

(No Model.)

J. MUNTON.

PROCESS OF MANUFACTURING ROLLED RINGS OR TIRES.

No. 410,604.

Patented Sept. 10, 1889.

Fig. 1.

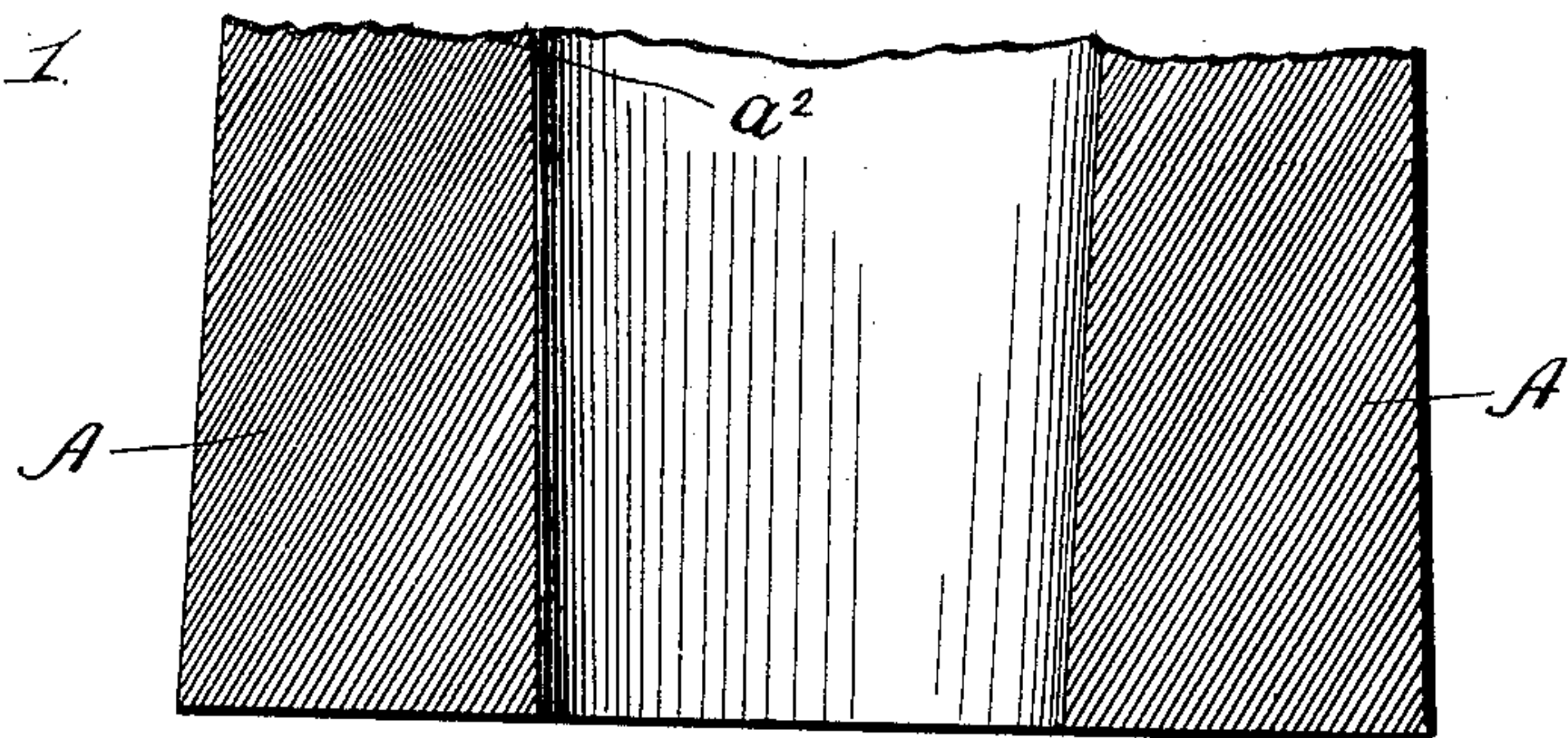


Fig. 2.

