

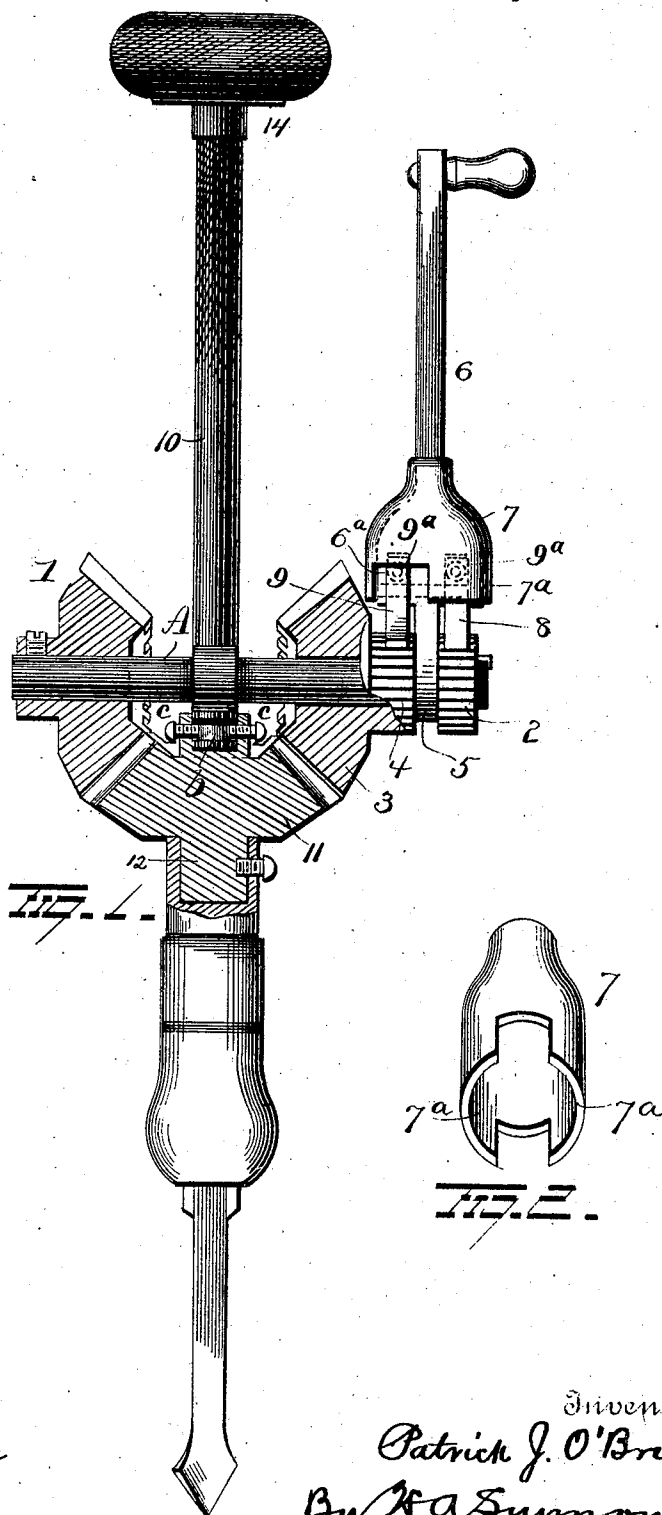
No Model.)

2 Sheets—Sheet 1.

P. J. O'BRIEN.
RATCHET DEVICE FOR TOOLS.

No. 501,957.

Patented July 25, 1893.



Witnesses

G. F. Downing
A. B. Ames.

Inventor

Patrick J. O'Brien
By *H. A. Seymour*
Attorney

(No Model.)

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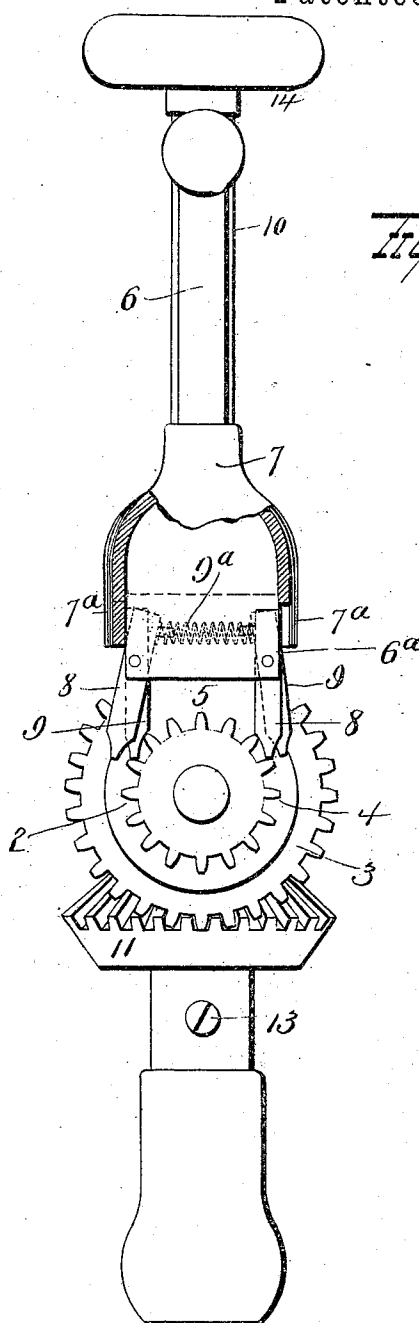


Fig. 3.

