

No. 791,901.

PATENTED JUNE 6, 1905.

W. E. HARRIS.
ANNEALING BOX.
APPLICATION FILED MAR. 3, 1905.

FIG. 1.

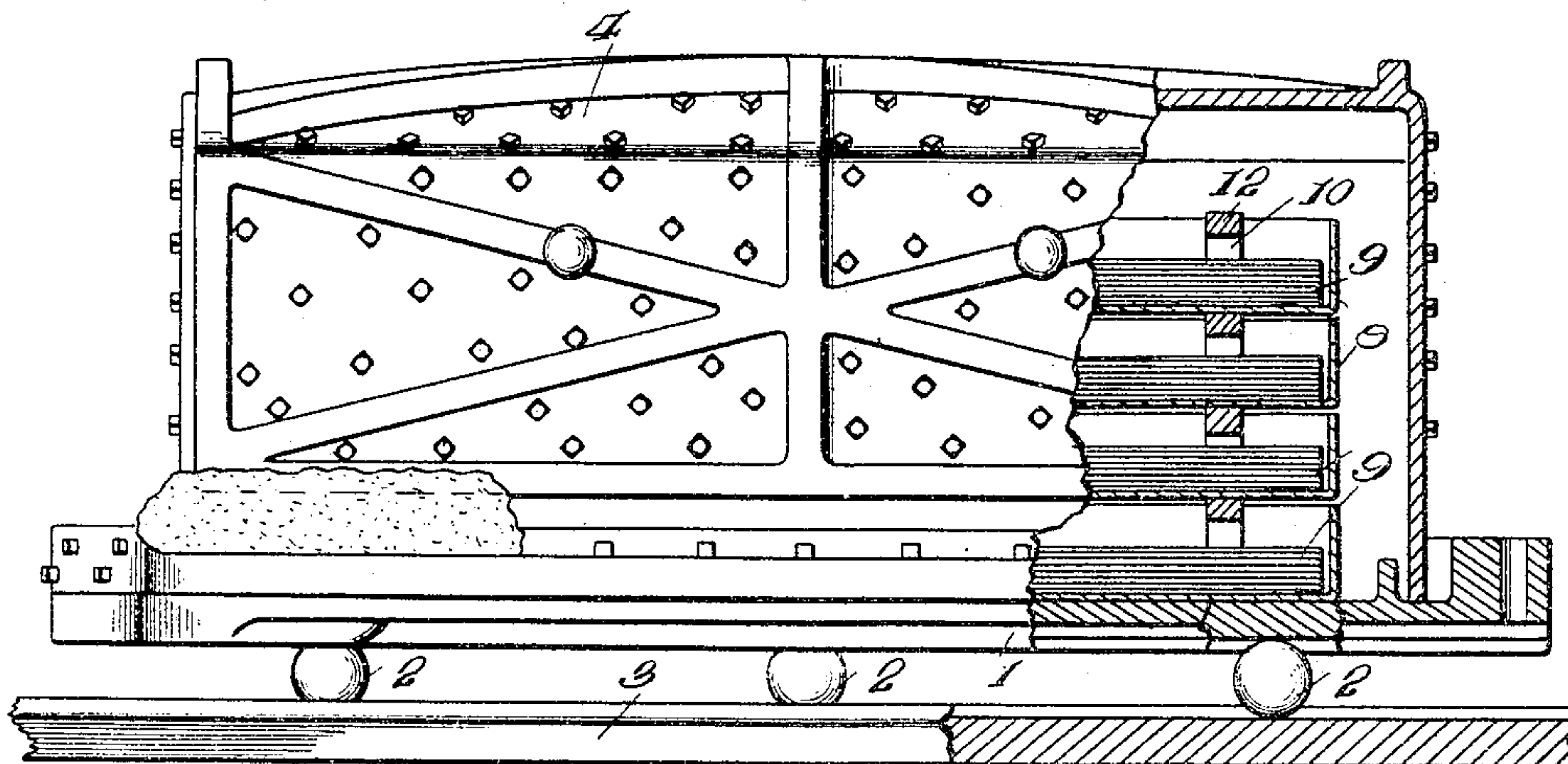


FIG. 2.

