

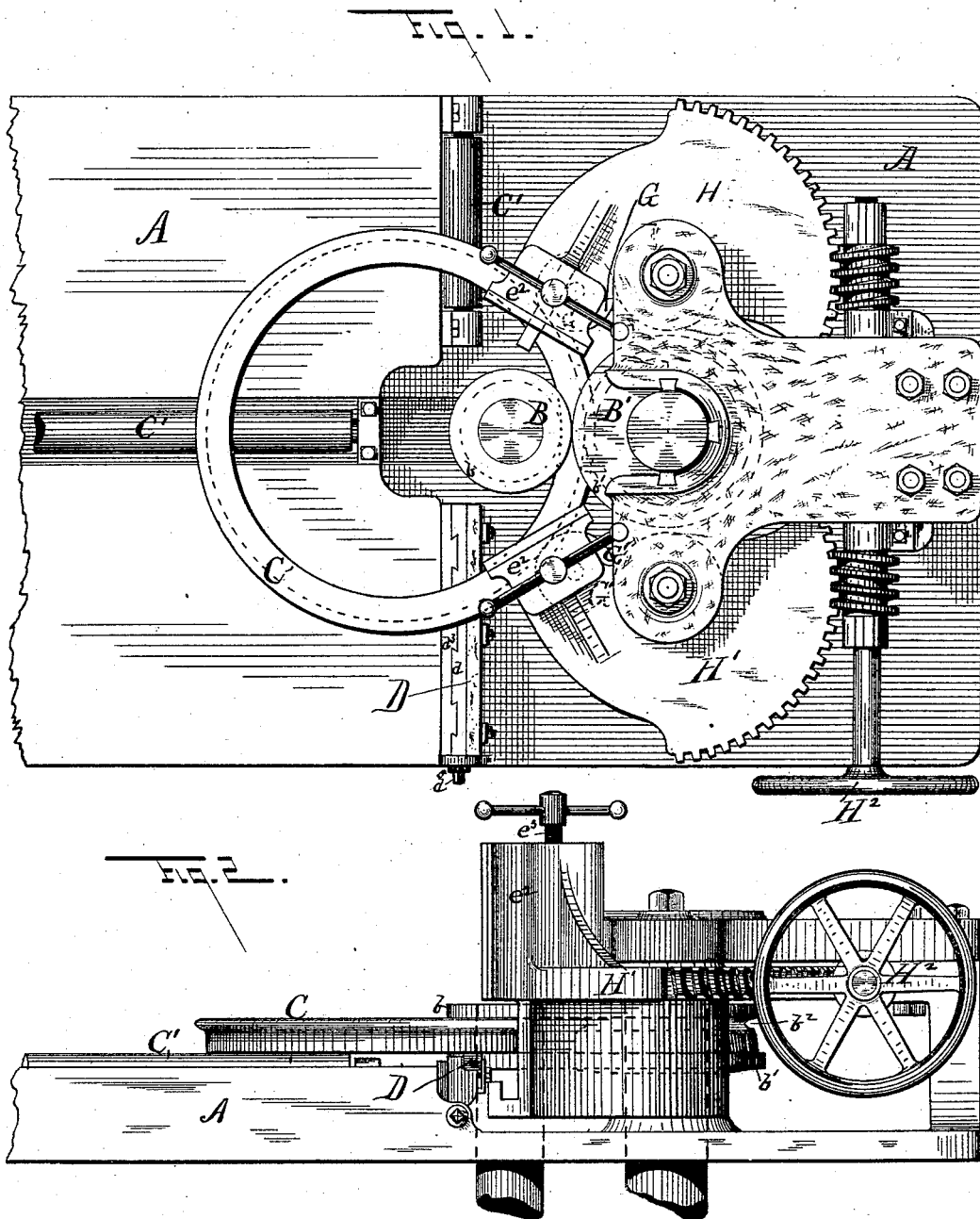
(No Model.)

2 Sheets—Sheet 1.

J. MUNTON.
TIRE ROLLING MACHINE.

No. 307,216.

Patented Oct. 28, 1884.



