

F. CORDES.
ANNEALING BOX.
APPLICATION FILED MAR. 27, 1911.

1,012,248.

Patented Dec. 19, 1911.

FIG. 1

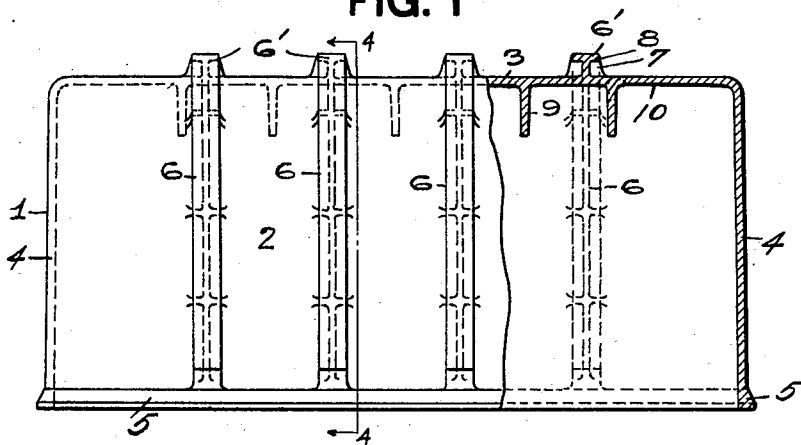


FIG. 2

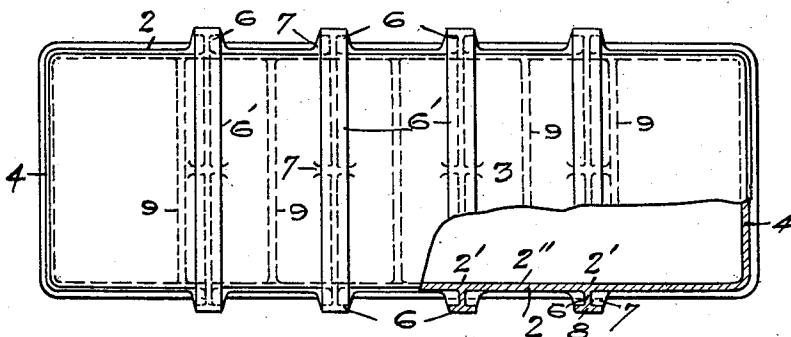


FIG. 3

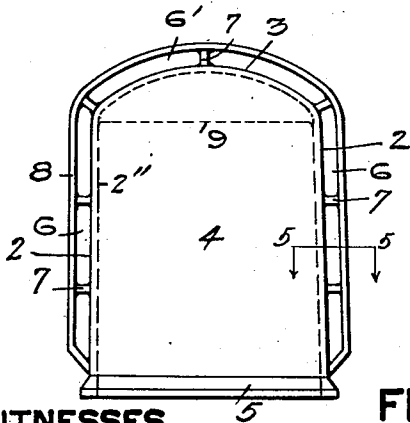


FIG. 4

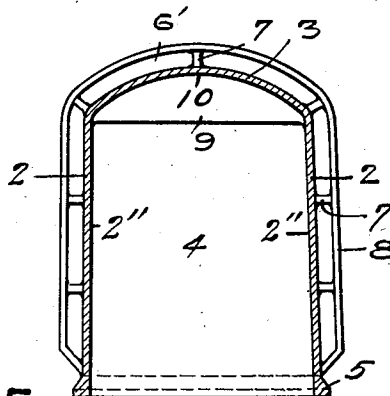
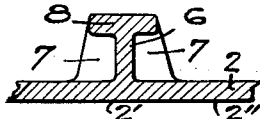


FIG. 5



WITNESSES.

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UNITED STATES PATENT OFFICE.

FRANK CORDES, OF HULTON STATION, PENNSYLVANIA, ASSIGNOR TO UNITED ENGINEERING AND FOUNDRY COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

ANNEALING-BOX.

1,012,248.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed March 27, 1911. Serial No. 617,153.

To all whom it may concern:

Be it known that I, FRANK CORDES, a citizen of the United States, and resident of Hulton Station, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Annealing-Boxes; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to annealing boxes; and its object is to provide an improved construction of such boxes to more effectively resist the strains set up by the high temperatures and successive heating and cooling to which they are subjected and prevent their distortion and destruction therefrom.

In another application, Serial No. 617,154, of even date herewith, I have described and claimed more broadly than hereinafter a box of the same general type as that of my present invention which consists in a particular form of box embodying a main feature of the said application, namely, the provision in a cast metal box having side walls and a connecting roof wall of external bracing ribs extending upwardly on the side walls and continuing on the roof, the said walls interiorly of said flanges being of unbroken contour and continuing thickness. In the said application, I have also described and claimed a box construction having bracing ribs of hollow form.

