

No. 804,558.

PATENTED NOV. 14, 1905.

W. SCHMIDT.
TIGHTENING DEVICE FOR SMOKE TUBES.

APPLICATION FILED MAY 19, 1905.

2 SHEETS—SHEET 1.

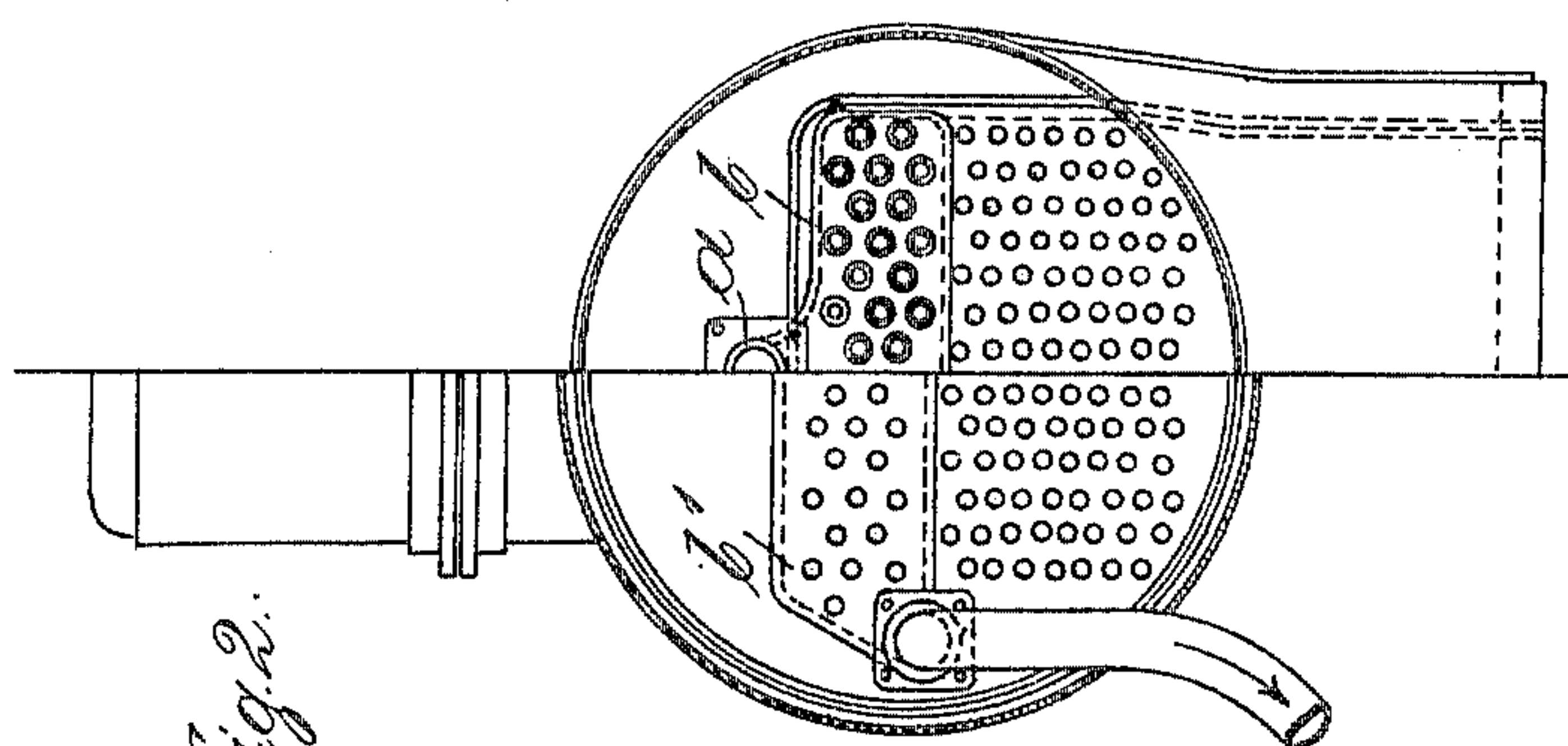


Fig. 2.

