

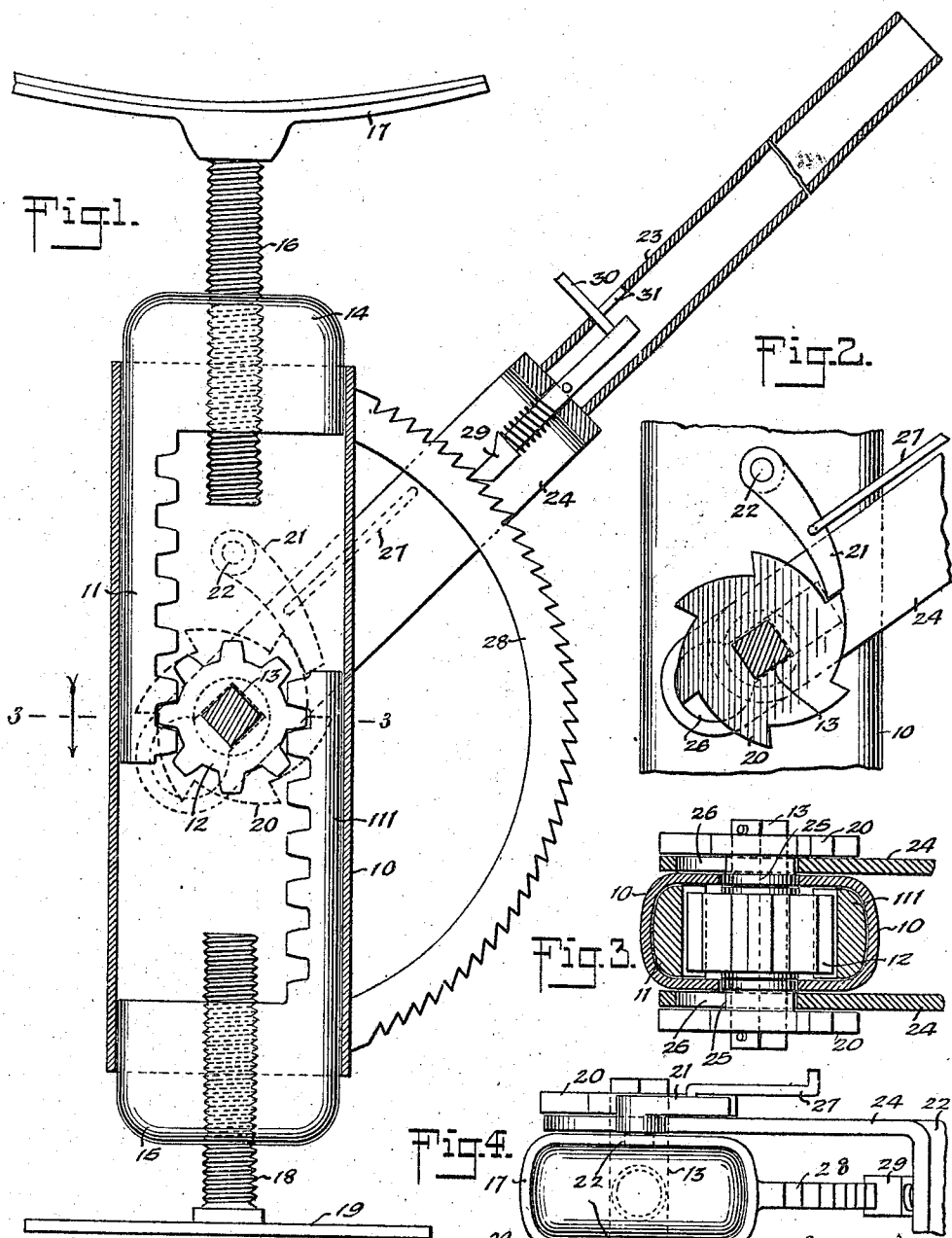
March 11, 1924.

G. A. PIPER

1,486,797

JACK

Filed May 18, 1923



WITNESSES

William P. Gaebel.
J. L. McAuliffe.

FIG. 5.



Fig. 3.

Fig. 4.

Fig. 2.

INVENTOR

GEORGE A. PIPER

BY

Mum Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE A. PIPER, OF BRIDGEWATER, SOUTH DAKOTA, ASSIGNOR OF ONE-HALF TO
GEORGE W. LAING, OF BRIDGEWATER, SOUTH DAKOTA.

JACK.

Application filed May 18, 1923. Serial No. 639,841.

To all whom it may concern:

Be it known that I, GEORGE A. PIPER, a citizen of the United States of America, and a resident of Bridgewater, in the county of McCook and State of South Dakota, have invented a new and Improved Jack, of which the following is a description.

The present invention is intended more particularly to be in the nature of an improvement on the subject matter of United States Patent No. 1,213,800, granted January 23rd, 1917, on an application filed by me.

The general object of the present invention is to improve in various respects the jack referred to especially with reference to the construction and relative arrangement of the tubular body or casing and the heads to lend strength thereto as well as to provide an improved operating assemblage.

The nature of my present invention and its distinguishing features and advantages will clearly appear as the description proceeds.

Reference is to be had to the accompanying drawings forming a part of this specification, it being understood that the drawings are merely illustrative of one example of the invention.

Figure 1 is a vertical section of a jack embodying my invention;

Figure 2 is a detail in elevation showing a portion of the operating mechanism;

Figure 3 is a horizontal section on the line 3—3, Figure 1;

Figure 4 is a plan view parts being broken away;

Figure 5 is a side elevation of the forward end of one of the fork arms of the operating lever.

