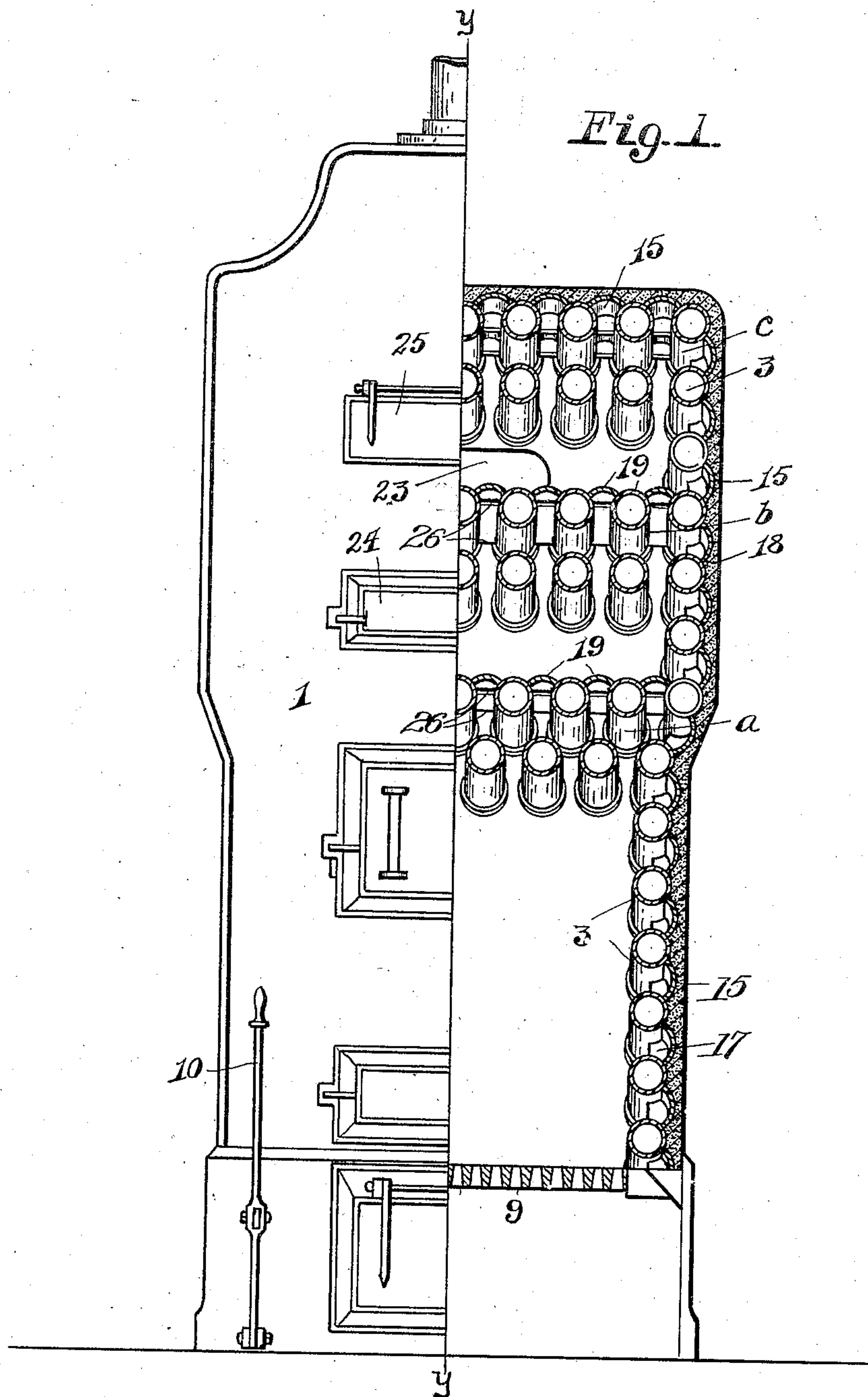



946,934.

