Nov. 27, 1923. 1,475,834

W. E. KADOW

SPOKE WRENCH

Filed Feb. 10, 1923 2 Sheets-Sheet 1

Fig. 1.

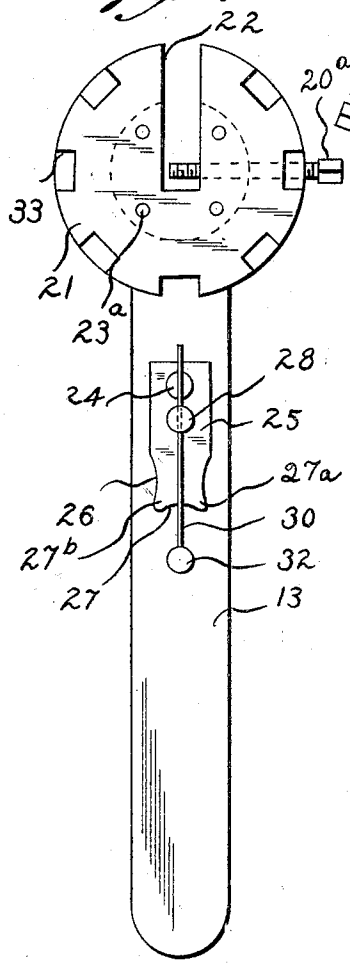


Fig. 2.

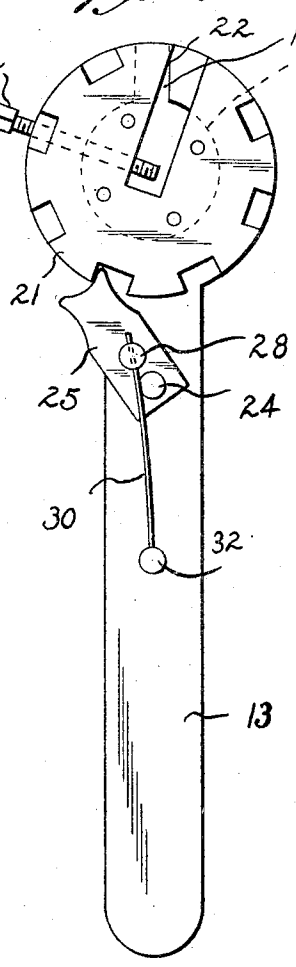
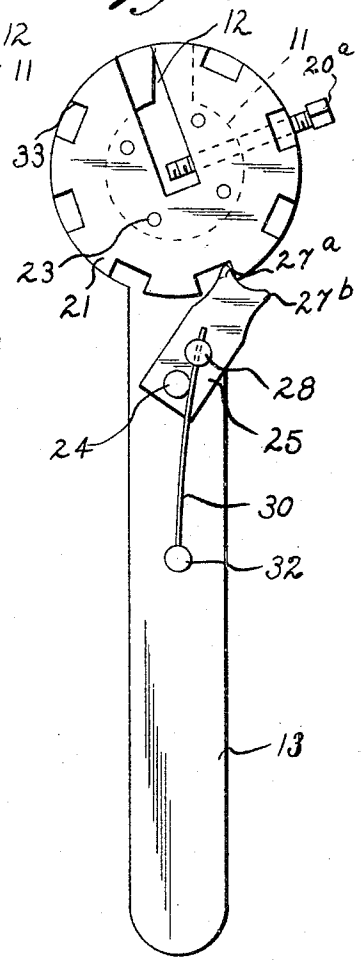


Fig. 6.



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Fig. 5.

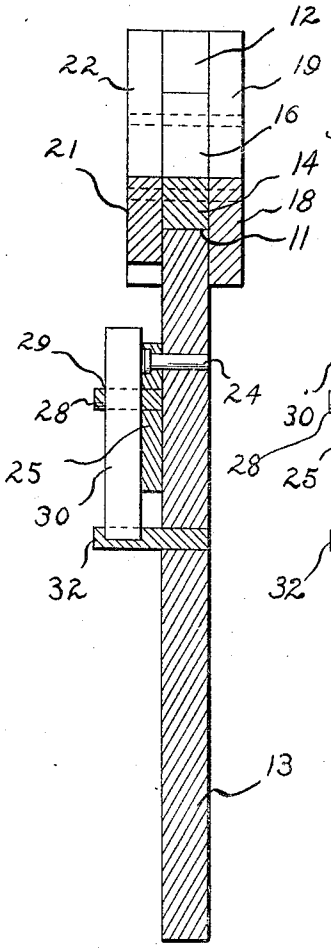


Fig. 3.

