May 12, 1942. B. PUTTERMAN 2,282,746

CLAMP DEVICE

Filed Nov. 24, 1941

Fig. 1

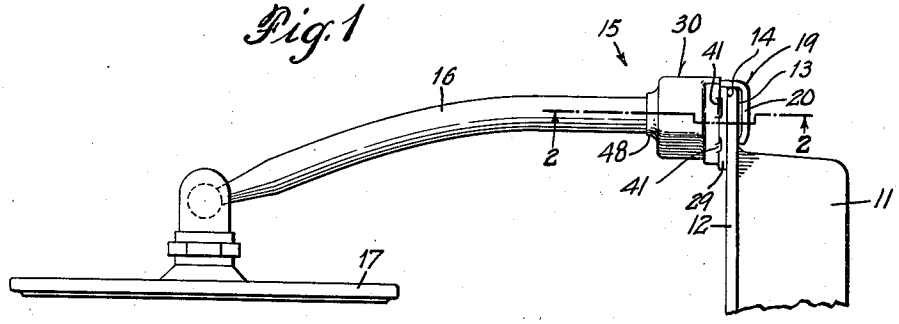


Fig. 2

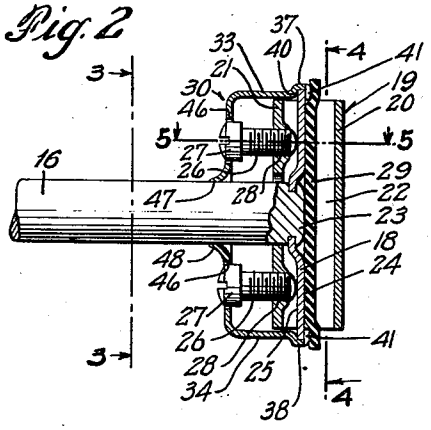


Fig. 3

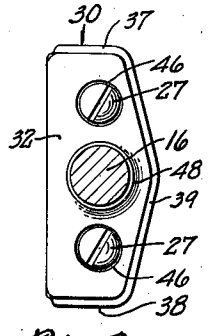


Fig. 4

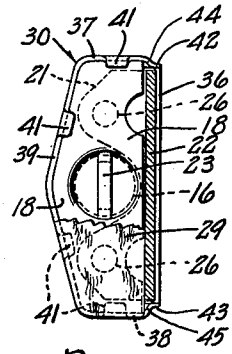
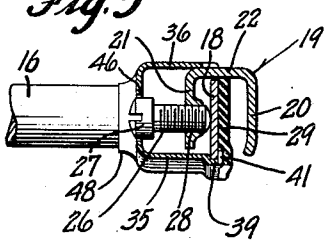


Fig. 5



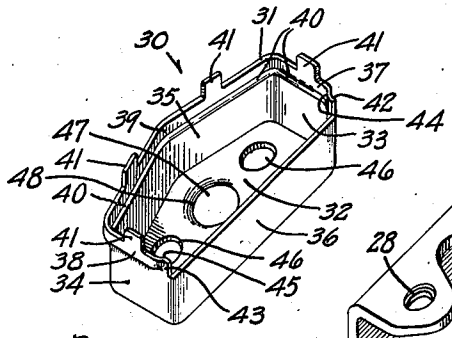


Fig. 6

Fig. 7

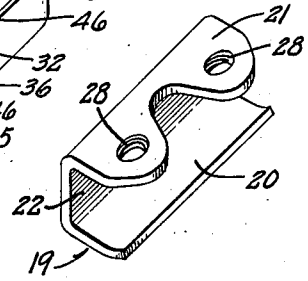
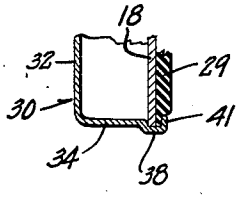


Fig. 8



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Patented May 12, 1942

2,282,746

UNITED STATES PATENT OFFICE

2,282,746

CLAMP DEVICE

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Application November 24, 1941, Serial No. 420,261

5 Claims. (Cl. 248—226)

This invention relates to improvements in mountings for a vehicle accessory such as a rear-view mirror, and more particularly to such mountings which include a structure for clamping the same on a vehicle part, and especially to a vehicle door flange.

