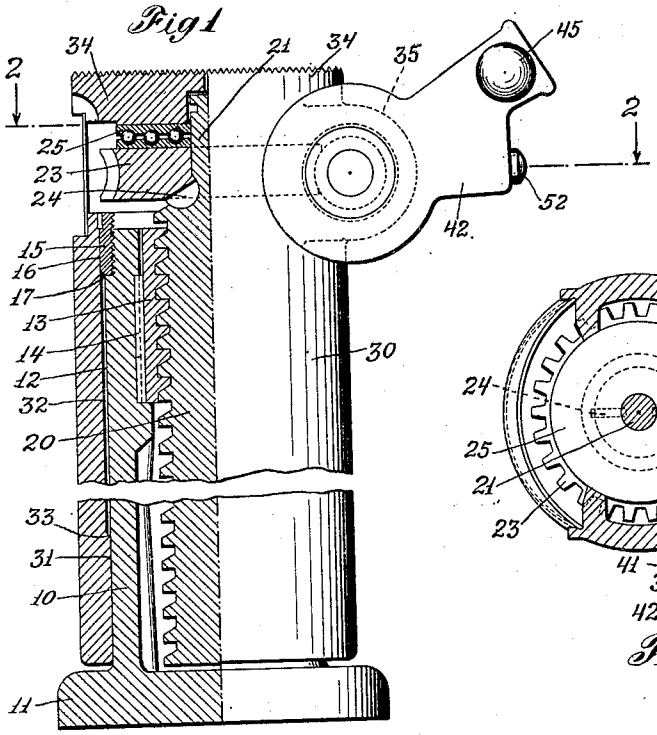
Nov. 4, 1924. 1,513,862

M. D. RIKER

RATCHET HANDLE

Original Filed Dec. 26, 1918

Fig 1



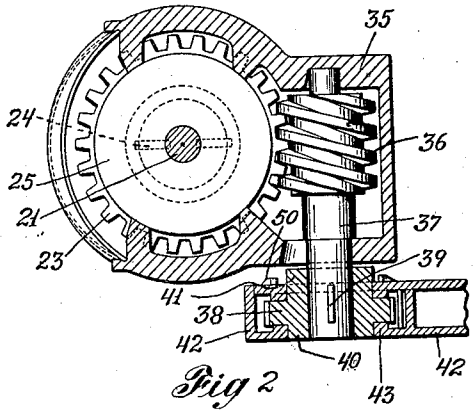


Fig 2

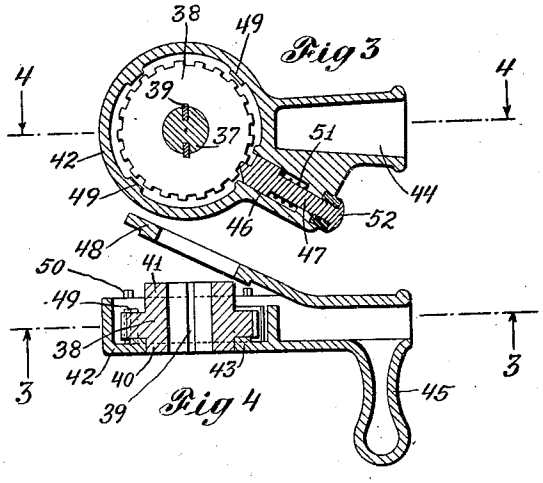


Fig 3

Fig 4

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Patented Nov. 4, 1924. 1,513,862

UNITED STATES PATENT OFFICE.

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RATCHET HANDLE.

Original application filed December 26, 1918, Serial No. 268,347. Divided and this application filed October 23, 1919. Serial No. 332,710.

To all whom it may concern:

Be it known that I, MALCOLM D. RIKER, a citizen of the United States, and a resident of Dover, Morris County, and State of New Jersey, have invented certain new and useful Improvements in Ratchet Handles, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My present invention relates to lifting jacks and particularly to the handle mechanism for operating the same.

The objects of the invention are to provide a simple, strong and easily assembled ratchet handle construction which may be operated in either direction and which further may be operated with or without a lever.

Briefly the invention resides in a construction embodying a ratchet member which is suitably keyed to the spindle to be operated and a housing journaled on hub portions of the ratchet member and provided with a reversible pawl for engaging the ratchet, said housing being preferably provided with a handle for manual operation of the same and a socket for the reception of an operating lever and being further constructed with a side which is opened up for the reception of the ratchet and which is subsequently closed down over the ratchet to secure the parts in assembled relation.

Other features of the invention and details of construction will appear as the specification proceeds.