The present application relates to a box of the same general type in which the bracing ribs of hollow form are dispensed with and a series of upwardly extending solid ribs are provided, each having transverse integral diaphragms or webs joining the side walls, the said ribs continuing preferably over the top wall and connecting across the same.

In the accompanying drawings, Figure 1 is a longitudinal elevation partly in vertical section of an annealing box illustrating my invention. Fig. 2 is a plan view partly in section, and Fig. 3 is an end view of the same. Fig. 4 is a vertical transverse section of the box illustrated in Figs. 1 to 3, and Fig. 5 is a detail horizontal section through a bracing rib on the line 5-5 Fig. 3.

The annealing box 1 is preferably cast in one integral piece of iron or steel, having the side walls 2, the roof wall 3 preferably of arched form and integral therewith, and the end walls 4. The side and end walls are

provided with the base flange 5 which is placed directly on the supporting base for the castings in the annealing oven (not illustrated). The side walls 2 are provided with a series of solid bracing ribs 6 preferably extending vertically, as shown, and having the integral connecting portion 6' extending over the roof wall 3. The side walls 2 are continuous from end to end, the portions 2' thereof directly inside of the bracing rib 6 being of unbroken contour, and the inner faces 2'' of the walls being preferably continuously flat from end to end, and the bracing ribs are provided to supplement the continuous side and roof wall. The tendency to incomplete contraction after a series of severe heats and consequent distortion of the box and strains in the metal is thus prevented and the box is enabled to stand up for long periods of use without wearing out.

The ribs 6 are provided with integral transverse diaphragms or webs 7 arranged at suitable intervals on the side walls 2 and roof walls 3 as shown, the ribs preferably having the longitudinal flanges 8 to complete a truss framework for the box. The transverse diaphragms or webs 7 joining the walls at frequent intervals act to tie them to this framework and effectively prevent the sagging of the walls under great heat. The transverse diaphragms 7 are in the form of short webs which do not add appreciably to the weight of the box or act to promote sagging when at a high temperature. This construction is to be distinguished from that of boxes in which horizontal longitudinally extending ribs are employed, which do not materially brace the box when heated, but merely increase its tendency to sag by increasing the dead weight of the walls when at a high temperature. The box is also provided with the transverse bracing flanges 9 depending interiorly from the roof 10 and arranged preferably between and alternately of the connecting portions 6' of the rib 6. The arched roof wall 3 is thus effectively braced and its sagging between the bracing ribs prevented.

What I claim is:

1. A cast metal annealing box having walls provided at suitable intervals with bracing ribs having transverse diaphragms substantially included within the width of the ribs and integral with the wall, substantially as described.

2. An annealing box having integral side and top walls, said side walls having bracing ribs provided with a series of transverse integral diaphragms, said ribs continuing
5 over said top wall, substantially as described.

3. An annealing box having side walls provided with vertically extending ribs each having a series of transverse integral diaphragms, substantially included within the
10 width of the ribs, and a roof wall having transversely extending flanges.

4. A cast metal one-piece annealing box having integral bracing ribs extending continuously around its sides and roof walls,
15 said ribs being provided at intervals with transverse integral diaphragms.

5. A cast metal one-piece annealing box having integral bracing ribs extending continuously around its sides and roof walls, said ribs being provided at intervals with
20 transverse integral diaphragms, and said roof wall having depending interior flanges between said ribs, substantially as described.

25 6. An annealing box having integral side and roof walls, said side walls being provided with upwardly extending externally arranged ribs continuing over said roof wall,

said side walls being of unbroken contour interiorly of said ribs and said ribs having
30 a series of transverse bracing diaphragms, substantially as described.

7. An annealing box having integral side and roof walls, the side walls having substantially flat inner faces, and being of continuous thickness throughout and provided
35 with vertically extending external ribs having transverse integral bracing diaphragms arranged at intervals, substantially as described.

8. An annealing box having integral side and roof walls, the side walls having substantially flat inner faces, and being of continuous thickness throughout and provided
40 with vertically extending external ribs having transverse integral bracing diaphragms arranged at intervals and substantially included within the width of the ribs, said
45 roof wall having interior depending flanges, substantially as described.

In testimony whereof, I the said FRANK CORDES have hereunto set my hand.

FRANK CORDES.

Witnesses:

ROBERT C. TOTTEN,
JOHN F. WILL.