

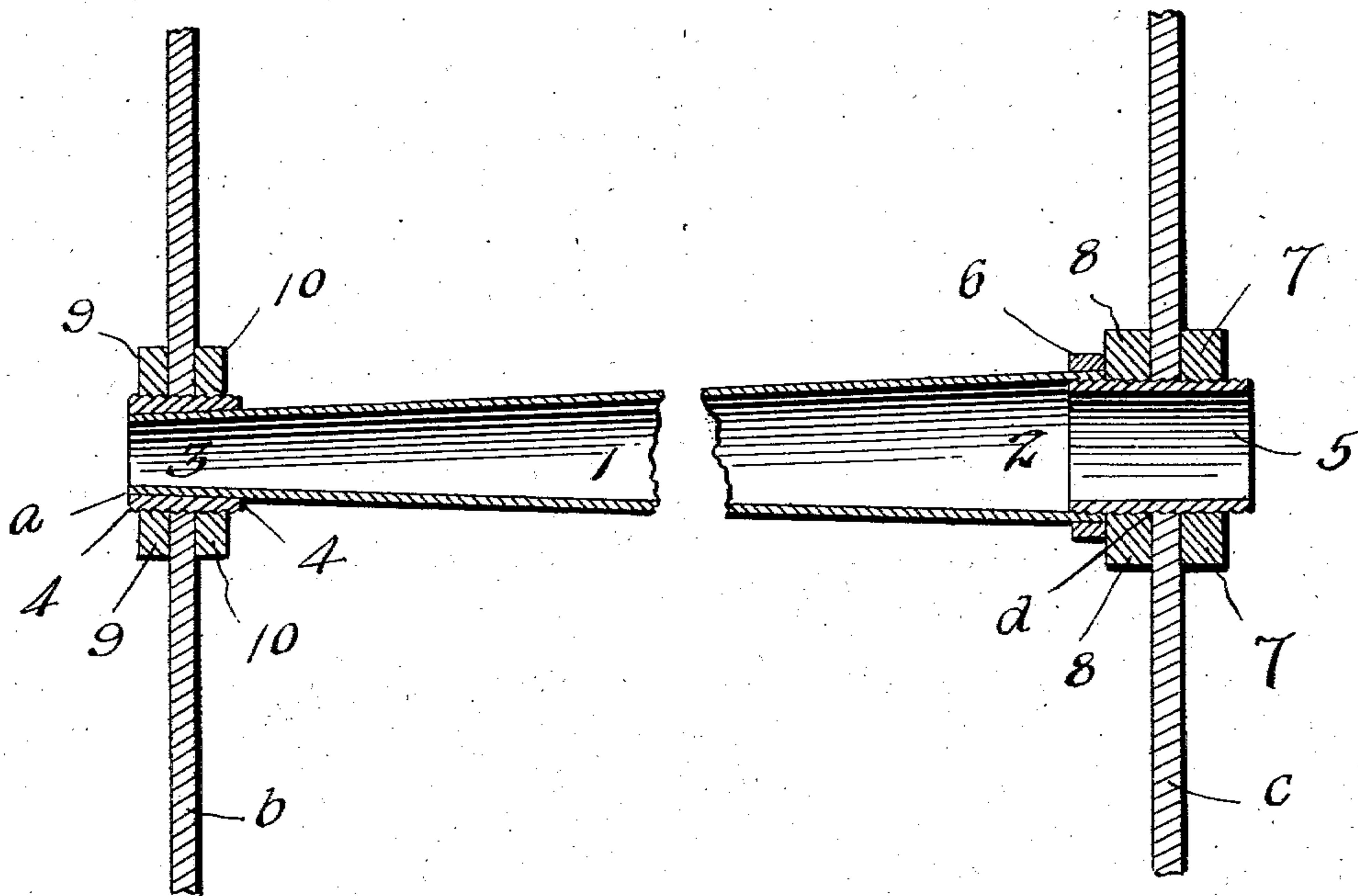
No. 730,338

PATENTED JUNE 9. 1903.

T. F. BOWER.  
BOILER FLUE.

APPLICATION FILED JAN. 29, 1903.

NO MODEL.



Inventor  
T. F. Bower

Witnesses  
Jas A. G. Koehl  
L. O. Helton

Attorney  
H. B. Wilson

Attorney

## UNITED STATES PATENT OFFICE.

THOMAS F. BOWER, OF WARPOLE, OHIO.

## BOILER-FLUE.

SPECIFICATION forming part of Letters Patent No. 730,338, dated June 9, 1903.

Application filed January 29, 1903. Serial No. 141,042. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS F. BOWER, a citizen of the United States, residing at Warpole, in the county of Wyandot and State of Ohio, have invented certain new and useful Improvements in Boiler-Flues; 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 improvements in boiler-flues; and it consists in the peculiar construction and combination of devices hereinafter fully described and claimed.

One object of my invention is to effect improvements in the construction of the flue, so that the latter is larger at its intake end than at its discharge end to facilitate the entrance of the heated products of combustion and retard the passage of the same through the flue, and hence effect an economy of fuel.

A further object of my invention is to provide improved means for securing the ends of the flue-tube to the heads of the boiler.

The accompanying drawing is a vertical longitudinal sectional view of a boiler-flue embodying my improvements, showing the same attached to the heads of a boiler.

The flue-tube 1, which may be of any suitable length and diameter, is larger at its intake end 2 than at its discharge end 3 and tapers from end to end, as shown. On the tapered discharge end of the boiler tube or flue is a sleeve 4, which is shrunk thereon or otherwise permanently secured thereto, and the inner side of which is tapered to correspond with the flue, while its outer side is cylindrical in form and adapted to extend through an opening *a* of suitable size in the rear head *b* of the boiler. In the head *c* of the boiler is an opening *d* of suitable size, in which is fitted detachably a cylindrical sleeve 5. The inner end of the said sleeve 5 is screwed into the larger intake end 2 of the boiler tube or flue 1, and the latter is here shown as having a reinforced band 6 on its larger end. Lock-nuts 7 8 on the sleeve 5 bear against opposite sides of the head *c* of the boiler and securely fasten the sleeve 5 thereto, while permitting the same to be de-

tached therefrom. Hence the larger end of the boiler-flue is secured to the head *c* of the boiler. Lock-nuts 9 10, which are screwed on the sleeve 4, bear against opposite sides of the boiler-head *b*, and hence coact with the sleeve 4 to secure the contracted end of the boiler-flue to the said head, while permitting the detachment thereof. By thus constructing the boiler-flue of tapered form, with its intake end larger than its discharge end, the heated products of combustion readily enter the said boiler-flue and the contracted rear end of the latter serves to retard the passage of the said heated products through the boiler-flue, so that the heat is economized, as will be understood.

From the foregoing description, taken in connection with the accompanying drawing, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. A boiler-flue having a sleeve at one end, detachably secured thereto, and forming an extension thereof, and clamping-nuts on said sleeve to bear against opposite sides of a boiler-head, substantially as described.

2. In combination with a boiler-flue of tapered form longitudinally, a sleeve, cylindrical in form, at each end of said boiler-flue, one of said sleeves being detachably connected thereto, said sleeves being adapted to fit in openings in the boiler-heads, and clamping-nuts on said sleeves to bear against opposite sides of the boiler-heads, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

T. F. BOWER.

Witnesses:

GEO. GOODRICH,  
ROBERT E. CARTER.