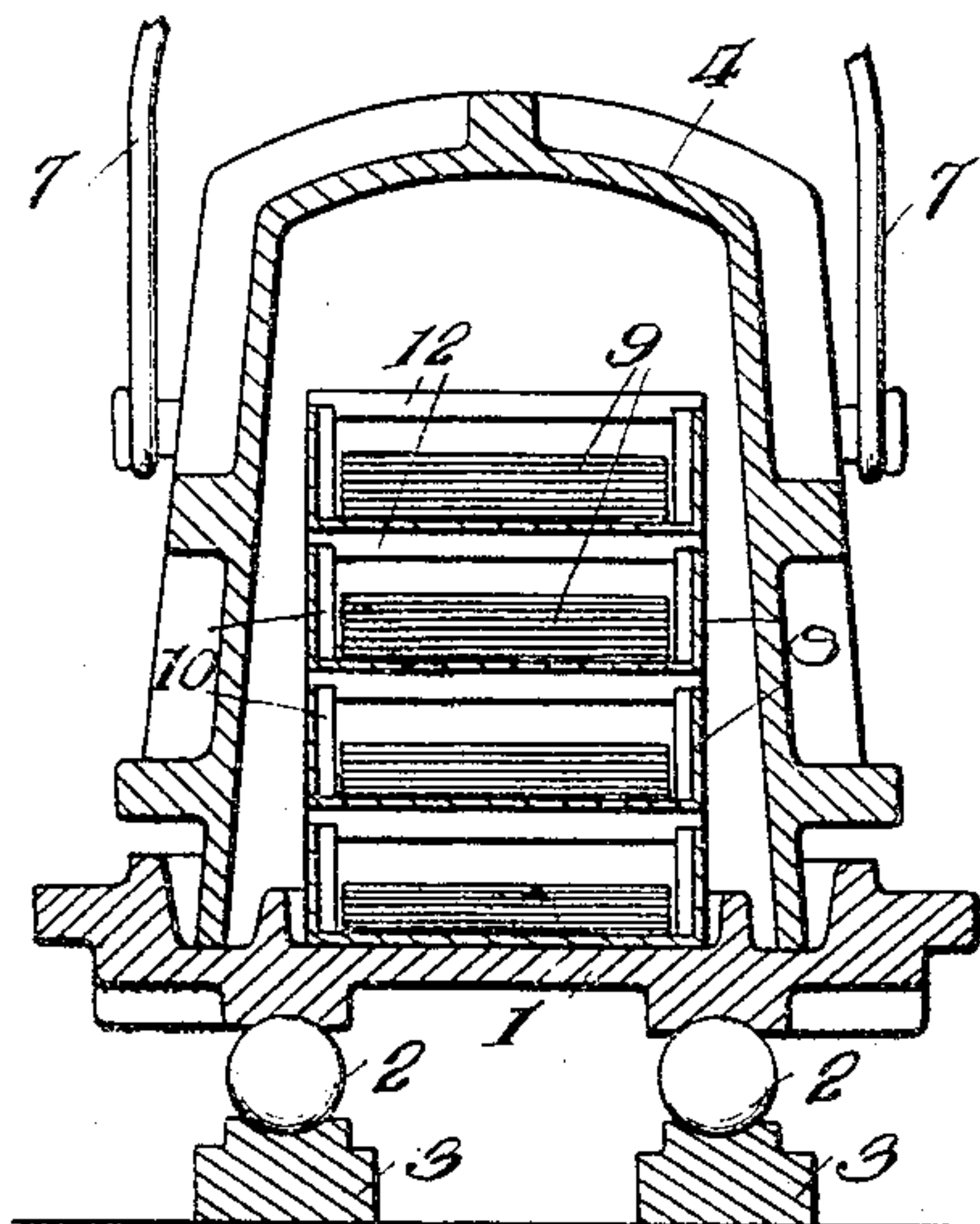
