

H. WEISSENBORN.

Making White Zinc.

No. 33,911.

Patented Dec. 10, 1861.

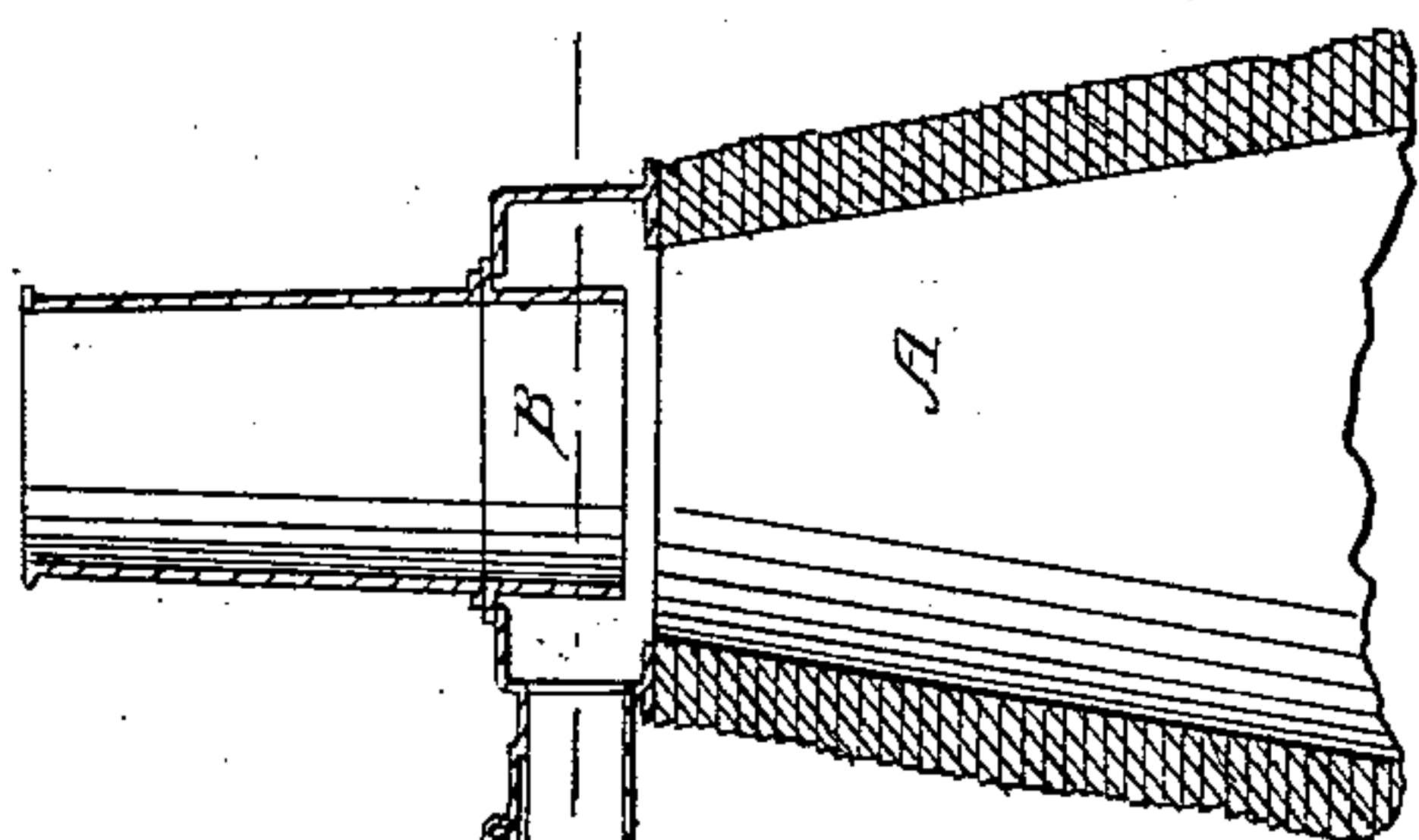
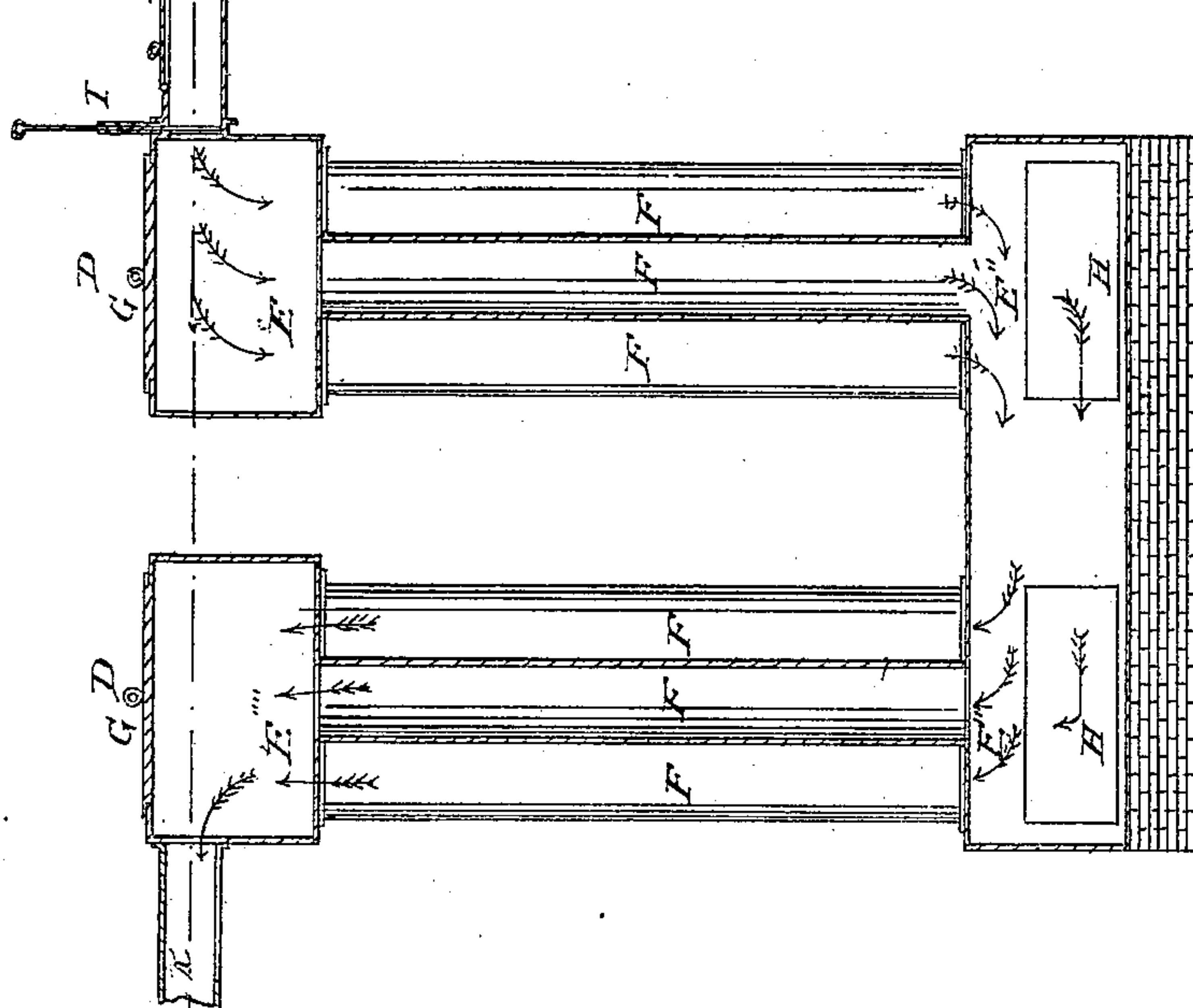


