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E. L. MEYERS.

WHEEL TIRE MACHINE.

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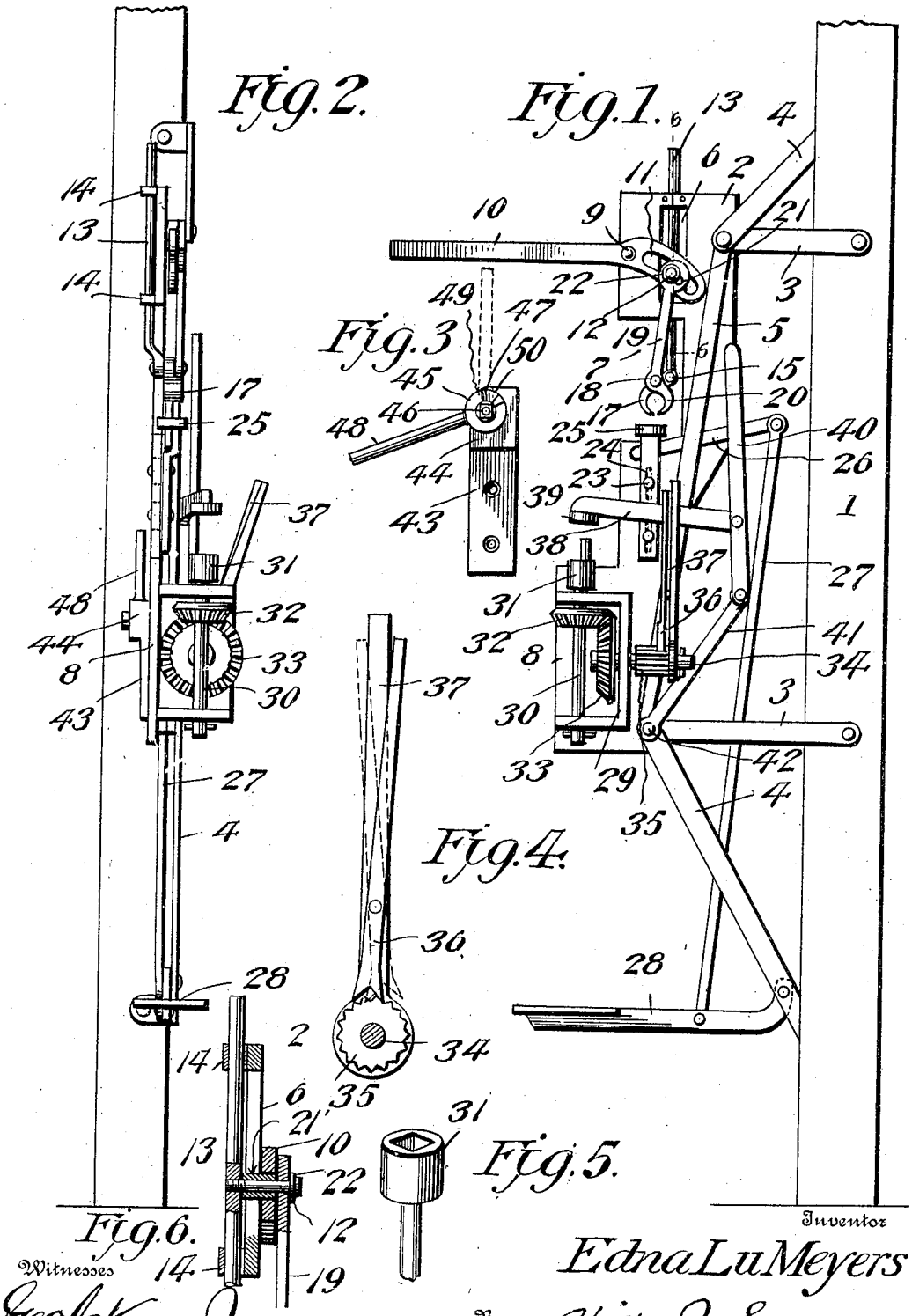

Witnesses

Geo. Ackman Jr.

F. A. Elmore

Inventor

Edna Lu Meyers

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

EDNA LU MEYERS, OF CAMERON, TEXAS.

WHEEL-TIRE MACHINE.

No. 836,593. Specification of Letters Patent. Patented Nov. 20, 1906.

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To all whom it may concern:

Be it known that I, EDNA LU MEYERS, a citizen of the United States of America, residing at Cameron, in the county of Milam and State of Texas, have invented new and useful Improvements in Wheel-Tire Machines, of which the following is a specification.

