(No Model.)

T. JAMES & C. M. SCHWAB.

HEATING AND MELTING FURNACE.

No. 335,200. Patented Feb. 2, 1886.

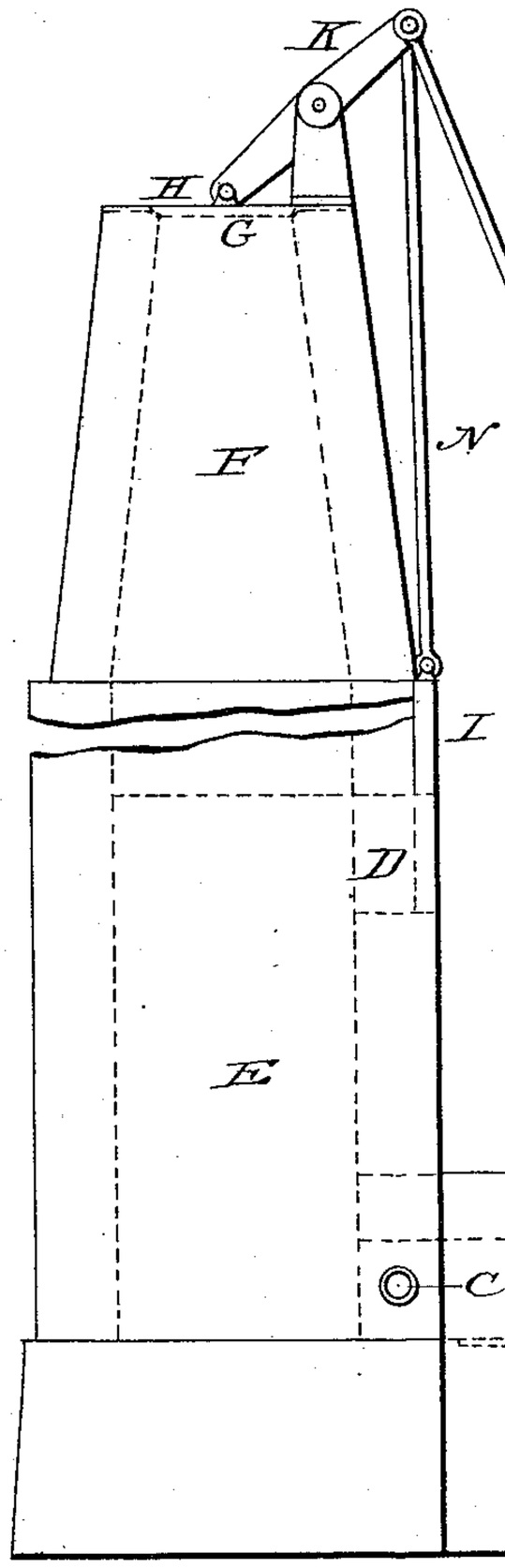


Fig. 1.

