

No. 613,722.

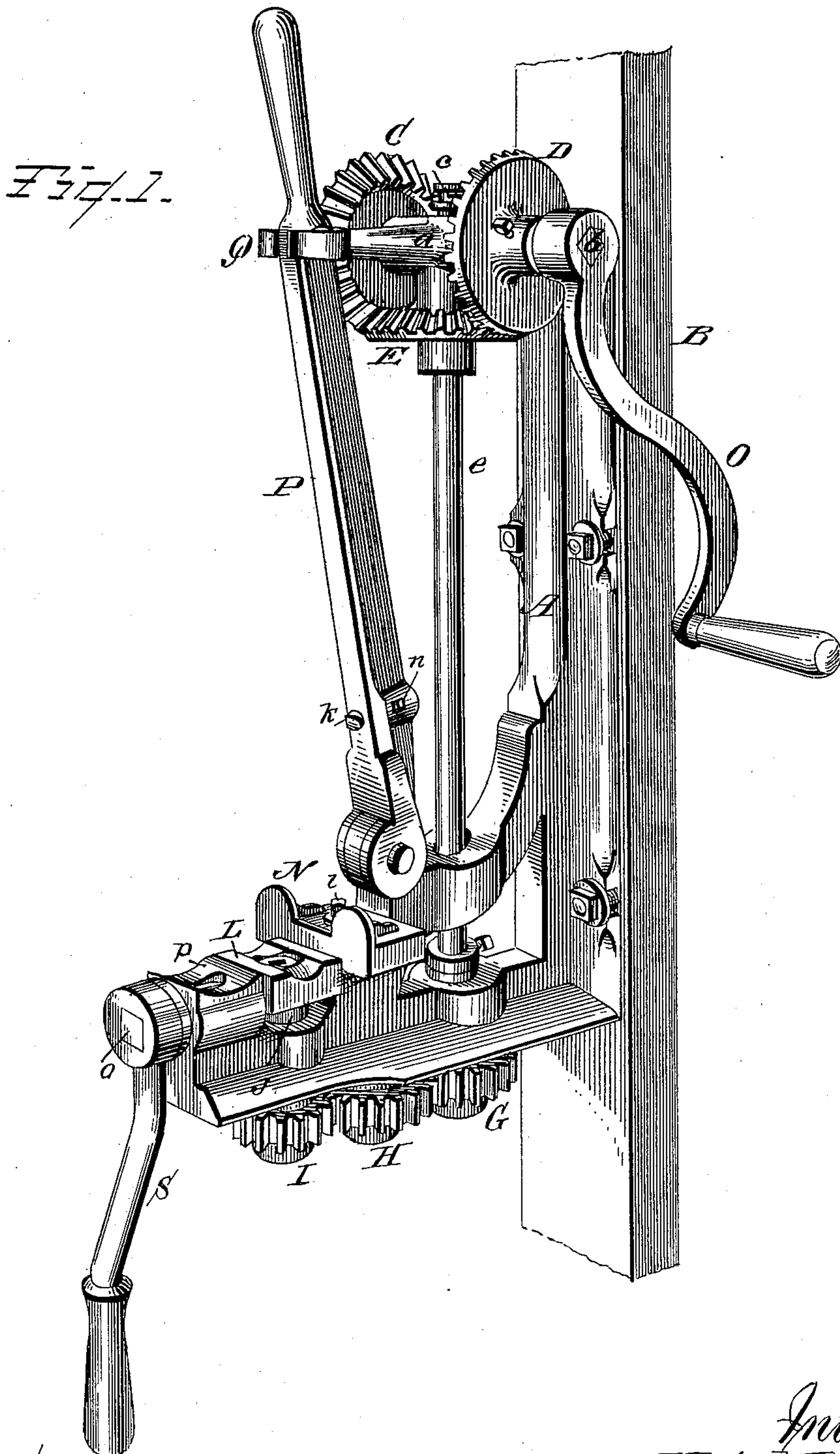
Patented Nov. 8, 1898.

