

No. 755,998.

PATENTED MAR. 29, 1904.

E. CHAMBERS.
TEMPERING AND COLORING APPARATUS.

APPLICATION FILED JULY 6, 1903.

NO MODEL.

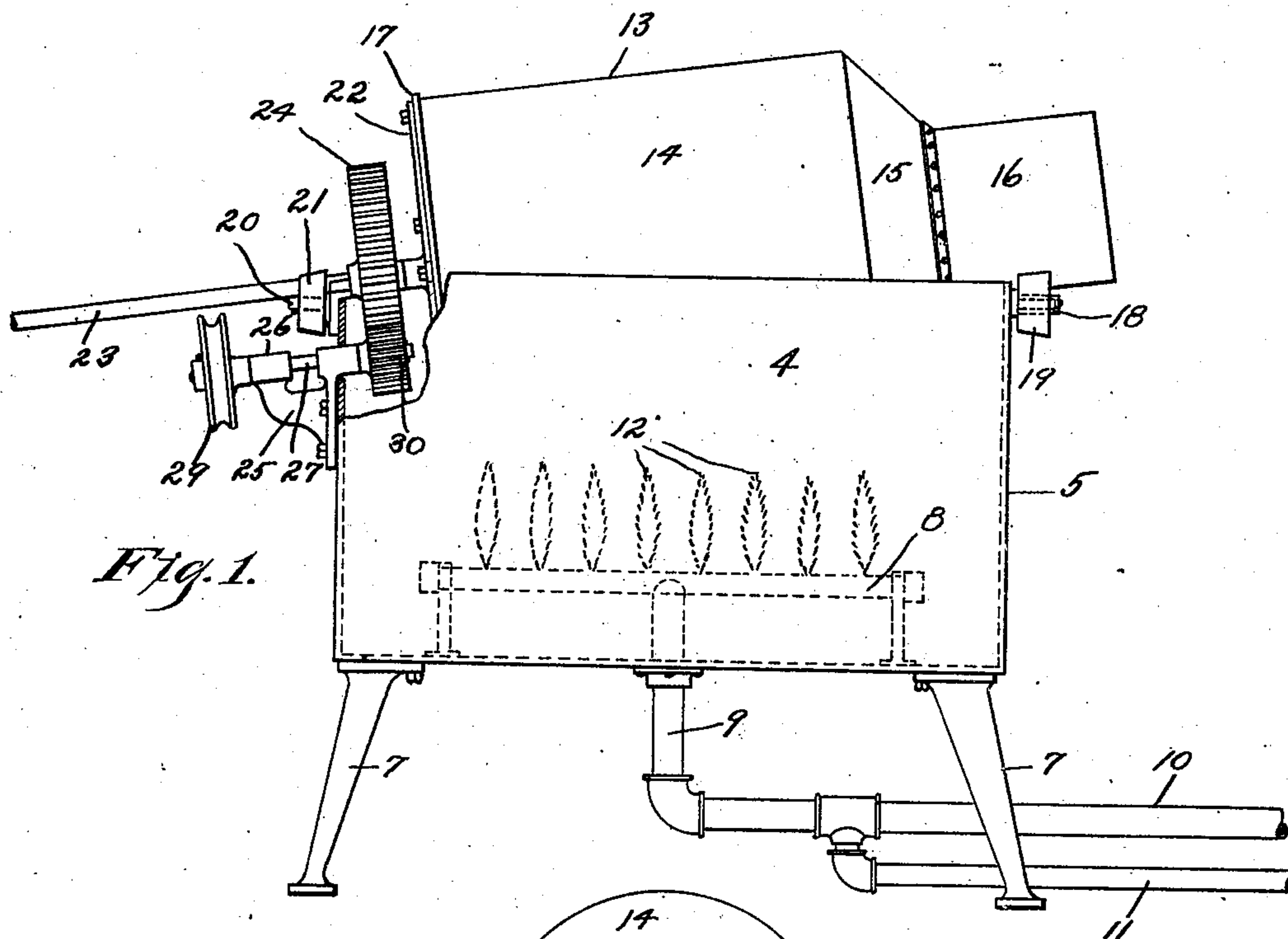


Fig. 1.

