

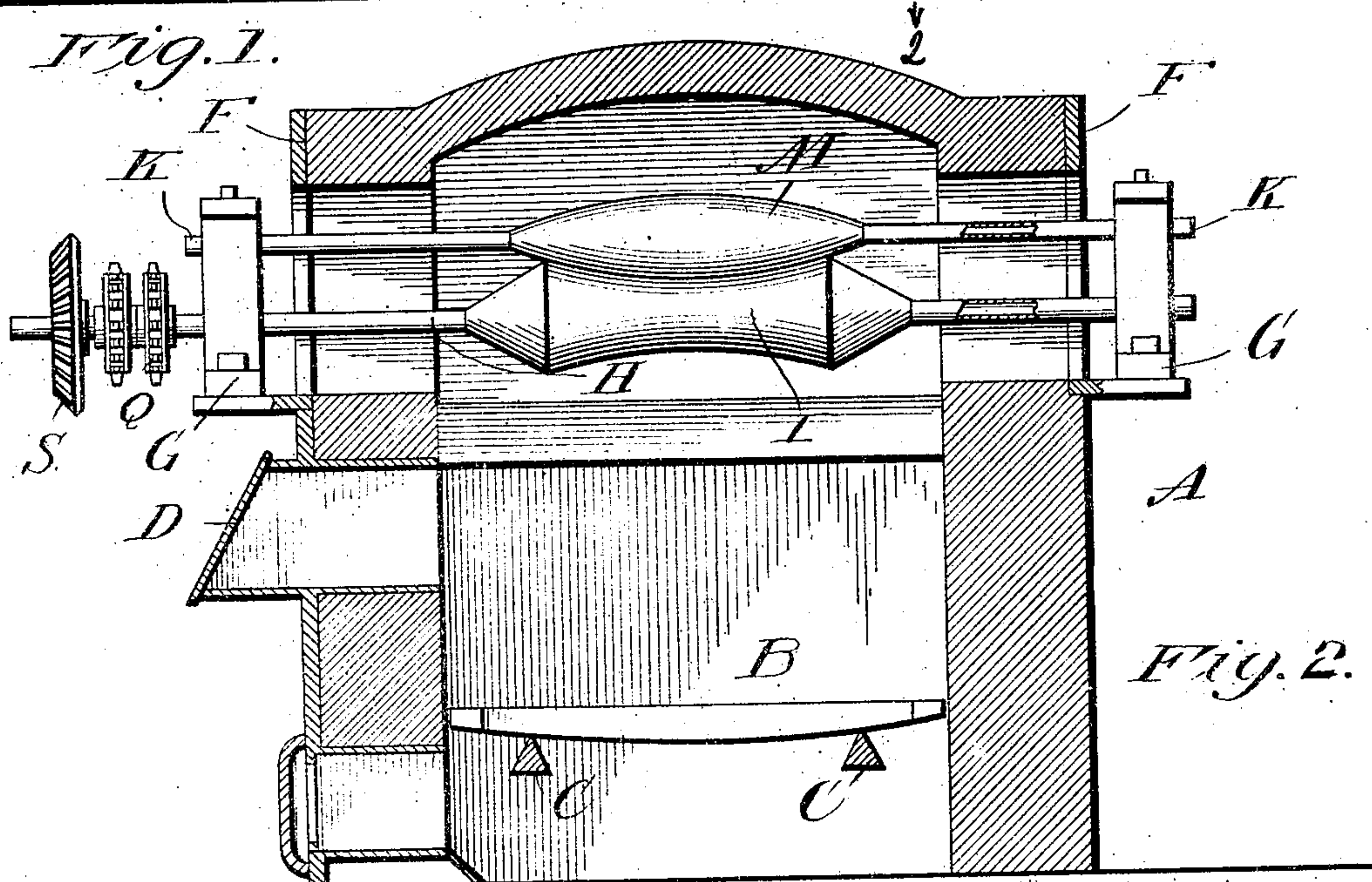
