

No. 753,130.

PATENTED FEB. 23, 1904.

J. E. FILLMAN & W. DAVIS.

TIRE BOLTING MACHINE.

APPLICATION FILED AUG. 12, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

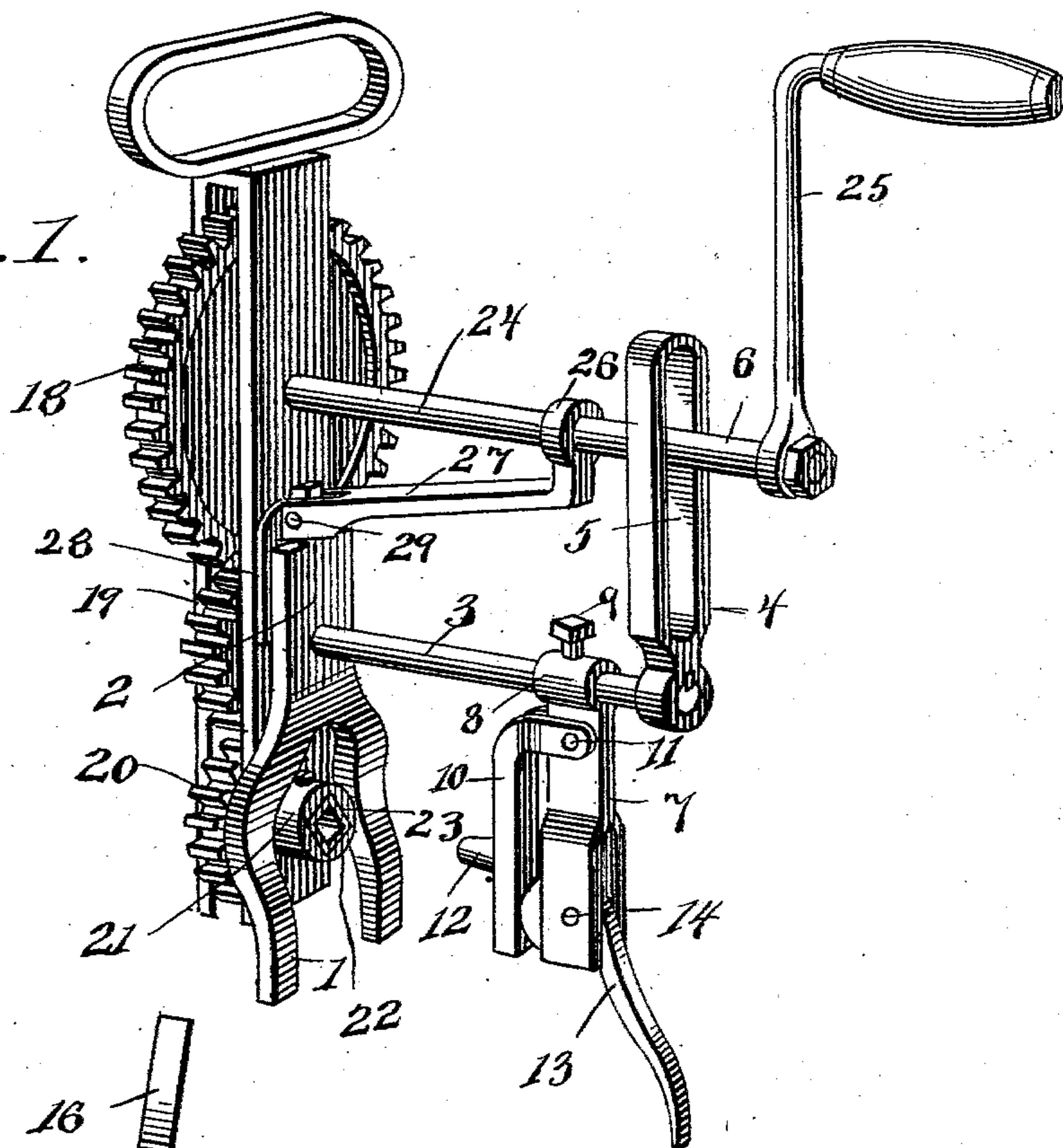
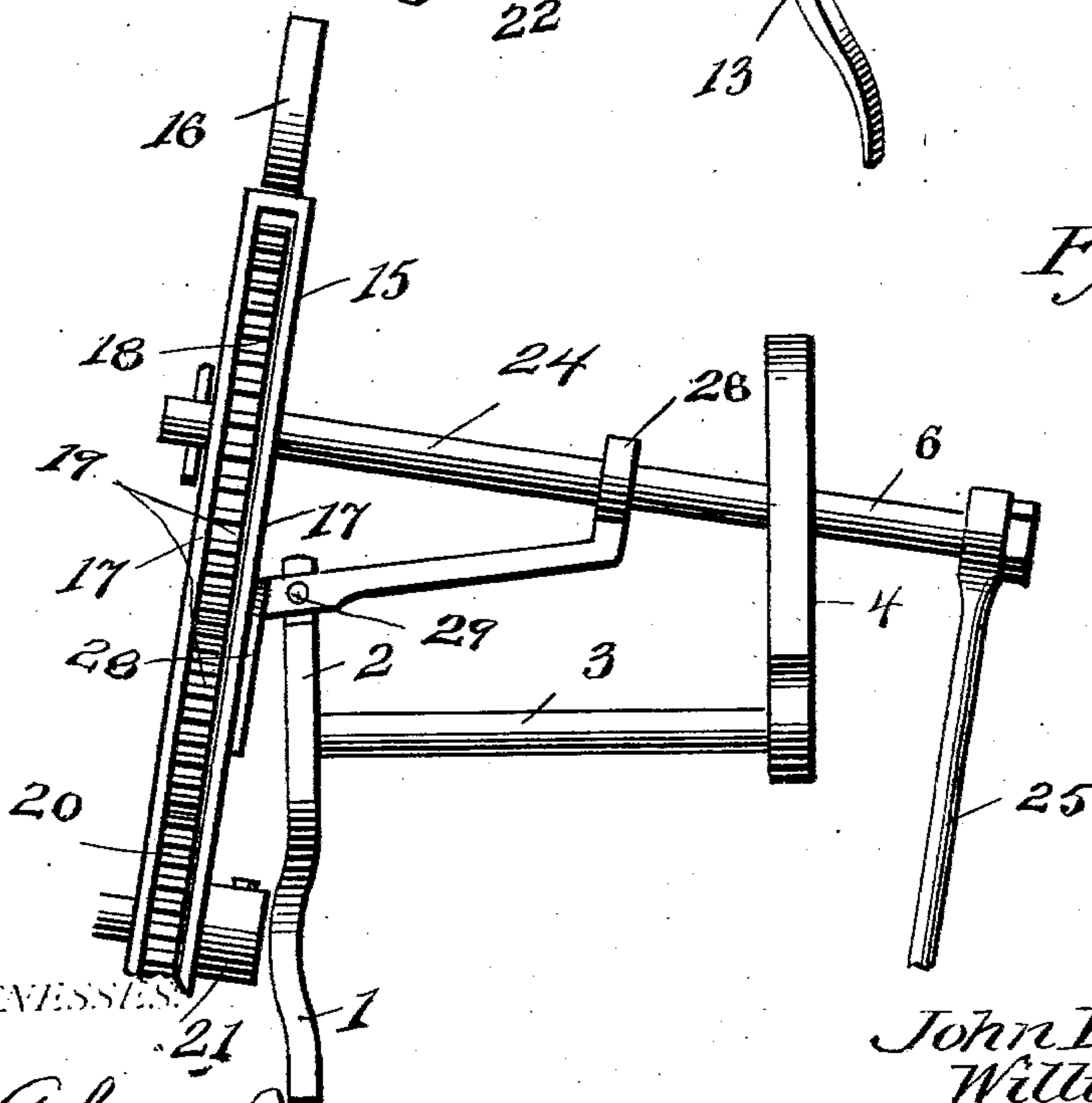