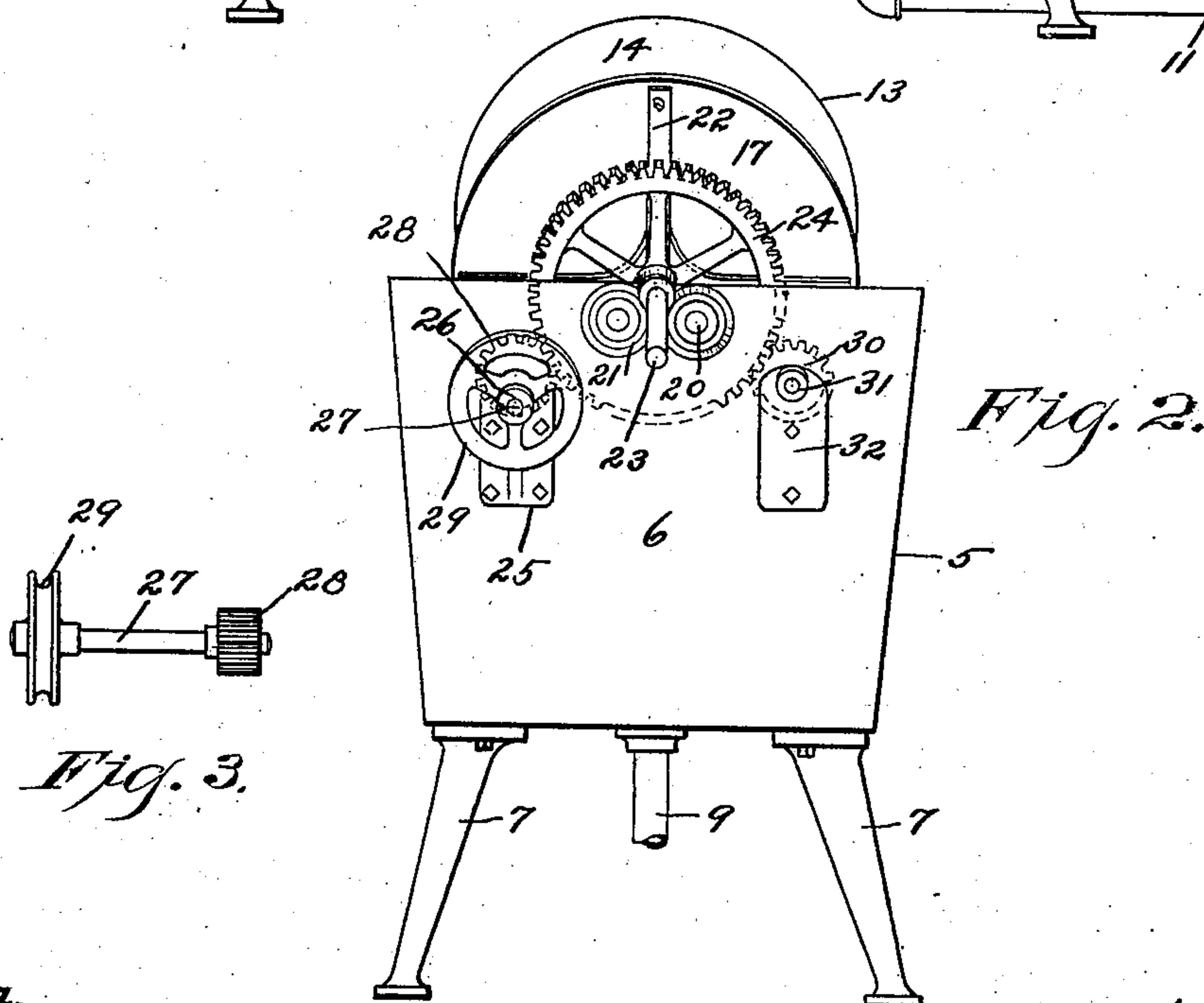


Fig. 2.