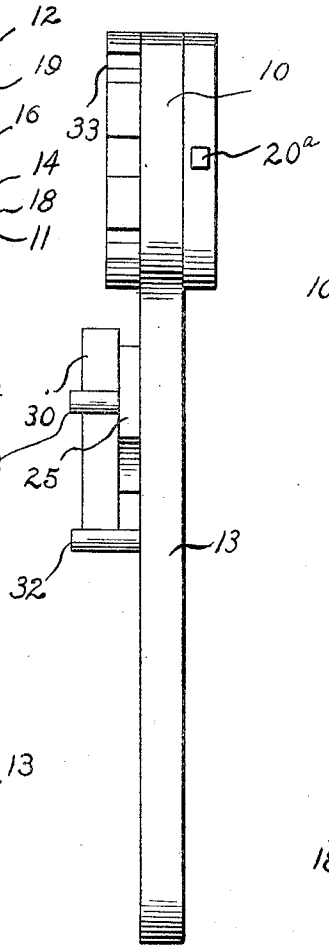


Fig. 4.

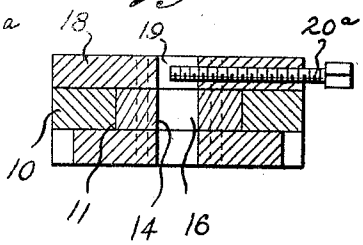


Fig. 7.

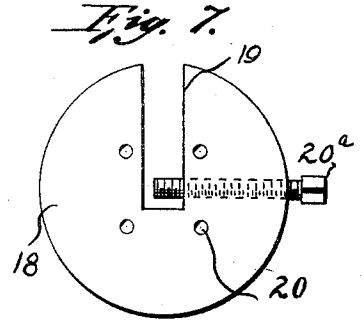
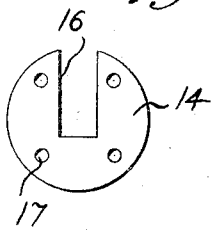


Fig. 8.



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WITNESS:

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UNITED STATES PATENT OFFICE.

WALTER EDWIN KADOW, OF PUYALLUP, WASHINGTON.

SPOKE WRENCH.

Application filed February 10, 1923. Serial No. 618,241.

To all whom it may concern:

Be it known that I, WALTER E. KADOW, a citizen of the United States, residing at Puyallup, in the county of Pierce and State of Washington, have invented new and useful Improvements in Spoke Wrenches, of which the following is a specification.

This invention relates to tools, particularly to wrenches, and has for its object the provision of a novel ratchet wrench designed for the purpose of tightening the spokes of bicycles, motor cycles and automobiles, such tightening of the spokes being necessary when truing up the wheels.

An important and more specific object is the provision of a ratchet wrench of this character which is provided with a novel locking means whereby a pawl member associated with the ratchet elements of the wrench may be shifted and held in one position or the other depending upon the desired direction of rotation of the head of the wrench.

Another object is the provision of a wrench of this character which is so constructed as to be adjustable whereby to be capable of use for tightening the spokes of any of the above mentioned vehicle wheels, the particular advantage of this feature being that only a single tool is necessary in performing the various operations.

An additional object is the provision of a wrench of this character which will be simple and inexpensive in manufacture, highly efficient in use, positive in action, durable in service and a general improvement in the art.

With the above and other objects and advantages in view the invention consists in the details of construction to be hereinafter more fully described and claimed and illustrated in the accompanying drawings, in which:

Figure 1 is as side elevation of my wrench showing the pawl device in one position,

Figure 2 is a similar view showing the pawl device as shifted into another position,

Figure 3 is an edge elevation, that is taken at right angles to Figure 1,

Figure 4 is a cross sectional view taken through the head,

Figure 5 is a longitudinal sectional view,

Figure 6 is an elevation similar to Figures 1 and 2 but showing the third position of the pawl,

Figure 7 is a detail view of the rotatable disk carrying the adjusting screw, and

Figure 8 is a detail view of the central member of the rotatable head.

