

A. M. MOORE.
 OVEN FOR TEMPERING SHOE SHANKS AND OTHER SMALL ARTICLES.
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957,853.

Patented May 10, 1910.

Fig. 1.

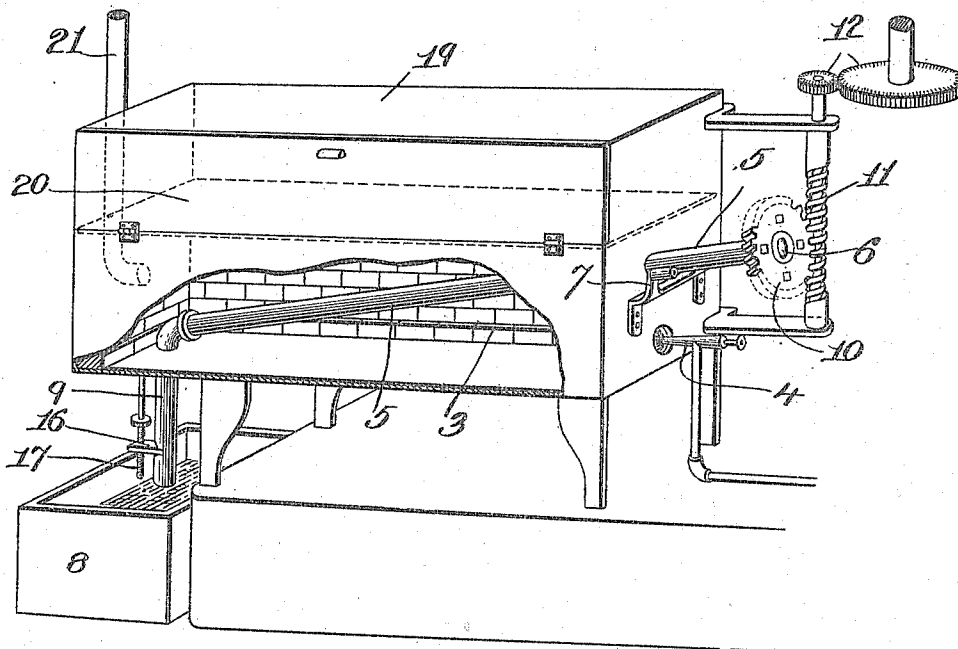
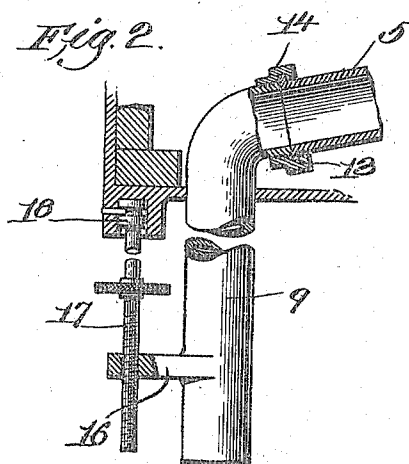


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

ALFRED M. MOORE, OF MALDEN, MASSACHUSETTS, ASSIGNOR TO ALFRED M. MOORE
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OVEN FOR TEMPERING SHOE-SHANKS AND OTHER SMALL ARTICLES.

957,853.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed October 28, 1905. Serial No. 284,839.

To all whom it may concern:

Be it known that I, ALFRED M. MOORE, a citizen of the United States, and resident of Malden, county of Middlesex, State of Massachusetts, have invented an Improvement in Ovens for Tempering Shoe-Shanks and other Small Articles, of which the following description, in connection with the accompanying drawing, is a specification, like numerals on the drawings representing like parts.

This invention has for its object to provide a novel device for tempering shoe shanks and other small articles, and it comprises an inclined container, having an open end into which the articles to be tempered may be fed and means to heat the articles as they gravitate through the container, the articles on being discharged from the container dropping into a cooling bath.

The container is smooth internally to permit the articles to freely gravitate therethrough, and in order to assist the articles in their movement through the container, I propose to agitate it in some way. In the present embodiment of my invention this agitation is obtained by rotating the container. Suitable means are also provided for varying the angle of inclination of the container so that the time required for the articles to pass therethrough may be varied more or less according to the character of the articles being tempered or the temperature to which it is desired to heat them before depositing them in the cooling bath.

The articles within the container may be heated either by applying heat to the exterior of the container, or by forcing heat into the container. It is the first method of heating the articles that I have illustrated herein.

In the drawings, Figure 1 is a perspective view of a device embodying my invention, a part of the oven being broken out to better show the construction; Fig. 2 is a detail of the discharge end of the container.

The container is designated by 5, and it is arranged at an inclination, and is shown as a tubular member having a smooth unobstructed bore through which the articles to be tempered may freely gravitate. In this embodiment of my invention the articles within the container are heated by heating the container in a suitable furnace or oven 3, which in turn may be heated in any suit-

able way, either by an ordinary coal fire or by a gas or oil burner. It is the latter construction that has been shown herein, and 4 designates the burner.

