E. V. STANDISH.

Ore-Feeder for Shaft-Furnaces.

No. 134,494. Patented Dec. 31, 1872.

Fig. 1.

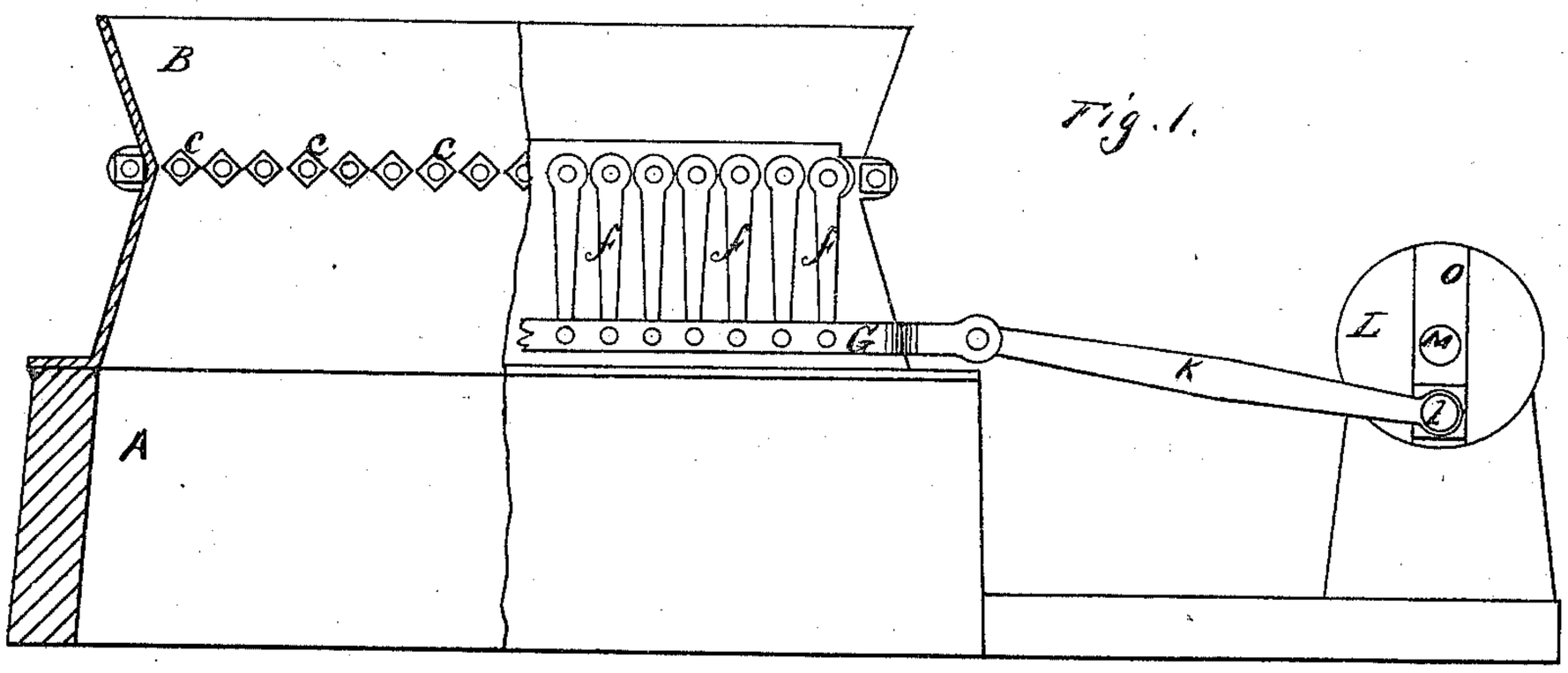
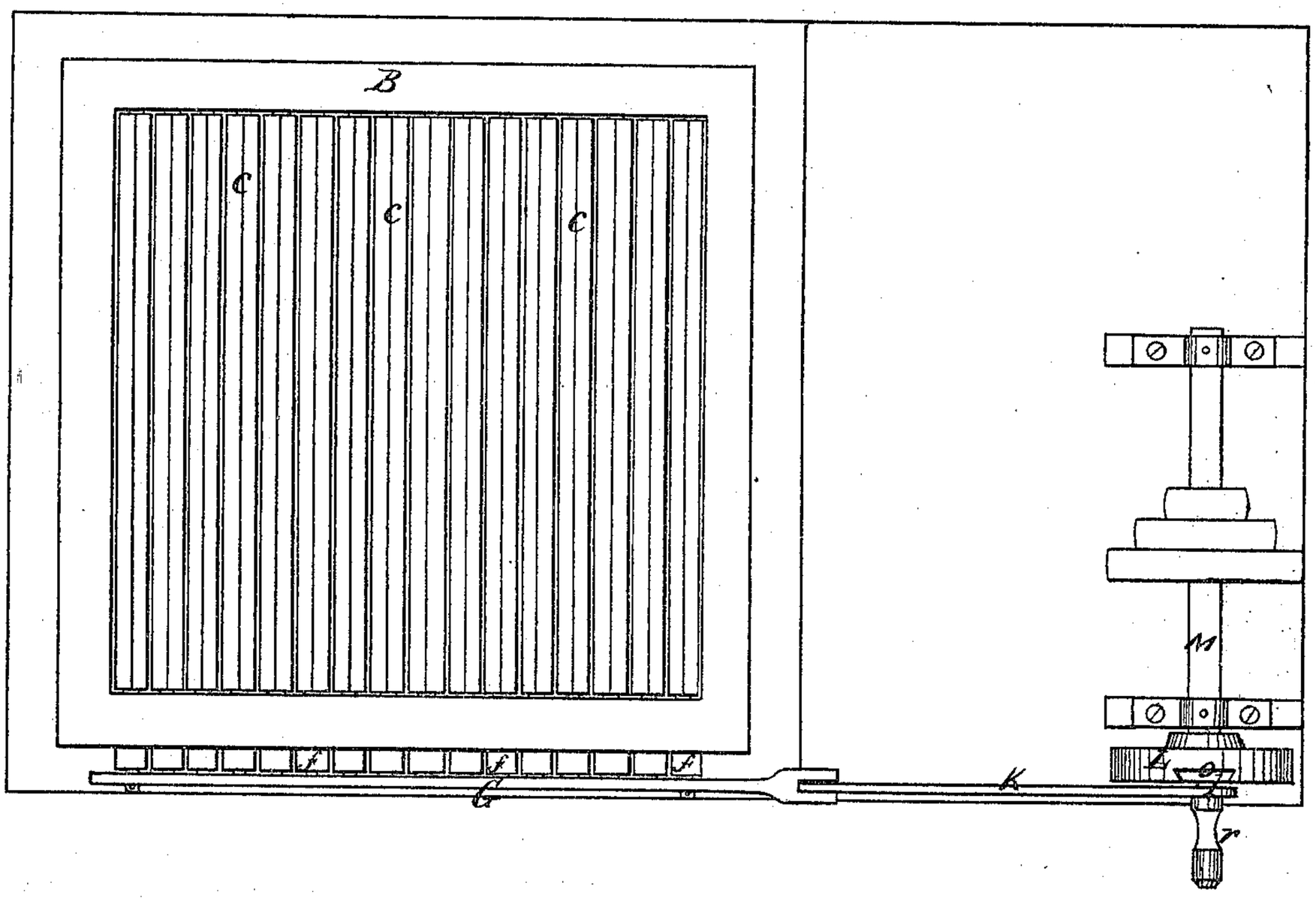


