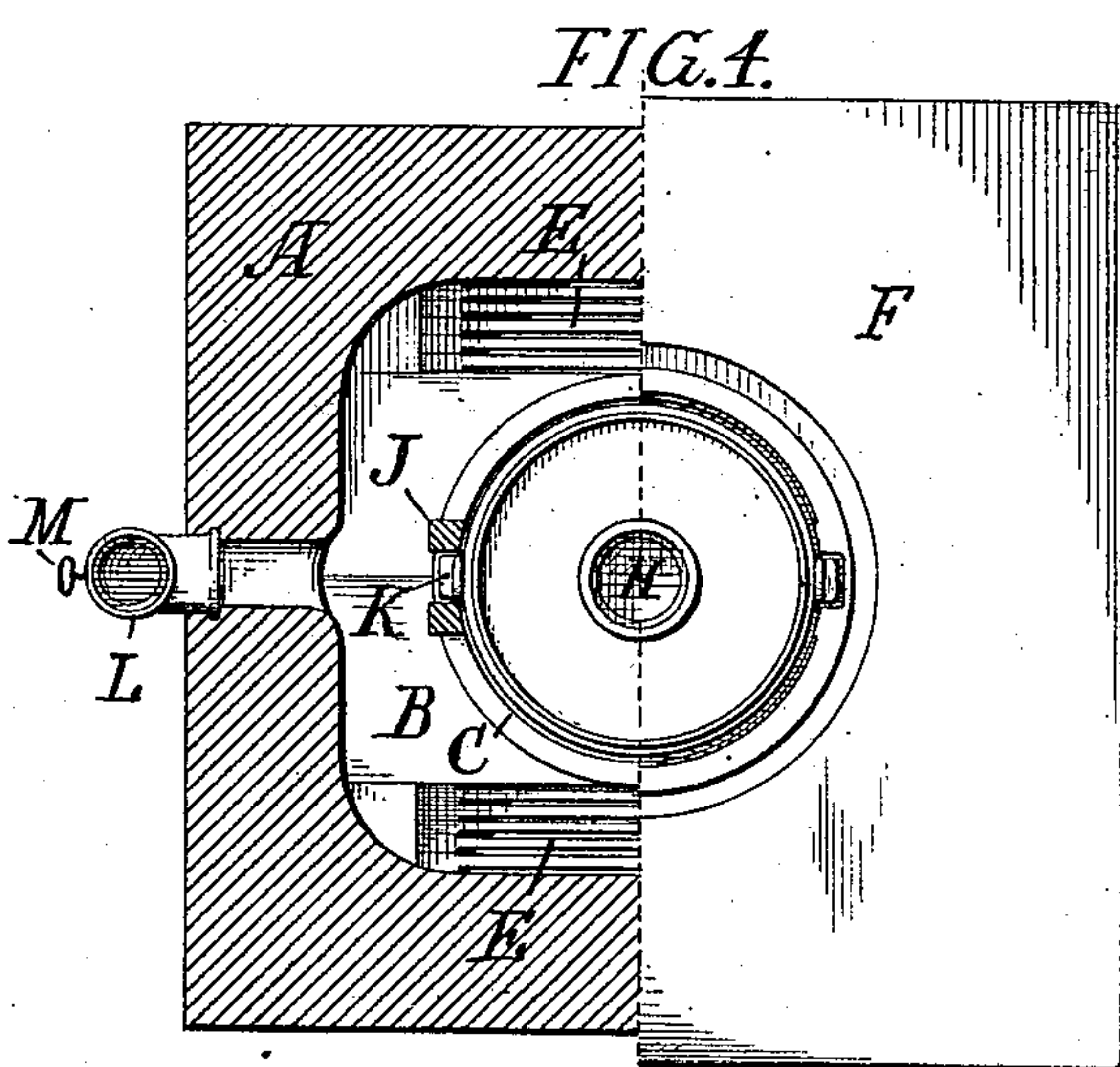