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UNITED STATES PATENT OFFICE.

PATRICK J. O'BRIEN, OF CINCINNATI, OHIO.

RATCHET DEVICE FOR TOOLS.

SPECIFICATION forming part of Letters Patent No. 501,957, dated July 25, 1893.

Application filed June 23, 1892. Serial No. 437,757. (No model.)

To all whom it may concern:

Be it known that I, PATRICK J. O'BRIEN, a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Ratchet Devices for Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make use the same.

My invention relates to an improvement in ratchet devices for tools,—the object of the invention being to produce a simple and efficient ratchet device for tools, such as carpenters' braces, pipe cutting devices, ratchet drills, screw jacks, &c., said ratchet device being so constructed and arranged that the vibration of an operating lever will cause a continuous, uninterrupted rotation of the shaft which actuates the tool.

A further object is to produce a ratchet device for tools, by means of which a continuous, uninterrupted rotation can be imparted to the tool, in either direction.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings: Figure 1 is an elevation partly in section. Fig. 2 is a detail view. Fig. 3 is an elevation at right angles to Fig. 1, partly in section.

A represents a horizontal shaft, provided at one end with a bevel pinion 1, and at the other end with a ratchet wheel 2.

Mounted loosely on the shaft A in proximity to the ratchet wheel 2, is a bevel pinion 3, from which an integral ratchet wheel 4 projects, said ratchet wheel 4 being located in close proximity to the ratchet wheel 2 secured to the shaft A,—sufficient space being left between said ratchet wheels for the accommodation of an arm 5 which is mounted loosely on the shaft A. The arm 5 projects from an operating lever 6 on which a collar 7 having depending flanges 7^a, is located. Projecting from the operating lever 6 and parallel with the arm 5 of said lever, are ears 6^a, between which and the arm 5, dogs 8, 9, are pivotally connected, and located between the upper

ends of said dogs, are springs 9^a. Two dogs are arranged at each side of the arm 5 within the collar 7 and are adapted to engage the ratchet wheels 2, 4, as hereinafter set forth. A bar or shaft 10 is mounted on the shaft A and is provided at its lower end with an annular groove *a* said lower end of the bar being adapted to enter a collar *b*, projecting from the bevel gear 11, and revolvably held on said bar by means of screws *c*, or in any other preferred manner,—the bevel gear 11 being adapted to mesh with the bevel gears 1 and 3. A shank 12 projects from the center of the bevel pinion 11, into the socket piece of the tool to be used and is held in place by means of a set screw 13. The bar 10 may be extended and provided at its top with a handle 14, by means of which to operate it.

When the device is in operation, only one spring dog on each side of the arm 5, operates at a time. Thus when the operating lever 6 is pulled forward, one of the dogs 8 will engage the ratchet wheel 2, turn the shaft A and, through the pinions 1, 11, impart rotary motion to the tool. When the lever is forced back, one of the opposite dogs 9 will engage the ratchet wheel 4, and through the medium of the pinions 1, 3, 11, continue the rotation of the tool in the same direction, said dogs being maintained in engagement with the ratchet wheels by the flanges 7^a of the collar 7. Now by turning the collar 7 one-fourth of a revolution, the dogs above referred to will be set free and the other pair of dogs maintained in engagement with the ratchet wheel. If the handle be now operated, the tool will be rotated in the reverse direction.

The device is very simple in construction and effectual in the performance of its functions.

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

1. The combination with a shaft, of a bevel pinion secured to one end thereof and a ratchet wheel secured to the other end, a bevel pinion mounted loosely on the shaft and carrying a ratchet wheel, an intermediate bevel pinion adapted to mesh with the above mentioned pinions, a lever mounted on said shaft between the ratchet wheels, two spring actu-

ated dogs carried by said lever at each side thereof, and a movable collar carried by said lever, whereby a continuous rotation of the intermediate gear in either direction can be caused by a vibration of the operating lever, substantially as set forth.

2. In a ratchet device for tools, the combination with a shaft, of a pinion secured to one end thereof and a ratchet wheel secured to the other end, a bevel pinion mounted loosely on the shaft and carrying a ratchet wheel, an intermediate bevel pinion adapted to mesh with said first mentioned pinions, a lever mounted on the shaft, a series of dogs carried by said lever and means for reversing the relation of each pair of said dogs to the ratchet wheels, so that when said lever is vibrated, the intermediate gear can be continuously rotated in one direction or the other, substantially as set forth.

3. The combination with a shaft, a bevel pinion secured to one end thereof and a ratchet wheel secured to the other end, a bevel

pinion mounted loosely on the shaft and carrying a ratchet wheel, an intermediate bevel pinion adapted to mesh with the above mentioned pinions, a lever mounted on said shaft between the ratchet wheels, a pair of spring actuated dogs, pivotally connected at each side of said lever, and a collar having depending flanges, mounted loosely on said lever and adapted to maintain one dog of each pair in engagement with the adjacent ratchet wheel, while the other dog of each pair is left free, whereby the direction of the continuous rotation of the intermediate gear and the tool actuated thereby, may be changed at will, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

PATRICK J. O'BRIEN.

Witnesses:

WILLIAM E. VOGT,
JOHN O'BRIEN.