

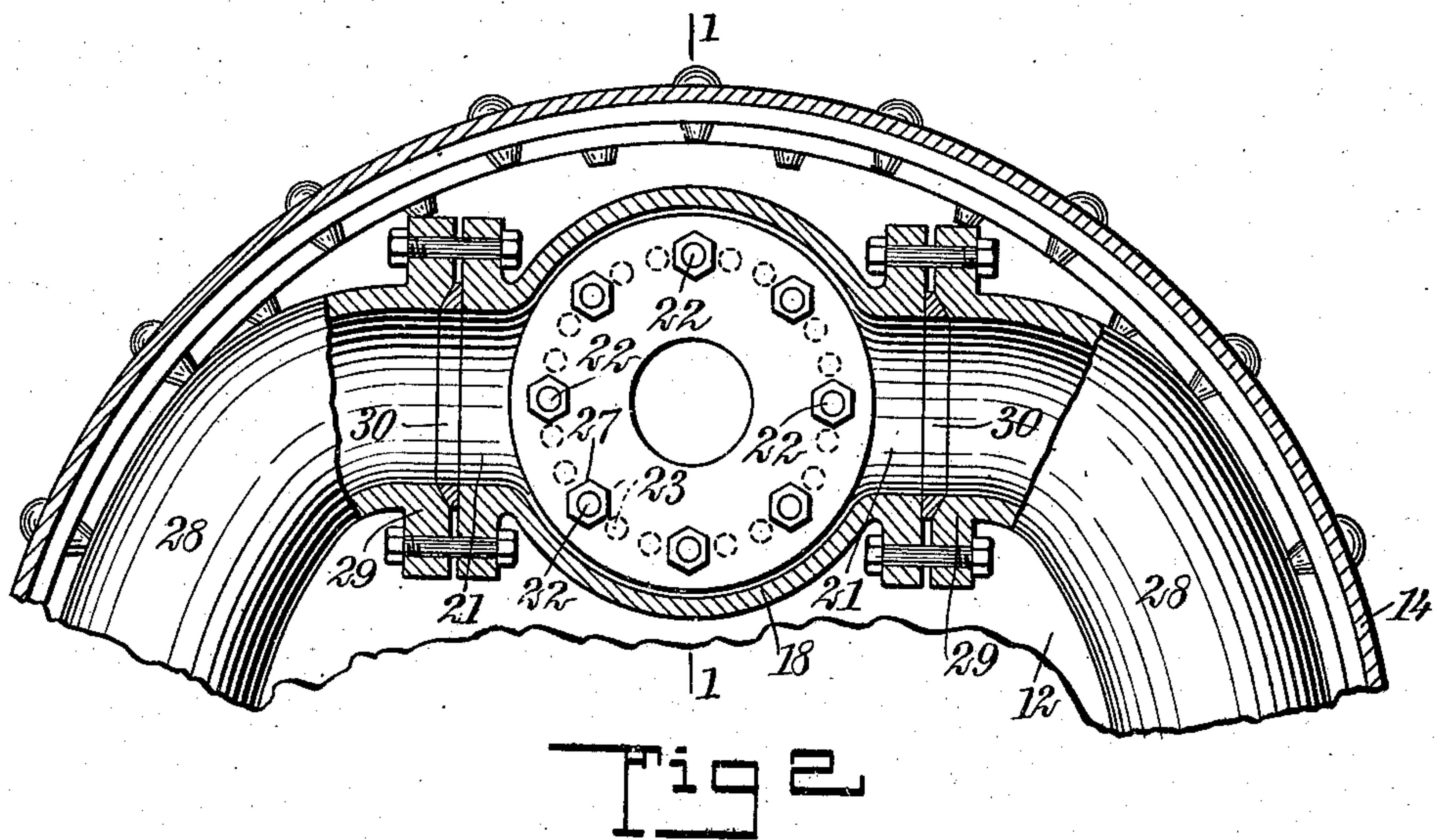
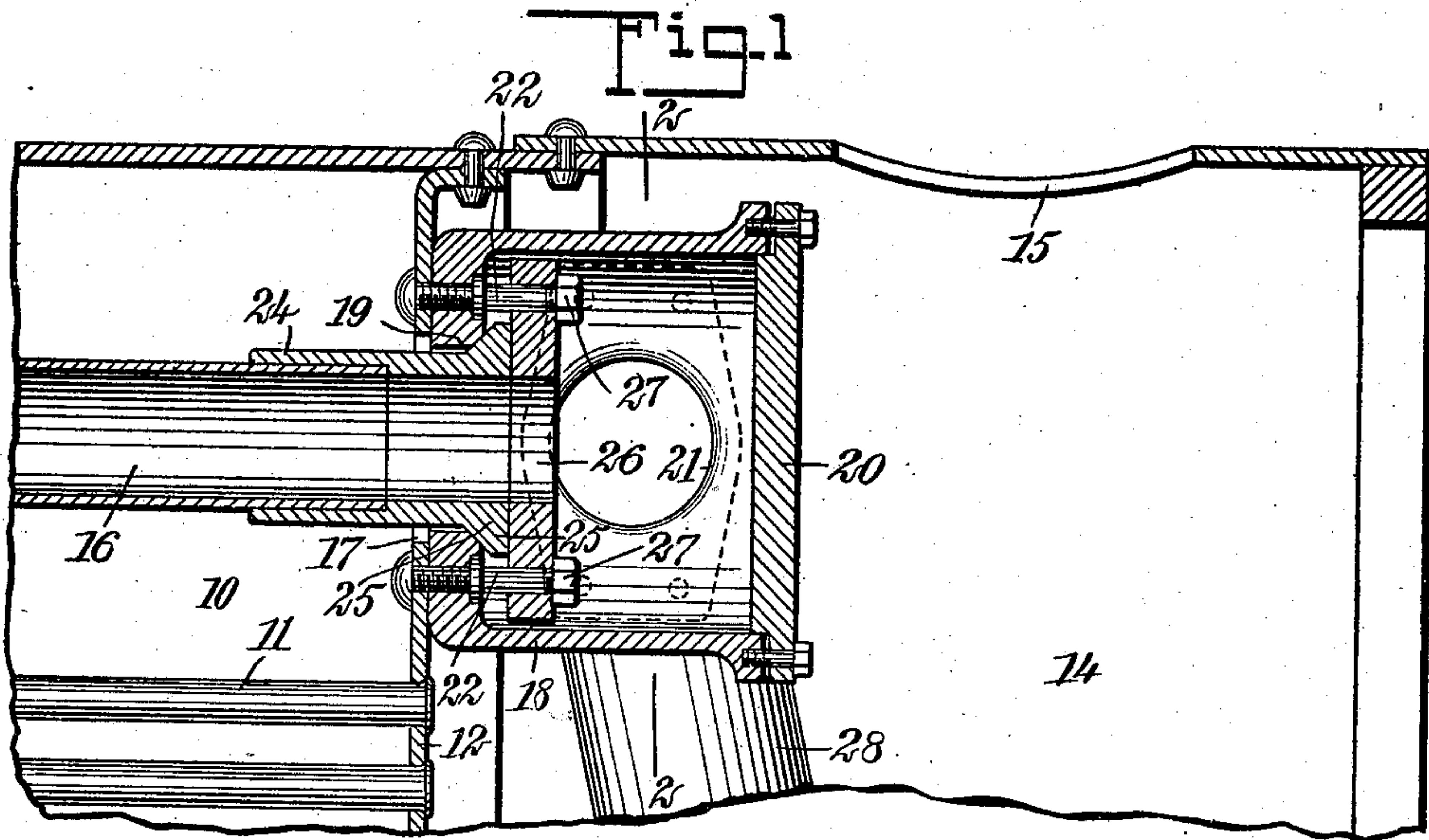
No. 867,784.

