No. 811,066. PATENTED JAN. 30, 1906.

M. JANOWITZ.

STEAM BOILER.

APPLICATION FILED MAY 25, 1905.

Fig. 1.

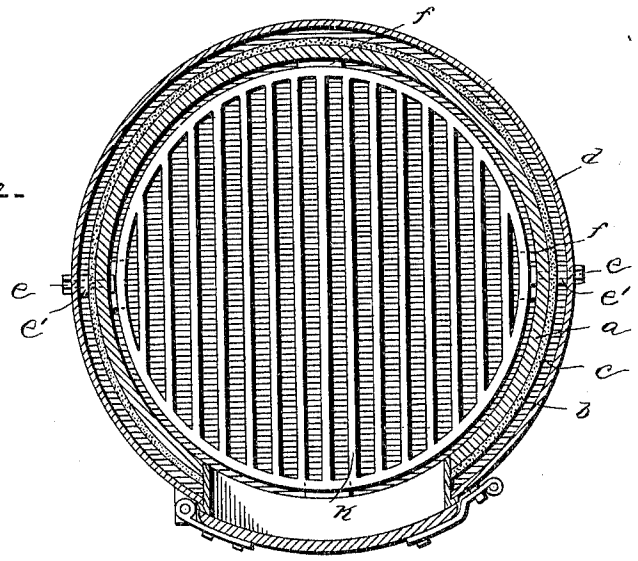
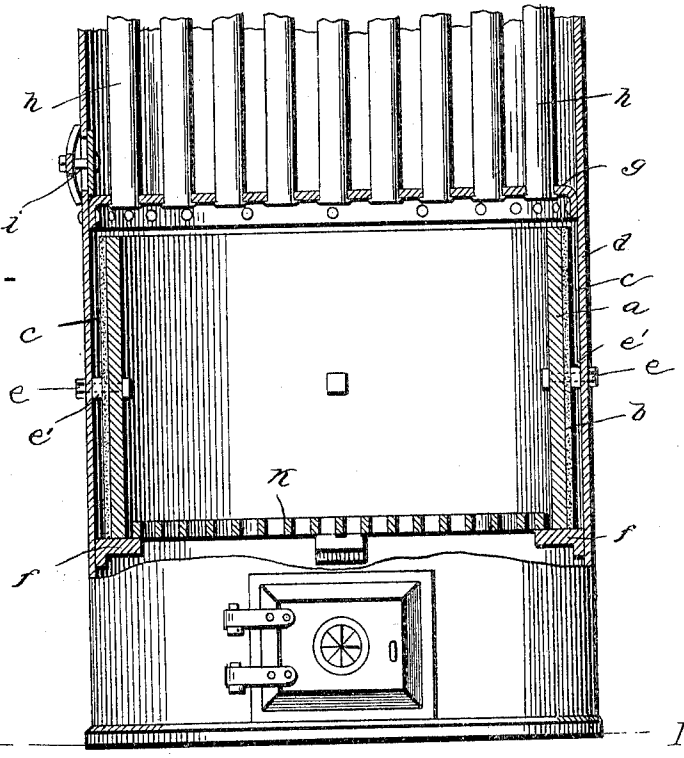


Fig. 2.



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STEAM-BOILER.

No. 811,066. Specification of Letters Patent. Patented Jan. 30, 1906.

Application filed May 25, 1905. Serial No. 262,223.

To all whom it may concern:

Be it known that I, MYER JANOWITZ, a citizen of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented new and useful Improvements in Steam-Boilers, of which the following is a specification.

This invention is an upright tubular boiler; and the object thereof is to reduce the first cost of such a boiler and also to produce one which will last longer.

It is common to make upright tubular boilers with a water-leg extending down around the fire-box and formed by a continuation of the flue-sheet, and thereby forming the fire-box lining. This has the defect that corrosion is very apt to occur at the riveted joint at the bottom of the water-leg, which thereby shortens the life of the boiler. The construction is also expensive.

The boiler invented by me dispenses with the water-leg, the flue-sheet being secured to the shell above the fire-box. A cast-iron lining is put inside of the fire-box, with an asbestos backing on the outside of said lining, and an air-space is formed between the asbestos and the shell of the boiler. This air-space is open at both top and bottom, permitting a free circulation around the fire-box lining and preventing the burning out of the water-leg incident to the old construction mentioned, and also preventing the burning out of the boiler-shell. The cost is also considerably less than that of similar boilers having the water-leg referred to.

In the accompanying drawings, Figure 1 is a horizontal section of the boiler through the fire-box. Fig. 2 is a vertical sectional elevation.

Referring specifically to the drawings, *d* indicates the boiler-shell, *g* the lower flue-sheet, and *h* the flues or tubes. As shown, the flue-sheet extends straight across the shell, and its flanged edge is riveted thereto, the tubes being expanded into the sheet in the usual manner. Hand-holes *i* are made in the shell of the boiler on a line with the top of the flue-sheet, so that the scale and sediment can be cleaned out, thereby increasing the life of the flue-sheet.

The fire-box under the flue-sheet has a cast-iron lining *a*, on the outside of which is an asbestos protective backing *b*. The fire-box lining so formed is spaced from the surrounding shell of the boiler, forming a continuous air-space *c*, which is open at the top and bottom and, in connection with the asbestos lining, prevents burning out of the boiler-shell by transmitted heat. The casting and asbestos backing rests upon lugs *f* and are held in place by bolts *e*, which extend through the lining, the backing, and the shell. Sleeves *e'* on the bolts preserve the space between the fire-box lining and the shell. The grate-bars *k* rest upon the lugs *f*, with the ash-pit below formed, as shown, by the extended shell of the boiler.

As shown there is no pressure on the boiler-shell below the rivet-line in the bottom flue-sheet, and should the bottom of the boiler-shell corrode it consequently makes no material difference, owing to the absence of such pressure. The construction cheapens the cost of a boiler considerably as compared with those having a water-leg, without loss to any material advantage. The use of the cast-iron fire-pot is advantageous, particularly in view of the protection afforded by the air-space and asbestos to the shell of the boiler.

What I claim as new, and desire to secure by Letters Patent, is—

In an upright-flue boiler, the combination with an outer shell extended below the lower flue-sheet and around the fire-box, of a fire-pot within said shell and spaced at all points therefrom, comprising a cast-iron lining and a backing of non-heat-conducting material.

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

MYER JANOWITZ.

Witnesses:
C. SIEKER,
T. A. BLOCK.