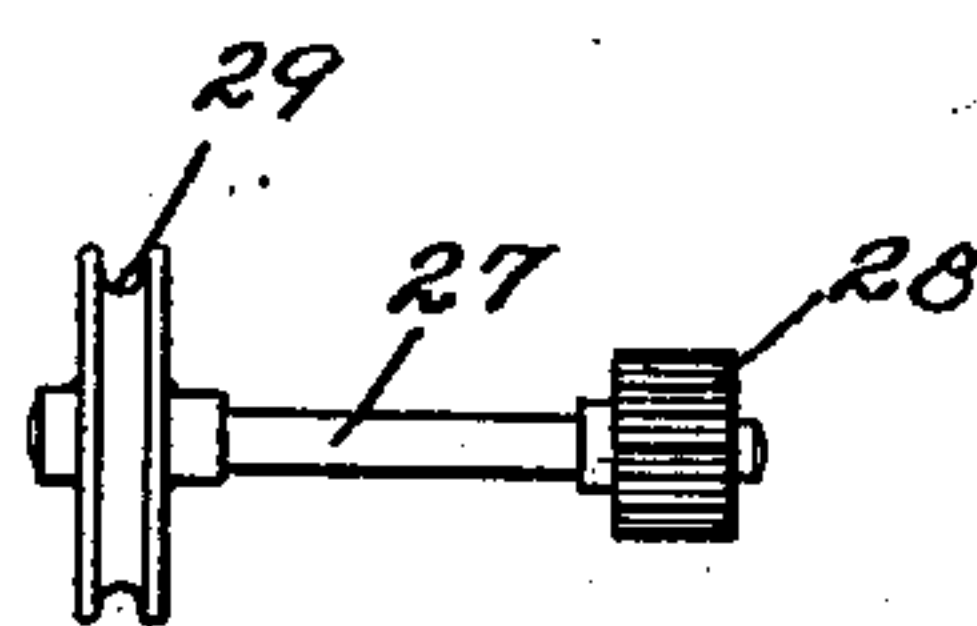


Fig. 3.

Witnesses:

Horace A. Bodge.
Robert A. A. A.

Inventor:

Edgar Chambers,
By his Attorney,
F. H. Richards.

UNITED STATES PATENT OFFICE.

EDGAR CHAMBERS, OF MERIDEN, CONNECTICUT.

TEMPERING AND COLORING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 755,998, dated March 29, 1904.

Application filed July 6, 1903. Serial No. 164,258. (No model.)

To all whom it may concern:

Be it known that I, EDGAR CHAMBERS, a citizen of the United States, residing in Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Tempering and Coloring Apparatus, of which the following is a specification.

This invention relates to and has for an object to provide an improved tempering and coloring apparatus, and particularly the driving means therefor.

Heretofore in tempering and coloring small articles—such as pen-points, clock-hands, screws, and the like—the articles have been placed in a metallic barrel supported above some source of heat—a charcoal fire or a flame—and the barrel rotated by means of a hand-crank fast to the barrel, and at the arrival of the proper temperature the barrel was removed from the furnace and its contents thrown out upon a tray. This necessitated the constant attention of one man to turn the barrel and the assistance of another man when it came time to empty the barrel. It has not heretofore been found possible to rotate the barrel by mechanical means. Owing to the fact that when the critical point arrives the barrel must be instantly withdrawn from the heat and the work agitated up to the instant of such withdrawal, any delay to uncouple driving mechanism would be disastrous to the work. In my device, however, the barrel is supported above the furnace and mechanically rotated in such manner that it may be raised from the furnace, as heretofore, without any unlocking of fastening devices. The barrel carries mechanism which will engage driving mechanism supported by the furnace when it is placed above the furnace and may be withdrawn from such driving means upon the furnace by merely raising the barrel and without unfastening or uncoupling such driving mechanism further than the disengagement of the parts of the driving mechanism while one part is moved from the other as it follows the movement of the barrel and the parts break engagement. This may be accomplished by one workman, who will not have to give his entire time and attention to the barrel. By

merely placing the barrel in position in the furnace the driving mechanism will come into active engagement and the barrel be rotated until it is desired to remove it from the furnace, when the operator simply has to lift it from the furnace and from the driving mechanism.