PATENTED OCT. 8, 1907.

W. H. BELLMAINE.

T-PIPE.

APPLICATION FILED APR. 3, 1906.



WITNESSES:

J. A. Proply

Isaac B. Owens

INVENTOR

William H. Bellmaine

BY *Mumma & Co*

ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM H. BELLMAINE, OF POCA TELLO, IDAHO, ASSIGNOR OF ONE-HALF TO GEORGE STONE, OF POCA TELLO, IDAHO.

T-PIPE.

No. 867,784.

Specification of Letters Patent.

Patented Oct. 8, 1907.

Application filed April 3, 1906. Serial No. 309,696.

To all whom it may concern:

Be it known that I, WILLIAM H. BELLMAINE, a citizen of the United States, and a resident of Pocatello, in the county of Bannock and State of Idaho, have invented a new and Improved T-Pipe, of which the following is a full, clear, and exact description.

The invention relates to a tee pipe or connection between the dry steam pipe and the delivery steam pipes of boilers.

10 The underlying object of my invention is to provide a connection which shall be readily accessible and less subject to temperature extremes than heretofore, thus insuring an efficient connection without interfering with the usual repair and adjusting operations on the boiler.

The invention resides in certain special features of construction and arrangement which will be fully set forth hereinafter and particularly pointed out in the claims.

20 Figure 1 is a sectional view on the line 1—1 of Fig. 2 taken longitudinally of the boiler; and Fig. 2 is a section on the line 2—2 of Fig. 1 taken transversely of the boiler.

