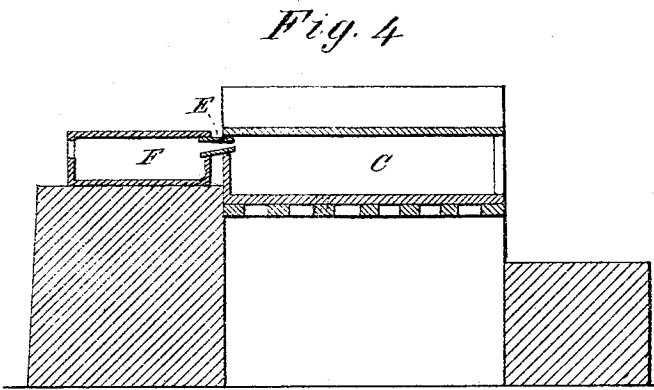
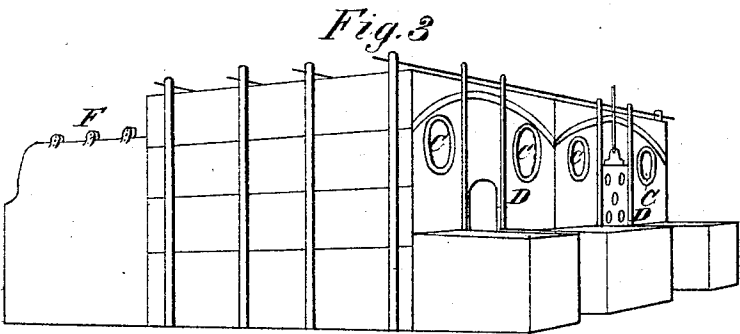
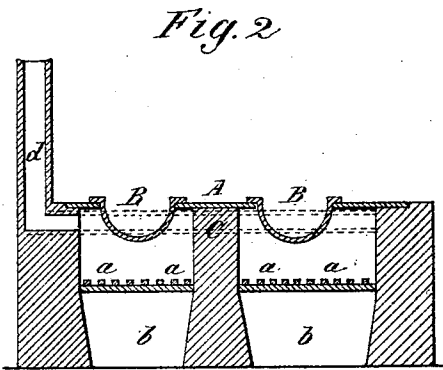
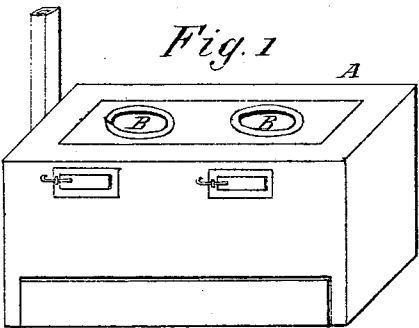


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Zinc from Dross in Galvanizing Iron.

No. 123,461.

Patented Feb. 6, 1872.



Witnesses

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Fig. 5

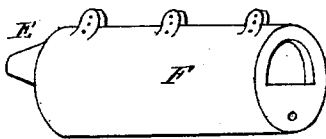


Fig. 7



Fig. 6

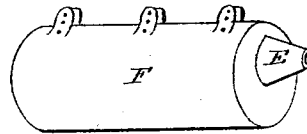


Fig. 10

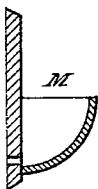


Fig. 8

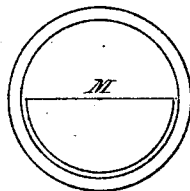


Fig. 9

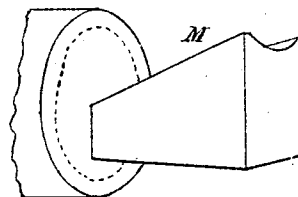
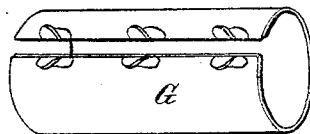


Fig. 11



Witnesses

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UNITED STATES PATENT OFFICE.