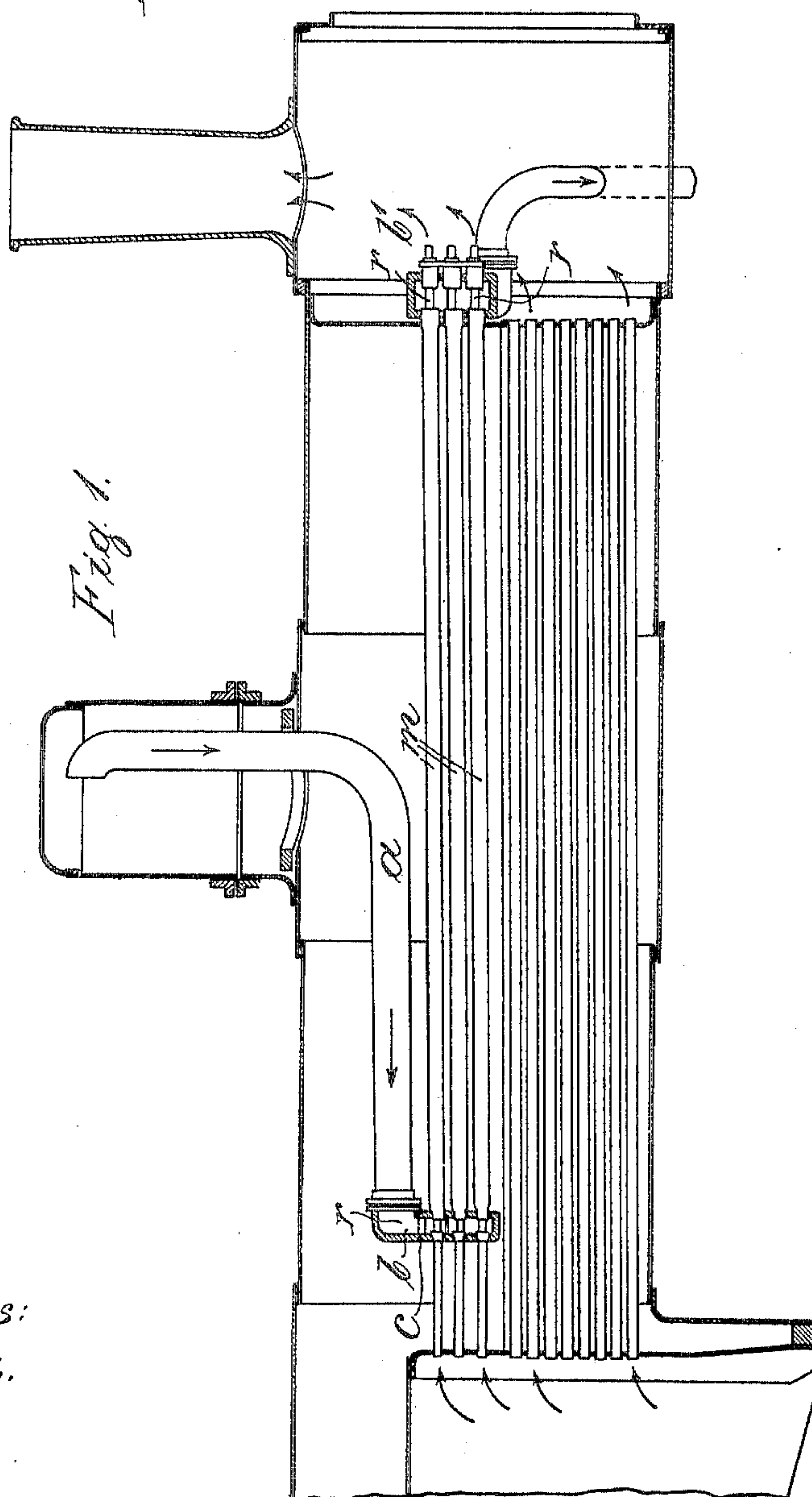


Fig. 1.

Witnesses:
Carl Reiff.
Geo. Scholz.