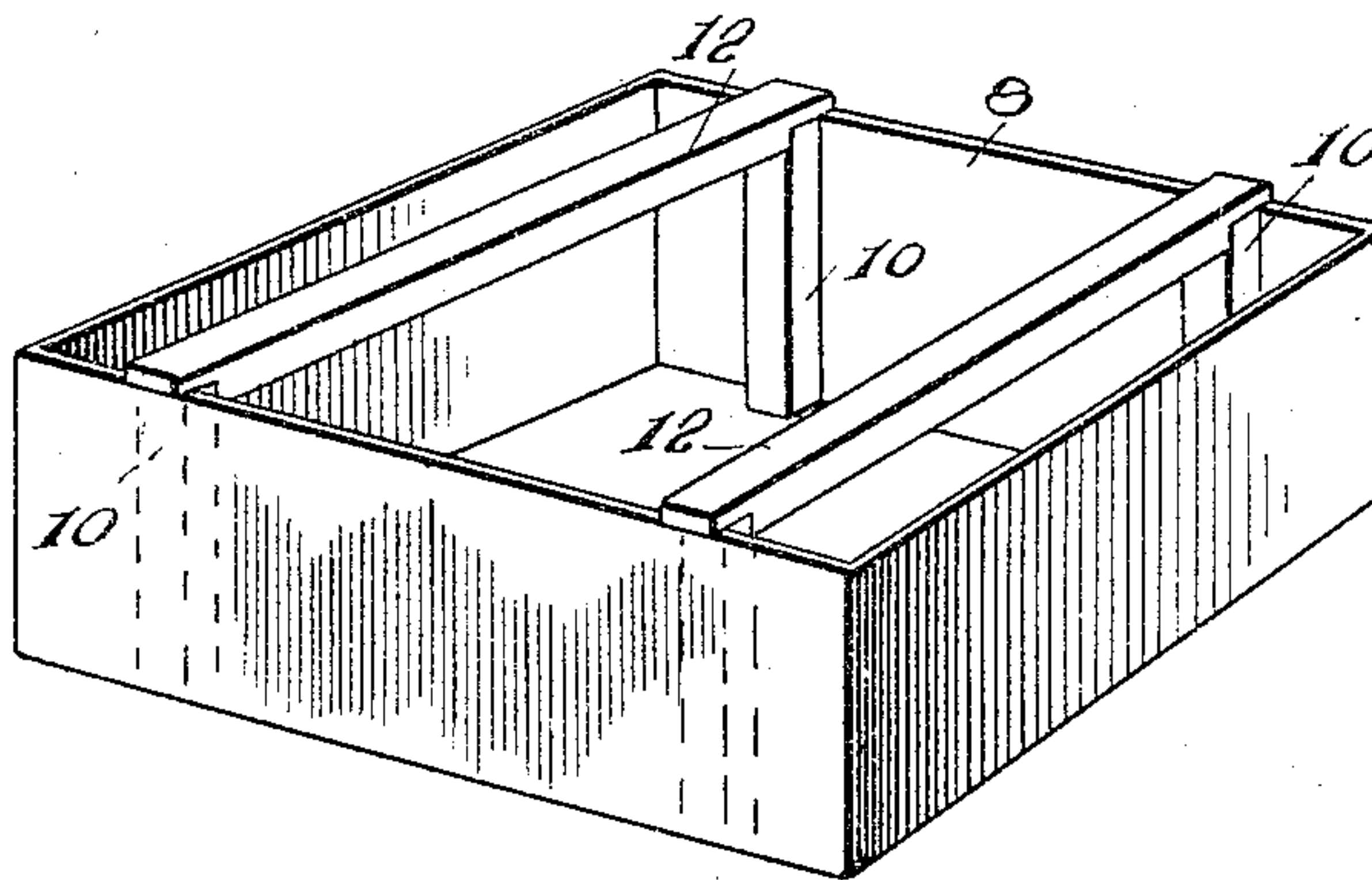


