

No. 659,854.

Patented Oct. 16, 1900.

J. MALLET & A. R. MOSLER.

STEAM BOILER.

(Application filed Aug. 21, 1900.)

(No Model.)

Fig. 2.

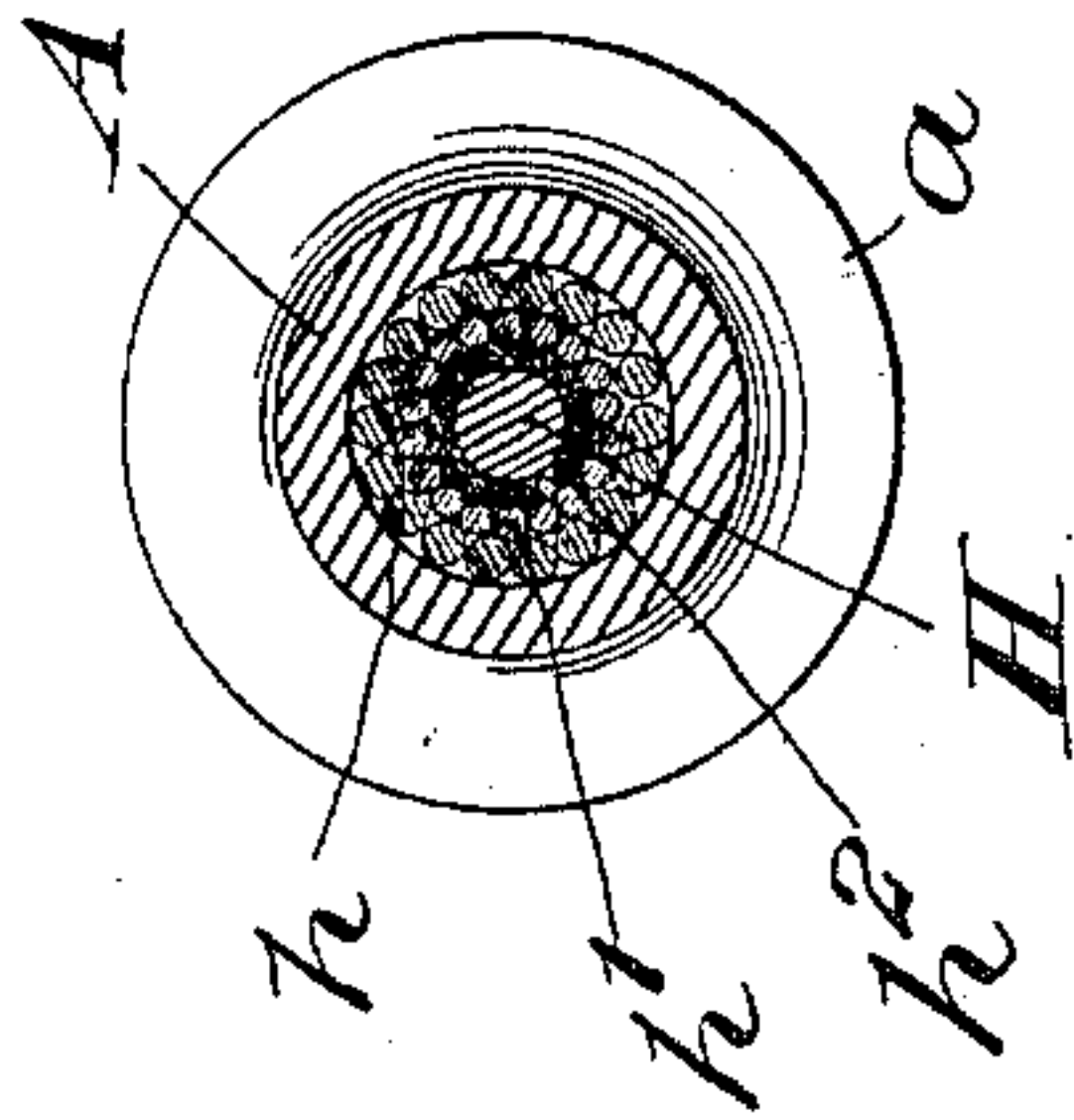
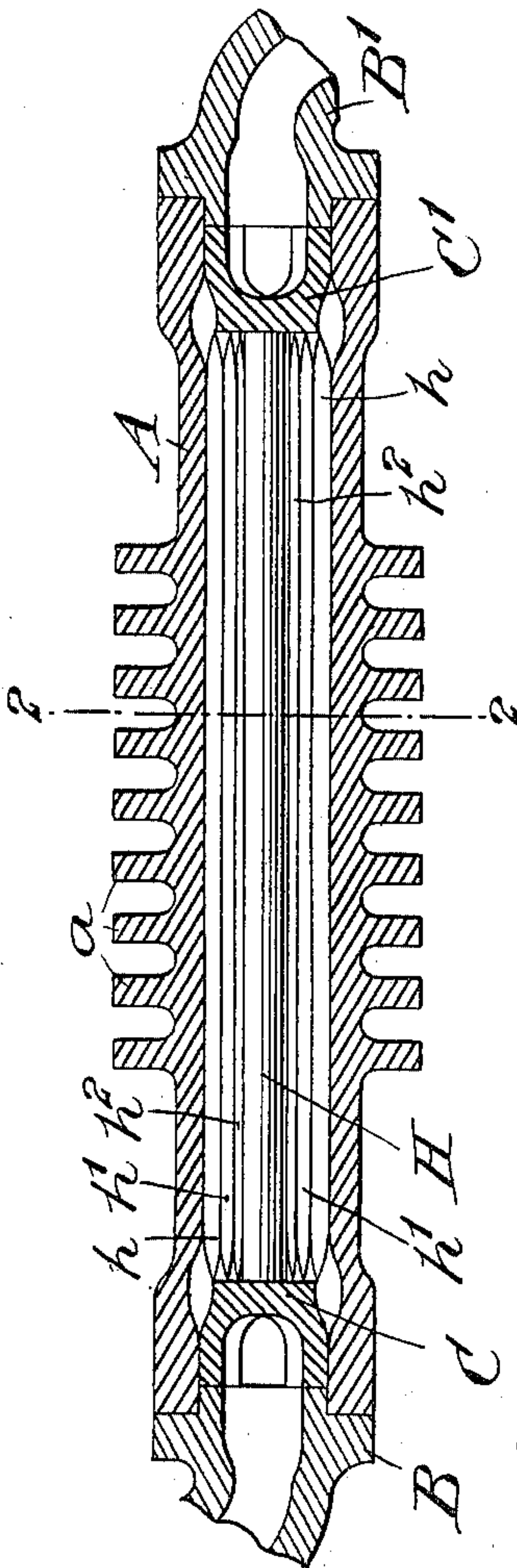


