

(No Model.)

I. T. HARDY.

BOILER CLEANER.

No. 354,016.

Patented Dec. 7, 1886.

Fig. 1.

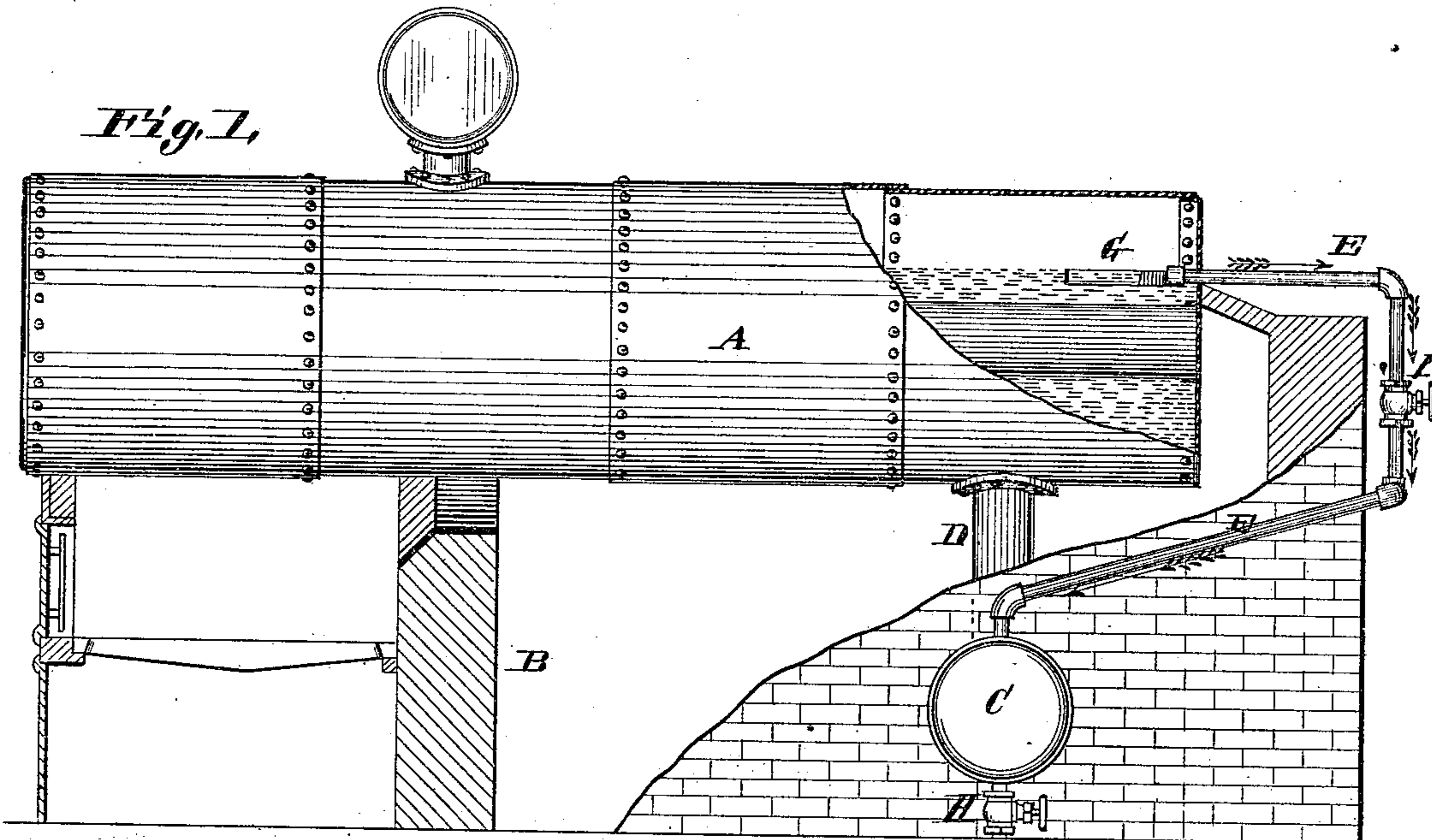
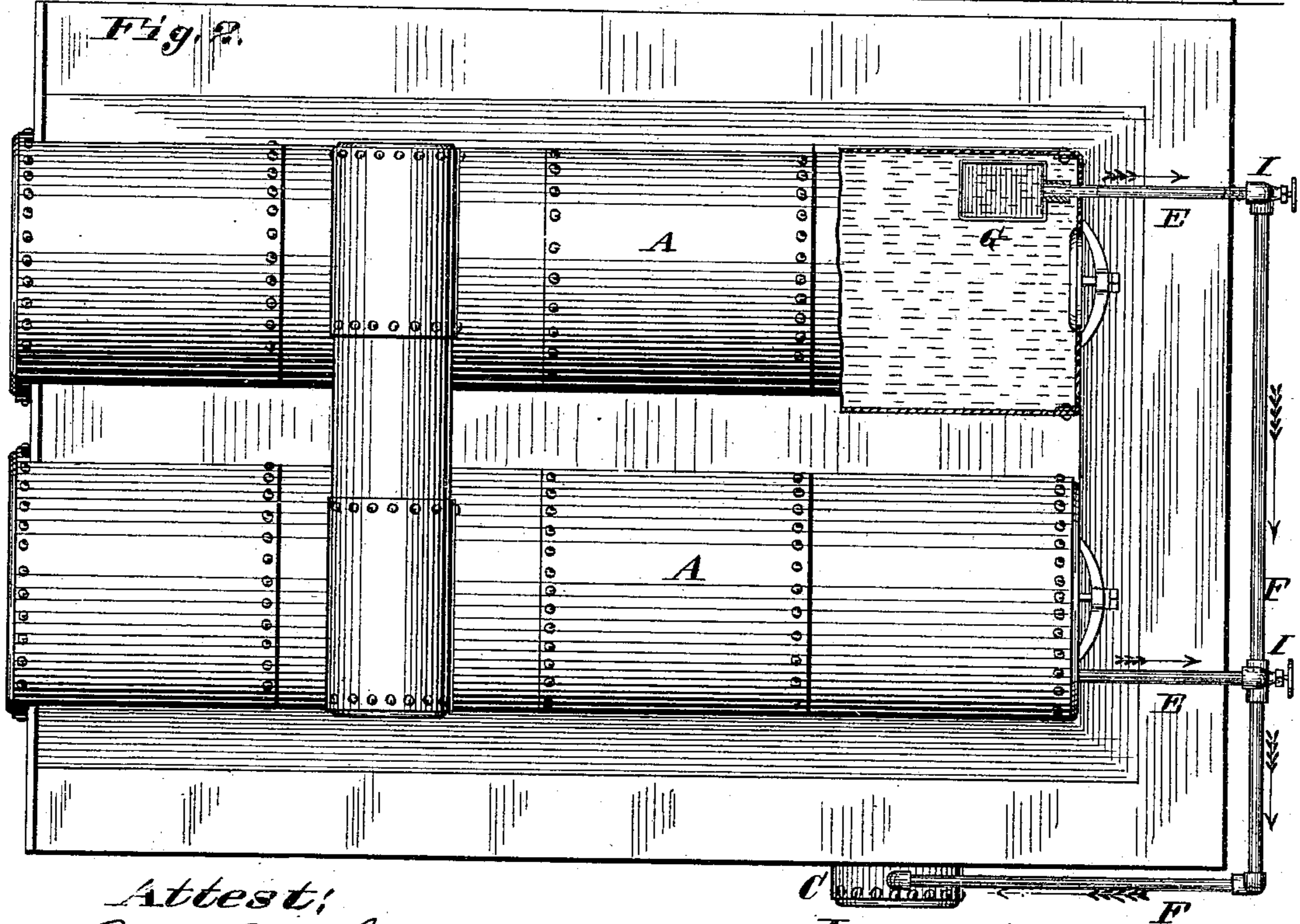