One type of such a clamp-on mounting which has been used commercially includes a pressing member adapted to be maintained in association with the outer face of the door flange by a clamping member which has connected sections straddling the pressing member, one of the sections constituting a gripping jaw cooperable with the pressing member in clamping the mounting to the door flange, and the other of the sections being located in a housing or casing member which extends outwardly relative to the pressing member and to the flange to which the mounting is clamped.

Objects of the invention are to provide a mounting of the foregoing type in which the casing member, pressing member and clamping member may be associated with each other and with the supporting means for the vehicle accessory in a very effective yet simple manner, and in which no, or substantially no, strain is placed on the casing member when the mounting is fully assembled and clamped in position on the vehicle.

A feature of the invention resides in the provision of a mounting of the above type in which the casing member is provided with opposed cooperating portions adjacent an open inner end thereof, which respectively overlie and underlie marginal portions of the pressing member to secure these members together with the pressing member located at said open inner end.

Another feature of the invention resides in the provision of a mounting of the foregoing character in which the casing is shell-like with an open inner end, is provided with an inwardly facing shoulder formation inset from the open end for engaging marginal portions of the pressing member and locating the latter relative to the open end, and is also provided with integral portions projecting beyond the shoulder formation and adapted to be bent about marginal portions of the pressing member to clamp the same relative to the shoulder formation.

Another feature of the invention resides in the provision of a mounting of the foregoing type in which the casing member is clamped relative to the pressing member by integral portions of the casing and in which operating means for causing relative clamping movement between the pressing member and clamping member are so associated with these members and with the casing that no, or substantially no, strain is placed on the casing when the mounting is clamped and is being clamped on a vehicle.

Other objects and features will hereinafter appear.

In the drawing:

Figure 1 is a side view showing a mounting embodying the present invention clamped in position about the edge of a vehicle door flange.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a view taken on the line 3—3 of Fig. 2.

Fig. 4 is a view taken on the line 4—4 of Fig. 2, with certain portions partially removed to render a clearer illustration.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is a detail perspective view showing the casing member of the mounting prior to its association with the other elements of the mounting.

Fig. 7 is a detail perspective view of the clamping member of the mounting.

Fig. 8 is a fragmentary sectional view, similar to Fig. 2 but illustrating a modification of the present invention.

Before describing the present improvements and mode of operation thereof in detail it should be understood that the invention is not limited to the details of construction and arrangement of parts shown in the accompanying drawing, which are merely illustrative of the present preferred embodiments, since the invention is capable of other embodiments, and the phraseology employed is for the purpose of description and not of limitation.

Referring now more particularly to the drawing, there is shown in Fig. 1, for the purpose of illustrating the present invention, a fragmentary portion of a conventional vehicle door 11 having, as is usual, a flange portion 12 with an inner side 13 adapted to face toward the inside of the vehicle and an outer side 14 adapted to face outwardly of the vehicle when the door is in a normal closed position.

Clamped about the edge of the door flange with portions thereof engaging respectively the inner and outer sides of the flange is a mounting 15 embodying the present invention and including a supporting arm 16 which carries a desired vehicle accessory such as the rearview mirror 17 shown.

As illustrated best in Figs. 2–7, this mounting includes a pressing member 18 and a clamping member 19, with the clamping member being of generally U shape and having sections 20 and 21 joined by a connecting section 22 and adapted to receive the door flange therebetween, and with the clamping member and pressing member being movable relative to each other so that the door flange is clamped between the section 20 of the clamping member, which may be designated the clamping section, and the pressing member 18 which is located intermediate the sections 20 and 21.

Associated with the clamping member 19 and pressing member 18, being preferably secured to the pressing member to extend outwardly therefrom as shown, is the supporting arm 16 for the vehicle accessory. Advantageously, this securing of the supporting arm to the pressing member may, as shown, be achieved by pressing to a laterally expanded condition a reduced and noncircular inner end 23 of the arm which extends through a mating hole in the pressing member which, as shown, is in the form of a plate having an inner side 24 facing toward the section 20 and an outer side 25 facing the section 21 of the clamping member.