V. REYNOLDS.  
TIRE BOLTER AND CUTTER.

(Application filed Jan. 24, 1898.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses  
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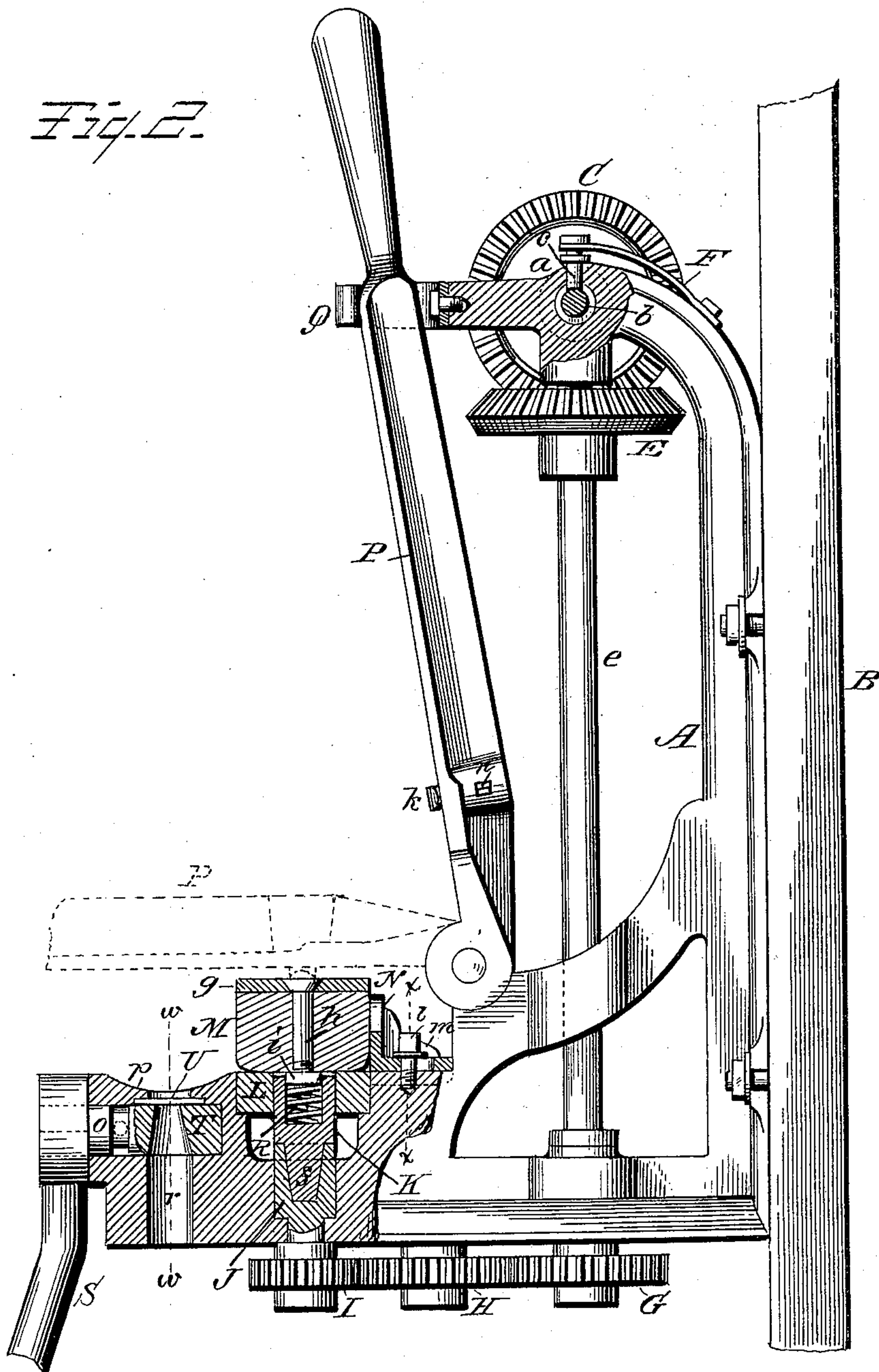
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3 Sheets—Sheet 2.



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Fig. 3.