Fig. 1,



WITNESSES
G. Weissenborn
Geo. Hunt

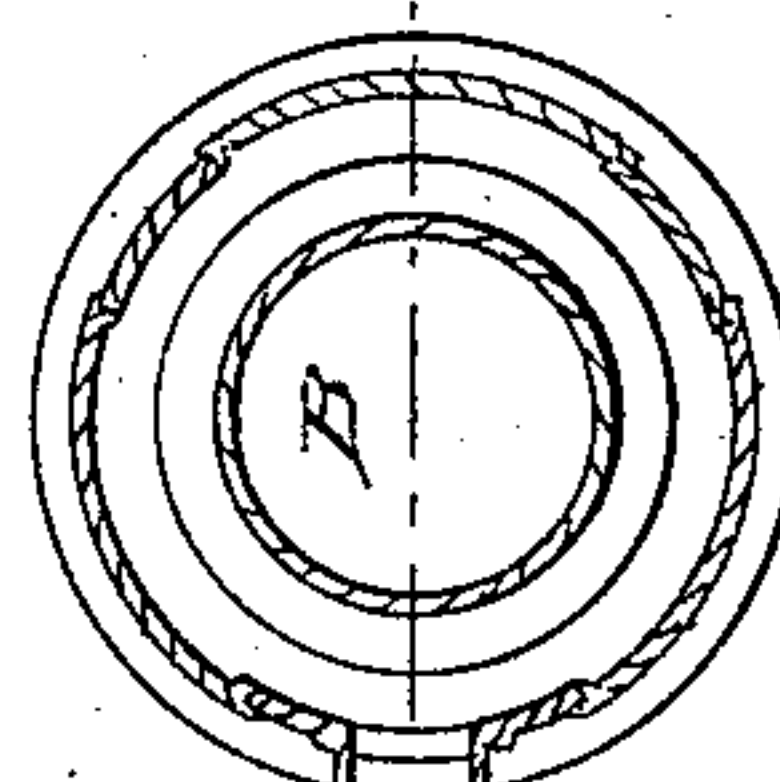
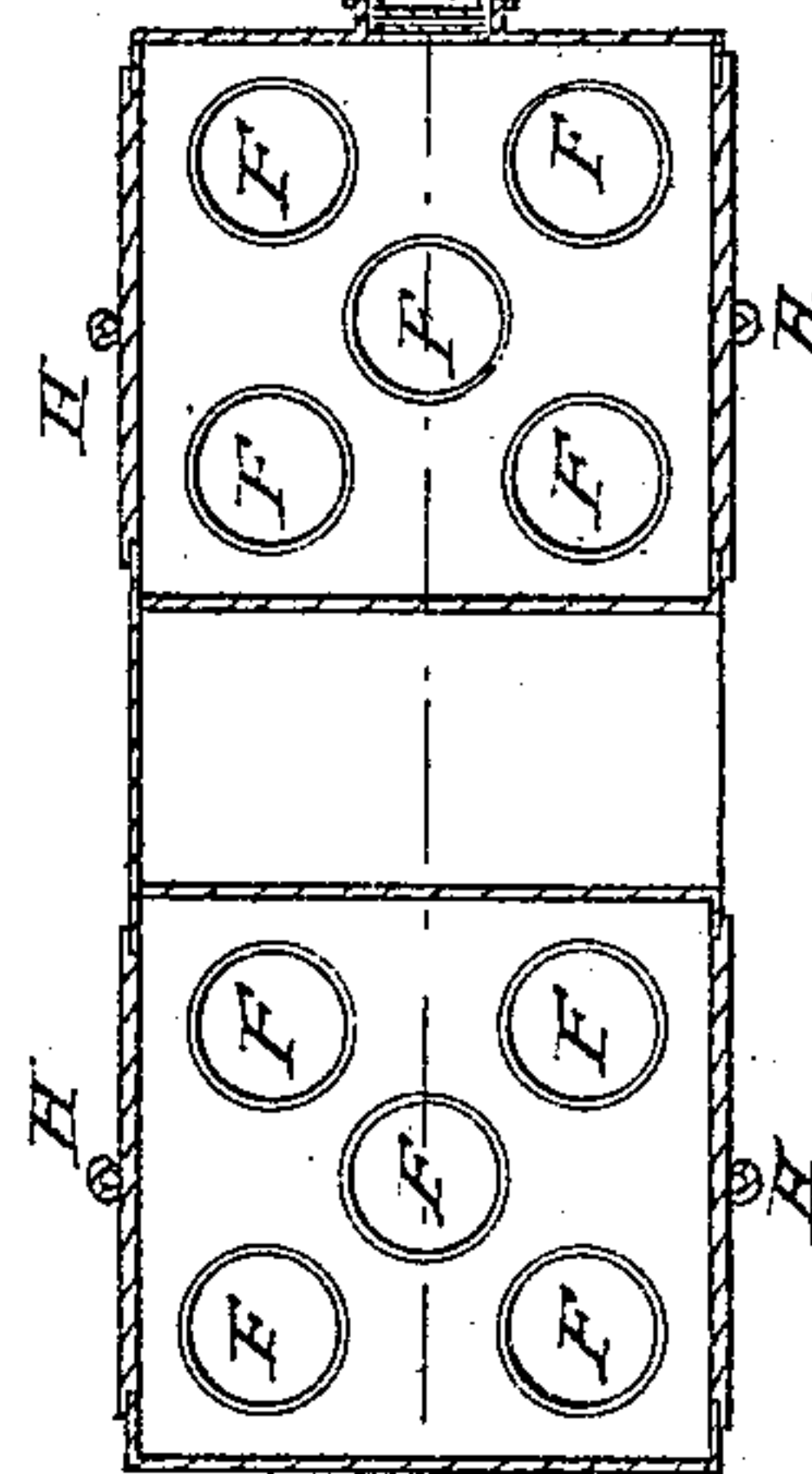


Fig. 3,



INVENTOR:
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UNITED STATES PATENT OFFICE.

