

S. W. TRAYLOR.

WATER JACKET.

APPLICATION FILED FEB. 23, 1909. RENEWED JUNE 7, 1911.

998,658.

Patented July 25, 1911.

Fig.1.

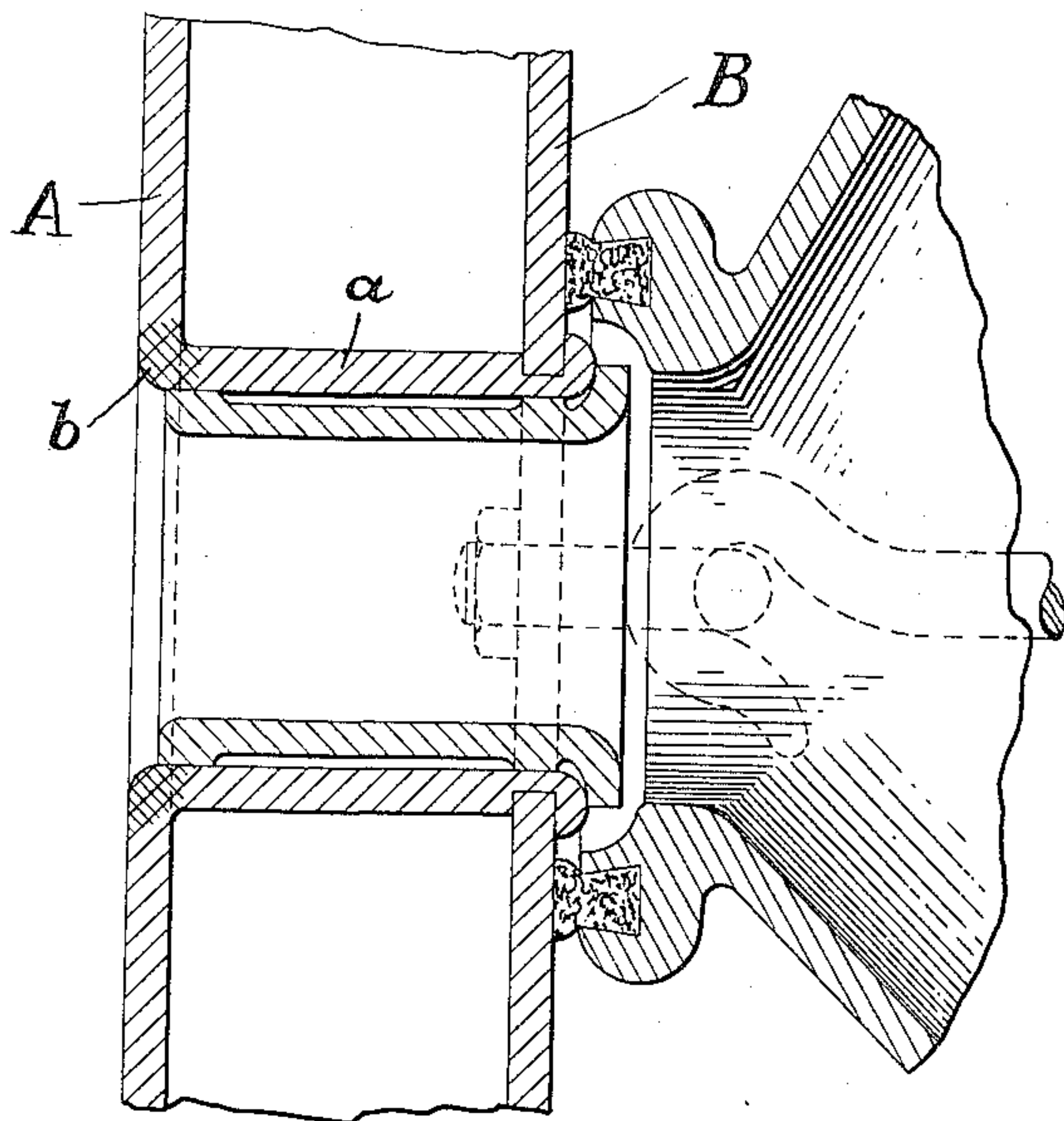


Fig.3.