Fig. 2.



Attest:
Geo. L. Wheelock
Edmund Star-

Inventor:
I. T. Hardy
By Knight Bros
Attys

UNITED STATES PATENT OFFICE.

ISHAM T. HARDY, OF ST. LOUIS, MISSOURI.

BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 354,016, dated December 7, 1886.

Application filed September 28, 1885. Serial No. 178,426. (No model.)

To all whom it may concern:

Be it known that I, ISHAM T. HARDY, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Boiler-Cleaners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 represents the steam-boiler and furnace embodying my invention, part of the boiler being broken out to show the scum-pan and connecting-pipe. Part of the boiler-setting is in side elevation and part in longitudinal section. Fig. 2 is a top view of two boilers with part broken away.

My invention relates to an improved means for removing the scum that forms upon the water from the boiler and discharging it into the mud-drum; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents the boilers, (I have shown two;) and B, the furnace. Beneath the boilers, preferably near one end, is the mud-drum C, connected with each boiler by a pipe, D.

E represents a pipe extending outward from each boiler, preferably from the rear end, as shown, and connecting with the drum C through means of a common pipe, F. Connected to the inner ends of the pipe E are the open-topped scum pans or collectors G, which are at the normal surface-level of the water. The pans are preferably formed with sides and ends, as shown in Fig. 1, and the depth is preferably less than the diameter of the pipe E.

There is a circulation through the pipes E F in the direction indicated by the arrows, and this by suction draws the scum from the pan into the pipe E and carries it to the mud-drum, where the earthy parts settle and are got rid of through the blow off cock H. The circulation in the pipes E F is caused by the heating of

the water in the pipe D, causing it to ascend into the boiler, its place being taken by the cooler water in the pipe F. The improvement is shown applied to two boilers; but it may be applied to one or any larger number of boilers. The pipes E are preferably provided with valves I, so that they may be closed when desired.

By my improved arrangement all the scum is gathered and removed from the boilers into the drum, thus avoiding the danger of the formation of scale, so common to steam-boilers where the scum settles and becomes hardened within the boiler.

I am aware that it has been proposed to provide a steam-boiler with a mud-drum, a pipe communicating at one end with said drum and opening at the other within the boiler at about the water-line, and a second pipe communicating at one end with said drum and at the other with the lower part of said boiler, and do not claim such, broadly, as my invention, one feature of which resides in passing the pipe last named, or the return-pipe, through the fire chamber, whereby the circulation of the water is greatly augmented.

I claim as my invention—

1. The combination, with the boiler A and the furnace B, of the mud-drum C, the pipe communicating at one end with said drum and opening at the other within the boiler at about the water-line, and the pipe D, connecting the boiler and drum and passing through the furnace, substantially as and for the purposes set forth.

2. The combination, with the boiler A, the mud-drum C, and the circulating-pipes D E F, connecting said drum and boiler, substantially as described, of the shallow pan G, secured to the open end of the pipe E, substantially as set forth.

ISHAM T. HARDY.

In presence of—

SAML. KNIGHT,
BENJN. A. KNIGHT.