

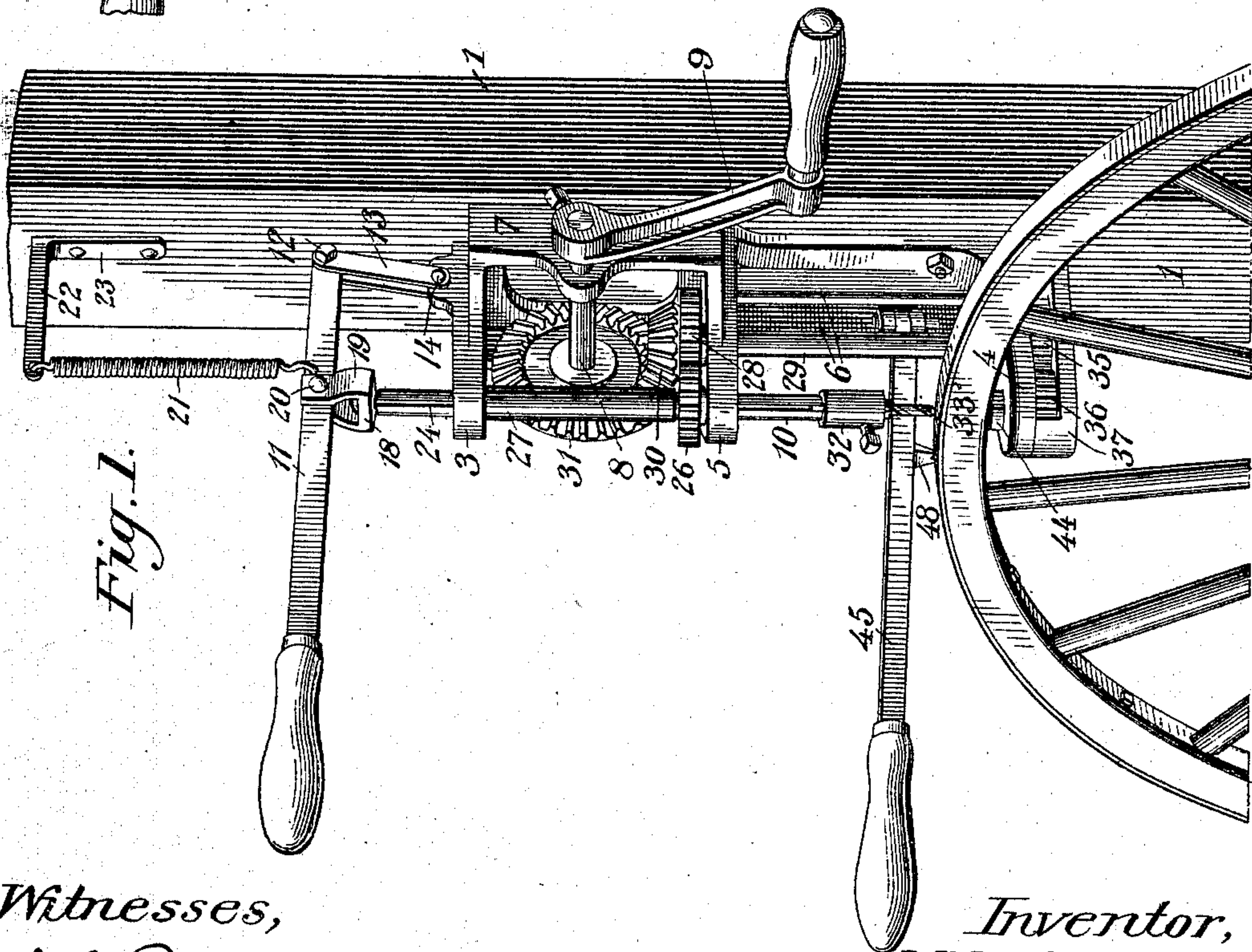
