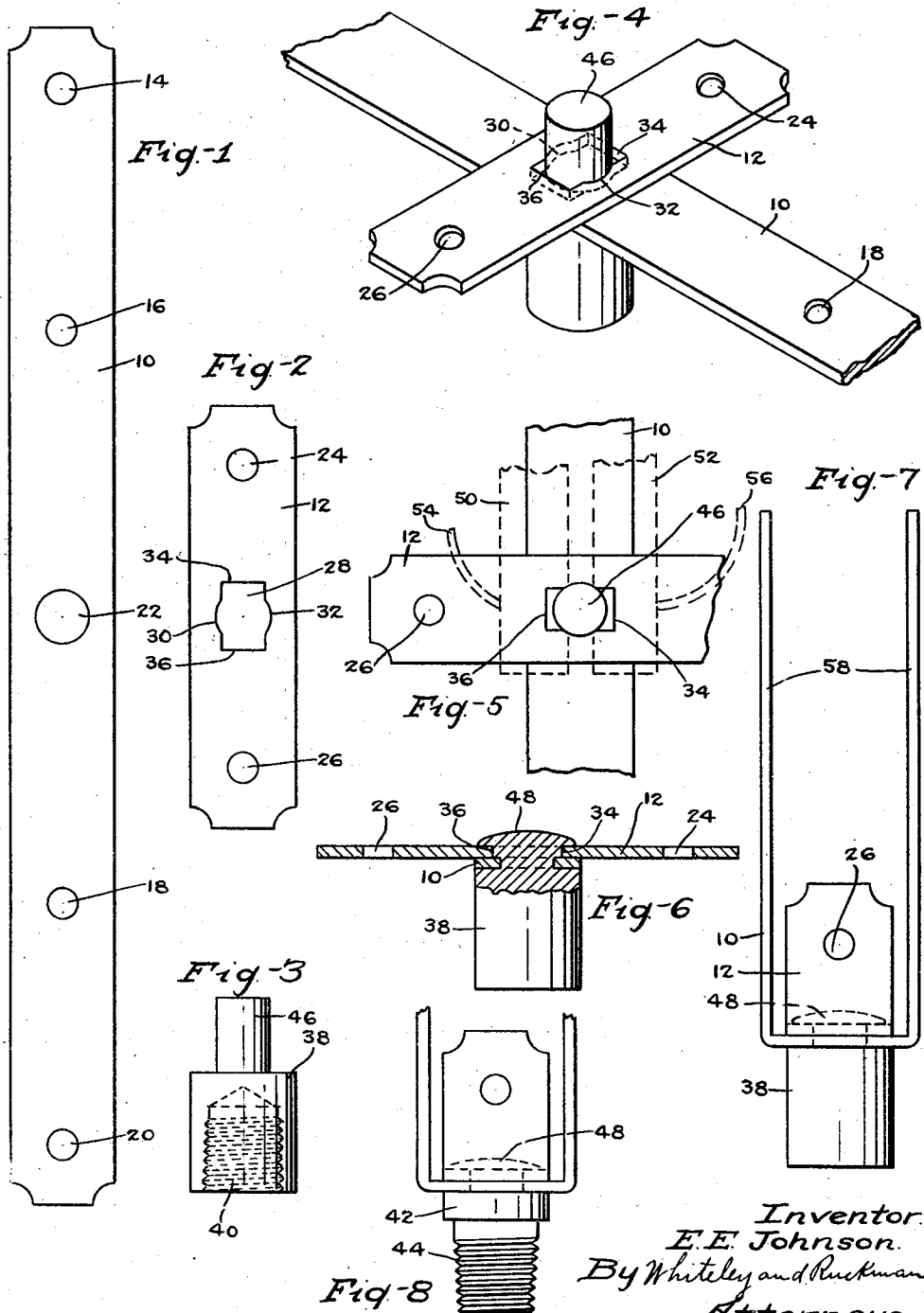


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E. E. JOHNSON
PROCESS OF MAKING COUPLINGS