In the drawings accompanying and forming part of this specification a form of my invention is illustrated, wherein—

Figure 1 is a side view slightly broken away. Fig. 2 is an end view, and Fig. 3 is a tail, of the driver.

The barrel is intended for ready removal from the furnace, and the driving-gear must be so located that the barrel may be easily removed from the furnace by hand, and owing to the fact that it is to be removed by hand the weight added to the same by the presence of the cog-wheel must be so distributed that it will be possible for a workman to lift the barrel. When he grasps the shaft to raise the barrel from the furnace, he must take hold of the same near the barrel with one hand, so that he can apply his strength to the best advantage. Were the cog-wheel in a position to engage driving-cogs outside of the furnace it would bring such cog-wheel to a position upon the shaft where it would interfere with him grasping the same near the barrel, and consequently it would be with great difficulty that a barrel could be handled in the manner required in this art. This invention therefore presents not only the feature of having the gearing where it will not interfere with the action of the barrel in being raised from the furnace, but also in a position where it will not throw additional and unnecessary work upon the operator.

The furnace (designated in a general way by 4) is herein shown as embodying a box having sides 5 and ends 6, supported by legs 7 and having some heating device within it, in the present instance shown as an aerated-gas burner 8, coupled to a pipe 9 in communication with pipes 10 and 11 for supplying fuel and air to the burners. Flames 12 are represented as emitted from the burners. The articles to be treated will be placed within a barrel 13, which is shown as having side walls 14,

a breast 15, and a neck 16, reduced in size in the present instance as compared with the side walls. The barrel is also provided with a suitable bottom 17. One end of the box or furnace is shown as provided with a pair of stub-shafts 18, each supporting an antifriction roller or sheave 19 for supporting the neck of the barrel. The other end of the box carries stub-shafts 20, each supporting an antifriction roll or sheave 21. A spider 22 is bolted to the bottom of the barrel and has projecting therefrom a shaft 23, which is supported by the rolls or sheaves 21. A cog-wheel 24 is shown as fast upon the shaft adjacent to the bottom of the barrel, and when the barrel is in position upon the rolls or sheaves such cog-wheel will be within the furnace-box, but adjacent to one end thereof, which end supports a bracket 25, having a bearing 26 for a shaft 27, carrying at one end a pinion 28 within the box and in position to mesh with the cog-wheel 24 when the barrel is in place resting upon the rolls or sheaves. The shaft 27 carries a pulley 29, driven from some suitable source of power. (Not shown.) For the purpose of steadying and guiding the cog-wheel an idle pinion 30 is shown as supported by a stub-shaft 31, carried by a bracket 32 upon the end of the furnace-box.

The shaft 23 not only serves the function of a shaft, but also that of a handle for the manipulation of the barrel.

Assuming the fire in the furnace to be at the desired temperature, the articles which it is desired to temper or to otherwise treat by heat will be placed within the barrel and the neck of the barrel allowed to rest upon the rolls or sheaves 19. The cog-wheel will then be brought into gear with the idler 30, when by a slight movement it may be brought into mesh with the driving-pinion 28 without shock or stripping of cogs. The attendant may then leave the barrel and go about other work, as his duties demand, returning at the proper time to remove the barrel from the furnace, which will be done instantly upon ascertaining that the desired temperature or color has been imparted to the work. This may be done without throwing off belting or unfastening or uncoupling any of the driving mechanism.

The additional weight of the driving cog-wheel 24 is so placed that it will come near the operator's hand, giving him the greatest amount of leverage in its actuation, and at such a position that it will not catch or interfere with any portion of the furnace.

It will be apparent that changes may be made in the structure as the various employments to which it may be adapted will demand without departing from the spirit of my invention.

Having described my invention, I claim—

1. The combination with a furnace, of a pair of sheaves at each end of the furnace; a barrel

having a mouth surrounded by walls adapted to rest upon a pair of said sheaves; a handle extending from the end of the barrel opposite the mouth to rest upon the other pair of sheaves and adapted for the manual lifting of the barrel from the furnace; a cog-wheel fast upon the handle near the barrel and between it and the point of engagement with the sheaves; a pair of pinions inside of the furnace and below the sheaves and adapted to mesh with such cog-wheel inside of the furnace; and means to drive one of said pinions.

