

Feb. 7, 1928.

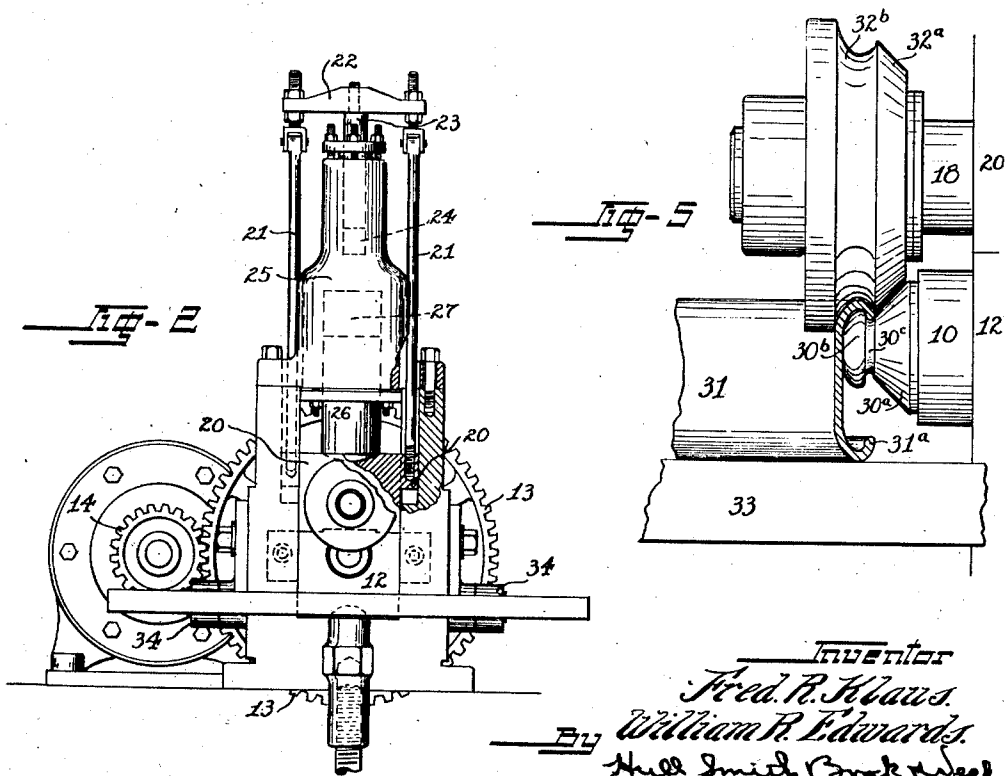
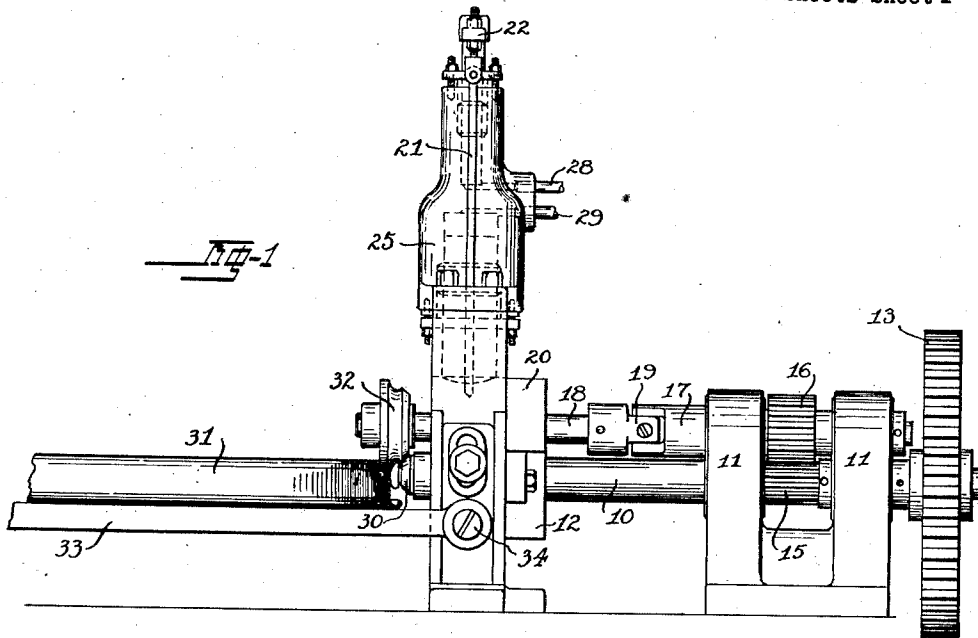
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F. R. KLAUS ET AL

