

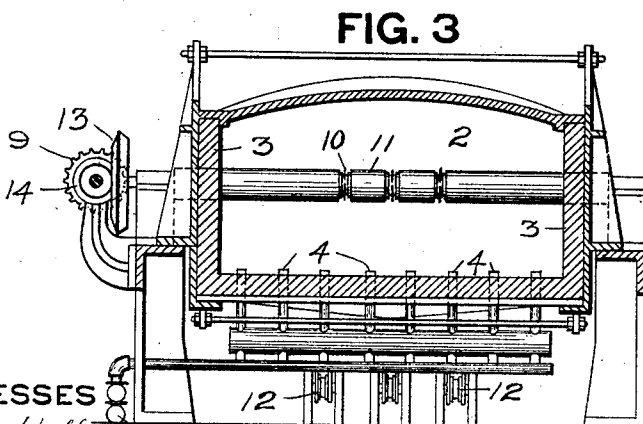
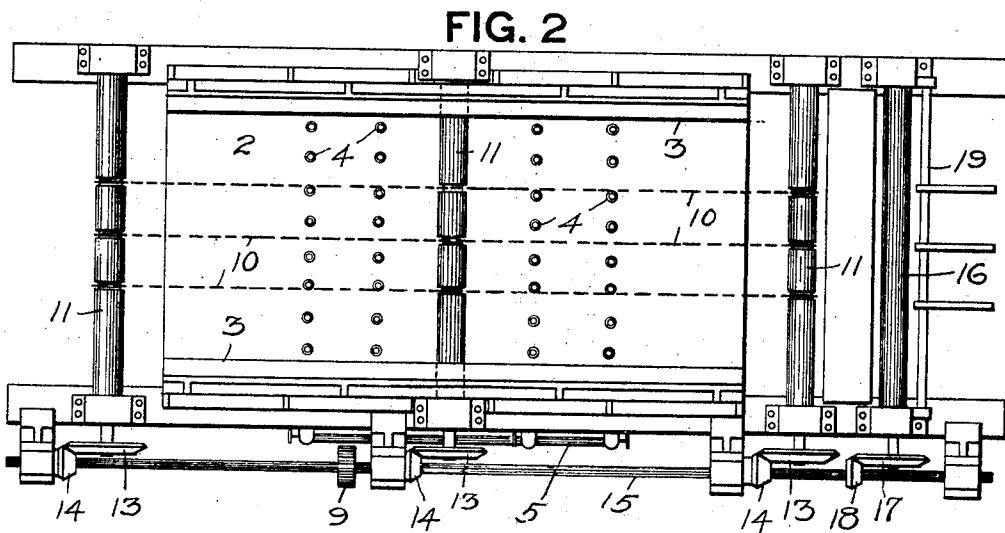
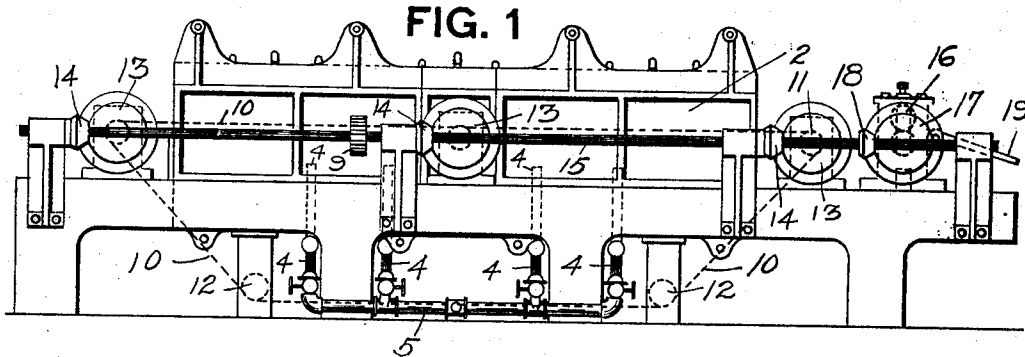
No. 756,475.

PATENTED APR. 5, 1904.

W. CLASPER.
FURNACE.

APPLICATION FILED NOV. 7, 1903.

NO MODEL.



WITNESSES

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UNITED STATES PATENT OFFICE.

WALTER CLASPER, OF McKEESPORT, PENNSYLVANIA.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 756,475, dated April 5, 1904.

Original application filed January 24, 1903, Serial No. 140,332. Divided and this application filed November 7, 1903. Serial No. 180,216. (No model.)

To all whom it may concern:

Be it known that I, WALTER CLASPER, a resident of McKeesport, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Furnaces; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to heating-furnaces, and more especially to furnaces for bluing sheet metal and like purposes.

The object of my invention is to provide a heating-furnace wherein a uniform heat, and more particularly a mild diffused heat, may be maintained in all parts of the heating-chamber.

