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3,298,646

BEAM FLANGE CLAMP

Filed June 10, 1966

Fig. 1.

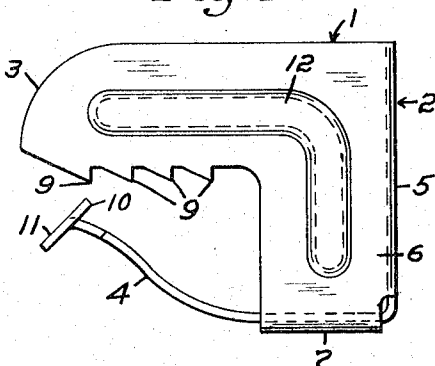


Fig. 2.

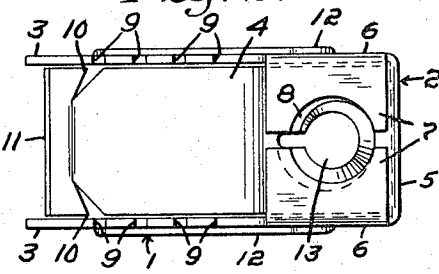


Fig. 3.

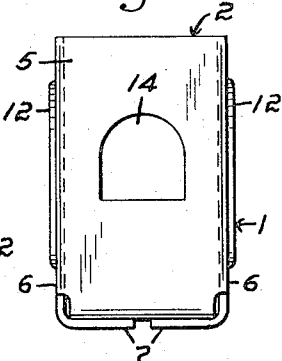


Fig. 4.

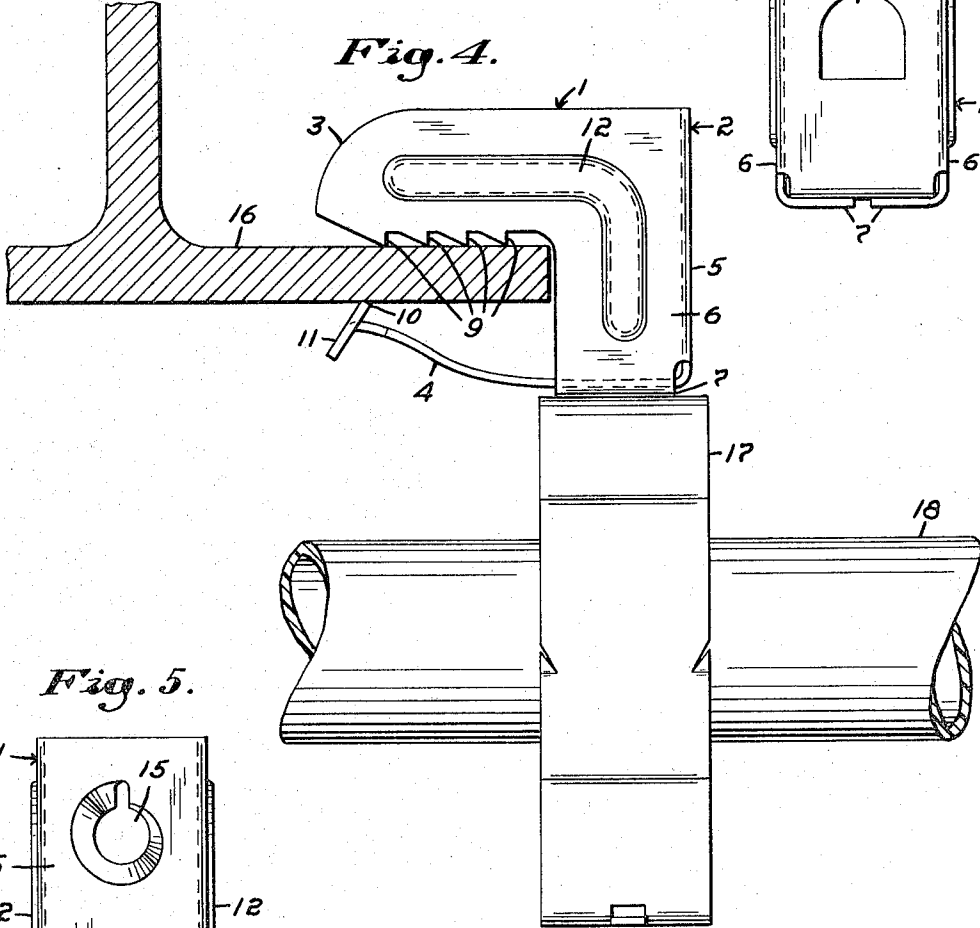
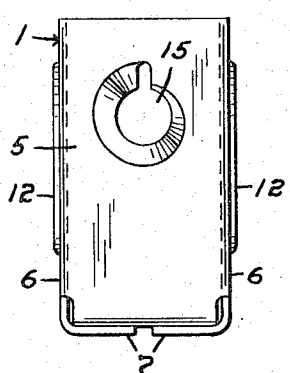


Fig. 5.



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3,298,646

BEAM FLANGE CLAMP

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The present invention relates generally to sheet metal clamps and more specifically to a beam flange clamp for use in building construction.

An object of the invention is to provide an inexpensive, easily manufactured and highly efficient clamp.

A further object of the invention is to provide a clamp which is readily adapted to be jammed onto and bitingly grip a flanged member.

A still further object of the invention is to provide a beam flange clamp having means for receiving a fastener employed to secure a part to be suspended from the beam.

