

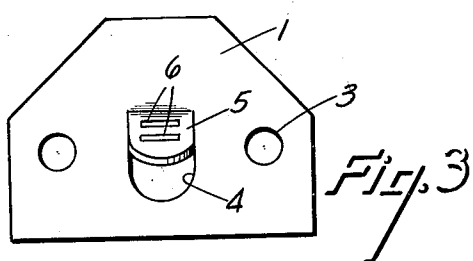
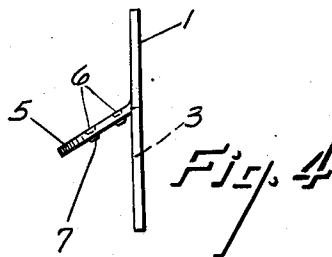
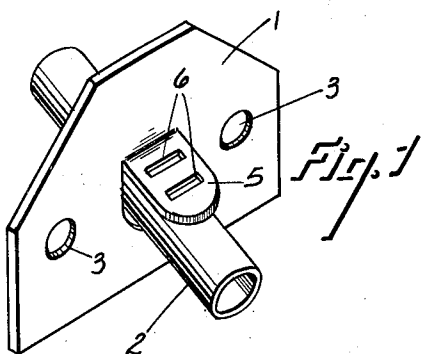
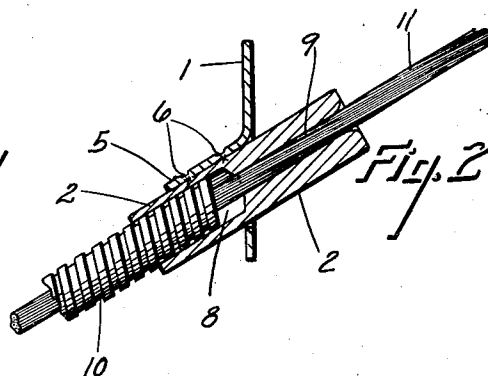
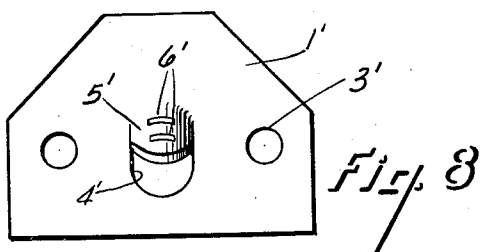
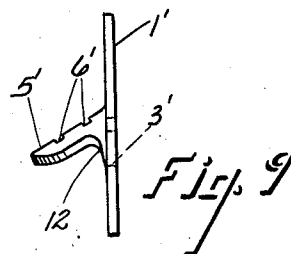
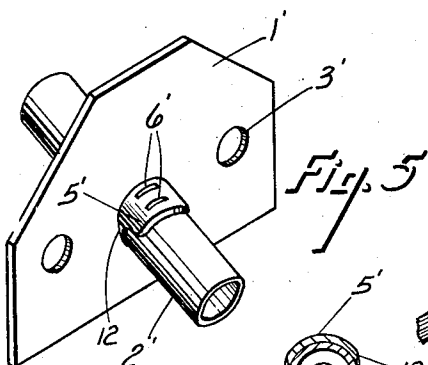
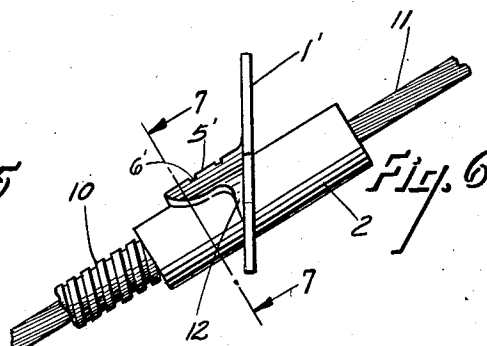
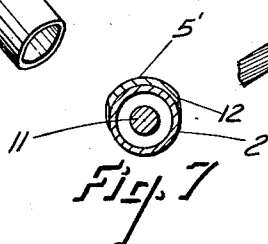
Sept. 1, 1942.

W. E. SMITH

2,294,483

CONDUIT BRACKET AND METHOD OF MAKING SAME

Filed July 18, 1939



INVENTOR.

WILLIAM E. SMITH

BY

Louis W. Smith
ATTORNEY.

UNITED STATES PATENT OFFICE

2,294,483

CONDUIT BRACKET AND METHOD OF
MAKING SAME

William E. Smith, Detroit, Mich., assignor to The
Midland Steel Products Company, Cleveland,
Ohio, a corporation of Ohio

Application July 18, 1939, Serial No. 285,128

4 Claims. (Cl. 29—148)

This invention relates to new and useful improvements in attachment means for supporting or guiding a member which is to be supported or extended at an angle through another member.

An important object of the invention is to employ a construction making it possible to employ metal pressed out from the member for rigidly connecting another member thereto at an angle other than at right angles.

Another important object of the invention is to employ the metal struck out from one member for the passage of another member and the attachment thereof of the two members by projection welding.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the accompanying drawing forming a part of the application and wherein like numerals are employed to designate like parts throughout the several views:

Fig. 1 is a perspective view of the bracket,

Fig. 2 is a longitudinal section thereof showing its use as a conduit bracket,

Fig. 3 is a front elevation of the bracket,

Fig. 4 is a side elevation of the same,

Fig. 5 is a perspective view of a modification of the bracket,

Fig. 6 is a side elevation thereof showing its use as a conduit bracket,

Fig. 7 is a transverse section of the same on the line 7—7 of Fig. 6,

Fig. 8 is a front elevation of the modified bracket and

Fig. 9 is a side elevation thereof.

