(No Model.)

J. T. CONNELLY.

LAP JOINT FOR STEAM BOILERS.

No. 490,067. Patented Jan. 17, 1893.

Fig. 1.

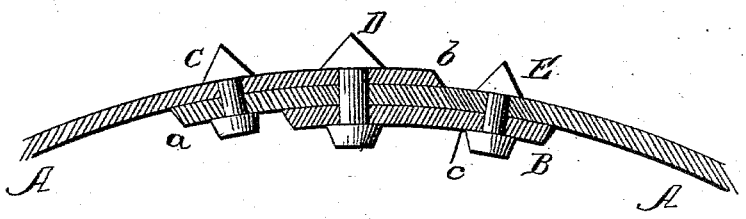
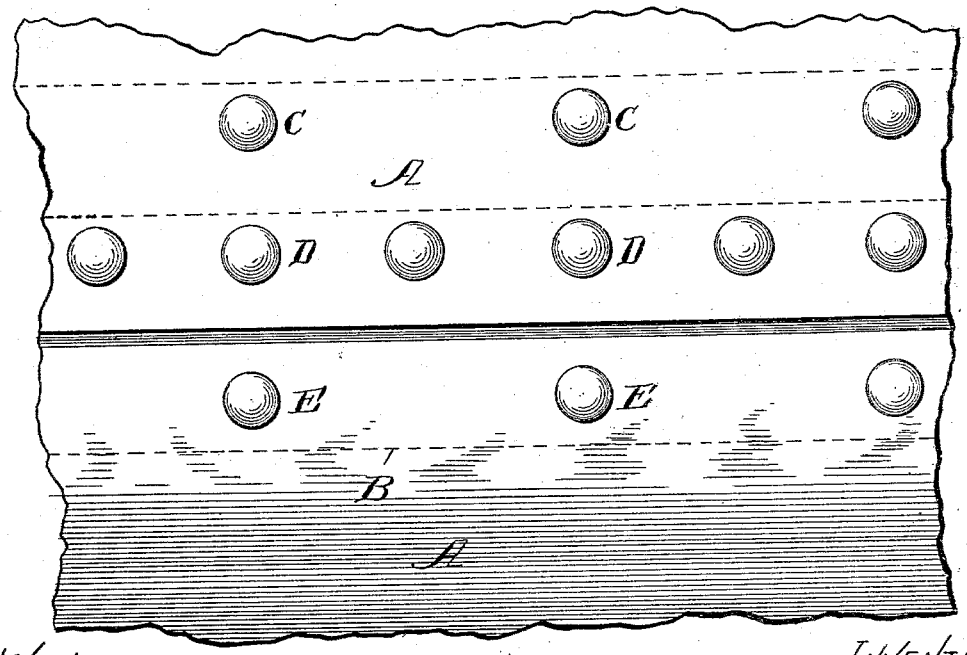


Fig. 2.



WITNESSES:
J. B. McGirr.
M. J. McMahon,

INVENTOR
James T. Connelly
By his Attorney
J. R. Little

UNITED STATES PATENT OFFICE.

JAMES T. CONNELLY, OF MILTON, PENNSYLVANIA.

LAP-JOINT FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 490,067, dated January 17, 1893.

Application filed July 7, 1892. Serial No. 439,257. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. CONNELLY, a citizen of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Lap-Joints for Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Heretofore in the construction of lap joints for steam boilers there have been objectionable features which this invention is intended to overcome, and that is that the lapped ends of the sheets, not having any provision for reinforcement places them without the line of strain when steam pressure is upon it from the inside of the boiler. This strain, which was substantially in a straight line, was found to bend the lap so as not to present a direct line of pull on the rivet, but to bend and force the rivet to assume an axial line obliquely disposed to the line of strain which not only tended to weaken the boiler at that point but also to uncalk the seams.

This present invention is designed to overcome these difficulties and consists in providing the interior of the boiler with an inside welt, extending laterally to one side to a width sufficient to place the welt immediately below the calk line, whereby the same relieves the lap joint of any torsion when the calking process is being carried on.

Another feature of the invention is to reduce the number of rivets necessary to form such a superior joint, and also enabling a tight joint to be made with only one line of calking which is advantageous from the fact that the expense generally attending the seaming and calking of lap joints is greatly diminished. These objects I attain by the construction illustrated in the accompanying drawings forming a part of this specification wherein like letters of reference refer to like parts wherever they occur, and in which:

Figure 1, is a cross sectional view of a boiler seam embodying my invention. Fig. 2, is a side elevation of a detached portion of a boiler.

In the drawings A, represents the body portion proper of a boiler in this instance being shown as a segment of a circular boiler, having its ends *a*, and *b*, overlapping each other, shown.

Secured to the interior periphery of the boiler near the end of the lap *a*, and parallel therewith is an inside welt B, one end of which *c*, extends beyond the line of the calking edge *b*, of the outside lap which places said calking edge about the central longitudinal line of the inside welt, whereby when the lapped end *b*, is subjected to the impacting process of calking the strain is communicated through the lapping end *a*, from whence it is taken up or absorbed by the welt B, and evenly distributed over a great area of the lapped end *a*.

Passing near the edge of the lapped end *a*, I place a series of rivets C of any ordinary or approved construction such rivets tending to add rigidity to the structure and maintain a close relation of the end *a*, with the lap *b*.

D, indicates a series of rivets placed close together passing through the welt B, near one edge thereof, and also through the lapped ends *a*, and *b*, which rivets may also be of any approved form or construction.

E, indicates a third series of rivets placed at distances similarly to those arranged in the series of rivets C, and passing through the other edge of the welt, and through the lap *a*.

The advantages of my invention will be readily understood by those skilled in the art to which it appertains, and it will be apparent that my improved lap joint possesses material advantages in point of general superiority and efficiency, the maximum of strength, and comparative inexpensiveness over those old methods of forming lap joints which are approved or generally employed.

Having thus described my invention what I claim and desire to secure by Letters Patent of the United States is:—

1. In a lap joint for boiler seams, the combination, with the lapped ends, of an inside welt, as at B, arranged parallel with and near the edge, *a*, of the inside lap and extending laterally beyond the calk line, as at *c*, the central line of said welt coming immediately beneath the calk line of the outside lap, rivets passed through the outside and inside lap near the edge of the welt, as at E, rivets passed through the welt the outside and inside lap, as at D, and rivets passed through the welt

and inside lap, as at C, substantially as and for the purposes described.

2. The herein described improved lap joint for boiler seams, comprising the overlapping ends *a* and *b;* the inside welt B extending longitudinally under the seam and having one edge arranged near the edge *a* of the inside lap and the other edge projecting beyond the calk line, as at *c*, whereby the welt is located immediately under the calk line *b* of the outside lap; and three series of rivets, one outer series passing through the extended portion *c* of the welt and through the lap *a* beyond the calk line, as at E, the other outer series passing through the lapped ends *a* and *b* near the edge of the end *a*, as at C, and a central series passing through the lapped ends *a* and *b* and through the welt B near its edge opposite the portion *c*, as at D; substantially as and for the purpose set forth.

3. In an improved lap joint for boiler seams embodying the overlapping ends *a* and *b* and the inside welt B extending longitudinally under the calk line *b*, three series of rivets comprising the inner and outer and central line, the outer series C passing through the lap *a* and welt B, the other outer series passing through the lapped ends *a* and *b*, and the central series D passing through the lapped ends *a* and *b* and the welt B, the central series or line of rivets being placed closer together than the two outer series; substantially as set forth.

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

JAMES T. CONNELLY.

Witnesses:
H. E. ANGSTADT,
WALTER L. SMITH.