H. C. NIMSGERN.

WRENCH.

APPLICATION FILED MAY 18, 1911.

**1,095,347.**

Patented May 5, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

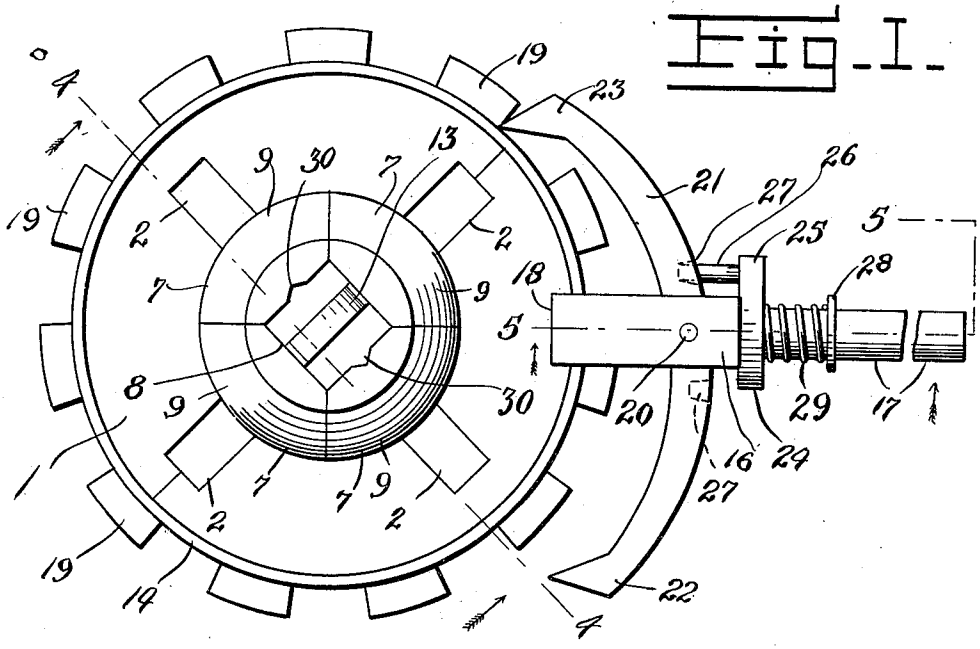
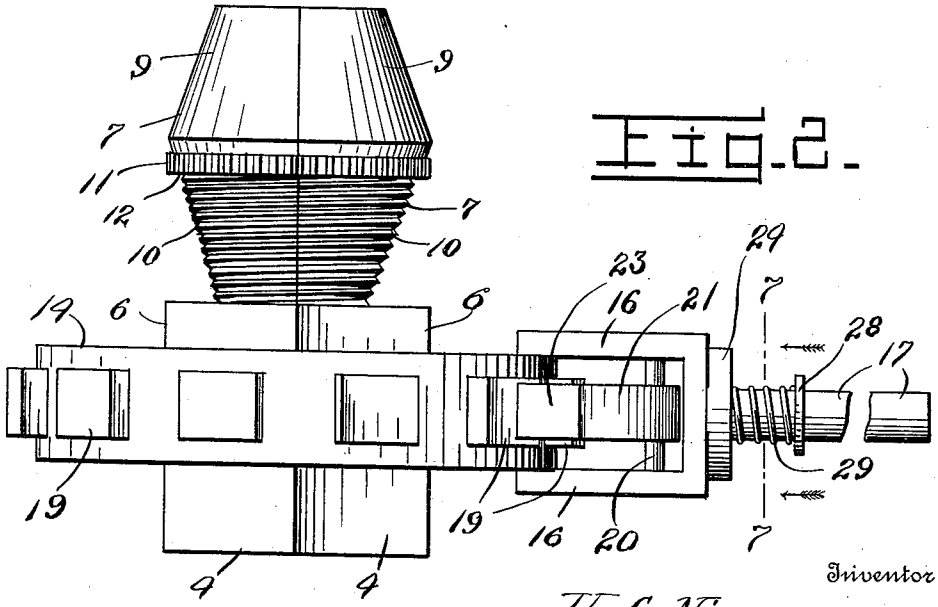



Fig. 2.




Witnesses

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2 SHEETS—SHEET 2.

