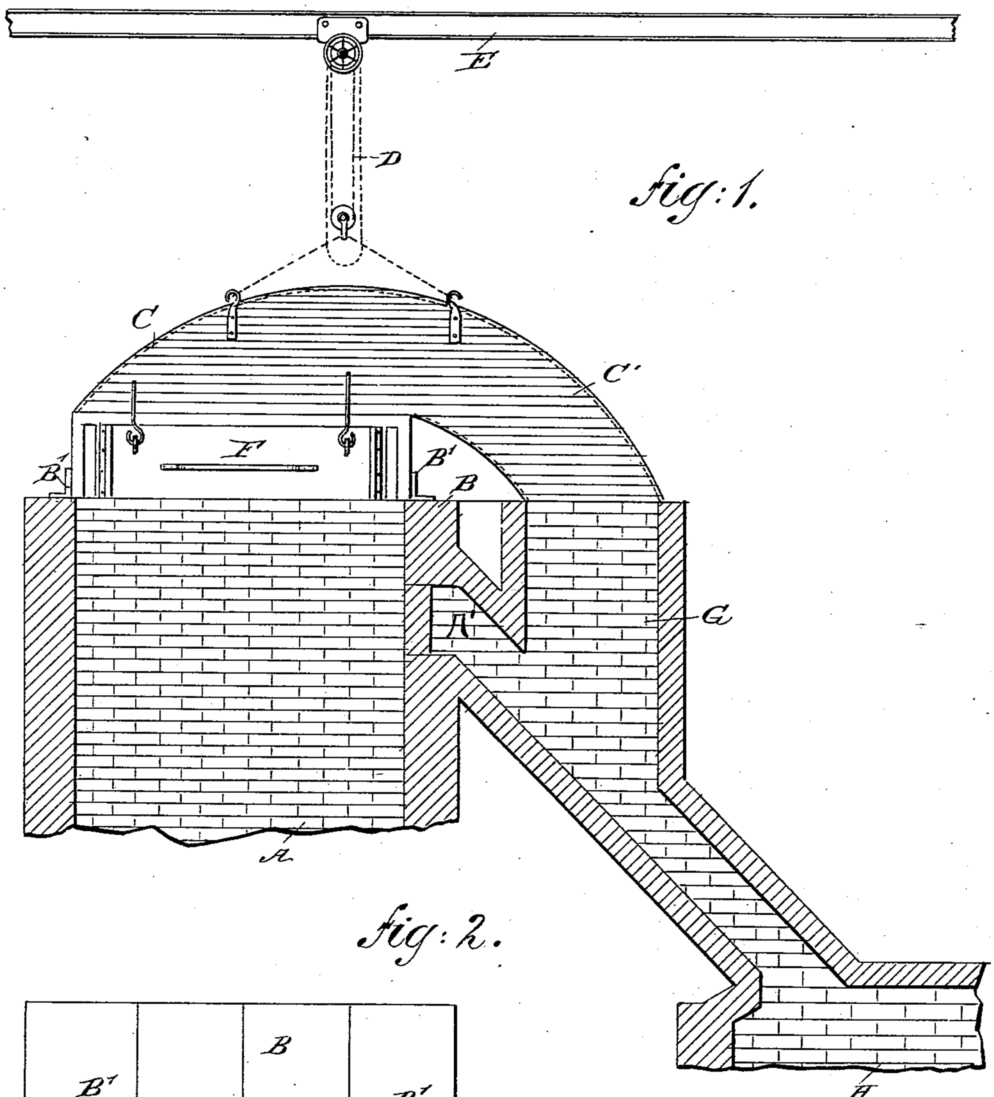
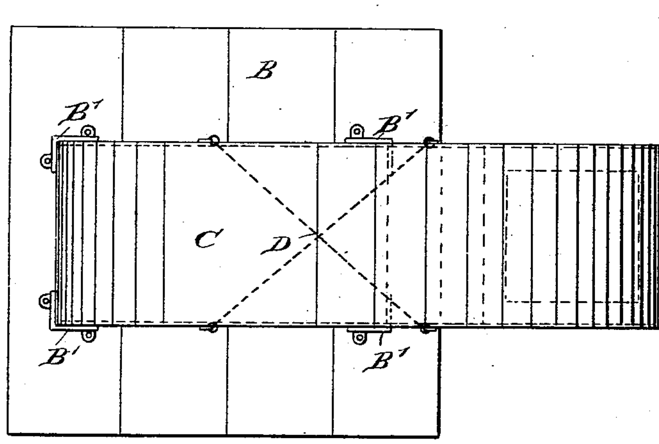
(No Model.)

