(No Model.) 2 Sheets—Sheet 1.

C. W. HULLINGS.

STEAM BOILER AND FIRE BOX THEREFOR.

No. 495,939. Patented Apr. 18, 1893.

Fig. 1.

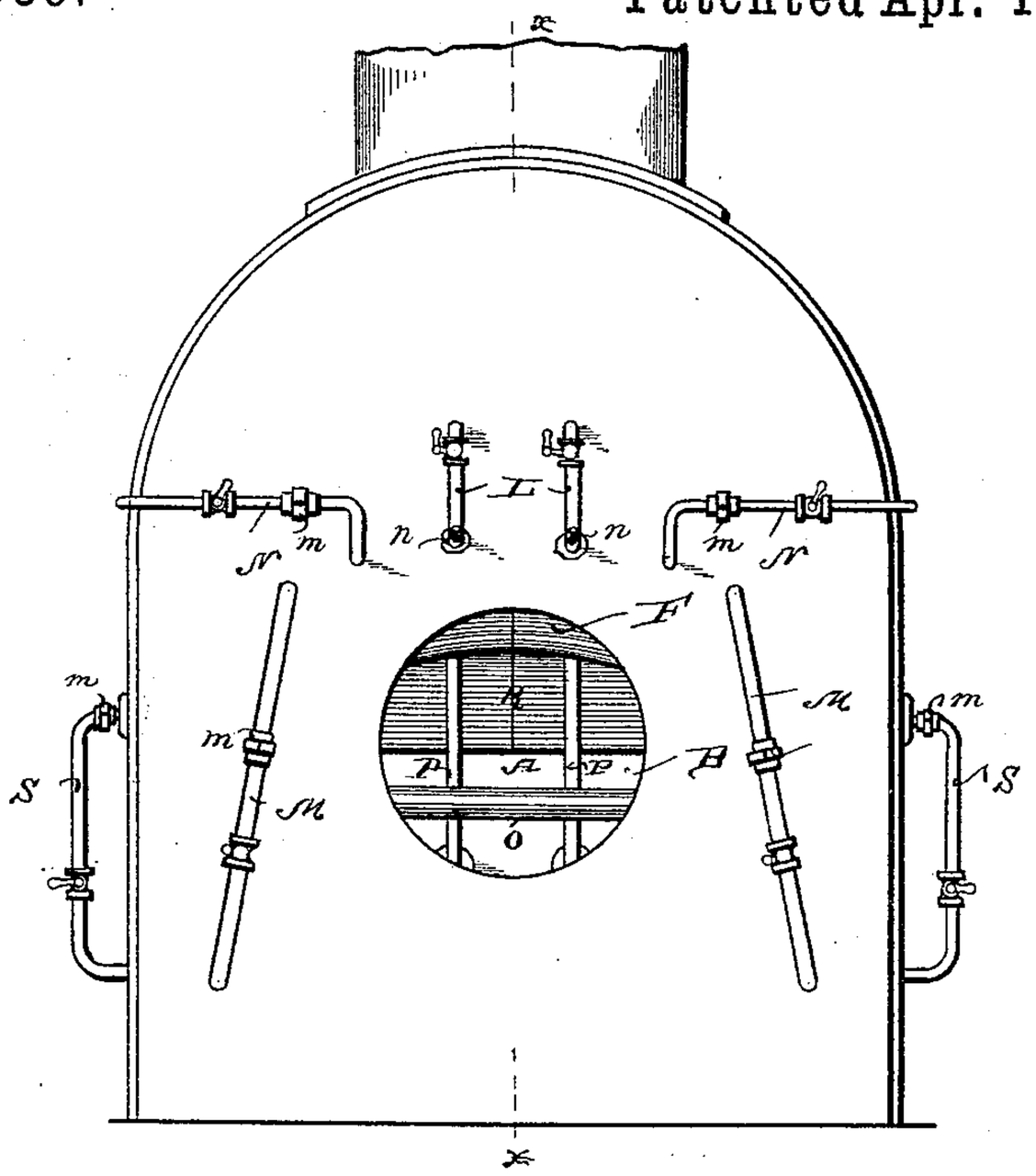
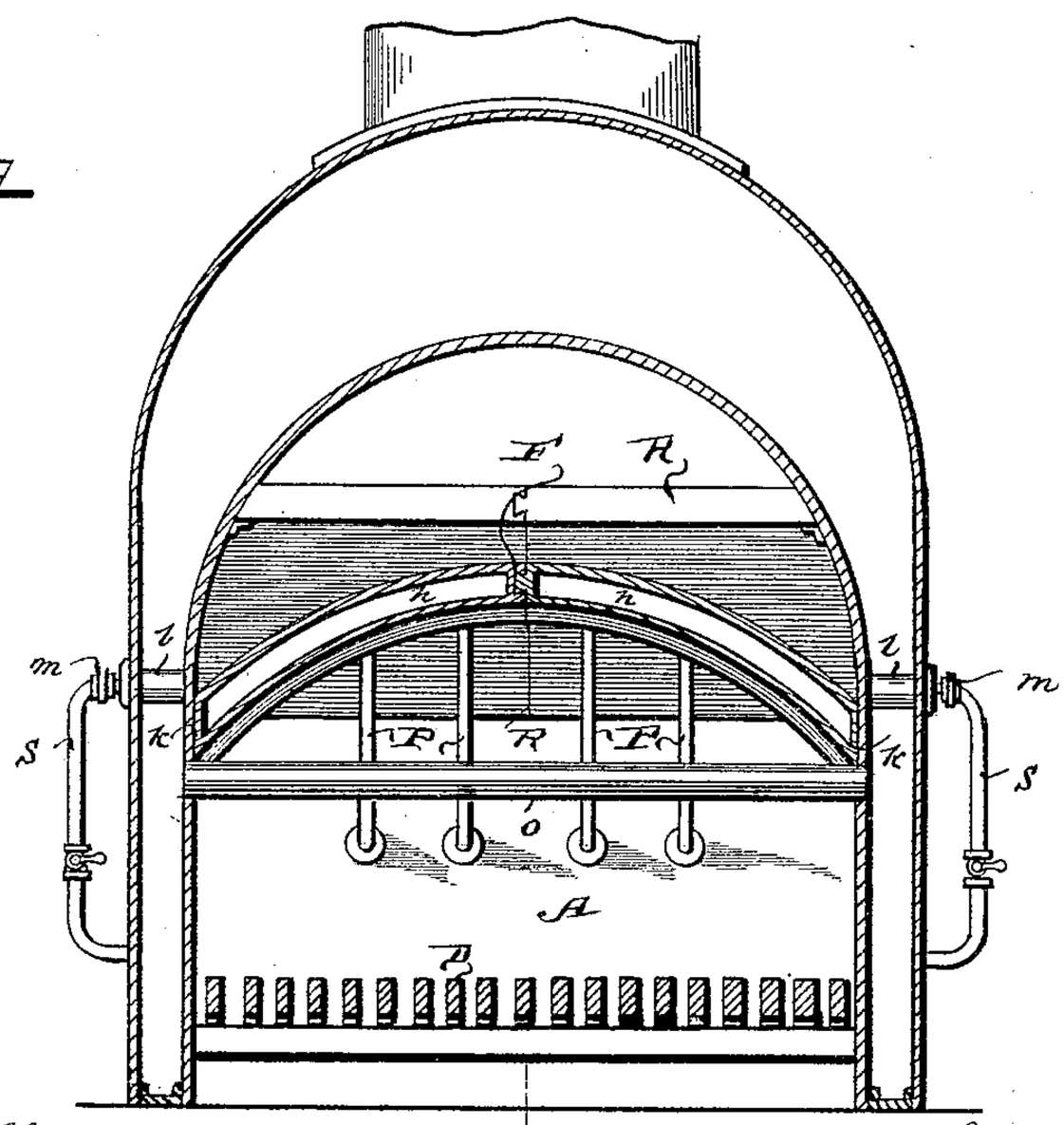


Fig. 3.