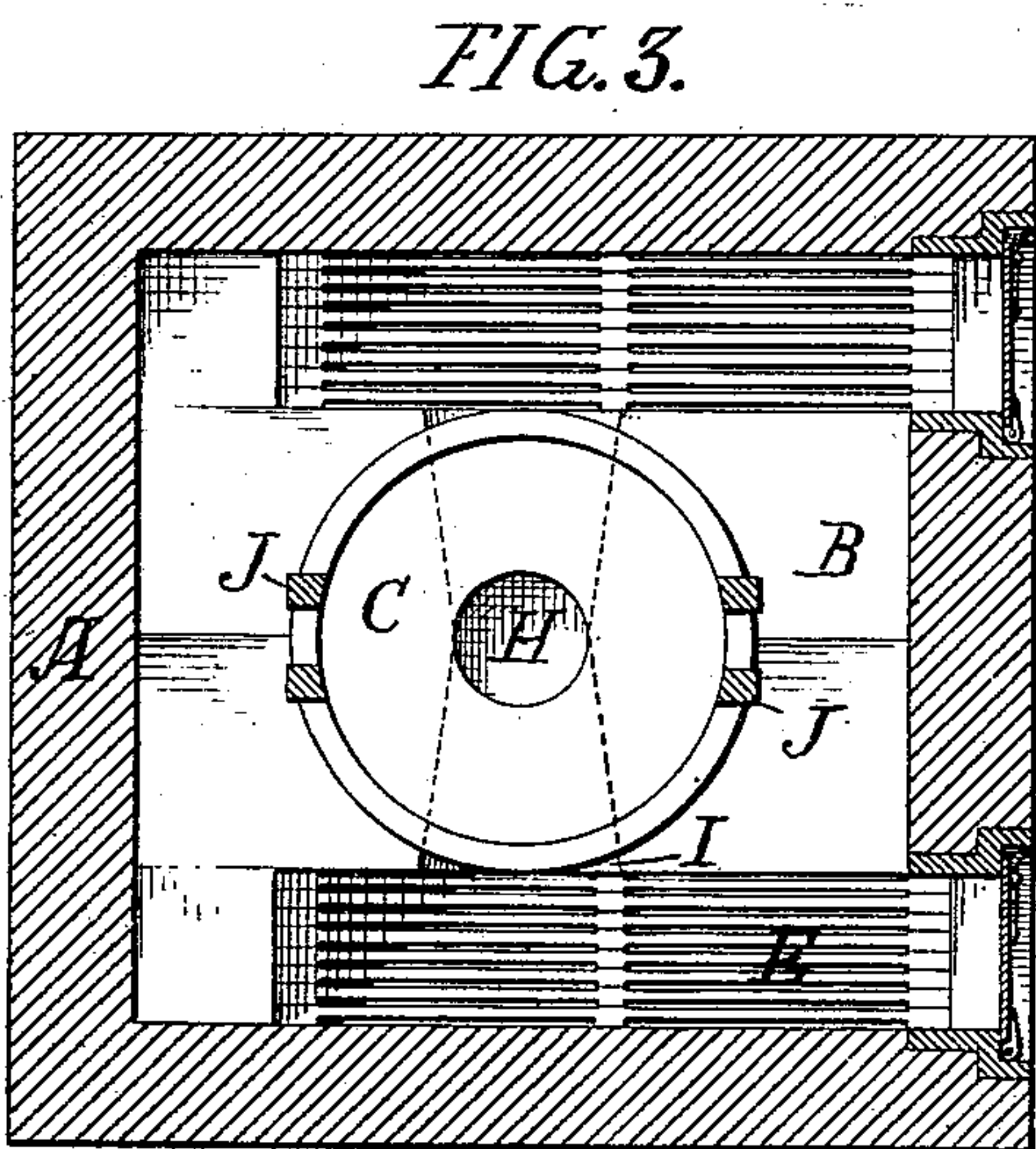
