No. 713,219. Patented Nov. 11, 1902.

C. HOLT.

MANUFACTURE OF HORSESHOE BLANKS, &c., FROM DUCTILE METAL.

(Application filed Jan. 8, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

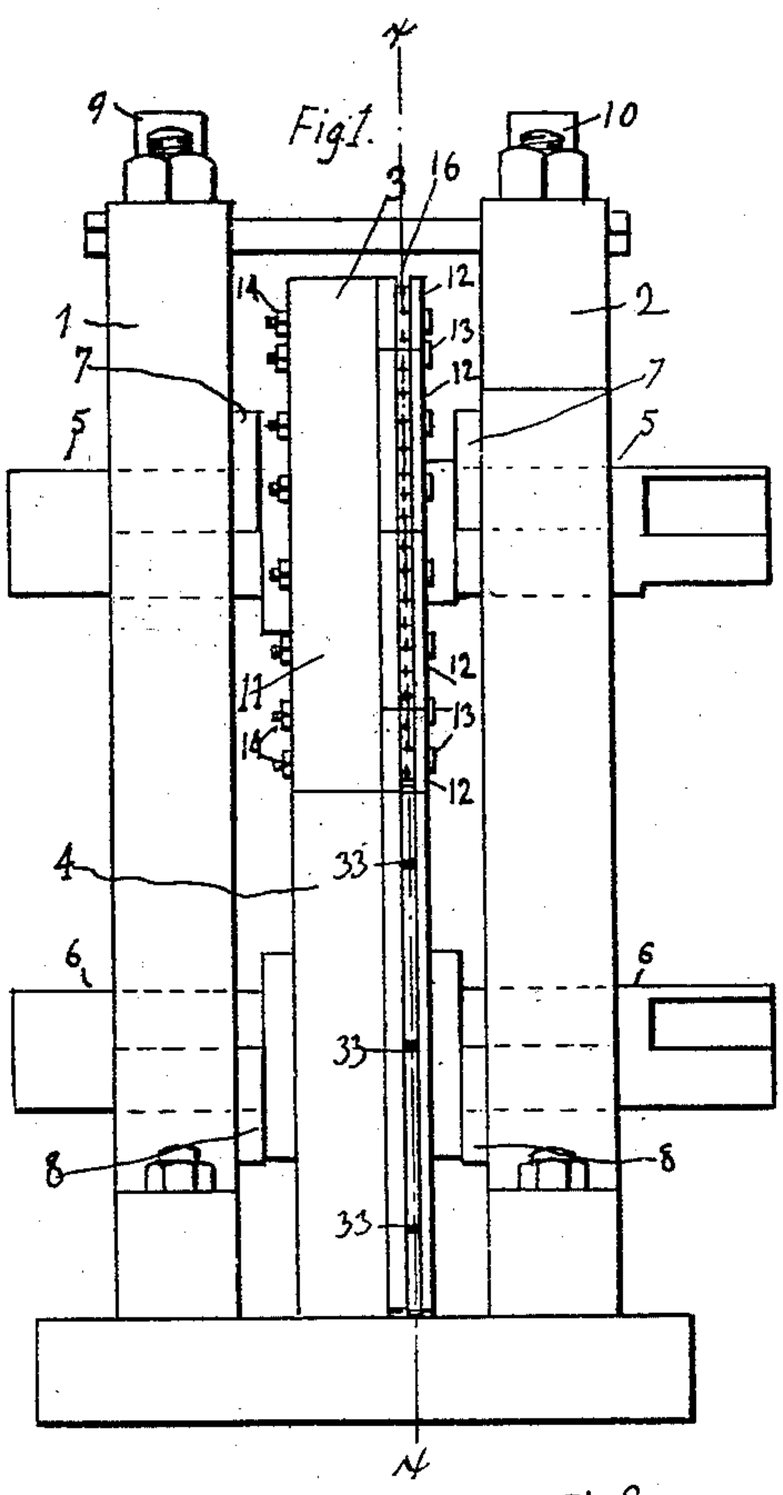

Fig. 2.

