P. H. GRIMM & F. S. DHOOGE.

RATCHET HEAD AND LEVER THEREFOR.

APPLICATION FILED APR. 20, 1909.

987,132. Patented Mar. 21, 1911.

Fig. 1.

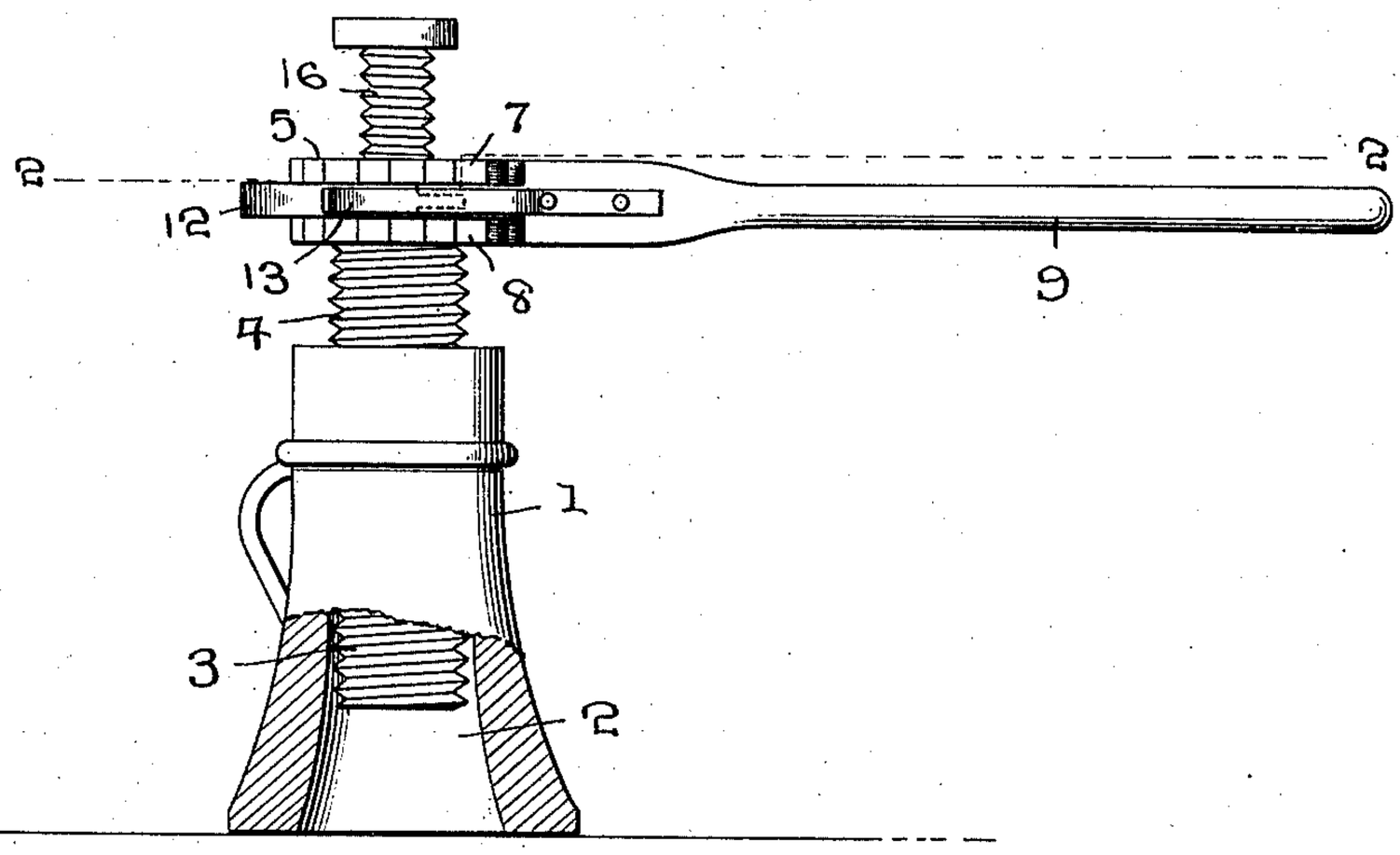
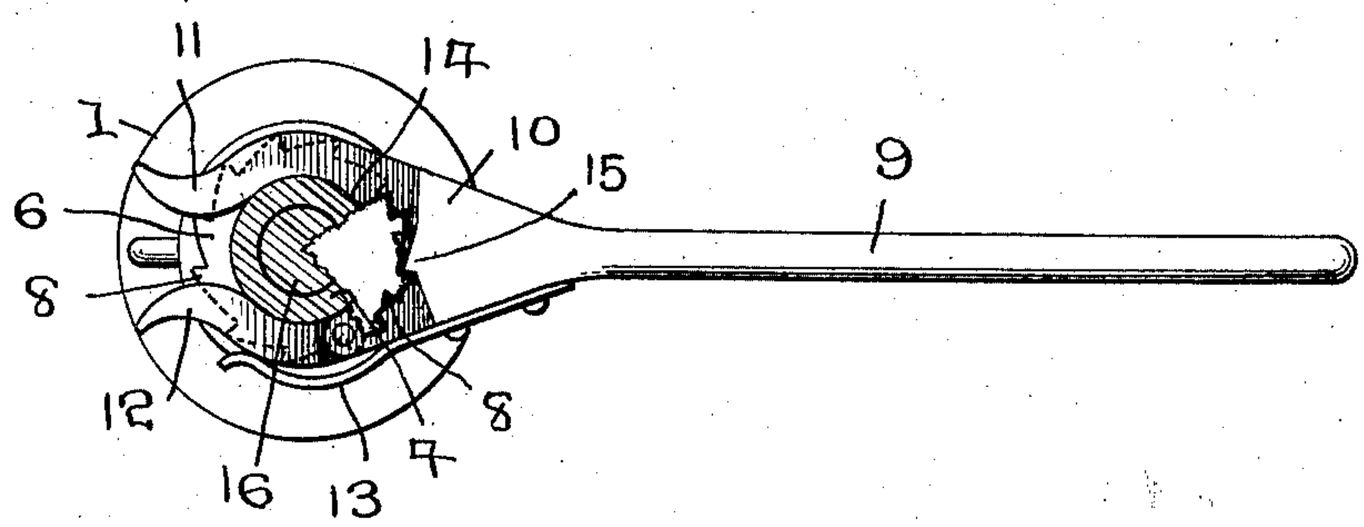


