

(No Model.)

W. COOK.
FLUE FOR STEAM BOILERS.

No. 426,922.

Patented Apr. 29, 1890.

Fig. 1.

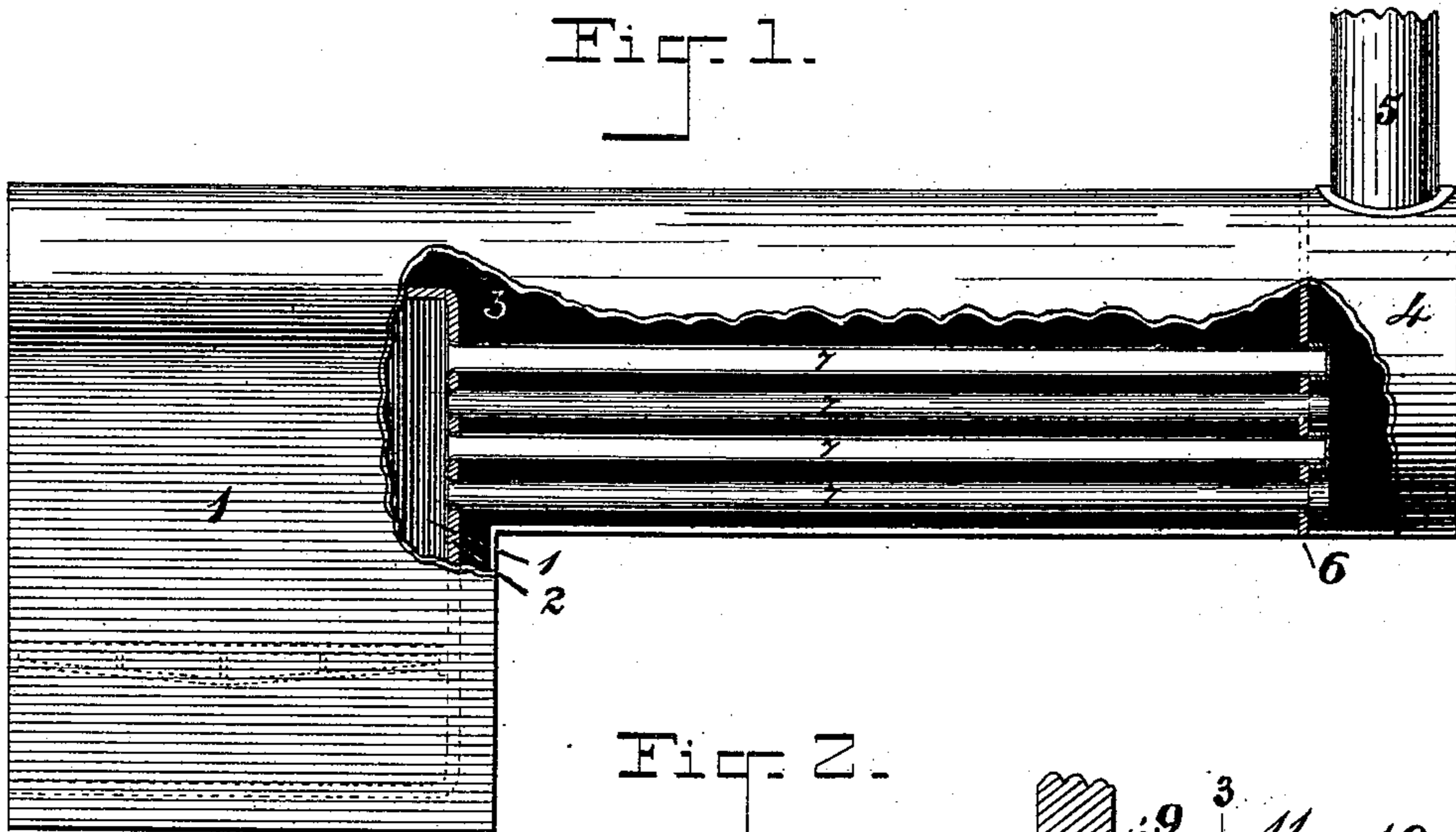


Fig. 2.