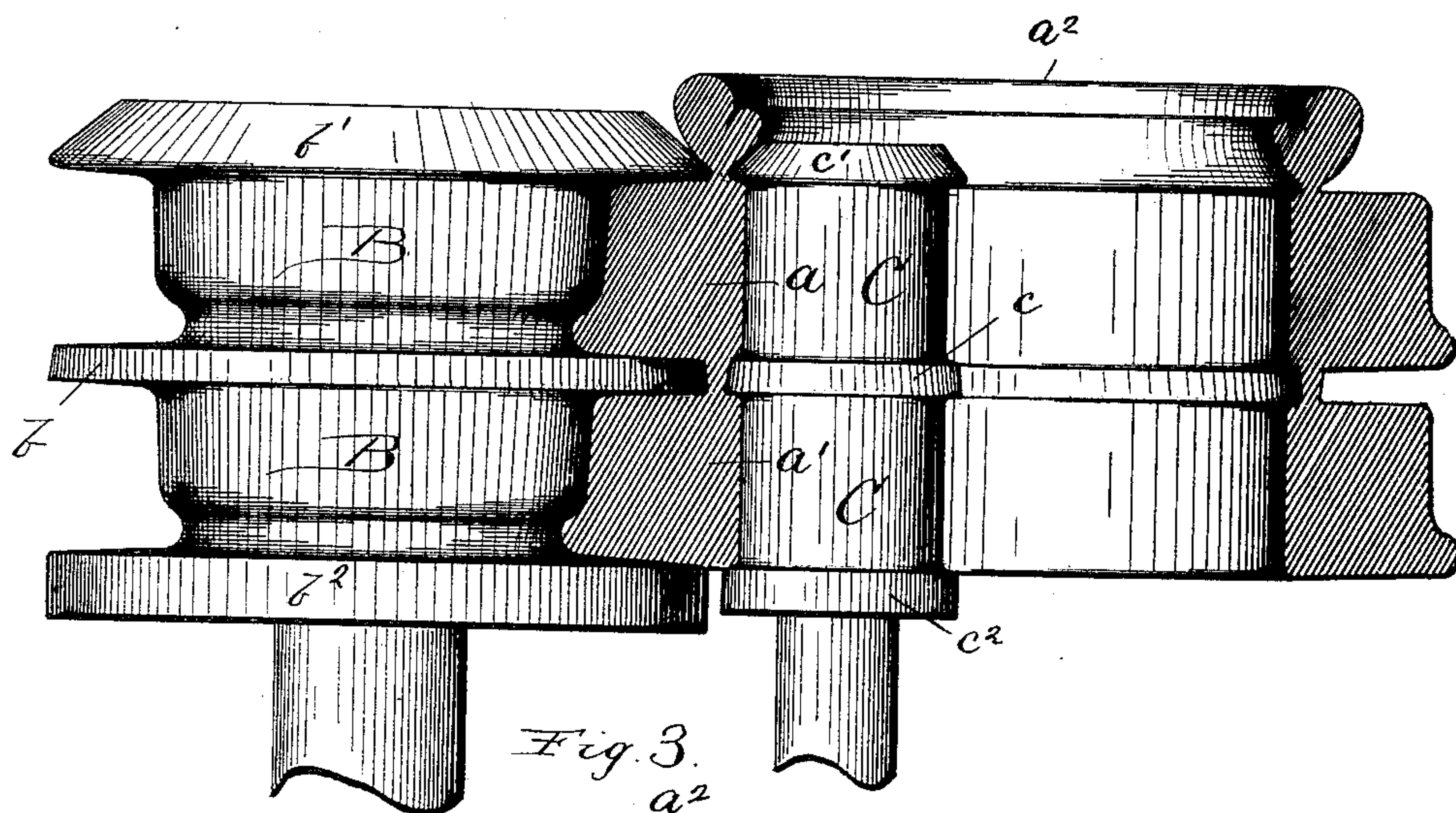
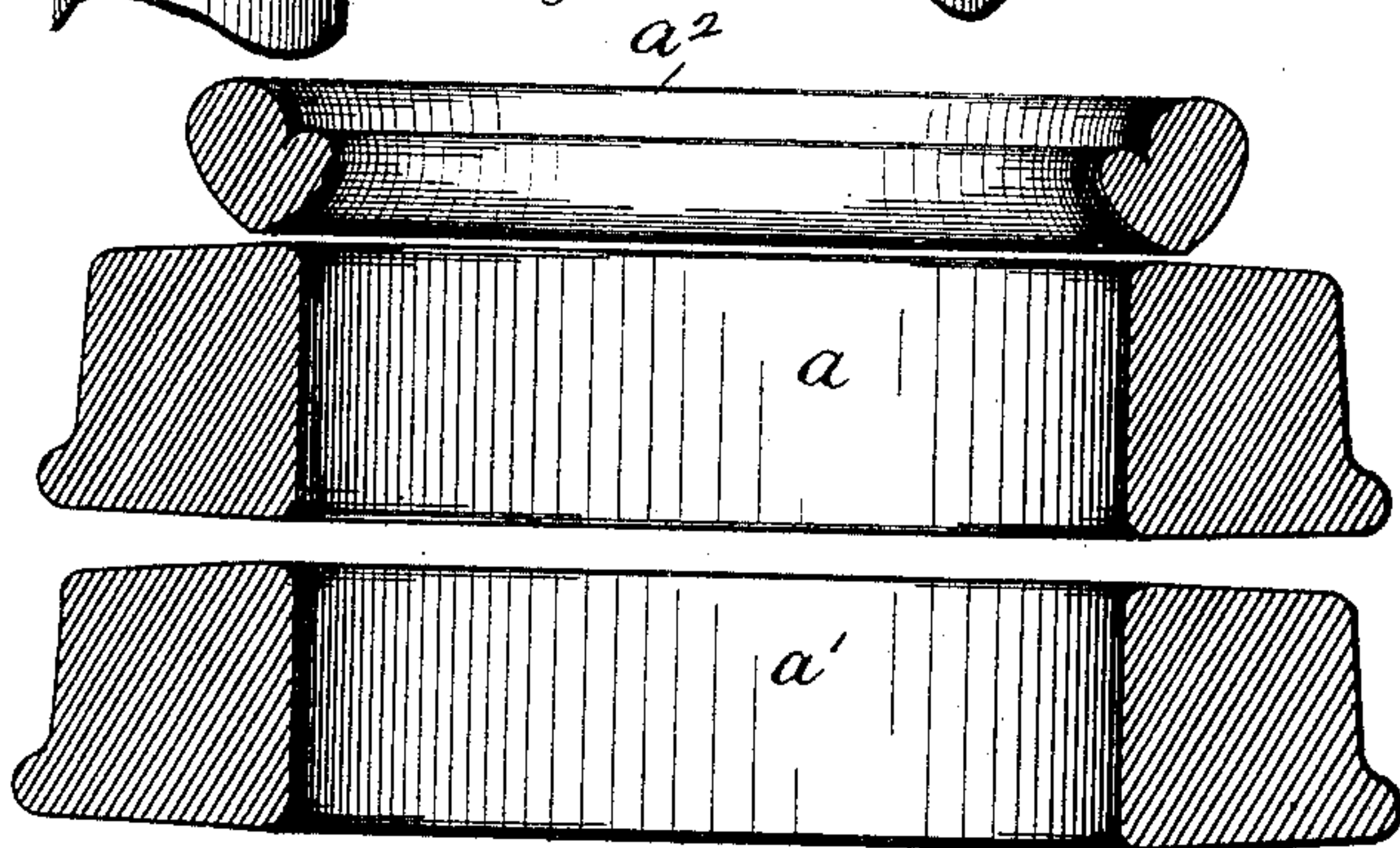


