

S. P. M. TASKER.
Furnaces for Welding Tubes.

No. 151,520.

Patented June 2, 1874.

FIG. 1.

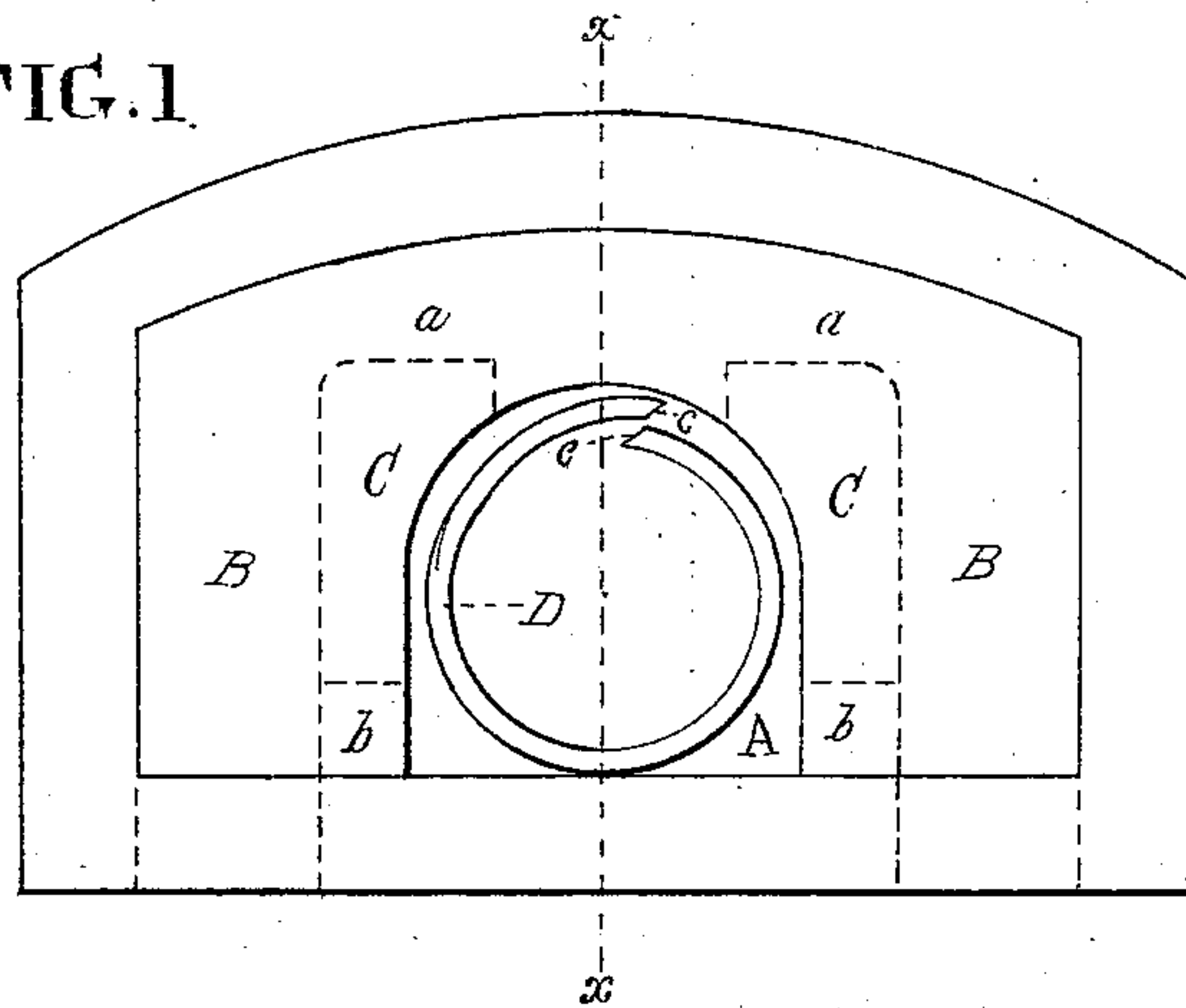


FIG. 2.