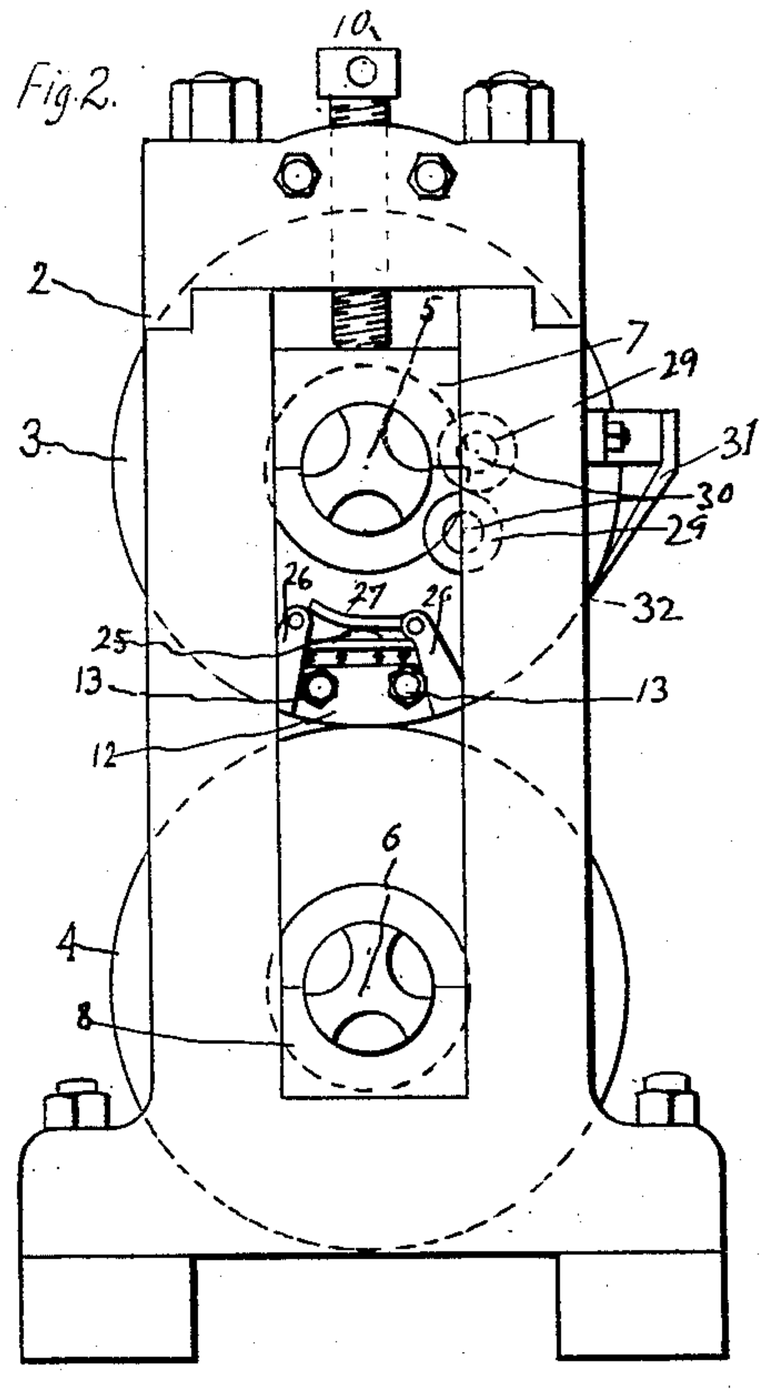

Fig. 3.

