Aug. 1, 1944. D. M. ROBINSON 2,354,976

GARAGE DOOR CLAMP

Filed Dec. 2, 1940

Fig. 1

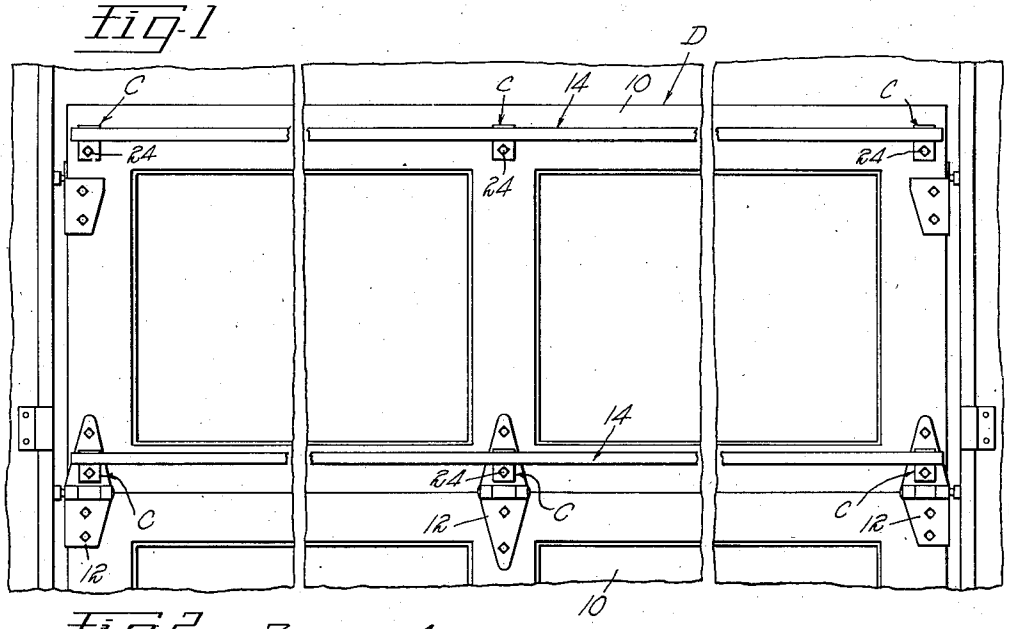


Fig. 2

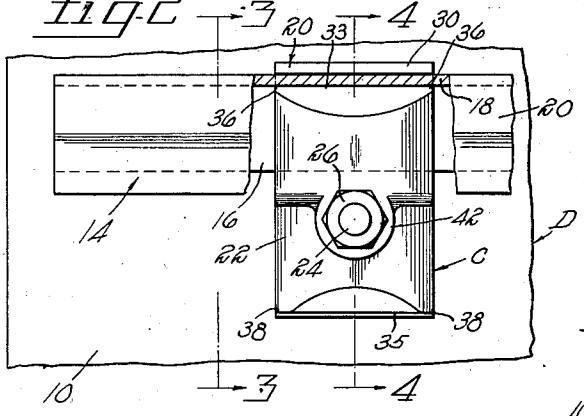


Fig. 3

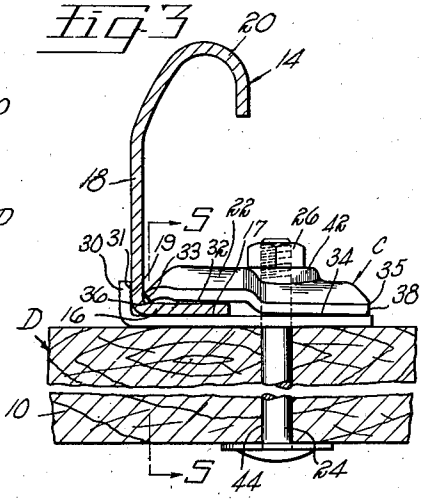


Fig. 4

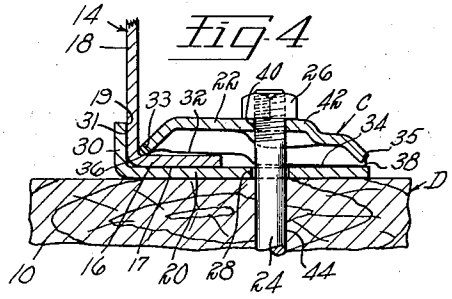
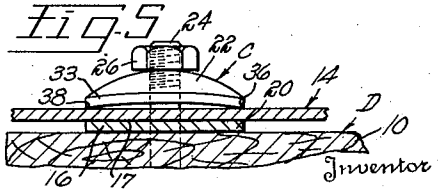


Fig. 5



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GARAGE DOOR CLAMP

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1 Claim. (Cl. 20—38)

The present invention relates to an improved clamp for securing a laterally extending reinforcing brace to a garage door so as to prevent shifting and sagging of the door. A brace in order to effectively prevent sagging usually comprises a channel iron of substantially U shaped cross-section, one flange of which is secured to the garage door. Heretofore it has been customary to secure non-sagging angle bars of this type by means of carriage bolts and it was therefore necessary to drill aligned bolt holes in the bar and the door. However, the shape and composition of the brace makes the drilling an exacting and time consuming operation.