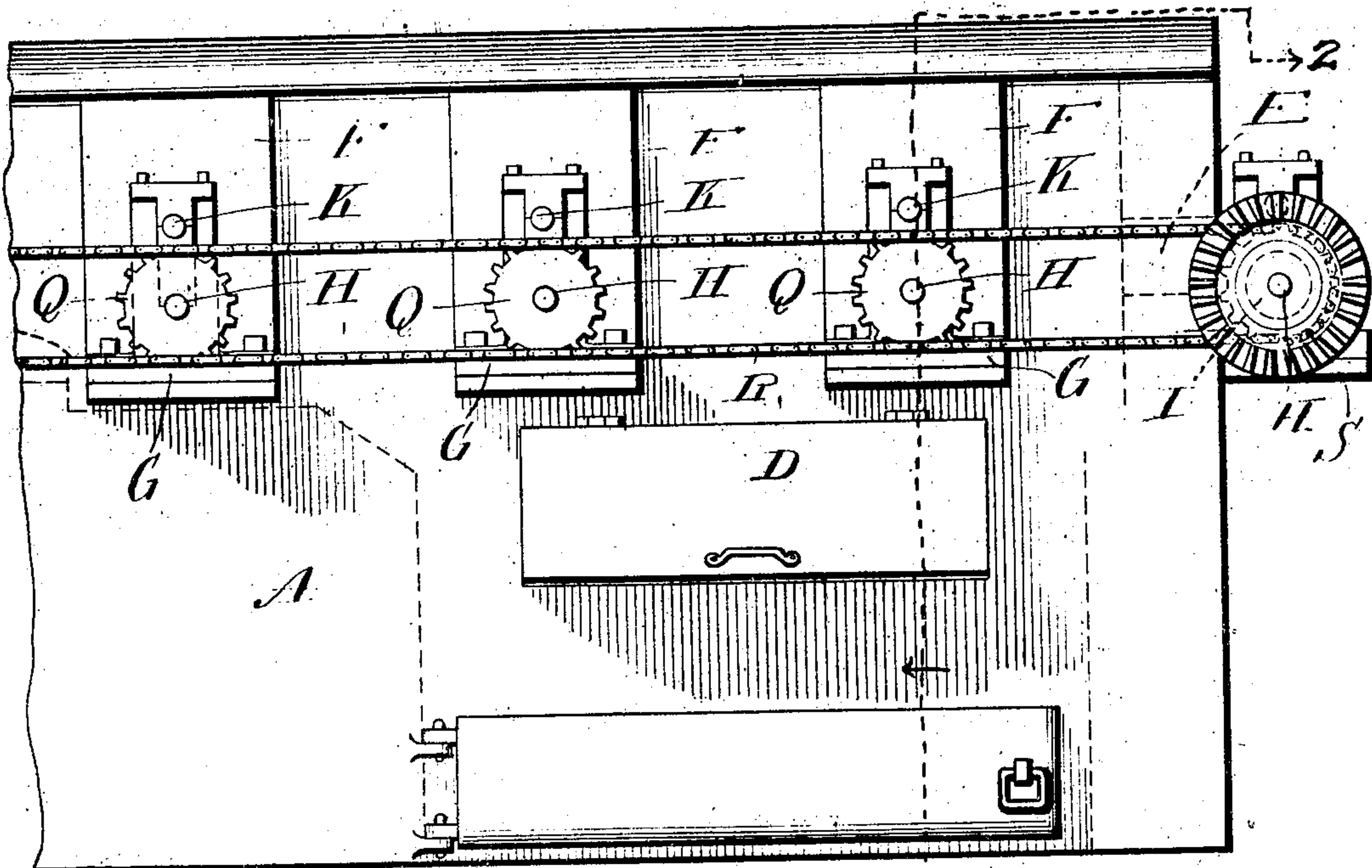
No. 844,101.

