

Sept. 4, 1928.

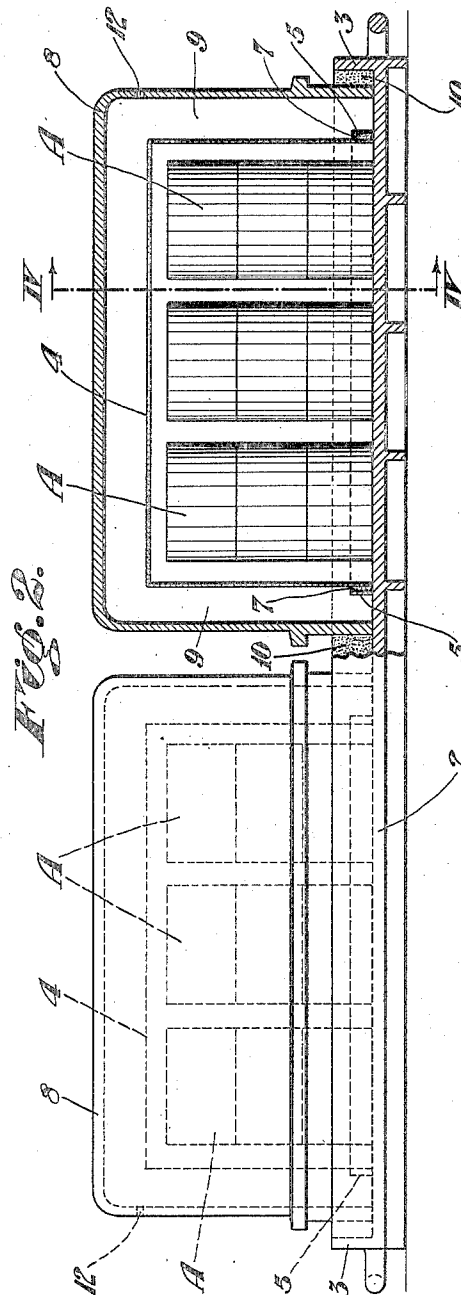
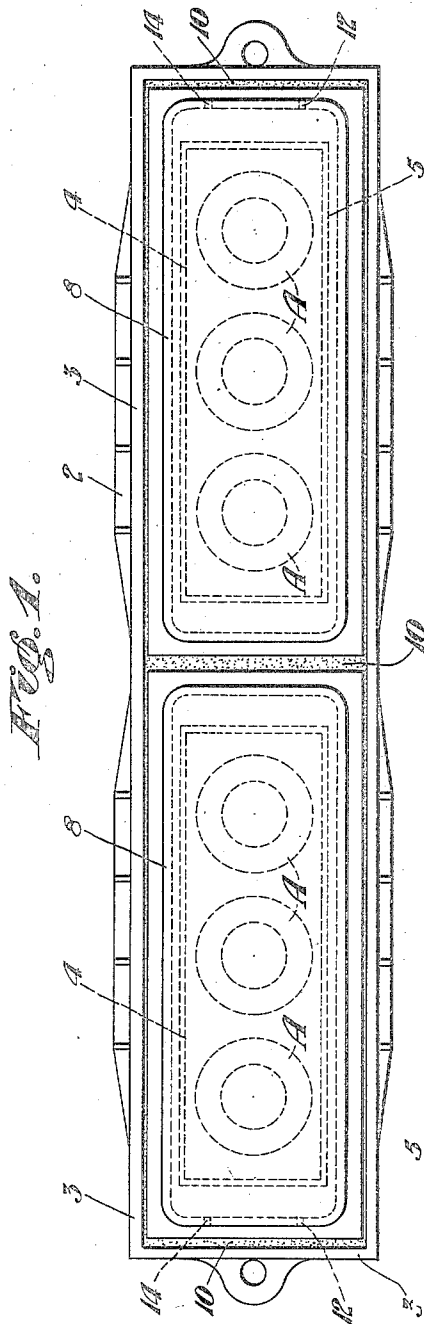
1,682,801

J. E. ROBERTSHAW

APPARATUS FOR ANNEALING

Filed April 2, 1927

3 Sheets-Sheet 1



Witnesses:

Edwin Trues

by:

Inventor:  
JAMES E. ROBERTSHAW,  
D. Anthony

his Attorney.

