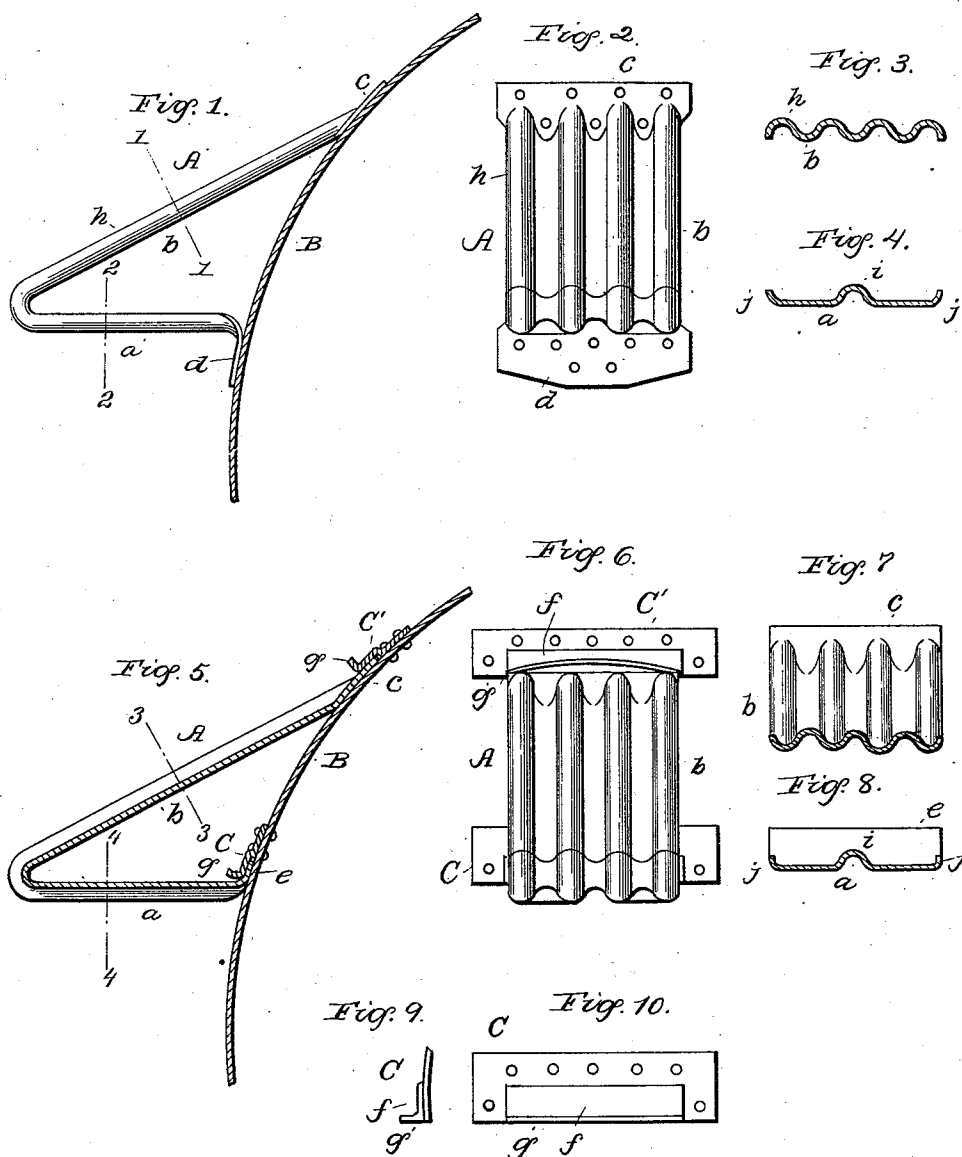


J. P. ROE.

SUPPORTING LUG FOR STEAM BOILERS.

No. 540,924.

Patented June 11, 1895.



Witnesses
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(No Model.)

2 Sheets—Sheet 2.

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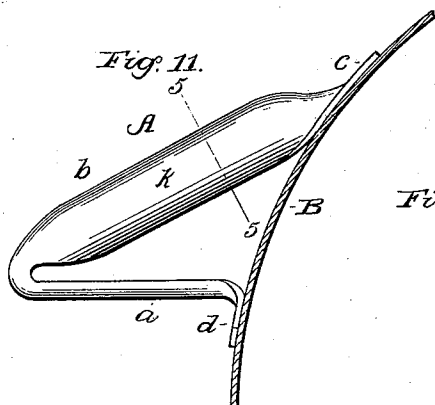


Fig. 12.

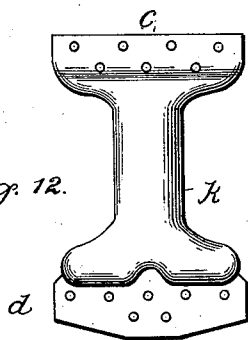


Fig. 13.