In the accompanying drawing I have illustrated the invention embodied in one of its simple, practical forms, but would have it understood that modifications in structure may be made without departure from the true spirit and scope of the invention as defined in the appended claims.

In said drawing:

Figure 1 is a side elevation of a lifting jack of improved construction, having the ratchet handle of this invention applied thereto.

Figure 2 is a horizontal sectional view, taken substantially on the plane of line 2—2 of Figure 1.

Figure 3 is a vertical sectional view of the handle mechanism, taken on substantially the plane of line 3—3 of Figure 4.

Figure 4 is a sectional view of the ratchet mechanism, taken substantially on the plane of line 4—4 of Figure 3 and illustrating particularly the manner in which the parts are assembled.

The jack construction illustrated is of my own invention and is disclosed and claimed in my co-pending application, Ser. No. 268,347, the present application being a division from that case.

Briefly this jack construction consists of an inner post member 10 having a suitable base 11 and provided above said base with a cylindrical outer surface 12. Mounted in the upper end of this post is the nut 13, the same being held against rotation, as by means of keys 14. Also carried by this post at the upper end is a stop collar 15, having an outer cylindrical surface 16 of somewhat larger diameter than the cylindrical surface 12 of the post and provided with a lower beveled end 17.

20 designates the lifting screw which fits the nut and is provided with an upper cylindrical extension 21. This screw is shown as operated by a worm gear 23, connected with the screw by keys 24, said gear supporting an anti-friction thrust bearing 25, which provides a thrust connection between the gear and the lifting head.

30 designates an outer shell or sleeve which is turned at its lower end at 31 to slidingly fit the cylindrical portion of the post and which has a slightly larger cylindrical portion 32 in sliding engagement with the collar surface 16. A beveled shoulder 33 between the surfaces 31 and 32 cooperates with the beveled stop shoulder 17 to limit the upward movement of the sleeve.

The upper end of the sleeve member carries a lifting head 34 provided on the under side with a cylindrical pocket for the extension 21 and this head is also formed with a housing 35 in which is journaled the worm 36 in position to operatively engage the worm gear. This worm is provided with a spindle 37.

The ratchet mechanism comprises a ratchet member 38 suitably fastened on the spindle of the worm, as by means of the keys 39, said ratchet having bearing hubs 40 and 41 on its opposite faces engaged by bearings provided in the opposite side walls of a housing 42. This housing is usually in the form of a malleable casting cham-

bered to receive the ratchet and provided with lugs 43 to space the toothed portion of the ratchet from the inner surface of said chamber. This housing is preferably provided with a socket 44 for the reception of an actuating lever, and also with a handle 45 by which it can be easily operated by hand. The housing is also formed with a radial pocket 46 for a spring pressed pawl 47.

The housing casting is made with an integral cover portion 48, having an opening for the reception of the bearing hub 41 of the ratchet. This cover when raised, as shown in Figure 4, permits the insertion of the pawl 47 and the ratchet 38 into their respective seats in the housing and after such parts are in position the cover is bent down against the spacing lugs 49, after which the lugs 50 are bent down over the edge of the side wall, as shown in Figure 2 to lock the same in closed position.

The pawl 47 is pressed inwardly toward the ratchet by the spring 51 and has an appropriate finger hold 52 by which it may be turned to bring its inner beveled end into engagement with the ratchet, facing the teeth as in Figure 3 or in the reverse relation. Thus the pawl can be set for operating the ratchet in either direction.

The handle 45, in connection with the reversible pawl, provides means by which the jack can be quickly operated in either direction by a continuous rotary movement or, where space will not permit, by a rocking or oscillating movement back and forth. When working with a heavy load a suitable actuating lever may be inserted in the socket provided therefor in the housing. The ratchet parts are fully covered and protected, but are accessible when necessary by bending back the lugs 50 and raising the cover, as in Figure 4.

What I claim is:

1. Ratchet mechanism comprising a toothed member, having two circular hubs and a housing having a side provided with a circular opening for the reception of one of the hubs and another integral side inclined from said first mentioned side provided with a circular opening and arranged to be bent down over the other of said hubs into parallelism with said first mentioned side, and a spring-pressed pawl radially slidable in said housing.

2. Ratchet mechanism comprising a toothed member, having two circular hubs and a housing having a side provided with a circular opening for the reception of one of the hubs and another integral side inclined from said first mentioned side provided with a circular opening and arranged to be bent down over the other of said hubs into parallelism with said first mentioned side, holding lugs adapted to be bent over said other side to hold it in said parallel position, a spring-pressed pawl radially slidable in said housing, and means operable for rotating said pawl about its axis.