Witnesses:
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Philip C. Masi.

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Chas. W. Hullings
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(No Model.) 2 Sheets—Sheet. 2.

C. W. HULLINGS.

STEAM BOILER AND FIRE BOX THEREFOR.

No. 495,939. Patented Apr. 18, 1893.

Fig. 2.

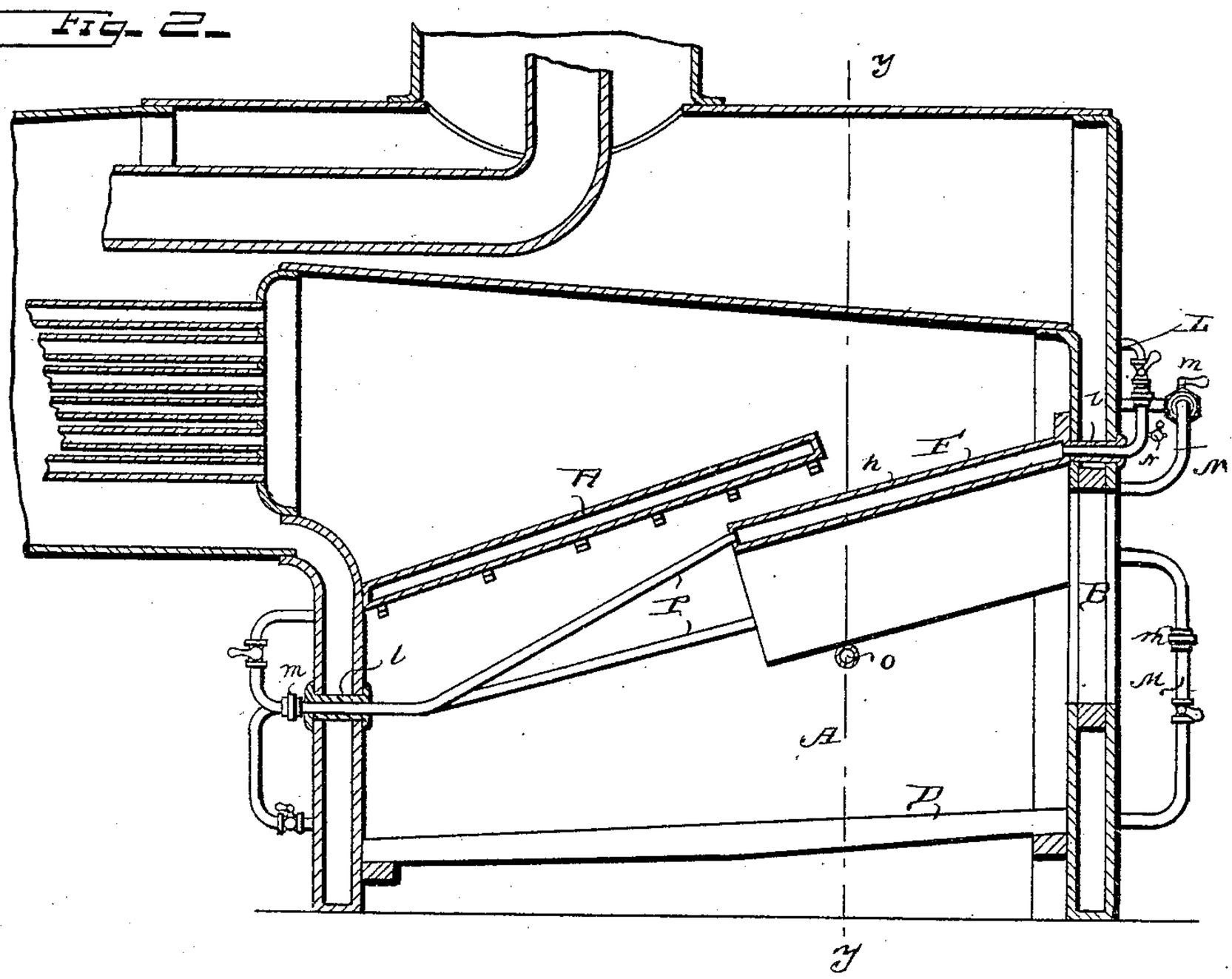


Fig. 4.