Fig. 1.



Witnesses:-  
George Barry Jr.  
Edward Tieser.

Inventors:-  
Justin Mallet  
Arthur R. Mosler  
By attorneys  
Brown & Howard

# UNITED STATES PATENT OFFICE.

JUSTIN MALLET, OF MARSEILLES, FRANCE, AND ARTHUR R. MOSLER, OF  
NEW YORK, N. Y.

## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 659,854, dated October 16, 1900.

Original application filed March 22, 1900, Serial No. 9,725. Divided and this application filed August 21, 1900. Serial No. 27,547. (No model.)

*To all whom it may concern:*

Be it known that we, JUSTIN MALLET, a citizen of the Republic of France, and a resident of Marseilles, France, and ARTHUR R. MOSLER, a citizen of the United States, and a resident of New York, borough of Manhattan, State of New York, have invented a new and useful Steam-Boiler, of which the following is a specification.

Our invention relates to a steam-boiler, and more particularly to the structure of a steam-boiler tube for flashing water into steam as it is fed to the interior of the tube or boiler.

A practical embodiment of our invention is represented in the accompanying drawings, in which—

Figure 1 is a longitudinal section through a boiler-tube, and Fig. 2 is a transverse section through the same on the line 2 2 of Fig. 1.

The present invention is a division of our application, Serial No. 9,725, filed March 22, 1900, and allowed June 12, 1900, the particular form of tube chosen for illustrating our invention, so far as its exterior structure is concerned, being provided with a series of annular flanges and provided at its ends with means for coupling it to an adjacent tube. The exterior tubular structure may, however, be changed, as may be desired, the gist of our present invention being the structure and arrangement of a bundle of rods within the tube for the purpose of laminating the steam as it passes through the tube.

A represents the body of the tube, provided with a series of annular flanges *a*, shown in the present instance as cast integral with the tube, the ends of the tube being provided with coupling-pieces B B' for the purpose of attaching the tubes to adjacent tubes, if so desired, or to the water-inlet and steam conduits. A central core (denoted by H) may be a solid cylindrical rod of metal extending from end to end of the tube, and around this central core H layers of rods are arranged, bearing a certain relation to one another and to the space between the core and the interior wall of the tube A, as follows: The rods *h*, which occupy the outer portion next to the

inner wall of the tube, are of such diameter that each will touch its adjacent rods and also the interior wall of the tube. The rods *h'*, forming the next interior layer, are of such size that they will each touch its adjacent rods and also touch two adjacent rods *h*, while the rods *h''*, forming the interior layer, are of such size that they will each touch their adjacent rods and also two adjacent rods *h'* and the exterior surface of the core H. This arrangement of rods reduces the spaces between the rods to a minimum compared with the mass of metal in the rods, and thereby provides, by the conduction of the heat from the wall of the tube to the several rods within, a mass of hot metal which will be very great as compared with the strips or layers of steam intermediate of the rod, thereby drying it and superheating it, while permitting it to flow unobstructedly throughout the length of the boiler-tube. The rods and the core may be conveniently held in position by skeleton spacing-pieces C C', interposed between the couplings B B' and the opposite ends of the bundle of rods and core.

While we have shown three layers of rods of varying diameters, it is obvious that the number of layers might be more or less than three, as desired.

What we claim is—

A boiler-tube provided with means for laminating the steam within it, said laminating means comprising a cylindrical core and layers of rods surrounding the core, the rods of each layer being made of such diameter that each will touch the adjacent rods of its own layer and the two adjacent rods of an adjacent layer, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 12th day of June, 1900.

JUSTIN MALLET.  
ARTHUR R. MOSLER.

Witnesses:

FREDK. HAYNES,  
EDWARD VIESER.