J. B. ROSENSTEIN.

ADJUSTABLE RATCHET WRENCH.

APPLICATION FILED JUNE 10, 1916.

1,200,430. Patented Oct. 3, 1916.

Fig. 1.

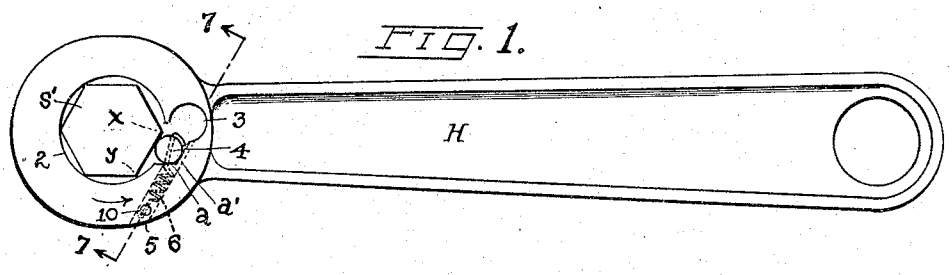


Fig. 2.

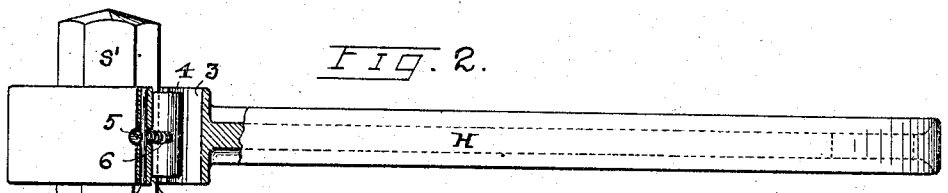


Fig. 3.

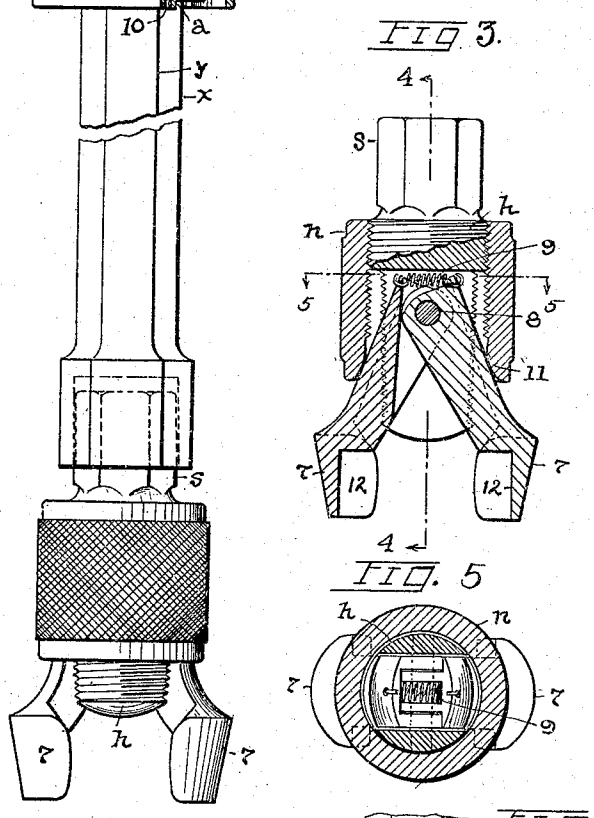


Fig. 4

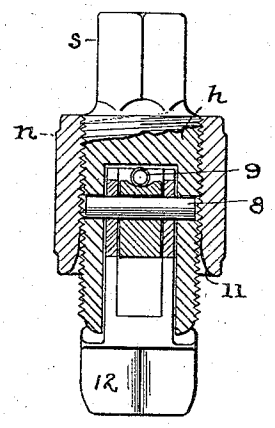


Fig. 5

Fig. 6.

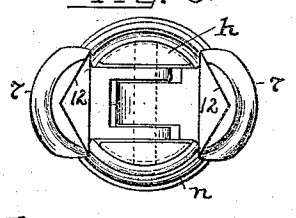
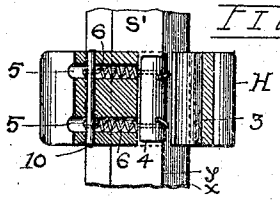


Fig. 7.



WITNESS:

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UNITED STATES PATENT OFFICE.

JACOB B. ROSENSTEIN, OF CLEVELAND, OHIO, ASSIGNOR TO THE MARVEL ACCESSORIES MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION.

ADJUSTABLE RATCHET-WRENCH.

1,200,430. Specification of Letters Patent. Patented Oct. 3, 1916.

Application filed June 10, 1916. Serial No. 102,828.

To all whom it may concern:

Be it known that I, JACOB B. ROSENSTEIN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Adjustable Ratchet-Wrenches, of which the following is a specification.