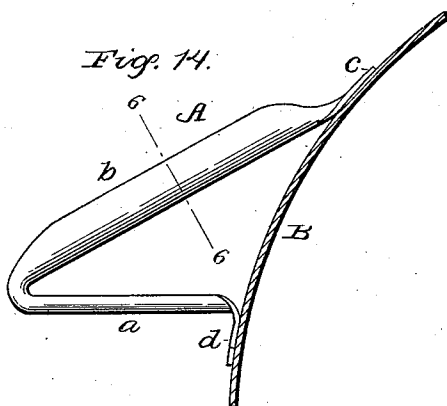


Fig. 15.

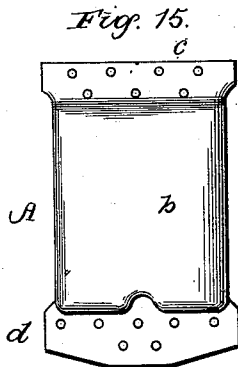


Fig. 16.

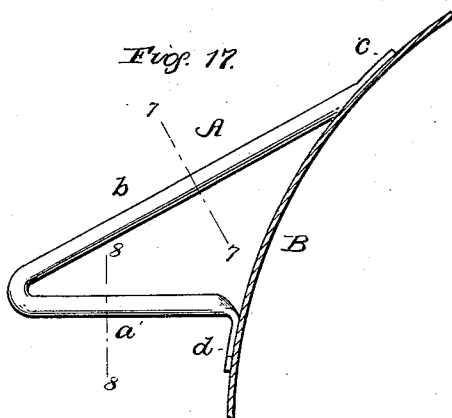
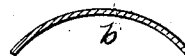


Fig. 18.

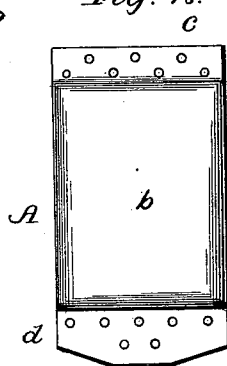


Fig. 19.

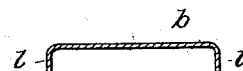
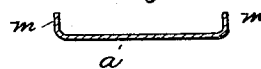


Fig. 20.



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UNITED STATES PATENT OFFICE.

JAMES P. ROE, OF POTTSTOWN, PENNSYLVANIA.

SUPPORTING-LUG FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 540,924, dated June 11, 1895.

Application filed March 27, 1895. Serial No. 543,390. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. ROE, a subject of the Queen of Great Britain, residing at Pottstown, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Supporting-Lugs for Steam-Boilers, Tanks, and the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to supporting lugs for steam boilers, tanks, and the like, and it has for its object to provide a simple, durable, and comparatively inexpensive lug of great strength as compared to lugs now in use, and it consists, broadly, in providing a lug pressed or stamped from a single blank of sheet or plate metal with a horizontal member and an inclined member, the latter extending from the outer end of the former to the shell of the steam boiler or tank to be supported, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of my improved lug; Fig. 2, a front elevation; Fig. 3, a section on the line 1 1, Fig. 1; Fig. 4, a section on the line 2 2, Fig. 1; Fig. 5, a vertical section of a modified form of lug adapted to be detachably secured in place; Fig. 6, a front elevation of the same; Fig. 7, a section on the line 3 3, Fig. 5; Fig. 8, a section on the line 4 4, Fig. 5; Fig. 9, an end elevation of the bracket for the lug shown in Fig. 5; Fig. 10, a front elevation of the bracket; Fig. 11, a side elevation of another form of my invention; Fig. 12, a front elevation of the same; Fig. 13, a section on the line 5 5, Fig. 11; Fig. 14, a side elevation of another form of my invention; Fig. 15, a front elevation of the same; Fig. 16, a section on the line 6 6, Fig. 14; Fig. 17, a side elevation of still another form of my invention; Fig. 18, a front elevation of the same; Fig. 19, a section on the line 7 7, Fig. 17; and Fig. 20, a section on the line 8 8, Fig. 17.

Similar letters refer to similar parts throughout all the views.

So far as I am aware all supporting lugs

for steam boilers, tanks, and similar vessels have been formed with a horizontal member and an approximately vertical member adapted to follow the curve of the shell of the boiler or tank, such lugs usually having a reinforcing rib or ribs formed thereon. When made of cast iron these lugs are necessarily of great weight in order to sustain the boiler or tank and are extremely difficult to rivet onto boilers or tanks to make a tight joint, the rivets, to accomplish this, having to be headed over within the boiler or tank, before the tubes are in place and when made of stamped sheet metal the ribs are so thin in cross section as to render them liable to collapse.

