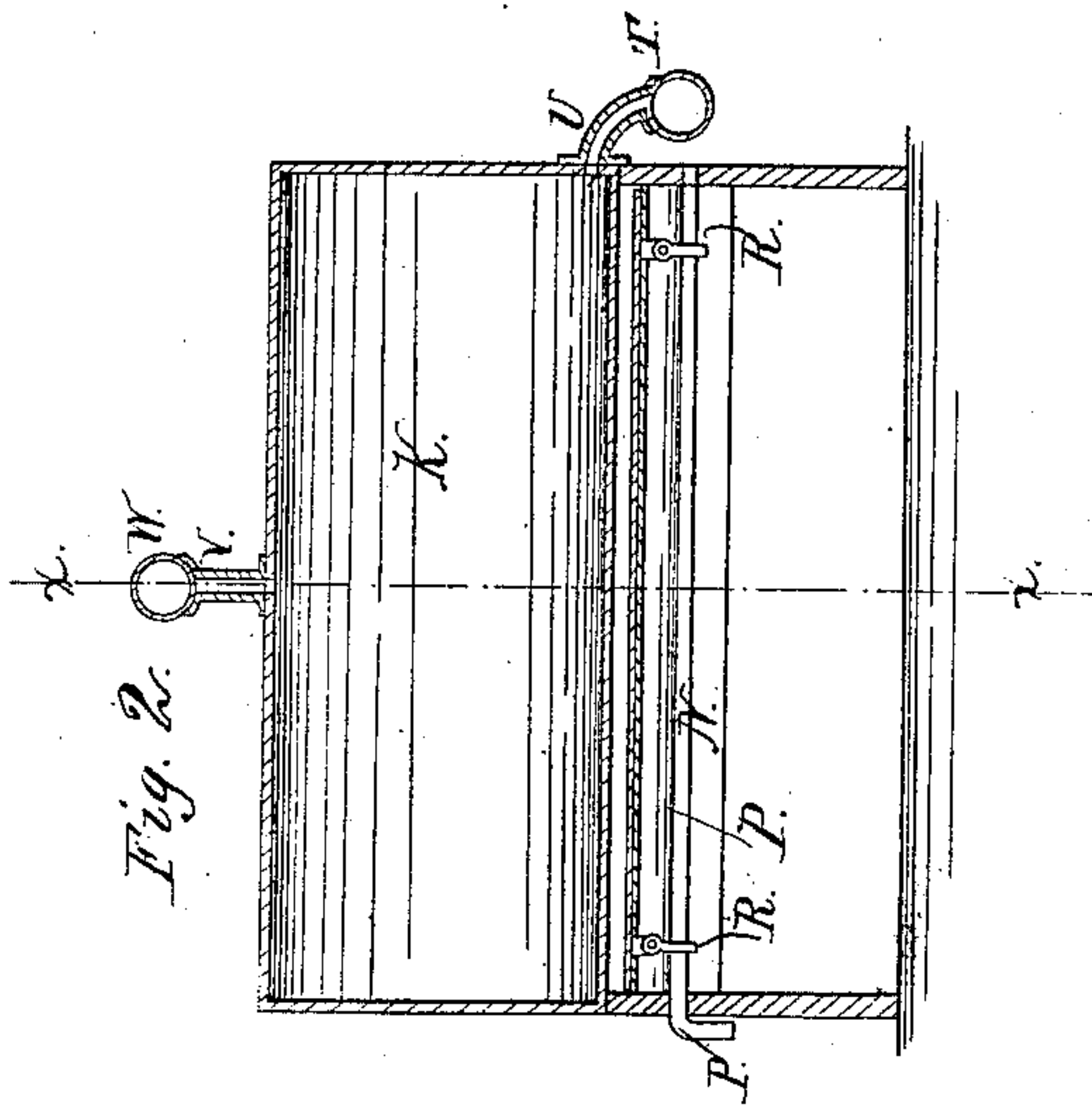
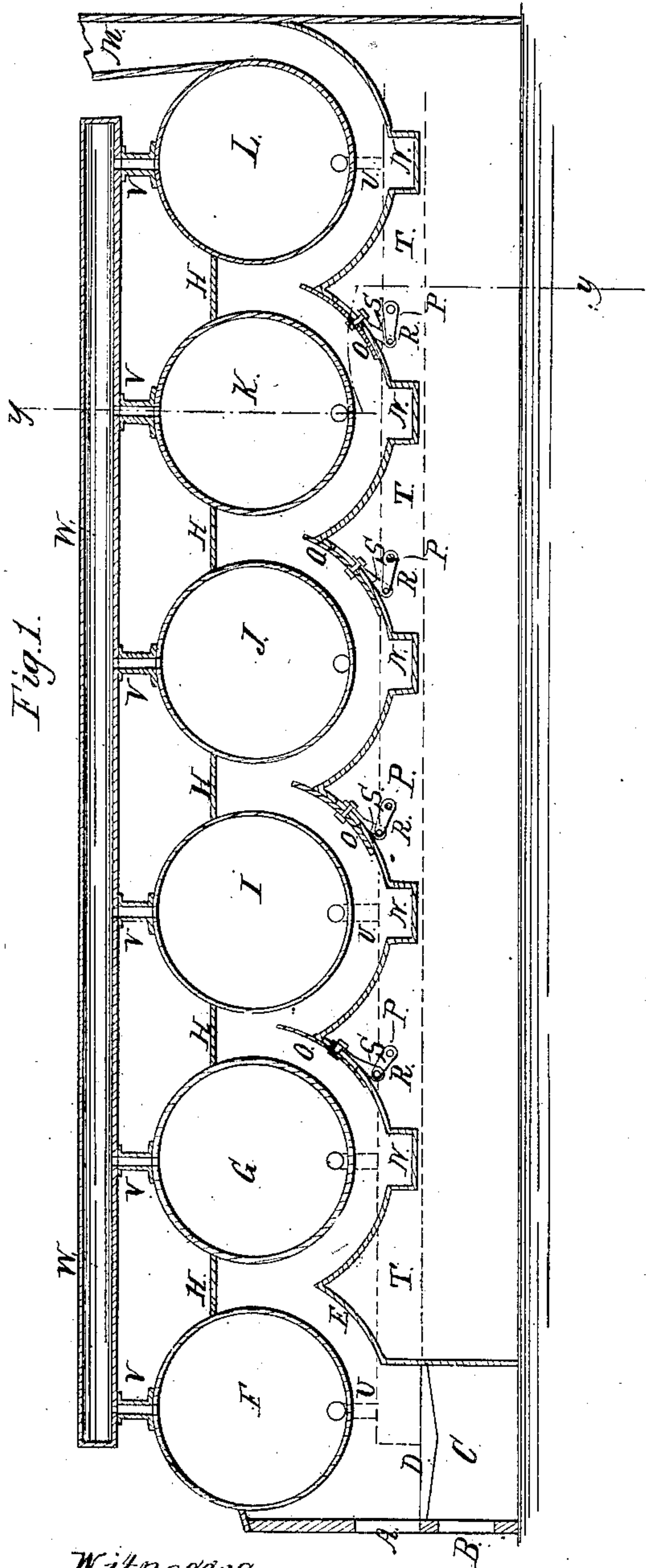


