May 31, 1927. 1,630,537

S. McGREGOR

SUCKER ROD ELEVATOR

Filed May 2, 1925

Fig. 1

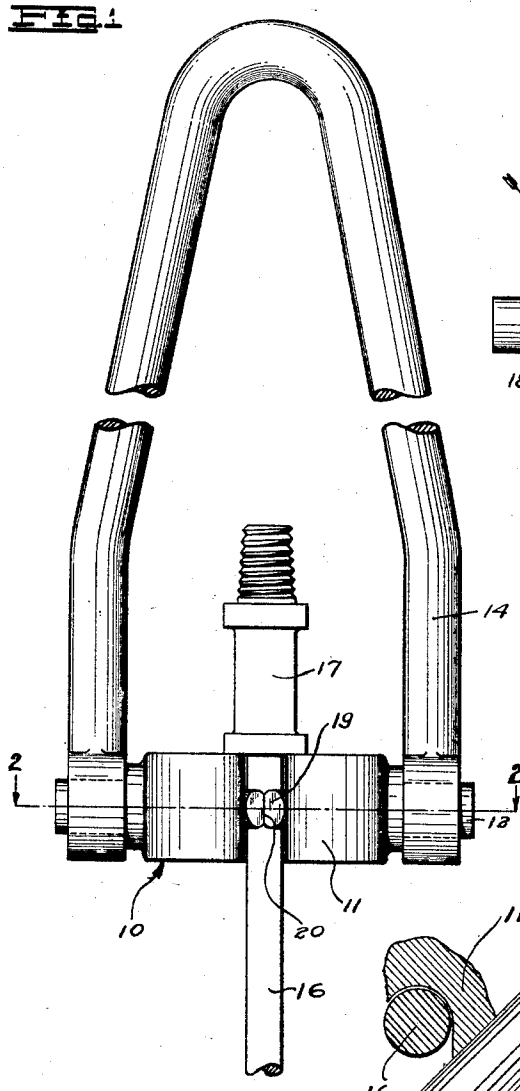


Fig. 2

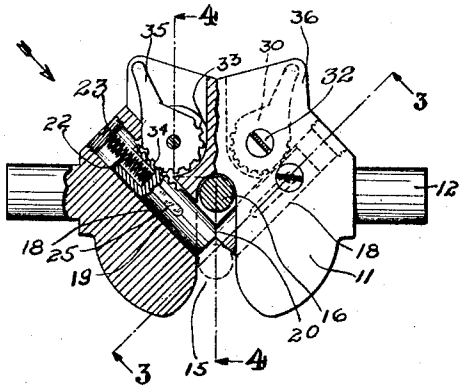


Fig. 3

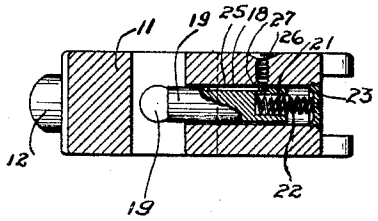
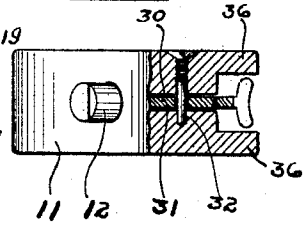


Fig. 4



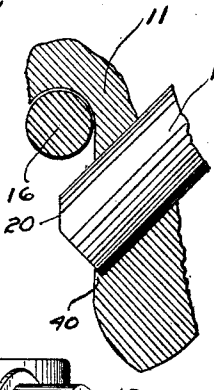


Fig. 5

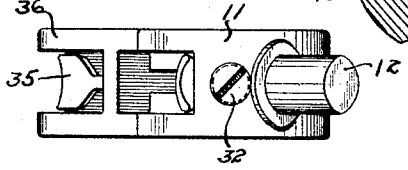


Fig. 6

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UNITED STATES PATENT OFFICE.

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SUCKER-ROD ELEVATOR.

Application filed May 2, 1925. Serial No. 27,456.

This invention relates to a sucker rod elevator.

The general object of the invention is to provide an improved sucker rod elevator which can be economically manufactured and which can be easily operated.

One of the specific objects of the invention is to provide a sucker rod elevator wherein a body having a rod receiving recess therein is provided with rod holding members so positioned that pressure of the rod against the rod holding members will force these members into tighter holding engagement with the body.

A further object of the invention is to provide a sucker rod elevator including a body with a rod receiving slot, wherein plungers angularly arranged serve to hold the rod in place and wherein novel means is provided for actuating the plungers.

Another object of the invention is to provide a sucker rod elevator including means for holding a rod within the body, wherein the body is provided with means to prevent accidental movement of these operating members.