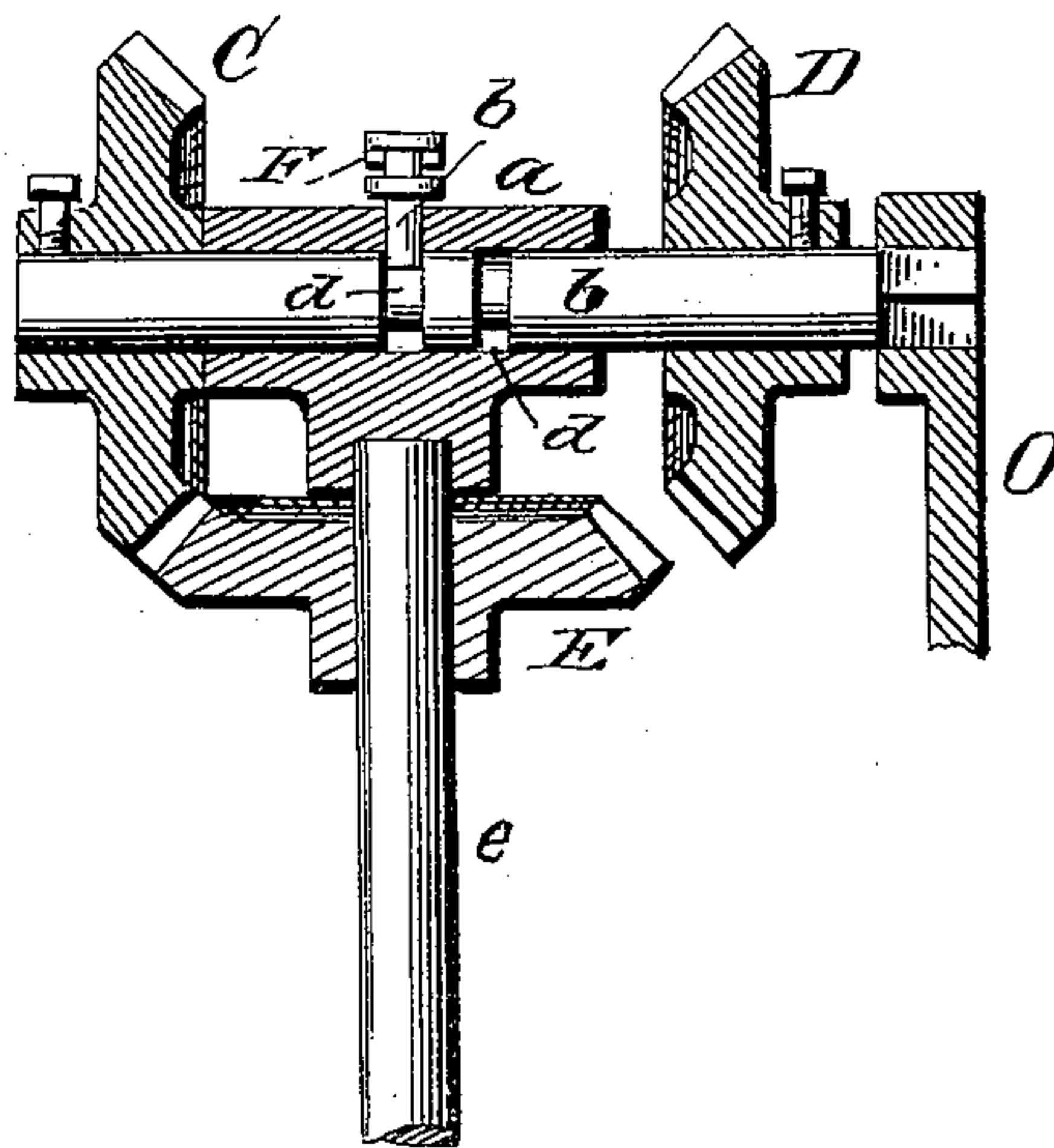


Fig. 4.

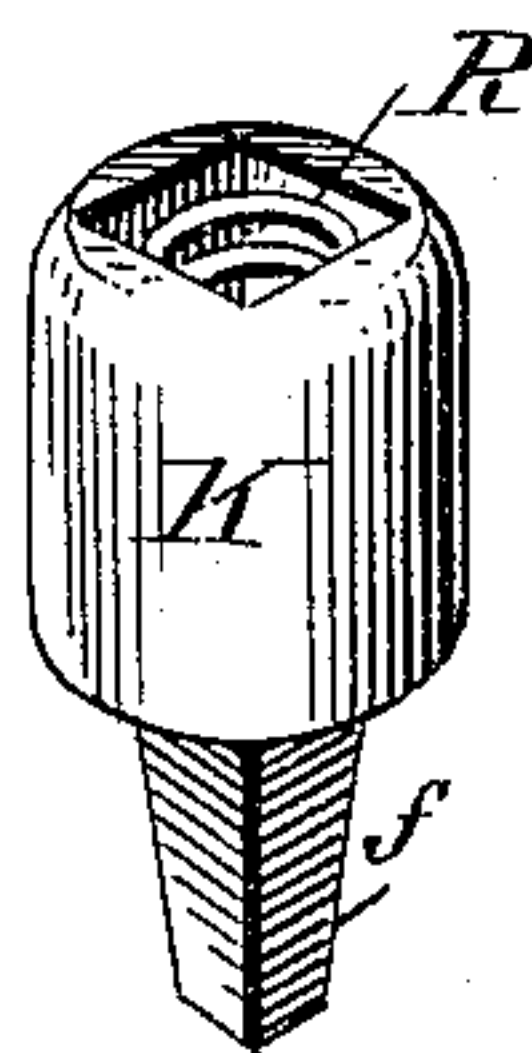


Fig. 5.