This invention relates to machines for applying and removing wheel-tires, and has for its objects to produce a comparatively simple inexpensive device of this character including devices for performing the successive steps of removing the nuts from the tire-bolts and withdrawing the bolts from the felly and tire, one in which the bolts may be readily inserted for securing the tire in place and the nuts applied to the bolt and one in which the wheel will be effectually supported during the performance of the above-named operations.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of a machine embodying the invention. Fig. 2 is a front elevation of the same. Fig. 3 is a detail side elevation of the bolt cutting or nipping device. Fig. 4 is a detail view of the operating-lever embodied in the nut-removing mechanism. Fig. 5 is a perspective view of the nut-engaging head or wrench. Fig. 6 is a detail section taken on the line 6 6 of Fig. 1.

Referring to the drawings, 1 designates a vertical support or standard to which a frame 2 is connected by horizontal braces 3 and diagonal braces 4, connected by a main brace 5, said frame 2, which is preferably composed of plate metal, being provided adjacent its upper end with a vertically-disposed slot 6 and having beneath said slot a horizontal forwardly-opening recess 7, beneath which in turn the frame has a forwardly-projecting portion or extension 8.

Pivoted to the upper portion of the frame 2, as at 9, is a hand-lever 10, provided at its inner end with an arcuate slot 11, designed to receive a horizontal laterally-projecting bolt or pintle 12, carried by a vertical guide rod or element 13, slidably sustained by bearings 14 and having pivoted to its lower end, as at 15, a gripping jaw or member 17, to which in turn is pivoted, as at 18, a shank or element 19, provided at its lower end with a gripping-jaw 20 and having at its other end a disk-like head provided with an inclined slot 21, through which the pintle 12 also extends, there being loose upon the pintle within the slots 6 and 11 a wearing-sleeve 21′, while tapped onto the outer end of the pintle is a nut 22. It is to be understood in this connection that the pivotally-connected elements 13 and 19, together with their gripping-jaws 17 and 20, constitute a bolt-extracting device designed to be operated by the lever 10, it being apparent that when the outer end of the lever is swung upward the element 13 will be moved vertically downward in its guides and through the medium of the bolt-and-slot connection with the element 19 will have sufficient movement relative to the latter to open the jaws 17 and 20 for engagement with a bolt, as more fully hereinafter explained.

Slidably attached to the frame 2 beneath the recess 7, by means of fastening members or bolts 23 working in vertical slots 24 in the frame, is a vertically-movable pressure member or head 25, adapted for upward movement by means of a lever 26, pivoted to the frame and connected by a link or other rigid element 27 with a foot-lever 28, it being apparent that when the lever 28 is moved downward the lever 26 will, through the medium of link 27, be actuated for moving the head upward for a purpose which will presently appear.

Secured to the front side face of the frame 2 is a bearing member or frame 29, presenting a vertical portion and a pair of vertically-spaced horizontal portions, in which latter there is journaled the shank 30 of a rotary wrench provided at its upper end with a socketed nut-engaging head 31, there being fixed upon the shank 30 a bevel-gear 32, engaged by a corresponding gear 33, in turn fixed upon a stub-shaft 34, journaled in the vertical portion of the frame 29 and carrying a ratchet 35, engaged by a double-acting pawl 36, pivoted to a lever 37, loosely pivoted upon the shaft 34. When the pawl-lever 36 is properly engaged with the shaft 34, movement of the lever 37 serves to impart rotary motion to stub-shaft 34 and, through the medium of the intermeshing gears 32 33, rotates the wrench, it being understood that

the direction of rotation of the wrench for applying or removing the nut depends upon the engagement of the pawl 36 with the ratchet 35.

Pivoted to the frame 2 is an arm or lever 38, carrying at its outer end a pressure-head 39, disposed vertically above and in axial alinement with the wrench-head 31, there being pivoted to the rear end of lever 38 a hand-lever 40, in turn connected at its lower end by means of a link 41 with the frame, the lower end of link 41 being secured in place by the fastening member or bolt 42, which serves to attach to the frame the adjacent ends of braces 3, 4, and 5.

Secured to the rear side face of frame 2 is a vertically-disposed member or bar 43, having at its upper end a head 44, provided with a vertical recess designed to receive a cutting member or head 45 of circular form, pivoted to the member 43 by means of a bolt 46 and provided with an opening or recess 47 and with an operating-handle 48, there being presented by the recess 47 a sharpened cutting edge 49, adapted for coöperation with a cutting edge 50 on the head 44 for cutting or nipping bolts in shortening the latter.