3 SHEETS—SHEET 1.



Charles M. Clausen.

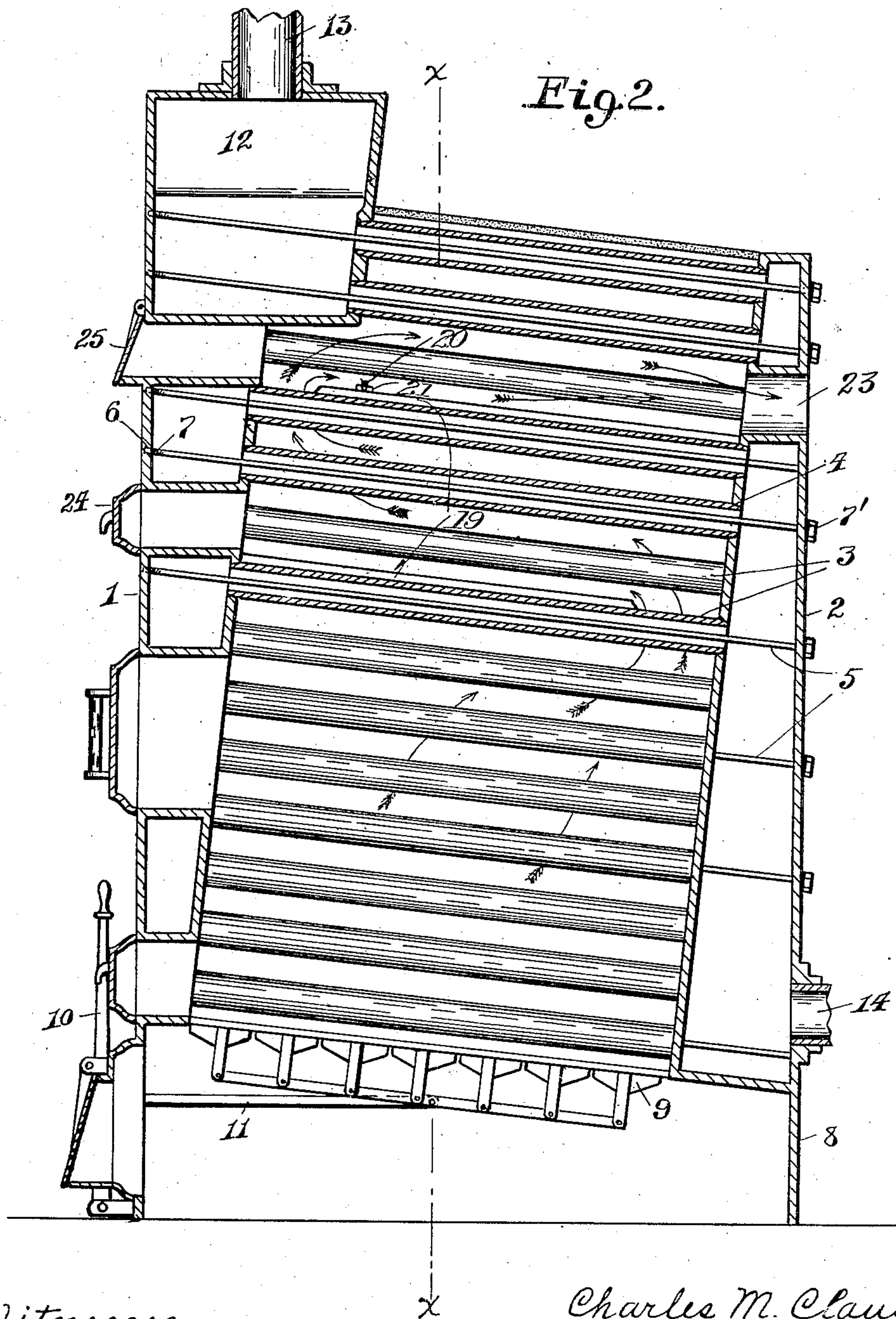
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 WATER TUBE BOILER ACCESSORIES.
 APPLICATION FILED JUNE 11, 1908.

