S. S. TORVIK.

WRENCH HEAD.

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1,232,735.

Patented July 10, 1917.

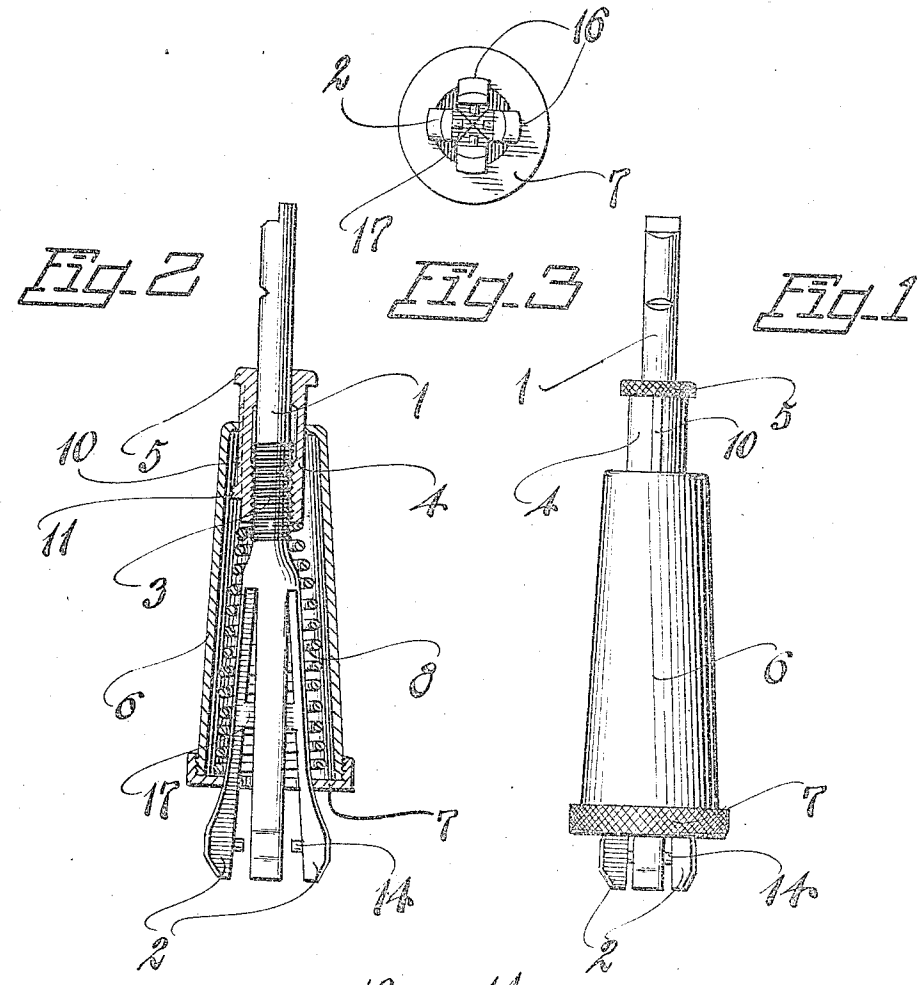


Fig. 2 Fig. 3 Fig. 1

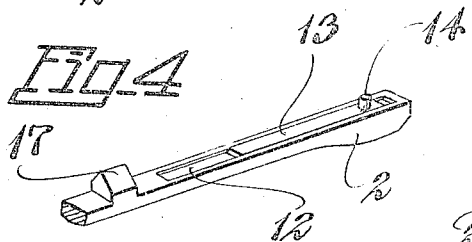


Fig. 4

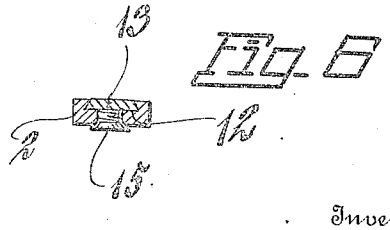


Fig. 6

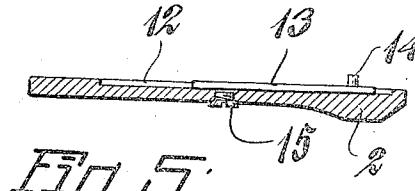


Fig. 5.

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WRENCH-HEAD.

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To all whom it may concern:

Be it known that I, SAMUEL S. TORVIK, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Wrench-Heads, of which the following is a specification.

My invention relates to improvements in wrench heads, and more particularly to nut or other object gripping devices especially adapted for use in connection with braces and automatic pressure rotating holders of well known construction.

One object of my invention resides in the provision of a gripping head of such compact design as to render it of particular utility in reaching comparatively inaccessible nuts, bolt heads and the like where the average or conventional forms of wrenches cannot be employed.

Further than this I aim to provide an efficient and practical device of the foregoing character embodying certain improved, novel, and meritorious features of construction which will be hereinafter fully set forth and described, recourse being had to the accompanying drawings, in which:—

Figure 1 is a longitudinal sectional view of the wrench head, the spring tensioned casing therefor being shown in relative retracted position.

Fig. 2 is an exterior view of the device, said casing being illustrated in operative or jaw engaging position.

Fig. 3 is a plan view of the gripping end.

Fig. 4 is a perspective view of one of the object gripping jaws.

Fig. 5 is a longitudinal sectional view of the latter element.

Fig. 6 is a transverse section through said element taken about midway of its ends.

