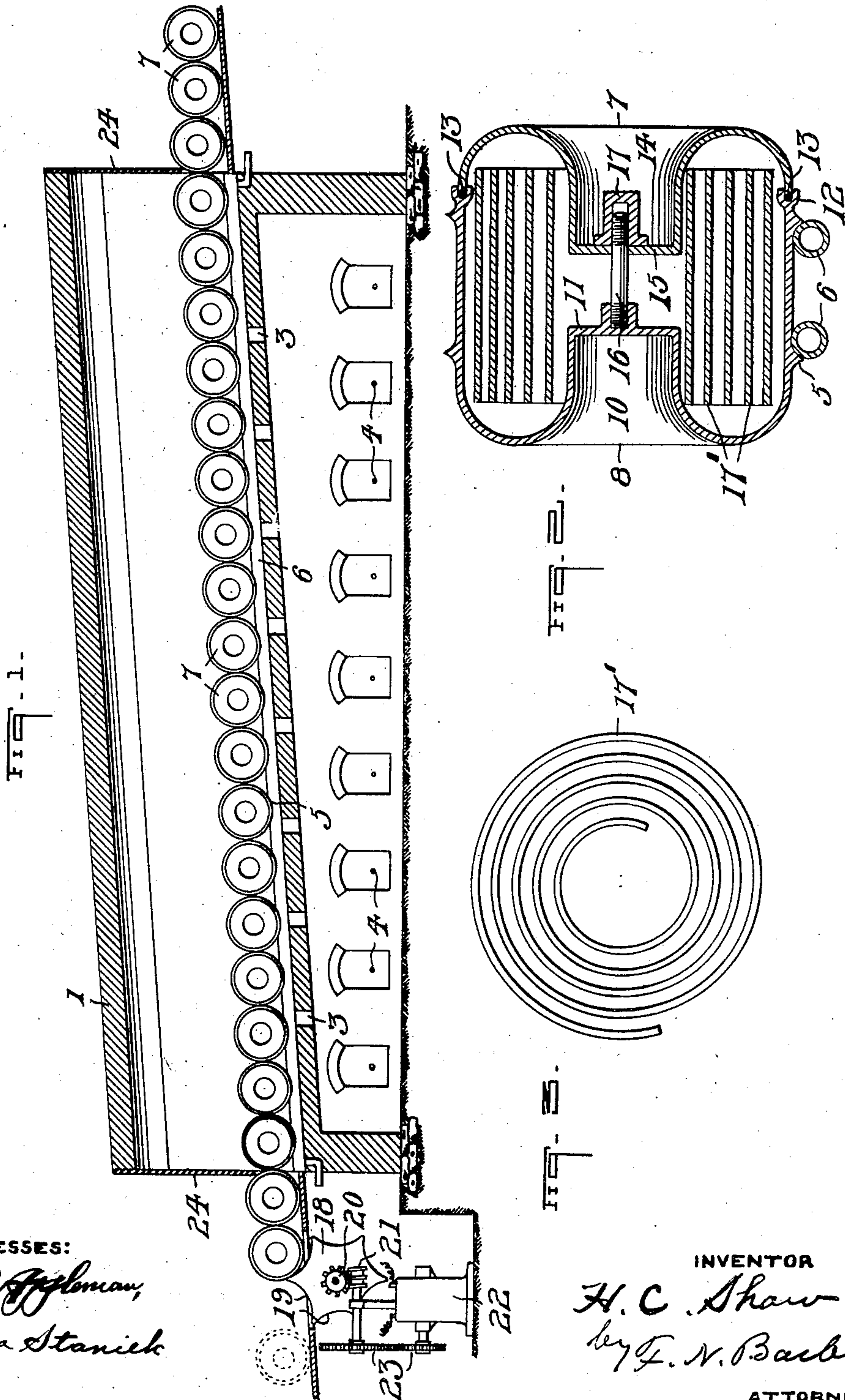


H. C. SHAW.
ANNEALING BOX AND FURNACE.
APPLICATION FILED DEC. 5, 1908.

935,275.

Patented Sept. 28, 1909.



WITNESSES:

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HENRY C. SHAW, OF GLENSHAW, PENNSYLVANIA.

ANNEALING BOX AND FURNACE.

935,275.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed December 5, 1908. Serial No. 466,114.

To all whom it may concern:

Be it known that I, HENRY C. SHAW, a citizen of the United States, residing at Glenshaw, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Annealing Boxes and Furnaces, of which the following is a specification.