The container enters the furnace or oven at one side and extends substantially the full length thereof at an inclination. The exposed end 6 of the container is open to permit the articles to be tempered being fed into it, and said exposed end is shown as being supported on suitable bearings 7 exterior to the furnace.

The articles which pass through the container and are heated therein are discharged into a cooling bath of oil or water contained in a suitable receptacle 8, and to convey the articles from the container to this bath, I have herein shown a discharge-pipe 9 which extends through the bottom of the oven and the upper end of which communicates with the discharge end of the container.

In the present embodiment of my invention, the container is a rotary container, its rotary movement facilitating the gravitation of the articles therethrough. For rotating the container I have shown a worm-gear 10 on its exposed end, which gear meshes with the worm 11 driven in any suitable way as by means of gears 12.

The discharge-pipe 9 is non-rotary and to permit the container to rotate, I have shown a swivel connection between it and said discharge-pipe. Any suitable swivel connection may be used, that herein shown being merely a flange 13 on the discharge end of the container which rotates in a suitable collar or union 14 on the upper end of the discharge-pipe.

Different degrees of temper may be secured in different articles by heating them more or less prior to cooling them in the cooling bath, and to provide for heating the articles within the container to any desired degree of temperature, I have provided means for varying the angle of inclination of the container thereby providing means by which the time it takes for any articles to gravitate through the container may be regulated. One way of securing this adjustment is by making the discharge-pipe 9 vertically adjustable, as shown in Fig. 2, wherein said discharge-pipe has a projection 16 thereon which forms a nut through which an adjusting screw 17 works, said screw being swiveled at its upper end to the

bottom of the furnace or oven as at 18. By turning the screw 17, the discharge end of the container may be elevated more or less, thereby varying its angle of inclination.

5 Further adjustment of the container may also be secured by making the bearing 7 vertically adjustable, as shown in Fig. 1.

In order to bring the shoe shanks into the proper condition for use, it is not only necessary to temper them but also to afterward anneal them slightly, and my improved device is adapted to accomplish both of these objects. The construction by which the articles may be tempered has already been described. For annealing them, I provide an annealing oven 19 which is separate from the furnace 3 or the container or retort 5, but which is situated sufficiently near the furnace so that the annealing oven may be heated sufficiently by radiation from the furnace.

A much higher heat is required in tempering the articles, than is required in drawing or annealing them, and I have found that by arranging an entirely separate annealing oven adjacent to the furnace so that the annealing oven may be heated by radiation from the furnace, the annealing oven will be heated sufficiently for annealing purposes.

In the present embodiment of my invention, I place the annealing oven 19 above the furnace and provide it with a suitable door 20 which forms one side of the oven and which may be opened to afford access to the interior.

35 In the form of invention shown in the drawings, the furnace and the annealing oven are made in the same casing. The casing is provided with a horizontal imperforate partition which forms the top of the furnace and the bottom of the annealing oven. With this construction, the container 5 is subjected to the greatest heat, but the annealing oven is heated sufficiently for annealing purposes by radiation.

45 21 designates a smoke pipe for carrying away products of combustion from the furnace 3.

Various changes in the construction of the device may be made without departing from my invention.

50 Having fully described my invention,

what I claim as new and desire to secure by Letters Patent is:—

1. In a device of the class described, a furnace, a rotary inclined container extending 55 into the furnace, means to rotate said container, a non-rotary discharge conduit leading to a cooling bath and swiveled to the lower end of the container, means co-acting with the discharge conduit for raising and lowering 60 the latter vertically, and an annealing chamber above the furnace arranged to be heated by the heat therein.

2. In a device of the class described, a casing divided by an imperforate partition 65 into two compartments, the lower compartment constituting a furnace and the upper compartment constituting an annealing oven, a container extending into the furnace and subjected to the direct action of the 70 products of combustion, and means to rotate the container.

3. In a device of the class described, a furnace, a burner for heating the same, a rotary container extending into the furnace 75 and subjected to the direct action of the products of combustion, and an annealing oven situated above the furnace and having its top and sides exposed to the air, the bottom of said annealing oven constituting the 80 top of the furnace.

4. In a device of the class described, a furnace, a rotary inclined container extending 85 into the furnace, means to rotate said container, a non-rotary discharge conduit extending through the bottom of the furnace and leading to a cooling bath, the lower end of said container being swiveled to the discharge conduit, and means co-acting with 90 the discharge conduit for raising and lowering the latter vertically, and an annealing chamber above the furnace arranged to be heated by the heat therein.

In testimony whereof, I have signed my 95 name to this specification, in the presence of two subscribing witnesses.

ALFRED M. MOORE.

Witnesses:

GEO. W. GREGORY,
ELIZABETH R. MORRISON.