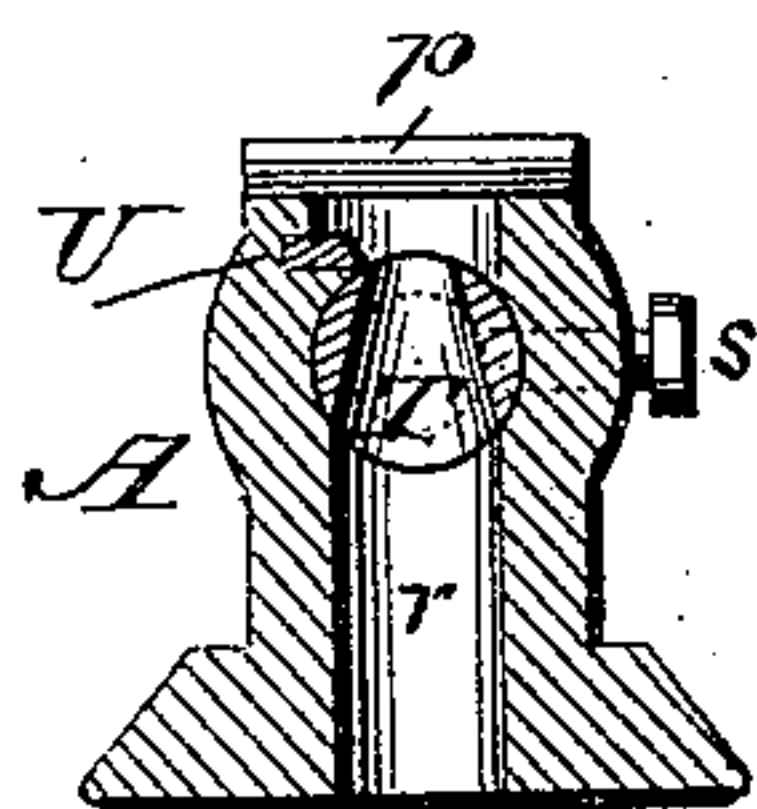
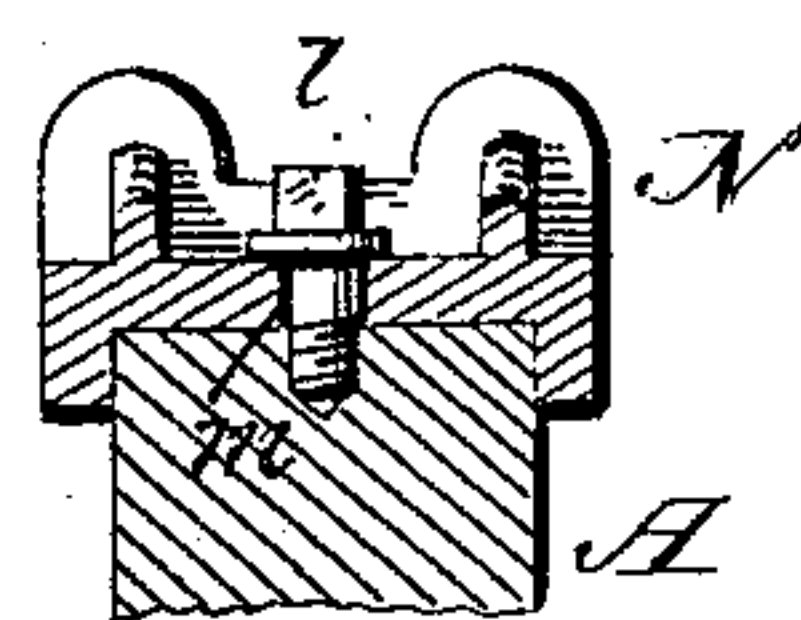


Fig. 6.



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# UNITED STATES PATENT OFFICE.

VESTAL REYNOLDS, OF MARION, INDIANA.

## TIRE BOLTER AND CUTTER.

SPECIFICATION forming part of Letters Patent No. 613,722, dated November 8, 1898.

Application filed January 24, 1898. Serial No. 667,700. (No model.)

