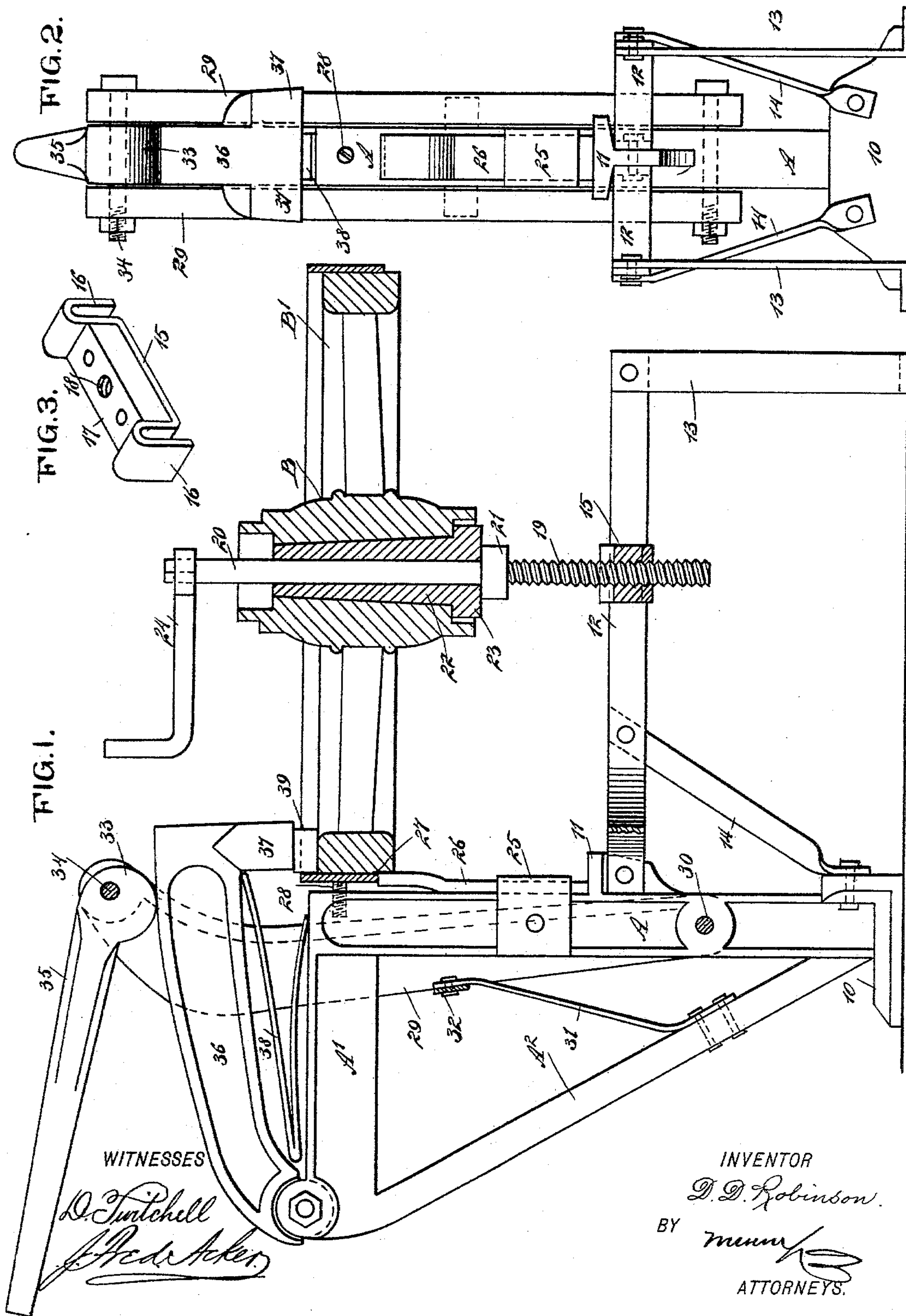


(No Model.)