946,934.

Patented Jan. 18, 1910.

3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 3.

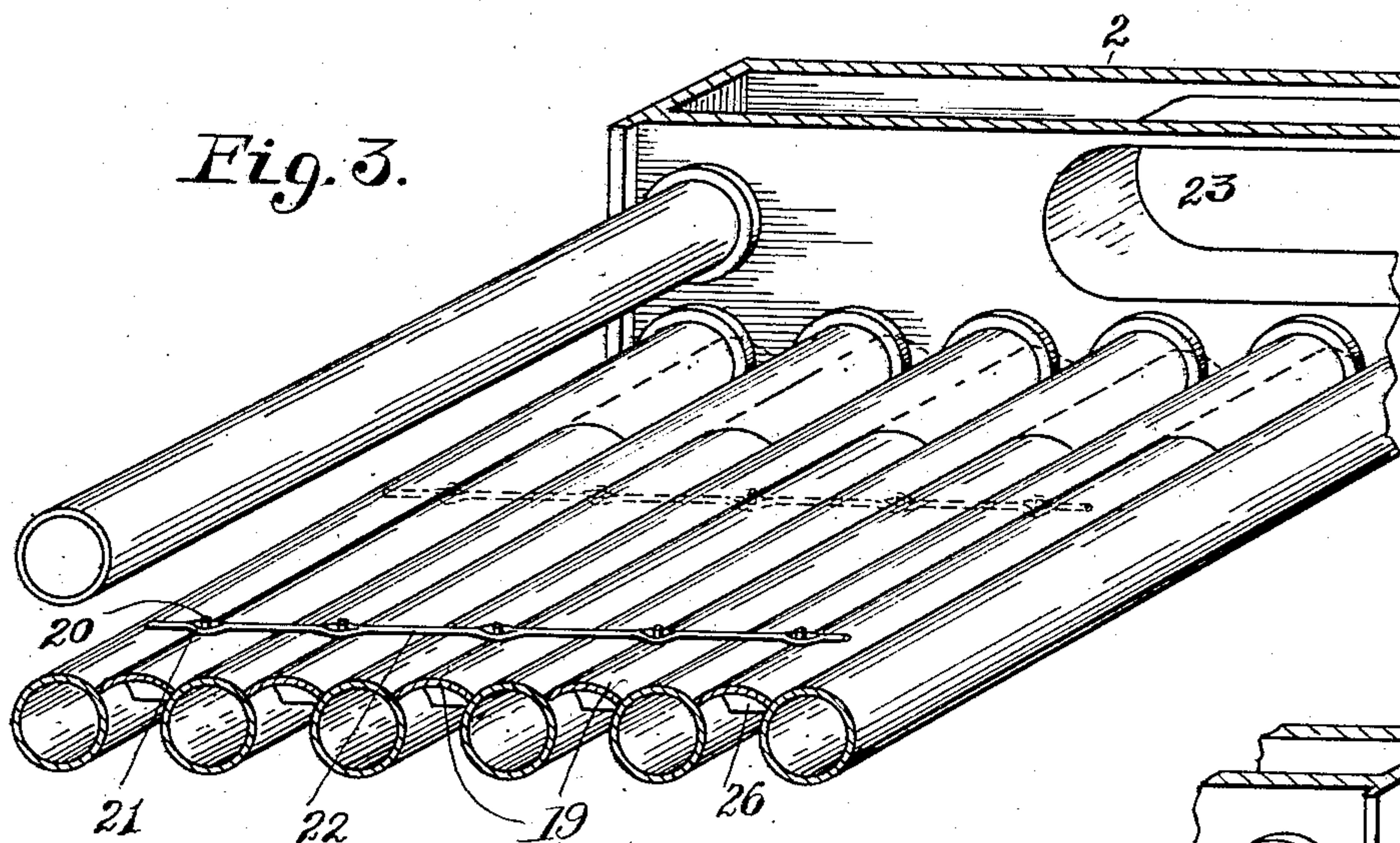


Fig. 4.