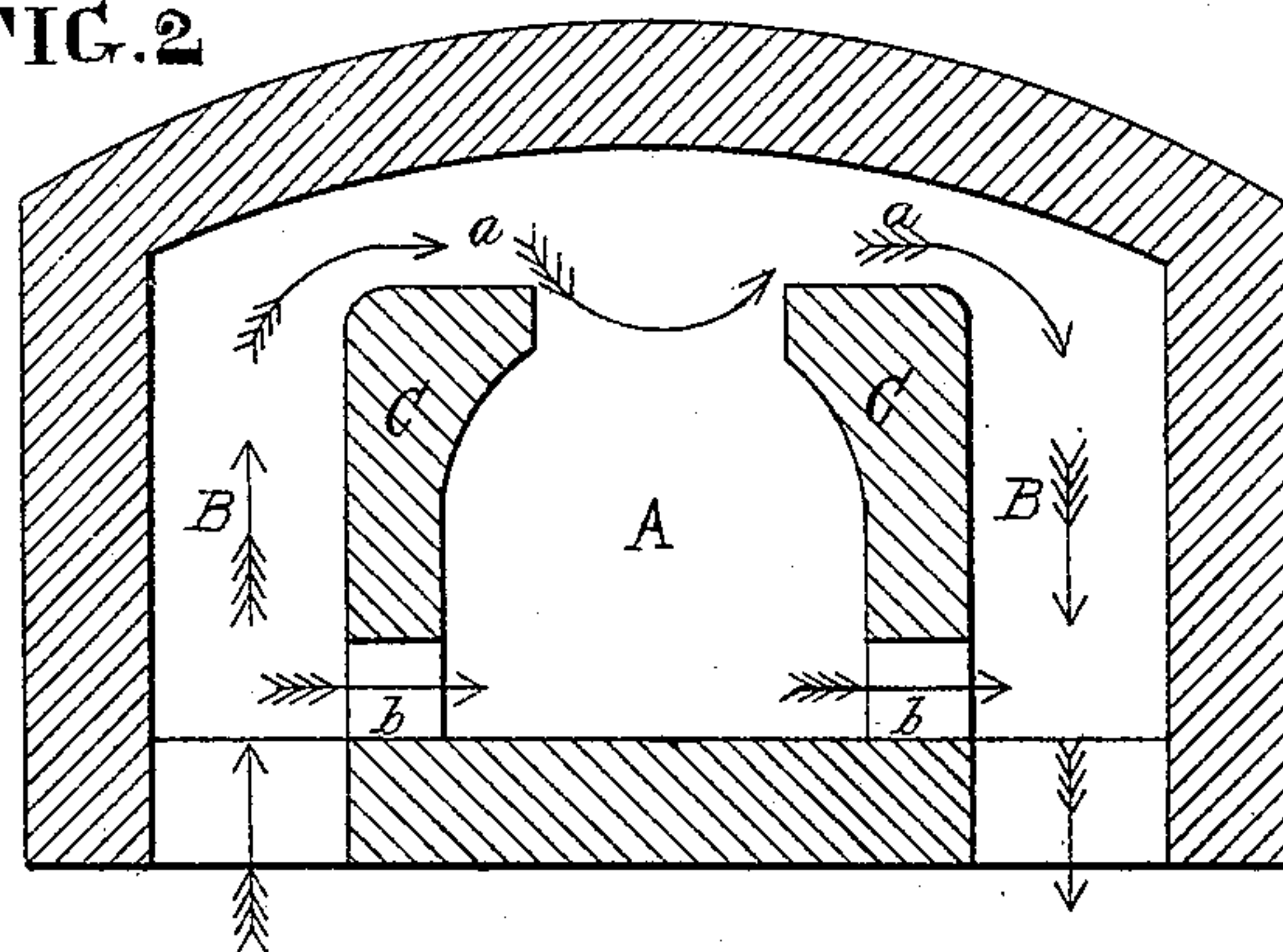
