(No Model.)

J. MUNTON.

ART OF MAKING TIRES.

No. 381,505. Patented Apr. 17, 1888.

Fig. 1.

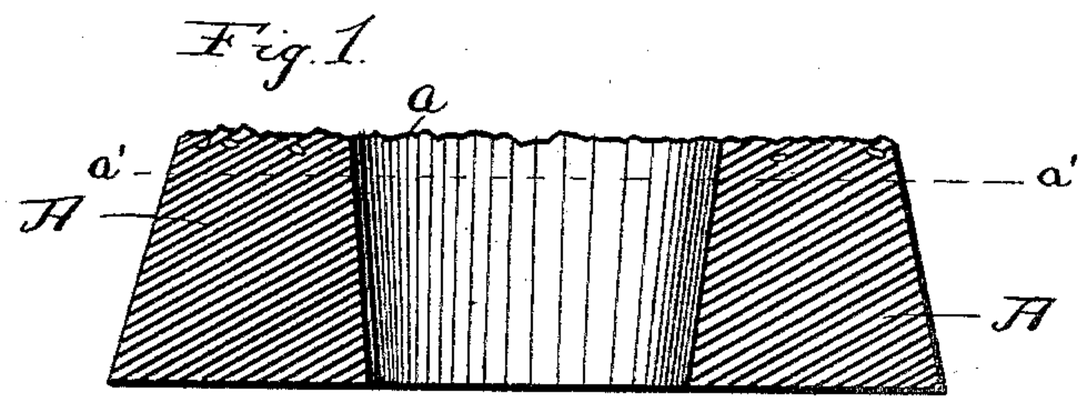


Fig. 2.

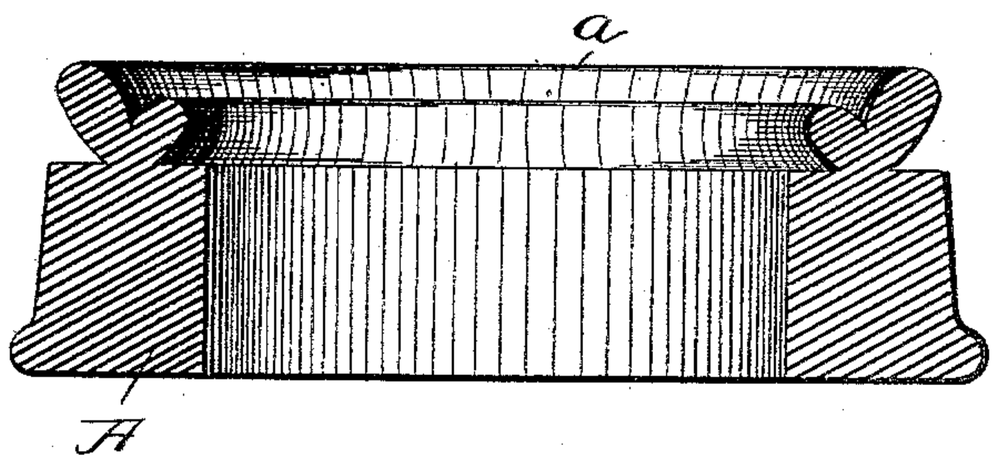
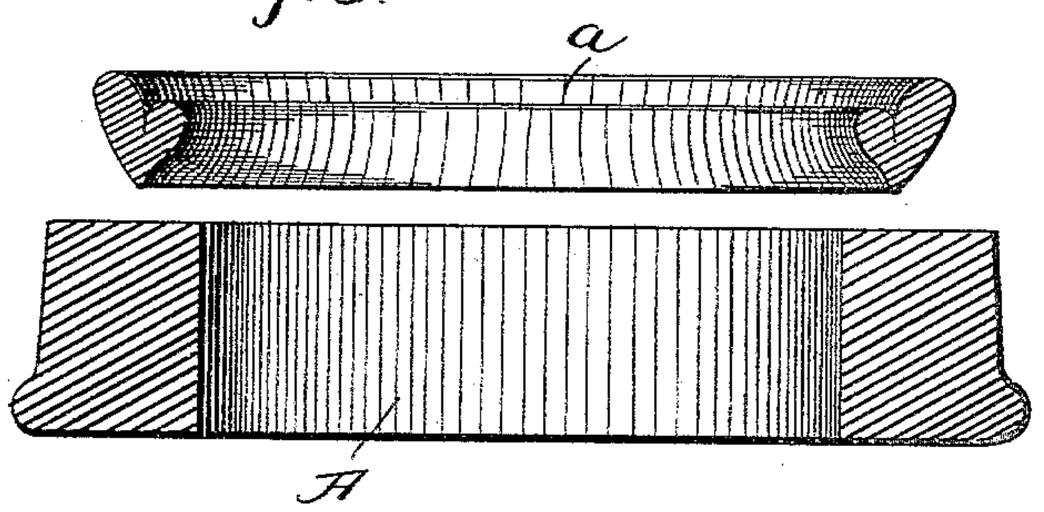


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES MUNTON, OF MAYWOOD, ILLINOIS.