In practice when it is desired to remove a wheel-tire the nuts of the tire-holding bolts are successively engaged with and removed by the wrench 31, which latter is operated in the manner heretofore explained. After removal of the nuts the inner ends of the bolts are placed successively in position upon the pressure member 25, which latter is actuated through the medium of levers 26 and 28 for forcing the bolts partially outward through the felly and tire, each bolt after being thus forced outward being engaged and removed by the bolt-extractor, which latter is operated by means of the hand-lever 10, as heretofore explained. On the other hand, when it is desired to secure a tire in position upon a wheel the bolts are seated in their respective openings and forced through the latter by bringing them successively under the action of the pressure-head 39, carried by lever 38 and actuated by lever 40, each bolt after being forced inward through the tire and felly being held in place by means of the pressure member 39 during the operation of applying the nuts by means of the wrench, as will be readily understood. In attaching the tire to the felly should the bolts be unnecessarily long they may be cut to the proper length by means of the clipping device, comprising heads 44 and 45, having the coöperating cutting edges 49 and 50.

From the foregoing it is apparent that I produce a simple inexpensive device admirably adapted for the attainment of the ends in view and one wherein the successive steps necessary to the application or removal of a tire may be readily effected, it being understood that in attaining these ends minor changes in the details herein set forth may be resorted to without departing from the spirit of the invention.

Having thus described the invention, what I claim is—

1. In a device of the character set forth, a frame, a guide-rod movably mounted upon the frame, a jaw pivoted to the guide-rod, a shank pivoted to said jaw and provided with a coöperating jaw, a lever pivoted upon the frame and provided with a slot, and a bolt carried by the guide-rod, said bolt passing through the slot in the lever and connected to said shank.

2. In a device of the character set forth, a frame, a guide-rod mounted upon the frame, a jaw pivoted to said guide-rod, a shank pivoted to said jaw and provided with a coöperating jaw, a lever pivotally mounted upon the frame and provided with an arcuate-shaped slot, and a bolt carried by the guide-rod, said bolt passing through the slot and connected to the shank.

3. In a device of the character set forth, a frame, a guide-rod mounted upon the frame, a jaw pivoted to said guide-rod, a shank pivoted to said jaw and provided with a coöperating jaw, the upper end of said shank being provided with a slot, a lever pivotally mounted upon the frame and provided with a slot, and a bolt carried by the guide-rod and projected through the slots of the lever and shank.

4. In a device of the character set forth, a frame, a guide-rod mounted upon the frame, a jaw pivotally secured to the guide-rod, a shank pivotally secured to said jaw, and provided with a coöperating jaw, a lever pivotally mounted upon the frame, a bolt carried by the guide-rod and having connection with the lever and shank, a pressure member movably mounted upon the frame, and means for operating the pressure member.

5. In a device of the character set forth, a frame, a pressure member provided with a slot, means passing through the slot and engaging the frame to movably secure the pressure member thereon, a lever pivotally mounted upon the frame, a pivotally-mounted foot-lever, a connection between said lever and the foot-lever, and a bolt-extractor carried by the frame.

6. In a device of the character set forth, a frame, a bearing member secured to the frame and comprising a vertical portion and a pair of vertically-spaced horizontal portions, a shank journaled in said horizontal portions, and provided with a nut-engaging head, a gear secured to said shank, a shaft journaled in said vertical portion, a gear secured to said shaft, and ratchet means secured to said shaft.

7. In a device of the character set forth, a guide-rod, a jaw pivotally secured to the guide-rod, a shank pivotally secured to said

jaw and provided with a coöperating jaw, a lever pivotally mounted, and a connection between the guide-rod, lever and shank.

8. In a device of the character set forth, a frame, a guide-rod mounted upon the frame, a jaw pivoted to the guide-rod, a shank pivoted to the jaw and provided with a coöperating jaw, a lever pivoted upon the frame, a bolt carried by the guide-rod and having connection with said lever and shank, a pressure member mounted upon the frame, means for operating the pressure member, a nut-removing member mounted upon the frame, and means for operating the nut-removing member.

9. In a device of the character set forth, a guide-rod, a jaw secured to said guide-rod, a shank provided with a coöperating jaw, a lever, and a connection between the guide-rod, lever and shank.

In testimony whereof I affix my signature in presence of two witnesses.

EDNA LU MEYERS.

Witnesses:
J. L. DAWSON,
W. W. GREER