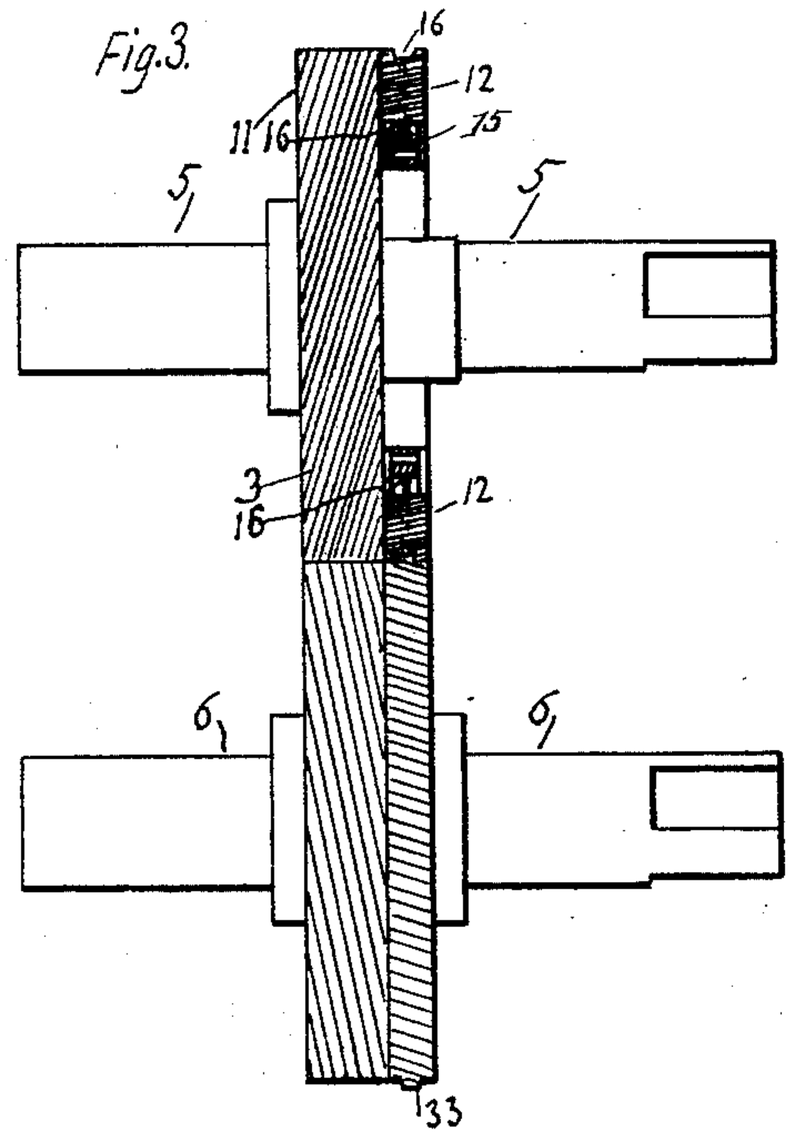

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Fig. 4.