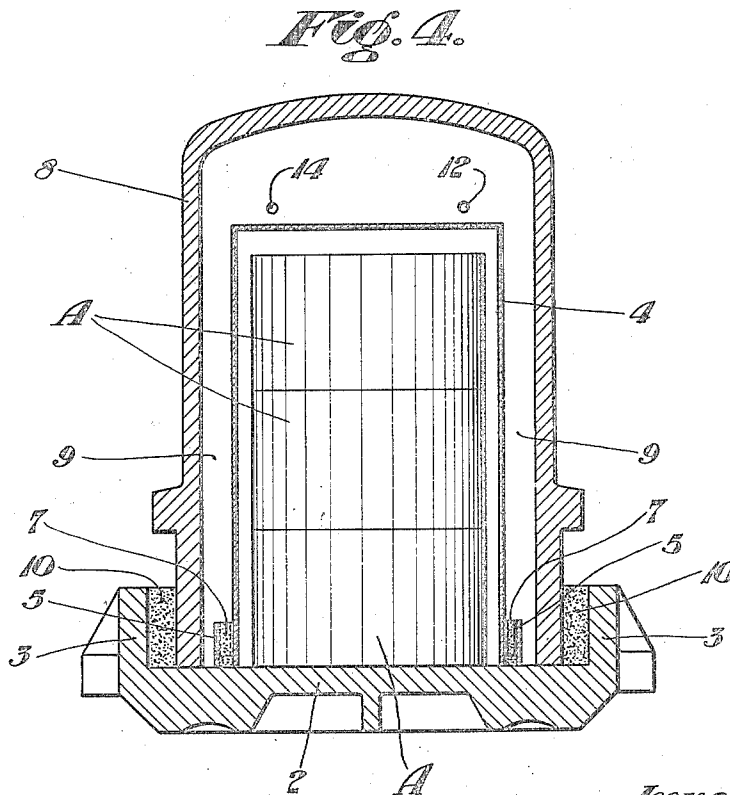
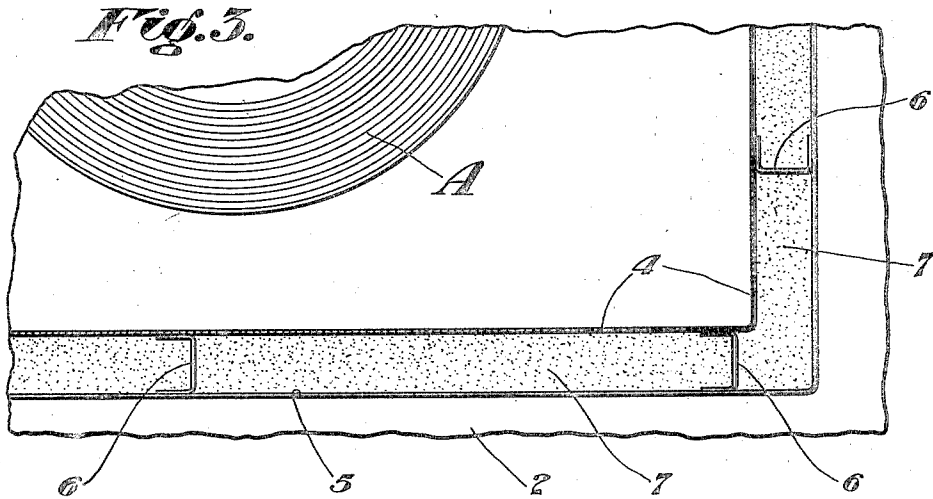
Sept. 4, 1928.

1,682,801

J. E. ROBERTSHAW  
APPARATUS FOR ANNEALING

Filed April 2, 1927

3 Sheets-Sheet 2



Witnesses:

*Edwin Truett*

Inventor:

JAMES E. ROBERTSHAW,

by:

*Anthony Luna*

his Attorney.

Sept. 4, 1928.

