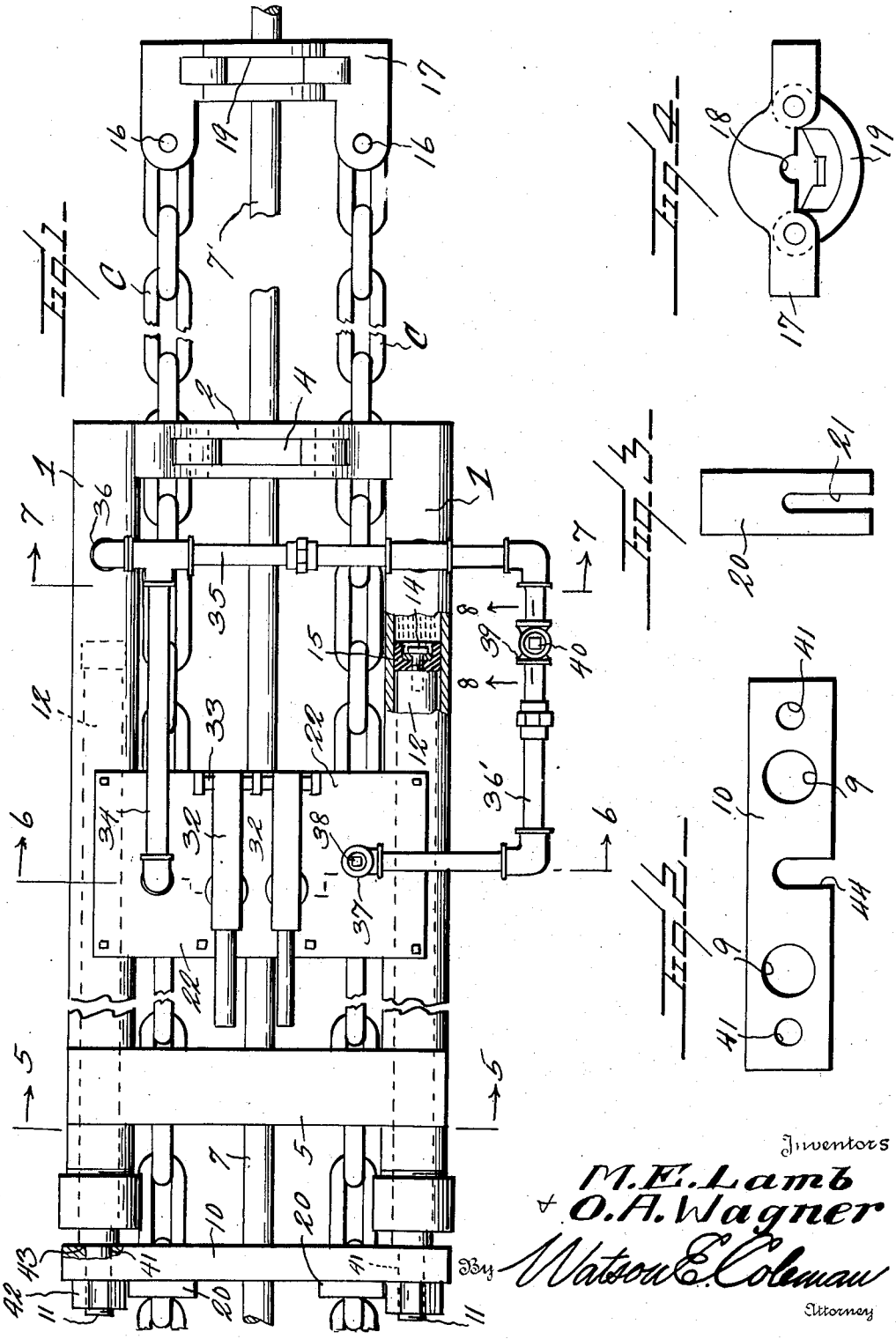
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ROD LINE JACK