Fig. 3.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JAMES MUNTON, OF MAYWOOD, ASSIGNOR TO HIMSELF, AND CHARLES H. FERRY, OF CHICAGO, ILLINOIS.

## PROCESS OF MANUFACTURING ROLLED RINGS OR TIRES.

SPECIFICATION forming part of Letters Patent No. 410,604, dated September 10, 1889.

Application filed February 26, 1889. Serial No. 301,224. (No model.)

*To all whom it may concern:*

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

My invention relates to improvements in the art of manufacturing blooms for tires, and more particularly to improvements upon the process heretofore patented to me in Letters Patent No. 381,505, dated April 17, 1888. In my previously-patented process the bloom was cast with a central opening or of an annular form, and then the top portion of the annular bloom was cut off to free the bloom from imperfections, and finally the bloom was rolled to the desired shape, as is more fully set forth in the patent before referred to.

The object of my present invention is to provide a process or method by use of which a great portion of the loss of metal incident to cutting off the top portion of the annular casting may be saved, and whereby the blooms may be produced more rapidly and cheaply.

In my present process the annular casting is made deep enough to produce two or more blooms of the size required. The top portion containing the imperfections is then cut off, as in my former patented process, and preferably at the same time, though it may be done subsequently. The annulus is cut into two or more blooms or rings of the required size. In this way two or more blooms are produced from each annular casting, and the time, labor, and waste of metal incident to cutting off the imperfect top portion for each bloom, as in my previously-patented process, are largely saved. After the annular blooms are thus produced they are rolled in the usual way into tires or rings of any desired shape.

In practicing my invention I prefer to slit the annulus into two or more blooms at the same time and by the same rolls which sever the imperfect top portion from the annulus. If desired, however, the imperfect top portion may be first severed from the annulus and the annulus rolled to a greater or less extent, and then the annulus cut or slit into two or more blooms or rings of the required size.