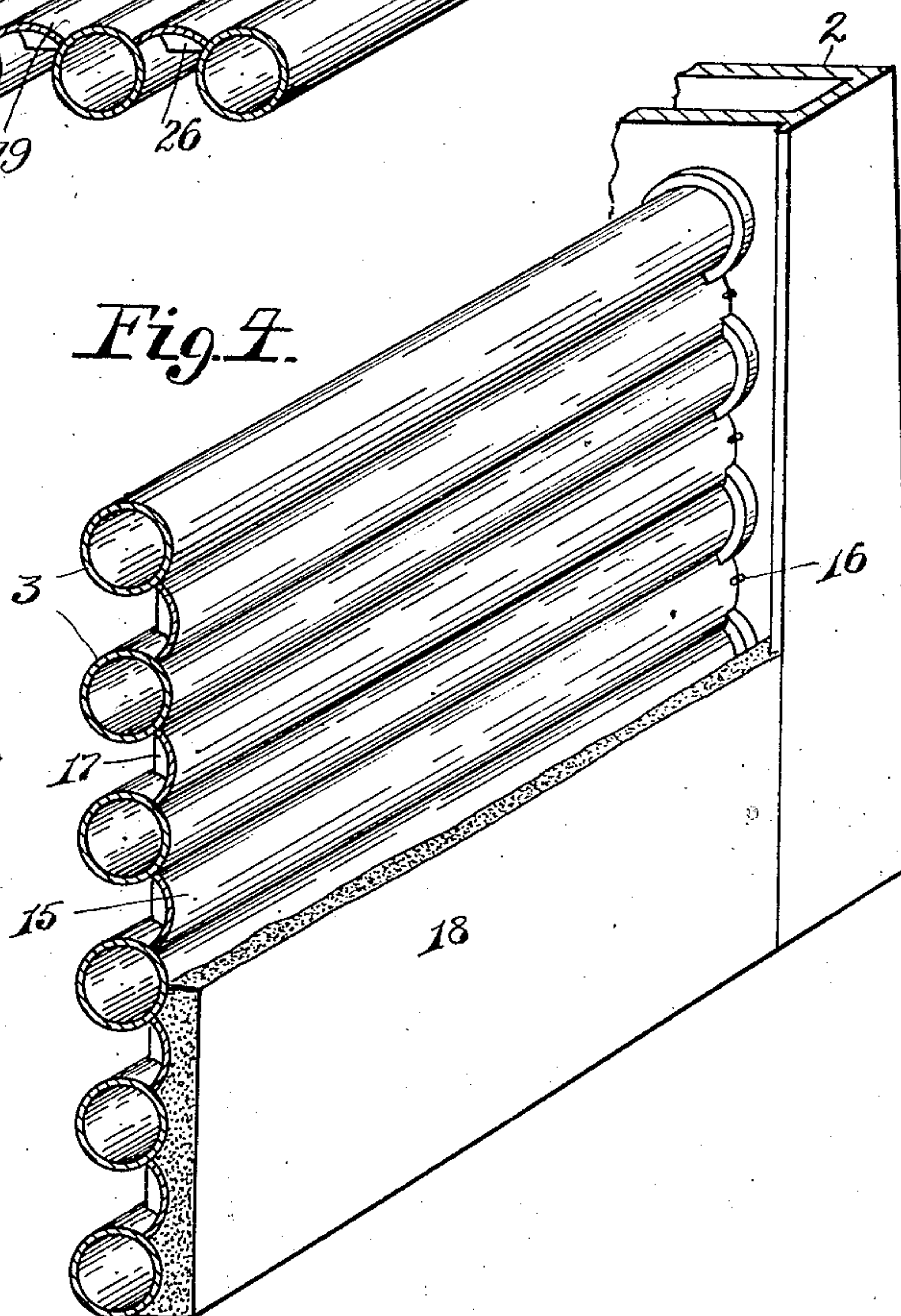
