

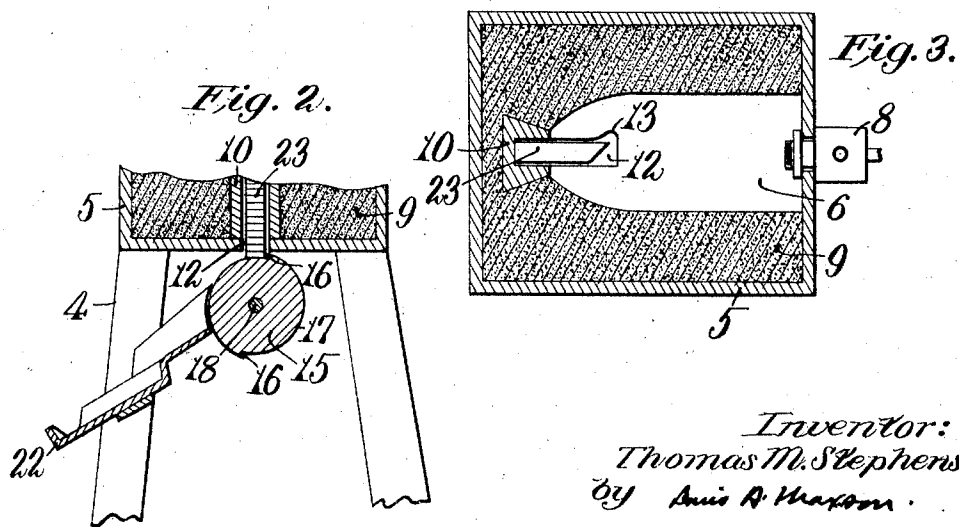
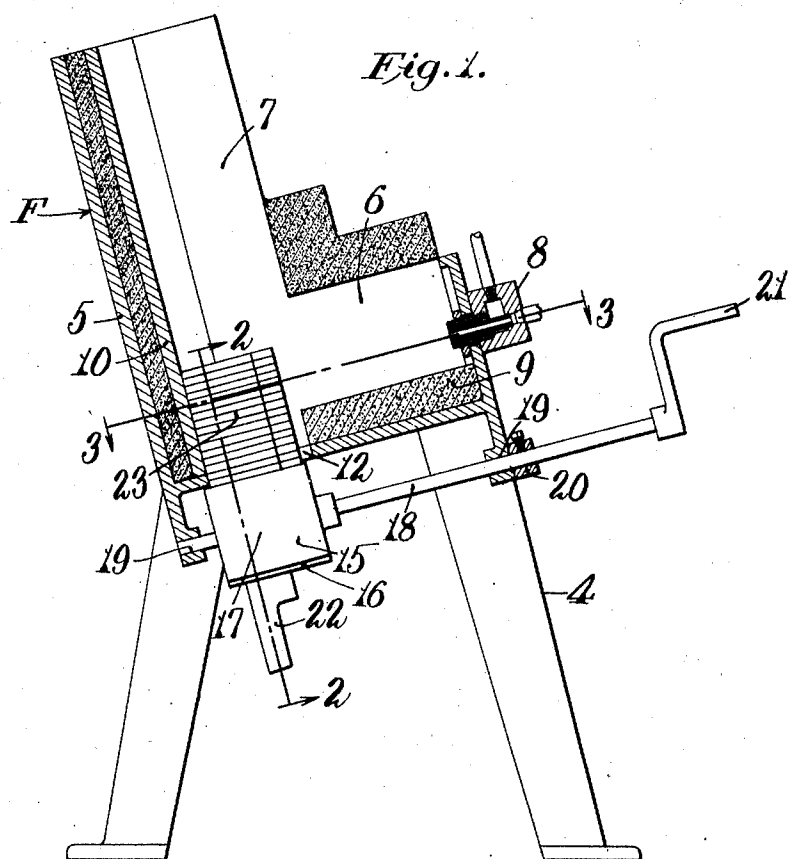
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T. M. STEPHENS

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FURNACE

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UNITED STATES PATENT OFFICE.

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FURNACE.

Application filed September 30, 1927. Serial No. 223,155.

My invention relates to furnaces, and more particularly to blank heating furnaces for heating blanks preliminary to forging operations.

5 An object of my invention is to provide an improved furnace. Another object of my invention is to provide an improved heating furnace for the heating of a continuous series of blanks for working in
10 forging machines. A further object of my invention is to provide an improved heating furnace having improved means whereby blanks may be conveniently and readily discharged from the furnace when heated to
15 the desired temperature. Other objects and advantages of my invention will hereinafter more fully appear.