3. Ratchet mechanism comprising a toothed member, having two circular hubs and a housing having a side provided with a circular opening for the reception of one of the hubs and another integral side inclined from said first mentioned side provided with a circular opening and arranged to be bent down over the other of said hubs into parallelism with said first mentioned side, holding lugs adapted to be bent over said other side to hold it in said parallel position, a spring-pressed pawl radially slidable in said housing, and manually operable means for rotating said pawl about its axis, said housing being constructed to form a substantially radial socket and a transversely projecting handle.

4. Ratchet mechanism comprising a toothed member, having two circular hubs and a housing having a side provided with a circular opening for the reception of one of the hubs and another integral side inclined from said first mentioned side provided with a circular opening and arranged to be bent down over the other of said hubs into parallelism with said first mentioned side, and a spring pressed pawl carried by the housing and engaging said toothed ratchet member.

5. Ratchet mechanism comprising a toothed member having two circular hubs and a housing having a side provided with a circular opening for the reception of one of the hubs and another integral side inclined from said first mentioned side provided with a circular opening and arranged to be bent down over the other of said hubs into parallelism with said first mentioned side, and a spring pressed pawl carried by the housing and engaging said toothed ratchet member, said pawl having a reversible connection with the ratchet member and provided with means by which the same may be reversibly engaged with the ratchet.

6. Ratchet mechanism comprising a toothed member having two circular hubs and a housing having a side provided with a circular opening for the reception of one of the hubs and another integral side inclined from said first mentioned side provided with a circular opening and arranged to be bent down over the other of said hubs into parallelism with said first mentioned side, integral holding lugs adapted to be bent into holding engagement with said side, and a pawl mounted in the housing for engagement with the toothed ratchet member.

7. Ratchet mechanism comprising a toothed member, having two circular hubs

and a housing having a side provided with a circular opening for the reception of one of the hubs and another integral side inclined from said first mentioned side provided with a circular opening and arranged to be bent down over the other of said hubs into parallelism with said first mentioned side, a spring-pressed pawl in said housing, said housing being constructed to form a substantially radial socket and a transversely projecting handle.

8. Ratchet mechanism comprising a toothed ratchet member having hubs on the opposite faces thereof, a housing having one wall provided with a bearing therein for the reception of one of said hubs, and a second integral side wall inclined with respect to the first side wall provided with a bearing opening for the other hub of the ratchet and arranged to be bent down over said other hub into substantial parallelism to the first mentioned side wall, and a pawl mounted in the housing for engagement with the ratchet.

9. Ratchet mechanism comprising a toothed ratchet member having hubs on the opposite faces thereof, a housing having one wall provided with a bearing therein for the reception of one of said hubs, and a second integral side wall inclined with respect to the first side wall provided with a bearing opening for the other hub of the ratchet and arranged to be bent down over said other hub into substantial parallelism to the first mentioned side wall, a pawl mounted in the housing for engagement with the ratchet, and integral holding lugs on the housing for securing the bent down side wall in engagement with the hub of the ratchet.

10. Ratchet mechanism comprising a housing having side walls provided with bearings therein, one of said side walls standing at an angle to the other side wall and adapted to be bent down into substantial parallelism with the first mentioned side wall, a ratchet member in the housing and journaled in said bearing openings, and means for securing the bent-down wall closed over said ratchet member.

11. Ratchet mechanism comprising a housing having side walls provided with bearings therein, one of said side walls standing at an angle to the other side wall and adapted to be bent down into substantial parallelism with the first mentioned side wall, a ratchet member in the housing and journaled in said bearing openings, means for securing the bent-down wall closed over said ratchet member, said housing having a pocket therein exposed when the bendable wall is upraised and a pawl engageable in said pocket when said wall is upraised.

12. Ratchet mechanism comprising an integral hollow casting having a wall provided with a bearing opening and a second wall provided with a bearing opening and inclined with respect to the first wall and adapted to be bent into substantial parallelism with the first wall to complete the housing, a ratchet member insertable in the housing for engagement with the bearing opening in the first wall and having a portion received in the bearing opening in the second wall as said second wall is bent into place, means for securing said second wall in bent-down position, and a pawl in the housing engaging the ratchet member aforesaid.

13. Ratchet mechanism comprising a housing in the form of an integral hollow casting chambered in one end to receive a ratchet and provided with an integrally inclined wall bendable to close said chamber, said housing having a substantially radial socket in its opposite end to receive an actuating lever and a handle standing at an angle to said socket for manual actuation of the device, a ratchet rotatably engaged in the chamber portion of the housing, and a pawl mounted in the housing for engagement with said ratchet.

In witness whereof, I have hereunto set my hand this 21st day of October, 1919.

MALCOLM D. RIKER.