(No Model.) 2 Sheets—Sheet 1.

G. H. DRAKE.

METHOD OF MAKING SUPPORTING BRACKETS FOR BOILERS, &c.

No. 494,370. Patented Mar. 28, 1893.

Fig. 2.

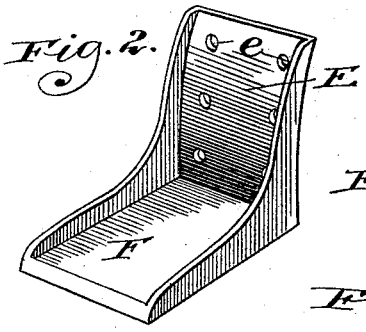

Fig. 3.

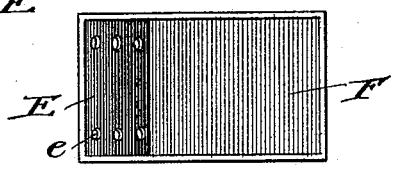

Fig. 1.

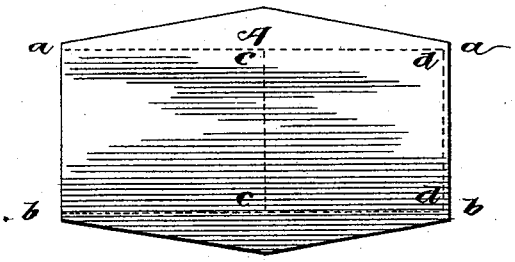

Fig. 4.

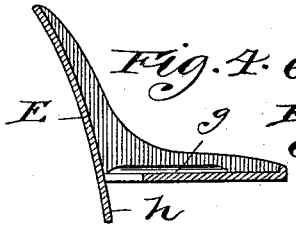

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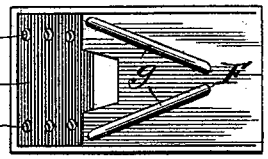
Fig. 5.



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(No Model.) 2 Sheets—Sheet 2.

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METHOD OF MAKING SUPPORTING BRACKETS FOR BOILERS, &c.

No. 494,370. Patented Mar. 28, 1893.

Fig. 1a.

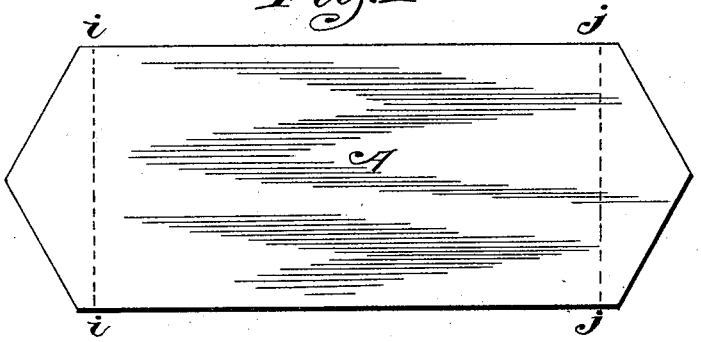
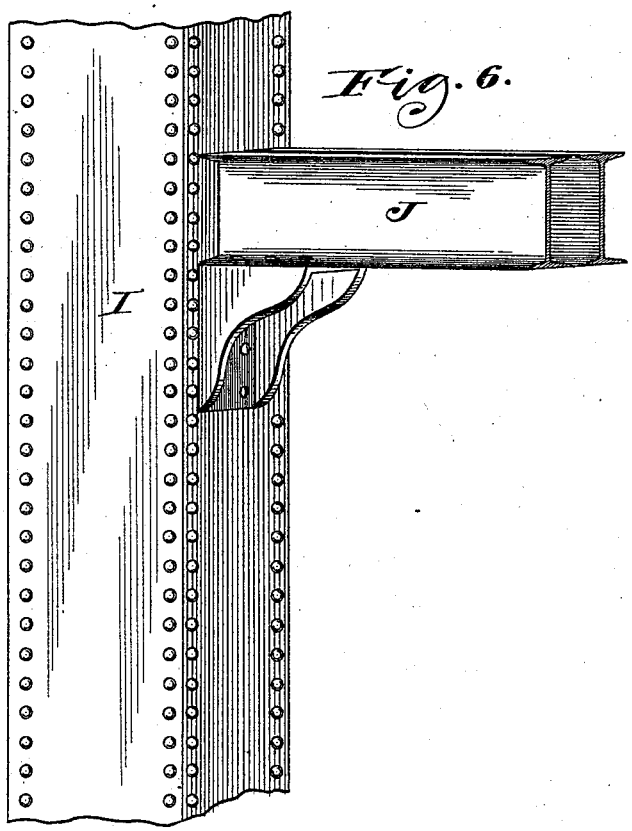


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE H. DRAKE, OF OMAHA, NEBRASKA, ASSIGNOR OF TWO-THIRDS TO WILLIAM J. WICKES, OF SAGINAW, MICHIGAN, AND ALFRED M. CASTLE, OF CHICAGO, ILLINOIS.

METHOD OF MAKING SUPPORTING-BRACKETS FOR BOILERS, &c.

SPECIFICATION forming part of Letters Patent No. 494,370, dated March 28, 1893.