D. D. ROBINSON.
DEVICE FOR REMOVING TIRES.

No. 597,297.

Patented Jan. 11, 1898.



WITNESSES

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DUPORTAL D. ROBINSON, OF NILES, MICHIGAN.

DEVICE FOR REMOVING TIRES.

SPECIFICATION forming part of Letters Patent No. 597,297, dated January 11, 1898.

Application filed June 24, 1897. Serial No. 642,179. (No model.)

To all whom it may concern:

Be it known that I, DUPORTAL D. ROBINSON, of Niles, in the county of Berrien and State of Michigan, have invented a new and Improved Device for Removing Tires, of which the following is a full, clear, and exact description.

The object of my invention is to provide a device through the medium of which tires may be removed from wheels in an expeditious and convenient manner and at little expense without in the slightest degree injuring the felly and whereby the same device used for removing the tires may also be used for truing the tires.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the device, partly in section, illustrating a wheel in position thereon, the wheel being in vertical section. Fig. 2 is a front elevation of the device, and Fig. 3 is a perspective view of the connecting-bar therefor.

A standard A is mounted on a suitable base 10. On what may be termed the "front" or "inner" face of the standard, about midway between the top and the bottom, a bracket 11 is secured, which may be an integral portion of the standard. Diverging arms 12 are secured to opposite sides of the brackets 11, and the arms are carried horizontally from the standards, being supported by legs 13 and braces 14. A connecting-bar 15 extends from one of the horizontal arms 12 to the other and ties the two arms, the connecting-bar to that end being provided with hooks 16 at each extremity, and between the hooks a block 17 is secured to the connecting-bar, being provided with a threaded opening 18 at its center, which extends likewise through the connecting-bar, as shown in both Figs. 1 and 3. The lower threaded end 19 of the vertical shaft 20 is made to enter the threaded opening 18 in the connecting-bar and its block. This shaft is provided above its thread with a collar 21, and a tapering sleeve 22 is located on the upper

portion of the shaft, and the lower end of this sleeve has a flange 23. The sleeve 22 rests upon the collar 21 and is adapted to fit into the box of the hub B of the wheel B' to be operated upon. A crank-arm 24 is located at the upper end of the shaft 20, whereby the wheel may be raised and lowered by turning the said shaft.

The upright A has an arm A' attached thereto or made integral therewith and extending rearwardly therefrom, the arm A' of the upright being connected with the bottom of the upright by a brace-bar A². A socket 25 is formed on the upright A at its front above the bracket 11. This socket receives the lower end of a dog 26, having its front edge at its upper end pointed, as shown at 27. The dog 26 is removable from the socket 25 and rests on the bracket 11. Any length of dog may be employed according to the width of the tire of the wheel.

A set-screw 28 is located in the front face of the upper portion of the standard A. This screw is adjusted to engage with the outer face of the tire to be removed, as shown in Fig. 1, and is carried inward or outward, according to the thickness of the tire. A lever-arm 29 is located at each side of the upright A, extending above the same, and the upper ends of the lever-arms are usually forwardly inclined, while their lower ends are connected by a pivot 30 with the upright near its base. A spring 31 is attached to the inclined brace A² of the frame and to a cross-bar 32, which cross-bar has bearing against the back edges of each of the lever-arms, normally forcing the said arms forwardly. A cam or an eccentric 33 is pivoted by a pin 34 between the upper ends of the lever-arms 29, the said eccentric being provided with an attached handle 35. The eccentric is adapted to engage with a pressure-arm 36, which is pivoted at the rear end of and above the frame-arm A' and extends over and beyond the front of the standard or upright A. The pressure-arm at the lower portion of its forward end has a foot 37 formed thereon, which is at right angles to the arm, and when taken in connection with the vertical section of the pressure-arm would form a T. The presser-foot 37 is adapted to have bearing on the upper face of the felly of the wheel. A spring 38 is interposed be-

tween the frame-arm A' and the pressure-arm 36, holding the latter upward and against the roller-eccentric.