Fig. 2.



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RATCHET-HEAD AND LEVER THEREFOR.

987,132. Specification of Letters Patent. Patented Mar. 21, 1911.

Application filed April 20, 1909. Serial No. 491,033.

To all whom it may concern:

Be it known that we, PHILIP H. GRIMM and FRANK S. DHOOGE, citizens of the United States, residing at Ashland, in the county of Ashland and State of Wisconsin, have invented certain new and useful Improvements in Ratchet-Heads and Levers Therefor; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to new and useful improvements in ratchet heads and operating levers therefor and our object is to provide a lever which may be quickly applied to use in connection with a ratchet head of a jack screw.

A further object is to provide a ratchet head formed in sections on a jack screw, and provided with oppositely disposed teeth whereby the screw portion may be rotated in either direction.

A further object is to provide means for normally holding the lever in engagement with the ratchet head.

In the accompanying drawings which are made a part of this application, Figure 1 is a side elevation partly in section of our improved jack, and, Fig. 2 is a sectional view as seen on line 2—2 Fig. 1.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates the base of a jack screw, which may be constructed in the usual or any preferred manner and provided with a central opening 2, which is threaded part-way of its length to receive the threaded portion 3 of the screw proper 4.

Attached to the upper end of the screw 4 is a ratchet head 5, which head is provided with a circumferential groove or channel 6, thereby dividing the peripheral face of the head into two spaces, the teeth 7 on the upper face being opposed to the trend of the teeth 8 on the lower section, for a purpose to be hereinafter set forth.