*To all whom it may concern:*

Be it known that I, VESTAL REYNOLDS, a citizen of the United States, residing at Marion, in the county of Grant and State of Indiana, have invented certain new and useful Improvements in Tire Bolters and Cutters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has for its object to provide a simple and effective as well as practically-operating machine that will successfully and expeditiously bolt the tires to the rims of vehicle-wheels and afterward cut or clip the projecting ends of the tire-bolts; and it consists in a machine constructed substantially as shown in the drawings and herein-after described and claimed.

Figure 1 of the drawings is a perspective view of the machine constructed in accordance with my invention; Fig. 2, a side elevation, partly in section, showing the position of the vehicle-wheel rim when the nut is to be screwed up on the tire-bolt, and the lever with holding-tooth being shown in dotted lines as engaging with the bolt-head; Fig. 3, a detail view, partly in section, showing the driving-gear at the upper end of the vertical shaft; Fig. 4, a detail view in perspective of the socketed wrench-head; Fig. 5, a sectional view taken on line *ww* of Fig. 2; Fig. 6, a similar view taken on line *xx* of Fig. 2.

In the accompanying drawings, A represents a bracket or frame of any suitable form and construction and adapted to be fastened to a standard B or any other suitable stationary object by means of bolts, screws, and nuts or other like fastenings. At the upper end of this frame A is a transverse bearing *a* to receive a longitudinally-adjustable and rotatable shaft *b*, which is held against moving longitudinally after being adjusted by a pin *c*, engaging with a circumferential groove *d* in said shaft. There are two of the grooves *d*, so that the shaft *b* may be adjusted to bring either of the beveled gear-wheels C D in engagement with the beveled gear-wheel E, as circumstances require.

The pin *c* is retained in engagement with

the groove in the shaft *b* by means of a flat bearing-spring F, which is secured at one end to the frame of the machine and its opposite end engaged with the head of said pin.

The horizontal shaft *b* is provided at one end with a suitable handle O for turning it, and the upright shaft *e*, which is rotated by one or the other of the beveled gear-wheels C D, extends down through the bottom of the frame A and has suitably keyed thereto a pinion G. This pinion G in turn engages with an idle-pinion H, which latter pinion engages with a pinion I, all of which are suitably journaled in the frame of the machine. If preferred, the pinion H may be dispensed with and the pinions G and I engage directly with each other, or any suitable arrangement of gearing may be substituted for that shown. The last of this train of pinions has connected thereto a suitable chuck J for holding and supporting the socketed wrench-head K, in which is located a suitable spring, preferably a coiled spring R, as shown in Figs. 2 and 4 of the drawings. This socketed wrench-head K has a flat-sided tapering shank *f* to prevent the wrench-head from turning independent of the chuck when the shank is engaged with the correspondingly-formed socket in the chuck.

The wrench-head K extends up through a removable support L, and upon this support rests the rim of the wheel, as shown at M in Fig. 2 of the drawings, and *g* is the usual tire thereof, *h* the tire-bolt, and *i* the nut.

An adjustable gage-plate N is provided, against which rests the side of the vehicle-wheel rim, and by its adjustment the machine may be adapted to rims of various widths, so that the nut of the tire-bolt will always come on a line with the socket in the wrench-head. The gage N may be rendered adjustable and held in its adjusted position by any suitable and well-known means, such as a set-screw *l*, extending through an elongated opening *m* in the gage and entering a screw-threaded socket in the frame A, as shown in Figs. 2 and 6 of the drawings. After the gage has been properly set or adjusted to adapt the machine to the width of the vehicle-wheel rim, so that the tire-bolt will come on a line with the socketed wrench-



head when said rim is up against the gage, a tooth *k* upon a pivoted lever *P* is made to engage the head of the bolt to prevent it from turning while the nut is being screwed on or off by bringing down said lever in position shown in dotted lines of Fig. 2 of the drawings. This being done, the handle *O* is turned, and through the medium of the gear-wheels and pinions hereinbefore described and the upright shaft *e* the chuck *J* is made to revolve or rotate, which carries with it the socketed wrench-head *K* and the bolt-nut *i*, with which it engages, thus screwing up or unscrewing the nut, as the case may be, depending upon which of the bevel gear-wheels *C D* are in engagement with the bevel gear-wheel *E*. This shifting of the shaft *b* to bring either one of the bevel gear-wheels *C D* in engagement with the bevel gear-wheel *E* is for the purpose of changing the direction of the shaft *e* when the machine is to be used for screwing on the bolt-nut or unscrewing it, the upright shaft being turned in an opposite direction to that required in screwing up the nut on the bolt.

