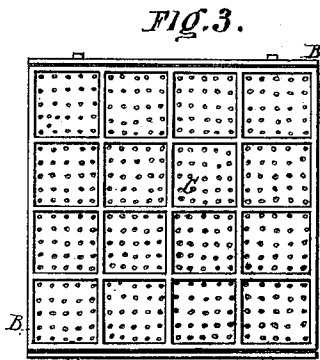
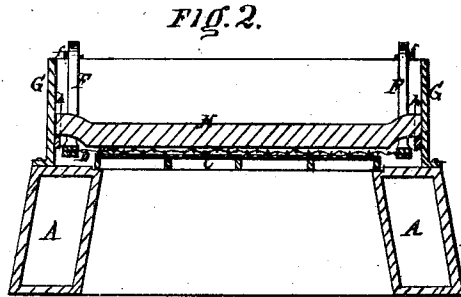
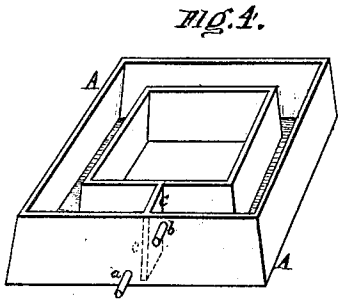
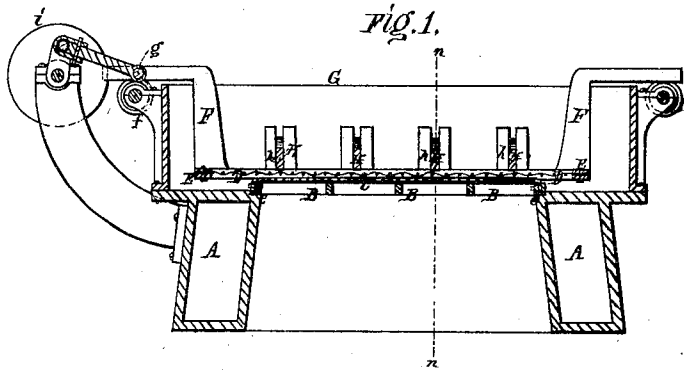


C. Steefeldt,

Shaft Furnace.

No. 100,337.

Patented Mar. 1. 1870.



Witnesses
George E. Buckley
Wm. R. Wright

Inventor: Charles Steefeldt.

United States Patent Office.

CHARLES STETEFELDT, OF AUSTIN, NEVADA.

Letters Patent No. 100,337, dated March 1, 1870.

IMPROVED MACHINE FOR FEEDING ORES INTO SHAFT ROASTING-FURNACES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES STETEFELDT, of Austin, in the county of Lander, and State of Nevada, have invented a new and improved Machine for Feeding Ores into Shaft Roasting-Furnaces; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use my invention, reference being had to the accompanying drawings which form a part of this specification, and in which—

Figure 1 is a longitudinal, and

Figure 2 a transverse section of my improved feeding machine, taken on the line *n n*, fig. 1.

Figure 3 is a plan view of the punched screen, and

Figure 4 is a perspective view of the water-box.

The same parts are denoted by the same letters in both the figures.

My invention is designed to be employed in connection with a shaft furnace in which ore is roasted or treated by dropping it in a finely pulverized state down the shaft.

A A represent a hollow water-box of cast-iron or other suitable material, the space between whose sides is kept constantly filled with water, which is forced in through the lower pipe *a*, and flows out through the upper pipe *b*. Between the two pipes there is a partition, as shown at *c*. This box is made with a shoulder, as shown at *e*, to receive the frame or grating B of the punched screen C. This screen may be made of any suitable material and degree of fineness. I prefer to make it of the fineness known as No. 0, made of Russia iron, or copper, or of steel, and used in wet crushing.

D D is an upper screen of coarse wire, which I prefer to make of iron or copper, or of steel, and of the fineness known in the trade as No. 3. The screen, however, may be made of any other suitable material and degree of fineness. This screen is fastened in the frame E, from each corner of which projects an arm, F, resting on the friction-roller *f*, so that the wire screen is suspended on the friction-rollers by means of the four arms F F F F, and at such a height as almost to touch the punched screen.

Two of the arms F F are connected by a rod, *g*, and a reciprocating movement is imparted to the frame of

the wire screen by means of the crank and pitman, as shown, or by any other suitable devices.

The screens C and D are inclosed within a hopper, G, on the sides of which are bearings *h h*, for the cross-bars H H. These bars are almost in contact with the top of the wire screen.

The operation is as follows:

The pulp from the dry-crushing battery is introduced into the hopper, and falls on the coarse wire screen, to which a rather slow reciprocating motion is imparted. I have found it best to give the driving pulley *i* a speed of from thirty to seventy revolutions per minute. The movement of this screen carries the pulp against the bars, by which it is held so as to be cut by the wires of the screen, and the wire screen being pressed down by the weight of the pulp upon it so as to be in contact with the punched screen, forces the pulp through the holes in the latter, whence it falls down the shaft. During this operation the heating and warping of the screens and other metal parts are prevented by the constant circulation of cold water through the water-box, the cold water being forced through the lower pipe, and the heated water escaping through the upper.

I make the lower screen punched instead of constructing it of wire, because it is necessary, in order to force the pulp through it, that it should be in contact with the upper screen. The lower screen, therefore, must not sag under the weight of the pulp, which a wire screen will always do.

The screens are readily detachable, so that either may be at once replaced.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the punched screen, the wire screen moving close to it, and the bars.
2. The combination of the bars, wire screen, and punched screen, with the water-box, all operating as described.
3. The combination of the bars and wire screen, operating as described.

CHARLES STETEFELDT.

Witnesses:

WM. J. BURNS,
WM. R. WRIGHT.