they require tools for their assembly and disassembly. When tapped holes are used, additional machining is required. Tapped holes are often times a disadvantage if the window frame is made of a soft metal or a plastic such as "Bakelite." Snap rings are further limited in their use to the mounting of circular glasses and cannot readily be adapted to odd shaped glasses.

An object of the invention is the provision of means by which a plate of glass or other suitable material can be fastened on or removed from the window frame by hand and without the use of tools.

Another object of the invention is the provision of means by which a plate with any irregular contour can be conveniently fastened on the window frame.

Further and other objects and advantages of the invention will be hereinafter set forth and other features thereof will be pointed out in the appended claims.

According to a now preferred embodiment of the invention, one or more spring clips are provided which engage a suitable slot on the member on which it is desired to mount the glass. These clips can be readily fastened and removed by hand and without the use of tools. The use of these clips may be applied to the fastening of a glass with any irregular contour.

A better understanding of the invention will be afforded by the following detailed description in connection with the accompanying drawings, in which

Fig. 1 is a plan view showing an embodiment of the invention applied to the mounting of a glass on a rectangular window;

Fig. 2 is a detail view substantially in perspective of the clip assembly taken along line 2—2 of Fig. 1;

Fig. 3 is a detail of the clip used in Fig. 2;

Fig. 4 is a perspective view of a modification of the invention shown applied to a non-linear glass, and

Fig. 5 is a detail of the clip used in Fig. 4.

The same reference characters are used throughout the drawings to designate like parts.

Fig. 1 illustrates a window frame 11, having

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an opening which is to be covered by glass 13. Mounted on frame 11 are a number of bosses 14 as may better be seen from Fig. 2. These bosses may be permanently mounted by staking, welding, soldering, riveting or any other suitable method. In some cases where the window frame is a casting, boss 14 may be an integral part of the casting as shown on Fig. 4. Bosses 14 are mounted to line up with the edge of the glass as shown. Each boss 14 is provided with two slots 17. Coacting with each boss is a clip 15 which is shown in greater detail in Fig. 3. Clip 15 is formed by a strip of a material having a reasonable flexibility such as metal. The clip is provided with two extensions 18, preferably near the center of the strip. These extensions are made to fit in slots 17 of boss 14. At either end of clip 15 are two ears 19 extending downward and at right angles to extensions 18. These ears serve to engage the glass at the edge as better shown in Fig. 2 and lock the clip in place.

In assembling the window frame, the glass 13 is first laid on the frame 11 between bosses 14. If desired, a gasket 20 may be used. The clips are mounted by flexing the clip and inserting the two extensions 18 into the slots of boss 14 until ears 19 click over the edge of the glass. This procedure is repeated for as many clips as are required in the particular assembly. Once the ears 19 have slipped over the edge of the glass, it will normally be impossible to push the clip out again, since the two ears prevent the clip from further motion in a direction at right angle to the length of the strip. Motion parallel to the length of the strip is prevented by the engagement of the extensions 18 in the slots 17 of boss 14. Since the clip 15 has spring properties, and is flexed in assembly, it will press against the glass and hold it firmly assembled to the window frame. If desired, a number of bosses 16 may be provided to position the glass further.

When it is desired to remove the glass, the clip may be removed, merely by flexing the two ears 19 at the end of the clip 15 up until they clear the glass. When the ears are in this position, the extensions 18 may readily be slipped out of the slots 17 of boss 14, thus freeing the glass. The removal of the clip may be simply accomplished by hand and without tools.

Fig. 4 illustrates a modification of the invention in application to a circular glass plate. According to Fig. 4, the window frame 11a itself is provided with a single slot 21. The clip 22 is similar to that described in connection with Fig. 3 with the exception that a single extension

23 is provided as better shown in Fig. 5 which is slightly bent to give it spring properties. In assembly, Fig. 4, extension 23 is first inserted into slot 21 of window frame 11*a*, and pushed in until the ears 19*a*, which are the same in construction and function as the similarly numbered parts in the form shown in Figs. 1 to 3, click over the edge of glass 24. When in this operative position, the ears 19*a* extend between the frame 11*a* and the edge of the glass, thereby preventing the clip from backing out; and sidewise motion is prevented by the engagement of extension 23 in slot 21. Since the clip is assembled under tension, i. e. in a flexed condition, the glass will be held firmly against the window.

While the clip with two extension arms 17 has been shown in connection with the assembly of a straight glass as shown in Fig. 2, and the clip with a single extension 23 has been shown in connection with the assembly of a non-linear glass, it should be clearly understood either type of clip may be used with glasses of any contour, and that the drawings have been shown by way of illustration and not of limitation. It should further be understood that in connection with the assembly shown in Fig. 4 separate bosses may be provided as shown, for example, at 14 in Figs. 1 and 2 and that in Fig. 2 the slots 17 may be provided in the window frame itself.

What is claimed is:

1. The combination with a frame and a cover to be secured thereto in a predetermined position, said frame having a part rigid therewith adjacent to an edge of the cover at said predetermined position, which part has a slot formed therein extending laterally away from the adjacent edge of said cover, of a clip securing said cover to said frame, said clip comprising an elongate strip of resilient material positioned to extend along said edge, a lateral extension of said strip slidingly received in said slot, ears at portions of said strip remote from said extension, said ears projecting laterally from the main plane of said strip on the same side thereof as said extension and positioned to extend laterally out of the plane of said strip and over the edge of said cover at the operative position of said strip, said slot being disposed at such a position in respect to said cover that when said ears rest on the surface of said cover in moving said clip toward its operative position, said strip must be flexed to permit said lateral extension to be inserted into said slot.

2. The combination in accordance with claim 1, wherein two slots as aforesaid are provided adjacent to one another, and wherein two similar lateral extensions are provided complementary to said slots and cooperable therewith as a tongue-and-groove connection on movement of said clip to its operative position.

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