

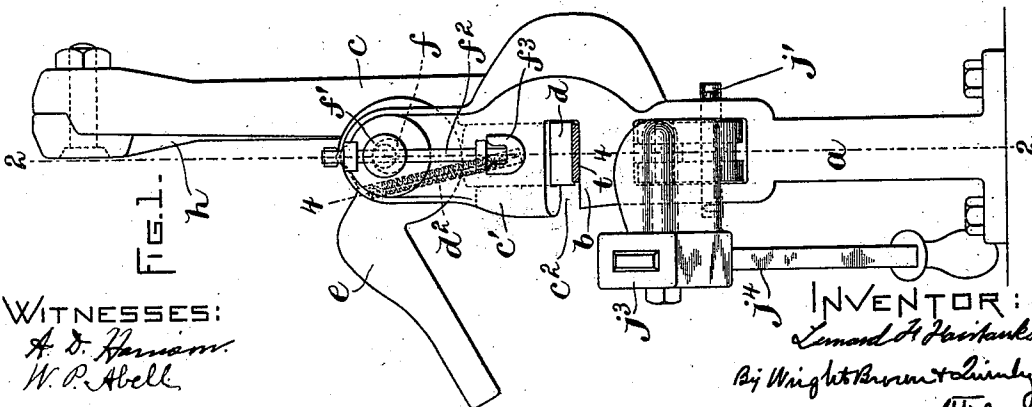
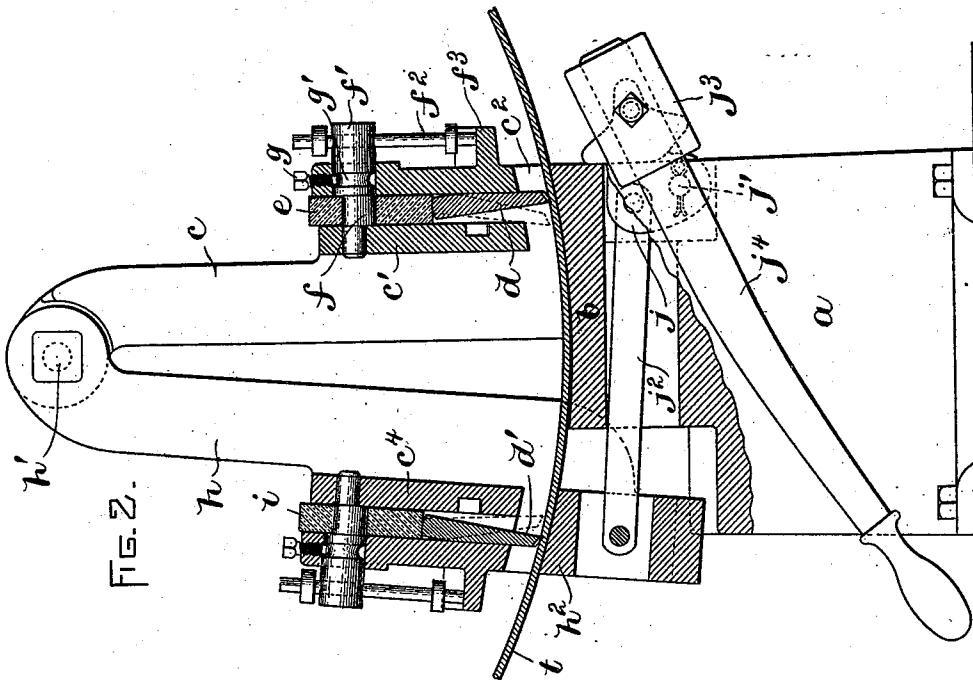
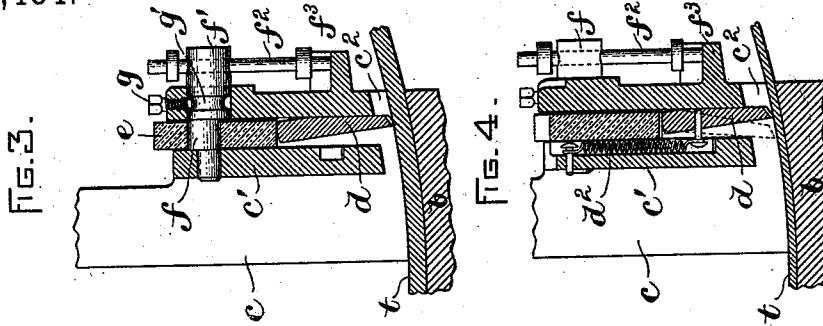
(No Model.)

