

W. S. SALISBURY.
Steam-Boiler.

No. 226,202.

Patented April 6, 1880.

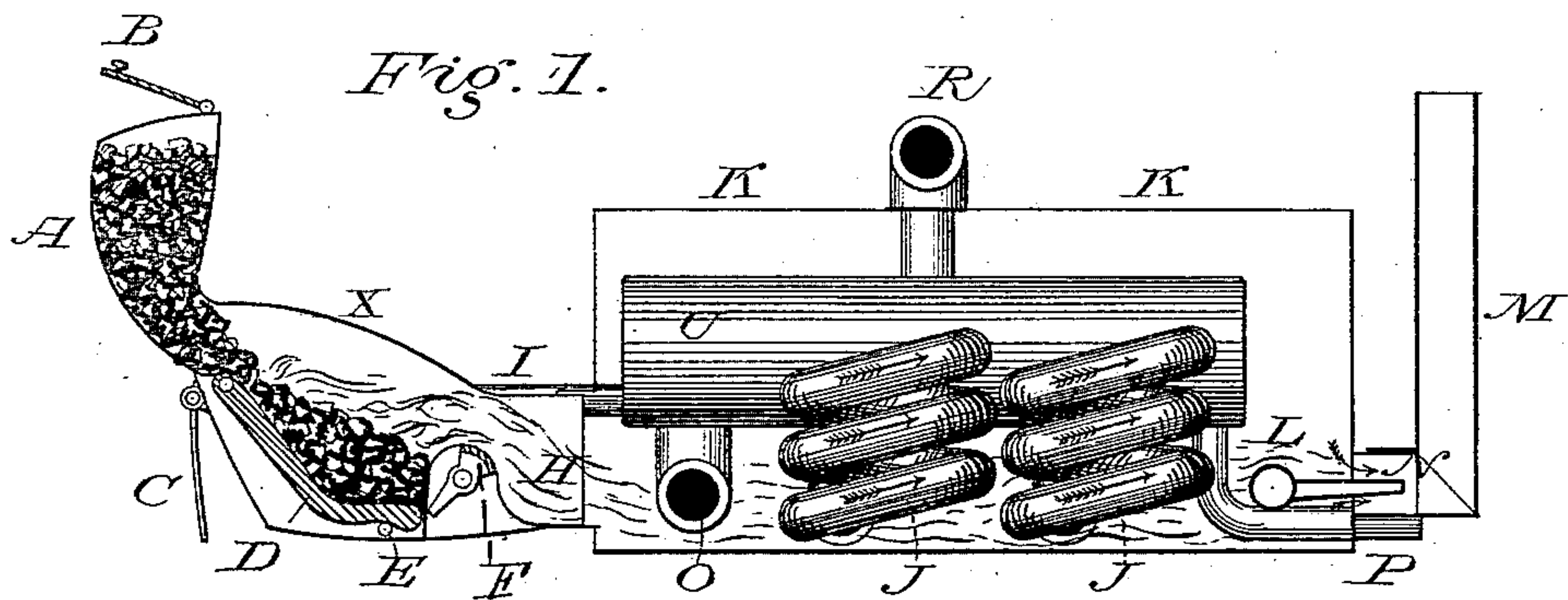


Fig. 3.