H. HUBER.

SMELTING FURNACE.

No. 572,011. Patented Nov. 24, 1896.





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SMELTING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 572,011, dated November 24, 1896.

Application filed June 22, 1895. Serial No. 553,669. (No model.)

To all whom it may concern:

Be it known that I, HERMAN HUBER, of Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Smelting-Furnaces, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in smelting or stack furnaces whereby less draft is required when working the furnaces and the gases from the latter are caused to rise uniformly and in passing to the downtake-flue meet with comparatively little resistance, so that the loss of precious metals in the fumes and flue-dust is reduced to a minimum.

The invention consists principally of a removable hood adapted to be set on the top of the stack and provided with a flue for connecting with the downtake-flue separate from the stack.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, 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 characters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional side elevation of the improvement, and Fig. 2 is a plan view of the same.

The smelting-furnace is provided with the usual stack A, having the usual outlet-opening A′ closed, and the stack is formed at its upper end with the charging-floor B and adapted to be closed by a hood C, made of sheet metal or other suitable material and hung on a tackle D, mounted to travel on a suitable overhead beam E, so that the hood C can be raised and lowered to one side whenever it is desired to give access to the stack in the process of barring down—that is, removing accretions from the walls of the stack.

On the charging-floor B are arranged angular sockets B′, adapted to form seats for the corners of the hood C to fit the latter snugly in place over the upper end of the stack A. The hood C is provided with a counterbalanced door F, mounted to slide vertically in suitable guideways arranged on the side of the said hood. The curved top of the hood is provided with a downwardly-extending flue C′, opening with its lower end into the top of a downtake-flue G, built on the stack A and leading to a dust-chamber H of usual construction.

Now it will be seen that by the arrangement described the gases rising above the charge in the stack A readily pass into the hood C and from the latter are deflected into the flue C′ to pass through the downtake-flue G into the dust-chamber H without encountering much resistance, so that the furnace can be worked with considerable less draft than those heretofore used and without causing the furnace to smoke on reduction of the draft.

It will further be seen that the gases from the top of the charge in the stack A can rise conveniently into the hood C to be deflected into the flue C′, so that the loss of precious metals contained in the fumes and flue-dust is reduced to a minimum. A more regular and uniform discharge of the products of combustion is thus provided and irregular heating of the charge avoided, and consequently less fuel is required with better results in the smelting process.

It will further be seen that by applying the hood to existing furnaces a large increase in available space in the upper end of the furnace is obtained, and this space can be utilized in the preparation of the charge and has the same effect as increasing the height of the stack. Furthermore, this additional advantage could only be secured otherwise by extending upward the shaft of the furnace and raising the feed-floor accordingly, or by extending the shaft of the furnace above the feed-floor and connecting this superstructure with the flue by means of a long downtake. In the latter case the hot gases would have to be drawn into the dust-chambers or flue by a long downtake and increased draft capacity would be required for this purpose, besides the feed-floor would be considerably obstructed and heated by the large superstructure.

By the device described the feed-floor is not obstructed, and the comparatively low hood takes up little room and does not interfere with the draft of the furnace.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A smelting-furnace, comprising a stack, a dust-chamber separate from the stack, a downtake-flue communicating with the dust-chamber and extending upwardly and inwardly toward the stack and connected thereto, the downtake-flue extending farther upwardly parallel with the stack and having its upper end level with the mouth of the same, a hood embracing the mouth of the stack, and a flue communicating with the hood and projecting outwardly and downwardly, said flue being in communication with the upper end of the downtake, substantially as described.

2. A smelting-furnace comprising a stack having an open upper end or mouth and an outlet-opening in its side, a dust-chamber, a downtake-flue communicating with the dust-chamber and extending up and having communication with said outlet-opening of the stack, the downtake-flue also having an open upper end adjacent to the upper end of the stack, and means for connecting the mouth of the stack with the upper end of the downtake-flue, substantially as described.

3. A smelting-furnace comprising a stack having an open upper end or mouth, a downtake-flue having an open upper end adjacent to the mouth of the stack, angular sockets fixed to the mouth of the stack, a hood having a form at its base conforming to the disposition of the sockets and removably held by the same, and a flue extending from the top of the hood and communicating therewith, the said flue being in communication with the downtake-flue, substantially as described.

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