

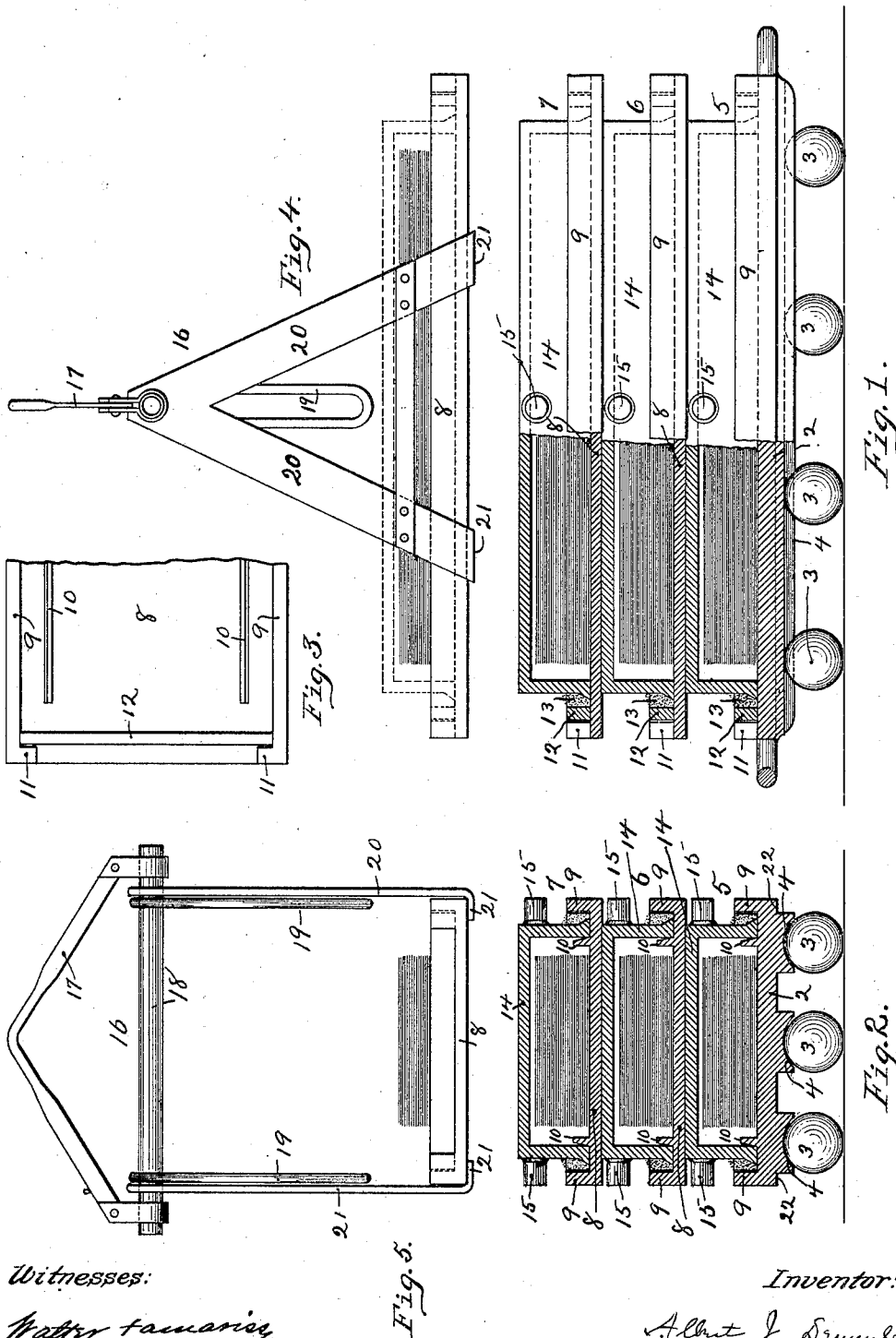
No. 682,459.

Patented Sept. 10, 1901.

A. J. DEMMLER.
ANNEALING BOX.

(Application filed Aug. 4, 1900.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

ALBERT J. DEMMLER, OF WELLSVILLE, OHIO.

ANNEALING-BOX.

SPECIFICATION forming part of Letters Patent No. 682,459, dated September 10, 1901.

Application filed August 4, 1900. Serial No. 25,854. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. DEMMLER, a resident of Wellsville, in the county of Columbiana and State of Ohio, 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 for heating or annealing sheet metal, its object being to provide a suitable annealing-box in which smaller piles or bodies of sheets may be heated or annealed while practically the same tonnage can be heated in the furnace or annealing oven and the separate piles may be handled separately, such as for transporting to the rolls, and each pile may be protected from contact with the atmosphere during handling, if desired.

The invention is specially applicable for use in connection with a method of forming polished sheet iron or steel set forth in an application filed by me of even date herewith, Serial No. 25,856.

It consists, generally stated, in a heating or annealing box formed of a series of sections stacked one upon the other, each section being formed of a pan and cover connected by suitably-luted joints, as hereinafter more fully set forth and claimed.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a side view, partly broken away, of an annealing-box embodying the invention. Fig. 2 is a cross-section of the same. Fig. 3 is a plan of one end of an annealing-box section, showing the removable end flange and the way of supporting the same. Figs. 4 and 5 show side and end views and the handling of the same by means of the overhead cranes or grapples.