My process of producing two or more blooms at a time by slitting or cutting an annulus into two or more rings may also be used whether the annulus is originally cast in such form or not, and whether an imperfect top portion is severed from the annulus or not.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, I have shown for the better explanation of my invention, at Figure 1, a cross-section of a steel annular casting suitable for producing two tire-blooms. Fig. 2 is a similar view showing the same partially slit into two blooms and the imperfect top portion of the annulus partially severed therefrom. This view also shows in elevation revolving cutter-rolls suitable for use in practicing my invention. Fig. 3 is a similar view showing the two finished blooms ready to be rolled in the usual way into tires.

In the drawings, A represents the annulus which is to be slit into two blooms  $a$  and  $a'$ , as shown in the drawings. This annulus is preferably produced by casting it in this form, in which case the imperfect top portion  $a^2$  thereof should be severed therefrom, and this severing of the top portion  $a^2$  may preferably be done simultaneously with the cutting or slitting operation by which the annulus is divided into the two blooms or rings  $a$   $a'$ .

B C represent a pair of revolving cutter-rolls having cutter flanges or collars  $b$   $c$  for slitting the annulus into two parts or blooms  $a$   $a'$ , and provided, preferably, also with cutter flanges or collars  $b'$   $c'$  for simultaneously severing the imperfect top portion  $a^2$  from the annulus A. Simultaneously with the cutting or slitting operation by which the annulus A is severed into two blooms or rings, the blooms or rings are rolled, thus increasing their diameter and diminishing their horizontal thickness, and the rolling thus materially facilitates the cutting operation. The two or more blooms made from the annulus may be made of equal or unequal sizes, as desired, by simply changing the relative location of the cutter flanges or collars  $b$   $c$  to the bottom collars  $b^2$   $c^2$  of the rolls, and by increasing or diminishing the number of cutter-flanges  $b$   $c$  on the



rolls B C the annulus may be cut into any number of separate rings or blooms desired.

Where, as in the processes heretofore in use, a separate ingot has been cast and separately manipulated for each individual tire bloom or ring produced, the manufacture of tires and rings of small size and weight by rolling is necessarily comparatively slow and expensive when the cost is estimated in the usual way by the number of pounds or tons; but by my improved process of first making a large annulus and then simultaneously rolling and slitting it into a number (two or more) of separate blooms or rings tires or rings of small size and weight may be very rapidly and cheaply manufactured.

The cutter-rolls B C are mounted and operated in the usual way of any ordinary tire-mill. The form of mill which I prefer to use is that shown and described in my patent, No. 363,843, or that shown and described in my application, Serial No. 285,565, filed September 17, 1888. The cutter-rolls B C are preferably both provided with cutter flanges or collars; but those on the movable or pressure roll C should be short or narrow, so that this inside roll may enter a comparatively small opening in the annular ingot A. After the annulus A has been cut and rolled into two or more rings  $a a'$ , each of these rings is then rolled to the diameter and cross-section of tire or ring desired. The annulus A is heated in the usual way prior to the cutting or slitting and rolling operation.

I claim—

1. The improvement in the art of manufacturing heavy tires or rings, consisting in first casting an annulus or ingot with a central opening heavy enough for two or more blooms or rings of the weight required, and

then severing the ingot or annulus into two or more separate blooms or rings by pressure, and simultaneously densifying the bloom or ring by crowding the material displaced by the severing-instrument into the bloom or ring, substantially as specified.

2. The process consisting in making a single annulus heavy enough for two or more blooms or rings of the weight required and severing by pressure the annulus into two or more blooms or rings, and simultaneously densifying the blooms or rings by crowding the material displaced by the severing-instrument into the same, and finally rolling the blooms or rings to the diameter and shape required, substantially as specified.

3. The process consisting in simultaneously rolling and severing by pressure an annulus, into two or more blooms or rings of the size required, substantially as specified.

4. The process consisting in first casting an annulus, as A, and then simultaneously cutting off the imperfect top portion, as  $a'$ , and severing by pressure the annulus into blooms or rings, as  $a a$ , and simultaneously densifying the same by crowding the material displaced by the pressure-severing tube into the body of the blooms or rings, whereby several blooms are produced at once, the same are densified, and the loss of metal incident to casting each bloom separately is saved, substantially as specified.

5. The process of producing two or more blooms at once by heating and then severing by pressure an annulus into two or more parts or blooms, substantially as specified.

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Witnesses:

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