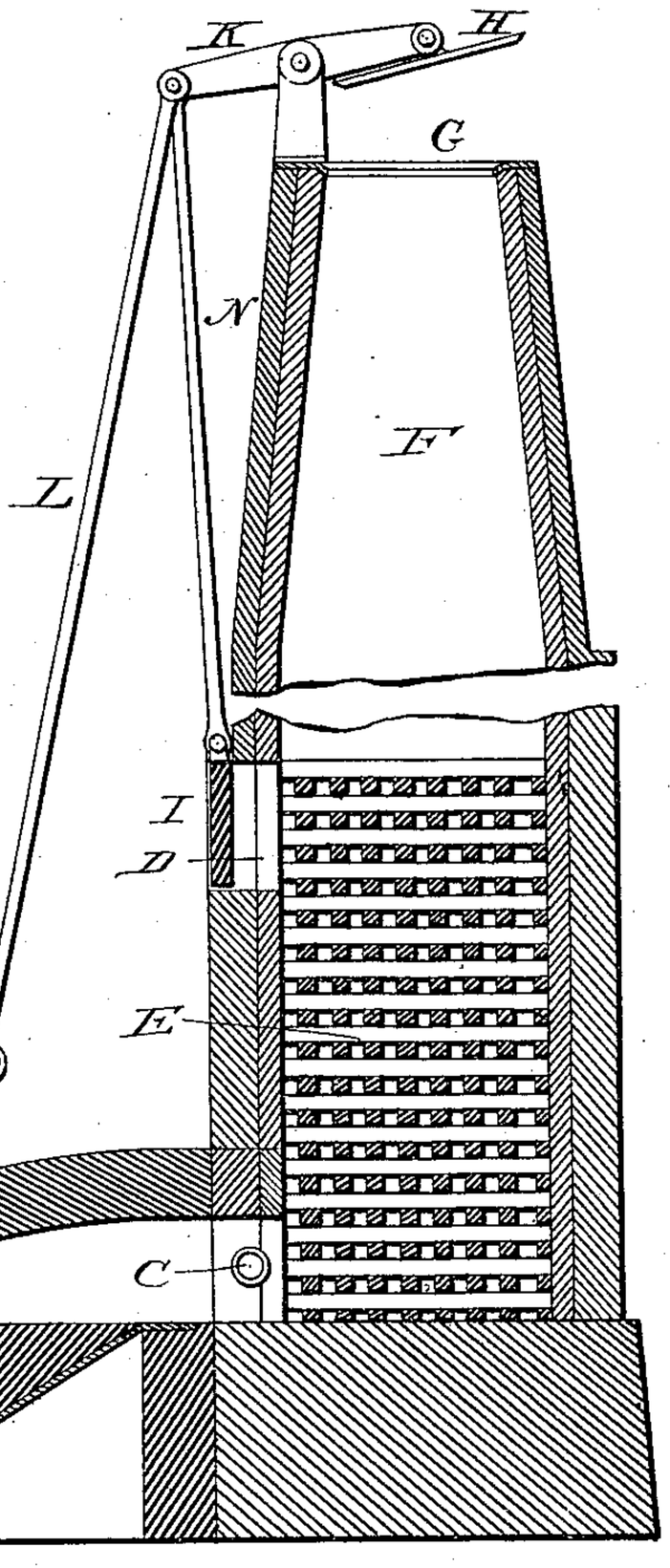
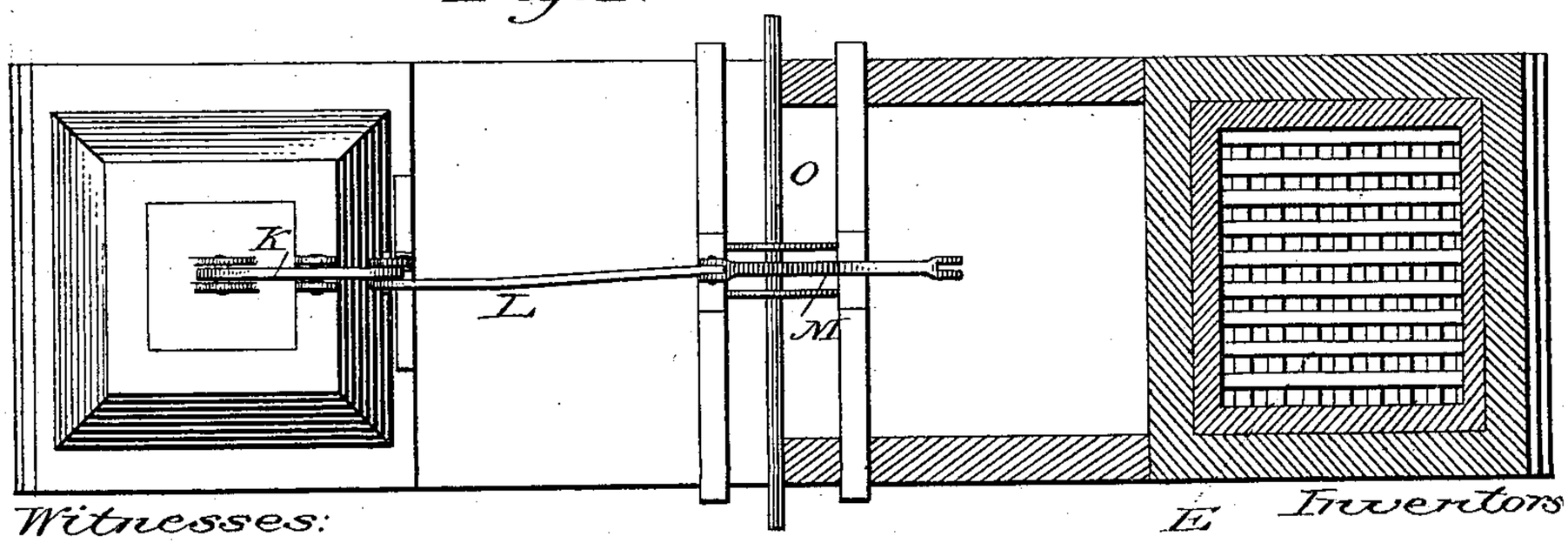