In the accompanying drawings in which I have shown for purposes of illustration
20 one form which my invention may assume in practice,

Fig. 1 is a central vertical sectional view through the illustrative form of my improved furnace.

25 Fig. 2 is a section on a plane corresponding to the line 2—2 of Fig. 1.

Fig. 3 is a substantially horizontal section on the line 3—3 of Fig. 1.

In the manufacture of the cutter bits employed with cutter chains of coal mining machines, it is customary according to the best practice to employ machine forging, and for the purpose of heating the blanks for the forging machine, forging furnaces
35 are provided in which series of blanks may be heated, the blanks being serially introduced, progressively heated, and removed as they reach the desired temperature. In Fig. 1 a furnace F is shown mounted upon
40 a suitable frame generally indicated 4. Upon the top of this frame is an iron housing 5 of a generally rectangular shape in horizontal section and having at its bottom a combustion chamber 6 and a substantially
45 vertically extending flue 7. A burner for oil or gas is provided at 8, discharging longitudinally of the combustion chamber. The housing is lined with fire brick 9 to withstand high temperatures and to aid in
50 the heating of the blanks by radiation.

Mounted within the casing of the furnace, herein in the wall thereof opposite the burner 8, is a substantially vertically extending guideway 10 of a size to receive the butt-
55 ends of the blanks to be heated, this guide-

way extending substantially from the top to the bottom of the casing and terminating at its lower end adjacent an opening 12 of a size to permit the discharge of heated blanks
60 therethrough, the opening 12 being generally rectangular but having a cut-away portion adjacent its inner extremity at 13 to permit the discharge of dull bits which are in the process of resharpening as well as the
65 discharge of blanks proper. Disposed below the opening 12 is a generally cylindrical, rotatably mounted blank discharge element and abutment member 15, this member, instead of being circular in cross section, being
70 provided with diametrically oppositely disposed shoulders 16 and having its periphery curving from the base of each shoulder in a smooth curve to the outer-most edge
75 of the other as at 17. I have shown herein two surfaces 17 and two abutments 16 but it is evident that the number of abutments and surfaces may be determined in accordance with the wishes of the designer and may vary from one to several. The member 15 is supported upon a shaft 18 suitably
80 journaled at 19 and held in proper longitudinal position by a collar 20. A hand crank 21 may rotate the shaft 18 and so the member 15. A blank receiving element 22 is supported in a position to receive the
85 blanks as they are discharged by rotation of the member 15 and to turn them into position for easy grasping by the smith's tongs. The axis of the shaft 18 lies approximately in the central vertical plane
90 of the blank guideway 10 so that the member 15 constitutes an abutment supporting an entire stack of blanks. It will be noted that the element 15 is slightly longer than a blank, in the form shown, and that it underlies the lowest blank substantially from
95 end to end of the latter.

From the foregoing description the mode of operation of the mechanism described will be readily apparent. Referring to Fig. 100
2 it will be evident that the pile of blanks 23 is resting upon the periphery of the member 15 adjacent one of the shoulders 16 thereon and that the shoulder 16 at its outermost portion extends a radial distance from
105 the axis of rotation of the shaft 18 just sufficient to clear the bottom of the casing 5. Accordingly, on rotation, by means of the handle 21, of the member 15 the shoulder 16 will sweep off the bottom blank and con- 110

vey it to the trough 22, and therefore the entire stack of blanks will be lowered as the surface 17 slides beneath them until the entire stack is one blank lower than before the removal of the blank first mentioned. At the end of 180° rotation of the member 15 the other shoulder 16 will be adjacent the bottom blank and further rotation will remove this blank in turn.

From the foregoing description it will be evident that I have provided an improved and very simple mechanism for supporting a stack of blanks and progressively removing them as they are brought up to the desired temperature. It will further be evident that the construction is exceedingly simple, practically indestructible, and readily operable.

While I have in this application specifically described one form which my invention may assume in practice, it will be understood that this form of the same is shown for purposes of illustration and that the invention may be modified and embodied in

various other forms without departing from its spirit or the scope of the appended claim.

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

In a blank heating furnace, means forming a combustion chamber providing means for guiding a stack of blanks and a discharge orifice through which heated blanks may pass, means for heating the blanks during their sojourn in said combustion chamber, and means for supporting said blanks and discharging the same including a combined blank supporting and discharge element juxtaposed to said discharge orifice and normally supporting through the lowermost blank all the blanks in the stack, said element being of a length to permit engagement by a blank substantially throughout the length of the latter and being movable to discharge a blank by movement of the latter transversely of the length thereof.

In testimony whereof I affix my signature.

THOMAS M. STEPHENS.