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

EDWARD VANCE STANDISH, OF BELMONT, NEVADA.

IMPROVEMENT IN ORE-FEEDERS FOR SHAFT-FURNACES.

Specification forming part of Letters Patent No. 134,494, dated December 31, 1872.

To all whom it may concern:

Be it known that I, EDWARD V. STANDISH, of Belmont, Nye county, State of Nevada, have invented an Improved Ore-Feeder; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to an improved device for feeding pulverized ore and salt into that class of roasting-furnaces which are known as upright or stack furnaces.

In this class of furnaces the ore is first finely pulverized, and then dropped down through the furnace-stack with a certain proportion of salt, so that in its passage through the heat and flames the ore is roasted and chloridized. This process of mixing and feeding the ore and salt into the top of the furnace requires to be accomplished regularly and thoroughly; and in order to do this my invention is intended.

The following description particularly describes my ore-feeding apparatus, its construction and operation, reference being made therein to the drawing accompanying this specification, in which—

Figure 1 is a side elevation showing a section of one part of my device, and Fig. 2 is a plan view.

Let A represent the top or upper end of a stack-furnace. Upon this stack I construct a shallow hopper, B, the opening through the bottom of which is almost if not quite as large as the upper end of the stack. The capacity and shape of this hopper can be varied to suit the different furnaces upon which it may be placed. The bottom of the hopper I construct of a number of square metal bars, *c c c*, placed parallel with each other, and supported in place by means of journals at each end, which bear in the opposite sides of the bottom of the hopper. These bars may be made in a variety of shapes, but I prefer the square or diamond shape. The bars are placed so that two opposite angles of each bar lie in a horizontal plane, the angles of the adjoining bars being just close enough together to pass each other when the bars are rotated. When the bars are in this position it is evident that the floor of the hopper will be formed of a series of V-shaped channels, so that when they are given a semi-rotary movement the pulverized ore and salt will be fed through between the shifting angles of the bars, first in one direction and then in another, according to which angle is lowermost. The journals which support one end of these bars pass through the side of the hopper, and have each a vertically-attached crank, *f*, secured to it, while the arms at the opposite end of the cranks are journaled in a horizontal bar, G, so that by moving the bar G back and forth the cranks *f* are all moved simultaneously, and the series of parallel bars *c c c* given an oscillating or semi-rotary motion. In order to give to this bar a reciprocating motion its extremity is connected by a pitman, K, with an ordinary crank motion from the crank-wheel L on the shaft M. The crank-wrist *l* of the crank-wheel moves in a dovetail groove, O, in the face of the wheel, so that it can be shifted to or from the center, as desired, and fixed in place by a set-screw, *r*, to give greater or less motion to the cranks *f f* and bars *c c*.

The pulverized ore and salt in the proper proportions are placed in the hopper B, and motion given by any suitable power to the shaft M, by which the bars *c c* are caused to make a partial revolution back and forth, thus feeding the ore and salt through between the bars into the furnace in a uniform manner.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The hopper B having its bottom composed of parallel bars *c c c*, of whatever shape, when said bars are given a vibratory or semi-rotary motion, substantially as and for the purpose above described.

2. The hopper B with its floor composed of parallel bars *c c c*, in combination with the cranks *f f*, horizontal bar G, pitman K, and crank-wheel L, substantially as and for the purpose above described.

3. In an ore-feeder, the combination of the grooved crank-wheel, with its sliding crank-arm and set-screw for regulating the motion of the cranks *f f*, substantially as and for the purpose described.

In witness whereof I hereunto set my hand and seal.

EDWARD VANCE STANDISH. [L. S.]

Witnesses:

RICHARD O'MALLEY,

WILLIAM ALEXANDER BROPHY.