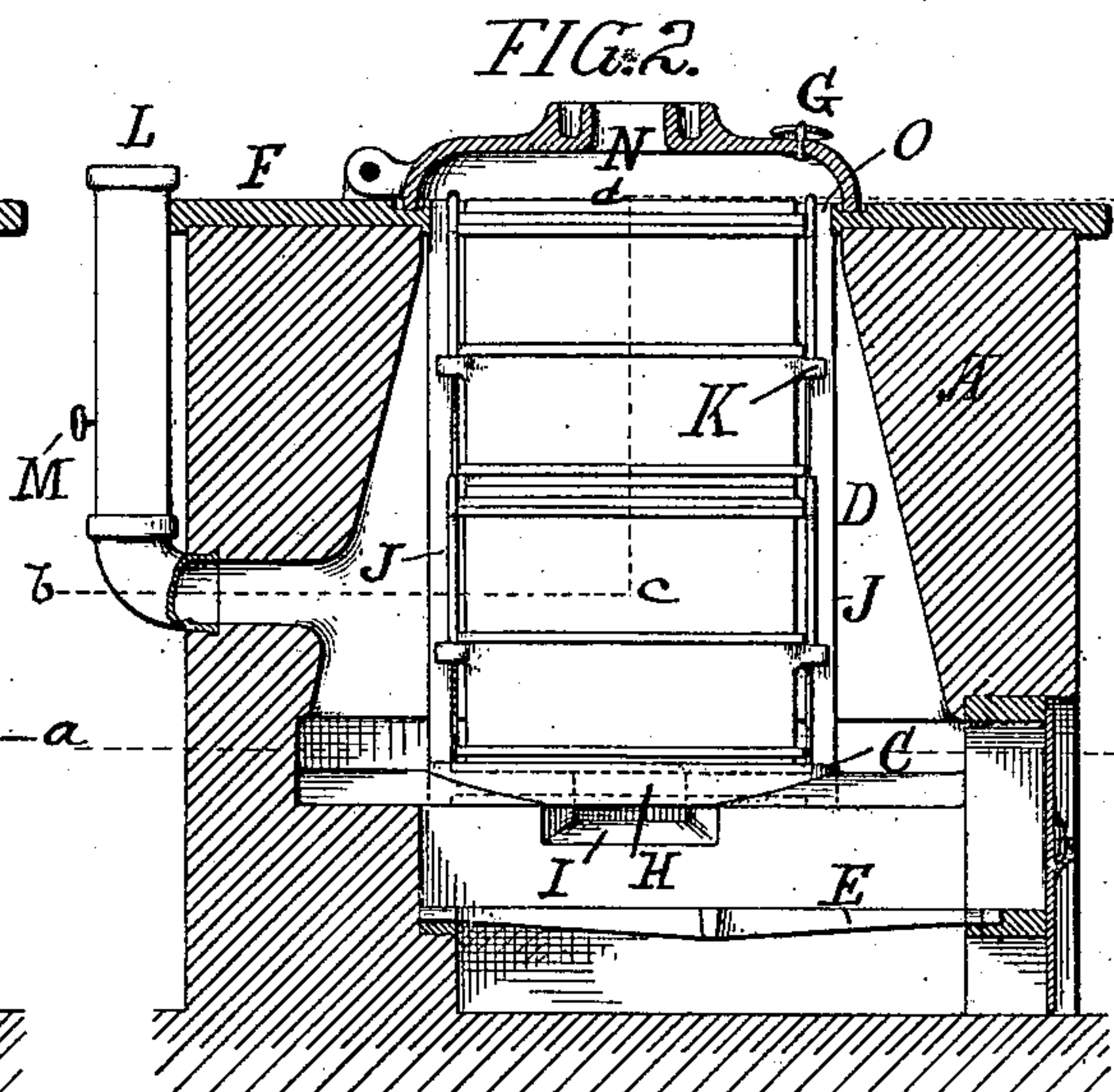