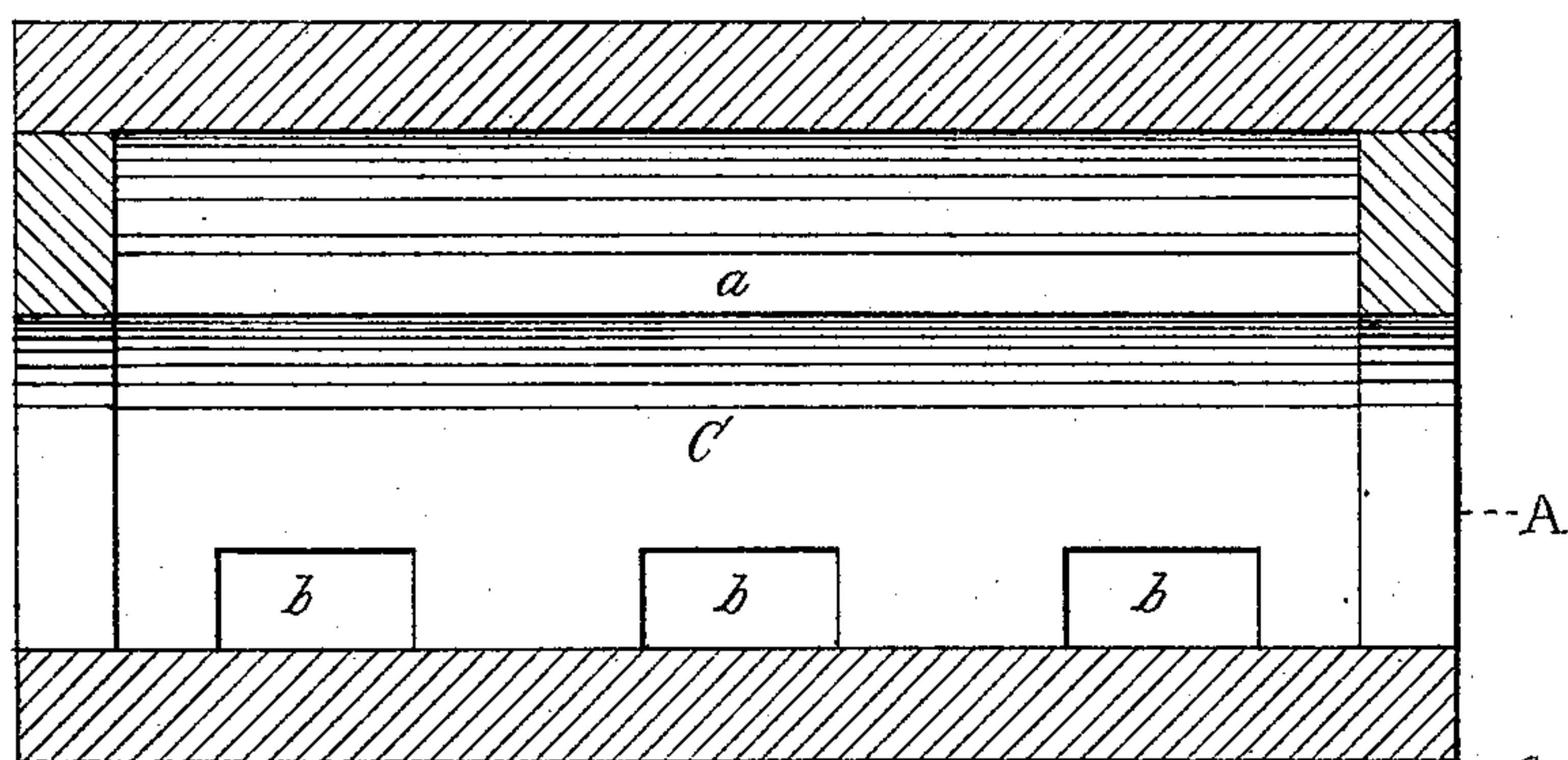