PATENTED FEB. 12, 1907.

T. J. COSTELLO.

CONTINUOUS ANNEALING AND BLUING FURNACE.

APPLICATION FILED MAY 16, 1906.



WITNESSES.

W. F. Taylor
Ada R. Fowler

INVENTOR

Thomas J. Costello,
BY *Franklin D. Hough*
Attorney

UNITED STATES PATENT OFFICE.

THOMAS J. COSTELLO, OF YOUNGSTOWN, OHIO.

CONTINUOUS ANNEALING AND BLUING FURNACE.

No. 844,101.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed May 16, 1906. Serial No. 317,214.

To all whom it may concern:

Be it known that I, THOMAS J. COSTELLO, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Continuous Annealing and Bluing Furnaces; 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in continuous annealing and bluing furnaces; and the object of the invention is to produce a simple and efficient apparatus of this nature for the purpose of annealing and bluing light metal sheets, means being provided for holding curved sheets rigid while passing through the entire length of the furnace and without the use of guides commonly employed in other furnaces designed for this purpose.

My invention consists in various other details of construction and combinations and arrangements of parts, which will be hereinafter fully described, and then specifically defined in the appended claims.

I illustrate my invention in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved annealing and bluing furnace, and Fig. 2 is a cross-sectional view on line 2 2 of Fig. 1.

Reference now being had to the details of the drawings by letter, A designates a furnace, which may be of any desired construction, and having a suitable grate B therein supported upon the bearing-bars C.

D designates a door leading into the fire-chamber, and E an opening in which the sheets to be annealed or blued are inserted. On the opposite sides of the furnace are bracket-arms F, upon which the bearing-blocks G are mounted, in which the shafts H of the concaved rollers I are journaled.

K designate shafts, which are also journaled in said bearings and on which are mounted the convexed rollers M, adapted to conform to the concaved surfaces of the rollers I in the manner shown in Fig. 2 of the drawings. Said bracket-arms are positioned

at intervals along the opposite sides of the furnace, and each bracket carries bearings for the ends of the shafts K and H, as shown in side elevation. Sprocket-wheels Q are fixed to the shafts H, and chains R pass about said sprocket-wheels and are adapted to impart motion from the shaft carrying the driving-pinion S at a uniform speed. Said shafts H and K are hollow in order that a cooling liquid may be passed through the same while the rollers are subjected to a high degree of temperature incident to the annealing process.

In operation the sheets to be annealed or blued are passed between the two rollers which appear at the end of the furnace outside thereof, thence fed through the opening E and their inner ends engaged by the adjacent set of rollers, and which rollers in pairs positioned at intervals serve to receive and guide the plates as they are subjected to the high temperature of the furnace, thereby holding the same rigidly and giving the same rigidity while passing through the furnace. By holding thin sheets while being annealed in a curved manner, as shown, more rigidity is afforded to carry the sheets through space while passing from one set of rollers to the next set of rollers, and so on through the entire length of the furnace, thereby producing a furnace through which it is possible to pass sheets while being annealed or blued without the use of the heretofore objectionable guide.

What I claim is—

1. An annealing and bluing furnace having a series of rollers arranged in pairs therein, one roller of each pair being concaved and the other convexed, and adapted to hold light sheets of metal on the arc of a circle to make the same rigid while being annealed as they pass through the furnace, as set forth.

2. An annealing and bluing furnace having a series of rollers arranged in pairs therein, one roller of each pair being concaved and the other convexed, and adapted to hold light sheets of metal on the arc of a circle to make the same rigid while being annealed as they pass through the furnace, the shafts of said rollers being hollow and adapted to receive a cooling liquid, as set forth.

3. An annealing and bluing furnace having bracket-hangers upon the walls thereof, bearing members upon said bracket members, shafts mounted in said bearing members and passing through the side walls of the

furnace, rollers arranged in pairs upon said shafts, one roller of each pair being concaved and the other convexed, and designed to receive and hold thin sheets upon the arc
5 of a cylinder while passing through the furnace, and means for driving said rollers, as set forth.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

THOMAS J. COSTELLO.

Witnesses:

MICHAEL LIVINGSTONE,
SADYE G. GREENWALD.