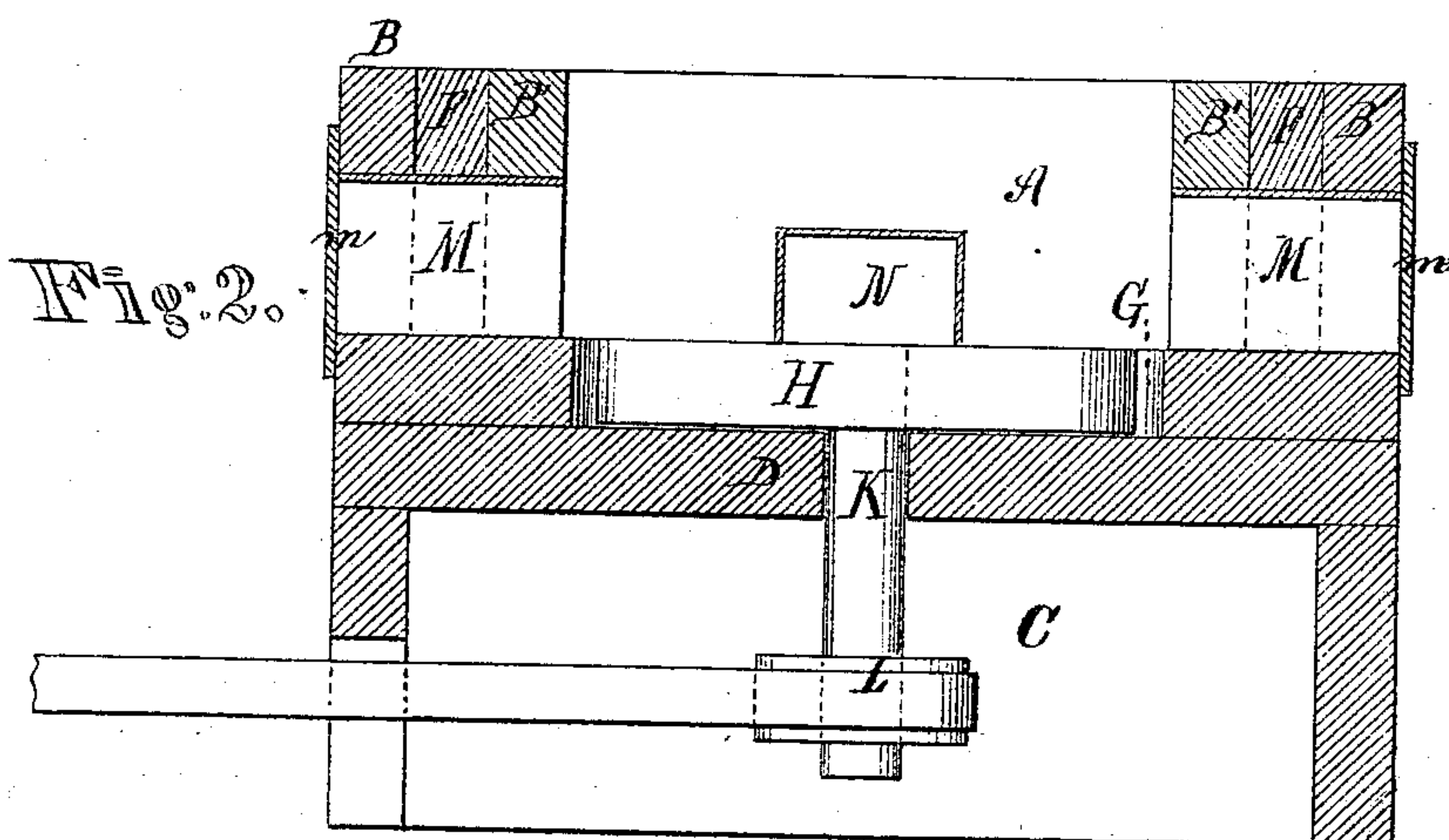
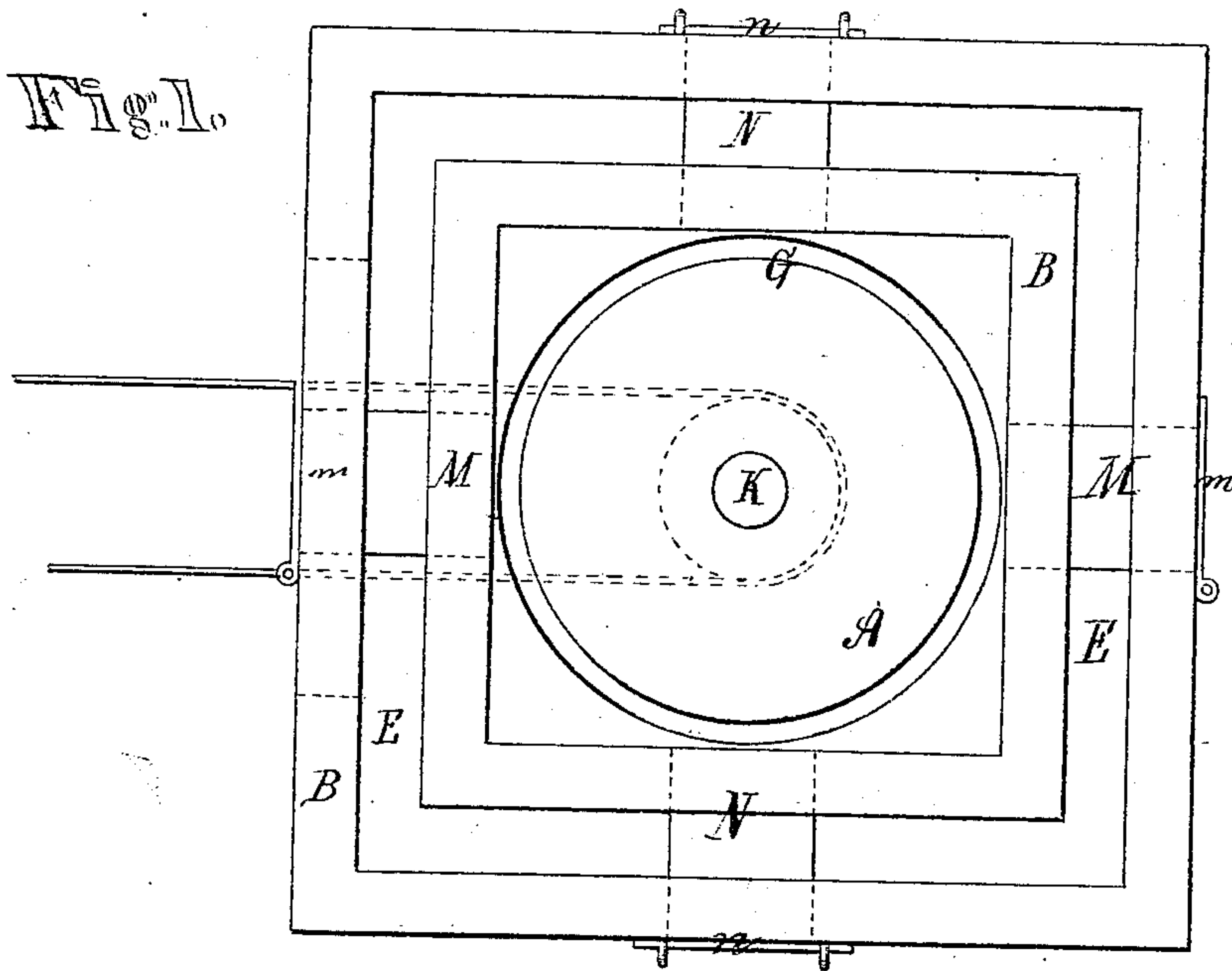