10 indicates the water compartment of the boiler, 11 the flues, 12 the flue sheet, 14 the smoke box with the opening 15 for the draft pipe to discharge the smoke, and 16 the dry steam pipe.

30 The tube or flue sheet 12 is formed with an opening 17 and fastened to the front of the flue sheet 12 is a casing 18 having an opening 19 therein registering with the opening 17. The casing 18 has the front end closed by a plate 20 bolted into position, and at its sides the casing is provided with flanged openings 21. Said casing 18 is fastened to the flue sheet by stud bolts 22, also by rivets located between the stud bolts as indicated by the broken lines in Fig. 2. Extending through the openings 17 and 19 is a sleeve 24 preferably of brass, and within the inner end of this sleeve is snugly fitted the front end of the dry steam pipe 16. 40 Said tube 24 has a conical enlargement 25 at its front end within the casing 18, and said enlargement bears against the walls surrounding the opening 19 which walls are beveled off to form a tight or ground joint between the enlarged end of the tube and the casing. 45 Said end 25 of the tube 24 is held forcibly engaged with the walls of the opening 19 in the casing 18 by means a collar 26, the central orifice of which registers with the opening of the tube 24 and which collar is clamped against the front end of the tube by means of nuts 27 50 working on the stud bolts 22.

28 indicates the steam delivery pipes which are two in number arranged one at each side of the smoke box and are curved from the casing 18 toward opposite sides of the smoke box downward therein to the dis-

charge. The steam pipes 28 have flanged ends 29 bolted to the flanges of the openings 21 in the casing 18, and if desired gaskets 30 may be fitted in the joints, as shown.

In operation the dry steam passing from the boiler through the pipe 16 enters the casing 18 and is there distributed through the pipes 28 to the discharge, while the gases of combustion pass through the flues 11 and into the smoke box and thence out the draft pipe which is arranged in the usual manner. This arrangement provides as will be seen, a secure and perfectly tight connection between the pipe 16 and the pipe 28 without in any way interfering with the usual manner of operating the boiler. The flues may be cut out of the boiler in the usual manner, and by removing the cover plate 20 and elements 26 and 24 the flues may be readily withdrawn from the boiler without disturbing the pipes 28 and the casing 18, and nearly all of the flues may be replaced directly in their respective holes in the flue sheet, while those flues lying directly opposite the pipes 28 may be introduced through the adjacent holes and moved laterally for a distance equal to that between the two openings in the flue sheet. After the collar 26 is once set up firmly against the tube 24 a practically hermetic joint is attained and the parts when properly assembled will remain serviceable for practically the life of the boiler since they are not exposed to extremes of temperature, corrosion and like destructive conditions.

Having thus described the preferred form of my invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination with a boiler having a smoke box, flue sheet and dry steam pipe, of a case fastened to the flue sheet within the smoke box, a tube passing through the case and flue sheet and engaging the dry steam pipe, means located within the casing and engaging the end of the tube within the casing for fastening the tube in place, and a steam pipe communicating with the casing and located in the smoke box.

2. The combination with a boiler having a smoke box, flue sheet and dry steam pipe, of a case fastened to the flue sheet within the smoke box, a tube having one end passing through the rear end of the case and through the flue sheet and engaging the dry steam pipe, the other end of said tube extending within the casing, means located within the casing and engaging the said end of the tube for fastening the tube in place, and steam delivery pipes located in the fire box at the sides thereof and communicating with said casing.

3. The combination with a boiler having a smoke box, flue sheet and dry steam pipe, of a casing fastened to the flue sheet within the smoke box, a tube projecting through the casing and flue sheet, and engaging the dry steam pipe, said tube having within the casing an enlarged end engaging the walls thereof, a plate located within the casing and having a central opening registering with the tube, the said plate engaging the enlarged end of the tube, means for clamping the said plate against the en-

larged end of the tube to force said end into engagement with the casing, for the purpose specified, and a steam pipe communicating with the casing.

4. The combination with a boiler having a smoke box, flue sheet and dry steam pipe, of a casing fastened to the flue sheet within the smoke box, a tube projecting through the casing and flue sheet and engaging the dry steam pipe, said tube having within the casing an enlarged end engaging the walls thereof, means located within the casing for forcing the enlarged end into engagement with the casing, for the purpose specified, and two steam delivery pipes located in the smoke box at the respective sides thereof and communicating with the opposite sides of the said casing.

5. The combination with a boiler having a smoke box, a flue sheet, and a dry steam pipe, of a casing fastened to the flue sheet within the smoke box, a sleeve extending through the casing and flue sheet and engaging the dry steam pipe, the sleeve having within the casing an enlarged end engaging the walls thereof, a collar engaging said end of the sleeve, means for clamping the collar against the sleeve, and a steam pipe in the smoke box and communicating with the casing.