2 Sheets—Sheet 1.

L. F. FAIRBANKS.
MACHINE FOR UPSETTING WHEEL TIRES.

No. 554,484.

Patented Feb. 11, 1896.



WITNESSES:
A. D. Hornum.
W. P. Abell.

INVENTOR:
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By Wright & Burnham & Quincy
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(No Model.)

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FIG. 6.

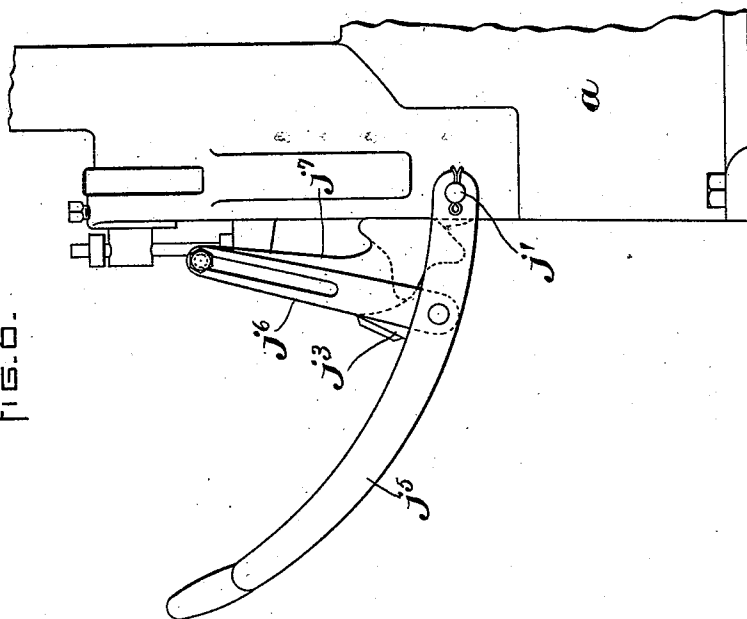
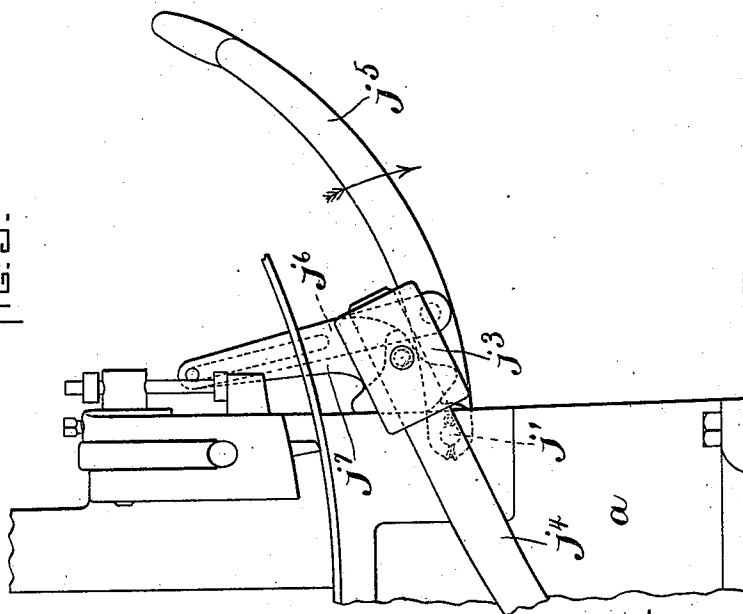


FIG. 5.



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UNITED STATES PATENT OFFICE.

LEONARD F. FAIRBANKS, OF HOPKINTON, MASSACHUSETTS.

MACHINE FOR UPSETTING WHEEL-TIRES.