Referring more particularly to the drawings in which like characters of reference are used to indicate like parts in the several views, the numeral 1 designates an extended central shaft which terminates in a plurality of forked spring jaws 2. Said shaft is provided with a threaded portion 3 to receive an internally threaded bushing 4 having a milled bead and stop 5. A tubular cylindrical casing 6 whose walls preferably converge somewhat, as illustrated, has one end annular flanged and slidably mounted or fitted upon the bushing 4, its cylindrical walls inclosing or housing the greater portion of the spring jaw elements 2. The opposite or larger end of the casing is provided with an annular flanged collar 7 through which the free or gripping ends of the jaws project. Mounted within the casing under tension, one end abutting said collar 7 and the opposite end engaging the inner end of the bushing 4, is a spiral spring 8 which is slightly tapered throughout its length to conform to the shape of the casing 6. As is obvious, this spring serves to normally position the casing as shown in Fig. 1, so that the inner edge of the flanged collar 7 engages the exteriorly tapered butts 8 of the several jaws 2 to force the latter together into a nut or object gripping relation. Tension of the spring may be regulated by rotation of the bushing 4 on the shaft 1 to diminish or increase the same, as desired. When released from compression the jaws are adapted to spring outwardly into open position, such release being accomplished by manual retraction of the casing 6, the relative positions of the several members being clearly illustrated in Fig. 2. A longitudinally disposed feather 10 carried by the bushing 4 prevents relative rotation of the casing thereon, while the projecting stop 11 integral with said feather limits relative forward movement of the casing.

Referring especially to Figs. 4, 5, and 6, each jaw is provided with a longitudinal dove-tailed groove or slot 12 in its inner face which is adapted for the reception of a slide 13 having a pin 14 for limiting the depth of insertion of the nut or other object to be manipulated. By means of the slides the pins may be adjusted to various positions, while the slides are locked in place by means of set screws 15, access to the latter being had upon sufficient retraction of the casing 6.

As viewed in Fig. 3, each jaw is adapted to fit into one of four recesses 16 in the inner periphery of the annular flanged collar 7, this arrangement and disposition serving to prevent undue stress or twisting strain upon the jaws when the tool is in use. The opposed faces of tapered or wedge-shaped lugs 17 on the inner faces of the jaw members are adapted to contact, when in operative or gripping position, to prevent excessive inward movement of the latter and also to increase the rigidity by overcoming any yielding or twisting action thereof.

From the foregoing description and explanation, it is believed that the construc-

tion, operation, utility and advantages of my improvements will be readily comprehended. Finally, I wish it distinctly understood that while I have illustrated only a single embodiment of the device, I hereby expressly reserve my right to modify the same in such particulars as arrangement of the various elements, form, proportion, or details, without departing from the spirit of the invention, as long as, in so doing, I remain within the scope thereof as defined in and by the appended claims.

I claim as new and useful, and desire to secure by Letters Patent of the United States:—

1. A device of the character described, comprising a shaft, a plurality of spring object gripping jaws carried by the shaft, a casing slidably mounted on the shaft, a spiral spring mounted within the casing and encircling the shaft adapted to normally position the casing to compress said jaws, and slidable projecting members upon the inner faces of the jaws adapted to engage and limit insertion of the object to be gripped.

2. A device of the character described, comprising a shaft, a plurality of spring object gripping jaws carried by the shaft, a casing slidably mounted on the shaft, a spiral spring mounted within the casing and encircling the shaft adapted to normally position the casing to compress said jaws, and longitudinally adjustable projecting members upon the inner faces of the jaws adapted to engage and limit insertion of the object to be gripped.

3. A device of the character described, comprising a shaft, a plurality of object gripping jaws carried thereby, a casing slidably mounted on the shaft, a spiral spring mounted within the casing and encircling the shaft adapted to normally position the casing to compress said jaws, and wedge shaped projecting members upon the inner faces of the jaws adapted to engage one another to limit compression of the jaws.

4. A device of the character described, comprising a shaft, a plurality of object gripping jaws carried thereby, a casing slidably mounted on the shaft, a spiral spring mounted within the casing and encircling the shaft adapted to normally position the casing to compress said jaws, and a feather interposed between said shaft and casing.

5. A device of the character described, comprising a shaft, a plurality of object gripping jaws carried by the shaft, a bushing mounted on the shaft, a casing slidably mounted on the bushing, and a feather interposed between the bushing and the casing adapted to prevent rotation of the casing on the bushing.

6. A device of the character described, comprising a shaft, a plurality of gripping jaws having tapered butts and carried by the shaft, an adjustable bushing threaded on the shaft, a tubular casing having annular axially directed flanges at either end, a longitudinally disposed feather and a stop carried by said bushing adapted to engage the flange of the casing about the bushing, recesses formed in the annular flange of the free end of the casing adapted to receive said jaws, and an additional stop carried by the bushing to limit retractive movement of the casing on the bushing.

7. A device of the character described, comprising a shaft, a plurality of gripping jaws having tapered butts and carried by the shaft, an adjustable bushing threaded on the shaft, a tubular casing having annular axially directed flanges at either end, a longitudinally disposed feather and a stop carried by said bushing adapted to engage the flange of the casing about the bushing, and recesses formed in the annular flange of the free end of the casing adapted to receive said jaws.

8. A device of the character described, comprising a shaft, a plurality of gripping jaws having tapered butts and carried by the shaft, an adjustable bushing threaded on the shaft, a spring actuated tubular casing having annular axially directed flanges at either end, a longitudinally disposed feather carried by said bushing adapted to engage the flange of the casing about the bushing, and recesses formed in the annular flange of the free end of the casing adapted to receive said jaws.

In testimony whereof I affix my signature.

SAMUEL S. TORVIK.

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