For causing the above-described relative movement between the pressing and clamping members, screw means, which, as shown, include a pair of screw studs 26 with slotted heads 27 thereon, may be provided. Advantageously, and for a reason which will hereinafter be fully explained, these screw studs are in screw-threaded relation with the section 21 of the clamping member and in opposed relation to the pressing member. As shown, this relation of the screw studs to the clamping member section 21 and the pressing member 18 is achieved by extending the studs inwardly through threaded holes 28 in the section 21, which may be designated as the operating section, to engage at their inner ends the outer side of the plate constituting the pressing member.

With this construction, it will be appreciated, when the screw studs are turned in the proper direction, as by an instrument engaging the slotted heads thereof, the gripping section 20 is drawn toward the inner side of the pressing member to effectively clamp the door flange therebetween. Moreover, it is seen that the supporting arm is effectively carried and supported by a member which is securely clamped to the outer side of the door flange adjacent the edge thereof. Preferably a cushioning pad 29 of rubber, leather, fabric or the like is suitably fixed, as by adhesive cement, to the inner or clamping side of the pressing member so that the pressing of the same against the outer side of the door flange will not scratch or otherwise mar the same.

Associated with the clamping and pressing members 19 and 18 so as to extend outwardly from the pressing member and the outer side of the door flange when the mounting is clamped in position, is a shell-like casing member 30 having an open inner end 31 and formed with an outer end wall 32, top and bottom side walls 33 and 34, a rear side wall 35 and preferably also a front side wall 36.

Advantageously, the casing member, which may be formed of deformable or bendable material such as relatively light weight sheet metal, has laterally offset portions 37, 38 and 39 formed in the top, bottom and rear side walls 33, 34 and 35 respectively to provide an inwardly facing shoulder formation 40 in the casing and preferably inset from the open end thereof a distance equal or substantially equal to the thickness of the plate constituting the pressing member. This shoulder formation 40 and the offset portions 37, 38 and 39 define a well for receiving and locating the pressing plate 18 in a predetermined position at the open inner end of the casing.

Of importance, cooperating with this locating well in maintaining the casing and pressing plate in this predetermined position relative to each other are fingerlike extensions 41 on the offset portions 37, 38 and 39, which are bendable about marginal edge portions of the pressing plate. As shown in Figs. 1–5 these fingers may be bent to directly underlie and engage the inner side of the pressing plate before the application of the cushioning pad 29. However, if desired and as shown in Fig. 8, the extensions may be bent to underlie and clamp in position not only the pressing plate but also the cushioning pad. In the latter event and as also shown in Fig. 8 the bent over portions of the extensions are preferably countersunk in the pad so as not to directly and adversely engage the outer side of the door flange.

Preferably, and as shown, the top and bottom side walls 33 and 34 in the front portions 42 and 43 thereof are inset at substantially right angles to the offset portions 37 and 38 thereof to provide shoulders 44 and 45 facing toward the rear wall of the casing and spaced rearwardly of the front wall 36. These shoulders 44 and 45 serve to cooperate with the offset portions 37, 38 and 39 in maintaining the casing against sideways movement in all directions relative to the pressing plate and together with the shoulder formation 40 and bent over extensions 41 serve to most effectively maintain the pressing plate and casing in a secured relationship, with the pressing plate disposed in the locating well at the open inner end of the casing and in providing a closure thereof.

With the clamping member, pressing plate, casing, supporting arm and actuating screw studs in assembled relation as shown best in Figs. 2–5, it is seen that the operating section 21 of the clamping member is located in the chamber defined by the casing outwardly of the pressing plate, and that the connecting section 22 extends outwardly from the clamping section into the casing chamber between the front edge of the pressing plate and the front wall 36 of the casing.

Also, and of importance it is seen that the slotted heads 27 of the actuating screw studs extend into preformed holes 46 in the outer wall 32 of the casing where ready access may be had thereto by a screw driver or other suitable instrument for the purpose of turning the same to cause relative clamping movement between the gripping section 20 on the one hand and the pressing plate 18 and casing 30 on the other hand. Advantageously, the holes 46 in the casing are so proportioned relative to the screw stud heads 27 that there is a slight clearance therebetween. Because of this and because of the fact that the force reaction in effecting relative clamping movement between the clamping member and pressing plate is between these latter elements of the combination, no strain is placed upon the casing member in the clamping operation, thus enabling

it to be made of the relatively light weight and bendable material above described.