Now, it is my object to overcome the objections noted above to the use of cast iron lugs and to sheet metal lugs, and provide a light, strong lug, which may be readily riveted or secured to the shell of the boiler or tank, and in which the material of the lug is arranged in the direct lines of strain in a manner best adapted to resist the weight thereon when in use.

Referring to the drawings A, represents my improved lug and B a part of a steam boiler shell. The lug consists of two members formed from a single blank of sheet or plate metal, pressed or stamped to shape, the horizontal or tension member, *a*, extending, when in position, from the shell of the boiler and resting on the boiler setting, and the inclined or compression member, *b*, extending from the outer end of the horizontal member, *a*, said compression member, *b*, being bent to an angle over the horizontal member and produced until it comes in contact with the shell of the boiler or tank to be supported where it is shaped to the shell to form a bearing thereon, as at *c*, the horizontal member, *a*, having its end adjacent the shell bent to conform thereto to afford a bearing thereon, as at *d*, and both members being secured to the shell by rivets in the ordinary manner, as shown in Figs. 1, 11, 14 and 17, but the lug may be detachably or adjustably secured to the shell, without the use of rivets, by bending the inner end of the horizontal or tension member, *a*, upward, as at *e*, Fig. 5, and into a bracket, C, Figs. 5, 9 and 10, which is riveted to the boiler shell, and inserting the end of the compression mem-

ber, *b*, into a similar bracket *C'*, riveted to the shell at a suitable point above bracket *C*. The brackets are curved to the radius of the shell and are dished as at *f*, to receive the ends of the members thereunder. The lip of the dished part of the bracket may be flanged or extended outwardly, as at *g*, to give additional strength thereto if desired.

By making the lugs readily detachable from the boilers and tanks the latter are more conveniently handled in rolling the same into place on their setting, and occupy less space in transit, and in case of injury or damage to a lug the same may be more easily and quickly replaced.

In the drawings I have shown a number of different forms which the lug may be made to assume in order to secure the necessary strength and rigidity without departing from the spirit of my invention, and which will be now described.

In Figs. 1, 2, 3, 5, 6 and 7, the compression member, *b* is corrugated longitudinally as at *h*, and, as shown best in Figs. 4 and 8, the tension member, *a*, is formed with a single central rib or corrugation, *i*, and with upturned side edges, as at *j*, but it may be formed with more corrugations if desired. I prefer to make but one corrugation in the center of the horizontal member, however, as I thereby secure greater bearing surface for the lug on the boiler setting.

In Figs. 11, 12, and 13, I show the compression member, *b*, formed or bent, at its central or body portion as at *k*, practically tubular in cross section, and spreading or flaring and flattened at the upper end to form the bearing surface to rest on the shell, and at the lower end to merge in the tension member, *a*. In Figs. 14, 15 and 16, the compression member, *b*, is bent on the arc of a circle and merges at one end into the bearing surface to rest on the shell and at the other end into the tension member, *a*.

In Figs. 17, 18 and 19, the compression member, *b*, has its side edges, as at *l*, bent downwardly, the body portion being practically flat and uncorrugated, as is also the tension member, *a*, which is, in this instance, formed with upturned side edges as at *m*, but having its body portion practically straight and uncorrugated.

The tension member is of the same shape

in all the forms of lugs shown excepting in Figs. 17, 18 and 20.

All the different forms of lugs shown may be riveted to the shell of the vessel to be supported or they may be secured detachably thereto by the brackets shown in Figs. 5, 6, 9, and 10, by merely bending up the end of the tension member, *a*, as in Fig. 5.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A supporting lug for steam boilers, tanks, and the like, stamped or pressed from a blank of sheet or plate metal so as to provide a horizontal or tension member, and a compression member extending at an angle over the tension member and from the outer end thereof, substantially as described.

2. A supporting lug for steam boilers, tanks, and the like, stamped or pressed from a blank of sheet or plate metal so as to provide a horizontal or tension member, and a compression member extending at an angle from the outer end of said horizontal member, and means for detachably or removably securing the same to the object to be supported, substantially as described.

3. The combination, with a supporting lug for steam boilers, tanks, and the like, of a bracket for securing the lug to the boiler or tank formed of a single blank of sheet or plate metal and formed with a dished or recessed portion, substantially as described.

4. The combination, with a supporting lug for steam boilers, tanks and the like, of a bracket for attaching the lug to the shell of the boiler or tank formed from a blank of sheet or plate metal having a dished or recessed portion provided with a projecting lip, substantially as described.

5. The combination, with a curved surface vessel, of a supporting lug composed of two connected members one of which extends, substantially, at a right angle and the other at a tangent to said vessel, and means for securing said lug to the vessel substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES P. ROE.

Witnesses:

GEO. J. NEWTON,
J. H. MAXWELL.