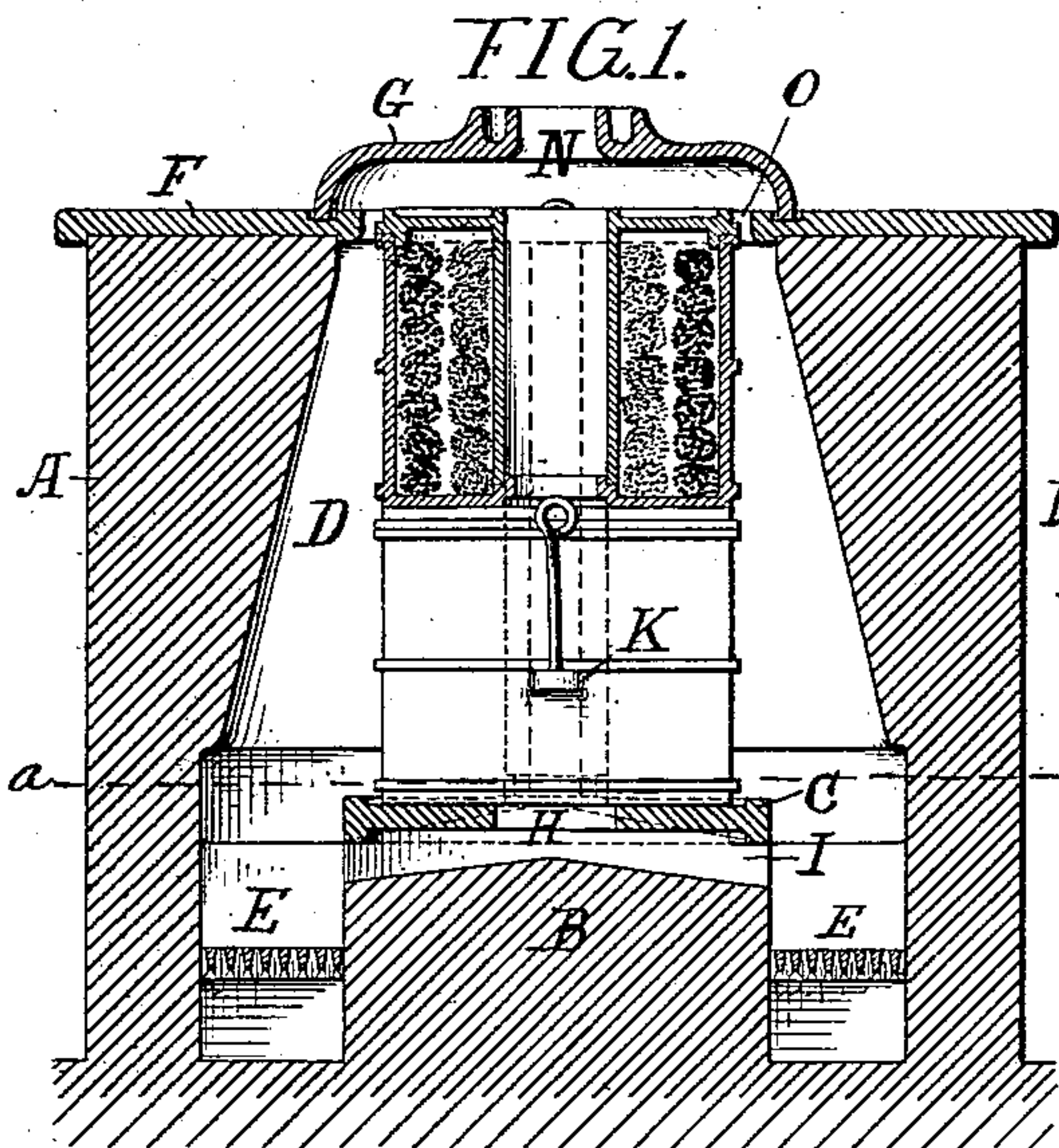