Referring more particularly to the drawings, I have shown my wrench as comprising a circular head 10 having a central circular hole 11 communicating with a slot 12 which opens out to the end of the wrench. This head is formed integrally upon an elongated handle 13. The slot 12 must be of a size capable of being engaged upon a spoke cap of the maximum size which may be turned by the device.

Disposed within the circular hole 11 and rotatable therein is a disk 14 which is formed with a slot 16 designed to register at times with the slot 12, and this disk is formed with a plurality of spaced holes 17 for a purpose to be described.

Disposed against one side of the head 10 is a disk 18 of considerably greater diameter than the disk 14 and preferably, though not necessarily, of the same diameter as the head 10. The disk 18 is formed with a slot 19 of the same width as the slots 12 and 16. This disk is also provided with a series of holes 20 registering with the holes 17. Threaded through one side of this disk is a set screw 20^a which projects into the slot 19 and which may be moved in or out as the case may be depending upon the size of the spoke caps with which my device is to be used.

Located on the opposite side of the head 10 is a toothed disk 21 constituting a ratchet and this disk is provided with a slot 22 registering with the slots 16 and 19, in addition to being formed with a plurality of holes 23 which register with the holes numbered 17 and 20. When these three parts are placed together in the relation above described, they are secured by means of rivets 23^a which are passed through the registering holes 17, 20 and 23 for the purpose of holding the various parts firmly assembled while permitting rotation of the head with respect to the handle. It is to be noted that the slots 16, 19 and 22 are all of the same width and all register with one another while at certain times they are adapted to be brought into registration with the slot 12.

Pivoted upon one side of the handle 13, as shown at 24, is a pawl plate 25 which has its opposite edges preferably concaved as shown at 26 and which has its free end con-

caved as shown at 27 to provide two teeth 27^a and 27^b either of which may be brought into co-operative relation to the ratchet disk 21.

Carried by the plate 25 is a standard 28 formed with a longitudinal slot 29 through which slidably passes a leaf spring 30 which has one end secured within a post 32 extending from the handle, as clearly shown.

Assuming that the device has been constructed and assembled as described, the operation is as follows: The head is turned so that the registering slots 22, 19 and 16 are in registration with the slot 12, whereupon the head is engaged upon the shank of the spoke cap to be tightened. The set screw 23^a is adjusted to engage the cap shank, and the adjustment must of course depend upon the size of the cap. Initially the pawl plate 25 might be thrown into its inoperative position as shown in Figure 1, but when the device is applied as above described, and it is desired to turn the spoke cap, the operator swings the pawl plate 25 into the position shown in Figure 2 in case it is desired to impart a clockwise rotation to the spoke cap. By then moving the handle 13 back and forth, it is apparent that the plate 25 will act as a pawl and rotate the head carrying a spoke cap with it. If an unscrewing action of the cap is desired, the operator swings the pawl plate 25 from the position shown in Figure 2 to the position of Figure 1, and continues the movement until the pawl extends in the opposite direction as shown in Figure 6, whereupon back and forth movement of the handle will cause the head to be rotated in a counter-clockwise direction of course moving the spoke cap correspondingly. In this way it will be readily apparent that the spoke caps may be easily tightened or loosened as the case may be.

While I have shown and described the preferred embodiment of the invention it is of course to be understood that I reserve the right to make such changes in the form, construction and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention I claim:

1. A wrench comprising an elongated handle carrying a circular head formed with a circular opening and a slot communicating therewith, a rotatable head including disks located at the sides of said stationary head and further including an intermediate disk bearing within said circular opening, said disks being secured together and formed with registering slots adapted to register with said first named slot, one of said disks being formed with notches to constitute a ratchet, and a pawl carried by the handle and engageable with said notches, said pawl consisting of a plate pivoted at one end upon the handle and having its other end formed with two teeth, a standard carried by the plate and formed with a slot, and a leaf spring secured at one end upon the handle and slidably passing through said last named slot.

2. A wrench comprising an elongated handle carrying a circular head formed with a circular opening and a slot communicating therewith, a rotatable head including disks located at the sides of said stationary head and further including an intermediate disk bearing within said circular opening, said disks being secured together and formed with registering slots adapted to register with said first named slot, one of said disks being formed with notches to constitute a ratchet, and a pawl carried by the handle and engageable with said notches, and a set screw threaded through the unnotched outside disk and extending into the slot therein.

In testimony whereof I affix my signature.

WALTER EDWIN KADOW.