FIG. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

STEPHEN P. M. TASKER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN FURNACES FOR WELDING TUBES.

Specification forming part of Letters Patent No. **151,520**, dated June 2, 1874; application filed May 16, 1874.

To all whom it may concern:

Be it known that I, STEPHEN P. M. TASKER, of the city and county of Philadelphia, in the State of Pennsylvania, have invented an Improvement in Metallurgical Furnaces, of which the following is a specification:

The object of my invention is such a construction of the furnace as will localize a much greater degree of heat at a certain part of it than is admitted to the rest of the heating-chamber, for the purpose of adapting the heat to articles which require a higher heat at one part than throughout the remainder thereof—as, for instance, in the manufacture of metal tubes, it is desirable to heat the edges of the skelp, for the welding process, much hotter than the other portion; or, in other words, while the edges are required to be brought to a welding heat, the rest of the skelp requires only a low red heat, merely sufficient for rounding it up during the welding of the joint; or it may remain black hot; and for it to be brought to a high heat is positively injurious, as it distorts its form, causing it to be flattened by its own weight, especially in tubes of large diameter. The invention relates to a furnace having a central chamber throughout its whole length for the reception of the bent skelp or other article, and side chambers or flues—one on each side of said central chamber—each side flue being separated by a wall from the central chamber, having an open communication at the top with the same throughout its whole length, and communicating, at different points, through ports in the walls at the floor of the furnace, so that the flames may be brought over the walls directly upon the edges of the skelp, which are uppermost for that purpose, and no flame being permitted to pass into the central chamber, except through the above-named ports. The passage of the flames through these ports is regulated by refractory plugs, or suitable device, by which they may be diminished in area, as required, or entirely closed, in accommodation to the amount of heat required for the lower portion of the skelp or other article.

In the accompanying drawings, Figure 1 is an end view of my improved furnace with a bent skelp in position for heating. Fig. 2 is a cross-section of the same through the ports *b*,

the bent skelp *D* being omitted. Fig. 3 is a vertical longitudinal section at the line *x x* of Fig. 1.

Like letters of reference in all the figures indicate the same parts.

A represents a central chamber throughout the whole length of my improved furnace, of such dimensions as required for the largest tubes or other article to be welded, the doors to the ends of the chamber being omitted in the drawings. *B B* are side flues for conveying the heat to the furnace. They are separated vertically from the central chamber *A* by means of the walls *C C*. They have an open communication, at *a a*, with it at the top of the walls throughout their whole length. They also communicate with the bottom of the chamber by any desirable number of ports, *b*.

The heat is passed up through one of the flues, as represented by the arrows, the flames passing over the top of the first wall *C*, and coming in contact with the edges *c c* of the skelp *D* to be welded, and over the top of the opposite wall, for bringing the edges to a welding heat. A portion of the heat and flames may pass, through the ports *b*, into the central chamber *A*, and thence, through the opposite ports of the other wall, into the other flue, the waste heat being carried down through said flue to the chimney or exit-flue.

I control the amount of heat which passes through the ports *b* to the central chamber *A* by means of refractory plugs or other device; the plugs being withdrawn when it is desired to admit the heat through the whole area of the ports, or partly closed to vary it; or entirely closed when no heat is required to pass directly to the bottom of the chamber *A*. When desired, the ports *b* may be omitted.

The operation is as follows: I introduce the skelp or other article, being careful to keep the portion to be heated on top. The flames, passing over from either one of the flues to the other, will strike against the portion on top which is exposed, heating it to the same temperature as the flame. The other portion, being below the walls, is not acted on by the flame, except through the openings *b*. These I propose to control by means of refractory plugs or other convenient device, so that I can either have them closed entirely, partially, or

open all of the way, so as to keep the body of the article either comparatively cool, or at any desirable temperature. When the tube or other article is of the proper temperature, it is passed out, and another one introduced.

The walls C C I construct of any size and shape to suit the article to be heated, as also the openings *b b*, to be of any number or size desired.

The advantage I gain in heating tube-skelps of large diameter over the method now generally adopted—which is to heat the entire tube-skelp to one heat, *i. e.*, that of welding, at which heat the skelp is liable, of its own weight, to flatten, and bad work results therefrom—is that, by using my furnace, this is avoided, as the body of the skelp can be heated to any temperature desired, between that which is necessary for

welding and a black heat. My furnace can also be used for any other metallurgical operation where a local heat is required, as the chamber A can be made to suit, in size and shape, the article to be heated. This chamber can be applied to any suitable form of furnace.

I claim as my invention—

The central chamber A, in combination with the side flues B B, which have an open communication therewith at the top of the walls C C, the said walls being with or without the ports *b*, substantially in the manner and for the purpose above described.

STEPHEN P. M. TASKER.

Witnesses:

THOMAS J. BEWLEY,
STEPHEN USTICK.