FIG. 3.



Inventor

Witnesses

John J. Harris
Francis S. Higgins

William E. Harris.

By

J. H. H. Harris.

Attorney

UNITED STATES PATENT OFFICE.

WILLIAM E. HARRIS, OF NILES, OHIO.

ANNEALING-BOX.

SPECIFICATION forming part of Letters Patent No. 791,901, dated June 6, 1905.

Application filed March 3, 1905. Serial No. 248,312.

To all whom it may concern:

Be it known that I, WILLIAM E. HARRIS, of Niles, in the county of Trumbull and State of Ohio, have invented certain new and useful
 5 Improvements in Annealing-Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 In Letters Patent of the United States No. 559,705, issued to me May 5, 1896, I described an improved method of treating and annealing metallic sheets so as to impart thereto the appearance of Russia iron or hammered sheets
 15 or plates, and according to the arrangement of the means shown for carrying out such method each series of sheets was stacked on a flat plate with a coating of copper filings and pulverized soapstone between the respec-
 20 tive sheets, the series being piled one upon another.

The object of my present invention is to provide improved means for stacking or piling the sheets so as to enable them to be more con-
 25 veniently handled, to prevent the spilling of the interposed mineral medium and the consequent loss thereof, to enable various-size sheets to be annealed at the same time and to be stacked in series one upon another irre-
 30 spective of the sizes, and, finally, to secure a more uniform heating of the piled sheets.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

35 In the accompanying drawings, Figure 1 is a side view with parts broken away. Fig. 2 is a transverse sectional view. Fig. 3 is a view in perspective of one of the inclosing boxes.

40 Referring to the drawings, 1 designates the bed of the annealing-box, which is shown as carried upon balls or rollers 2, that travel on grooved rails 3, which run into a suitable furnace. (Not shown.)

45 4 designates the box-cover, which rests in grooves of bed 1 and to which a bail 7 is secured, so as to permit the cover to be raised by a crane, as is customary.

50 8 designates a box or closure wherein a series of plates 9 is designed to be piled, all

of said plates having between them the mineral medium, as contemplated by my before-noted patent, a suitable quantity of such medium being spread on the bottom of the box. According to the form shown in Fig. 3, the
 55 box is of rectangular formation with a solid bottom, sides, and ends, the top being open. At the sides of the box are uprights 10, which fill the spaces between the side edges of the plates and the box sides. These uprights may
 60 be of any desired number and may be formed with the sides of the box or made separately therefrom, the latter being preferred, since uprights of different sizes may be substituted
 65 to hold in place plates or sheets of various widths or lengths. When a box is thus filled with the sheets or plates, it is placed on bed
 1, and cross-bars or rails 12 are extended transversely of the plates and preferably
 70 notched at their ends, so as to fit snug upon the sides of the box to prevent a superposed box or boxes from sliding off. A second box,
 likewise filled with plates or sheets and similarly equipped with the side uprights, is po-
 75 sitioned on the bars or rails 12, extending over the lower box. A third and remaining boxes are likewise stacked until the capacity
 of the device has been reached. Thereupon the cover 4 is put in position and the appa-
 80 ratus is rolled into the annealing-furnace, as stated.

I have not shown a series of separate plates with projecting studs to allow of air-spaces through which the heat may enter to reach
 85 the central portions of the sheets and also for the purpose of holding charcoal or equivalent filling, as shown in my before-noted patent, since the bars or rails 12, extending as they
 do above the sides of the box on which they rest, provide the necessary air-spaces between
 90 the several boxes. It is manifest, however, that some such means as that noted may be used, if desired.

The advantages of my invention are appar-
 95 ent to those skilled in the art. It is manifest that each box when filled with the sheets, especially after being treated, may be readily
 lifted off without danger of displacing the sheets. Then again, the mineral medium is
 100 prevented from spilling out and leaving bald

or uncolored spots around the edges of the sheets, and such as may be dropped in the covering of the latter or from the sheets themselves may be used over and over again, being readily collected from the bottom of the box. Sheets of various sizes may be annealed at the same time, and small ones at the bottom will not render unstable the pile or stack, since each box rests not upon the next lower pile of sheets, but upon the cross-bars or rails of the inclosing box. Furthermore, a more uniform heating is obtained throughout the contents of each box. The present invention is also of special advantage in treating sheet metal with the composition of matter specified in Letters Patent No. 585,098, issued to me June 22, 1897.

I claim as my invention—

1. In an apparatus for annealing a pile of sheets or plates arranged in separate series, a series of superposed boxes, one for each series of sheets, means within each box between the sides of the sheets therein and the sides of the box for preventing the displacement of such sheets, and means for forming air-spaces between the superposed boxes.

2. In an apparatus for annealing a pile of sheets or plates arranged in separate series, a

series of superposed boxes, one for each series of sheets, uprights within each box fitting between the sides of the sheets therein and the sides of the box for preventing the displacement of the sheets, and means forming spaces between the several superposed boxes.

3. In an apparatus for annealing a pile of sheets or plates arranged in separate series, a series of superposed boxes, one for each series of sheets, means within each box between the sides of the sheets therein and the sides of the box for preventing the displacement of such sheets, and removable cross bars or rails extended over each box and upon which the next superposed box is designed to rest.

4. A box of the character herein described closed at its bottom, sides and ends, and open at its top, inner uprights at the sides of the box, and removable cross bars or rails having notches at their ends for resting on said sides, as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM E. HARRIS.

Witnesses:

GEORGE W. UPTON,
HOMER E. STEWART.