Fig. 4.



WITNESSES

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2 SHEETS—SHEET 2.

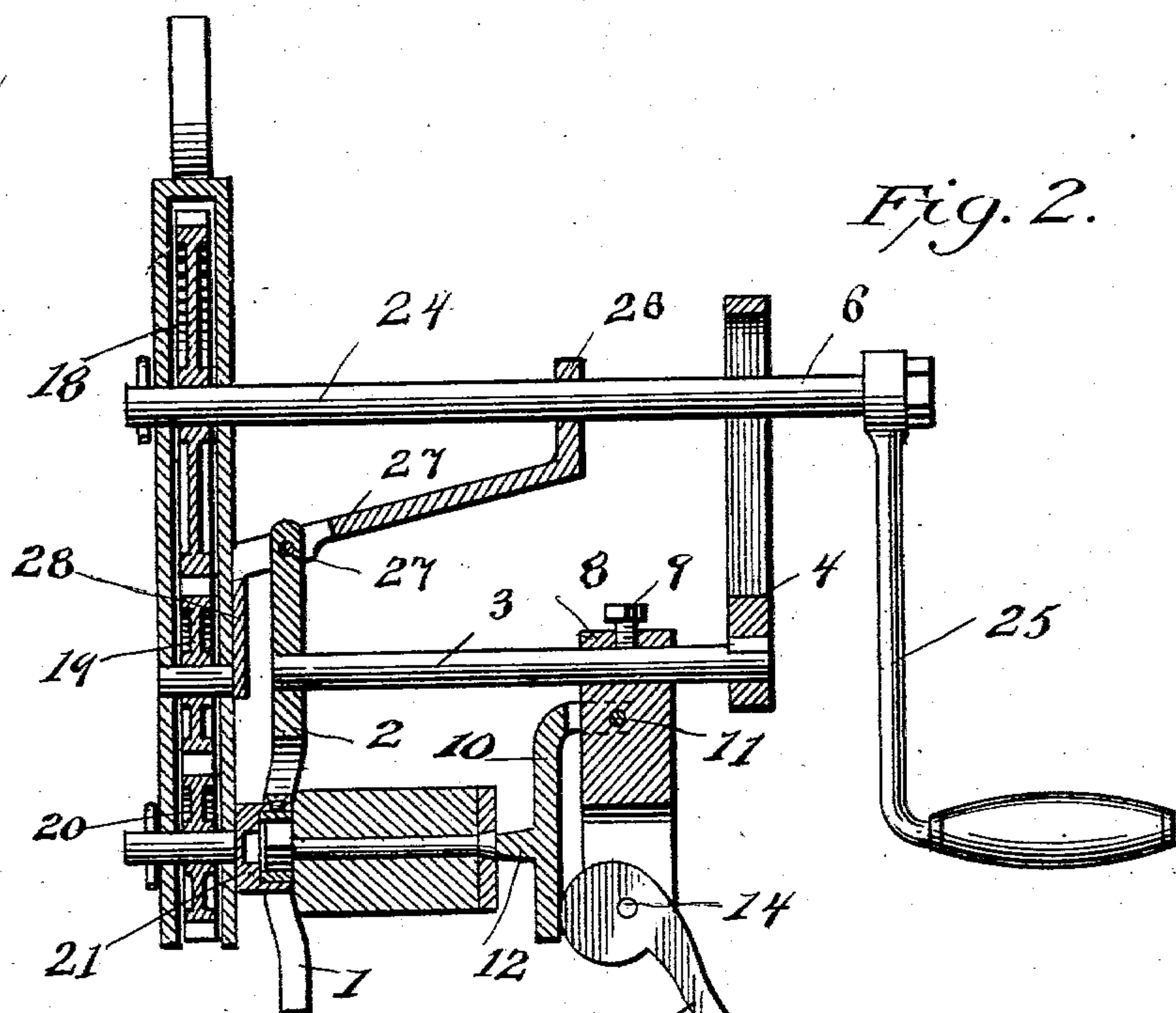
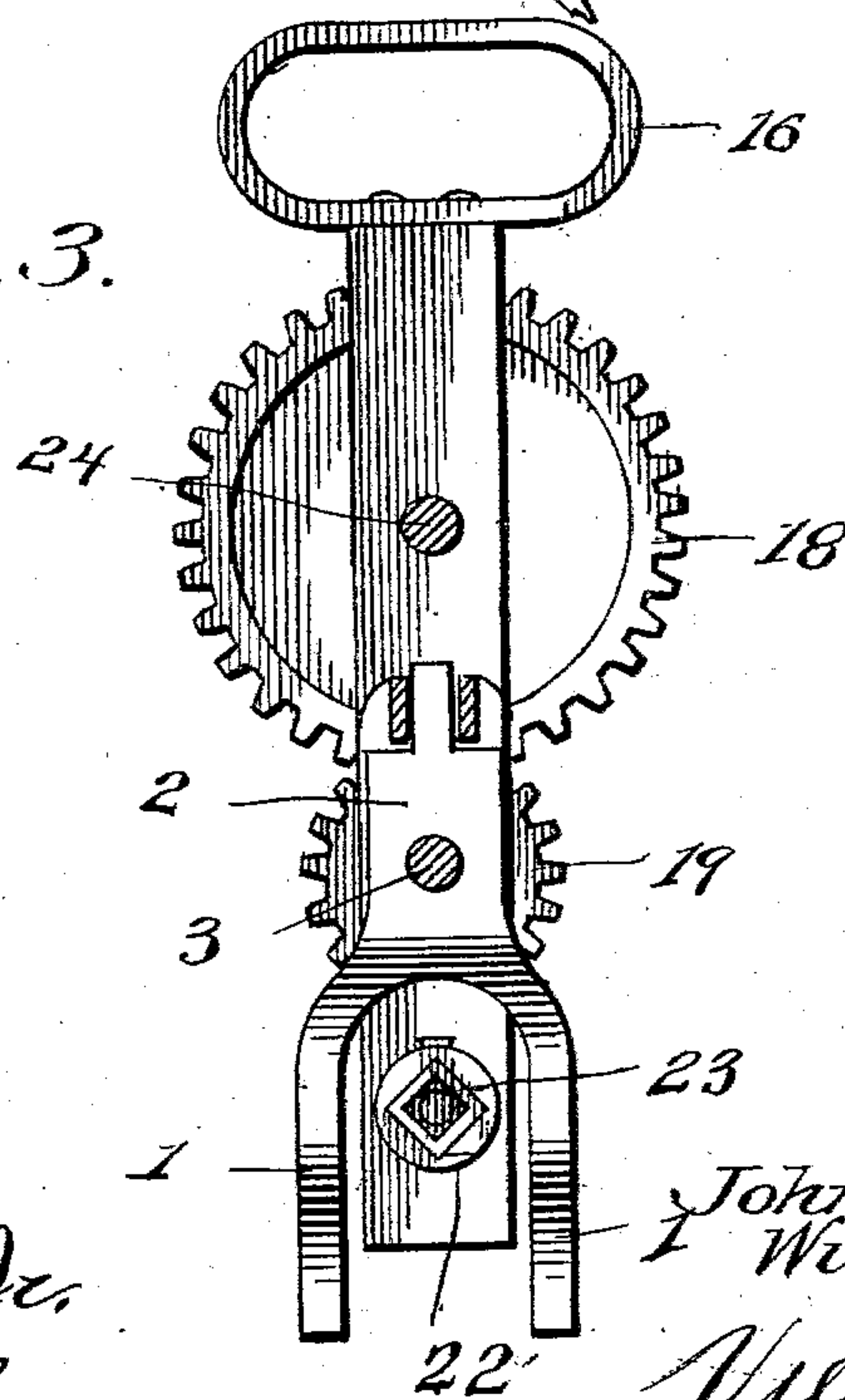