In order to apply leverage to the screw 4, to raise or lower the same, we provide a lever 9, one end of which is provided with a head 10, which head likewise terminates in curved prongs 11 and 12, the prong 12 being pivotally attached to the head 10, so that the lever may be readily applied around that portion of the screw 4 between the sections of the head 5.

The prong 12 is held in proper relationship with the prong 11 by means of a spring 13, one end of which is fixed to the head 10, while the opposite end thereof is bowed and presses against the outer face of the prong 12. The free ends of the prongs 11 and 12 are outwardly curved, so that by placing the ends of the prongs in the groove 6 and directing pressure on the lever, the prong 11 will swing outwardly on its pivot and permit the screw to pass between the prongs, the spring 13 causing the prong 12 to again move inwardly as soon as the screw has entered the recess 14 formed between the prongs 11 and 12. The head 10 is also provided with a tooth or pawl 15, which will engage the teeth 7 when the face of the head containing the tooth 15 is turned upwardly and will engage the teeth 8 when the face of the lever is reversed, the teeth 7 being so formed as to cause the screw 4 to ascend when the tooth 15 is engaged therewith and the lever swung to the left and will likewise cause the screw to descend when the head 10 is reversed and the lever moved in the opposite direction.

Should the jack screw be so positioned that a full swing of the lever 9 could not be accomplished, the swinging of the lever in reverse movement will cause the tooth 15 to ride over the tooth or teeth with which it is coöperating, this action successively forcing the lever endwise as it rides over the teeth, the spring 13 yielding sufficiently to permit of the longitudinal movement of the lever. In this manner a ratchet effect is accomplished and the lever can be rapidly swung back and forth to operate the screw, and it will be readily seen that when it is desired to reverse the rotation of the screw or remove the lever from engagement therewith, an outward lengthwise pull on the lever 9 will cause the prong 12 to swing away from the prong 11 and provide a space for the passage of the screw.

In operation, the jack screw is placed below the object to be lifted and adjusted until the upper end thereof engages said object, when the free ends of the prongs 11 and 12 are entered in the grooves 6 and forced inwardly until the screw 4 enters the recess 14, the face of the head 10 containing the tooth 15 being placed upwardly. This op-

eration brings the tooth 15 in engagement with the teeth 7, when pressure is applied on the lever 9 and the screw 4 turned to the left and if the space is not sufficient to permit of the full rotation of the lever 9, the lever is moved forwardly its full distance and then swung in the opposite direction to gain a new hold, which operation may be continued until the full length of the screw 4 is used or until the object is raised the proper distance. The lever 9 is then disengaged from the screw and the face thereof containing the tooth 15, reversed or extended downwardly, which will result in turning the screw 4 in the opposite direction by swinging the lever, it being understood of course that the lever is again engaged with the screw, after the face thereof is reversed to bring the tooth 15 into engagement with the teeth 8. It will thus be seen that we have provided a leverage for operating the screw in either direction and such as can be given a ratchet action in its operation and one wherein the lever may be quickly applied to use or removed from engagement with the jack.

What we claim is:

A device of the character described, comprising a ratchet head having a circumferential groove therein to form said head into an upper and a lower section, said sections being provided with oppositely disposed teeth, a lever having a head formed at one end thereof, said head being provided with arcuately disposed prongs for engagement with said groove, one of said prongs being pivotally secured to said head and the other integral therewith, said head being also provided with a tooth adjacent the inner ends of said prongs and about midway thereof, adapted for engagement with either set of teeth arranged on said ratchet member, both of said prongs having their outer ends curved outwardly and a spring member fixed to said head and bowed to have engagement with and exert inward pressure upon said pivoted prong, whereby said prongs will fit snugly within the groove of said ratchet and the tooth on said lever adapted for engagement with the teeth on said ratchet, for the purpose described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

PHILIP H. GRIMM.
FRANK S. DHOOGE.

Witnesses:
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W. S. CATE.