It is therefore an object of this invention to provide an improved clamp for rigidly attaching the angle iron to the door whereby the necessity of drilling aligned holes in the angle iron is eliminated and wherein the bite of the clamp provides an extremely effective grip on the non-sagging member.

A further object of the invention is the provision of a novel securing means of this type which can be easily and inexpensively manufactured and can be installed with a minimum of time and effort.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application of which will be indicated in the appended claim.

In the accompanying drawing:

Figure 1 is a plan view of a portion of a wide overhead garage door and shows a pair of reinforcing channel irons or braces laterally secured to a section of the door by means of clamps embodying the present invention;

Fig. 2 is an enlarged plan view of one of the clamps shown in Figure 1 with the overlying portion of the channel iron broken away;

Fig. 3 is a cross-section profile view taken along line 3—3 of Fig. 2;

Fig. 4 is a cross-sectional view taken along line 4—4 of Fig. 2; and

Fig. 5 is a cross-sectional view taken along line 5—5 of Fig. 3 and illustrates more clearly the bite of the clamp on the brace.

Referring to Figure 1 there is shown generally a portion of a wide overhead garage door D made up of a series of sections 10, the adjacent edges of which are secured by hinges 12. Because of the extreme width of the door, reinforcing braces 14 are laterally secured to the door by means of the spaced clamps C. A satisfactory brace for this purpose can be made in a number of different shapes and it is to be understood that the brace disclosed in the drawing is merely illustrative of one satisfactory type of brace. More specifically, the brace 14 comprises a channel iron of substantially U-shaped cross section having a relatively narrow flange 16 and a flange 18 of substantially greater width which extends outwardly from one edge of the flange 16 and at right angles thereto. The free edge of the central flange 18 is bent to form a curved flange 20 and as a result the cross-section of the brace 14 has the approximate shape of a fish hook, as best appreciated with reference to Fig. 3.

Generally the clamp C comprises a base plate 20 and a cooperating clamping member 22, properly positioned relative to one another by a bolt 24 and clamped to each other and to the door by means of a nut 26 cooperating with the bolt 24.

More particularly the base plate 20 is a substantially rectangular flat sheet metal member having a bolt hole 28 cut therein and having the edge most remote from the bolt hole upset at right angles so as to provide an abutting flange 30. The inner surface 31 of the flange 30 abuts the outer surface 19 of the flange 18 and the outer surface 17 of the flange 16 is secured to the base plate 20 when the brace is properly located thereon. In order to secure the brace in the position indicated the clamping member 22 comprises a substantially cylindrically curved sheet metal stamping, the forward portion of which is upset so that the lower edges 32 of the upset portion are parallel with and offset from the lower edges 34 of the rear portion an amount slightly less than the thickness of the brace flange 16. As illustrated in the drawing, the ends 33 and 35 of the clamping member are deformed so that the curve is taken out of them and they form substantially straight edges except that the outer corners of each edge extend downwardly to form the spaced front locking points 36 and the rear locking points 38. A bolt hole 40 is cut in a boss 42 upset centrally in the clamping member 22.

In clamping position the forward locking points 36 of the member 22 are adapted to overlie the flange 16 of the brace adjacent the flange 18 and the rear locking points 38 overlie the base plate 20. In this position the bolt hole 40 is aligned with the bolt hole 28 in the base plate and permits the insertion of the bolt 24 therethrough and through an aligned bolt hole 44 in the door.

When the nut **26** is thereafter tightened the locking points **38** and **36** respectively dig into the base plate **20** and the flange **16** of the brace so as to firmly and immovably engage those members at spaced points. Further, inasmuch as the body of the clamping member is upset relative to the points **36** and **38**, the points tend to separate further when the nut **26** is tightened and since the only point of slippage is between the base **20** and the flange **16** the brace will tend to assume the position wherein the flange **18** positively and firmly abuts the upset flange **30** of the base member.

It will also be observed that inasmuch as the forward locking points **36** are themselves spaced apart as are the rear locking points **38** the nut **26** in cooperation with the bolt **24** firmly secure the brace **14** at spaced points. In order not to weaken the door by unnecessary bolt holes the tightening bolt **24** for each of the clamps C may constitute one of the bolts for securing one leaf of the hinge **12** to the door, as is illustrated in connection with the lower brace **14** shown in Figure 1.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claim is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

A clamp for securing a door brace and comprising a sheet metal base member having a flat base plate and an upwardly extending flange at one end thereof, said base plate having a bolt hole intermediate its ends, a clamp having a bolt opening intermediate its ends and adapted to register with said bolt hole, said clamp being slightly lesser in length than said base plate, the rear end of said clamp having downwardly extending locking points engaging said base plate adjacent the rear edge of the latter, the forward end of said clamp being engaged in the corner of the brace positioned in the angle between said base plate and flange and having downwardly extending locking points engageable with the brace, and a bolt passing through said hole and opening for clamping said base plate and clamp together and the brace therebetween.

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