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN E. FILLMAN AND WILLIAM DAVIS, OF MENO, OKLAHOMA TERRITORY; SAID FILLMAN ASSIGNOR TO SAID DAVIS.

TIRE-BOLTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 753,130, dated February 23, 1904.

Application filed August 12, 1903. Serial No. 169,290. (No model.)

To all whom it may concern:

Be it known that we, JOHN E. FILLMAN and WILLIAM DAVIS, citizens of the United States, residing at Meno, in the county of Woods, Oklahoma Territory, have invented new and useful Improvements in Tire-Bolting Machines, of which the following is a specification.

This invention relates to tire-bolting machines, the object in view being to provide a simple portable machine applicable to wheels of different sizes and having felloes of different thicknesses, the machine being adapted to be quickly clamped upon the rim of the wheel and adjusted in proper relation to each bolt and nut for the purpose of removing and replacing the nuts on the tire-bolts.

One of the principal objects of the present invention is to provide novel and efficient means for clamping the machine as a whole to the wheel-rim without interfering with the operation of the rotary head or chuck.

Another object of the invention is to provide a guide for the main operating-shaft, whereby the shaft is supported and given a proper bearing under any adjustment thereof.

With the above general objects in view the invention consists in the novel construction, combination, and arrangement of parts, as hereinafter fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a tire-bolting wrench constructed in accordance with the present invention. Fig. 2 is a vertical sectional view of the same, showing the machine in engagement with the rim of a wheel. Fig. 3 is a cross-sectional view of the machine. Fig. 4 is an elevation of the machine, showing the manner of tilting the main operating-shaft and gear-frame in the act of associating the wrench or rotary head with the nut and disengaging the same therefrom.

Like reference-numerals designate corresponding parts in all figures of the drawings.