The annealing-box can of course be arranged to be moved into or out of the heating or annealing furnace or oven in any suitable way, the drawings showing the same as provided with the bed 2, supported upon the balls 3 and over which it is rolled into the furnace. Except that the bed which forms the bottom of the lower section of the box is provided with the ball-groove 4 the construction

of each section of the box is the same, the box being shown with the three sections 5 6 7. I will therefore describe the parts of each section with the same figures where they correspond in parts. Each box has of course the bottom or pan, the bottoms or pans 8 of the upper sections of the stack having flat lower faces instead of being provided with ball-grooves 4. The pans have the side flanges 9 and are preferably formed with the sand ribs 10 inside of the same, these sand ribs and sand flanges being only formed along the sides of the pans and not extending across the ends thereof, for the reason that where the sheets are fed directly from these beds or bottoms to the rolls it is necessary that the smooth upper faces of the bed should extend to the ends thereof without the interference of any flanges. To provide the necessary sand-grooves at the ends of the sections, however, as shown particularly in Fig. 3, at the ends of the outer flanges 9 I form the inwardly-projecting ribs 11, against which are placed the removable end flanges 12, which are formed of metal bars corresponding in height to the flanges 9 and resting on the top of the bed, and so forming between them and the end walls of the section-covers sand-grooves 13. The section-covers 14 are of practically the same shape as the ordinary annealing-box cover, except that they are made lower and have flat tops to receive and support the sections resting thereon. They are also provided with the trunnions 15, by which they can be handled by the grapples. Grapples employed for handling the sections either for the lifting of the covers therefrom or the lifting of the beds themselves and carrying them to the rolls can be of any suitable construction, the grapples 16 shown having the yoke 17 supporting the cross-bar 18, from which the trunnion-links 19 hang in position to engage with the trunnions 15 of the section-covers, while the grapples have also the depending arms 20, provided with the inwardly-extending toes 21, which pass under the lower edges of the pans, and so provide for lifting and carrying the same to the rolls, hammers, or other places. It will be noticed that the lower pan 4 is offset, as at 22, to provide means for engagement with the toes of the grapple.

When the annealing-box is in use, the several sections thereof may either be charged with piles of sheets or plates and then stacked the one above the other, or the stack
 5 may be built up on the bottom pan 2. After the sheets are placed upon each bed or pan the removable end flanges 12 are inserted in place and the section-cover 14 then lowered upon the same and the sand filled within the
 10 sand-groove 13, so luting or sealing the section. The sections are then stacked one upon the other, the main point to be watched being that the side edges of the heated sheets shall be held even to prevent undue oxidation
 15 thereof when subsequently exposed for rolling. The box is then put into the heating or annealing furnace or oven and is raised to the necessary heat and maintained at the same as found proper for treatment of
 20 the sheets, and at the proper heat or temperature the box is withdrawn from the oven, after which the different sections of the box can be handled as found most desirable, according to the treatment to which the sheets
 25 are to be subjected. For the forming of blued and polished sheet iron or steel each particular section of the box can be carried while the cover is still held thereon to the rolls between which the sheets are to be rolled
 30 and the section-cover then removed from the same, the end flanges being preferably withdrawn before the section-cover is removed and the sand-luting brushed off to prevent possibility of contact of the sand with the sheets.
 35 If the plant is provided with a number of sets of rolls, each box-section can be carried to one of such sets and the entire charge of the annealing-box be thus rolled at approximately the same heat. During such rolling the section-pans act as hot beds to maintain the heat
 40 of the lower sheets of the pile. If desired, the section-covers can be removed before the sheets are transported to the rolls, and where the plant does not contain sufficient sets of
 45 rolls to roll all the sheets contained in the different sections at the same time the heat

in the remaining sections can be maintained by permitting the covers thereof to remain in position thereon and the sections be returned
 50 to the furnace, if necessary, until the mill is ready to roll that pile of sheets. The invention therefore provides for the protection of the sheets as found best according to the work to be performed and for the handling of the
 55 sheets in bulk by mechanical means without the necessity of the employment of separate supporting-slabs, while the cost and labor of handling the sheets are reduced to a minimum. The box can be used for heating sheet
 60 metal of any kind.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an annealing-box, the combination of a series of box-sections built one upon the other, the bed for each section having side
 65 flanges and removable end flanges, a section-cover fitting within said flanges, and a luted joint between the cover and flanges.

2. In an annealing-box, the combination of a series of box-sections built one upon the
 70 other, the bed for each section having side flanges formed therewith and provided with inwardly-extending lips at their ends, and removable end flanges engaging with the inwardly-extending lips, a section-cover fitting
 75 within said flanges, and a luted joint between the cover and flanges.

3. An annealing-box having a bed with side flanges and sand ribs formed integral therewith and extending longitudinally at or near
 80 the outer edges, but not across the ends of the bed, a cover fitting between said flanges and ribs, and a removable end flange extending across the ends of the pan and with the cover forming the sand-groove.
 85

In testimony whereof I, the said ALBERT J. DEMMLER, have hereunto set my hand.

ALBERT J. DEMMLER.

Witnesses:

JAMES I. KAY,
 J. D. BUCKLEY.