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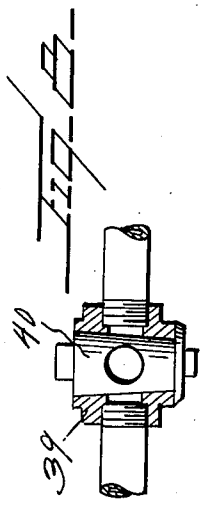


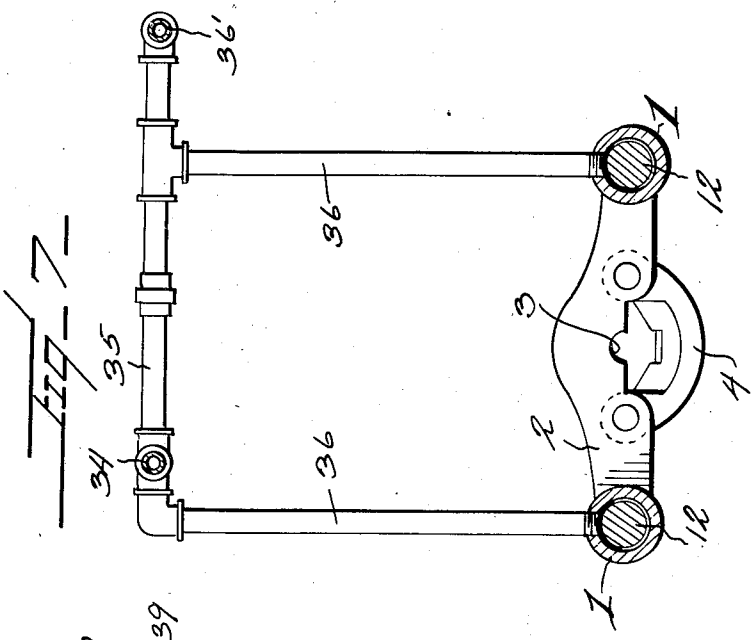
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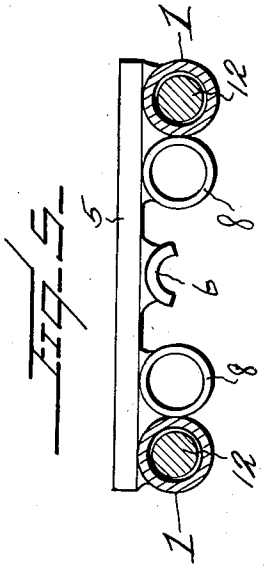
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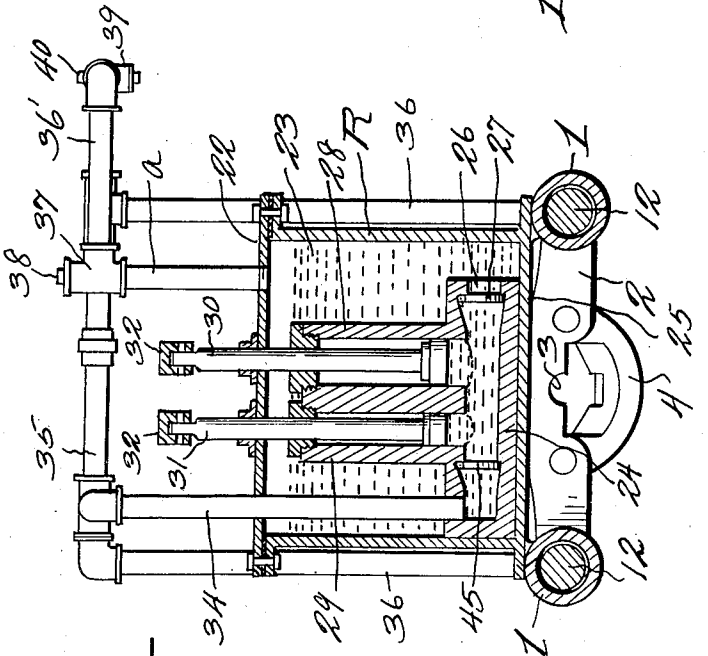
ROD LINE JACK