Witnesses:

Chas. Scamman
Taylor E. Brown

Inventor:

James Munton,

Per *Munday, Evans and Adcock*

his Attorneys:

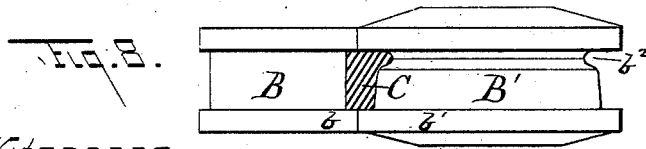
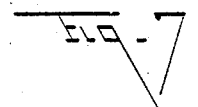
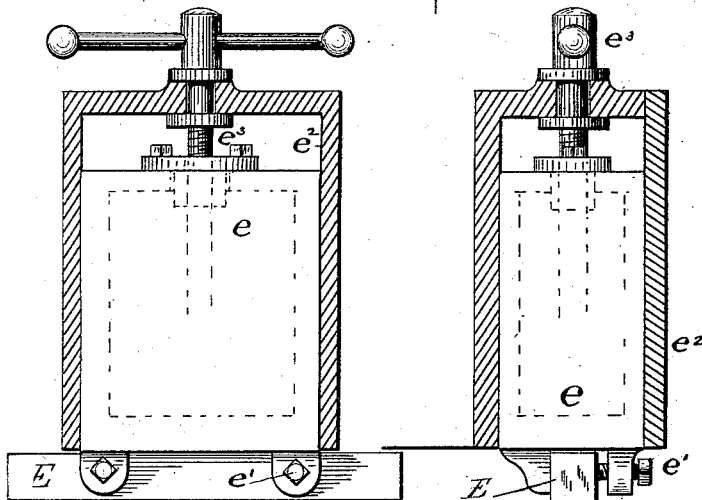
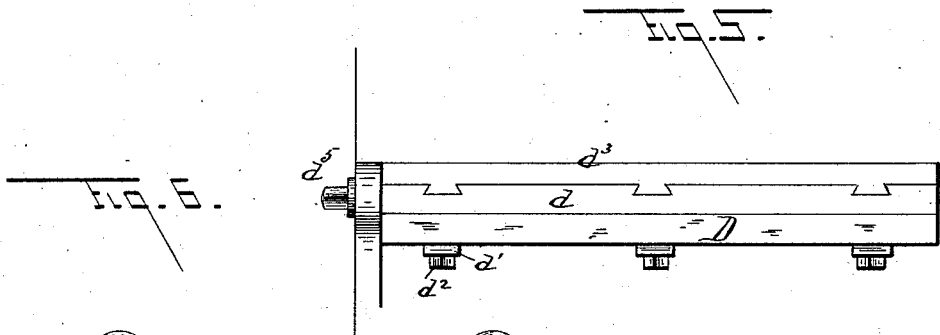
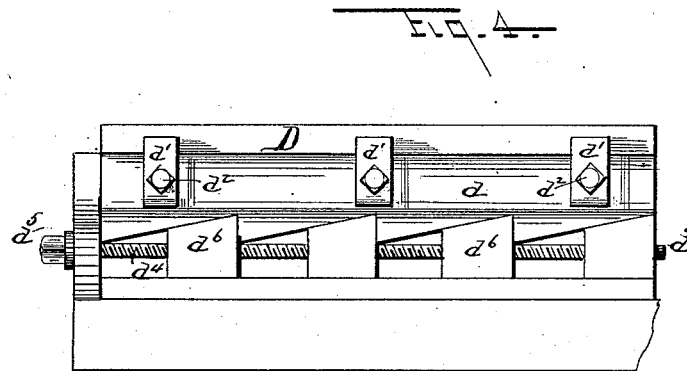
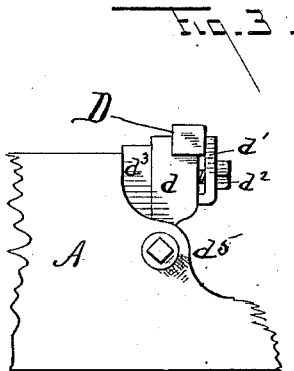
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2 Sheets—Sheet 2.

J. MUNTON.
TIRE ROLLING MACHINE.

No. 307,216.

Patented Oct. 28, 1884.



Witnesses.

Cha. L. Carman.

Taylor & Brown

Inventor:

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his Attorneys.

UNITED STATES PATENT OFFICE.

JAMES MUNTON, OF MAYWOOD, ILLINOIS.

