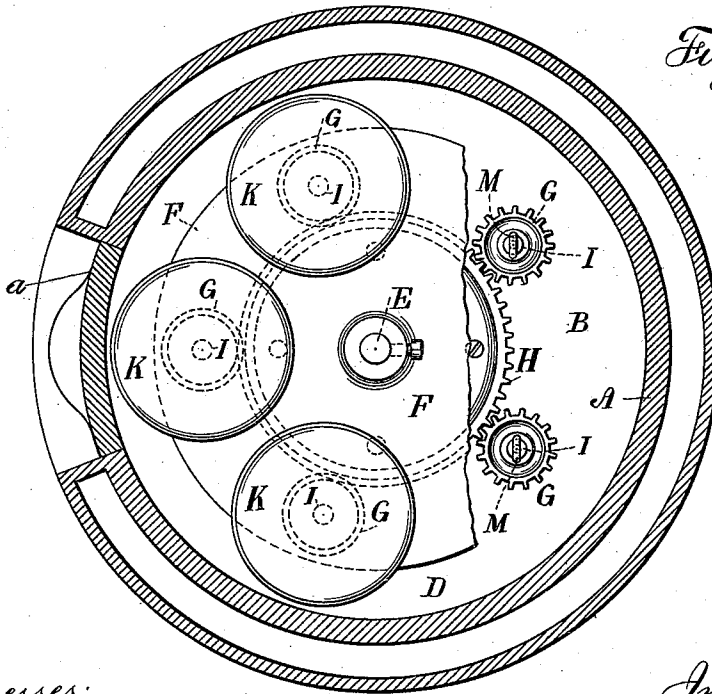
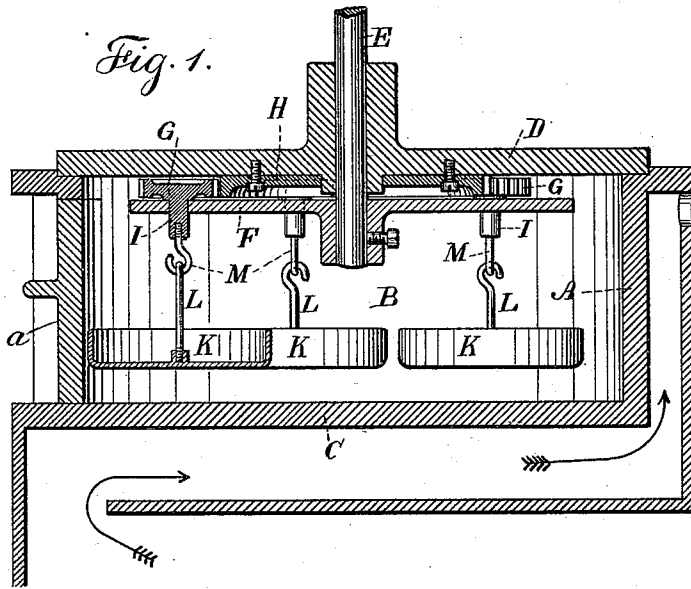


(No Model.)

W. H. DAYTON.
TEMPERING FURNACE.

No. 487,944.

Patented Dec. 13, 1892.



Witnesses:
J. Stail-
Char. A. Smith

Inventor:
William H. Dayton
per Lemuel W. Serrell
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM H. DAYTON, OF TORRINGTON, CONNECTICUT, ASSIGNOR TO THE
EXCELSIOR NEEDLE COMPANY, OF SAME PLACE.

TEMPERING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 487,944, dated December 13, 1892.

Application filed March 24, 1892. Serial No. 426,180. (No model.)

To all whom it may concern.

Be it known that I, WILLIAM H. DAYTON, a citizen of the United States, residing at Torrington, in the county of Litchfield and State of Connecticut, have invented an Improvement in Tempering-Furnaces, of which the following is a specification.