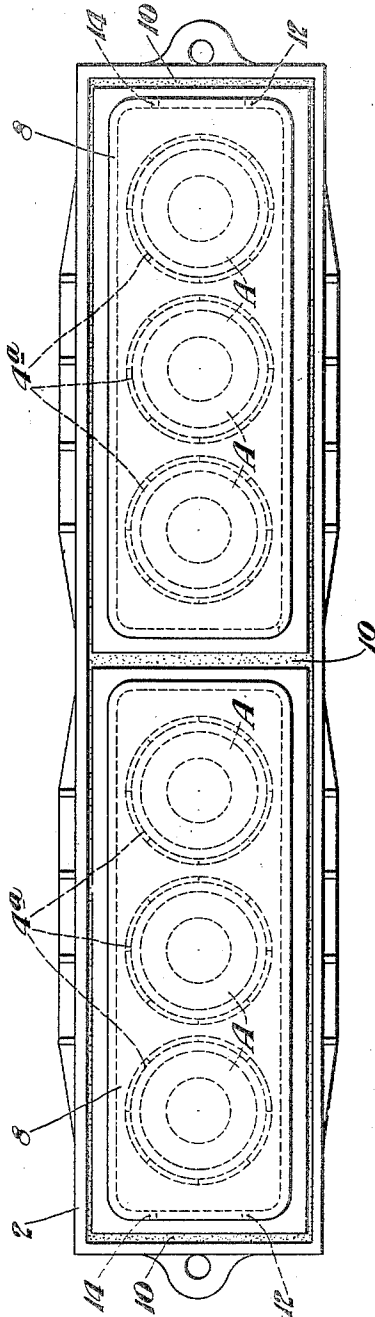
1,682,801

J. E. ROBERTSHAW  
APPARATUS FOR ANNEALING

Filed April 2, 1927

3 Sheets-Sheet 3

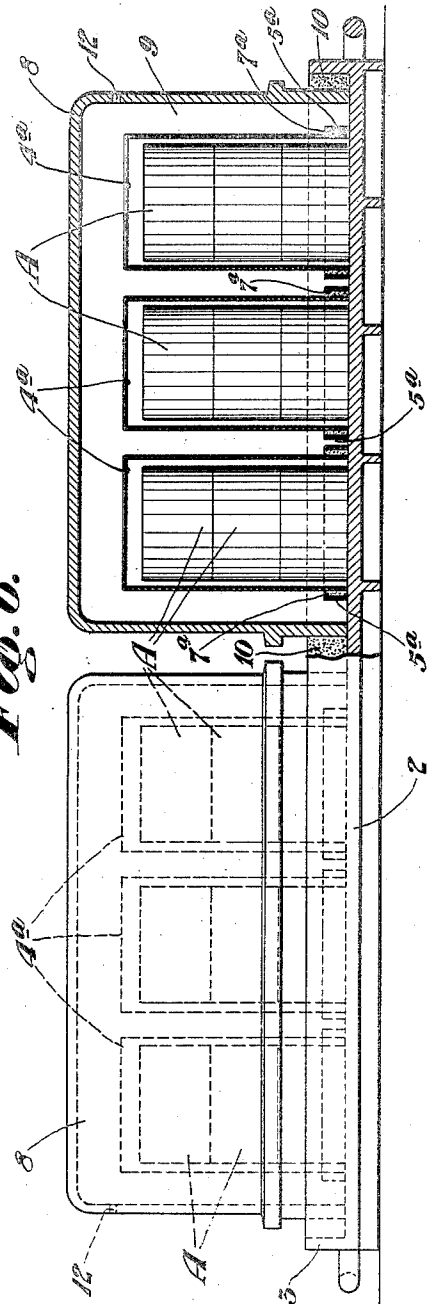
**Fig. 5.**



Witnesses:

*Edwin Truett*

**Fig. 6.**



Inventor:

JAMES E. ROBERTSHAW,

by:

*Anthony Hanna*

his Attorney.

# UNITED STATES PATENT OFFICE.

JAMES E. ROBERTSHAW, OF BEDFORD, OHIO, ASSIGNOR TO THE AMERICAN STEEL AND WIRE COMPANY OF NEW JERSEY, A CORPORATION OF NEW JERSEY.