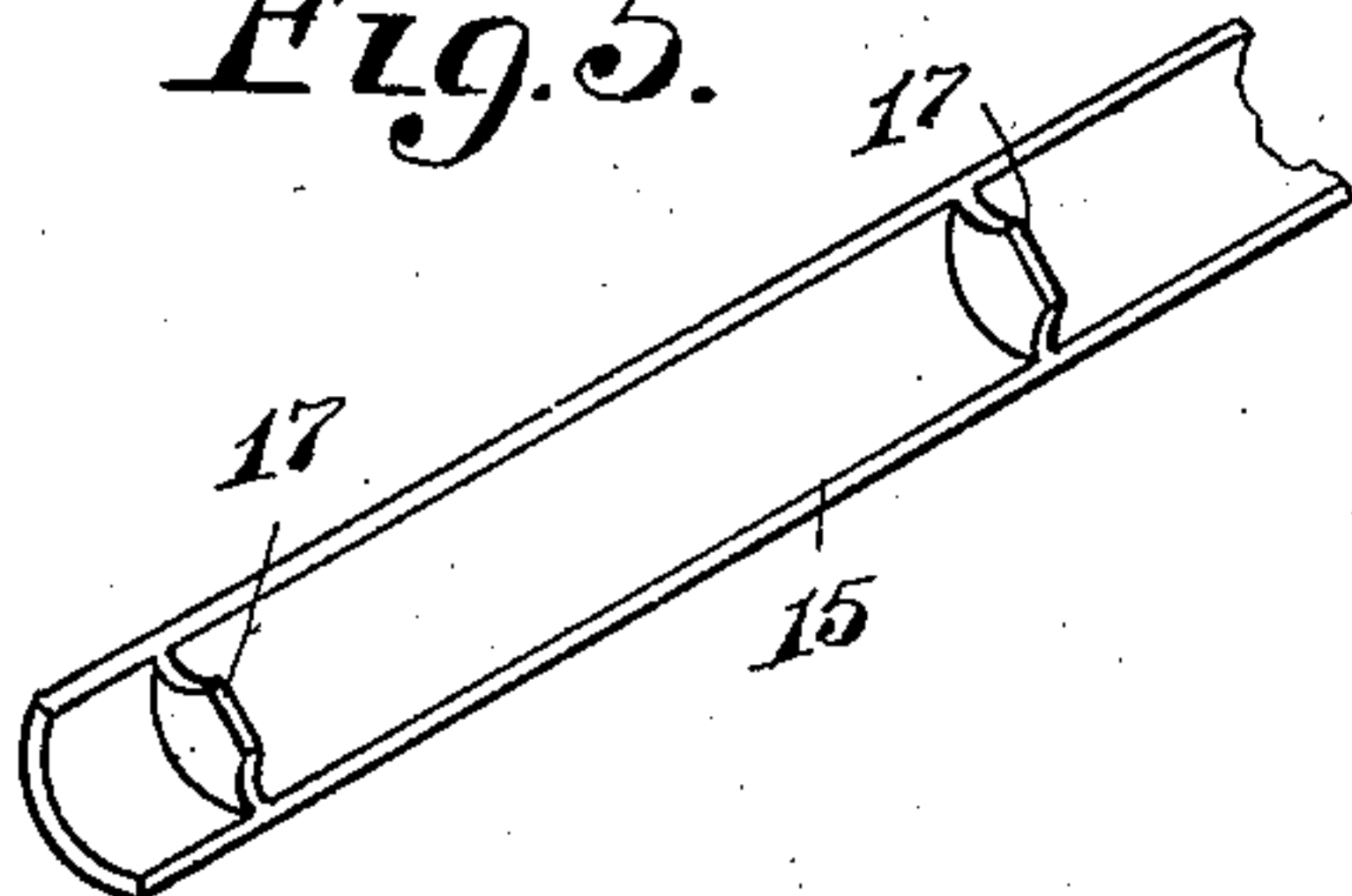