MACHINE FOR ROLLING RIM EDGES

Filed Jan. 19, 1920

2 Sheets-Sheet 1



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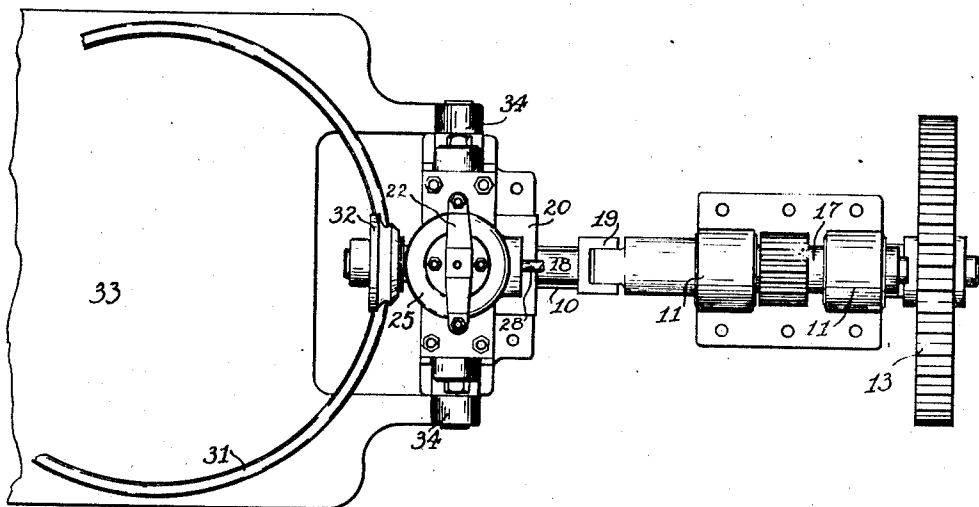


Fig-3

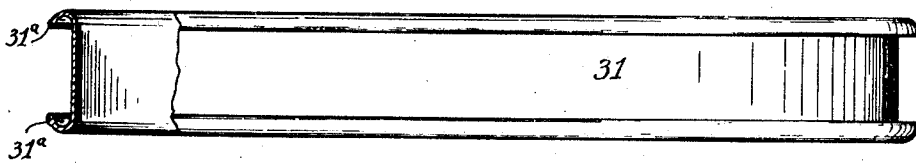


Fig-4

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## UNITED STATES PATENT OFFICE.

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## MACHINE FOR ROLLING RIM EDGES.

Application filed January 19, 1920. Serial No. 352,572.

This invention relates generally to rim rolling machines and more particularly to a machine for finishing the edges of clincher rims. It is well known that the clincher rim is made from a strip of sheet metal which is first rolled into circular form, welded, and then rolled into final form by rolling over the edges of the band giving the rim as a whole the proper cross sectional contour, and inasmuch as the edges of the clincher rim come in contact with the tire shoe, it is of the utmost importance that these edges should be rounded and smooth instead of sharp or angular in order to prevent wearing of the shoe, and it is with the idea of not only rounding the edges but also somewhat enlarging this rounded edge that the present machine has been designed, the resultant rim having an edge which, as before stated, is not only rounded but slightly enlarged providing a contacting edge superior to the edge heretofore provided upon clincher rims. With these objects in view, the invention consists in the novel features of construction and in the manner of combining or arranging the various parts, all of which will be more fully described hereinafter and set forth in the appended claims.

In the drawing forming a part of this specification, Fig. 1 is a side elevation of a machine embodying one form of the invention; Fig. 2 is an end elevation partly in section; Fig. 3 is a top plan view; Fig. 4 is a sectional elevation of a rim finished upon the said machine; and Fig. 5 is an enlarged view of the shaping rolls.

In the practical embodiment of our invention, we employ a shaft 10 the rear end of which is mounted in a suitable bearing 11 and the forward end thereof in a suitable bearing 12 and these bearings may be separate parts of a supporting frame or they may be united in a single base or frame. The shaft 10 has a large gear 13 mounted upon the extreme rear end thereof which meshes with a pinion 14 deriving its power from any suitable source. The shaft 10 is provided with a gear 15 between the bearings 11 which gear is adapted to mesh with a gear 16 carried by a shaft 17 journaled also in the bearings 11, and in practice we prefer to make the gear 16 twice the size of the gear 15 so that whatever the speed of the shaft 10 may be, the speed of the shaft 17 will be one-half thereof, and in ordinary practice, the shaft