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PROCESS OF MAKING COUPLINGS

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My invention relates to processes of making couplings, and has for an object to provide a coupling having wings adapted to clasp and be secured to wooden rods or shafts such as pump rods, and is in the nature of a development of the invention shown in my application Serial Number 669,441 filed October 18, 1923. My invention in the form shown herein involves the provision of two strips of sheet metal which are placed in engagement with each other crosswise, the end portions of the strips being bent up at right angles in the form of wings to produce a socket for receiving the end of the pump rod. A particular object of my invention is to provide for firmly and strongly securing these strips together by means of a shank forming part of the coupling and so secured that it is not liable to be twisted off. The full objects and advantages of my invention will appear in connection with the detailed description thereof, and the novel features of my inventive idea will be particularly pointed out in the claims.

In the accompanying drawings which illustrate the manufacture of my coupling,— Fig. 1 is a face view of one of the strips of sheet metal which I employ. Fig. 2 is a face view of the other strip of sheet metal which I employ. Fig. 3 is a side elevational view of one form of shank member. Fig. 4 is a so-called perspective view showing the manner in which the two strips and a shank member are positioned in order to secure them together. Fig. 5 is a plan view showing the manner in which a lug on the shank member may be heated in situ. Fig. 6 is a sectional view showing the heated lug headed down into place. Fig. 7 is an elevational view of the completed coupling. Fig. 8 is a fragmentary view corresponding in general to Fig. 7 but showing the use of a different form of shank.

In carrying out my invention, I employ a shank 38 as shown in Fig. 3 having a projecting lug or reduced end member 46 and a female threaded portion 40. This shank may also be formed as indicated at 42 of Fig. 8 and with a male threaded portion 44, the essential feature being that the lug or reduced end member 46 is common to both forms. I also provide two strips 10 and 12 which are cut to the proper size from sheet metal, the strip 10 in the embodiment herein shown being considerably longer than strip 12. The two end portions of the strip 10 are provided with holes 14, 16, 18 and 20, and this strip is provided centrally with an opening 22 which is adapted to fit over the lug 46 when the device is assembled as shown in Figs. 4 and 5. This opening 22 may conform to the shape of the lug 46 or may be of a larger size or a different shape for a purpose which will be shown later. The two end portions of the strip 12 are provided with holes 24 and 26 and also centrally with an opening 28 adapted to assemble over the lug 46. The opening 28 in the strip 12 is larger than the opening 22 in strip 10 and is preferably of a generally oblong form for a purpose which will be later shown. It is not essential that any portion of its boundary wall be so disposed as to coincide or register with portions of the wall of opening 22 although for convenience in assembling the parts it may be formed as in the embodiment shown so that wall portions 30 and 32 coincide with the periphery of opening 28. The essential condition is that when the two strips are centrally juxtaposed with their axes at right angles to each other and surrounding the lug 46, the larger oblong opening 28 registers with and lies above the opening 22. In the embodiment shown, the lug 46 is cylindrical while the opening 22 is circular since these shapes are considered more suitable than angular shapes. It is, however, within the purview of my invention to produce other shapes, the essential feature being that parts of the opening 28 shall be larger than the opening 22 and adapted to form means to prevent relative movement between the parts of the coupling when the device is completed as will be shown later. After the members have been positioned as shown in Fig. 4, the protruding end of the lug 46 is headed down to produce the head 48 as shown in Fig. 6, the result being that some of the material of the lug is made to flow out to fill the opening 28 thus providing at the same time a headed rivet to secure the parts in