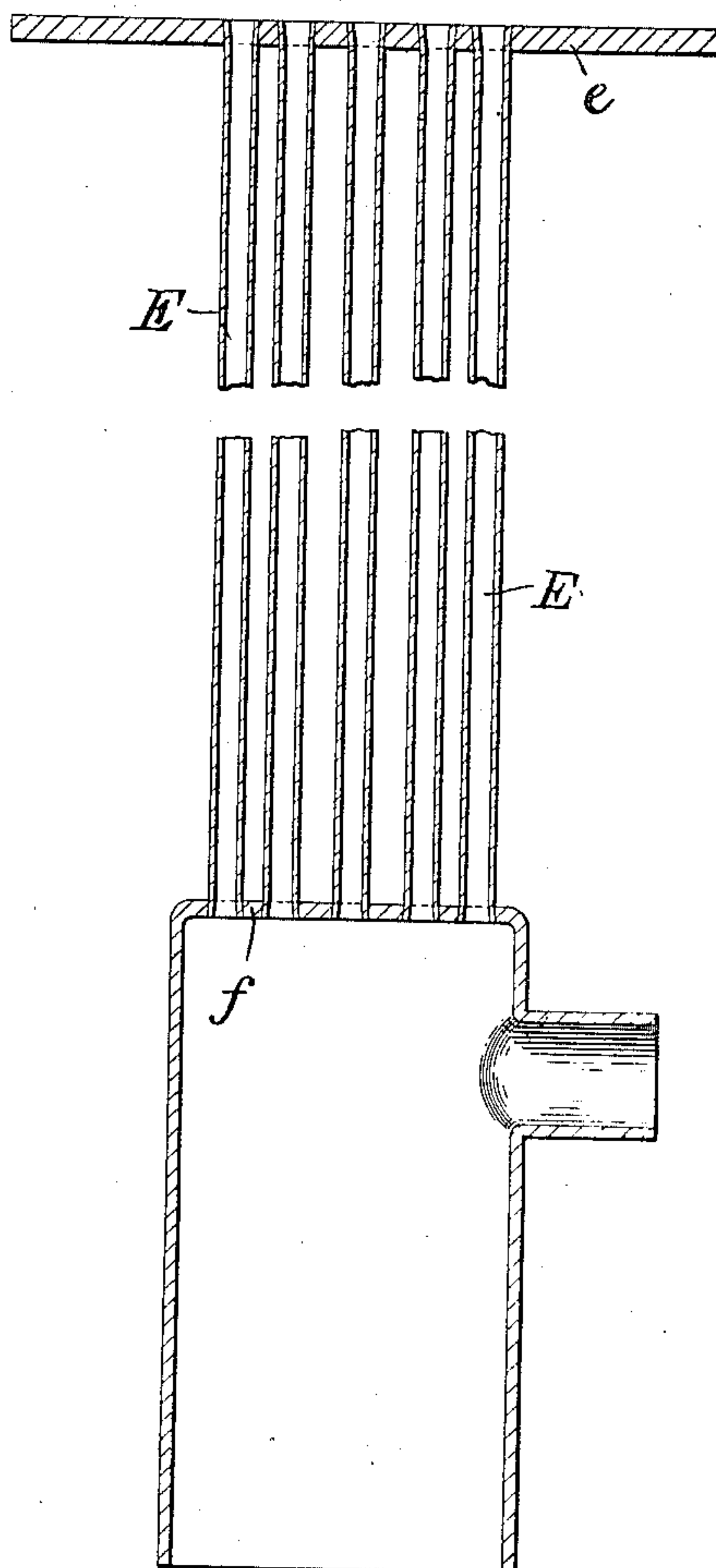
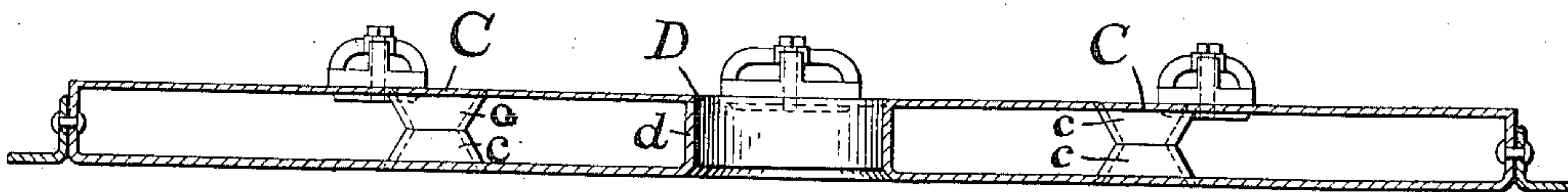