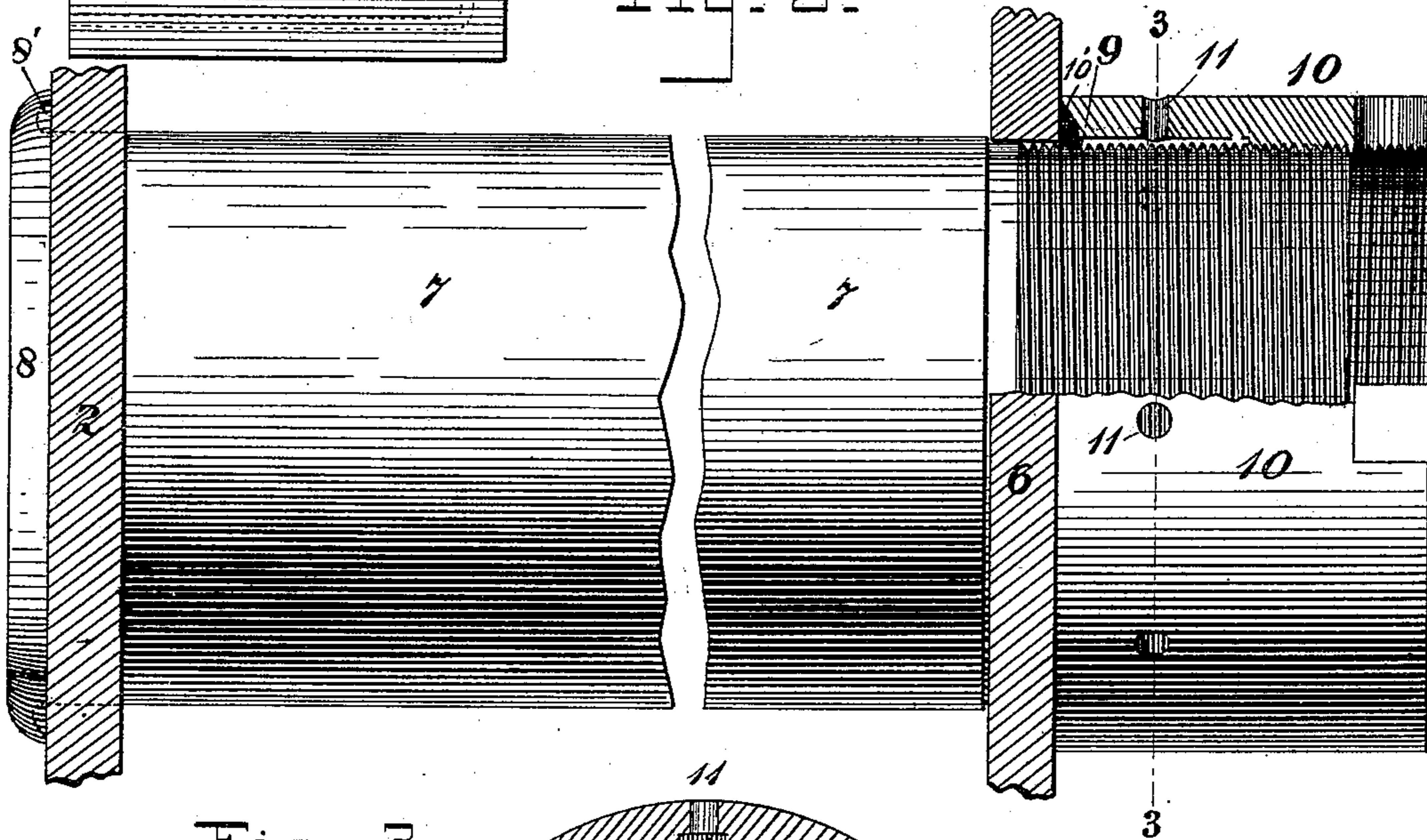
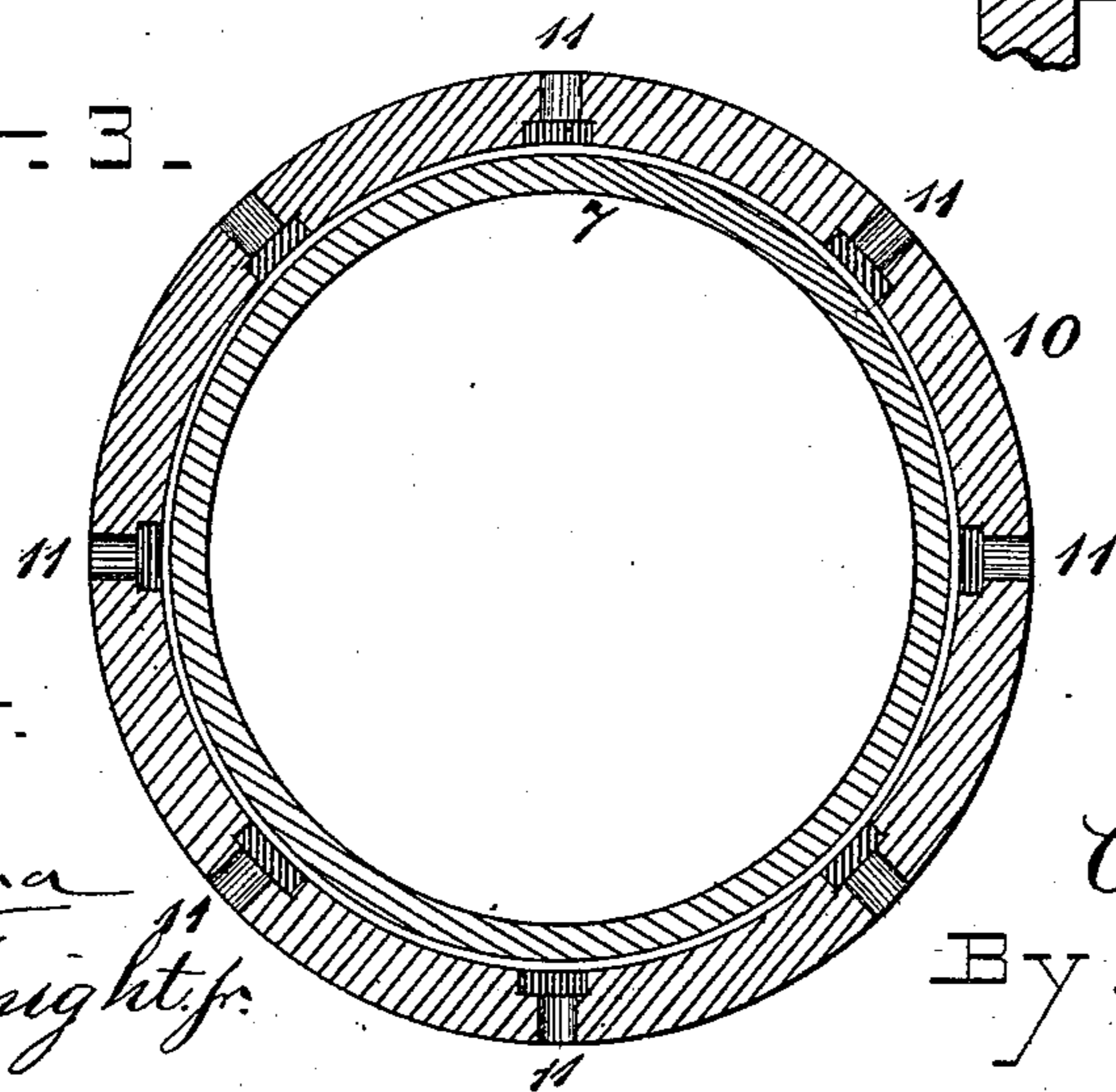


