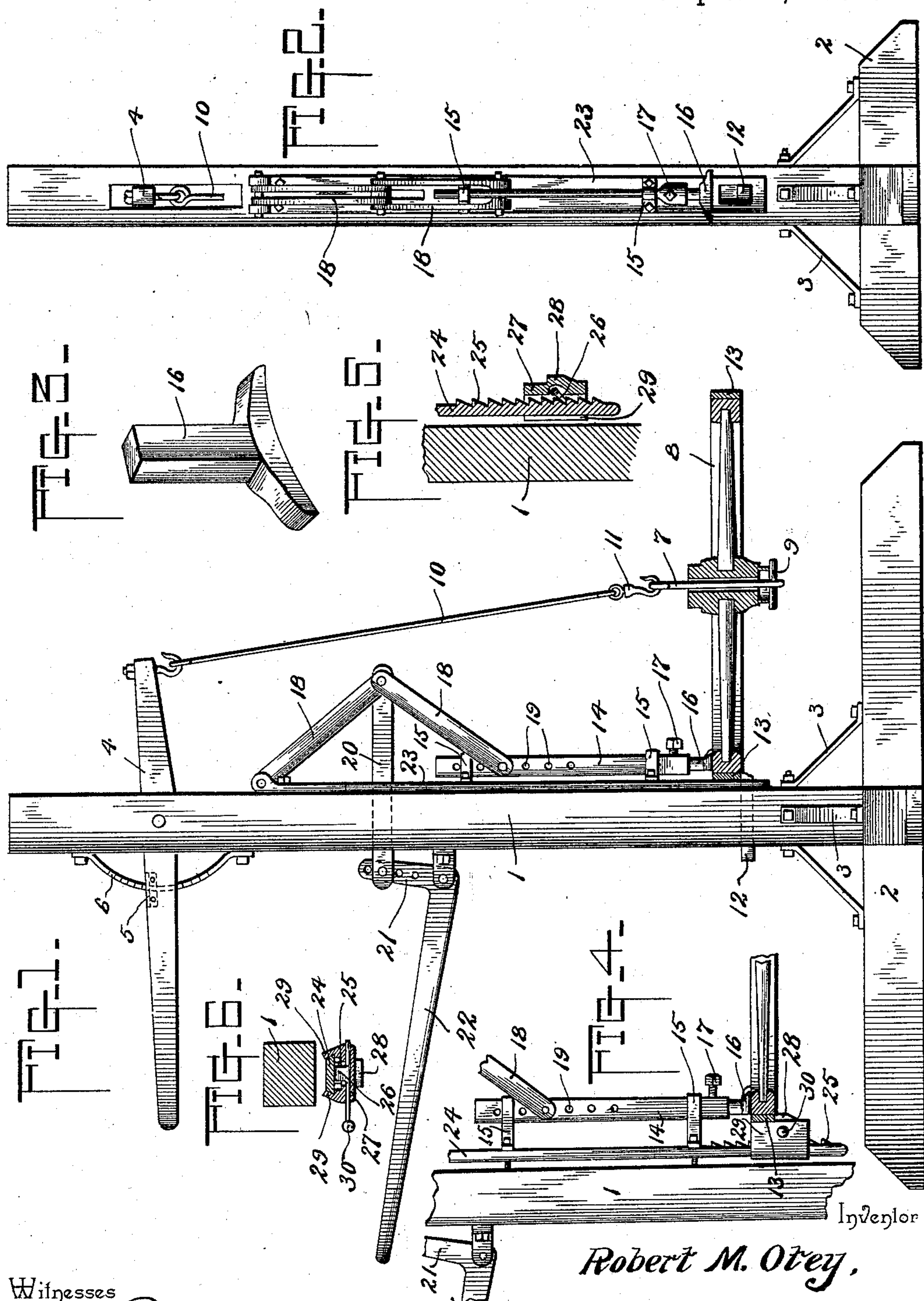


R. M. OTEY.
TIRE REMOVER.

Patented Apr. 13, 1897.



Witnesses

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ROBERT MONROE OTEY, OF SAN JACINTO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO MAGGIE A. CLARK, OF SAME PLACE.

TIRE-REMOVER.

SPECIFICATION forming part of Letters Patent No. 580,604, dated April 13, 1897.

Application filed July 24, 1896. Serial No. 600,437. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MONROE OTEY, a citizen of the United States, residing at San Jacinto, in the county of Riverside and State of California, have invented a new and useful Tire-Remover, of which the following is a specification.

This invention relates to machines for removing tires from wheels, pulleys, and like articles which are encompassed by a metal band or ring.

The purpose of the invention is the construction of a machine which will perform the required work without injuring or marring the appearance of the rim or felly and which will displace the tire no matter how tightly the same may embrace or be shrunk upon the wheel.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine constructed in accordance with this invention, showing it in operation. Fig. 2 is a front view. Fig. 3 is a detail view of a foot. Fig. 4 shows a construction in which the rest or support for the rim is vertically adjustable. Fig. 5 is a transverse section of the rest and the parts coöperating therewith for securing it in an adjusted position. Fig. 6 is a vertical section of the parts shown in Fig. 5.

Corresponding and like parts are referred to in the following description and indicated in the several views of the drawings by the same reference-characters.

The post or upright 1 is mounted upon a stand 2, formed by crossed bars, and is strengthened by braces 3, interposed between the lower portion of the upright and the end portions of the bars forming the stand. A lever 4 is fulcrumed between its ends in a mortise near the upper end of the upright, and is

provided with a lip 5 to engage with a toothed bar 6, by means of which the lever is held in an adjusted position. A link 7 is adapted to pass through the hub of the wheel 8 from which the tire is to be removed, and a pin 9, removably supported in the lower end of the link 7, engages with the lower end of the hub and supports the wheel in an approximately horizontal position. This link 7 is suitably connected with the lever 4, and, as shown, a rod 10, having a hook 11 at its lower end, is the means for suspending the link 7 and the wheel 8, supported thereby. The hook 11 admits of the link 7 being removably connected with the rod 10.