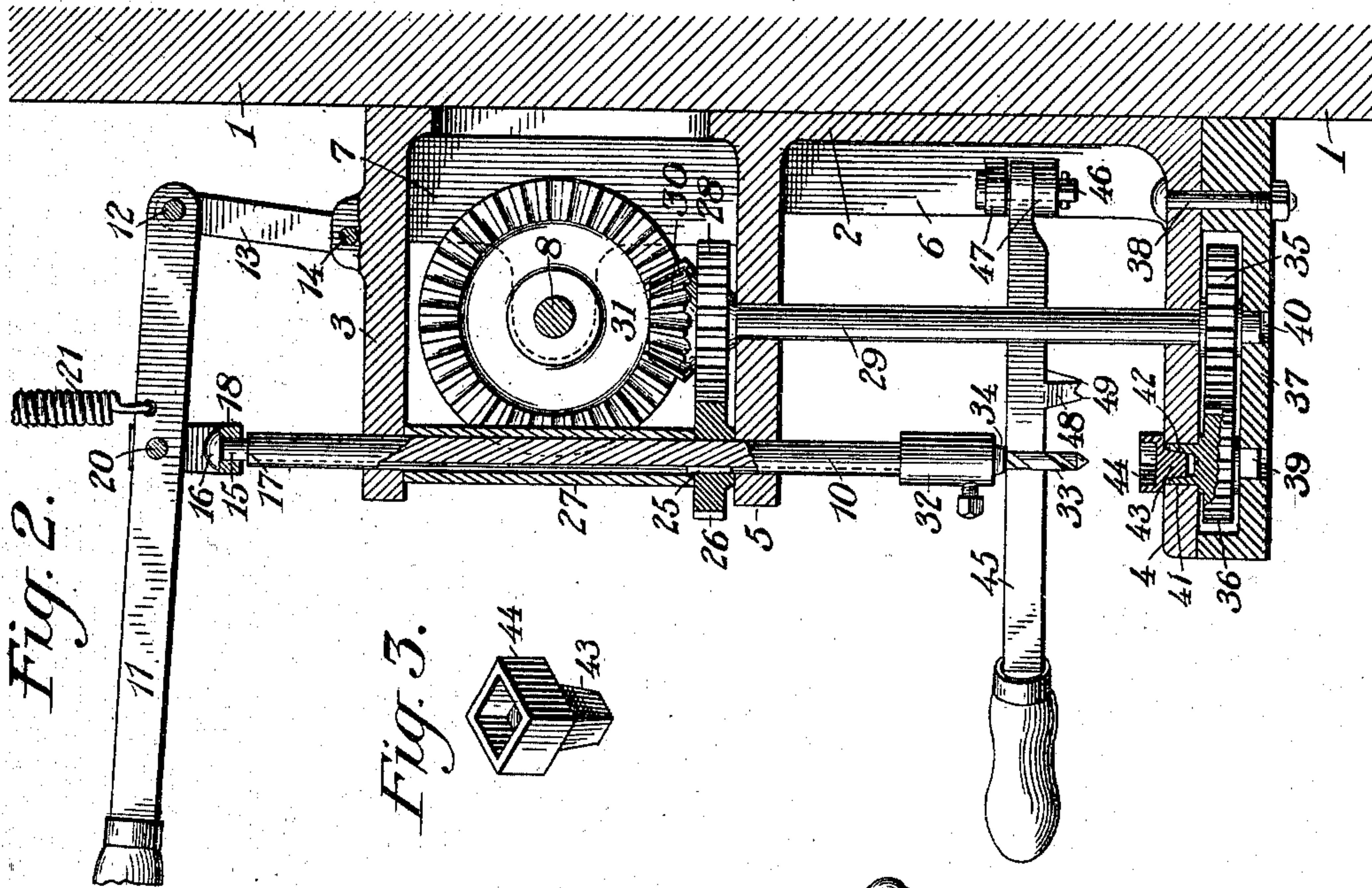
No. 681,171.