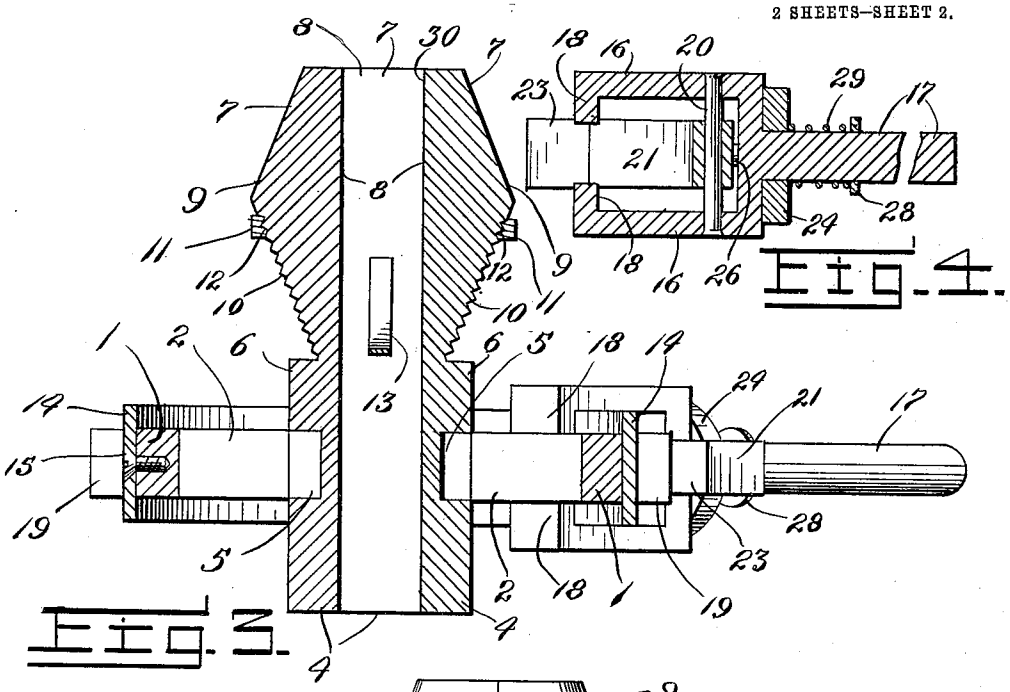


Fig. 4.



Fig. 3.

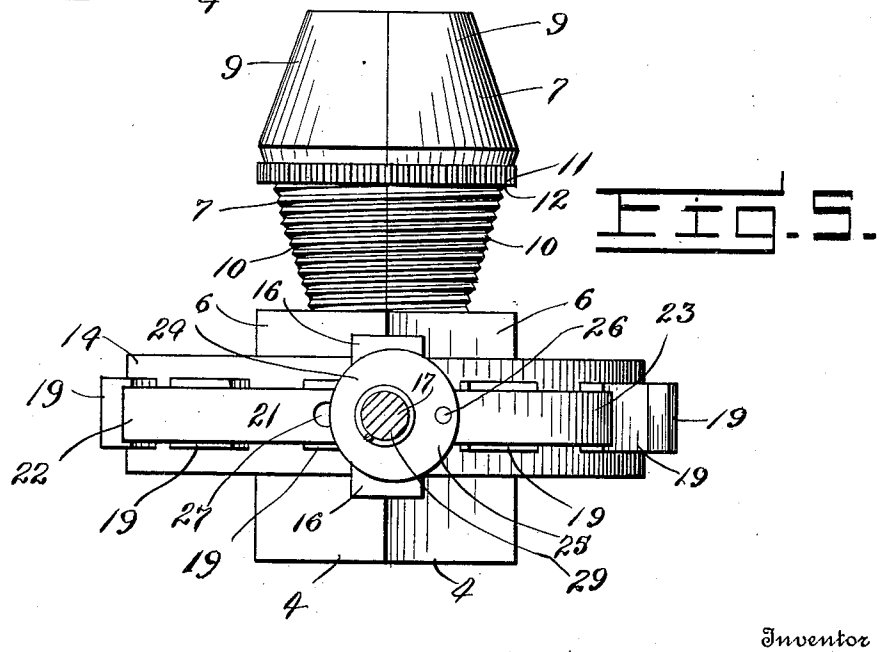


Fig. 5.