By having the link 7 loosely connected with the lower end of the rod 10 it will adapt itself to any relative inclination of the rod 10, so as to maintain a vertical position at all times. The rod 10 swings from the end of the lever 4 and readily adapts the suspending means to wheels of varying size, the lever 4 providing for vertical adjustment of the link 7 to level the wheel.

A bar 12 is thrust through an opening in the post and is adapted to engage with the band or tire 13 and form a point of resistance therefor to secure it from downward displacement when the felly is subjected to pressure from above. A pusher-bar 14 is slidably mounted in guides 15 and is provided at its lower end with a foot 16, which is removably fitted thereto, the shank of the foot entering a socket in the lower end of the pusher-bar and held therein by a binding-screw 17. This foot 16 is expanded at its lower end and curves to conform to the circumference of the wheel, and is adapted to obtain an extended bearing on the felly thereof, so as to distribute the pressure over a sufficient surface to obviate injury to the felly. Toggle-levers 18 connect the pusher-bar 14 with the upright 1, the pusher-bar having a series of openings 19 to admit of the toggle-levers having adjustable connection therewith to adapt the machine to the thickness of the wheel or felly from which the tire is to be removed. A link 20 passes transversely through the upright and connects with the inner ends of the toggle-levers and with the short arm 21 of a bell-crank lever 22, by

means of which the initial power is applied for performing the required work. The link 20 has adjustable connection with the short arm 21 to vary the leverage and the effective force. In the event of the post or upright 1 being constructed of wood the latter will be reinforced by a plate 23, to which the guides 15 and the upper toggle-lever are connected, and the bar 12 will extend through a slot or opening in the said plate so as to be supported thereby.

When it is required to remove the tire from a wheel, the latter is supported about as shown in Fig. 1 by having the link 7 pass through the hub and the pin 9 thrust through the lower end of the link so as to sit crosswise of the bore of the hub and engage with and support the latter. The tire 13 will rest upon the projecting end of the bar 12. Upon depressing the outer end of the lever 22 the pusher-bar 14 will be lowered and press downward upon the felly and loosen it from the tire, as will be readily understood. After each operation of the lever 22 the wheel will be turned so as to bring a new portion in position to be acted upon in the manner just described, so as to effect a separation or displacement of the tire from the wheel.

The construction herein set forth can with few changes be adapted for gumming saws, punching or riveting, or for a press wherever in the mechanic arts power is to be applied by means of a plunger or push-bar to perform any required work.

The rest 12 shown in Figs. 1 and 2 is incapable of vertical adjustment, but as it is desirable in many instances to have the said rest movable vertically a construction is illustrated in Fig. 4 and the detail views thereof which will admit of this result being attained in a simple and effective way.

The plate 24, secured to the upright 1, is formed at its lower end with a series of teeth 25, which are adapted to be engaged by a dog 26, carried by a slide 27, so as to secure the latter in the required adjusted position. A lug 28 projects from the face of the slide 27, and constitutes the rest for supporting the rim or other part to be operated upon. The slide 27 has its edge portions 29 bent so as to embrace the edges of the plate 24, by means of which it is held in place and directed in its vertical movements. A rod 30, journaled in the bent edge portions 29, carries the dog 26 and is adapted to be operated by hand, so as to throw the dog 26 into or out of engagement with the teeth 25 when adjusting the slide or rest. The pusher-bar 14, its actuating mechanism, and the means for supporting the wheel will be the same as the corresponding parts shown in Figs. 1 and 2, and the opera-

tion of the device will be the same as that herein described at length.

Having thus described the invention, what is claimed as new is—

1. In a tire-remover, the combination of a post provided with a rest to engage with the tire, a pusher-bar to engage with the rim or felly and slidably mounted upon the post, actuating mechanism supported by the post for operating the pusher-bar, a link to engage with the hub of the wheel and have the latter rotatably mounted thereon, a rod having loose connection with the link, a lever fulcrumed to the upper end of the said post and having the rod loosely connected therewith, and adapted to raise and lower the link, and means for holding the lever in an adjusted position, substantially as set forth.

2. In a tire-remover, the combination with a post, and means supported thereby for removing the tire, of a lever fulcrumed to the post and provided with means for holding it in an adjusted position, a rod having loose connection with the lever and adapted to swing outward at its lower end to suit different-sized wheels, a link having loose connection with the lower end of the swinging rod to pass through the hub of a wheel and have the latter rotatably mounted thereon, and a pin passing transversely through the lower end of the link and supporting the wheel thereon, substantially as set forth.

3. The herein-described means for removing the tire from a wheel, consisting of a post, a plate secured to the post and having upper and lower guides, a rest having adjustable connection with the plate and forming a support for the tire, a pusher-bar slidably mounted in the guides, a foot detachably connected with the pusher-bar and constructed to engage with the rim or felly, toggle-levers having pivotal connection with the said plate at one end and adjustable connection at the opposite end with the pusher-bar, a bell-crank lever, a link adjustably connecting the toggle-levers with an arm of the bell-crank lever, a supporting-rod, a lever fulcrumed to the post and having the supporting-rod connected therewith, and provided with means whereby it may be secured in an adjusted position, and a link having loose connection with the rod and adapted to rotatably support the wheel to be operated upon, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROBERT MONROE OTEY.

Witnesses:

JOHN T. MORGAN,
JOHN M. CREE.