## APPARATUS FOR ANNEALING.

Application filed April 2, 1927. Serial No. 180,526.

This invention relates to apparatus for annealing, and more particularly to apparatus for and methods of bright annealing ferrous metal material such as wire, strips, and the like, and has for its object the provision of an improved apparatus and method whereby the oxygen in the gas within the annealing box is excluded from the material being annealed so as to prevent discoloring of the material being annealed.

In the drawings—

Figure 1 is a plan of an annealing box containing coils of material to be annealed and embodying this invention.

Figure 2 is a side elevation, half in section.

Figure 3 is an enlarged plan of the seal retaining ring.

Figure 4 is a transverse sectional elevation on the line IV—IV of Figure 2.

Figure 5 is a plan of a modified form of annealing box having a separate inner cover for each coil of material to be annealed.

Figure 6 is a side elevation, half in section, of the modified construction of box of Figure 5.

Referring more particularly to the drawings, the numeral 2 designates the base of a double annealing box which is of the usual construction, having an annular flange 3 adapted to retain the body of sand or other granular material used as a seal.

The material to be annealed which is shown as consisting of coils of steel strip material A, is mounted on the base 2 in two groups, one on each side of the transverse center line of the base, and an enclosing cover member 4 having an open bottom is mounted over each group of the material so as to completely enclose the material.

The cover 4 is provided around its lower edge with a seal retaining ring 5 which is spaced from the side walls of the cover and also connected thereto by spacing members 6.

After the cover 4 is mounted in position over the material to be annealed, the space between the ring 5 and side wall of the cover is filled with a granular sealing material 7 to form a sealed joint between the cover 4 and box base 2. The material 7 is preferably composed of finely divided or granulated ferrous metal, such as ferrous metal filings,

turnings, or chips, and serves a purpose to be described.

After the cover 4 has been positioned and sealed in place, a second or outer box cover 8 is mounted over each of the covers 4. The cover 8 has an open bottom and is of such size as to leave a space 9 between its inner surface and the cover 4. The lower edge of the cover 8 is adapted to rest upon the base 2 and its side walls are spaced inwardly slightly from the flange 3 on the base to form a sealing space adapted to be filled with a granular or finely divided sealing material 10, such as sand, to form a sealed joint between the cover 8 and box base 2.

The covers 8 are provided with gas inlet and outlet ports 12 and 14, respectively, through which a flow of non-oxidizing gas is provided under pressure to force out the air trapped in the space 9 under the cover 8, and to prevent air seeping into said space through the sealing material 10.

The ferrous metal seal 7 serves as a filter when the box is in use to absorb any oxygen in the gas that may seep through the seal, therefore eliminating the discoloration of the material being annealed.

The modified construction of annealing box shown in Figures 5 and 6 is generally the same as that described above and, therefore, the above description applies thereto, except for the inner covers which are omitted, and a plurality of covers 4<sup>a</sup> are provided one for each pile of material, and each cover 4<sup>a</sup> has a seal retaining ring 5<sup>a</sup> adapted to retain a quantity of ferrous metal sealing material 7<sup>a</sup> so as to seal each of the covers 4<sup>a</sup> with the base 2.

While I have shown and described my invention as applied to double annealing boxes, it will be understood that I do not wish to be limited to double boxes, since it may be applied to single boxes as well, and also that the boxes may be of any desired shape so as to anneal other materials than wire or strips, without departing from the scope of my invention as defined in the appended claim.

I claim—

Apparatus for bright annealing comprising, in combination, a base for supporting the material to be annealed, at least one cover

member supported on said base and adapted to cover the material to be annealed, an annular seal retaining ring secured to and spaced from the side wall of said cover at its bottom edge, a seal of granular ferrous metal between said ring and said cover and forming a sealed joint between said cover and said base, a second cover enclosing said first named cover, and a seal of granular material around the lower edge of said second named cover to form a sealed joint between said base and said cover. 10

In witness whereof, I have hereunder signed my name.

JAMES E. ROBERTSHAW.