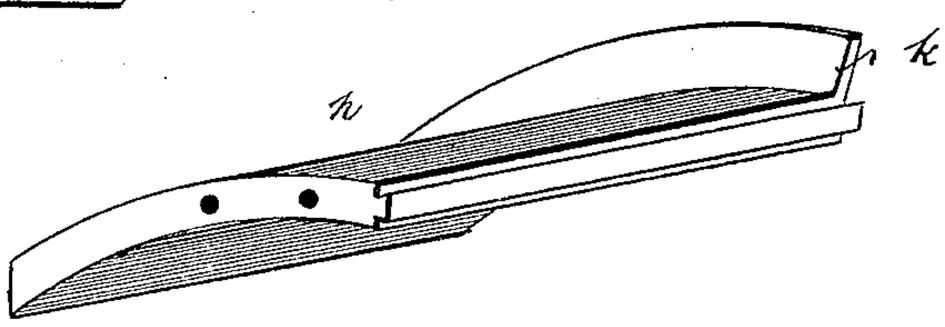
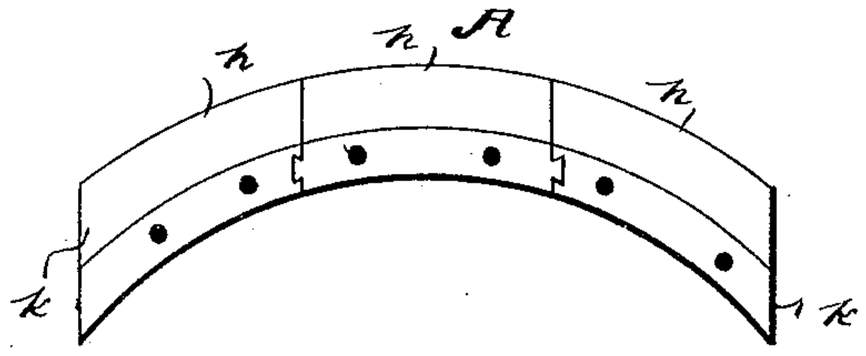


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES W. HULLINGS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JESSE W. THATCHER, OF SAME PLACE.

STEAM-BOILER AND FIRE-BOX THEREFOR.

SPECIFICATION forming part of Letters Patent No. 495,939, dated April 18, 1893.

Application filed August 16, 1892. Serial No. 443,188. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. HULLINGS, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Steam-Boilers and Fire-Boxes Therefor; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a front view of fire box and boiler. Fig. 2 is a vertical longitudinal section of same partly broken away. Fig. 3 is a transverse section on line *y y*, Fig. 2. Fig. 4 is a perspective detail view of the baffler plate and Fig. 5 is an end view of same.

This invention relates to certain new and useful improvements in steam boilers and fire boxes therefor, of the character set forth in my former patent, No. 386,431, dated July 17, 1888, and in my pending application, Serial No. 431,252, filed April 30, 1892, upon which the present invention is designed as an improvement.

The invention more particularly relates to the construction and arrangement of the arched hollow baffler plate, which extends from the furnace door, inward and downward, over the grate, also to the construction of the furnace deflector; and the invention consists in the novel construction and combination of parts, all as hereinafter specified.

In the accompanying drawings, the letter A designates the furnace, B the furnace opening or door, and D the grate, all of which are of the ordinary construction and arrangement.