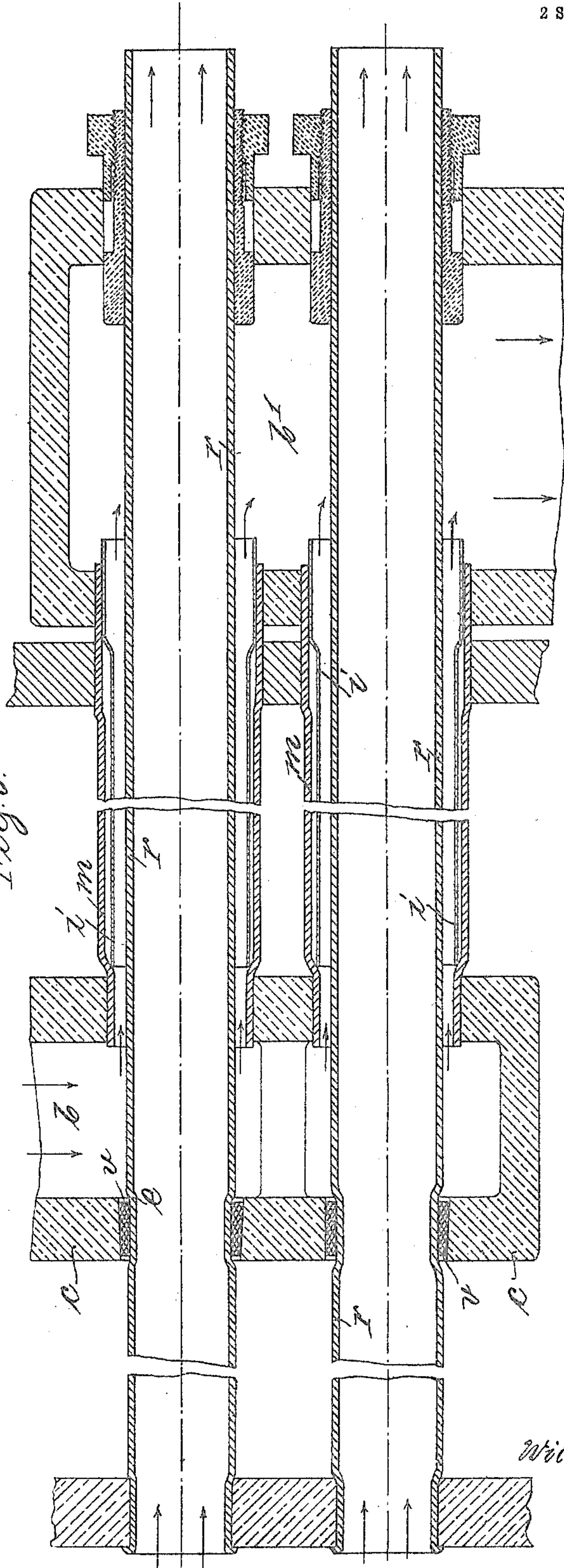
Inventor:
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TIGHTENING DEVICE FOR SMOKE TUBES.

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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

WILHELM SCHMIDT, OF WILHELMSHÖHE, NEAR CASSEL, GERMANY.

TIGHTENING DEVICE FOR SMOKE-TUBES.

No. 804,558.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed May 19, 1905. Serial No. 261,193.

To all whom it may concern:

Be it known that I, WILHELM SCHMIDT, a subject of the King of Prussia, German Emperor, and a resident of Wilhelmshöhe, near Cassel, in the Province of Hesse-Nassau, German Empire, have invented a new and useful Tightening Device for Smoke-Tubes, of which the following is an exact specification.

My invention consists of a new and improved tightening device for smoke-tubes in order to protect them in that part serving as superheater against the surrounding boiler-water.

Smoke-tubes acting partially as superheater-tubes either by surrounding them with a mantle-tube or in any other manner need a particular tightening with respect to this superheater part against the boiler proper. This tightening is effected by mounting strengthening-rings upon the smoke-tubes consisting of only little or non rusting material at those parts to be tightened against the boiler proper. By this way there is the possibility not only of securing safely the superheater-tubes, but also of removing them easily, because any destruction of the tubes by the action of rust will not happen.

In order to make the invention more clear, I refer to the accompanying drawings, in which—

Figure 1 shows the general arrangement in longitudinal section. Fig. 2 is a cross-section, and Fig. 3 represents the tightening of the superheater-tubes.

In the drawings, *a* is the steam-admission tube leading the steam into the chamber *b*. From there the steam flows along the smoke-

tube *r* and is heated by the fire-gases passing through the smoke-tubes, where the steam is prevented from being cooled by the insulating-tube *i*, arranged within the mantle-tube *m* and forming a certain space between the latter. Then the steam flows into the chamber *b'* and from there it comes in use.

In order to be able to use the smoke-tube *r* repeatedly, it is provided at its tightening place with a strengthening-ring *v*. The rolling out of the tube and the tightening against the back wall *c* is effected by means of the strengthening-ring *v*. The latter can be made cylindrical, as to be seen from Fig. 3 below, or conical. (See Fig. 3 above.)

In order to hold the fastening-ring at its place, the smoke-tube *r* may be provided with a constriction *e* at the place of insertion, as to be seen from Fig. 3.

Having thus fully described the nature of my invention, what I desire to secure by Letters Patent of the United States is—

A smoke-tube superheater consisting of a smoke-tube *r* provided with a strengthening-ring *v* and firmly attached by this ring to the steam-chamber *b* arranged between the flue-sheets of the steam-boiler, in combination with the tubes *m* arranged around the smoke-tubes *r* and in combination with a second steam-chamber *b'*, for the purpose as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILHELM SCHMIDT.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.