H. Mc Clure,
Steam-Boiler Furnace,

No 58,552,

Patented Oct. 2, 1866.



Witnesses:
J. M. Blomington
Wm. Shewen

Inventor,
H. Mc Clure
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UNITED STATES PATENT OFFICE.

HENRY McCLURE, OF TERRE HAUTE, INDIANA, ASSIGNOR TO HIMSELF AND JAMES ELLIS, OF SAME PLACE.

IMPROVEMENT IN FURNACES AND BOILERS.

Specification forming part of Letters Patent No. 58,552, dated October 2, 1866.

To all whom it may concern:

Be it known that I, HENRY McCLURE, of Terre Haute, in the county of Vigo and State of Indiana, have invented a new and useful Improvement in Furnace and Boilers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical longitudinal section of my improved furnace and boilers, taken through the line *x x*, Fig. 2. Fig. 2 is a cross-section of the same, taken through the line *y y*, Fig. 1.

Similar letters of reference indicate like parts.

My invention has for its object to furnish an improved furnace and boilers so constructed and arranged that the heat shall strike the boilers (except the first one) above any deposit of sediment that may be in the boilers, that the draft may be adjusted to all changes of weather, and that it may be a complete smoke-consumer; and it consists of a furnace and boilers constructed and arranged as hereinafter more fully described.

A is the furnace-doorway. B is the opening to the ash-pit C. D are the grate-bars. The bridge-wall E of the furnace is made inclined, as shown, so as to carry up the flame and heat around the boiler F, and conduct it to such a height that it will strike the boiler G above any deposit of sediment that may be in the bottom of the said boiler, and considerably below the water-line H, as seen in Fig. 1. The flue then curves under the boiler G with a curve somewhat similar to the curve of the outside of the boiler, and rises on the other side of the boiler to such a height that the heat and smoke will strike the boiler I in about the same position that it struck the boiler G. The flue then passes under all the other boilers J K L of the series in the same manner, and finally passes into the stack at M. In the bottom of the lowest parts of the flue, where it passes under the bottoms of the boilers, is

formed depressions or cavities N, as shown in Fig. 1.

At the ends of the depressions or chambers N are formed openings through the walls of the furnace, tightly closed with doors, through which the ashes may be removed from the flue when necessary.

This furnace may be made smoke-consuming by admitting air into the flue at the points of highest elevation of the bottom of the said flue between the boilers, a portion of the smoke being thus consumed as it passes from one boiler to another through the series, and it escapes at the point M into the stack, containing nothing combustible.

O are slides attached to the curved rise of the flue, between each pair of boilers except the first pair, for the purpose of rendering the furnace adjustable according to the changes of the weather. These plates are operated from the outside of the furnace by means of the rock-shaft P, one end of which extends through the walls of the furnace, and is bent over so as to form a crank or handle, P', for operating it. To this shaft are rigidly attached the rock-arms R, the ends of which are pivoted to links or bars S, the other ends of which links or bars are pivoted to ears or their equivalent formed on the under sides of the plates or slides O, and projecting through and working in slots formed in the curved bottom of the flue, as shown in Fig. 1. By this means the slides or plates O may be regulated at pleasure.

The mud-receiver T is connected with the boilers by goose-neck pipes U, as shown in Fig. 2, and in dotted lines in Fig. 1. This receiver is placed a little below the level of the bottoms of the boilers, and may receive the water from the supply-pipe at whatsoever point of said receiver may be most convenient.

The steam, when generated, passes from the boilers through the pipes V into the steam-drum W, whence it may be taken where desired.

The various parts of the furnace may be constructed of the materials ordinarily used

for such purposes, and the boilers should be set in the ordinary way.

The slides or plates O should be lined with fire-brick or equivalent.

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

An improved furnace and boilers, formed by combining the slides O, rock-shaft P, rock-arms R, links or bars S, and boilers F G I J

K L with each other and with the furnace-flue curved beneath the boilers, when said parts are constructed and arranged substantially as herein described, and for the purposes set forth.

HENRY McCLURE.

Witnesses:

M. M. HICKOX,

J. J. FORREST.