Other objects of the invention will be apparent from the following description taken in connection with the accompanying drawings wherein Fig. 1 is a side elevation of a sucker rod elevator illustrating the features of my invention; Fig. 2 is a sectional view partly in elevation taken on line 2—2, Fig. 1; Fig. 3 is a sectional view showing a slidable plunger and is taken on line 3—3, Fig. 2; Fig. 4 is a sectional view on line 4—4, Fig. 2; Fig. 5 is a side elevation of the sucker rod elevator, and Fig. 6 is a fragmentary sectional detail.

Referring to the drawing by reference characters, I have shown a sucker rod elevator embodying the features of my invention at 10. This elevator, as shown, comprises a body 11 having trunnions 12 thereon, upon which a bail 14 is mounted. The body, which is preferably made of strong, tough material such as chrome nickel steel is provided with a rod receiving recess 15 through which the sucker rod 16 may be inserted.

The sucker rod 16 is shown as provided with an enlarged upper portion 17 as shown in Fig. 1.

The body 11 is shown as provided with a pair of holes 18 therethrough. These holes are arranged at an angle to each other and the holes may be of any desired configuration, although they are shown as cylindrical. Within these holes 18, I arrange slidable plungers 19 which have beveled portions 20 thereon adapted to abut as shown in Fig. 2.

The plungers are adapted to move in the recesses 18 and to hold them in the innermost position I show the ends of the plungers as recessed at 21 and within the recesses I fit springs 22, the outer ends of which are engaged by threaded plugs 23 which are threaded in the ends of the apertures 18.

To prevent rotation of the plungers 19 about their axes I arrange a slot 25 in the outer wall of the plungers. A threaded screw 26 has a reduced portion 27 which fits within the slot 25 to prevent rotation of the pin 19.

In order to provide means whereby the plungers 19 may be retracted, I provide latch members 30 which are arranged in slots 31 in the body 11. These latch members are mounted to turn on a pivot screw 32 secured in the body 11. The outer periphery of each latch 30 is provided with teeth 33 which are arranged to fit teeth 34 arranged in the plungers 19. The latch members 33 are provided with finger pieces 35 thereon which facilitate operation thereof.

In operating the device the body 11 of the elevator is moved adjacent the sucker rod 11 so that the latter enters the recess 15 after which it is pushed against the outer end of the plungers 19. The plungers then move inwardly until the sucker rod has passed them after which they spring outwardly. Should any relative movement occur between the sucker rod and the elevator the pressure of the rod upon the pins 19 would merely push these pins into tighter engagement with the wall of the hole 18, and no shearing action would be present.

To release the sucker rod the finger pieces 35 are moved toward each other thus causing the plungers 19 to be retracted.

In order to prevent accidental movement of the finger pieces 35, I extend the body as at 36 on both sides of the finger pieces to provide overhanging portions.

In order to provide correct alignment of the plungers 19 in the apertures 18, I may provide a slight shoulder 40 at the inner ends of the apertures 18 as shown in the enlarged view in Fig. 6.

Having thus described my invention, I claim:

1. A sucker rod elevator including a body, said body having a rod receiving recess therein, said body having a pair of opposed straight holes therein, a plunger mounted to move linearly in each hole, said plungers being adapted in one position to be arranged across said recess to close the same, means to urge said plungers to recess closing position, means to move said plungers to open position, said means including latches, said latches and said plungers having teeth thereon in direct engagement.

2. An elevator embodying a body having an open recess and having holes adjacent to the opposite sides of said recess, a plunger fitted in each hole, said plungers being adapted for linear movement, means to urge said plungers inwardly toward each other, and means to limit the inward movement of each plunger, said means comprising shoulders on the body, each of said shoulders projecting within a hole and in the path of movement of a plunger.

3. In an elevator, a body having means thereon for attachment to a bail, said body having a recess therein and having a pair of elongated straight holes therein, a plunger slidable in each hole, means to urge each plunger in one direction to cause it to project within said recess, said plungers engaging each other when in advanced position, latches on said body, each of said plungers and said latches having teeth thereon, said teeth being in direct engagement.

4. An elevator including a body having a open recess and having a pair of holes adjacent to each side of said recess, a plunger fitted in each hole, said plungers being adapted for sliding movement and having their axes intersecting within said recess, means to urge said plungers toward each other, and a pair of latches mounted upon said body, said plungers and said latches having coacting toothed parts thereon.

5. An elevator embodying a body having an open recess and having holes adjacent to the opposite sides of said recess, a plunger fitted in each hole, said plungers being adapted for linear movement and having their axes intersecting within said recess, means to urge said plungers toward each other, a pair of latches pivotally mounted upon said body, means on each latch for engaging a plunger to move said plunger, said latches having finger pieces extending therefrom beyond the body, said body having flanges thereon, said flanges overlapping the finger pieces.

In testimony whereof, I hereunto affix my signature.

SAMUEL McGREGOR.