W. HEWITT & J. WITHINGTON.
Furnace for Annealing Wire, &c.

No. 226,853.

Patented April 27, 1880.



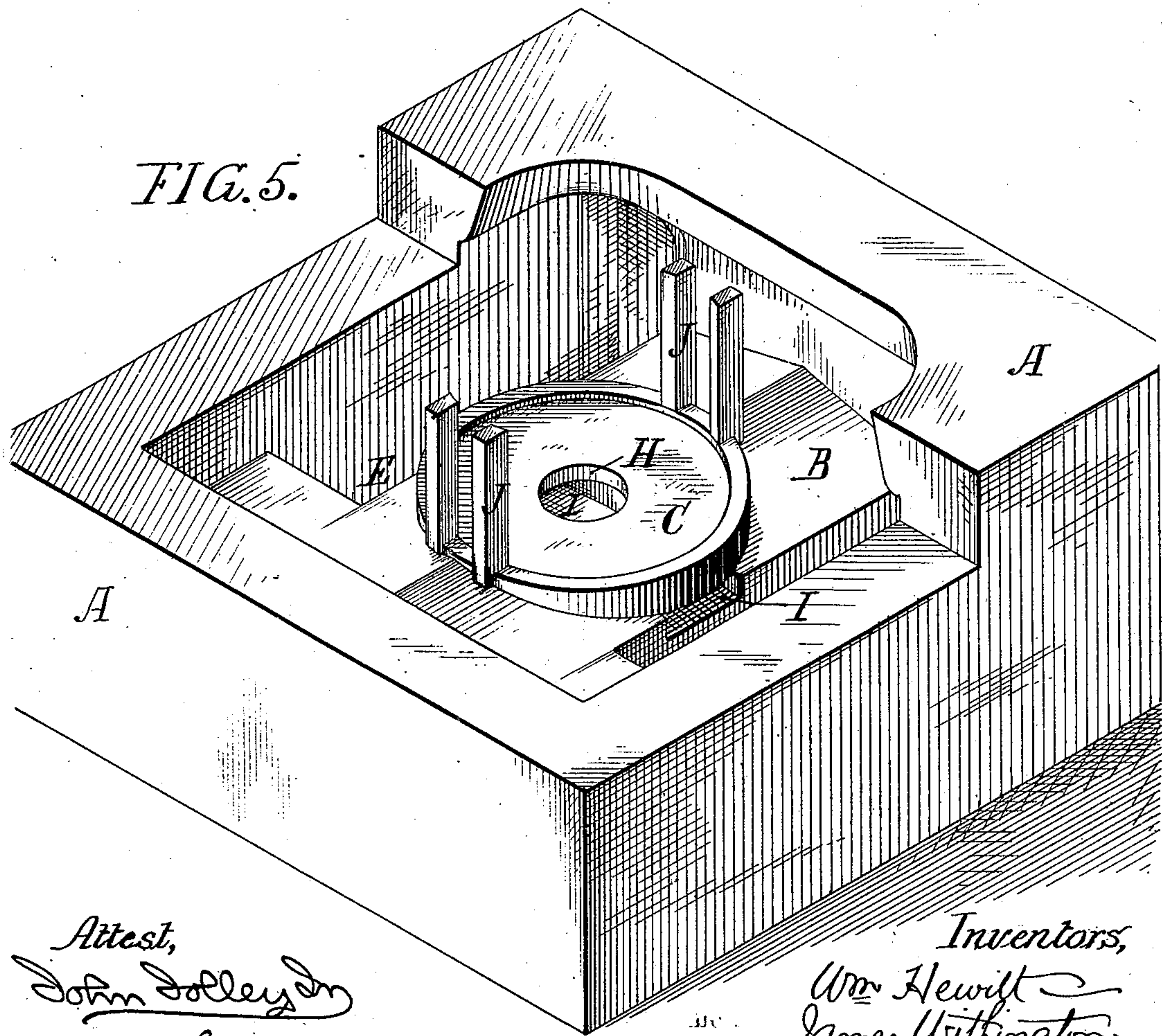
Attest,
John Doleys
Ezra Smith

Inventors,
Wm Hewitt
James Withington
By their Attorneys,
C. C. Mawcay
Bonsall Taylor.

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By their Attorneys
W. C. Lawrence
Bonsall Taylor—

UNITED STATES PATENT OFFICE.

WILLIAM HEWITT AND JAMES WITHINGTON, OF CHAMBERSBURG, ASSIGN-
ORS TO THE TRENTON IRON COMPANY, OF TRENTON, NEW JERSEY.

FURNACE FOR ANNEALING WIRE, &c.

SPECIFICATION forming part of Letters Patent No. 226,853, dated April 27, 1880.

Application filed January 28, 1880.

To all whom it may concern:

Be it known that we, WILLIAM HEWITT and JAMES WITHINGTON, of Chambersburg, New Jersey, have invented a new and useful Improvement in Furnaces for Annealing Wire and like articles, of which the following is a full and true description, and sufficient to enable those skilled in the art to which our invention appertains to understand and employ the same, reference being had to the accompanying drawings, forming part hereof, in which—

Figure 1 is a vertical sectional elevation of a furnace embodying our invention, section being taken transversely through the furnace in a direction at right angles to the grate-bars, one of the two annealing-pots being in section. Fig. 2 is a similar view of the same, taken longitudinally through the furnace in a direction parallel with the grate-bars. Fig. 3 is a top-plan view, section being supposed on the line *a a* of Fig. 1. Fig. 4 is a top-plan view of the furnace shown in Fig. 2, the left-hand portion being sectional on the line *b c d* of said Fig. 2; and Fig. 5 is a perspective detail illustrative of the construction of the saucer, pot guides or standards, and central draft-flue.

Similar letters of reference indicate corresponding parts.

Our invention relates to furnaces in which removable annealing-pots are employed, and it aims at such construction of these furnaces as will enable the manipulation of the pots with greater ease and certainty than has heretofore been possible, and with less damage to the frame-work of the furnace.