SPECIFICATION forming part of Letters Patent No. 554,484, dated February 11, 1896.

Application filed July 15, 1895. Serial No. 555,958. (No model.)

To all whom it may concern:

Be it known that I, LEONARD F. FAIRBANKS, of Hopkinton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Upsetting Wheel-Tires, of which the following is a specification.

This invention relates to that class of tire upsetting or contracting machines in which the tire to be contracted is placed upon a suitable bed or anvil and is grasped at points at or near the ends of the anvil and subjected to force applied at said points in such direction as to move the said points nearer together and thus virtually shorten the intermediate portion of the tire, the said portion being hammered during the operation to make permanent the reduction of its length thus effected. In Letters Patent of the United States No. 403,115 a machine of this class is shown and described, said machine embodying a curved anvil, a fixed standard at one end of the anvil having a dog to grasp a portion of the tire, a lever at the opposite end of the anvil having another dog to grasp a different portion of the tire, and means for moving said lever and its dog toward the fixed standard and its dog to upset or shorten the intermediate portion of the tire.

The present invention has for its object to provide certain improvements in the construction of a machine of this class looking to greater efficiency and convenience of operation; and to this end my invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents an end elevation of a tire-upsetting machine embodying my improvements. Fig. 2 represents a section on line 2 2 of Fig. 1. Figs. 3 and 4 represent sections similar to a portion of Fig. 2, showing different adjustments of parts. Figs. 5 and 6 represent front and rear views of parts of the machine, showing an auxiliary lever hereinafter referred to.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a supporting

base or standard, the upper end of which is formed as an anvil *b*, the acting face or surface of which is preferably slightly concave.

c represents a vertical standard which is formed on or affixed to the anvil *b* and extends upwardly a considerable distance above the same, said standard being provided with an offset guide or projection *c'* which extends over one end of the anvil, the said guide being separated from the anvil by a narrow slot or space *c''* of more than sufficient width to receive the thickness of the tire.

d represents a dog which is vertically and laterally movable in the guide *c'* and is adapted to co-operate with the anvil in grasping the tire. A cam-lever *e* is mounted to swing upon an eccentric *f*, which is formed upon a stud *f'* journaled in the upper portion of the guide *c'*. Said cam-lever bears upon the upper end of the dog *d*, and when the lever is turned downwardly the cam portion thereof depresses the dog and forces it into contact with the tire. The dog is normally raised and held against the cam-lever by means of a spring *d''*, which also acts to normally hold the dog in the position shown by dotted lines in Fig. 4.

The object of the eccentric *f* is to adjust the cam-lever so that it may operate to grasp and release a tire of any desired thickness, the cam-lever being adjusted to raise the axial center of the cam-lever for thicker tires and to depress said axial center for thinner tires. The stud *f* may be prevented from moving endwise by means of a set-screw *g* entering a groove *g'* in the stud. *f''* represents a transverse handle passed through the stud *f'*, by which the latter and the eccentric *f* may be turned to adjust the dog *d*. I prefer to utilize said handle *f''* as a means for locking the eccentric *f* in either of two positions, in one of which it holds the axial center of the cam-lever in its lowest position, while in the other it holds said axial center in its highest position. This result is accomplished by the co-operation with said handle of a socketed arm or projection *f'''* formed on the guide *c'*, said projection having in its upper side a recess which receives the lower

end of the handle. The handle is longitudinally movable in the stud f' , and when it occupies a vertical position its lower end drops into the socket in the projection f^3 , so that said handle and projection prevent rotation of the eccentric. By raising the handle out of engagement with said projection and giving the stud and eccentric a half-rotation and then dropping the handle again into engagement with the projection the eccentric is locked in its other position.

h represents a lever pivoted at h' to the upper end of the standard c . Said lever projects downwardly, and has at its lower end an offset portion h^2 , the upper end of which constitutes an extension of the anvil b . The lever h has also an offset guide c' , in which a dog d' is vertically and laterally movable, said dog co-operating with the offset portion h^2 of the lever h in grasping the interposed portion of the tire. The dog d' is operated by means of a cam-lever i , which is supported, adjusted, and operated by devices which are the duplicates of the devices described in connection with the cam-lever e .

j represents a short lever, which is pivoted at j' to the supporting-standard below the anvil and is connected by a rod or bar j^2 with the portion h^2 of the lever h , said rod or bar extending through an opening formed in the standard a below the anvil b . On the lever j is formed an arm having a socket j^3 to receive an elongated operating-lever j^4 .