10 is driven about five hundred revolutions per minute thereby moving the shaft 17 two hundred fifty revolutions per minute. The forward end of the shaft 17 is coupled with a roller bearing shaft 18 by means of a universal coupling 19 the object of which is to permit the roller bearing shaft 18 to be elevated vertically when desired. The forward portion of the shaft 18 is journaled in a bearing 20 which is movable vertically upward in its frame by means of the rods 21, cross head 22 and piston 23 working in the cylinder 24 which is part of the housing 25, and the downward movement of the bearing with its shaft is accomplished by the piston 26 working in the cylinder 27 which is a part of the housing, through a pressure being applied to the cylinders 24 and 27 through the pipes 28 and 29, respectively.

A shaping roll 30 is rigidly mounted upon the forward end of the shaft 10 and is adapted to fit into the rolled over edge of the clincher rim 31, and a shaping roll 32 is rigidly mounted upon the forward end of the shaft 18 and is adapted to engage the outer side of the clincher rim as most clearly shown in Fig. 1, and a table 33 is connected to the frame at 34 and provides a horizontal support for the clincher rim during the period that its edges are being operated upon by the shaping rolls. The shaping roll 30 has a conical portion 30<sup>a</sup> and a head or knob 30<sup>b</sup> which is of such size and shape as to fit snugly within the rolled over edge of the clincher rim, and between the cone portion 30<sup>a</sup> and the head 30<sup>b</sup> there is an intervening groove portion 30<sup>c</sup> into which the edge of the rim is adapted to fit. The shaping roll 32 has a cone portion 32<sup>a</sup> which corresponds with the cone portion 30<sup>a</sup> of the shaping roll 30 and it also has a grooved portion 32<sup>b</sup> which is shaped to receive the exterior of the rolled over side of the clincher tire and the cylindrical portion 32<sup>c</sup> extends inwardly sufficiently to provide a suitable bearing point for the side of the tire while the head 30<sup>b</sup> is in engagement with the rolled over edge of the tire, and it will be noted that the grooved portion 30<sup>c</sup> is exactly coextensive with the maximum depth of the entire rim, that is the rear edge of the grooved portion is in direct vertical alignment with the rear edge of the grooved intermediate portion.

In operation, the roll 32 is elevated and

a rim 31 is placed upon the table with its edge over the head 30<sup>b</sup> of the shaping roll 30 and then by the application of fluid pressure the roll 32<sup>a</sup> is brought down until its conical portion contacts with the conical portion of the lower shaping roll and in the meantime the rim has been traveling around upon the table and between the rolls and the rolls being held in contact with each other, the actual edge of the rim is forced into the intermediate grooved portion 30<sup>c</sup> and is there not only rounded but given a slight swelling or enlargement, as indicated at 31<sup>a</sup>, thereby greatly improving the edge of the rim. After one edge of the rim has been finished, the upper finishing roll is elevated, the rim removed and reversed and the other edge finished as previously described.

The table 33 is adjustable within certain limits in order to maintain the rim in its exact proper position, and also to accommodate different widths of rims. By having the shaft 17 mounted in fixed bearings and providing a universal coupling 19 between the parts 17 and 18, a vastly stronger and more durable machine is provided.

By the mechanism herein shown and described, it is possible to quickly refinish the edge of a clincher rim, such finishing not only effecting the rounding of said edges but also perceptibly enlarging or swelling said edges whereby an improved clincher rim is provided.

Having thus described our invention, what we claim is:—

1. In a machine of the kind described,

the combination with a shaft having a shaping roll upon its forward end and a gear upon the rear portion of said shaft, a second shaft comprising a front section and a rear section connected together by a universal joint so as to permit the axial insertion and removal of the rim between the rolls, the rear section having a gear meshing with the gear upon the fixed shaft, a shaping roll at the forward end of the front section of shaft, fluid operated means for raising and lowering the front section of shaft, and an adjustable table arranged below the shaping rolls and in operative relation thereto.

2. In a machine of the kind described, the combination with a shaft having a shaping roll at the forward end thereof and a gear adjacent the rear end thereof, of a second shaft composed of a front and rear section connected together by a universal joint, a shaping roll from the forward end of the front section, a gear upon the rear section meshing with the gear upon the first named shaft, said second gear being larger than the first named gear whereby said second named shaping roll is caused to travel slower than the first named roll, fluid operated means for raising and lowering the front section of shaft, and a table arranged beneath the shaping rolls and in operative relation thereto.

In testimony whereof, we hereunto affix our signatures.

FRED R. KLAUS.

WILLIAM R. EDWARDS.