Referring to the drawings, it will be seen that we employ a clamping-frame which consists, essentially, of a clamping-fork 1, between the arms or branches of which the

wrench or rotary head, hereinafter described, operates, as shown in Fig. 1. To the crown 2 of said fork is connected rigidly a guide-rod 3, and at the opposite or outer end of said rod is an upstanding shaft-guide 4, provided with a longitudinal slot 5, through which passes the main operating crank-shaft 6, which may thereby be moved upward and downward within the guide 4 in rocking or tilting the gear-frame, as hereinafter described. The clamp also comprises a combined bolt-holder and rim-clamp consisting of a frame 7, having at its upper end a sleeve 8, which may be slid inward and outward on the guide-rod 3 and fastened at any point by means of a set-screw 9. Located at the inner side of the frame 7 is a hinged arm 10, the upper end of which is extended inward and bifurcated to straddle the frame 7, to which it is pivotally connected at 11. The hinged arm 10 is provided with a stud or prong 12 in line with and extending toward the wrench or rotary head, as shown in Figs. 1 and 2, said stud being adapted to engage the head of the bolt for holding the same stationary while the nut is operated upon by the rotary head in a manner illustrated in Fig. 2. The lower end of the frame 7 is bifurcated, and a cam-lever 13 is pivotally mounted at 14 within the bifurcated portion of said frame, the head of the cam operating against the lower free end of the hinged arm 10 for the purpose of swinging said arm and moving the stud 12 into and out of engagement with the head of the bolt. By adjusting the frame 7 on the rod 3 the machine is adapted to wheels and felloes of different sizes and thicknesses.

At one side of the machine is arranged a gear-frame 15, provided at the upper end with a hand-grip 16, by means of which the machine as a whole may be carried and adjusted in proper relation to the wheel for the purpose specified. The frame 15 comprises parallel side portions 17, between which is arranged a series of gears, 18 designating the upper or main gear, 19 the idler, and 20 a gear-pinion provided with a hub 21, having a squared socket 22 to fit over a nut and also

provided with a series of interchangeable bushings 23 for adapting the rotary head to nuts of different sizes. The gears 18, 19, and 20 are all journaled in the gear-frame 15, the upper or main gear 18 being mounted fast on one end of a main operating crank-shaft 24, provided at its opposite end with a crank-handle 25, by means of which motion is imparted to the rotary head 20. The shaft 24 is also journaled in a sleeve or bearing 26, supported by means of an inclined brace 27, having a flange 28, which is bolted, riveted, or otherwise secured to the gear-frame 15, while it is pivotally connected at 29 to the upper end of the fork-crown 2.

By means of the construction described the gear-frame, together with the operating crank-shaft and the brace 27, is adapted to be swung on the pivot 29 as a center for the purpose of moving the rotary head into and out of engagement with a nut, the shaft 24 moving up and down within the guide 4.

By adjusting the frame 7 on the rod 3 the machine may be adapted to fellyes of different sizes or thicknesses, and by operating the cam-lever 13 the machine may be quickly clamped upon or removed from the felly. The machine is light, simple, and durable in construction and may be handled with rapidity, thus saving much time and labor in removing nuts from the felly and replacing the same thereon.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A tire-bolting machine comprising a clamping-frame embodying a fork, a guide connected therewith, a clamp adjustable on said guide and movable toward and away from the fork, a second frame mounted pivotally on the clamping-frame, a rotary head or chuck carried thereby, and a main operating-shaft geared to said rotary head and provided with

an operating crank-handle, substantially as described. 45

2. A tire-bolting machine comprising a clamping-frame embodying a clamping-fork, a guide extending laterally therefrom, a clamp adjustable on said guide, a shaft-guide connected with said clamping-frame, a gear-frame pivotally connected with the clamping-frame, a rotary head or wrench carried by said head, and an operating-shaft geared to said head, and moving up and down in the shaft-guide, substantially as described. 50 55

3. A tire-bolting machine comprising a clamping-frame embodying a clamping-fork, a guide-rod, a clamp adjustable on the guide-rod and having a bolt-engaging stud or prong, a shaft-guide extending upward from said guide-rod, a gear-frame pivotally connected with the clamping-fork, a rotary head or wrench journaled in said gear-frame, a crank-shaft geared to the rotary head and journaled in said gear-frame and also movable up and down in the shaft-guide, and means for operating said shaft. 60 65

4. A tire-bolting machine comprising a clamping-frame adapted to be fastened upon a wheel-rim and embodying a clamping-fork, a gear-frame, a rotary head or wrench carried by said frame, an operating crank-shaft also carried by said frame and geared to the rotary head, and a brace pivotally connected intermediate its ends with the clamping-fork and having one end secured to the gear-frame and provided at its opposite end with a bearing for the crank-shaft. 70 75

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN E. FILLMAN.
WILLIAM DAVIS.

Witnesses:

H. S. AUSTIN,
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