Patented Aug. 20, 1901.

M. L. KNUPP.
WHEELWRIGHT MACHINE.

(Application filed Dec. 13, 1900.)

(No Model.)



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WHEELWRIGHT-MACHINE.

SPECIFICATION forming part of Letters Patent No. 681,171, dated August 20, 1901.

Application filed December 13, 1900. Serial No. 39,717. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL L. KNUPP, a citizen of the United States, residing at Toledo, in the county of Cumberland and State of Illinois, have invented a certain new and useful Wheelwright-Machine, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to wheelwright-machines, and has for its object to provide a simple, cheap, and efficient hand-operated machine adapted to be fastened and supported upon a suitable post or wall, the machine embodying means for drilling the felly and tire of a vehicle-wheel to receive the tire-retaining bolts, means for countersinking the tire, so that the tapered heads of the bolts may be seated flush, means for turning the nuts on and off the bolts, and means for gripping the bolts, so as to prevent the same from turning in the rim and tire during the operation of turning the nuts on and off. The parts are so combined and arranged that the several features will not interfere with each other during the operation of one or more of them.

The detailed objects and advantages of the invention will appear more fully in the course of the ensuing description.

The invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and incorporated in the claims.

In the accompanying drawings, Figure 1 is a perspective view of the machine complete constructed in accordance with the present invention and shown applied to and supported upon a post or standard. Fig. 2 is an enlarged vertical sectional view of the same. Fig. 3 is a detail perspective view of the wrench.

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

Referring to the drawings, 1 designates a post to which the improved machine is shown applied. The machine may be applied to a wall or other convenient form of support. The machine comprises, essentially, a frame 2, provided with an upper horizontal extension 3, a lower horizontal extension 4, forming a

table or rest for the wheel being operated upon, and an intermediate horizontal extension 5, the extensions 4 and 5 being connected by a vertical web or strengthening-rib 6, and the extensions 3 and 5 being connected by parallel side portions or cheek-pieces 7, forming bearings for the main driving-shaft 8, which is equipped with a hand-lever 9, arranged at one side of the machine.

The extensions 3 and 5 form bearings for a vertical drill-shaft 10, adapted to be moved up and down by means of a hand-operated feed-lever 11, fulcrumed at 12 on an oscillatory fulcrum-post 13, pivotally mounted at 14 on the frame. The upper extremity of the drill-shaft 10 is annularly recessed or grooved, as shown at 15, thereby providing a head 16 and shoulder 17, which lie on opposite sides of the connecting portion 18 of a coupling-yoke 19, bent into substantially U shape, with its terminal portions embracing the feed-lever 11 and pivotally connected thereto by means of a pin or bolt 20. The shaft 10 thus has a swiveled connection with the yoke 19, which enables the shaft to be continuously driven or rotated as it is fed downward by depressing the lever 11. The feed-lever 11 is normally upheld by means of a contractible spring 21, having one end attached to the lever and its opposite end connected to the overhanging arm 22 of a bracket 23, secured to the post 1 or other convenient support.

The drill-shaft 10 is provided with a longitudinal groove or keyway 24, in which works the key 25 of a spur gear-wheel 26, resting upon the intermediate extension 5 of the frame and maintained in place thereon by means of a spacing-sleeve 27, which surrounds the shaft 10 and is interposed between the gear-wheel 26 and the upper horizontal extension 3 of the frame. The wheel 26 intermeshes with another spur gear-wheel 28, fast on the upper end of a counter-shaft 29, which has its bearings in the portions 4 and 5 of the frame, as clearly shown in Fig. 2. Rigidly associated with the wheel 28 is a bevel-pinion 30, which meshes with and is driven by a bevel gear-wheel 31, fast on the driving-shaft 8, hereinabove referred to. By the mechanism described rotary motion is imparted to

the drill-shaft 11 by operation of the hand lever or crank 9.

A chuck 32 is mounted upon the lower end of the shaft 10 and is adapted to receive and hold a drill or boring-bit 33 of any desired size. The bit 33 is provided with a countersink 34, so that in the same operation of drilling the bolt-hole through the tire and rim of a wheel the tire is countersunk to receive the head of the bolt in a manner that will be readily understood.