W. M. WATSON.

Improvement in Furnaces for Annealing Plowshares, etc.

No. 123,528.

Patented Feb. 6, 1872.



Witnesses.
Charles H. Johnson
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123,528

UNITED STATES PATENT OFFICE.

WILLIAM MEDD WATSON, OF TONICA, ILLINOIS.

IMPROVEMENT IN FURNACES FOR ANNEALING PLOWSHARES, &c.

Specification forming part of Letters Patent No. 123,528, dated February 6, 1872.

To all whom it may concern:

Be it known that I, WILLIAM M. WATSON, of Tonica, in the county of La Salle and State of Illinois, have invented a new and valuable Improvement in "Furnaces;" and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a top view of my furnace. Fig. 2 is a central vertical section of the same.

My invention has relation to means for tempering plow-plates and other irregular bodies; and it consists in the construction and novel arrangement of the process hereinafter particularly described.

The letter A of the drawing designates the oven-chamber. This chamber is surrounded with the double walls B B' on all sides, and is divided from the chamber C below by the horizontal partition or floor D. Between the walls B B' is a space, E, which is designed to receive a filling, F, of ashes or other non-conducting substance. G represents a circular recess formed in the floor D of the oven, and designed to receive the circular rotating hearth H, whose upper surface is made flush with the surface of the floor D. K represents the shaft of the rotating hearth, passing vertically down through the center of the oven-floor and provided at its lower end with a belt-wheel L in the chamber C. M M are the hot-draught passages, one of which leads to the smoke-stack and the other to the fire direct. *m m* represent the dampers which regulate the draught through these passages. N N represent the side or cold-air passages, and *n n* their regulating-dampers.

Having thus described the different parts of my tempering-oven, I will now explain the mode of operation. It is an exceedingly difficult and delicate matter to heat any large irregular metallic body in a uniform manner; and if this is not done in the tempering oper-

ation the metal will be hard in some places and soft in others. Let us suppose that the metallic parts of a plow are to be tempered. They are usually first set up—that is, the mold-board, share, and land-side are bolted to the standard. Then they are placed on the hearth, which is made to revolve, the fire and smoke passages being open and the cold-air passages closed. Thus all sides are brought in contact with the heat, and the effect is usually to heat them alike. But should one part heat faster than another, the heat from the fire is shut off by closing the damper, and the smoke-passage is also closed, while the hearth continues to revolve until all the parts are of a uniform heat. If the parts are too hot the side dampers are opened until they are sufficiently cooled. When the proper degree of heat is attained the plow should be withdrawn from the oven and cooled in water or some tempering mixture.

The hearth is usually formed of a circular plate of cast-iron supported on an upright shaft and provided with a layer of fire-brick on its upper surface of sufficient thickness to hold the heat and prevent warping of the plate. The inner wall B is laid of fire-brick and the outer wall of common brick, the space between being filled with dry ashes, the object of which is to allow the inner brick to expand and contract without danger of cracking the outer wall, and also to hold the heat.

What I claim as my invention, and desire to secure by Letters Patent, is—

The process herein described for tempering plowshares and other irregularly-shaped metallic bodies with uniformity by the means substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM MEDD WATSON.

Witnesses:

HENRY GUNN,
JOHN MORRISON.