

No. 755,558.

PATENTED MAR. 22, 1904.

T. W. BARBER.
TUBE FOR BOILERS.

APPLICATION FILED OCT. 23, 1903.

NO MODEL.

Fig. 1.

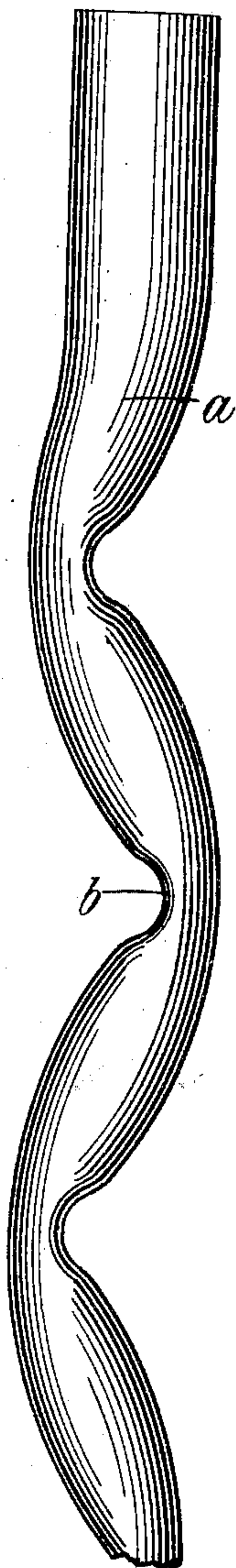
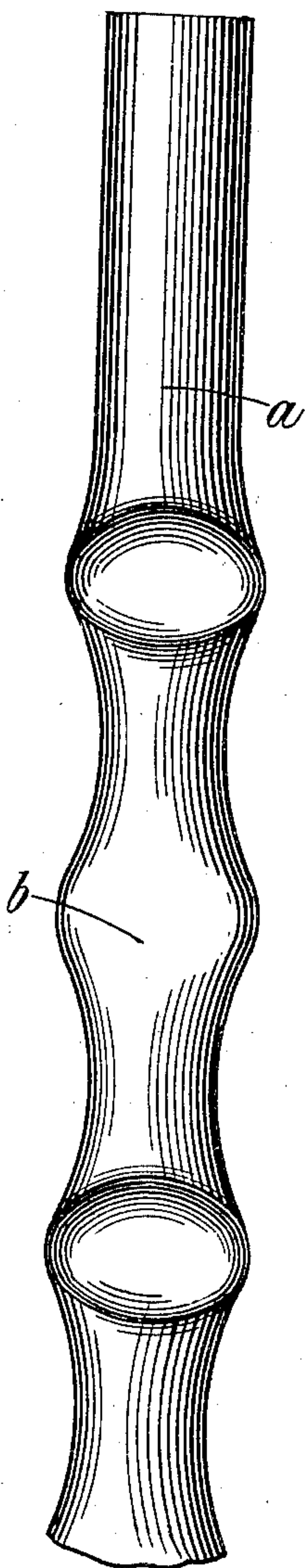


Fig. 2.



Witnesses
~~Attest~~ M. L. Adams

Inventor J. W. Barber
By his attorneys
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UNITED STATES PATENT OFFICE.

THOMAS WALTER BARBER, OF WESTMINSTER, ENGLAND.

TUBE FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 755,558, dated March 22, 1904.

Application filed October 23, 1903. Serial No. 178,245. (No model.)

To all whom it may concern:

Be it known that I, THOMAS WALTER BARBER, a subject of His Majesty the King of Great Britain, residing at Westminster, in the county of London and Kingdom of England, have invented certain new and useful Improvements in Tubes for Boilers, Condensers, and the Like, of which the following is a specification.

10 This invention relates to certain improvements in tubes for use in boilers, condensers, feed-water heaters, and the like; and my object is to obtain a high heat-transmitting capacity. To this end the direction and diameter of the bore of the tube are continually altered in a novel way, whereby all parts of the liquid are brought into touch with the walls of the tube.

20 In carrying out my invention I take an ordinary cylindrical tube and bend it backward and forward zigzag fashion throughout its length in such manner as to constrict the internal area at the bends and to leave the portions between the bends of approximately the original section.

25 In the accompanying drawings, Figure 1 is a front elevation of a tube constructed in accordance with my invention, and Fig. 2 is a view taken at right angles to that shown in Fig. 1.

30 The tube *a*, which was originally cylindrical in shape, is bent in zigzag form in opposite directions, so that at the points *b*, where it is

bent, it is partially closed. Consequently the liquid flowing through it is continually changing its angle, and on account of the reduced diameter of the tube the speed at which it flows is reduced, so that the particles of liquid are intimately mixed with each other and are all brought into close contact with the walls of the tube. Tubes made in accordance with my invention may be easily made, each bend *b* being on one side of the tube only, and as these bends are alternately on opposite sides of the tube a zigzag passage for the liquid is afforded.

I claim as my invention—

1. A tube for boilers and the like having a bore formed with a zigzag passage through it which is provided at intervals with constricted portions and with portions of larger area between the constricted portions.

2. A tube for boilers and the like bent and flattened at intervals throughout its length and on opposite sides to provide a zigzag bore with constricted portions on opposite sides of the tube and with portions of full size between said constricted portions.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS WALTER BARBER.

Witnesses:

A. F. SPOONER,
H. W. COOPER.