When not required for use, the lever *P* is held up out of the way by engaging it with a spring-clamp *Q*, as shown in Fig. 2 of the drawings.

The support *L* for the vehicle-wheel rim takes the weight of said rim off the wrench-head *K* when resting on the support, and the support can be removed when desired, as in case where a nut is difficult to remove from the bolt, caused by its being embedded in the wood of the vehicle-wheel rim or for other reasons, the upper end of the wrench-head in such case bearing up in close contact with the rim.

The spring *R* in the socket of the wrench-head feeds the nut to the tire-bolt when the nut is screwed thereon, and when the nut is being unscrewed and off the bolt and the vehicle-rim removed the spring will force the nut up out of the socket of the wrench-head.

The wrench-head may be readily removed and others of different-sized sockets to adapt them to different-sized nuts may be substituted, or in place of the wrench any suitable boring-bit, drill, screw-driver, or other tool required having a flat-sided tapering shank may be engaged with the chuck and used in place of the wrench-head, as circumstances may require, the chuck also being capable of removal and chucks of other forms substituted to adapt it to the tool being used, or, if preferred, the wrench-head *R* or other tool designed for use and the chuck *J* may be made in one piece.

The tooth *k* is held in the lever *P* by means of a set-screw *n* or by any other well-known and desirable means, so that when worn or broken it can be readily removed and replaced by a new one.

After the nut is tightly screwed up on the bolt and against the under or inner side of the vehicle-wheel rim the projecting end of

the bolt is cut off by a cutting device located adjacent to the tire-bolter, so that it will be in convenient reach of the operator by changing the vehicle-wheel rim from one device to the other. This cutting device consists of a short rotatable shaft *o*, provided at its outer end with a suitable handle and at its inner end with a perforated head *T* to receive the end of the bolt, which is brought against the cutting-blade *U* by turning the perforated head. The rim of the wheel resting upon the concave support *p*, with the projecting end of the bolt entering the perforated head *T*, by turning the shaft *o* and head the bolt will be brought against the cutting edge of the blade *U* with sufficient leverage and force to be cut or clipped off, the clipping or piece that is cut off dropping through the opening *r*. A set-screw *s* holds the shaft *o* against longitudinal movement, but does not interfere with the free rotation of the shaft when required to bring the end of the bolt against the cutter or knife blade.

I do not specifically claim the cutting mechanism, but broadly include it as a finishing device to complete the cutting of a tire-bolt in a workmanlike manner.

A very simple and practical machine is provided which may be used for screwing on or screwing off the bolt-nut by simply shifting the bevel-gear to change the direction of rotation of the upright shaft.

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

1. In a machine for screwing up or unscrewing the nuts of tire-bolts, consisting of a suitable bracket or frame, an upright shaft having its bearing therein, a bevel-gear keyed to the upper end thereof, a horizontal shaft adapted to move longitudinally in its bearing and having upon its opposite ends bevel gear-wheels adapted to engage with the bevel gear-wheel upon the end of the upright shaft, said horizontal shaft having grooves therein, and a spring-actuated pin adapted to engage therewith to hold the horizontal shaft from longitudinal movement after being once adjusted, and a suitable socketed wrench-head or other tool connecting with the upright shaft through suitable pinions, substantially as and for the purpose described.

2. In a machine for screwing up or unscrewing the nuts of tire-bolts, consisting of a suitable bracket or frame, an upright rotatable shaft with means for reversing its direction of rotation, a suitable chuck connecting with the upright shaft by suitable pinions, a socketed wrench-head detachably connected to the chuck, a removable support around the wrench-head upon which the vehicle-wheel rim rests, and an adjustable gage against which the side of the rim bears, and means for holding the bolt against rotating while the nut is being screwed on or unscrewed, substantially as and for the purpose specified.

3. A machine for screwing up the nuts on



tire-bolts and cutting off the projecting ends thereof, consisting of a suitable bracket or frame, a rotatable upright shaft, a socketed wrench-head containing a suitable spring,  
5 suitable pinions to form a connection between the head and upright shaft, a support for the vehicle-wheel rim surrounding the wrench-head, an adjustable gage for the rim, and a suitable bolt clipping or cutting device, to  
10 cut the projecting end of the bolt off after

the nut has been screwed up, substantially as and for the purpose described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

VESTAL REYNOLDS.

Witnesses:

WILLIAM BALDWIN,  
WM. S. CAMMACK.