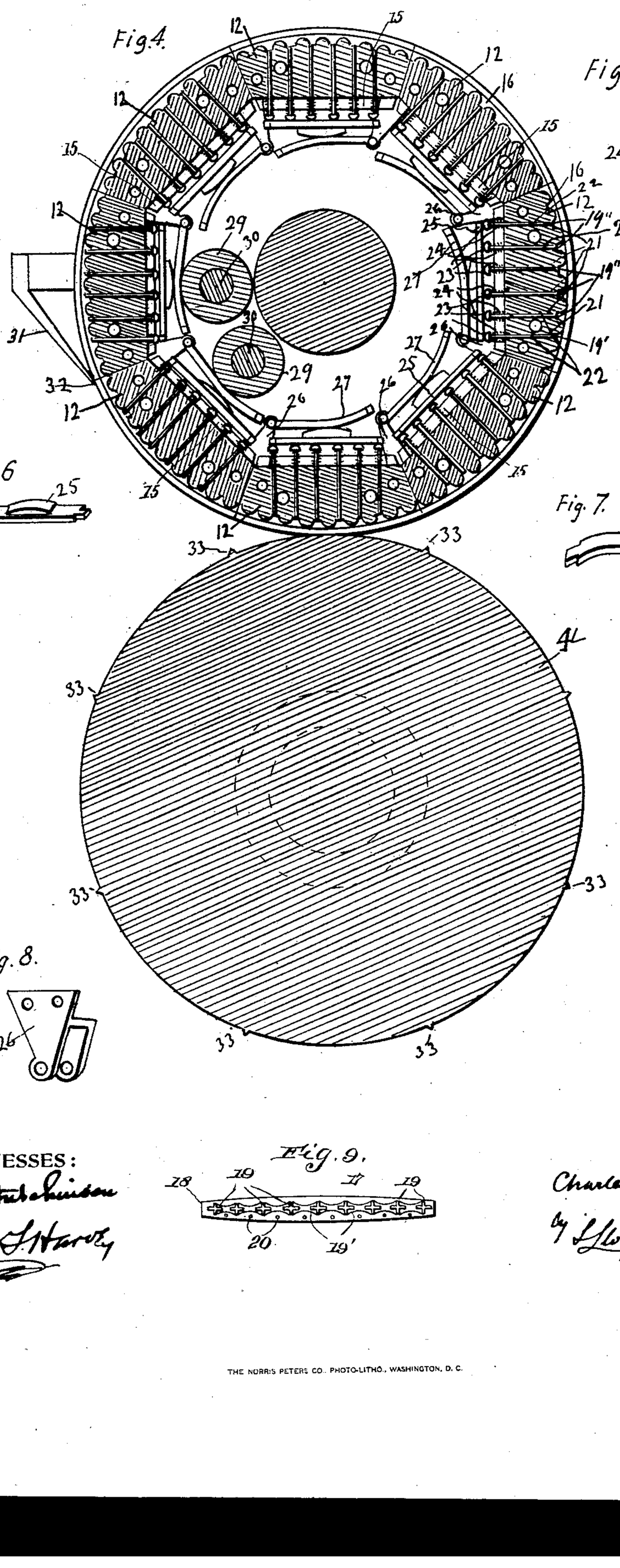

Fig. 5.

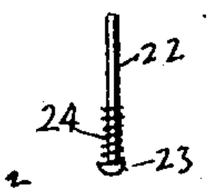

Fig. 6

Fig. 7.

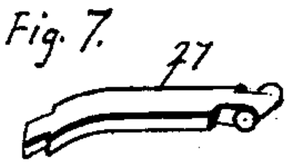

Fig. 8.

Fig. 9.

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UNITED STATES PATENT OFFICE.

CHARLES HOLT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO BRADLEY PATENT HORSE SHOE COMPANY, INCORPORATED, A CORPORATION OF DELAWARE.

MANUFACTURE OF HORSESHOE-BLANKS, &c., FROM DUCTILE METAL.

SPECIFICATION forming part of Letters Patent No. 713,219, dated November 11, 1902.

Application filed January 8, 1902. Serial No. 88,941. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HOLT, a subject of the King of Great Britain, residing at Roxboro, in the city of Philadelphia, Pennsylvania, have invented a new and useful Machine for the Manufacture of Horseshoe-Blanks and Like-Shaped Articles from Ductile Metal, of which the following is a specification.

This invention relates to the shaping of ductile metals such as steel and iron, by rolling it in dies, and has for its object the expeditious shaping of such articles and the prompt release and delivery of them as quickly as formed; and to this end it consists in a series of segmentally-shaped dies formed in or attached to a roller and a series of rods and means of operating the same to expel the articles from the dies and a stripper to remove them.