LÉONCE DE METZ, OF ELIZABETH, NEW JERSEY.

IMPROVEMENT IN THE MANUFACTURE OF ZINC FROM THE DROSS IN GALVANIZING IRON.

Specification forming part of Letters Patent No. 123,461, dated February 6, 1872; antedated February 3, 1872.

I, LÉONCE DEMETZ, of the city of Elizabeth, in the county of Union and State of New Jersey, have invented an Improved Process for Utilizing the Dross Proceeding from the Galvanizing of Iron, of which the following is a specification:

Nature and Objects of the Invention.

The dross or refuse of zinc left after the iron has been galvanized is generally put up in slabs while yet hot, these slabs running in weight from eighty to one hundred and fifty pounds. My invention has for its object the utilization of this dross by producing therefrom extremely fine and highly merchantable zinc, which end is gained by a process of smelting and distillation by means of a combination of smelting-furnaces, retorts, condensers, &c.

Description of the Accompanying Drawing.

Figure 1 is a smelting-furnace in perspective. Fig. 2 is a vertical section of the same. Fig. 3 is a double-retort furnace with condensers at the back. Fig. 4 is a vertical section, showing the position of the retort in the retort-furnace, and also the position of the condenser and its connection with the retort by means of the bevel-pipe. Figs. 5 and 6 are different views of the condenser with bevel-pipe attached. Fig. 7 is a bevel-pipe detached. Figs. 8 and 9 are different forms of mouth-pieces to be used in filling retorts with the molten liquid from the smelting-furnace. Fig. 10 is a vertical section of the mouth-piece shown in Fig. 8. Fig. 11 is the iron jacket which surrounds the condenser.

General Description.

In Figs. 1 and 2, A is the smelting-furnace, with the grate-bars *a*, ash-pit *b*, and kettles B B, in which the dross is liquefied by subjecting it to a heat of about 800° Fahrenheit. *c*, Fig. 2, is a flue by which the unconsumed products of combustion are conveyed from the fires to the chimney *d*. When the dross is entirely liquid or fluid, it is conveyed, by means of iron ladles or crucibles, to the retort C, into which it is poured by means of the mouth-piece, different forms of which are shown in Figs. 8, 9, and 10. By the use of the mouth-piece the filling of the retorts is effected with-

out opening them or exposing their contents to the air, thereby enabling me to maintain a uniform temperature in the retorts and make the distillation continuous for three or four days, or until such time as it is judged necessary to clean the retort from impurities left behind by the distillation. This distillation is effected under a well-regulated and sustained heat of 2000° to 2500° Fahrenheit, called "white heat," and without any admixture of coal whatever in the retort, which, lying flat in the furnace D, is immediately connected with the bevel-pipe E, connecting in its turn with the condenser F, as shown in Fig. 4. The condenser and recipient F is about three feet long, ten inches in diameter, with walls about two inches in thickness. It is incased in an iron jacket to protect it and preserve a uniform temperature. The preservation of a uniform temperature somewhat above that of the surrounding atmosphere is necessary to prevent solidification of the metal in the condensers and to prevent the condensers from the cracking, which would necessarily result were the inner and outer surfaces subjected to a wide difference of temperature. This uniformity of temperature is secured by means of the iron jacket. The condenser, lying on a slight inclination, allows the fluid to be drawn from it every two or three hours, when the metal is cast into slabs or ingots ready for market.

Claims.

I claim as my invention—

1. The process of utilizing the dross proceeding from the galvanizing of iron by means of the smelting-furnace A, mouth-piece M, retort C, retort-furnace D, bevel-pipe E, and condenser F, substantially as described in the specification.
2. The mouth-piece M, as described and for the purpose specified.
3. The condenser F.
4. The form of the pipe E used to connect the retort with the condenser, being beveled, as hereinbefore set forth.
5. The iron jacket G with which the condenser is surrounded.

Witnesses:

LÉONCE DEMETZ.

WM. S. DAVENPORT,

E. C. HINMAN.