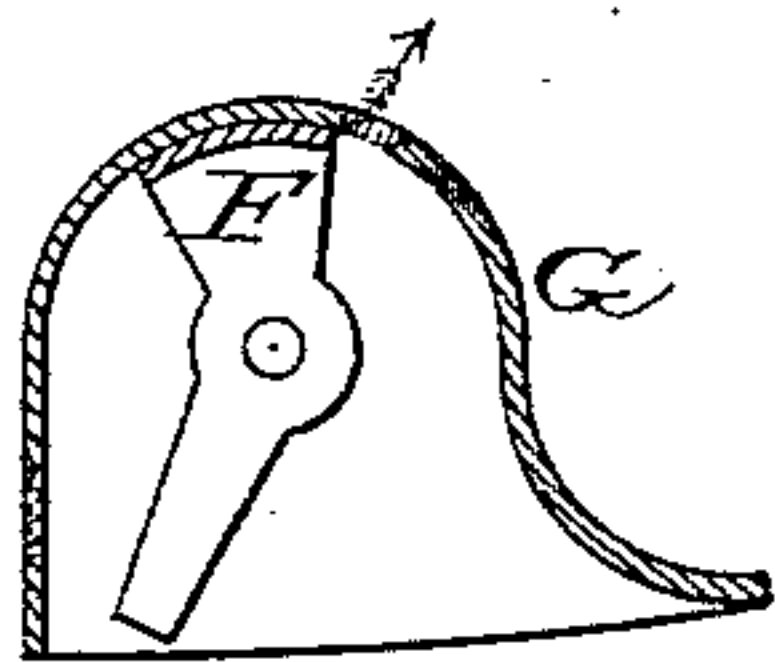
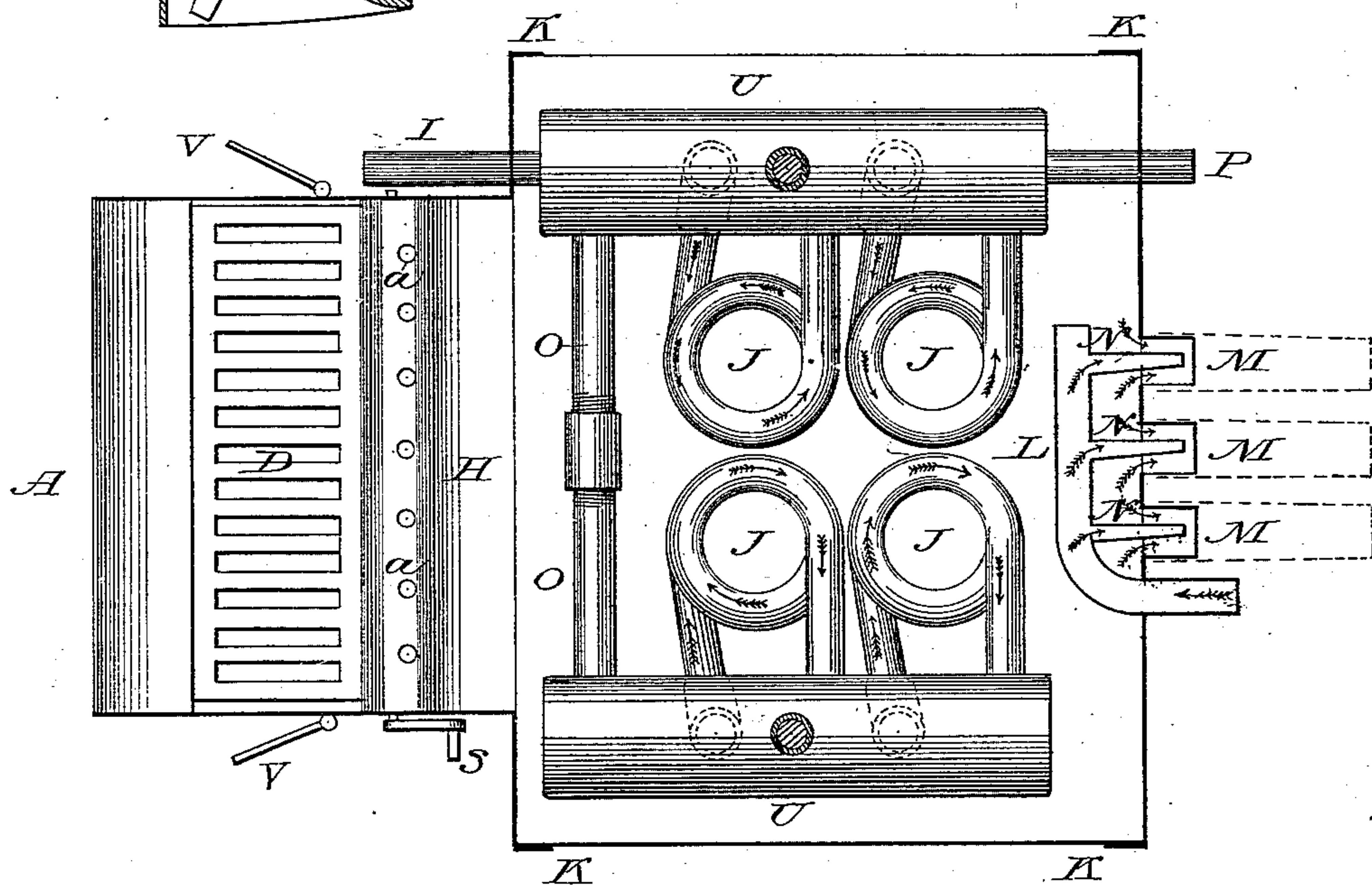


Fig. 2.