As is well known, after wire has been drawn to a certain degree it becomes stiff and hard, and requires to be softened or annealed before it can be further drawn. For certain purposes, also, wire, when finished, requires to be annealed, and is sold as annealed wire. It is usually covered more or less with a coating of oxide or scale, and is distinguished from bright wire by its darker color and greater pliability, ductility, and softness.

Heretofore annealing-furnaces have been constructed in an inclosed brick-work, substantially of the form represented in the drawings, upon the central pier of which has been

placed a fixed iron saucer, and upon this saucer have been lowered in and rested various forms of removable annealing-pots, while fixed pots have also been attached thereon. The difficulty, however, has been to lower in the removable pots in such manner that they shall seat themselves accurately upon their saucer, and, where more than one are used, upon each other, and shall not, in their handling, damage the frame-work of the furnace, its crown-plate, the saucer itself, or the pier. To the above end we have devised what we term "pot-standards," extending from saucer to crown-plate, and so introduced, both as to number and location, as to insure the accurate entry and removal of the pot or pots.

In the practical carrying out of this plan we have found it convenient to provide the pots with lugs, although they are employed for mere convenience and may be dispensed with and standards in sufficient number and relation alone employed.

In the following description we set forth the construction of an annealing-furnace adapted for removable pots.

In the drawings, A is the brick-work of a square furnace, longitudinally throughout which runs a pier, B, upon which rests a saucer, C. D is an annular and conical space inclosed by the brick-work A, and E E are the grates on either side of the pier, on which the fires are made. F is a crown-plate capping the brick-work of the furnace, having a central circular opening, O, and provided with a circular seat, in which the furnace-cover G rests, and is, when desired, made tight by luting. The inner edge of the opening O forms a guard-ring to the brick-work.

The saucer C is centrally perforated with an opening, H, to which communication is had with the fires by means of a flue, I, traversing the pier and communicating with the grates on either side.

L is a side-draft flue, opening in the manner shown through the back wall of the furnace from the conical space thereof, said flue being provided with a damper, M, to be opened only when the furnace is being charged and unloaded. This flue serves to draw the flame away from contact with those employed in

manipulating the pots, and is an essential requisite in the operation of a system in which the fires are never allowed to cool.

N is the top flue or ordinary exit for the gases of combustion, which connects with any suitable stack. J J are standards of any fit material, vertically erected between the saucer and the crown-plate, and rigidly connected with both saucer and crown-plate. Any desired series of these standards may be employed, their object being to constitute, in connection with the saucer and crown-plate, a frame-work within which removable annealing-pots can be introduced, guided, and held in proper position in the furnace.

The frame-work serves to keep the removable annealing-pots, which are introduced one on the other to the desired number, in proper position, as shown in Figs. 1 and 2, the inner edge or guard-ring of the crown-plate that caps the brick-work protecting the latter in the placing and removal of the pots.

The pots are inclosed cylinders having coincident central tubular passage-ways, which come in line with the opening in the saucer, so that when two or more pots are in place in the furnace they embody a continuous central flame-flue throughout the center of any given series thereof, the advantages of which arrangement for the effectual and uniform annealing of wire coils are self-evident.

Lugs K projecting from the exterior of the pots fit between the standards and serve to retain the pots in proper relative position.

The lugs, as will be seen by consulting Figs. 1, 2, and 4 of the drawings, enter between the

standards, and, sliding between them as though in ways, control accurately the position of the pots as they are vertically raised and lowered.

The advantage of the arrangement is self-evident, as the standards extending from crown-plate to saucer of the furnace afford absolute protection to the same from damage by the pots.

Having thus described our invention, we claim and desire to secure by Letters Patent of the United States—

1. In an annealing-furnace, the combination, with the saucer or other base-rest for a series of removable annealing-pots, of a series of fixed standards extending from base to crown of furnace, and adapted to guide in the introduction and removal of the pots and to retain them in position in the furnace.

2. The combination, with a furnace provided with a series of standards extending from the saucer or base-rest to the crown-plate, of a series of removable annealing-pots, in the manner shown and described.

3. In combination with the pot-standards J of an annealing-furnace, lugs K upon the annealing-pots, in the manner shown and described, and for the purpose specified.

In testimony whereof we have hereunto signed our names this 20th day of January, A. D. 1880.

WM. HEWITT.
JAMES WITHINGTON.

Witnesses:

J. BONSALE TAYLOR,
W. C. STRAWBRIDGE.