ART OF MAKING TIRES.

SPECIFICATION forming part of Letters Patent No. 381,505, dated April 17, 1888.

Application filed February 1, 1887. Serial No. 226,116. (No model.)

To all whom it may concern:

Be it known that I, JAMES MUNTON, a citizen of the United States, residing at Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in the Art of Manufacturing Blooms for Tires, of which the following is a specification.

Heretofore blooms for tires have usually been cast solid and the central opening therein formed by punching, hammering, or subsequent manipulation.

One of the chief difficulties in casting hollow blooms has been the imperfections in the top portion of the bloom, owing to the sediment collecting at this part, as well as blow-holes and other imperfections. Where the bloom is cast solid, such imperfections are in a great measure removed by the subsequent punching and hammering. The blow-holes are in a great measure due to the imperfect fluidity of the metal at the top surface of the mold or bloom which operates to confine the gases. Attempts have been made to remedy this by sprinkling the top surface of the molten metal in the mold with powdered charcoal or other like substances to preserve the fluidity of the metal at its top surface. Such expedients are only partially successful, and produce injury by changing the character of the steel with which they come in contact.

I have discovered that perfect and homogeneous hollow blooms may be produced free from all blow-holes and imperfections of every kind by casting the bloom somewhat deeper or thicker than required, and then cutting off from its top surface a thin annulus, ordinarily about an inch in thickness. The sediment, blow-holes, and other imperfections I find all collect near the upper surface of the bloom, and may be removed, so as to leave a perfect homogeneous bloom, by cutting off a thin upper portion of the top of the bloom. The cutting may best be done by placing the bloom in a pair of roughing-rolls furnished with cutters at their top. These rolls may also preferably have flanges and a groove at their base, so as to partially shape the bloom and form the flange thereon. By this means I am enabled not only to make much better and more perfect blooms than those produced under the hammer, because of the tendency of the hammer to break or fray the metal at the periphery of the bloom, but also to produce the bloom much more cheaply. A further advantage consists in the fact that I am by this means enabled to produce the blooms of very nearly uniform weight and size. It is impossible to cast the blooms of exactly the same or any desired weight; but the cutters will leave them very nearly alike. In the old way the blooms, after being cast, had to be weighed and selected for large or small sized tires, and frequently a large amount of turning had to be done upon the tire to reduce it where the bloom contained too much metal.

In the accompanying drawings, in which similar letters of reference indicate like parts, and in which Figure 1 is a central vertical section of a bloom as cast according to my invention, Fig. 2 represents the same after the top portion of the bloom has been partially cut therefrom; and Fig. 3 shows the bloom completed, the imperfect top portion being removed.

The casting of the bloom may preferably be done in a mold having a cast-iron base and outer wall and a sand-core lined with thin sheet-iron to keep the molten metal clean from the sand. The bloom is cast in such mold ordinarily about an inch thicker or deeper than is required to furnish the requisite amount of metal for the tire, as ordinarily from a half an inch to an inch or more should be removed from the top of the bloom, in order to free it from all sediment, blow-holes, and imperfections and leave the bloom of a perfect and homogenous character.

In the drawings, A represents the bloom, and *a* the imperfect top portion thereof above the dotted line *a' a'*, which is removed to finish the bloom. As the blooms are cast in molds of fixed sizes, the variation in the weight of the bloom is almost entirely a variation in their depth or thickness. In cutting off the top portion of the bloom, therefore, any variation in the amount of metal poured will be corrected, and the bloom will thus be produced within a very few pounds of the exact size required. This is a matter of very great convenience and importance in the subsequent rolling of the blooms into tires of determined sizes, and enables the tires to be produced of such determined sizes with but very little, if any, turning.

I am aware that heretofore shafts, guns, and

other long cylinders, hollow or solid, have been cast in a vertical position with an excess of metal or "head" at the top end of the cylinder, at or near which the scoria and other impurities collect, and which imperfect excess portion is then cut off, and I make no claim, broadly, to casting with an excess of metal and then cutting off the excess portion.

I claim—

The herein-described process, consisting in, first, casting a bloom with a central opening; second, cutting off the top portion of the annular bloom, and subsequently rolling the bloom into a tire, whereby tires of determinate weights and sizes may be produced with but little, if any, turning, substantially as specified.

JAMES MUNTON.

Witnesses:

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