Additional objects and advantages of the novel clamp will become evident from a reading of the following detailed description, in conjunction with a viewing of the accompanying drawings, in which:

FIGS. 1, 2 and 3 are a side elevation, bottom plan and right-end view, respectively, of the clamp;

FIG. 4 is a side elevation depicting the clamp as employed to support a clip and conduit from the lower flange of an I beam with the beam being shown in section; and

FIG. 5 is an end view of a slightly modified form of the clamp shown in FIGS. 1, 2 and 3.

The clamp 1 is a sheet metal stamping and includes a main body portion 2, a pair of spaced, rigid arms 3 extending laterally from the upper end of the body portion 2 and a relatively flexible spring arm 4 which extends laterally from the lower end of the body portion 2 and upwardly to a free end which lies close to the ends of the rigid arms 3.

The main body portion 2 is generally rectangular in shape and includes a back portion 5, parallel sides 6 and a split base 7 which overlies a portion of the spring arm 4 and defines a generally circular opening 8.

As best seen in FIG. 1, each of the rigid arms 3 has a plurality of teeth 9 which extend downwardly toward the lower end of the body portion 2 and the spring arm 4 has a pair of prongs 10 struck therefrom which extend upwardly and terminate distally-proximate the teeth 9. Thus, the teeth and prongs co-operate to define a jaw which will bitingly grip a member inserted therebetween. In addition, the free end of the spring arm 4 has a downwardly bent lip 11 providing a lead-in to the jaw. The clamp also includes a pair of external ribs 12 which traverse the rigid arms 3 and the sides 6 of the body portion 2 to impart increased strength to the structure.

As best seen in FIGS. 2, 3 and 5, various means for receiving a fastener to secure a part to be supported by the clamp are provided. The spring arm 4 has an opening 13 formed therein adjacent the opening 8 defined by the base sections 7 and the material surrounding the opening 13 has been pressed into the well-known form of a single thread impression adapted to engage a screw turned into the opening 13. Further, the back portion 5 of the body 2 is provided with an opening 14 to receive the hook portion of a hanger to be suspended from the clamp. In the modified form shown in FIG. 5 the back portion 5 has an opening 15 and surrounding thread impression similar to that described above. Thus, the reader will appreciate that the illustrated clamps are adapted to accommodate various types of fasteners and that the invention is not limited to the number or specific arrangement of the fastener receiving elements described.

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FIG. 4 depicts a typical installation wherein the clamp 1 is attached to the lower flange of an I beam 16 and a clip 17 which in turn supports an electrical conduit 18 is attached to the lower portion of the clamp. The over-all thickness of the flange on the beam 16 is approximately four times greater than the vertical distance between the ends of the prongs 10 and the teeth 9 as shown in FIG. 1. Thus, when the flange is jammed onto the jaw of the clamp, the spring arm 4 is deflected downwardly and placed in tension with the result that the prongs 10 and teeth 9 bear tightly against the lower and upper surfaces of the flange respectively and bite into the flange to some degree. The extent of this biting engagement is, of course, dependent on the hardness of the metal from which the beam is fabricated. The clip 17 is secured to the clamp by a bolt (not shown) which is turned into the opening 13 and engaged by the thread defining the opening and may be attached to the clamp either before or after the latter is jammed onto the beam flange. Where the modified form of FIG. 5 is used, an electrical junction box or some other part may be bolted to the back of the clamp as desired. In another arrangement, the clamp may be utilized to suspend lathers channeling which in turn supports acoustical, blocked ceiling tile. In such an arrangement, the clip 17 would not be used and a hanger (not shown) having a hooked end would be hooked onto the back portion of the clamp at the bottom of the opening 14 with the other end of the hanger being attached through a linkage to the lathers channeling.

The reader will therefore appreciate that the clamp is adapted to be used in many different arrangements in building construction wherein it is desirable to suspend structural elements from an overhead beam.

The foregoing description is therefore to be interpreted in an illustrative rather than a limiting sense, in that the scope of the invention is best defined by the following claims.

I claim:

1. A clamp adapted to engage a flanged member and to support at least one other part therefrom comprising a main body portion, a plurality of generally rigid arms extending laterally from the upper end of said body portion in spaced relationship to one another, said rigid arms having a plurality of flanged member engaging teeth extending in the general direction of the opposite end of said body portion, at least one relatively flexible spring arm extending laterally from the opposite end of said body portion and thence upwardly to a free end lying close to but spaced from said rigid arms, said spring arm having a plurality of flanged member engaging prongs disposed distally-proximate said teeth and co-operating with said teeth to form a jaw for bitingly gripping a flanged member inserted therebetween, and means on at least one of said body portion and said spring arm adapted to receive a fastener employed to secure a part to said clamp.

2. A clamp according to claim 1 wherein said body portion is generally rectangular in shape and includes a back portion, parallel sides extending laterally from said back portion and a split base portion overlying portions of said spring arm.

3. A clamp according to claim 2 wherein said rigid arms and the sides of said body portion are provided with external ribs imparting increased strength to said clamp.

4. A clamp according to claim 1 wherein said means comprises an opening formed in said spring arm and a single thread impression formed adjacent said opening.

5. A clamp according to claim 2 wherein said means comprises a slot, adapted to receive a hooked member, formed in said back portion.

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6. A clamp according to claim 2 wherein said means comprises an opening formed in said back portion and a single thread impression formed adjacent said opening.

7. A clamp according to claim 1 wherein the free end of said spring arm has a downwardly extending lip providing a lead-in to said jaw. 5

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CLAUDE A. LEROY, *Primary Examiner.*