Referring now more particularly to the drawing and to the form of invention shown in Figs. 1 to 4, the numeral 1 designates a plate to which is rigidly secured a tubular member 2 at an angle other than a right angle, or in fact, any desired angle; but obtuse or acute angular relationships are accentuated due to the inability to economically provide fastening means of the usual type at angles other than right angles, with the usual economic forming instrumentalities. This plate 1 may be in the form of a small bracket member to be attached to a larger and more extensive member, although of course, it will be obvious that the attaching means may be formed integral with such large and extensive member where the equipment and conditions are available.

This backing plate 1 is provided adjacent opposite edges with perforations 3 whereby the plate may be riveted or otherwise suitably secured to the member to which the attachment is to be

made. Due to the fact that the fastening means must extend at an obtuse angle to the plate and therefore cannot be of the usual type of attachment means formed normal to the plane of the plate for the securement of a tubular member thereto, the means of attachment assumes a more or less unique form to be adaptable not only to the contour of the tubular member, but also to maintain its necessary angular relationship to the plate. The plate 1 is provided with this attachment means in the usual punching operation by lancing the medial portion of the plate with a U-shaped opening 4, the arch of which is adapted to fit snugly about the contour of the tubular member 2, and to provide a tab or tongue 5 projecting at an obtuse angle to the plane of the plate 1 for engagement with the diametrically opposite portion or topside of the tubular member 2.

In the blanking operation of providing this plate 1, the tab is formed with a pair of rectangular spaced depressions 6, spaced lengthwise of the tab to provide its under surface with a pair of spaced transversely arranged projecting ribs 7 which are adapted to be projection welded to the upper surface of the tubular member 2 for rigidly connecting the two members and preventing relative movement of any kind. The pressure necessarily employed in the projection welding operation naturally forces the underside of the tubular member against the curved or arched portion of the U-shaped opening 4 as will be obvious.

The tubular member 2 in the present instance is shown in the form of an end fitting for a flexible brake conduit 10, one end of which is rigidly secured in the enlarged end 8 of the tubular member while the customary brake cable 11 which passes through the flexible conduit extends through the restricted end 9 of the bore to extend to the brakes or other instrumentality to be operated by the flexible cable. The plate 1 may be suitably secured to any structural part of the automobile for guiding the cable in the proper direction from actuating means to the brake or other mechanism to be operated. It is desirable to provide the tab 5 and projection 7 with a thickness substantially equal to the thickness of the wall of the tubular member 2 where it is welded to the tab to facilitate equal heating of the parts during the welding operation.

In the form of invention shown in Figs. 5 to 9, the tab 5 instead of being flat, is of arcuated section as indicated by the numeral 5' to conform to and closely engage the upper surface of the tubular member 2'. To secure a greater area of

contact between the tab and tubular member, the side edges 12 of the tab are arcuated and merge gradually into the plane of the plate. This formation of the tab is secured in the blanking operation of the plate by forming the plate with a suitably contoured depression or convexity of appropriate shape, which when lanced to provide the U-shape opening, defines the area of the tab, so that when it is subsequently pushed out with the lancing tools during the punching operation, it will have the necessary obtuse angular relationship with respect to the plate 1. This tab 5' is of course provided with the welding depressions 6' forming welding projections 7', which like the preceding form, are projection welded to the upper surface of the tubular member 2'.

It will be apparent that various changes in the size, shape and relation of parts may be resorted to without departing from the scope of the appended claims.

I claim:

1. The method of connecting a member to a plate member consisting of forming a welding projection upon a portion of the plate while blanking the same and lancing said plate around said projection to define an opening and a tongue, bending said tongue to extend at an angle to the plate member with the welding projection extending inwardly toward the plate, projecting the other member through the opening in the plate member, bending the tongue into firm engagement with said other member and projection welding the projection of the tongue to the member extending through the plate member.

2. As an article of manufacture, a stamping having an opening formed therein by lancing a

tongue and bending the same at an angle to the plane of the stamping, said tongue having a depression forming a welding projection on its inner face, and a member extending through said opening in contact with said welding projection and being welded thereto to assume the same angle to the stamping as the tongue assumes therewith.

3. The method of connecting two members together at any desired angle consisting of lancing an incision in a member spaced from its edges to define a bendable tongue, bending said tongue out of the plane of said member to the approximate desired angle to provide an opening, extending a second member through said opening, and bending said tongue into close engagement with said second member and pressure welding said tongue to said second member by exerting welding pressure upon said tongue to cause it to press upon said second member causing it to be pressed against one side of said opening to be tightly engaged therein.

4. A joint construction comprising a member having a U-shaped incision therein spaced from the edges thereof to define a tongue of the same shape, said tongue being bent out of the plane of the member at an angle thereto to provide the latter with an opening spaced from the edges of said member and provided with an arcuate end opposite said tongue, and a tubular member extended through said opening at the same angle as the tongue, said tubular member being seated against the arcuate edge of said opening and rigidly secured to said tongue.

WILLIAM E. SMITH.