The lever-arms 29 are pivoted in order to obtain a rolling action of the eccentric 33 upon the pressure-arm and avoid friction, which is very desirable in a hand-power machine. The function of the spring 38 is simply to carry the pressure-arm to its normal position after the arm is relieved from the pressure of the eccentric 33 and to constantly keep the arm in engagement with the eccentric. The point where the eccentric engages the pressure-arm 36 is nearly over the presser-foot 37 or slightly past the point where the foot rests upon the felly of the wheel, and as the pressure-arm moves downward the travel of the eccentric is only about one and a half inches back of its starting-point, thereby losing a very small amount of power as the eccentric travels away from its first point of engagement with the arm, the loss of power not being sufficient to offset the power gained by the lever-operated eccentric over a stationary one.

In operation the wheel-hub is placed upon the sleeve 22 and the shaft 20 is adjusted until the tire rests upon the upper face of the dog 26. The presser-foot of the pressure-arm is made to bear upon the felly, and the roller-eccentric is operated through the medium of the handle 35 to force the pressure-arm 36 downward. The wheel is then gradually turned until the felly has been forced from the tire a certain distance, whereupon a block 39 of suitable thickness is placed upon the felly and engaged by the presser-foot of the pressure-arm, the shaft 20 being turned while the pressure operation is carried on to permit the wheel and its felly to drop downward from the tire. The operation of pressing the felly from the tire is continued until the wheel entirely leaves the tire, and when this is accomplished it will be found that the felly has not been injured to any extent.

The device is simple, it is durable and economic, and may be effectively used for truing up tires as well as for removing them.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a device for removing tires from wheels, the combination with the standard provided with the bracket and the socket thereabove, of the diverging arms connected to said bracket and supported in a horizontal position, said arms serving as a support for the wheel proper, a dog in said socket and having its lower end resting on said bracket, said dog being adapted to hold the tire of the wheel and a presser-arm for engagement with the felly of the wheel, as and for the purpose set forth.

2. A device for removing tires, provided

with a standard provided with a bracket and a socket above said bracket, a support for the hub of a wheel and connected with said bracket, and a dog removably held in said socket and having its lower end resting upon said bracket, as and for the purpose set forth.

3. In a device for removing tires, the combination with the standard, of the dog removably held on said standard and having an upper surface adapted to support the tire of a wheel against downward movement, said dog having its front edge extended above said upper surface, and a set-screw working in said standard above the upper end of said dog and arranged to hold the tire against lateral displacement, as and for the purpose set forth.

4. In a device for removing tires, the standard, the diverging arms connected thereto, and supported in horizontal position, a connecting-bar having hooks at each end and by which it is held between said arms, said bar being formed with a threaded opening, a threaded shaft working in said opening and a sleeve on said shaft and formed at its lower end with an annular flange, all as and for the purpose set forth.

5. A device for removing tires, comprising a standard formed with a bracket and a socket above said bracket, diverging arms connected to said bracket and arranged for the support of the wheel proper, a dog removably held in said socket and having its lower end resting on said bracket, said dog being adapted to support the tire against downward movement, an adjustable device for holding the tire against lateral displacement, a presser-arm pivoted to said standard and provided with a foot normally extending in front of said dog, levers pivoted to said standard below the presser-arm and extending above the same, said levers carrying an eccentric which is adapted to bear on said presser-arm to force it downward and a spring having bearing against the rear face of said levers and by which they are forced toward the free end of said presser-arm, as and for the purpose set forth.

6. In a device for removing tires, the combination with the standard, of the support for the wheel proper and the support for the tire attached to said standard, a presser-arm pivotally connected to said standard and formed at the lower side of its free end with a foot extending at right angles to the main portion thereof and lever-arms pivotally connected to said standard and extending above said presser-arm, said lever-arms carrying at their upper ends an eccentric adapted to bear upon said presser-arm to move the latter downwardly, as and for the purpose set forth.

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Witnesses:

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