Aug. 24, 1926. 1,597,340

C. L. BEST

METHOD OF MAKING TRACK ROLLERS

Filed Nov. 3, 1922

Fig. 1.

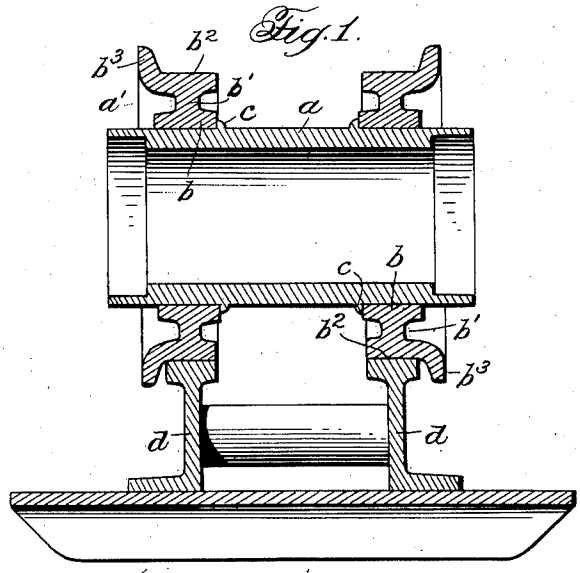



Fig. 4.

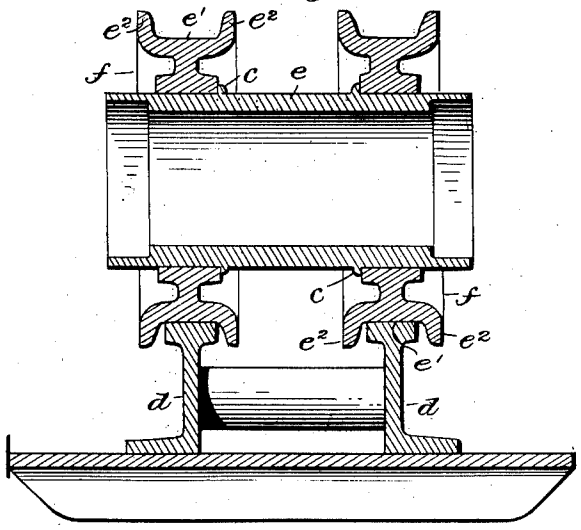
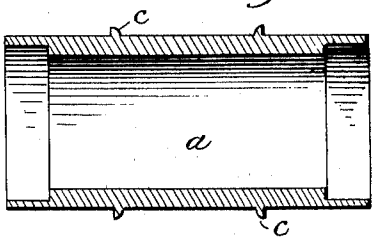



Fig. 2.



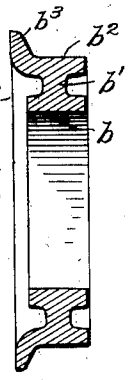




Fig. 3.

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# UNITED STATES PATENT OFFICE.

CLARENCE LEO BEST, OF SAN LEANDRO, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CATERPILLAR TRACTOR CO., OF SAN LEANDRO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

## METHOD OF MAKING TRACK ROLLERS.

Application filed November 3, 1922. Serial No. 598,887.

This invention relates to an improved track roller for tractors and method of making the same.

Track or truck rollers for track laying tractors have heretofore been constructed of chilled cast iron, manganese and of steel castings. Rollers so constructed have proven unsatisfactory, the cast iron roller breaking, those of manganese crush, and the cast steel constructions become distorted, shrink, crack, etc., such devices forming bearings for the endless tracks and supporting the weight of the tractor.

The object of the present invention is to provide an improved track roller of stronger, more durable construction, and the production of the same at low cost.

The invention comprehends an improved track roller structure comprising a cast iron hub part and drop forged outer ring parts, formed separately from the hub and secured thereon, and an important feature of the invention resides, in the provision of a separate cast hub and drop forged outer ring structure of this nature, and the special method whereby the securing of the outer ring parts on the hub part and the proper tempering of the treads and flanges or rims of the ring parts are effected at a single operation.

The invention, with other objects and advantages thereof, and the particular construction, combination and arrangement of parts comprising the same will be understood from the hereinafter contained detail description when considered in connection with the accompanying drawings, forming part hereof, and illustrating embodiments of the invention.

In the drawings:—

Figure 1 is a longitudinal section of a track roller constructed in accordance with the present invention, the same being shown associated with a portion of a track.

Figs. 2 and 3 are detail views of the hub and one of the outer ring members of the roller.

Fig. 4 is a view similar to Figure 1 of a slightly modified construction of roller.

While specific embodiments of the invention are illustrated in the drawings, it will, of course, be understood that minor changes and variations in the particular construction shown and the carrying out of the invention in other forms, as will appeal to those skilled in the art and falling within the scope of the appended claim may be practiced without departing from the spirit of the invention.

Referring particularly to Figure 1 of the drawings, the particular roller construction illustrated includes a hub part A of cast iron and drop forged outer ring parts each comprising an inner portion $b$, an intermediate web portion $b'$, and a tread $b^2$ with a flange or rim $b^3$ at one side, the outer ring parts being formed separately from the hub part and secured thereon by shrinking. $c$ designates small annular shoulders on the outer face of the hub against which the inner portions $b$ of the rings $a'$ abut. The roller is shown associated with a conventional form of track having portions $d$ to engage the treads $b^2$ of the roller.

In accordance with the present invention the outer drop forged ring parts are placed in a reheating furnace and brought up to the proper quenching temperature. They are then dropped on the hub part $a$, one at a time. The hub part $a$ and the outer ring parts $b$, thus assembled, are then quenched in water for a certain number of seconds to simultaneously effect the shrinking of the outer ring parts on to the hub and to give them the proper temperature, the treatment being such as to allow sufficient heat to be retained in the hub part $a$ to draw back the treads $b^2$ and the flanges or rim portions $b^3$ of the outer ring members to the desired hardness.

The modified construction illustrated Figure 2 is the same as that shown Figure 1, except that the treads are each provided with two side flanges or rims. In this figure $e$ designates the hub part of cast iron, and $f$ the outer ring parts provided with tread portions $e'$ and side flanges or rims $e^2$.

The special cast hub and drop forged ring roller structure, hereinbefore described, is of a strong durable nature and has proven very satisfactory in practice. It will also be noted that the invention provides for the economical manufacture of the improved separate part structure, the securing of the outer ring parts on the hub, and the proper tempering of the outer ring parts being effected by the same quenching operation. In the use of the separate cast iron hub and drop forged outer ring structure, there is

also the advantage that if one of the parts, the hub or one of the rings, becomes worn or broken, that part can be readily replaced and the whole structure is not lost as is the case with the single piece roller constructions.

What I claim is:—

The method of making track rollers for track laying tractors which consists in forming a cast metal hub part and providing dropped forged outer ring parts having outer tread portions, heating the dropped forged outer ring parts separately from the hub part to the proper quenching temperature, then dropping the heated ring parts on the hub part, and quenching the hub and ring parts, so assembled, in water for a period sufficient to shrink the outer ring parts on the hub part and to allow sufficient heat to be retained in the hub part to draw back the ring parts with their treads to the desired hardness.

In testimony whereof I hereunto affix my signature.

CLARENCE LEO BEST.