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES M. CLAUSEN, OF ELKHART, INDIANA.

WATER-TUBE-BOILER ACCESSORIES.

946,934.

Specification of Letters Patent. Patented Jan. 18, 1910.

Application filed June 11, 1908. Serial No. 437,936.

To all whom it may concern:

Be it known that I, CHARLES M. CLAUSEN, a citizen of the United States, residing at Elkhart, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Water-Tube-Boiler Accessories, of which the following is a specification.

This invention relates to water tube boiler accessories.

One object of the invention is to provide a water tube boiler embodying such characteristics that the necessity of employing ordinary sheet metal side and top casings is obviated.

Another object of the invention resides in the provision of an improved type of baffle plates for boilers of the present character embodying plates so associated in alinement that they may be moved together upon the tubes or whereby one plate of each alining series of plates may be moved independently of another or all of the remaining plates.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and particularly pointed out in the appended claims, it being understood that changes may be made in the form, proportion, size and minor details without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a front view partly in elevation and partly in section. Fig. 2 is a longitudinal sectional view. Fig. 3 is a fragmentary view in perspective of interior parts of the boiler. Fig. 4 is a similar view illustrating the interior parts of the boiler and particularly the method of constructing the outer wall. Fig. 5 is a fragmentary perspective view of one of the side plates.

Referring now more particularly to the accompanying drawings, the reference characters, 1 and 2 indicate front and rear chambered water legs connected together by the water tubes 3, there being a number of rods 5 passed through certain of the tubes and legs, if desired, to insure a firm connection between the tubes and legs. Any suitable type of grate may be disposed in the ash pit and operated in any suitable manner.

In order to obviate the use of the usual sheet metal top and side casings, I dispose

between the outermost tubes upon the side of the structure the plates 15 which may be held in place by means of suitable pins 16 (see Fig. 4). These plates 15 are preferably semi-circular in cross section and are also preferably provided with inwardly directed wings 17 adapted to engage the corresponding tubes and thereby aid in holding the plates in place, and if desired, the pins 16 may be eliminated. In any event, after the plates 15 have been positioned, a cementitious material 18, preferably asbestos cement, is then applied around the sides of the structure and by placing plates 15 between the top flues of the structure, the cementitious material 18 may be continued over the top thereof, thus doing away entirely with the need of the ordinary sheet metal side or top wall castings, the outer tier of flues with the plates 15 disposed between them forming the side walls and the top of the structure.

By reference to Fig. 1 it will be seen that the tubes 3 are preferably arranged in series of spaced banks, *a*, *b* and *c*, and it will also be seen that the plates 15 are disposed upon the upper row of banks *c*. Disposed over the spaces between the upper rows of tubes or banks *a* and *b*, are plates 19, each set of which coöperates to provide sectional baffle plates, said plates 19 each having upwardly directed pins 20 adapted to receive the corresponding eye of the connecting bar 22, by virtue of which connection by said bar, all of the baffle plates of each set may be moved together, the object being to provide for varying drafts in the boiler for the products of combustion, which products of combustion may follow the course indicated by the arrows in Fig. 2, and which leave the structure through the flue 23. As these baffle plates are loosely disposed upon the flues, where access to them may be easily had through the doors 24 and 25, they can be easily and quickly removed so as to permit of the sides of the water tubes to be reached for cleaning purposes. Each plate 19 is provided with comparatively thin downwardly directed spaced wings 26 which facilitate the guiding of the plates when they are shifted from, say for instance, the full line position in Fig. 3 to the dotted line position shown therein.