HENRY WEISSENBORN, OF NEWARK, NEW JERSEY.

APPARATUS FOR COLLECTING ZINC FROM WASTE GASES OF FURNACES.

Specification forming part of Letters Patent No. 33,911, dated December 10, 1861.

To all whom it may concern:

Be it known that I, HENRY WEISSENBORN, of the city of Newark, in the State of New Jersey, have invented a new and useful apparatus by which the waste gases from zinc ore are deposited by condensation through the influence of the atmosphere or any other suitable means of condensation, such as water, &c.; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section of the upper part of a blast-furnace, A. C is a conducting pipe for the waste gases from zinc ore; and D D, the apparatus in which the vapors of zinc ore are condensed and deposited through the cooling effect of the atmosphere, &c. Fig. 2 is a ground plan.

In order to accomplish my purpose I collect the waste gases from a blast-furnace or any other furnace in which zinc ores are smelted in the manner as patented by me February 3, 1857, and then conduct said waste gases through the pipe C to the upper apartment of the apparatus D. The gases in the apartment E' descend in the pipes F F F F F to the lower apartment, (marked E'' and E'''), and again ascend in the pipes F' F' F' F' F' to the upper apartment, E''', of the apparatus D. From this apartment E''' the gases are conducted through the pipe K to steam-boilers, puddling, welding, or hot-blast furnaces for combustion. Suitable covers, L, are arranged on the top surface of the pipe C, on the top apartment, E' and E''', (marked G G,) and also two covers are arranged (marked H H) to the side of the lower apartment, E'' and E''', for the purpose of having access to the interior of the apparatus for the removal of the mixture of zinc and its oxide which has deposited in the apartments E', E'', E''', and E''', and in the pipes F F F F F and F' F' F' F' F'. A damper-plate, I, is applied on the end of the conducting pipe C, where the pipe is secured to the apparatus D for the purpose to regulate the quantity of gas required for the steam-boilers, hot-blast, puddling, or welding furnaces.

To enable others to use my invention, I will describe its operation.

As will be seen in plan A, Fig. 1, A is the top of a blast-furnace or furnace-throat. On the top of the blast-furnace throat is a cast-iron cylindrical vessel, B, surrounded by a gas-chamber, B'. When the furnace A and the cylindrical vessel B is filled with ore and coal, the gases are prevented from escaping through the cylinder B by the dense body of ore and coal, and therefore the gases collect in the surrounding chamber B', and are conducted, as heretofore described, through the pipe C to the apparatus D D. The gases, in passing through the pipe C and apparatus D D, deposits a mixture of zinc and its oxide, and is removed by striking with a hammer on the sides of the apartments E', E'', E''', and E''', whereby the mixture of zinc and its oxide fall to the bottom of the lower apartment, E'' and E''', and is removed by the holes H H. The covers L L upon the top of the pipe C are very frequently removed for the purpose of removing the mixture of zinc and its oxide which has deposited on the interior of the pipes. Two other covers, G G, are to be removed whenever the apartments E' and E''' of the apparatus are to be cleaned.

The nature of my invention consists in the application of suitable apparatuses applied to the conducting-pipes for the waste gases between the blast-furnace or any other furnace and steam-boilers, hot-blast, welding, and puddling furnaces, whereby the gases or vapors of zinc ore which is in combination with iron deposit the mixture of zinc and its oxide in the said apparatus, thereby gaining a great quantity of zinc which would otherwise have been wasted.

Having thus fully described the operation and nature of my invention, I therefore claim as new and desire to secure by Letters Patent—

Separating zinc through an apparatus from the waste gases while conducted from the top of a blast-furnace to steam-boilers or hot-blast oven in the manner substantially as set forth.

HENRY WEISSENBORN.

Witnesses:

G. WEISSENBORN,
JACOB RADY.