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# UNITED STATES PATENT OFFICE.

HARRY C. NIMSGERN, OF BROWN STATION, NEW YORK.

## WRENCH.

1,095,347. Specification of Letters Patent. Patented May 5, 1914.

Application filed May 18, 1911. Serial No. 627,910.

*To all whom it may concern:*

Be it known that I, HARRY C. NIMSGERN, a citizen of the United States, residing at Brown Station, in the county of Ulster and State of New York, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to improvements in wrenches, and has for its leading object the provision of an improved wrench of the clutched head type.

A further object of the invention is the provision of a wrench having an improved character or means for radially adjusting a plurality of jaws simultaneously to cause said jaws to firmly engage a nut or bolt therebetween.

Another object of the invention is the provision of a clutched head wrench having an improved ratchet band secured to the gripping portion of the wrench for engagement by the handle of the wrench, which handle is provided with improved pawl controlling means.

Other objects and advantages of my improved wrench will be apparent from the following description, and it will be understood that I may make any changes in the specific structure shown and described within the scope of the claims without departing from or exceeding the spirit of my invention.

Figure 1 represents a top plan view of my wrench. Fig. 2 represents a side elevation thereof. Fig. 3 represents a sectional view on line 4—4 of Fig. 1. Fig. 4 represents a sectional view on line 5—5 of Fig. 1, said section passing through the handle. Fig. 5 represents a section on the line 7—7 of Fig. 2.

In the drawings, in which similar characters of reference are employed to denote corresponding parts in the several views, the numeral 1 designates the head plate of my wrench, said plate having the radially extending slots 2 formed therein and extending at right angles to each other, there being an enlarged central recess 3 at the intersection of said slots to facilitate the introduction of the jaw members of my wrench into the slots. Said jaw members, as best shown in the detailed view, comprise a lower gripping portion of trapezoidal shape in cross section, said gripping portion 4 having formed at its upper end the neck 5 sufficiently reduced in thickness to fit into one of the slots 2, while above the neck is a second trapezoidal shaped portion 6 having projecting therefrom the lugs 7 having a flat inner face or engaging jaw 8 with tapered outer faces 9 and having the threaded outwardly flaring portion 10 extending from the portion 6 of the jaw for the greater portion of the length of the members 7, the portion 9 converging from the outer end of said threaded face.

To adjust the position of the jaws with respect to each other, I engage on the segmental threads 10 of the four jaws the interiorly threaded clamping nut or ring 11 having a beveled threaded face 12 which rides on the threads 10, said member 11 being of size to engage the outermost threads 10 to tightly compress said jaws. It will thus be seen that the rotation of said member 11 will cause it to rise up on the inclined threaded faces of the jaws and thus to force the jaws together, while to normally hold the jaws apart and in engagement with the ring when the jaws are not clamped against a nut or bolt, I engage between opposite jaws the bolt spring 13 having its ends bearing against the jaws and tending to hold the same apart. The ring 11 is split so that the same may be placed in its proper position, whereupon the same is welded and becomes a permanent part of the device.

From the foregoing description taken in connection with the drawings, the construction and adjustment of my improved jaw members will be readily understood, and it will be seen that I have provided a jaw head having sliding jaws mounted therein for engaging four sides of a nut or bolt, which jaws are provided with double gripping faces disposed on opposite sides of the wrench head, whereby the heavier jaws or portions 4 are more securely held by the clamping ring 11 when the jaws are in greatest spaced position and the action of the ring is reinforced by the bearing of the necks 5 against the ends of the slot, while the tapered ends 9 are closer to and more firmly held by the ring and are also better adapted for use when the jaws are close together to engage a small nut or bolt.

To operate the wrench head, I have se-

cured to the periphery of the head plate 1 the annulus or band 14 having its edges projecting on each side of the head plate 1 and being secured to said head plate by the screws 15 which pass centrally through the band and are engaged in sockets formed radially in the head plate. Spanning said band 14 are the furcations 16 of the handle 17, said furcations having the inwardly extending ends 18 engaging the inner face of the annulus 14 to retain the handle in position while permitting of its rotative movement with respect to the head plate or disk 1. The band 14 has formed on its outer surface the lugs 19 which perform the functions of ratchet teeth, while pivotally supported between the furcations 16 by the bolt 20 is the curved double pawl 21 having the engaging points 22 and 23 extending inward from opposite ends and adapted to engage the lugs 19.