From the foregoing it will be understood that the plates on the sides and top of the structure are substantially the same as the

baffle plates except that the former form the projections with which the connecting element 22 engages. In other words, the baffle plates and the side and top plates 15 are arcuate in cross section and each is provided with spaced wings adapted to project inwardly between the adjacent tubes, said wings aiding to support the plates against displacement, and in the case of the baffle plates facilitating the sliding movement of the latter. It will also be understood that it is my purpose to claim the specific type of plates which fit between the spaces of the tubes not only for the purpose that may be derived in the provision of baffle plates, but also as regards the filling of the spaces of the sides and top to permit of the application of the cementitious material to the sides and top of the structure.

What is claimed is:—

1. In a water tube boiler, water legs, tubes connecting the legs, plates disposed upon some of the rows of tubes and slidable thereon, each plate closing the space between adjacent tubes and relying upon the latter for their support, each plate having a projection, and a member extending across the plates and provided with eyes to embrace said projections of the plates, whereby the plates may be moved together upon the tubes, said plates cooperating with the tubes to form baffles.

2. In a water tube boiler, water legs, a row of tubes connecting the legs, plates disposed upon said tubes and slidable thereon, each plate closing the space between adjacent tubes throughout a portion of the length of the latter and relying upon the tubes for their support, each plate having a projection, and a member extending across the plates and provided with eyes to embrace said projections of the plates whereby the latter may be moved together upon the tubes, said plates cooperating with the tubes to form a baffle.

3. In a water tube boiler, water legs, tubes connecting the legs, plates disposed upon the tubes and slidable thereon, each plate closing the space between adjacent tubes throughout a portion of the length of the latter and relying upon the tubes for their support, each plate having depending wings and each also provided with a projection, and a member extending across the plates and provided with eyes to embrace said projections of the plates whereby the latter may be moved together upon the tubes, said plates cooperating with the tubes to form a baffle.

4. In a water tube boiler including a row of tubes, elements disposed upon said

tubes and slidable thereon, each element closing the space between adjacent tubes and provided with wings extending into the spaces between the tubes, and means extending transversely across said slidable elements for securing said elements together.

5. In a water tube boiler including tubes, plates disposed upon the tubes, the plates being shorter than the tubes, and means detachably connecting the plates together so that one plate may be moved independently of another or all plates moved together, said plates cooperating with the tubes to form a baffle.

6. In a boiler of the character described, water legs, tubes connecting the legs, plates mounted upon some of the rows of tubes, each plate fitting over the space between corresponding adjacent tubes and provided with spaced, transverse wings extending into the spaces between said adjacent rows of tubes to position the plates, plates fitted over the spaces between the outermost tubes at the sides and top of the structure, and each provided with spaced, transverse wings fitting between the spaces of the corresponding tubes to position the latter plates, and means for connecting the plates together.

7. In a boiler of the character described including tubes, plates mounted upon some of said tubes, each plate being arcuate in cross section and provided with wings for projection into the spaces between adjacent tubes, each plate having a projection, and a member extending across some of the plates and provided with a series of eyes for engagement with the projection of the plates to connect the plates together.

8. In a water tube boiler including tubes, elements fitting over the spaces between certain of the tubes to cover said spaces beneath them and provided with spaced wings extending into said spaces between adjacent tubes to position said elements and prevent lateral displacement thereof, and means for connecting said elements together.

9. In a water tube boiler including tubes, plates fitting over the spaces between certain of the tubes, said plates each being arcuate in cross section and provided with spaced transversely disposed wings extending into the spaces between adjacent tubes, and means for securing said plates against displacement.

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

CHARLES M. CLAUSEN.

Witnesses:

JOSEPH WRIGHT,
LEE RINGLE.