Fig.2.



Attest:

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# UNITED STATES PATENT OFFICE.

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## WATER-JACKET.

998,658.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed February 23, 1909, Serial No. 479,432. Renewed June 7, 1911. Serial No. 631,854.

*To all whom it may concern:*

Be it known that I, SAMUEL W. TRAYLOR, a citizen of the United States, residing at Allentown, Pennsylvania, have invented certain new and useful Improvements in Water-Jackets, of which the following is a specification.

In the construction of water jackets, blast furnace twyer, and similar devices, it has been the practice heretofore where the space between two sheets is bridged by a tube to either flange or drift the metal from one sheet outwardly to the other sheet to which it is beaded or else to put in a separate tube and bead it to both the inner and outer sheets. In the former construction, the metal of the tube is necessarily made thinner in the expanding action and this operation can only be carried out where short tubes or nipples are used, and it is impossible of use where the connection is of some length. The beading process is undesirable and defective in that it is likely to develop leaks. I have aimed to overcome the difficulties existing heretofore in the construction of said parts by using an independent tube to connect the inner and outer sheets so as to secure uniform thickness throughout the length of the tubes and to have a connection with the sheets which will absolutely avoid all leakage and this is accomplished by welding the tube to the inner and outer sheets.

In the accompanying drawing I have shown in Figure 1 my invention as applied to a blast furnace twyer. In Fig. 2 I have shown it as applied to a water cooler top and in Fig. 3 to the tubes of an economizer.

In Fig. 1 the inner and outer sheets of the furnace are shown at A and B respectively and the nipple or tube connecting the sheets indicated at *a* is of uniform thickness throughout and is welded directly to the edge of an opening cut in the inner sheet A at the point *b*. The outer end of the nipple is beaded over or expanded against

the outer face of the chute as in this construction it is not necessary to weld the outer end, though this may be done if desired. It will be observed that this makes the nipple an integral part of the sheet and does away with the old style of twyer blocks and the rivets incident thereto. It prevents the cutting action of the ore charge, there is no leakage and no corrosion, while the fire side of the inner plate is free of rivets, bolts, or other connections.

In Fig. 2 I have shown a sectional view of a water cooler top. The poke holes C formed of thimbles *c, c*, are welded to the upper and lower plates while the central opening, shown at D, is formed by a tube *d* connecting the upper and lower walls, and this tube is welded at top and bottom in the openings formed in the upper and lower sheets.

In Fig. 3 I show the invention as applied to an economizer in which figure the tubes E are welded to the top and bottom headers *e* and *f*. With this construction not only is absolutely integral connection made, avoiding all danger of leakage, but unequal expansion is prevented always occurring when the parts are connected by expanding or beading.

What I claim is:—

A water jacket comprising an inside and an outside sheet and having twyer openings formed in the respective sheets, and a nipple welded to the wall or edge of the opening in the inside sheet and having its opposite end secured to the outside sheet, said weld lying in the plane of and within the body of the general mass of said inside sheet, substantially as described.

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

SAMUEL W. TRAYLOR.

Witnesses:

WM. T. RAINEY,  
HOWARD E. SUMP.