permanent relation against separation under tension and against distortion by twisting. Obviously, the effect produced by flowing the metal of the lug out into the space 28 of strip 12 may be obtained similarly in the strip 10 if considered advisable. The purpose of the construction is to so balance the strength of the parts that no distortion will occur whether by the ordinary force applied to screw together or to take apart the assembled coupling or from the alternate axial tension and compression which are applied in the ordinary use of the coupling. It is desirable that the lug 46 be heated so that the metal will flow more readily before hammering or other force is applied thereto for the purpose of heading it down. I have found that heating in situ is most effective for this purpose. In other words, after the members have been assembled, the lug is heated. This is most conveniently done by placing electrodes such as 50 and 52 in contact with opposite sides of the protruding portion of the lug as indicated at dotted lines in Fig. 5, these electrodes having attached thereto wires 54 and 56 in order to supply electric current. After the lug has been sufficiently heated, the electrodes are removed and the heated lug is hammered or otherwise headed by application of the requisite force. After the strips have thus been secured together, the strip 10 is bent up at right angles to produce wings 58 and the strip 12 is bent up at right angles to produce wings 60 as will be apparent from Figs. 7 and 8. The wings form a socket for receiving the end portion of a wooden bar such as a pump rod which is secured in the socket by rivets or bolts passing through the holes provided for this purpose. It is to be noted that my process not only renders it feasible to employ a strong and sturdy securing lug but this lug or reduced end member during the securing operation is thickened and made stronger and anchors the shank in place without liability of its being twisted off.

I claim:

1. The process of making couplings which consists in providing a shank having a reduced end member, assembling on said reduced member, a strip of sheet metal provided with an opening, heating said reduced member in situ, heading said reduced member to form a rivet having means to prevent relative movement between the parts of the coupling, and bending said strip to form wings.

2. The process of making couplings which consists in providing a shank having an axially extending lug, assembling on said lug a sheet metal strip having a centrally disposed opening, superimposing upon the first mentioned strip a second sheet metal strip having a central opening which is generally oblong and spaced away from the lug, heating said lug in situ, heading the free end

thereof whereby some of the material is caused to flow out to fill said openings, and bending the free portions of said sheet metal strips to form wings.

3. The process of making couplings which consists in providing a shank having an axially extending lug, assembling on said lug a clasp member having a centrally disposed opening, superimposing upon said first mentioned member a second clasp member having a central opening which is generally oblong and spaced away from said lug, heating said lug in situ, and heading the free end thereof whereby some of the material is caused to flow out to fill said openings.

4. The process of making couplings which consists in providing a shank having an axially extending lug, assembling on said lug a strip of sheet metal provided with a central opening therefor, superimposing upon the first mentioned strip a second strip of sheet metal disposed at right angles thereto and provided with an irregularly enlarged central opening, heating said lug in situ, and heading the free end thereof whereby some of the material thereof is caused to flow out into said opening.

5. The process of making coupling which consists in providing a shank having an axially extending lug, assembling on said lug a strip of sheet metal provided with an opening therefor, superimposing upon the first mentioned strip a second strip of sheet metal disposed at right angles thereto and provided with an irregularly enlarged opening, heating said lug in situ, and heading the free end thereof to form a rivet having means to prevent relative movement between the parts of the coupling.

6. The process of making couplings which consists in providing a shank having a reduced end member, assembling on said reduced member a strip of sheet metal provided with an opening, heading said reduced member to form a rivet having means to prevent relative movement between the parts of coupling, and bending said strip to form wings.

7. The process of making couplings which consists in providing a shank having a reduced end member, assembling on said reduced member a strip of sheet metal provided with an irregularly enlarged opening therewith, heating said reduced member, and heading said reduced member to form a rivet having a portion thereof expanded into said enlarged opening.

8. The process of making couplings which consists in providing a shank having a reduced end member, assembling on said reduced member a strip of sheet metal provided with an opening therefor, superimposing upon the first mentioned strip a second strip of sheet metal disposed at an angle thereto and provided with an irregularly en-

larged opening, and heading the free end of
said reduced member to form a rivet having
a portion thereof expanded into said enlarged
opening.

5 In testimony whereof I hereunto affix my
signature.

EDWARD E. JOHNSON.

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