Fig. 2.



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UNITED STATES PATENT OFFICE.

THOMAS JAMES AND CHARLES M. SCHWAB, OF BRADDOCK, PENNSYLVANIA.

HEATING AND MELTING FURNACE.

SPECIFICATION forming part of Letters Patent No. 335,200, dated February 2, 1886.

Application filed March 11, 1885. Serial No. 158,493. (No model.)

To all whom it may concern:

Be it known that we, THOMAS JAMES and CHARLES M. SCHWAB, of Braddock, Allegheny county, Pennsylvania, have invented a new and Improved Heating and Melting Furnace, of which the following is a specification.

Figure 1 is a side elevation, partly sectional, of our improved heating and melting furnace, and Fig. 2 is a plan of the same.

The furnace may be described as follows: The material to be heated or melted is placed on the hearth (shown on Fig. 1 at A) by means of the door B. The gas is then introduced through the pipe shown at C. The opening at D being opened, (by means of the automatic arrangement to be hereinafter described,) the air rushes in through that opening, passing down through the brick checker-work E and mingles with the gas at C. Combustion then takes place, and the flame and products of combustion pass along the hearth A and out the top of the chimney F, heating the brick checker-work in its passage through the chimney containing the checker-work. This checker-work E is placed in both chimneys, as shown in Fig. 1. The brick checker-work E in one of the chimneys having now been heated by the products of combustion passing through it on its way out of the top of the chimney G, the furnace is then "reversed"—that is, by automatically changing the coverings H and the sliding-doors I over openings D, and admitting air through the opening D on the opposite side, and admitting gas through the pipe C, also on the opposite side, the draft will be reversed and pass out of the chimney and through the brick checker-work on the opposite side. It will thus be seen that in reversing the furnace combustion will take place at opposite sides of the furnace, and the chimney on the opposite side of the furnace, at which combustion takes place, will be used for the exit of the products of combustion, so that when the brick checker-work in one of the chimneys becomes heated the air is allowed to pass through that side, heating it before it mingles with the gas, and thus the place of combustion can be reversed from one side of the furnace to the other side at will and as often as necessary.

It will be seen that when the air enters through the opening D in one chimney in its course it passes out of the top *g* of the opposite chimney, the draft being caused by the difference in elevation of the opening D and the top of the chimney *g*.

H shows the covering for closing the top of the chimney. I shows the door, sliding in grooves, for closing the opening D. The covering H is raised and lowered by means of the lever K, connected by the rods L to the bell-crank M. The lever K is also connected to the door I by the rods N. The bell-crank M is connected to the rod O extending across the furnace, and may be operated from either side of the furnace by means of a crank or lever.

In the foregoing description of the manner of working the furnace it was shown that when it was necessary to raise the covering H the door I must be lowered, closing the opening D, and adversely. It will now be seen that by turning the bell-crank M, by means of the rod O, motion is communicated to the levers K K, to which are connected the covers H H and the doors I I, thus raising and lowering them in their proper positions at will.

Having now described our invention, what we desire to claim and secure by Letters Patent, is—

The combination, in a heating or melting furnace, as shown, with a working-hearth, A, of gas-pipes C C′, regenerators E E, located inside chimneys F F, doors I I, covers H H, and connecting mechanism, as described, whereby the air and products of combustion may be reversed in their passage through the regenerators and furnace-hearth A.

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