A further object of the invention is to provide a furnace of the above kind with means for carrying the article or articles to be heated through said furnace and over the burners therein.

In the accompanying drawings, Figure 1 is a side view of my improved furnace. Fig. 2 is a plan view of the same, the top of the furnace being removed; and Fig. 3 is a transverse section through the same.

In an application filed January 24, 1903, Serial No. 140,332, I have described and claimed certain apparatus for the manufacture of sheet-iron, the general arrangement of the apparatus being such as to secure uniform heating of the sheets and uniform cooling thereof in order to produce absolute uniformity in the color of such sheets.

The present application is a division of the application aforesaid, and has for its object to specifically claim the particular form of furnace shown and described in said application.

The furnace comprises a suitable heating-chamber 2 of suitable width and length to accommodate sheets or other articles of the desired dimensions and retain the same therein a sufficient length of time to properly heat the same. This furnace-chamber is shown as provided with a refractory lining 3 and is heated by means of gas-burners 4, projecting up through the bottom of the furnace. There are four rows of such burners shown, eight burners in each row, and they are connected by suitable pipes and valves to a gas-supply

pipe 5. These burners are arranged in regular order and evenly distributed over the bottom of the furnace, and thereby a mild diffused heat can be created and maintained in said chamber, said heat being practically uniform in all parts of the chamber and not concentrated at any one point. As a consequence the sheets or other articles introduced into the chamber will not be subjected to a concentrated or excessive heat, which would injuriously affect them or neutralize the prior annealing.

When used for bluing purposes, the temperature maintained in the furnace will be such as to raise the sheets to a low cherry-red heat. When used for this purpose, the sheets will be introduced into the furnace singly, so that both faces thereof will be exposed to exactly the same heat and atmospheric conditions, thus insuring a uniform color over the entire surfaces of the sheets. The sheets may be introduced in the furnace in any suitable way or by any suitable mechanism; but in order to secure uniformity for all sheets it is desirable that they remain in the furnace a uniform length of time, and as a consequence I prefer to use power-actuated mechanism for introducing the sheets into the furnace and removing them therefrom. For convenience of operation this mechanism is so arranged as to feed the sheets in procession into the furnace and progressively through and out of the same. Suitable means for accomplishing this result are shown in the drawings, wherein a series of carrying-chains 10 are shown extending through the furnace and back underneath the same, being supported and driven from suitable rollers 11, one at each end of the furnace and one in the furnace, and being guided underneath the furnace by suitable guide-rollers 12. The rollers 11 are driven by any suitable mechanism—such, for instance, as the bevel-gears 13, on their outer ends, which are engaged by bevel-pinions 14 on a power-shaft 15, mounted in suitable bearings and extending longitudinally of the apparatus and driven by any suitable mechanism, such as the spur-gear 9. In advance

of the first roller 11 are a pair of positively-driven feeding-rollers 16, mounted in suitable bearings and one of which is provided with the bevel-gear 17, meshing with a bevel-gear 18 on the shaft 15. In advance of these rollers is a table 19, formed of a series of bars, as shown in Fig. 2, and preferably hinged, so that it can be swung out of the way. The sheets or other articles to be blued are placed on this table and pushed singly into the feeding-rollers 16, which feed them forward and onto the carrying-chains 10, by which they are carried in procession through the furnace, being heated therein to a low cherry-red.

Inasmuch as there are a plurality of rows of burners extending across the furnace, the zone of uniform heat is of such an area that the sheets will be entirely within the same, and said zone will be practically the entire length of the furnace, said chamber being only slightly chilled at the entrance and exit openings. It will be obvious, however, that instead of arranging the burners in straight rows, as shown, they may be arranged in staggered or any other appropriate relation.

Inasmuch as the sheets pass singly through the furnace, both surfaces of all the sheets are subjected to exactly similar heat and atmospheric conditions, thus producing absolute uniformity in the color of the sheets. It

is obvious that the furnace is also adapted for heating articles other than sheets.

What I claim is—

1. In a heating-furnace, the combination of an inclosed heating-chamber, and a series of gas-burners projecting from the bottom thereof and arranged in a plurality of rows and evenly distributed within said chamber to produce a uniform heat therein.

2. In a heating-furnace, the combination of an inclosed heating-chamber, a series of gas-burners projecting from the bottom thereof and arranged in a plurality of rows and evenly distributed within said chamber to produce a uniform heat therein, and means for carrying the articles processionally through said chamber and over said burners.

3. In a heating-furnace, the combination of an inclosed heating-chamber, a series of gas-burners projecting from the bottom thereof and arranged in a plurality of rows and evenly distributed within said chamber to produce a uniform heat therein, and a series of power-driven chains extending through said furnace and underneath the same.

In testimony whereof I, the said WALTER CLASPER, have hereunto set my hand.

WALTER CLASPER.

Witnesses:

GEO. B. HERWICK,
R. W. ESKIN.