In carrying out my invention in accordance with the illustrated example I provide a hollow body 10 formed of a single piece and advantageously oval or oblong in cross section. Thus, the body has a unitary character and possesses increased strength. At the same time the opposed narrow ends of the body form guides for upper and lower rack bars 11, 111 disposed opposite each other and overlapping and engaged by a gear wheel 12 on a shaft 13 journaled in the opposite sides of the body 10.

The rack bars 11, 111 are integral respectively with an upper head or block 14 and a lower head or block 15, said heads and their rack bars being similar. The heads 14,

15 are generally of a shape to conform to the oblong or oval cross section of the body 10 and said heads extend completely across the body and snugly fit therein to have bracing engagement with the body at all sides.

The upper head or block 14 is tapped centrally or at the axis of the body 10 and receives the threaded stem 16 provided with a load carrying plate or element 17. Similarly the lower block or head 15 is tapped centrally with the body 10 and receives the threaded stem 18 rising from the base plate 19. As in the patent above referred to by turning the stems 16, 18 in the heads 14, 15, the total effective length of the jack can be adjusted.

With the base 19 resting on the ground or other support and the load plate 17 placed against the load to be lifted, that is to say, placed, for example, against the axle of an automobile, the pinion 12 may be turned by means hereinafter described so as to cause the pinion to ride up on the lower rack bar 111 and at the same time cause the upper rack bar 11 to move upwardly so that since the shaft 13 of the pinion 12 is journaled in the body or casing 10, the body moves upwardly with respect to the rack bar 111 and the rack bar 11 will move twice the distance of the body.

On the shaft 13 at opposite sides are ratchet wheels 20 spaced from the sides of the body 10. Said ratchet wheels are adapted to be engaged by dogs 21 here shown as gravity dogs and pivoted as at 22 to the sides of the body 10 at the exterior. A lever 23 is formed with a fork 24 spanning the body 10 the members of the fork being disposed between the outer sides of the body and the ratchet wheels 20. The ratchet wheels 20 have hubs 25 squared at opposite sides, said hubs being accommodated in key-hole slots 26 in the fork arms 24. The lever is shiftable longitudinally to dispose the round portions of the key-hole slots at the hubs 25 or to bring the squared sides of the hubs into the contracted straight portions of the key-hole slots in which latter position the rocking of the lever 23 will turn the shaft 13, thereby turning the pinion 12 and ratchet wheels 20. With the round portions of the key-hole slots at the shaft 13 and hubs 25 the lever 23 may be turned freely without affecting the shaft 13 for raising the lever after a lifting downward movement of the lever. After

each working movement of the lever 23, dogs 21 will hold the ratchet wheels 20 and shaft 13 and prevent retrograde movement of the pinion 12.

5 The dogs 21 may be lifted out of engagement with the ratchet wheels 20 by lift rods 27 disposed at the opposite sides of the fork arms 24. Rigid with the body 10 in the plane thereof is an arcuate toothed
10 sector 28 engageable by the latch 29 on the lever 23, said latch having a lateral operating arm 30 extending through a slot 31 in the lever. In practice the pinion 12 is made with eight teeth which arrangement
15 is found highly efficient for the proper engagement and movement of the rack bars.

I would state in conclusion that while the illustrated example constitutes a practical embodiment of my invention, I do not
20 limit myself strictly to the exact details herein illustrated, since, manifestly, the same can be considerably varied without departure from the spirit of the invention as defined in the appended claims.

25 Having thus described my invention, I claim:

1. A jack including a hollow body oblong in cross section and formed in one piece to present walls of unbroken continuity in cross section, heads fitting in the
30 body at the top and bottom to lie adjacent to the walls thereof at all sides, rack bars on said heads disposed oppositely and lying in the opposite ends of the body to have
35 guided movement in the latter, said heads having threaded bores coaxial with the body, a threaded stem engaging in said bore of the lower head, a base plate from which said stem rises, a load element, a
40 stem threaded into the bore of the upper head and carrying said load element, a pinion disposed between and meshing with said rack bars, and means to turn said pinion.

2. A jack including a hollow body ob-

long in cross section, heads snugly fitting
45 the upper and lower ends of said body and substantially filling the same to brace the body at all sides, a base, means supporting the lower head from said base, a
50 load element supported on the upper head, and actuating means to vary the distance between said heads; together with load supporting means supported by the upper head.

3. A jack comprising a hollow body, rack
55 bars in said body at opposite sides and separate from the body, a pinion meshing with said racks, a shaft for said pinion, and a forked lever having key-hole slots therein through which the shaft passes, said
60 shaft presenting members thereon at said slots, said members presenting squared sides to be engaged by the lever at the straight portions of the key-hole slots, the levers disengageable from said members by dis-
65 posing the latter in the round portions of the key-hole slots.

4. A jack including a body, rack bars therein at opposite sides, a pinion meshing
70 with said rack bars, a shaft for said pinions, ratchet wheels on the shaft at opposite ends, dogs engageable with said ratchet wheels, and a lever having fork
75 arms between said ratchet wheels and the sides of the body and engageable with or disengageable from said shaft to turn the same or to turn relatively to the shaft.

5. A jack including a hollow body oblong in cross section, heads snugly fitting
80 the upper and lower ends of said body and substantially filling the same to brace the body at all sides, and actuating means adapted to move the body vertically relatively to the lower head and to move the
85 upper head relatively to the body; together with load supporting means supported by the upper head.

GEORGE A. PIPER.