2. In a tempering apparatus the combination with a furnace embodying a box having ends and sides, of a barrel having side walls, a bottom and neck-walls; antifriction-rolls on one end of the box to support the barrel-neck; a shaft extending from the bottom of the barrel and adapted to afford a handle whereby to remove the barrel from the furnace; a pair of antifriction-rolls upon the other end of the box to support the barrel-shaft; a pair of pinions and shafts therefor upon the inside of the end of the box below the barrel-shaft-supporting rolls; a cog-wheel upon said barrel-shaft to mesh with said pinions; and means to drive one of said pinions.

3. The combination with a heating-chamber, of a source of heat; walls surrounding the same to confine the heat; bearings carried by the walls to support the container; a handle on the chamber whereby the same may be removed by hand from the furnace; an engaging surface upon the chamber near the handle; and driving means inside the walls and adapted to engage the engaging surface on the container to rotate the same.

4. The combination with a heating-chamber, of a furnace embodying a source of heat and surrounding walls; bearings carried by the walls of the furnace to support the chamber at one side; a handle on the chamber; an engaging surface upon the chamber adjacent to the handle; and driving means for the chamber inside the furnace and adapted to engage the engaging surface on the chamber upon the same side it receives support from the bearings and in a position to permit the ready removal of the chamber from the furnace by hand.

5. The combination with a work-receptacle, of a furnace embodying a source of heat and surrounding walls; a journal at each end of the receptacle; a bearing at each end of the furnace organized to support one of the journals by engagement with the lower side thereof and open above its upper side to permit removal in an upward direction; an engaging surface upon the receptacle; and driving means for the receptacle within the furnace adapted to engage the engaging surface on the receptacle upon the same side it receives support from the bearings.

6. The combination with a work-receptacle, of a furnace; a journal at each end of the re-

ceptacle; a bearing at each end of the furnace organized to support one of the journals by engagement with the lower side thereof and open above its upper side to permit upward
5 removal; a gear-wheel upon the receptacle; a pair of gear-wheels within the furnace adapted to engage the gear-wheel on the receptacle upon the same side it receives support from the bearings, and means to actuate
10 one of said latter gear-wheels.

7. The combination with a furnace, of a work-receptacle; a shaft extending from one end thereof; bearings at each end of the furnace organized respectively to support the
15 receptacle and the shaft by engagement with the lower sides thereof, and open above the upper sides to permit upward removal; a cog-wheel carried by the shaft; an idle pinion in mesh with said cog-wheel; and a live pinion
20 in mesh with the cog-wheel, said pinions being below the center of said cog-wheel.

8. In a tempering apparatus the combination with a furnace, of a work-receptacle having a reduced neck and a mouth; a bottom
25 opposite such mouth; a shaft extending from the bottom; an antifriction-bearing at one end of the furnace to support said neck by engagement with the lower side thereof and open at its upper side to permit upward re-
30 moval; an antifriction-bearing at the other end of the furnace to support the shaft by en-

gagement with the lower side thereof and open thereabove to permit upward removal; a cog-wheel fast upon the shaft at a point between the bottom of the receptacle and the
35 bearing; a bracket upon the furnace; a shaft supported thereby; a pinion fast upon the shaft and adapted to engage the cog-wheel at a point below the receptacle-shaft; a bracket supported by the furnace; an idle pinion car-
40 ried thereby to engage the opposite side of said cog-wheel; also at a point below the receptacle-shaft; and means to drive the pinion-shaft.

9. The combination with a receptacle for
45 articles to receive heat treatment, of a furnace embodying bearings for the receptacle; a gear-wheel carried by the receptacle adjacent to one end thereof; a shaft upon such
50 end affording a handle for a workman beyond the gear-wheel and contiguous to the receptacle; a driving gear-wheel to mate with the gear-wheel on the receptacle inside the furnace and adapted to engage the same upon
55 the same side the receptacle receives support from the bearings and in a position to permit the ready removal of the receptacle from the furnace by hand.

EDGAR CHAMBERS.

Witnesses:

CHAS. LYON RUSSELL,
HENRY BISSELL.