Fig. 3.



Witnesses.

Lillie Hanna
Geo. H. Knight, Jr.

Inventor.

William Cook
Knight Bros.

By *Knight Bros.*
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM COOK, OF SALT LAKE CITY, UTAH TERRITORY.

FLUE FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 426,922, dated April 29, 1890.

Application filed June 20, 1889. Serial No. 314,932. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM COOK, of Salt Lake City, Salt Lake county, in the Territory of Utah, have invented a new and useful Improvement in Multitubular Flues for Steam-Boilers, of which the following is a specification.

My invention relates to an improved construction of the kind of boilers employed for locomotive and other portable steam-engines, in which the heated products of combustion are conveyed from fire-chamber to smoke-stack through numerous small tubes.

Among useful results believed to accrue from said invention are facility of construction and of removal, inspection, and substitution of flue-tubes, and better bracing, and avoidance of strain of the tube-sheets, thus enabling a greater steam-pressure with even greater safety.

In the accompanying drawings, Figure 1 is a partially-sectioned side elevation of a boiler embodying my invention. Fig. 2 shows portions of a flue-tube to full size, the ferrule being partly in section. Fig. 3 is a section on line 3 3.

1 may represent the fire-chamber; 2, tube-sheet of same; 3, water and steam space; 4, box or receiving-chamber of smoke-stack. 5. 6 represents tube-sheet of said smoke-box. The flue-tubes 7 have the customary lip or flare 8 at their receiving ends to engage around the margin of the flue-holes in the tube-sheet 2. The delivery ends of said tubes extend somewhat through the tube-sheet 6 and are

screw-threaded exteriorly, as at 9, for an interiorly-threaded ferrule 10, preferably of brass or other non-corrodible metal. Orifices 11 in said ferrule serve as passages for oil to the threaded surfaces to facilitate the unscrewing of the ferrule from a tube which it may be desired to remove or the tightening or slackening of a ferrule where found necessary.

The junctions of the flues with the tube-sheets are made steam-tight by the following means: A groove (see dotted lines 8') on the inside of the lip 8 forms an annular chamber for any suitably soft and refractory packing—such as a copper or asbestos gasket—at the junction of the flues with the tube-sheet 2. A like annular chamber 10' in the ferrule is provided for a similar gasket or packing at the junction of the flues with the tube-sheet 6.

I claim as new and of my invention—

A flue-tube of a steam-boiler whose receiving end has a retaining-lip formed with an annular chamber 8 for a packing-gasket at the junction of the receiving end of the flue with the tube-sheet 2, and whose delivery end extends beyond the flue-sheet for a screw-threaded retaining-ferrule formed with an annular chamber 10' for a packing-gasket at the junction of the flue with the tube-sheet 6.

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

WILLIAM COOK.

Witnesses:

ALBERT E. BUCKWELL,
E. J. GARDNER.