

C. F. BENNETT.
METHOD OF MAKING STEAM BOILER NOZZLES.
APPLICATION FILED MAR 10, 1910.

982,463.

Patented Jan. 24, 1911.

Fig. 1.

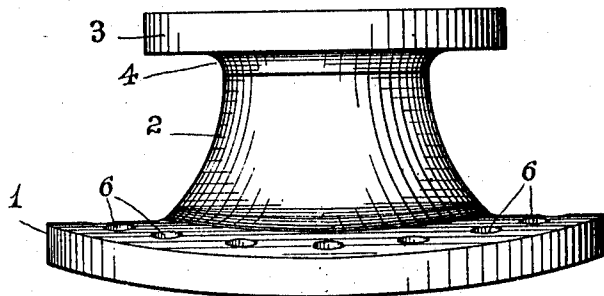
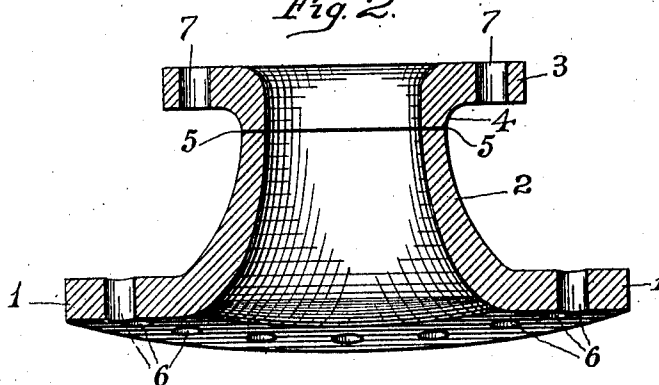


Fig. 2.



WITNESSES:

W. L. Penfield.
M. J. Longden

INVENTOR
Chas. F. Bennett

BY *W. Smith*
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES F. BENNETT, OF BRIDGEPORT, CONNECTICUT.

METHOD OF MAKING STEAM-BOILER NOZZLES.

982.463.

Specification of Letters Patent. Patented Jan. 24, 1911.

Application filed March 10, 1910. Serial No. 548,457.

To all whom it may concern:

Be it known that I, CHARLES F. BENNETT, a citizen of the United States, residing at Bridgeport, Fairfield county, Connecticut, have invented certain new and useful Improvements in Methods of Making Steam-Boiler Nozzles; and I do 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.

My invention relates to certain new and useful improvements in the method of making steam boiler nozzles, and consists in the novel steps and methods hereinafter fully set forth and then particularly pointed out in the claim which concludes this description.

A nozzle for a steam boiler provides a suitable outlet for the steam, and connection between such nozzle and a steam system or a steam engine is usually in the form of a flanged pipe bolted to the upper flange of the nozzle, and it is therefore highly important that the nozzle should be steam tight from the upper plane of its top flange to the lower plane of its bottom flange, and the object of my invention is to provide a nozzle that is practically integral while at the same time the interior of the nozzle is perfectly smooth and unbroken so that there can be no obstruction whatever to the free passage of the steam.

In the accompanying drawing Figure 1 is a side elevation showing the sections of my improved nozzle in proper relative position preparatory to welding the same together, and Fig. 2 is a sectional elevation of the completed nozzle as it appears after welding.

Similar numbers of reference denote like parts in both figures of the drawing.

Heretofore steam boiler nozzles have been made in two sections one of which comprises the bottom flange and the entire nozzle portion while the other section is the top flange itself which has been secured around the end of the nozzle, but in order to provide for such construction it has been necessary to form a shoulder near the end of the nozzle so that the top flange might rest against the same, and this construction has caused the inner wall of the nozzle to present uneven surfaces, which, while they are not particularly disadvantageous, nevertheless are not at all desirable. Moreover, the contraction

and expansion of the metal is very apt to cause a steam leakage between the top flange and the end of the nozzle and this of course is a serious defect. My improvement overcomes these disadvantages above noted and will be best understood from the following description.

In carrying out my invention I first draw from a ductile piece of sheet metal the main body portion of the nozzle proper, that portion of the metal which is not submitted to the drawing operation being of such dimensions and shape that it constitutes the lower flange of the nozzle; I then draw from another piece of ductile sheet metal the smaller or outer end of the nozzle, leaving the undrawn portion to constitute the upper flange of the nozzle; the inner edges of these two nozzle portions are identical so far as inside and outside diameters are concerned and they are then abutted together so that they will coincide in all respects and form a tapered nozzle gradually decreasing in diameter from base to orifice, and by any suitable welding process they are firmly united.

In the drawing 1 is the bottom flange and 2 the main portion of the nozzle body which is drawn into shape from a suitable piece of sheet metal so that said flange and body portion are integral. 3 is the top flange and 4 the outer portion of the nozzle which is drawn from a suitable piece of sheet metal so that said flange and outer portion are integral. The extremities of these drawn portions have the same external and internal diameters so that when placed in abutment they will coincide, and after they have been so placed they are welded together by any suitable welding process, the welded joint being denoted by the numeral 5 in Fig. 2. It will thus be seen that the interior of the nozzle will be smooth and unbroken while for all practical purposes the nozzle is an integral structure and steam leakage is rendered impossible. The lower flange is shaped to conform to the contour of the boiler and is provided with bolt holes 6 so that said flange may be bolted to the boiler while the top flange is provided with bolt holes 7 so that the nozzle may be bolted to the flange of any suitable connecting pipe.

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

The method of making steam boiler nozzles, which consists in drawing a tapered tu-

bular body from a metal sheet and simultaneously forming an integral flange adjoining the base of said body, drawing a separate tubular orifice from a metal sheet
5 and simultaneously forming an integral flange adjoining the base of said orifice, said tubular body and orifice being so formed that the inner and outer diameters of their
10 said ends are identical, then abutting

nozzle is formed gradually decreasing in diameter from the base of the tubular body toward the orifice, and finally welding said ends together.

In testimony whereof I affix my signature 15 in presence of two witnesses.

CHARLES F. BENNETT.

Witnesses:

F. W. SMITH, Jr.,
M. T. LONGDEN.