The operation of the described machine is as follows: The portion of the tire t to be shortened or upset having been suitably heated, it is placed upon the anvil, the lever h being moved away from the anvil, as indicated in Fig. 2. The dogs d d' are depressed by their cam-levers, and firmly clamp the tire against the anvil and the offset portion h^2 of the lever respectively. The operator then grasping the operating-lever j^4 exerts pressure in the direction required to move the dog d' toward the dog d , thus tending to bend or corrugate the interposed portion of the tire. The tire is continuously hammered while this pressure is being applied, so that it is prevented from bending, the material displaced by the pressure being kept in the arc of the tire by the hammering operation, the result being a shortening of the tire without change of its curvature.

It will be seen that the relative arrangement of the parts is such that the operator is enabled to apply his power very advantageously in contracting or shortening the tire in the manner described, the machine being therefore a very effective one for the purpose set forth. The described provision of means for adjusting the throw of the tire-grasping dogs enables the machine to operate on tires of any thickness.

It will be observed that the pivot that connects the lever h with the fixed part of the

machine on which it swings is located above the concave anvil, so that the portion h^2 of said lever, which bears upon the tire and constitutes an extension of the anvil, moves in an arc which is substantially a continuation of the arc of the curved anvil. Hence when the lever is being moved to shorten the tire its movement is natural and easy without tending to bend or displace the interposed portion of the tire, excepting the buckling movement of the tire caused by the shortening of the space between the points at which it is grasped.

The lateral movability of the dog d and the arrangement of the spring d^2 , whereby the dog is normally held in the dotted-line position shown in Fig. 4, enables the dog to take a gradually-increasing hold upon the tire while moving to the full-line position in which it is supported by the guide c' while resisting the described longitudinal pressure exerted upon the tire, so that when it reaches the last-named position it is very firmly engaged with the tire. The dog d' is normally held by a similar spring in the dotted-line position shown in Fig. 2 for the same purpose.

In operating on very heavy tires, where more power is required than can be conveniently applied through the lever j^4 , I employ an auxiliary lever j^5 , which is pivoted at one end to the supporting-standard a and is connected by a link j^6 with an arm j^7 formed on the socket j^3 , to which the lever j^4 is connected. A downward movement of the lever j^5 causes it to have the same effect as an upward movement of the lever j^4 , so that two operators may work together in forcing the dog d' toward the dog d .

I claim—

1. A tire-upsetting machine comprising a tire-support, a guide above said support, a stud journaled in said guide and provided with an eccentric, a cam-lever journaled upon the eccentric and adjustable vertically thereby, and a dog movable in the guide and held by a spring against the cam-lever.

2. A tire-upsetting machine comprising a tire-support, a guide above said support, a stud journaled in said guide and provided with an eccentric, a cam-lever journaled upon the eccentric and adjustable vertically thereby, a dog movable in the guide and held by a spring against the cam-lever, and means for locking the stud and eccentric in different positions, as and for the purpose specified.

3. A tire-upsetting machine comprising a bed or anvil, a fixed standard projecting upwardly therefrom and provided with a tire-grasping dog located over the anvil, a lever h pivoted to said standard above the anvil and provided with an offset portion forming an extension of the anvil and with a tire-grasping dog located over the said extension, a lever j pivoted to the frame of the machine and provided with an elongated operating-handle, a

rod or bar connecting the lever j with the lever h , an arm j^7 affixed to the lever j , an auxiliary lever j^5 pivoted to the frame of the machine, and a link connecting said auxiliary lever with the arm j^7 .

In testimony whereof I have signed my name to this specification, in the presence of

two subscribing witnesses, this 6th day of July, A. D. 1895.

LEONARD F. FAIRBANKS.

Witnesses:

JOSEPH J. WHITNEY,
GEORGE W. TERRELL.