In tempering or bluing small articles, such as needles, spectacle-bows, screws, &c., difficulty has heretofore arisen in consequence of some of the articles or portions of the articles being exposed to a higher temperature than others in passing through a heating-chamber, and hence the tempering or annealing operations have not been entirely uniform.

The present invention is made with reference to insuring the utmost uniformity in the operation of the heat upon the respective articles and for allowing such operations to be progressively continuous.

In carrying out this invention I make use of a heating-chamber into which air at the proper temperature is admitted, or which chamber is surrounded by a flue through which the products of combustion pass and by which the annealing or tempering chamber is raised to the desired temperature, and within this heating-chamber trays are suspended or supported, into which the articles to be acted upon are introduced, and these trays are carried around in a circle and also each revolved about its own axis. Thereby articles contained in such trays describe a cycloidal line in passing through the heating-chamber, and they are uniformly heated, and in their movement the hot air of the chamber is stirred in such a way as to increase the uniformity of its temperature, and the trays can be inserted and removed at one point, so that the operations can be continued, a tray of annealed goods being removed and another one of unannealed goods introduced in its place, and according to the speed of movement so the articles remain in the annealing-chamber a greater or less length of time.

In the drawings, Figure 1 is a vertical section showing the present improvements, and Fig. 2 is an inverted plan, partially in section, representing the respective parts.

The wall A of the heating-chamber B is

preferably circular, and the heat may be given to this chamber in any suitable manner—such, for instance, as by the products of combustion introduced below the bottom C of such chamber and passing around the exterior thereof to a greater or less extent, as desired. The mode of heating the chamber, however, may be varied according to its size and according to the heat required.

The top plate D of the heating-chamber is preferably of metal and having a central shaft E passing through the same, and carrying the disk F upon the lower end of such shaft E, and upon this disk F there is a circular range of pinions G, gearing into a stationary central wheel H, which central wheel H is connected by suitable means with the top plate D. Hence as the shaft E and disk F are revolved the pinions G are carried bodily around the stationary wheel H and are also revolved upon their own axes I, and these axes I project down through the disk F, and are connected to the trays K, preferably by suspending rods L and hooks M at the lower ends of the axes I, so that the trays K can be readily hooked upon or removed from the hooks M and at one side of the heating-chamber there is an opening or door a in the wall A to give access for introducing and removing the trays K.

The size of the heating-chamber and of the trays may vary according to the size or number of the articles to be acted upon at once, and each tray is to receive the proper number of such needles, screws, spectacle-bows, or other articles that are to be tempered, and the trays and the articles they contain are carried bodily around within the heating-chamber B and are rotated upon their axial supports, so that all portions of the articles are necessarily exposed to a uniform heating action, and the hot air within the chamber B is stirred and commingled so as to be of a uniform temperature throughout.

According to the size of the pinions G the rotation of such pinions and the trays will be faster or slower, and it is to be observed that in cases where it may be more convenient to support the trays from below the parts may be inverted, the axes of the pinions G in such cases standing upwardly and having upon

their upper ends tables or supports upon which the trays are placed.

I claim as my invention—

1. The combination, with an inclosure forming a heating-chamber, of trays for receiving the articles to be heated, a shaft, and a disk supported by such shaft and rotated therewith, a stationary gear-wheel, pinions having axes that are connected to and moved by the revolving shaft and disk, such pinions being rotated by the stationary gear-wheel, and connections between the axes of the pinions and the trays for sustaining such trays and revolving them as they are carried bodily around the heating-chamber, substantially as set forth.

2. The combination, with an inclosure forming a heating-chamber, of a shaft passing through the top of the heating-chamber, a stationary gear-wheel around such shaft, a disk carried by the shaft, pinions gearing with the stationary wheel and having axes projecting down through the disk and provided with hooks and trays for receiving the articles to be heated, and means for suspending the trays from the axes of the pinions, substantially as set forth.

Signed by me this 17th day of March, 1892.

WILLIAM H. DAYTON.

Witnesses:

CHAS. L. MCNEIL,
ALBERT SPERRY.