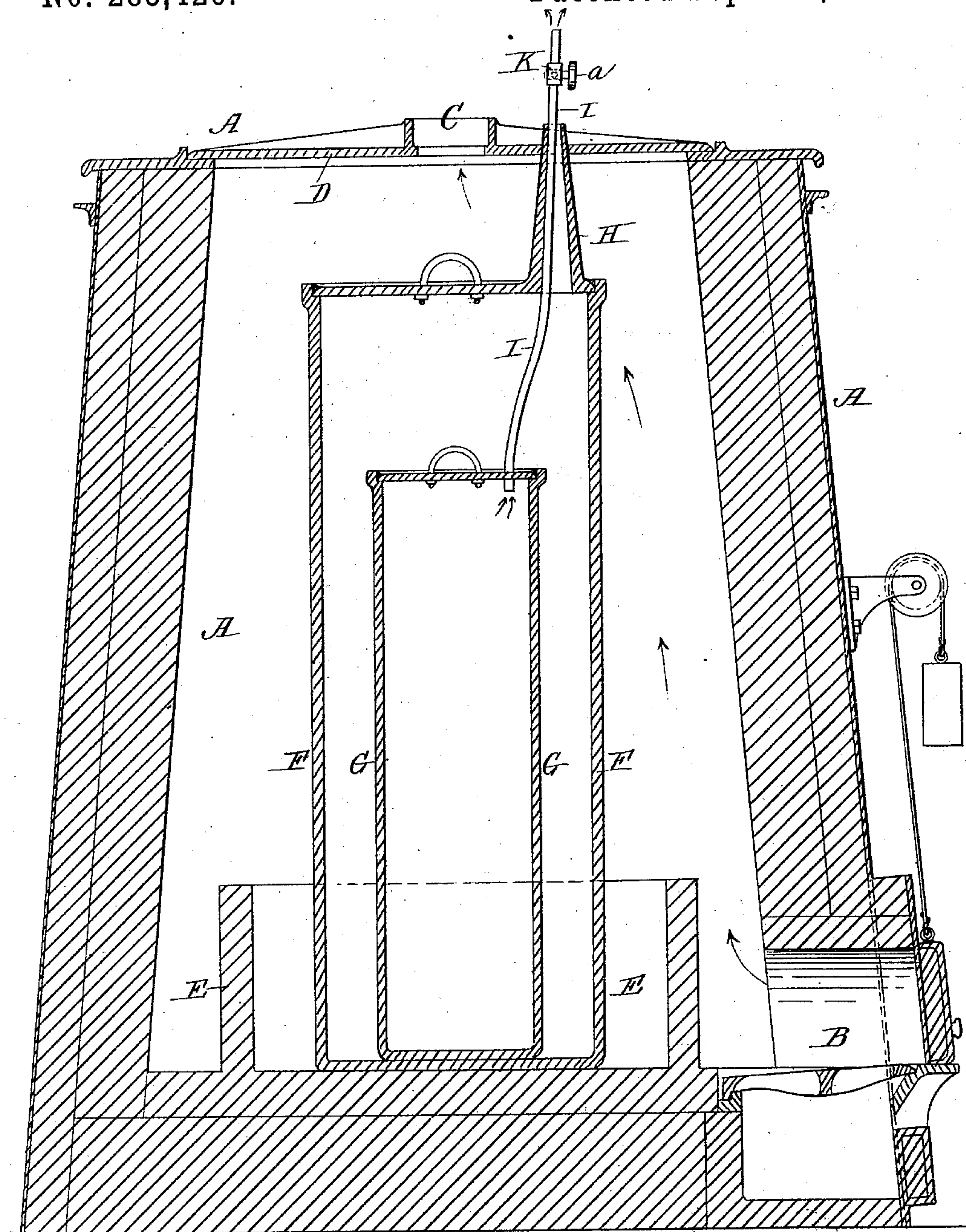


(No Model.)

A. MOGREN.  
ANNEALING FURNACE.

No. 285,426.

Patented Sept. 25, 1883.



Witnesses;  
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Walter B. Hourse.

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# UNITED STATES PATENT OFFICE.

AXEL MOGREN, OF WORCESTER, MASSACHUSETTS.

## ANNEALING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 285,426, dated September 25, 1883.

Application filed March 5, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, AXEL MOGREN, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Annealing-Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, and which represents a central vertical section of an ordinary annealing-furnace for annealing wire or wire rods with my improvements applied to the same, as will be hereinafter more fully set forth.

My invention relates more particularly to furnaces, such as shown by the accompanying drawing, for annealing wire or wire rods; but it may be used for other annealing purposes, if desired.

It consists in connecting a tube with the inner annealing-pot, containing the product to be treated, which is extended up above the top of the furnace, and provided above said furnace with a stop-cock, which may be opened and closed, as required, during the annealing operation, as hereinafter more fully described.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawing, A represents the annealing-furnace, which is usually provided with three fire-boxes, B, with the smoke-flue C through the cover D, and the fire-brick tube E, in which the annealing-pots F and G are set, to prevent the strong fire-blast at the bottom coming in direct contact with said annealing-pots.

The common way of annealing wire, and especially small wire, has heretofore been to place the coils around a central stem, then into the small annealing-pot G, then to hermetically seal the top of said pot, so as to be air-tight, and afterward place it in the outer pot, F, and also seal the top in the same manner as the inner pot. The outer pot, F, is provided with a tapering tube, H, for the purpose of looking into the pot during the annealing operation. Wire or wire rods which have been coated and drawn, will, on being heated, let off gases, which already exist in the wire to a considerable extent, having been absorbed by the acid-cleaning pro-

cess prior to annealing, and by a portion of the coating still adhering to the same after being drawn. By the old method of hermetically sealing the inner pot, G, these gases, although expelled from the wire or wire rods when they are heated, as aforesaid, are reabsorbed by them upon cooling off said annealing-pot, and the wire or rods are galvanized or plated in this condition, thereby producing imperfect wire or wire rods.

As is well known, gases contained in wire cause it to be brittle, which is one of the principal objections to the same as now annealed. By my invention I am enabled to entirely obviate this objection, which I do in the following manner: I insert a vent pipe or tube, I, through the cover or upper part of the inner pot, G, (making the same air-tight where it passes through said pot,) and extend it up through the tapering tube H a short distance above the top of the furnace. Near its upper end I arrange and fit a stop-cock, K, similar to an ordinary gas stop-cock, which may be opened or closed by turning the thumb-screw *a*. This arrangement, as will be seen, admits of the gases being allowed to escape during the annealing operation. The attendant, as required, opens the stop-cock, and lights the gas as it passes out, and, when consumed, quickly closes it again, which operation is repeated until all the gases generated by the annealing operation are entirely expelled.

It will therefore be seen that by the use of my invention, which may be easily applied to any similar annealing-furnace at a small expense, wire, wire rods, or other products requiring similar annealing may be produced of much better and more valuable quality than by the present old method.

Having described my improvements in annealing-furnaces, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

The combination of the vent-tube I, provided with stop-cock K, with furnace A, the outer pot, F, provided with tube H, and inner pot, G, substantially as and for the purpose set forth.

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