Fast on the lower end of the counter-shaft 29 is a spur gear-wheel 35, which intermeshes with another spur gear-wheel 36, both of said wheels being arranged beneath the table or wheel-rest 4. Located beneath said wheels is a housing-plate 37, secured by means of one or more bolts 38 to the machine-frame and provided with sockets or openings 39 and 40, one to receive an axial extension of the gear-wheel 36 and the other to receive the end of the counter-shaft 29. The wheel 36 is located immediately beneath the drill and is provided with an upward axial extension or hub 41, which has a recess 42, of irregular cross-sectional shape, forming a socket to receive the correspondingly-shaped shank 43 of a nut socket or wrench 44. The shank 43 and recess 42 are preferably square in cross-section and taper, so as to enable the wrench to be quickly seated in and rotatably connected with the wheel 36 and readily removed therefrom when not needed.

In order to prevent the tire-bolts from turning as the nuts are turned thereon or removed therefrom, I provide a bolt-gripping lever 45, adapted to be operated by hand and pivotally mounted at its inner end upon a pin or bolt 46, held by one or more ears 47 on the machine-frame. At an intermediate point in its length the lever 45 is provided with a bolt-grip 48, preferably consisting of a lateral extension or lug having its lower end notched or fashioned in such shape as to provide a plurality of points or angles 49, which will indent the head of the bolt sufficiently to obtain a positive grip thereon and prevent the rotation of the bolt as the nut is screwed thereon or turned therefrom. The lever 45 is fulcrumed on a vertical axis, so that it may be swung laterally out of the way when not required, but is also mounted with sufficient looseness to enable it to be depressed and brought into engagement with the tire-bolts.

From the foregoing description it will be seen that by means of the machine hereinabove described, and illustrated in the drawings, a vehicle-wheel tire and felly may be readily drilled and the tire countersunk to receive the ordinary tire-bolts; also, that the nuts may be turned on or off the bolts with

the aid of the machine and without the necessity of employing an extra wrench for that purpose; also, that the bolts may be firmly gripped and held against rotation while placing the nuts thereon or removing the same therefrom. In drilling the bolt-holes in the rim and tire the wrench 44 may be detached, so as to allow the wheel-felly to rest on the table 4. After the holes are all drilled and the bolts placed therein the wrench is associated with the gear-wheel 36 and the nuts placed therein one by one, the machine being operated by the hand crank or lever 9, thus enabling the nuts to be readily turned upon their respective bolts, thus doing away with the necessity of handling the nuts with the fingers.

The machine is simple in construction and will effectively perform the work for which it is designed.

I do not desire to be limited to the exact details of construction hereinabove set forth, but reserve the right to change, modify, or vary the construction within the scope of this invention.

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

1. In a wheelwright-machine, in combination, a frame embodying a horizontally-extending table or wheel-rest, a gear-housing located beneath said table, a horizontal driving-shaft, a vertical counter-shaft geared thereto and driven thereby, a drill-shaft geared to the counter-shaft, means for feeding the drill-shaft up and down, a wheel located beneath and in axial alinement with the drill-shaft and geared to and actuated by the counter-shaft, and a nut wrench or holder detachably associated with said wheel, and adapted to form a support for a vehicle-wheel, substantially as and for the purpose specified.

2. In a wheelwright-machine, in combination, a frame embodying a horizontal extension forming a table or rest for a vehicle-wheel, a rotatable wheel located beneath the table, means for driving said wheel, a nut holder or wrench detachably associated with said wheel, and a bolt-gripping lever having a loose pivotal connection with the machine frame so that it may be lifted and swung laterally to one side in a substantially horizontal plane, substantially in the manner and for the purpose specified.

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

MICHAEL L. KNUPP.

Witnesses:

LYLE DECIUS,

GEORGE T. SPENCER.