Witnesses:

H. M. Birdsall
Geo H. Lucke:

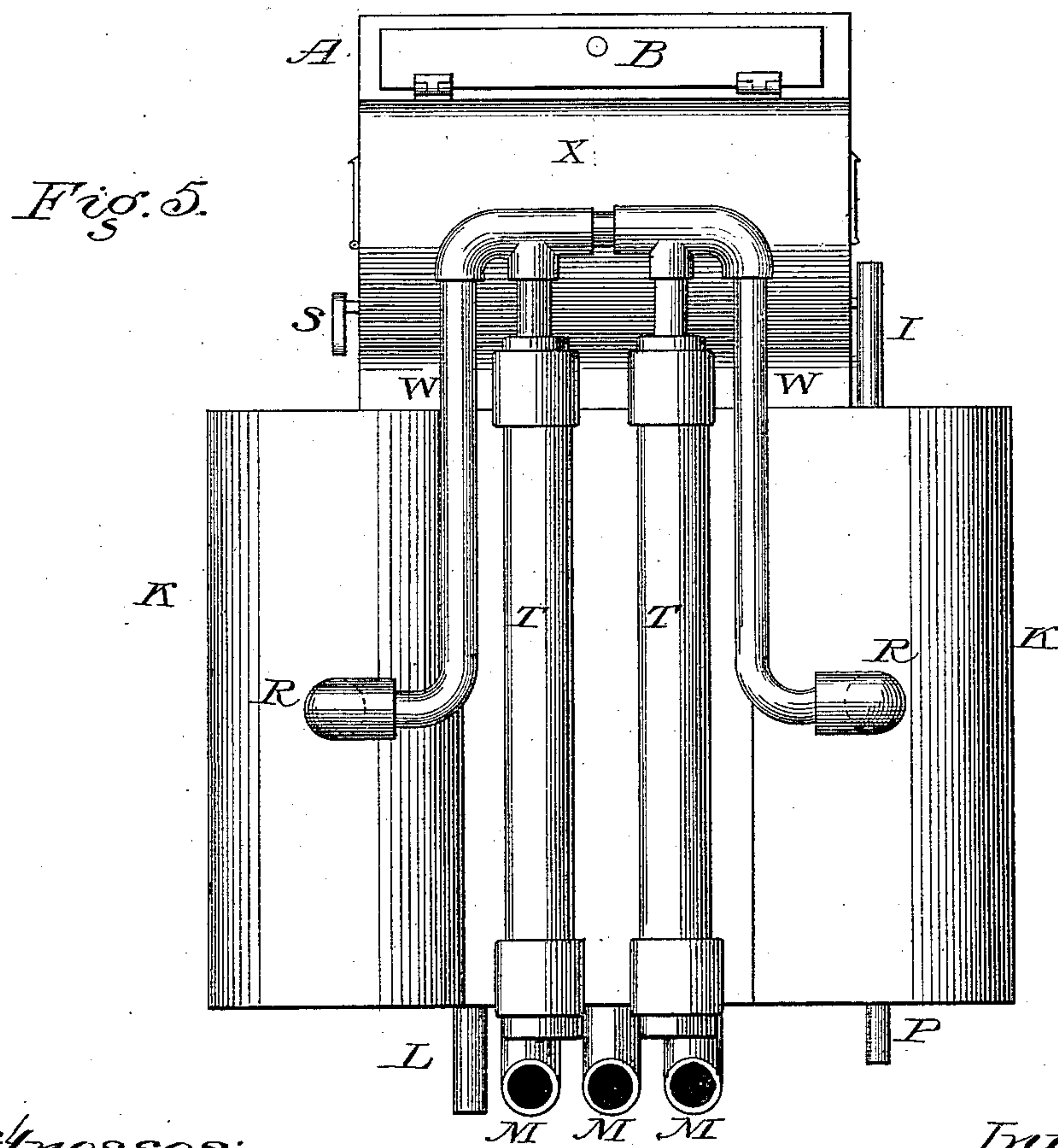
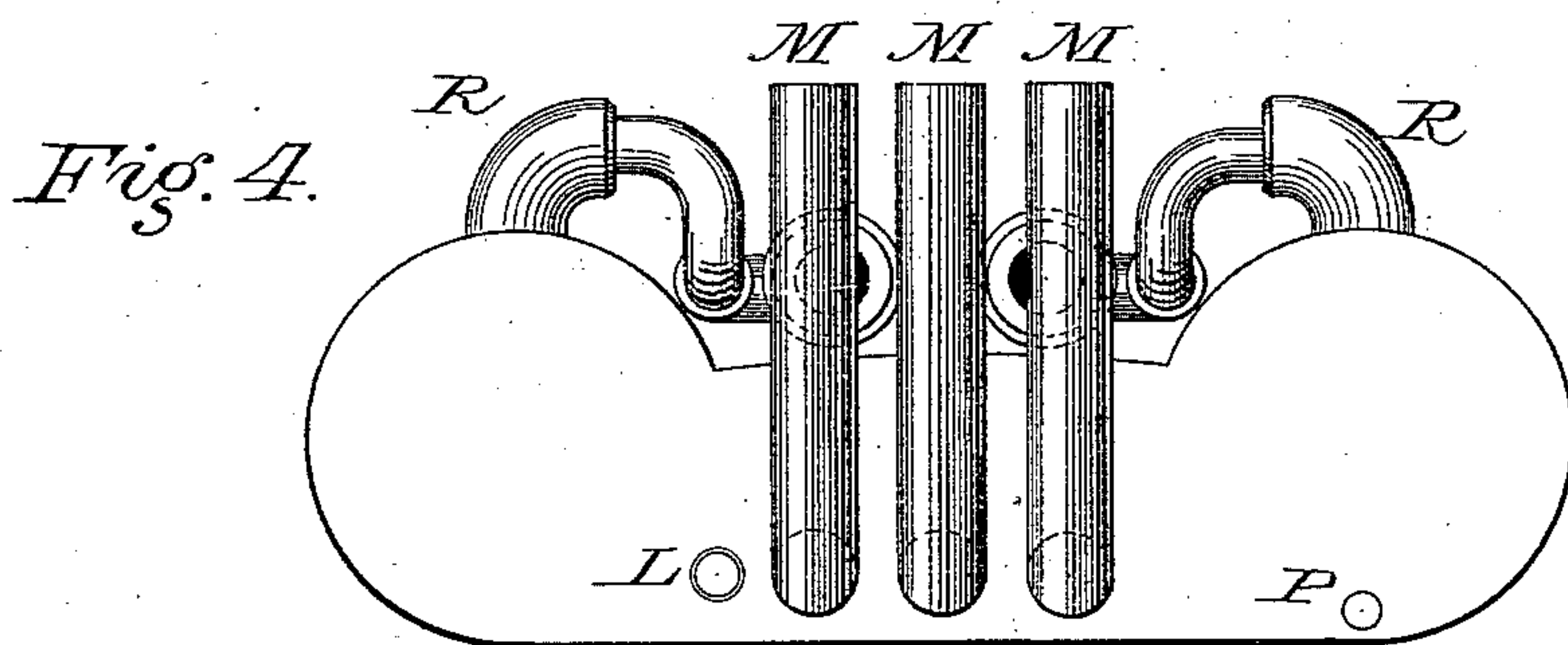
Inventor:

Wilber S. Salisbury

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UNITED STATES PATENT OFFICE.

WILBER S. SALISBURY, OF CHICAGO, ILLINOIS.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 226,202, dated April 6, 1880.

Application filed April 24, 1879.