With the foregoing construction when the mounting is clamped in position on a door flange as shown in Fig. 1, the mounting is not only very effectively secured to the door but appears to merge with and form an integral part thereof with the casing maintained close to the door by the pressing plate, with the supporting arm extending outwardly through a hole **47** in the casing outer wall **32**, and with the portions of the outer wall surrounding the hole **47** being preferably disposed outwardly to provide a hublike formation **48** which merges or substantially merges with the supporting arm.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

Having thus described the invention, what is claimed as new is:

1. In a device of the character described for mounting a vehicle accessory, such as a rearview mirrow, on a vehicle part, the combination of a pressing member having marginal portions; a shell-like casing having an open inner end; shoulder means on said casing, facing said open inner end; integral means on said casing, bent about said marginal portions and opposed to said shoulder means for securing said pressing member therebetween; supporting means for said accessory, carried by said pressing member; and clamping means having a gripping portion opposed to said pressing member outside of said casing, an operating portion in said casing; and means having a portion intermediate said operating portion and said pressing member, for causing relative movement between said gripping portion and said pressing member.

2. In a device of the character described for mounting a vehicle accessory, such as a rearview mirror, on a vehicle part, the combination of a pressing plate having inwardly and outwardly facing sides; a shell-like casing having an open inner end, extending outwardly from said outwardly facing side, said casing being provided with an inwardly facing shoulder formation insert from said open end for engaging marginal portions of said plate and locating the latter relative to said open end; portions on said casing and integral therewith, projecting beyond said shoulder formation, adapted to be bent about marginal portions of said plate and clamp the latter relative to said shoulder formation; and a supporting arm for said accessory carried by said plate and extending outwardly therefrom through said casing; and clamping means having a gripping section opposed to said inwardly facing side of said pressing plate, said section and said plate being movable relative to each other; and means in said casing cooperable to cause said relative movement between said gripping section and said plate.

3. In a device of the character described for mounting a vehicle accessory, such as a rearview mirror, on a vehicle part, the combination of a pressing member; a shell-like casing having an open inner end, said casing being formed with opposed inwardly and outwardly facing portions adjacent said open end adapted to confine said pressing member therebetween and to locate and secure the same relative to said open end; supporting means for said accessory, carried by said pressing member and extending outwardly therefrom through said casing; and clamping means having a gripping section opposed and movable relative to said pressing member outside said housing and means having a portion in said casing, for effecting said movement of said gripping section relative to said pressing member.

4. In a device of the character described for mounting a vehicle accessory, such as a rearview mirror, on a vehicle part, the combination of a pressing member; a supporting arm for said accessory, carried by and extending outwardly from said pressing member; a shell-like casing of bendable material, having an open inner end, said casing being formed with laterally offset portions adjacent said open inner end and providing inwardly facing shoulder means therebetween; fingerlike extensions on said casing at the open end thereof, bent to underlie marginal portions of said member and locate and confine the latter relative to shoulder means in said casing; and clamping means having a gripping section opposed to said pressing member outside said casing; an operating section in said casing and connected to said gripping section; and means operably interposed between said pressing member and said operating section, for causing relative movement between said pressing member and said gripping section.

5. In a device of the character described for mounting a vehicle accessory, such as a rearview mirror, on a vehicle part, the combination of a pressing member having marginal portions; a shell-like casing member having side walls defining a chamber, and an open inner end, said side walls having laterally offset portions adjacent said open inner end providing inwardly facing shoulders; integral means on said side walls, deformed about said marginal portions and opposed to said shoulders for securing said pressing member therebetween, said side walls being formed to maintain said casing and said pressing member against lateral movement relative to each other in all directions; a clamping member having one portion in said chamber and a gripping portion outside of said chamber and opposed to said pressing member; a supporting means for said accessory, associated with one of said members and extending outwardly from said casing member; and screw means having a portion operatively interposed between said portion of the clamping member in said chamber and said pressing member, for causing relative movement between said gripping portion and said pressing member.

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