My invention relates to annealing boxes and furnaces for use in connection with the same.

It is one of the objects of my invention to produce an annealing box which will roll during its passage through the furnace, thereby exposing all parts thereof to the same temperature. If necessary in particular cases, I may provide a fluid cooled track for the annealing boxes.

It is one of the purposes of my invention to anneal sheet steel in coils instead of in packs, as has hitherto been the custom, but it is to be understood that my annealing boxes may be used for annealing metal products in various forms.

Referring to the drawings, Figure 1 is a longitudinal view of the annealing furnace which I prefer to use, the annealing boxes being shown in end elevation; Fig. 2, a vertical section through an annealing box and the floor of the annealing furnace; and Fig. 3, a top view of a coil of sheet steel for which my annealing boxes are particularly adapted.

On the drawings, 1 represents the roof and 2, the bottom of an annealing furnace which I prefer to employ. Preferably the floor 2 inclines downwardly from the rear to front and is provided with the openings 3 to admit the heat from the gas burners 4 beneath the floor. A track or pair of rails extends longitudinally of the furnace and lies on the floor 2 but it may be supported otherwise. It may be constructed in various ways but I prefer to employ a pair of water cooled conduits or pipes 6 spaced apart to support the opposite ends of the rolling boxes 7. The annealing box 7 is approximately cylindrical in outline, and in its preferred form is composed of the body 8, and the cover 9 with means for sealing the same and securing the body and cover together. The body of the box 7 is composed of steel or iron and is circular in vertical cross-section. One end is open but the other end is closed and pressed in toward the open end to form the depression 10 and the internal pro-

jection 11. The edge of the body is provided all around with the groove 12, in which is placed the gasket 13 composed of asbestos rope or other incombustible sealing material. The cover 9 is shaped like the body 8 except that it is quite shallow. It has the depression 14 and the internal projection 15, which stands directly opposite the projection 11 when the body and the cover are axially aligned. The lower edge of the cover 9 is seated on the gasket 13. The bolt 16 is secured to the projection 11 in the axial center of the annealing box and extends through the projection 15. The cap-nut 17 is applied to the end of the bolt 16 in the depression 14 and screwed down tight against the outer face of the projection 15, thereby drawing the body 8 and the cover securely together, the interposed gasket 13 sealing the box 7 air-tight. Each box 7 has a pair of annular ribs or flanges 5 which engage the pipes 6 just as the flanges of the car wheels engage the rails of a railway.

17' represents the coils of sheet-metal, one being shown within the annealing box (Fig. 2), the projections 11 and 14 being within the central opening of the coil.

The annealing boxes may be supplied with carbonic gas or other non-oxidizing substance, as sand, to prevent the formation of a large amount of scale on the coils 17', or to limit the oxidation of the coils to a thin film as is required for a Russia-finish.

The annealing boxes are passed in a line through the furnace, each box pressing or bearing against the one next in front thereof. The line of boxes is checked by the feed drum 18 situated in front of the furnace. The drum has the pockets 19 to receive the boxes, the division-walls between the pockets forming abutments for holding back the line of boxes. The drum 18 carries the worm-wheel 20 which meshes with the worm 21 driven by the motor 22 through the gearing 23. The motor can be run at such a rate as to remove the boxes from the oven as fast as the annealing of the coils 17' is completed.

24 represents asbestos aprons or other closures for the ends of the furnace above the boxes 7.

I claim—

1. A cylindrical annealing box for a hollow coil, composed of a body and a cover, one having an internal projection extending toward the hollow of the coil, and a fastening

device in the depression made by said projection for fastening the body and cover together.

2. A cylindrical annealing box for a hollow coil, composed of a body and a cover, each having an internal projection extending toward the hollow of the coil, a bolt carried by one of the projections and extending through the other projection, and means co-
10 operating with the bolt and the last-named projection for securing the body and cover together.

3. In an annealing apparatus, an annealing oven having an inclined support for
15 rolling annealing boxes in mutual successive contact, a constantly moving stop arranged to engage the lowermost box and permit the

series of boxes to gradually move through the oven and to engage the next box when the lowermost box is released. 20

4. In an annealing apparatus, an annealing oven having an inclined support for rolling annealing boxes in mutual successive contact, a constantly rotating star-wheel to engage the lowermost of the series of boxes
25 and release the same and to engage the next box when the lowermost box is released.

Signed at Pittsburg, Pa., this 2nd day of December, 1908.

HENRY C. SHAW.

Witnesses:

SUZANNE S. BEATTY,
F. N. BARBER.