To all whom it may concern:

Be it known that I, WILBER S. SALISBURY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Steam-Boilers, which improvements are fully set forth in the following specification and accompanying drawings.

This invention relates to certain improvements in horizontal sectional wrought-iron steam-boilers; and the novelty consists in the combination of two or more horizontal water-drums, circulating connecting-pipes, two or more circulating coil-pipes, and one or more dry-pipes, as will be hereinafter more fully set forth, and pointed out in the claim.

The object of the invention is to construct a horizontal boiler in the most economical form where safety, space, and height are desired, also capable of being dissectible for repairs or transportation, and provided with a detachable self-feeding furnace.

Figure 1 is a longitudinal vertical section of the boiler and furnace. Fig. 2 is a longitudinal sectional view taken through the line *xx* of Fig. 1. Fig. 3 is an enlarged transverse sectional view of bridge-wall and damper to furnace. Fig. 4 is a front vertical view of the end of boiler and stack. Fig. 5 is a top horizontal view of boiler, stacks, dry-pipes, and furnace.

In the annexed drawings, A represents the feeder to the furnace X, which is provided with door and cover B on top. The fuel for the furnace is fed through this door.

The furnace is furnished with a grate, D, hinged at its upper end, and a removable rod, E, for the purpose of dumping the grate, and also a hinged front plate for the purpose of protecting the attendant from heat and to aid in the control of the air to the furnace through the grate D.

On each side of the furnace is a door, V, and said furnace is also provided with an arched bridge-wall, G, having a plurality of holes or small openings, *a*, and an exterior damper, F, for closing said openings, as circumstances may require. Thus it will be seen that the operator or engineer has full control of the fire, and is enabled thereby to prevent too intense heat by mixing cold air with the gases

in flue H before they enter the boiler-compartment, thereby lessening the danger of overheating the pipes after the water is nearly all evaporated from the drums U U.

The letter K represents the shell surrounding the interior pipes, drums, and coils forming the boiler. The water-drums U U are provided with one or more circulating-pipes, O O, and circulating-coils J, substantially as shown in Figs. 1 and 2 of the drawings, said coils being so attached to the water-drums U U at the bottoms and sides that a constant circulation is in progress while any water remains in said drums, causing rapid generation of steam.

By this construction I am not limited as to size of water-drums or number of circulating pipes or coils, as I use more pipes and coils with larger and longer water-drums wherever space will permit or the necessity of the case demands.

The pipe P is used for the purpose of filling or charging up and blowing off, and the pipe I for connecting water-glass.

M indicates the smoke-stacks, placed near the bottom of shell. I can extend these stacks longitudinally some distance, (see dotted lines in Fig. 2,) if desired, with good results. Owing to the strong draft produced by exhaust-nozzles N, the products of combustion are drawn through and under the coils and drums; thus, being so evenly distributed, they are nearly all absorbed before passing out through stacks M. Not less than three nozzles and stacks should be used at any time, and four or more where the use of same will permit.

The letters T T represent steam-drying pipes, and are connected, substantially as shown, with the water-drums U U by means of elbows R R and pipes W W. Owing to the form of the shell K, said pipes T are brought close to the furnace and in contact with top of shell, thereby producing superheated steam and more readily preventing priming.

A boiler of this construction having all the parts coupled and fitted with joints admits of removal of portions as they may become worn; also, of removal for scaling of the incrustation; also, of building up of such number of sections as may give the necessary heating surface and

capacity desired; also, the whole boiler, except the upper surface, is exposed to the heat of the furnace.

5 A steam-boiler constructed as herein described can be set up in brick-work without a sheet-iron shell, and a much longer furnace-flue can be used.

10 I make no claim in this application to the self-feeding furnace and to the exhaust-draft nozzles herein described, as they form the subject-matters of separate and distinct applications.

What I claim as my invention is—

A horizontal steam-boiler consisting of the horizontal water-drums, connecting-pipe, circulating coil-pipes, and dry-pipes, substantially as set forth. 15

In testimony that I claim the foregoing as my invention I have hereto signed my name in the presence of two subscribing witnesses.

WILBER S. SALISBURY.

Attest:

H. M. BIRDSALL,
GEO. H. LUCKE.