C. H. ONIONS.

Annealing-Box.

No. 168,408. Patented Oct. 5, 1875.

Fig. 1.

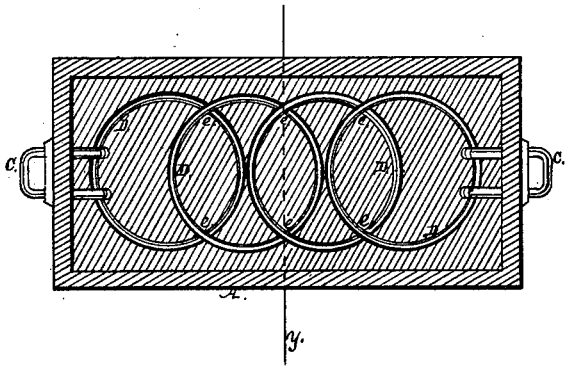
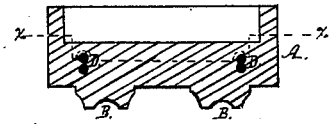


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES H. ONIONS, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN ANNEALING-BOXES.

Specification forming part of Letters Patent No. **168,408**, dated October 5, 1875; application filed January 13, 1875.

CASE B.

To all whom it may concern:

Be it known that I, CHARLES H. ONIONS, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Annealing-Boxes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in the construction of the bottom of annealing-boxes; and consists in constructing it of cast-iron, with a series of wrought-iron rings secured within the bottom in the process of molding and casting it.

To enable others skilled in the art to make and use my invention, I will proceed to describe more fully its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is a sectional view of my invention, taken on the line *x x* of Fig. 2. Fig. 2 is a transverse section of the same at line *y* of Fig. 1.

In the drawings, A represents the bottom of the annealing-box. B represents the grooved runners, which rest upon balls in the annealing-oven, which are used in connection with said runners for removing the annealing-box from the furnace with ease and facility. C represents wrought-iron rings cast in the end of the bottom A, for the purpose of attaching a chain or rod for withdrawing the annealing-box from the furnace.

The bottom A is constructed in all respects in the usual manner and of the ordinary material, (cast-iron,) excepting that longitudinally in the bottom, as represented in the accompanying drawings, are two or more wrought-iron rings, which are surrounded by the metal of the bottom in the process of casting, which is accomplished by anchoring the rings in the mold, which operation of anchoring and casting is well understood by the skillful molder.

The advantage of casting rings in the bottom of the annealing-box, as herein described, consists in imparting strength to the bottom, and compensating for the expansion and contraction of it in the heating and cooling of it.

Another advantage derived from the use of rings cast in the bottom of the annealing-box, in contradistinction to the use of rods or bars, consists in affording greater facility in breaking the bottom into small pieces for the purpose of remelting in case the bottom should crack (which is often the case) or otherwise be rendered useless.

I am aware that it is an old and common practice to cast rods or bars of iron in cast-iron articles in the process of molding them, for the purpose of imparting strength to the casting. Therefore, I do not claim, broadly, combining wrought-iron with a casting in the process of molding and casting.

I am aware that wrought-iron rods have been placed longitudinally in annealing-boxes; but the additional strength thereby obtained is wholly in the direction of the length of the box, no addition being made to the lateral strength. By the use of rings I obtain both lateral and longitudinal strength.

Further, the rods heretofore used are embedded in projecting ribs on the bottom and sides of the box, while my rings are embedded in the bottom proper. In the former case the thickness of the parts is materially increased, and in consequence, when it is attempted to break up the box for recasting, considerable difficulty is met with; whereas the rings lessen the thickness of the bottom, both above and below them, so that all the body of cast-iron, which is directly above and directly below the rings, and throughout their extent, is much thinner than other parts of the bottom of the box, and the bottom breaks readily at points directly above and below the rings under very slight blows.

Having thus described the nature, construction, and operation of my improvement, what I claim as of my invention is—

In annealing-boxes, the combination of the wrought-iron rings D D D with the cast bottom A, whereby the longitudinal and lateral strength of the bottom is materially increased and its vertical strength diminished, substantially as and for the purposes herein before set forth.

CHAS. H. ONIONS.

Witnesses:
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