TIRE-ROLLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 307,216, dated October 28, 1884.

Application filed October 18, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES MUNTON, a citizen of Great Britain, residing in Maywood, in the county of Cook and State of Illinois, have
5 invented a new and useful Improvement in Tire-Rolling Machines, of which the following is a specification.

In some of the tire-rolling machines heretofore in use one of the two rolls—usually the outer or fixed one, which forms the flange of the
10 tire—has been made with deep flanges or collars, and the other roll has been made smooth or plain, so as to fit between these flanges or collars. The greatest difficulty in the practical operation of these rolls is owing to the
15 fact that, however accurately or closely the smooth or plain roll fits between the flanges or collars of the other roll, a thin film or fin of steel will be formed or forced out at the upper and lower corners of the bloom or tire
20 between the smooth or plain roll and the flanges or collars of the other roll, which fin, being thin, of course cools and hardens very quickly, and soon cuts or wears away the corners of the smooth or plain roll and widens
25 the space between it and the flanges or collars of the other roll, which only increases the size of the fin and aggravates the trouble. The fin thus formed not only so injures the
30 rolls that they cannot be used, and increases the friction and power required to run them, but, after the rolling is completed, this fin is still left upon the tire, and must be chipped off or removed, thus materially increasing the
35 labor and expense of making the tire. Heretofore the fin has usually been chipped off by hand with a cold-chisel. If the rolls are new and fit close, the fin forms slowly at first when the rolling begins; but after the fin once begins
40 to form it continually increases in size as the rolling proceeds, because the fin crowds the rolls apart and wears them away, and if, as is usually the case, a larger fin forms on one corner than the other, or the fin begins to
45 form first on one corner, the tendency will be to crowd the smooth or plain roll up or down and increase the wear upon one of its corners, and the consequent size or thickness of the fin, until the roll is spoiled and no longer
50 fit for use. After the rolls become a little

worn, so that the larger fins are formed, the labor of chipping them off is proportionately increased, and often the tire is left so rough that it is necessary to partially roll the bloom
55 in one set of rolls and finish rolling the tire in another set of rolls, thus requiring two operations.

My invention consists in the means I employ, and they are simple as well as effective to overcome these difficulties. 60

In my invention both rolls are provided with flanges or collars, the flanges or collars being short, so that the depth of the two flanges or collars only equals the thickness of the tire to be produced. No fin can therefore be formed
65 at the corners of the bloom, and the corners of the tire, when it is rolled will of course be perfect. The rolls may preferably be arranged so that the flange or thick edge of the tire is up instead of down. The pressure of
70 the rolls upon the wedge-shaped bloom (wedge-shaped in cross-section) will then only tend to cause the bloom to press against or hug its bed or supporting-rollers more firmly and evenly, instead of causing it to tip or rise up
75 thereon. The slight fins which will be formed as the rolling nears completion on the top and bottom edges of the tire, at the points where the flanges or collars of the two rolls come together, are cut or shaved off as fast as they are
80 formed by knives mounted adjustably on the frame-work of the machine, one above and one below the tire, and parallel with its top and bottom edges or faces. As the fin is cut off in
85 this way almost as soon as it is formed, it does not become cool or hard or grow to any size, so as to wear or injure the rolls or increase their friction or the power required to run them. The bloom being also boxed in, so to
90 speak, at its corners by the flanges or collars of the rolls, there is naturally very little tendency for a fin to form in the middle of the edges of the tire where the flanges of the rolls come together; and, the fin being removed as
95 quick as it is formed, its accelerating tendency to grow or increase in size is of course prevented, and the edges of the tire are kept perfectly smooth by the knives, so that after the rolling is completed no finishing is required.

In the accompanying drawings, which form a 100

part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a plan view of a device embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail end view of the lower cutter or knife. Figs. 4 and 5 are detail side and plan views of said cutter, respectively, showing its means of adjustment. Fig. 6 is a front side view of the upper cutter or knife. Fig. 7 is an end view of the same, and Fig. 8 is a detail side elevation of the rolls.