Application filed January 10, 1893. Serial No. 457,879. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. DRAKE, of Omaha, Nebraska, have invented a certain new and useful Improvement in Methods of Constructing a Supporting Lug or Bracket, of which the following is a specification.

My invention relates to a method of constructing a supporting lug or bracket which is adapted for use as a lug to support boilers and which may also be used as a bracket in architectural and other construction work.

In carrying out the invention I construct the lug or bracket from sheet or plate metal, preferably sheet steel, which may be rolled flat and cut to proper form. I then subject this form or blank to the action of a suitable press or die whereby it is bent into angular form transversely, and at the same operation has its longitudinal margins turned up to provide strengthening ribs or flanges whereby the completed lug or bracket is provided upon its interior angle with marginal ribs or flanges of such width as to properly brace and integrally connect the two portions thereof. When applied as a boiler lug the base portion may be constructed straight so as to rest upon the masonry while the upright portion will be perforated for the passage of rivets to secure it to the boiler and will be curved on its outer face to conform to the curvature of the boiler. When used as a bracket both of the portions may be perforated and one member thereof connected to a column while the other may be adapted to support a girder or transverse beam.

Prior to my invention boiler lugs have been constructed of cast metal. These lugs are necessarily heavy and a single lug for a standard boiler—say, five feet in diameter, would weigh at least one hundred pounds. In applying them to a boiler the only way in which a tight joint can be secured is by heading the rivet over from the inside of the boiler.

It is of course well known that boiler plate and cast iron have different rates of expansion and contraction, and a suitably tight joint cannot easily be secured or maintained between these metals of diverse nature. A cast metal lug is provided in the casting with the bolt or rivet apertures and necessarily their position being fixed the rivet holes in the boiler must be made to correspond. Accuracy of fit between the surface of the lug and the surface of the boiler is difficult to obtain where the lug is cast. A further objection to cast boiler lugs arises from the fact that a power riveting machine cannot be used to rivet them on. The strain on these lugs is mainly at the angle between the upright and the horizontal members, the device being substantially L-shaped. In order to secure the proper strength at this point these lugs are necessarily made heavy.

In a patent issued prior to my invention, a boiler lug has been shown having its members re-enforced by ribs or flanges upon the interior angle of the lug and along its side margins. Said flanges however extend only partially up the sides of the vertical member and part way only along the top surface of the horizontal member of the lug. If a cast lug were provided with side flanges or webs sufficient to secure such additional strength as would permit a material reduction in the weight of the lug, these flanges would have to be so thick that the interior space for riveting would be encroached upon; and if the rivet holes are put too close together they weaken the lug.

Brackets for architectural purposes have heretofore been constructed from cast metal and are subject to nearly all of the objections which have been above pointed out to the use of cast iron lugs for boilers. Angle brackets have also been used which are cut from a rolled section of angle iron, but when thus constructed they are not sufficiently strong to sustain the weights with which they are frequently loaded, and therefore it is common to employ two angles which are placed together in such manner that one shall brace the other.

By my invention a sufficiently strong bracket may be made from a single piece and at a single operation.

In the accompanying drawings, Figure 1 shows the blank from which my lug is formed; and Fig. 1ª shows the blank for the bracket.

Figs. 2 and 3 are, respectively, a perspective and plan view of the invention as embodied in a boiler lug. Figs. 4 and 5 show a modified construction thereof wherein the horizontal member of the lug is corrugated and a portion of the bottom thereof cut out and bent down to provide a depending flange integral with the upright portion. Fig. 6 shows the invention as embodied in a bracket for the support of structural iron work.

In carrying out my invention to provide a boiler lug, I take a blank, as A, (Fig. 1) and by means of a suitable press, die or bulldozing machine, bend said blank upon the longitudinal lines *a*, *a*, *b*, *b*, and upon the transverse lines *c*, *c*, *d*, *d*. By this means there is provided a boiler lug having the members E, F, the latter being perforated, as at *e*, for securement to the boiler, and the perforated member will be curved as shown in Figs. 2 to 5 inclusive to adapt it to conform to the surface of the boiler, while the horizontal member of the lug may be corrugated, as seen at *g*, Figs. 4 and 5. The marginal flanges are widest at the angle or junction of the two members and gradually taper toward and terminate at the extremities thereof. During or subsequent to the operation of producing the lug, the horizontal member may be slit and a portion thereof turned down, as seen at *h*, Fig. 4, to provide a depending flange which will engage the side of the boiler below the masonry and prevent any lateral or shifting movement of the boiler upon its support. Obviously also the upright member might be so slit and the depending flange turned down therefrom.

The application of the invention to the construction of a bracket for architectural or other construction work is sufficiently indicated in Figs. 1ª and 6. In the former figure the dotted lines *i*, *i* and *j*, *j* indicate the lines of bending which produce the marginal flanges which need be only on the sides of the bracket.

I is a column which is indicated by dotted lines in Fig. 6, and a girder J is similarly indicated, one member of the bracket being riveted to the column and the other to the girder.

I claim—

The herein-described method of making a lug or bracket from sheet metal, which consists in providing a blank wider at its middle than at its ends, and then bending said blank transversely to provide body portions angularly disposed with reference to each other and simultaneously turning up the edges of said blank to provide marginal strengthening ribs or flanges, substantially as described.

GEORGE H. DRAKE.

Witnesses:
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