6. The combination with a boiler having a smoke box, a flue sheet, and a dry steam pipe, of a casing fastened to the flue sheet within the smoke box, the casing having an opening the wall of which is beveled, a sleeve extending through the casing and flue sheet and engaging the dry steam pipe, the sleeve having within the casing an enlarged conical end engaging the beveled wall surrounding the opening in the casing, a collar engaging said end of the sleeve, means for clamping the collar against the sleeve, and two steam pipes located within the smoke box respectively at the sides thereof and communicating with opposite sides of the casing.

7. The combination with a boiler having a smoke box, a flue sheet, and a dry steam pipe, of a casing fastened to the flue sheet within the smoke box, a sleeve extending through the casing and flue sheet and engaging the dry steam pipe, the sleeve having within the casing an enlarged end engaging the walls thereof, a collar engaging said end of the sleeve, means for clamping the collar against the sleeve, a steam pipe in the smoke box and communicating with the casing, and a removable cover plate for the front end of the casing.

8. The combination with a boiler having a smoke box, flue sheet and dry steam pipe, of a case fastened to the flue sheet within the smoke box, a tube passing through the case and flue sheet and engaging the dry steam pipe, means for fastening the tube within the casing, a steam pipe communicating with the casing and located in the smoke box, and a removable cover plate for the front end of the case.

9. In a boiler, the combination with a smoke box, flue sheet, and dry steam pipe, of a casing fastened to the flue sheet within the smoke box, a tube for connecting the interior of the casing with the dry steam pipe, means located within the casing and removably secured to the same, for fastening the tube in place, a removable cover plate for the front side of the casing, and a steam pipe within the smoke box communicating with the casing.

10. In a boiler, the combination with a smoke box, flue sheet and dry steam pipe, of a casing secured to the flue sheet within the smoke box, a tube extending through the casing and flue sheet and communicating with the dry steam pipe, means for removably fastening the tube in place, a removable cover plate for the front end of the

casing, and a steam pipe in the smoke box communicating with the casing.

11. In a boiler, the combination with a smoke box, flue sheet and dry steam pipe, of a casing within the smoke box, a tube extending through the casing and flue sheet and connected with the dry steam pipe, the said tube having an enlarged end within the casing engaging the wall thereof, a collar within the casing engaging the enlarged end of said tube, fastening means engaging the flue plate, casing and collar for fastening the casing to the flue plate and clamping the said collar against the end of the tube, and a steam delivery pipe leading from the casing.

12. The combination with a boiler having a smoke box, a flue sheet provided with an opening, and a dry steam pipe, of a casing located within the smoke box and having an opening in its rear wall registering with the opening in the flue sheet, a tube extending through the openings in the casing and flue sheet and engaging the dry steam pipe, the said tube being provided with a conical enlargement at the end within the casing for engaging the wall of the casing, a collar engaging said end of the tube, fastening means for securing the casing to the flue sheet and clamping the collar against the tube, and steam delivery pipes located in the smoke box and communicating with said casing.

13. The combination with a boiler having a smoke box, a flue sheet provided with an opening, and a dry steam pipe, of a casing located within the smoke box and having an opening in its rear wall registering with the opening in the flue sheet, a tube extending through the openings in the casing and flue sheet and engaging the dry steam pipe, the tube having an enlarged end within the casing engaging the wall thereof around the said opening, a collar engaging the enlarged end of the tube and having a central opening registering with the opening in the tube, stud bolts for fastening the casing to the flue sheet, the said stud bolts extending through the said collar, nuts on the said bolts for clamping the collar against the tube, a steam pipe in the smoke box and communicating with the casing, and a removable cover plate for the front end of the casing.

14. The combination with a boiler having a smoke box, a flue sheet having an opening therein, and a dry steam pipe, of a casing within the smoke box and having an opening in its rear wall provided with a beveled edge, the said opening registering with the openings in the flue sheet, stud bolts for fastening the casing to the front of said flue sheet, the said bolts extending within the casing, a sleeve extending through the openings in the casing and flue sheet and fitting over the front end of the dry steam pipe, the said sleeve being provided with a conical enlargement at its front end within the casing, the said enlargement being adapted to bear against the beveled edge of the wall surrounding the opening in the casing, a collar located within the casing and engaging the conical end of the sleeve, the collar having a central opening registering with the opening in the sleeve, the said stud bolts extending through openings in the said collar, nuts on said bolts for clamping the collar against the front end of the sleeve and steam pipes in the smoke box and communicating with opposite sides of the casing.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. BELLMAINE.

Witnesses:

EARLE C. WHITE,
WALTER F. BREWSTER.