The following is a full description of the construction and operation of the machine, reference being had to the accompanying drawings, in which—

Figure 1 shows a front view or elevation thereof; Fig. 2, a side view thereof; Fig. 3, a vertical section of the rolls and dies in the plane of the axes of the rolls; Fig. 4, a section of the rolls and dies in the plane indicated by the dotted line *x x* in Fig. 1. Fig. 5 shows one of the plungers or rods for discharging the blanks. Fig. 6 shows a plate for operating the plungers. Fig. 7 shows a lever for operating the plate. Fig. 8 shows a guide and fulcrum for the plate and lever shown in Figs. 6 and 7, and Fig. 9 is a blank formed by the machine.

Referring to the drawings, 1 and 2 are housings supporting the rolls 3 and 4 by their necks 5 and 6 in boxes 7 and 8. The rolls are pressed toward each other by screws 9 and 10, bearing down on the upper boxes 7. The upper roll 3 is formed of a body or strong flange 11, with segmentally-shaped dies 12, secured to the side of it by bolts 13 and nuts 14 and resting or abutting against projecting shoulders 15 on the flange 11. In the dies are formed cavities 16, corresponding with the shape of the blanks 17 to be formed. The blank shown in Fig. 9 is a bar 18, having a series of calks 19 formed on its face, with intervening fillets 19′ and nail-holes 20, and is for the purpose of manufacture into horseshoes, such as are shown in G. W. and W. H. Bradley's application, Serial No. 18,784, filed June 1, 1900, and patented to them in a design patent for fourteen years, No. 35,002, dated August 27, 1901. The lower roll 4 is formed with a surface corresponding with the opposite side of the blank and so as to enter slightly into opposite dies 12, which are slightly deeper than the thickness of the blanks 17. Through the bottom of cavities in the dies 12 are made a series of parallel holes 21, extending from points 19″ or the deepest parts of the cavity to the back or opposite side of the die. In each of the holes 21 is fitted a rod or plunger 22, having a head 23 upon the inner end against which a helical spring 24 rests and holds the end of the plunger 22 level with the bottom of the cavity at the points 19″ in the die. A plate 25, held by guides 26, rests against the inner sides of the heads 23 of the plungers 22 in each die, and a lever 27, pivoted to the guide 26, forces the plate 25 against the plungers 22, so as to expel the blank from the cavity of the die when the lever 27 contacts with and passes under rollers 29, turning upon arbors 30, secured firmly to the housing 2. The rollers 29 are so located as to meet the levers 27 after the dies have passed the opposite roll and opened, so the discharge of the blank commences after the die is open and the blank free from the pressure of the roll 2. A stripper 31 is secured to the housing 2, with its edge 32 presented to the dies, so as to let the blanks 17 as they are pushed outward from the dies 12 pass under the stripper 31, and thus prevent any of the blanks remaining in the die and obstructing the entrance of metal in the next revolution of the dies.

The ends of the blanks 17 are severed from each other by a cutting edge 33 on the lower roll, so located as to enter the metal at the end of each die.

By introducing a heated bar of steel or iron between the rolls 3 and 4 when in rotation the

metal is forced into the cavities of the dies and assumes the shape of a blank 17, and as soon as the dies have opened the rods or plungers 22 expel the blanks sufficiently to enable the stripper 31 to enforce a complete delivery of the blanks from the machine, and the operation proceeds with such celerity that the blanks are sufficiently hot to immediately thereafter be bent into the desired curved form for completed horseshoes.

By causing the opposed roll to enter the dies lateral fins or beards of metal are avoided and any excess of metal projects upwardly from the surface of the blank, from which it is readily removed by grinding without risk of impairing the profile of the blank.

Having described my invention and the operation thereof, what I claim is—

In a machine for forming blanks from ductile metal, a series of segmental dies attached to a rotatable roll, a series of parallel plungers in each die, arranged to liberate blanks from said dies, in combination with plates arranged to operate said plungers, guides to hold said plates, levers fulcrumed upon said guides, and stationary rollers arranged to operate said levers, plates and plungers as and for the purpose set forth.

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Witnesses:
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