

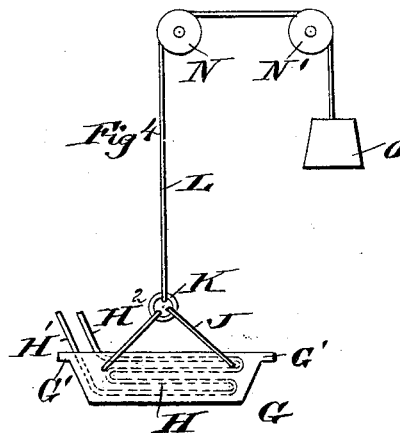
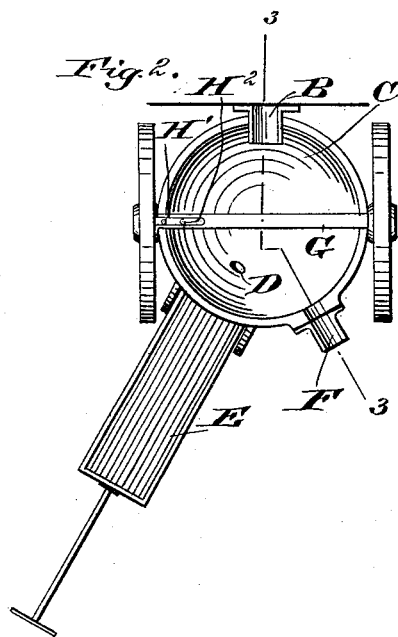
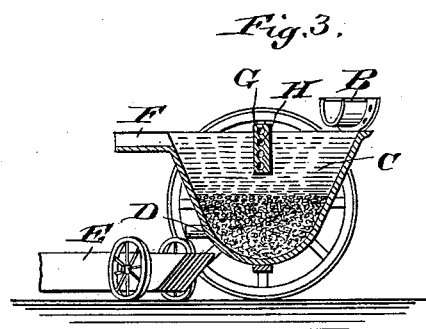
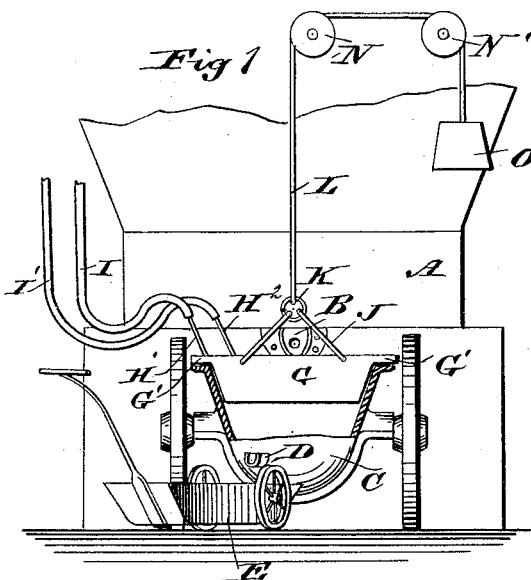
(No Model.)

W. H. HOWARD.

APPARATUS FOR SEPARATING MATTE FROM SLAG.

No. 489,307.

Patented Jan. 3, 1893.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM H. HOWARD, OF PUEBLO, COLORADO.

## APPARATUS FOR SEPARATING MATTE FROM SLAG.

SPECIFICATION forming part of Letters Patent No. 489,307, dated January 3, 1893.

Application filed July 14, 1892. Serial No. 440,045. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY HOWARD, a subject of the Queen of Great Britain, at present residing at Pueblo, in the county of Pueblo and State of Colorado, have invented a new and Improved Apparatus for Separating Matte from Slag, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved apparatus for conveniently separating matte from slag in lead and copper smelting, at the same time deadening the flow of the matte and slag from the furnace to the settler.

The invention consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front view of the improvement as applied and with parts in section; Fig. 2 is a plan view of the apparatus; Fig. 3 is a transverse section of the same on the line 3—3 of Fig. 2; and Fig. 4 is a side elevation of the partition and its support.

The furnace A, of any approved construction is provided with the usual outlet spout B, adapted to discharge the matte and slag into a settler C, preferably mounted on wheels so as to be conveniently moved to and from the furnace to receive the charge. The settler C is in the shape of an open pot and is provided on its front with a spout D, for carrying off the matte settling in the bottom of the settler C, the said spout discharging in the usual mold E, also preferably mounted on wheels.

On the edge of the settler C and extending to the front is an outlet spout F, for carrying off the slag which separates in the settler from the matte. In order to conveniently separate the slag, a partition G is employed adapted to be supported in the settler and arranged to be lifted off the same whenever the settler is moved away from the furnace for cooling and other purposes. This partition G is provided at its ends with flanges G' adapted to rest on the flanges of the settler C, as will be

readily understood by reference to Fig. 1, the said partition extending a suitable distance into the settler, and being arranged across the flow of the matte and slag passing over the spout B into the settler, so that the rear side of the partition receives the flow which is thus deadened before passing into the settler C.

The partition G is made hollow and contains a water pipe H, the ends H' and H<sup>2</sup> of which extend outwardly and are connected with a flexible inlet pipe I and a flexible outlet pipe I', of which the pipe I is connected with a suitable source of water supply and the pipe I' leads to a discharge. The partition G is provided with links J, connected with a ring K, held on the lower end of a cable or chain L, passing over pulleys N and N', journaled in a suitable support erected in front of the furnace. A weight O, is suspended from the other end of the cable so as to counterbalance the partition G. By this device the partition G can be readily inserted in the top of the settler C, or removed therefrom by pulling on the weight O. When not in use, the partition G is suspended in front of the furnace but out of the way of the workmen.

The device is used as follows: The settler C is wheeled to the front of the furnace, and then the partition G is let down and seated in the settler C, as described, so that the back of the partition extends across the flow of the matte and slag passing from the spout B after the furnace is tapped. The matte and slag are deflected downward into the settler C after striking the partition so that the matte readily settles in the bottom of the settler, while the slag flows to the other side of the partition and is discharged over the tapped outlet spout F. When sufficient matte has accumulated in the settler, the spout D is tapped in the usual manner to permit the matte to flow into the mold E held below the said spout as shown in the drawings. As the settler C cannot withstand the constant corrosive action of the matte for any length of time without serious injury to the settler, it is necessary to remove the settler and use another one in place for the time being. Now, in order to conveniently transfer the partition G from the first settler, the partition is raised as above

described, the settler is removed and a new one inserted in place and then the partition is again lowered into the second settler, and the above described operation is repeated for  
5 separating the matte from the slag. When the material in the removed settler has cooled sufficiently to permit of conveniently dumping the material and the latter has been accomplished, then the inside of the settler is  
10 coated again with clay wash in the usual manner so as to be ready for further use in the manner above described.

I am aware that fixed water cooled plates have been used in connection with fixed pots  
15 or settlers, but such I do not claim, as such arrangement is found to be impracticable owing to the formation of crust on the inside of the pot, as that will render it impossible to tap the matte conveniently.

20 Having thus fully described my invention,

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

1. The combination, with the settler, of the vertically movable partition, the water pipe arranged within it, the flexible inlet and out-  
25 let pipes connected with the partition pipe, and the cable, pulley, and counterbalance, all arranged as shown and described.

2. An apparatus for separating matte from slag, comprising a settler a water-cooled partition formed with flanges adapted to be seated  
30 on the edge of the settler, and means, substantially as described, for supporting, counterbalancing, and raising and lowering the said jacket, substantially as shown and described. 35

WILLIAM H. HOWARD.

Witnesses:

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