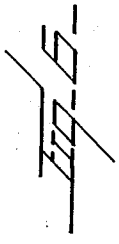
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2,229,248

ROD LINE JACK

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Application July 25, 1940, Serial No. 347,557

5 Claims. (Cl. 254—29)

This invention relates to a rod line jack, and it is an object of the invention to provide a device of this kind of a hydraulic type and wherein is provided means to obtain a high speed for picking up slack and a low speed for power.

It is also an object of the invention to provide an apparatus of this kind provided with means whereby it can be readily and quickly released when extended to facilitate the jack returning to its retracted adjustment.

An important object of the invention is to provide an apparatus of this kind which is small, compact and light enabling the same to be readily transported by an individual.

Another object of the invention is to provide a jack of this kind which, when in use, engages its work in a manner whereby liability of slippage is substantially eliminated with resultant lessening of liability of injury to the operator.

The invention consists in the details of construction and in the combination and arrangement of the several parts of our improved rod line jack whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of our invention will hereinafter be definitely claimed.

In order that our invention may be the better understood, we will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view in top plan with a portion broken away of a jack constructed in accordance with an embodiment of our invention, adjacent portions of a rod or the like being shown in fragment;

Figure 2 is a view in elevation of the cross member carried by the plungers unapplied;

Figure 3 is a view in elevation of one of the chain stops unapplied;

Figure 4 is a view in elevation of the rod grip and chain stop as herein embodied;

Figure 5 is a sectional view taken substantially on the line 5—5 of Figure 1;

Figure 6 is a sectional view taken substantially on the line 6—6 of Figure 1;

Figure 7 is a sectional view taken substantially on the line 7—7 of Figure 1;

Figure 8 is an enlarged detailed sectional view taken substantially on the line 8—8 of Figure 1.

As disclosed in the accompanying drawings, our improved jack comprises a pair of elongated parallel cylinders 1 of desired length and in preferred spaced relation. These cylinders 1 are coextensive in length and interposed between said cylinders 1 at an end portion of the device is a cross member 2 welded or otherwise rigidly secured to the cylinders 1. The central portion of this cross member 2 is formed to provide a rod grip comprising a stationary jaw 3 and a movable jaw 4. The character of the rod grip, however, forms no particular part of the present invention and may be as preferred.

The opposite end portions of the cylinders 1 have bridging the space therebetween and welded or otherwise rigidly secured thereto the cross member 5. This member 5 substantially midway of the cylinders 1 has depending therefrom a saddle 6 adapted to contact from above a rod section 7 in connection with which the jack is employed. Fixedly carried by this cross member 5 immediately adjacent to the cylinders 1 are the rigid guide members or loops 8 through which the pulling chains C are freely directed. The chains C or kindred flexible members are also freely disposed through the openings 9 provided in the opposite end portions of a cross head 10 carried by the reduced extended portions 11 of the elongated plungers 12 working within the cylinders 1. The inner or inserted end of each of the plungers 12 has fixed thereto, as at 14, a piston 15 which has close contact with the inner wall of its cylinder 1.

The forward end portions of the chains C are anchored, as at 16, to the opposite end portions of a member 17 which constitutes a rod grip and a chain stop. This member 17 in its central portion is provided with a fixed jaw 18 and a movable jaw 19 whereby the member 17 may be effectively clamped to a second rod section 7'. The clamping means carried by the member 17 in its detail forms no particular part of the present invention.

Detachably engageable with each of the chains C outwardly of the cross head 10 is a chain stop 20 with which the cross head 10 directly contacts when the jack is in operation, as clearly illustrated in Figure 1. The stop 20 comprises, in the present embodiment of our invention, an elongated flat plate provided in one end portion with a longitudinally disposed open slot 21 whereby the stop 20 may be readily caused to straddle a link of a chain and which placement of the stop may be readily changed as required during a working operation.