This invention relates to an adjustable ratchet wrench, and the invention consists in a wrench handle provided with a head and having the construction and combination of parts substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view and Fig. 2 is a side elevation of the wrench. Fig. 3 is a vertical sectional elevation of the wrench head, nut and jaws, and Fig. 4 is a like section of the same parts at right angles to Fig. 3. Fig. 5 is a cross section on line 5—5 looking down, and Fig. 6 is a bottom view of Fig. 5. Fig. 7 is a cross section on line 7—7 Fig. 1, showing the pawl held by two coiled springs.

The wrench comprises an operating handle H, with a socket or opening 2 through the head thereof which is circular or round and provided with a recess 3 in its side and a cylindrical pawl 4 therein adapted to engage a nut or the angular shank s or spindle s' of a wrench member. Handle H may be applied directly to the short shank s of head h which carries a pair of clamping jaws 7, but in case the nut, bolt or other part to be turned is remotely located or intervening parts prohibit the use of the handle directly with short shank s, I may use a longer spindle s' having a socket adapted to seat upon said shank and apply the handle to said spindle, see Fig. 2. In the present construction I show both the said shank and spindle of hexagonal shape in cross section so as to engage the handle rotarily therewith, and make the opening 2 through the handle for said parts circular or round with a side recess 3 in which pawl 4 is free to slide within limits to engage and disengage the angular corners of a nut or the said shank or spindle in reverse directions of rotation, more or less after the manner of a ratchet movement. To these ends the said recess in the handle socket is provided with two flat shoulders or surfaces a and a' nearly at right angles to each other in definite relations to the inner wall of opening 2 so as to provide a seat for the pawl whereby automatic engagement and release of the pawl 4 may be had with the flattened sides of the shank or spindle. The said pawl is preferably of barrel or cylindrical shape, like a piece of round rod or wire, and nearly as long as the depth of the handle head and the recess therein, and the handle head is provided with one or more bores 5 extending in line with the flat seating surface a to confine one or more coiled springs 6 having hooked engagement with the pawl and anchored attachment with a cross pin 10 extending transversely through the outer end of the bore or bores 5 in the head. In this way, pawl 4 is held inward against shoulder a into locking position. Otherwise the said recess 3 is constructed with a round enlargement to afford room for the comparatively slight back and forth movement of the pawl under the accommodating tension of the spring or springs 6. Two springs 6 are preferred, one at each end of the pawl 4, to equalize the tension and hold the pawl in straight alinement with the flat sides of the shank.

In operation, the pawl 4 will come into engaging position with the said parts as seen in Fig. 1, wherein the shoulder a serves as a back stop under operating pressure and the shoulder a' as a confining medium for the pawl to hold the same firmly in engaging position against the said shank or spindle. The size or cross section of the pawl therefore must be such that it will impinge on the angular corner of the shank or spindle to forcibly rotate the same, as would occur in Fig. 1 if the handle were turned in the direction of the arrow to bring pressure against the angle X. The back stroke of the handle is idle as in this movement the pawl 4 is carried away from shoulder a more or less into the rounded enlarged portion of recess 3 to escape the corner y, but upon a second forward movement of the handle this corner y will be engaged by the cylinder 4 as before because the spring 6 immediately returns the pawl to its wedging seat a—a' upon completion of each back stroke of the handle.

The wrench head h has a transverse slot in which the two jaws 7 are suspended on a pin or pivot 8, and the main body portion of said head has an external thread on which a tightening nut n is adjustably engaged. In other words, said nut is movable longitudi-

nally of the head by an internal thread and has an internally flared or rounded extension 11 adapted to press the jaws together at their lower ends, said jaws comprising flat faces 12 set in angular relations adapted to grip a nut or bolt head. A coiled spring 9 connects the upper ends of said jaws above their common pivot 8 and throws and holds them open when not pressed into engaging position by running the nut *n* down on the said head *h*, and the back of each jaw is rounded to conform to the inner rounded surface of extension 11. A wide range of adjustment is afforded by this arrangement to effect a firm grip on nuts of different sizes and varying shapes, and the tool in its entirety takes the place of a large number of different sized members which are usually furnished in sets as an automobile accessory or equipment.

What I claim is:

1. A handle to impart a ratchet movement having a cylindrical opening through the head thereof and a recess in the side of said opening the full width of said head having shoulders and a bore through said head at right angles to said recess and extending into the same, a substantially cylindrical pawl in said recess and a spring anchored at its outer end in said bore and engaged at its inner end with said pawl and adapted to confine the pawl in the recess and to draw the same to locking position.

2. A handle to impart a ratchet movement having an opening through the head thereof and a recess in the side of said opening open at both sides of the head and a plurality of bores extending into said recess, a cylindrical pawl substantially the full width of the head seated in said recess and a plurality of springs fixed at one end in the outer portion of said bores and at the opposite ends on said pawl.

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

JACOB B. ROSENSTEIN.

Witnesses:
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F. C. HARROLD.

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