F designates my improved transversely arched baffler, of copper or other suitable material, and which is arranged to project inward and downward to nearly the normal level of the fuel on the grate, and for the purpose fully set forth in my patent and application above named, and more particularly as in the latter. In said patent, and application however, the baffler was shown and described as consisting of one piece, which was inserted through the furnace opening, the outer end having an upwardly projecting flange, which rests against the outside of the furnace wall around the upper portion of the opening. Such construction however, I find to be somewhat objectionable owing to its great weight, which makes it difficult to handle and set in place, and also from the fact that it chokes up a portion of the opening or door.

In carrying out my present invention, I form the baffler in two or more longitudinal sections *h*, *h*, one formed in two sections, being shown in Fig. 3, and one in three sections shown in Fig. 5, although I desire it understood that I may employ any number of the said sections, as I may desire, or find most suitable for the particular boiler to which the baffler is fitted. Said sections are inserted through the furnace opening, one at a time, and are united to each other by suitable tongue and groove joints, which may be of dovetailed form, as shown, or without the dove-tail. Said sections are each formed on their outer ends with an upward flange *k*, which rests against the inner face of the furnace leg, around the upper portion of the opening, and this leaves said opening entirely free, the connections for the boiler pipes L, L, the pipes M, M, leading to the water or mud legs, and for the pipes N, N, from the pumps or injectors, (if the latter connections are used) being made through the hollow ferrules or sleeves *l*, *l*, which extend through the water leg. Said connections are all provided with unions or couplings *m*, whereby they are rendered detachable, and the baffler removable. Small vent cocks *n*, *n*, may also be provided, as shown.

In order to form a support for the baffler and take the strain off the lead pipes P, which are connected with the baffler in the same manner as in my said application, one or more cross circulating pipes O may be provided, upon which the baffler rests, said pipes connecting the water or mud legs.

By forming the baffler in sections, I am enabled not only to more conveniently handle it, and fit it in place, but also, should one section become burned out, it may be removed and replaced, without necessitating the casting away of the other sections. I am also en-

abled to make the baffler of greater transverse width and depth, whereby more water room is provided therein, and a better circulation obtained.

R is the furnace deflector, which instead of the brick usually employed consists of a water chamber formed of boiler plates or suitable material, and which may also be formed in sections in the same manner as is the baffler plate, said sections running either transversely or longitudinally. Said chamber is connected with the water room of the boiler by the bent pipes S at the sides, which lead into the water legs. The sections may be removed at any time it is desired to get at the flues, and again replaced. By the provision of this chamber in circulation with the boiler, I also obtain a greater heating surface.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. In a boiler and fire box, the combination with the fire box, and its fuel opening, of a hollow baffler plate extending from the upper inner edge of said opening inward and downward to a point near the grate, said baffler consisting of a number of separable hollow sections, having each a vertical flange at its upper end which rests against the inner edge of the furnace leg, around the upper portion of said fuel opening, and lead and circulating pipes connecting with the hollow interiors of said sections, and with the boiler and mud and water legs, substantially as specified.

2. In a boiler, and fire box the combination with the fire box, and its fuel opening, of the baffler plate, extending from the upper inner edge of said opening inward and downward, said plate consisting of two or more longitudinal hollow sections having means for their connection, the lead pipes communicating with the interior of said sections, whereby a circulation is maintained therethrough, the cross circulating pipes forming a support for said baffler, substantially as specified.

3. In a boiler and fire box, the combination with the fire box and its fuel opening, of the baffler plate extending from the upper inner edge of said opening inwardly and downwardly, said baffler plate consisting of two or more longitudinal hollow sections having means for their connection, the lead pipes for maintaining a circulation through said plate, the cross-circulating pipes forming a support for said plate, and the deflecting arch also having a water chamber and circulating pipes, substantially as specified.

4. A baffler for fire boxes, said baffler comprising a number of hollow sections, detachably connected to each other by dovetailed grooves and tongues, each of said sections having at its outer end a vertical flange *k*, said sections also having connections for lead and circulating pipes, substantially as specified.

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

CHARLES W. HULLINGS.

Witnesses:
PHILIP C. MASI,
GEORGE H. PARMELEE.