To cause the pawl member 21 to engage the lugs 19 when the handle is moved in one direction to lock the head to move with the handle and to allow the pawl to ride idly over the lugs to allow the handle to be moved in the opposite direction independently of the wrench head, and to permit of the adjustment of the device to cause the pawl to engage when the handle is moved in either direction as desired, I have provided an improved resilient pawl engaging collar 24. Said collar 24 is eccentrically mounted on the handle 17 and has the enlarged portion 25 from which depends a lug 26 adapted to be engaged in one of the sockets 27 formed in the outer face of the pawl 21. An abutment collar 28 is secured on the handle and has bearing thereagainst the outer end of the spring 29 having its other end bearing against the collar 24 to force the same downward against the pawl.

It will be seen that the enlarged or eccentric portion 25 of the collar and its depending lug 26 will engage one side of the pawl to force the same downward while the other side swings upward entirely free of the lugs 19. As the handle is shifted in one direction the pawl point 23 will engage between two of the lugs 19 and will force the wrench head to rotate with the handle, while when the handle is moved in the opposite direction the point 23 will ride upward over the lugs 19, the spring 29 yielding to allow the collar 24 to rise but holding the pawl with the point 23 as far depressed as possible to prevent the opposite point 22 from engaging the lugs 19. To cause the point 22 to operate and raise the point 23 into inoperative position it is merely necessary to force the collar 24 upward to disengage the lug 26 from the socket 27 and then give the collar 25 a half-rotation and engage the lug 26 in the socket 27 of the arm bearing the point 22.

It will be apparent from the preceding description that I have provided an extremely simple, durable, and efficient ratchet band which may be easily secured to the head of the wrench and that I have further provided a handle for coaction with said band, which handle is provided with a double pawl and with improved means for holding one arm of the pawl in operative and the other in inoperative position and for reversing the position of the ends of the pawl as desired. It will further be apparent that I have provided an improved wrench of the clutch head type which will commend itself to all on account of the simplicity and efficiency of the jaw adjusting means and of the simplicity and efficiency of the means for clutching and turning the jaw head.

In order to enable my wrench to readily grasp either square or hexagonal nuts, I form in the gripping faces of the jaws, the V-shaped grooves or recesses 30 to engage the corners of the nuts.

I claim:

1. A wrench comprising a slotted head plate, jaws adjustably mounted in the slots of the head plate, means for adjusting the jaws, an annulus engaged with the head plate and surrounding the latter, said annulus being secured to the head plate and projecting beyond the opposite side faces of said plate, spaced lugs carried by the outer face of the annulus, a handle having furcations at one end disposed at opposite sides of the annulus, said furcations having inwardly turned ends extending over the projecting portions of the annulus, a pawl pivoted between the furcations outwardly of the annulus and extending oppositely beyond the handle and arranged for engagement of the lugs alternately at its ends, said handle having a shoulder at the rear of its furcations, a collar slidably and rotatably mounted on the handle rearwardly of the shoulder, a stop on the handle rearwardly of the collar, a spring engaged with the handle between the stop and the collar, and a pin carried by the collar outwardly of the handle, said collar being rotatable to engage the pin alternately with the pawl at opposite sides of the handle.

2. A ratchet wrench comprising a head, jaws carried by the head, ratchet lugs carried by the head, a handle movably engaged with the head, said handle including furcations and a shoulder at the rearward side of the furcations, a pawl pivoted between the furcations and extending oppositely therebeyond, said pawl being adapted for engagement of its ends alternately with the ratchet lugs of the head, said pawl having also recesses in its rearward face at opposite sides of the furcations, a collar slidably and rotatably mounted upon the handle rear-

wardly of the shoulder, a stop on the handle rearwardly of the collar, a spring engaged with the handle between the stop and the collar, and a pin carried by the collar, and movable with the collar for engagement interchangeably in the depressions of the pawl.

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

HARRY C. NIMSGERN.

Witnesses:
H. J. BEARDY,
RAPHAEL OSCAR.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**