In said drawings, A represents the frame or bed of the machine; B, the inner or movable roll, and B' the outer or fixed roll. The rolls B and B' have similar flanges or collars, *b* and *b'*, between which flanges or collars the bloom or tire is confined while being rolled. The depth of the two flanges or collars *b* and *b'*, taken together, should be equal, or nearly so, to the thickness of the tire to be rolled, so that when the rolling is completed the periphery of the two flanges will touch or almost touch each other, and the two flanges or collars may preferably be of about equal depth. The outer roll, B', is also provided with a groove, *b''*, preferably at its upper edge or corner, to form the flange of the tire.

The mechanism for setting or moving the roll B' up against the fixed roll B as the rolling proceeds is or may be of any ordinary construction.

C represents the bloom or tire, and C' the supporting-rollers journaled on the bed of the machine, upon which rollers and the lower cutter, D, the tire rests and revolves around as it is being rolled. The top of these rollers and the upper edge of the cutter D are on a level or in the same plane with the lower edge of the rolls B and B'. The cutter D may preferably consist of a simple square or rectangular bar of steel tempered so as to withstand the heat it will receive from the tire or bloom. It is preferably set at an angle to the radius of the tire, so that it will tend to break or tear off the fin, instead of directly cutting or shaving it off, as it would have to do if it were set radially. This cutter-bar D is firmly supported or clamped between horizontal clamp-bars *d* and *d'* by suitable bolts, *d''*; and the clamp-bar *d* is dovetailed with a vertical plate, *d'''*, secured to the frame of the machine so as to slide vertically thereon, and thus effect the vertical adjustment of the cutter-bar D. The vertical movement or adjustment is imparted to the clamp-bar *d* by means of the adjusting-screw *d''*, nut *d'''*, and wedges *d''''*, which operate on the inclined under side of said clamp-bar *d*. The cutter-bar D occupies the place of one of the supporting-rollers with which tire-rolling machines have heretofore been provided, and the bar of course serves to support the tire at this point as well as to sever the fin and smooth its lower edge. A similar cutter-bar, E, is likewise arranged above the tire on the other side of the roll for the purpose of severing the fin which may form on the upper edge of the tire. This cutter-bar is secured to a mov-

able slide, *e*, by means of the set-screws *e'*, which slide *e* is adjustable up and down in the case or frame *e''* by means of the adjusting-screw *e'''*. The cutter-bar E not only serves to sever the fin and smooth the upper edge of the tire, but also to press the tire down flat upon the supporting-rollers C' and cutter-bar D. On a similar adjustable slide mounted in the case or frame F on the opposite side of the rolls B and B' a roller is journaled, which also serves this latter function of keeping the tire flat upon its supports. G and G' are the two vertical rollers, which, together with the rolls B and B', constitute the three points of the circle and give the tire its true circular shape. These rollers are mounted on the pivoted segments H and H', and are swung in or out to increase or diminish the diameter of the tire by means of the right and left hand worm-wheel H'', which engages with the teeth of the segments H and H'.

I claim—

1. In a tire-rolling machine, the combination, with the rolls B and B', provided with flanges or collars to embrace the bloom or tire, of the upper and lower cutters for removing fins from the edges of the tire or bloom and smoothing the same as it is rolled, substantially as specified.

2. In a tire-rolling machine, the combination, with the rolls B and B', provided with flanges or collars *b* and *b'*, the outer roll, B, being also provided with a groove, *b''*, for the flange at its upper corner, so that the flange or thick edge of the tire is up, of the tire supports or rollers and the upper and lower cutter-bars, D and E, substantially as specified.

3. In a tire-rolling machine, the combination, with the rolls and tire supports or rollers, of a cutter-bar for removing the fin formed upon the tire as it is rolled, substantially as specified.

4. In a tire-rolling machine, the combination of tire supports or rollers with the rolls and an upper and a lower cutter-bar, said cutter-bars being adjustable and set at an angle to the radius of the tire, substantially as specified.

5. In a tire-rolling machine, the combination, with the tire supports or rollers, of the rolls B and B', provided with flanges or collars *b* *b'*, to embrace the bloom or tire and prevent the formation of fins at its corners, and a device for removing fins from the edges of the tire or bloom as it is rolled, substantially as specified.

6. In a tire-rolling machine, the combination of the rolls and tire supports or rollers with a cutter for removing the fin formed upon the tire as it is rolled, substantially as specified.

Chicago, Illinois, October 13, A. D. 1883.

JAMES MUNTUN.

Witnesses:

TAYLOR E. BROWN,
EDMUND ADCOCK.