Mounted upon the central portion of the cylinders 1 and welded or otherwise rigidly secured

thereto is a reservoir or housing R of desired dimensions and capacity and which, as herein disclosed, is provided with a removable top 22. This reservoir or housing R contains a suitable supply of oil or other desired fluid, as indicated at 23, and which fluid enters a manifold 24 illustrated in Figure 6 as being suitably mounted upon the bottom wall 25 of the reservoir or housing R. The induction opening 26 of the manifold 24 has associated therewith a non-return valve 27 herein disclosed as of a flap type although such valve may be otherwise as desired. This non-return valve 27 readily permits the entrance of the fluid within the manifold 24 but, of course, effectively prevents such fluid flowing out through the induction opening 26.

In communication from above with the manifold 24 are the pump cylinders 28 and 29, the bore of the cylinder 28 being of a diameter greater than that of the bore of the cylinder 29. Working within the cylinders 28 and 29 are respectively the pump plungers 30 and 31. These plungers 30 and 31 extend up through the applied top 22 and terminate a desired distance thereabove. Operatively engaged with the upwardly extended portion of each of the plungers 30 and 31 is an operating handle 32 having one end portion pivotally mounted, as at 33, whereby a handle 32 may be operated to make effective a plunger 30 or 31.

Also in communication with the manifold 24 through the top thereof is an eduction pipe line 34 which extends up through the applied top 22 and delivers to a cross pipe line 35. The line 35 has in communication therewith the depending pipe lines 36 discharging within the cylinders 1 inwardly or rearwardly of the plungers 12.

The pipe line 35 also has directly in communication therewith a return pipe line 36' discharging into the reservoir or housing R through the applied top 22. This return pipe line 36' has the portion *a* thereof immediately adjacent to the top 22 straight and substantially vertically disposed with a fitting 37 at the upper part of said portion *a* provided with a removable plug 38. By this means the portion *a* of the pipe line 36' may be readily employed as a vent for filling, as desired, the reservoir or housing R with fluid.

Interposed at a desired point along the pipe line 36' is a valve casing 39 in which works a conventional rotary valve member 40. This valve member 40 provides means whereby the pipe line 36' may be readily and quickly opened to allow return of the fluid to the reservoir or housing R when it is desired to move the plungers 12 inwardly of the cylinders 1.

As is illustrated in Figure 2, the cross member or head 10 is also provided in its extremities with the openings 41 through which are disposed the outer reduced extremities 11 of the plungers 12. As illustrated in Figure 1, these reduced portions 11 have threaded thereon the holding nuts 42 which provide means for firmly clamping the end portions of the cross head or member 10 against the shoulders 42 at the inner ends of the reduced portions, 11. The central portion of the cross member or head 10 is also provided with a transversely disposed slot 44 opening at one side of the head or member 10. This slot 44 receives a portion 7 of the rod so that said cross head or member 10 will offer no hinderance or obstruction to the effective application and operation of the jack.

The chains C, in the present embodiment of our invention, extend below the reservoir or housing R and the cross member 2.

In practice, our improved jack is particularly adapted for use in picking up the ends of broken rod lines. With the member 2 clamped to a rod or tubing section 7 and the member 17 clamped to the second section 7', the operator first works the plunger 30 to rapidly force the fluid into the cylinders 1 rearwardly of the plungers 12 to effect a rapid outward movement of such plungers to take up the slack in the chains C. After this slack has been taken up the operator then works the plunger 31 and which plunger operates to give the most effective power to the jack.

As the fluid is forced out through the pipe line 34 in either of the plungers 30 or 31 said fluid is held against return or retrograde flow into the manifold 24 by the properly positioned non-return valve 45 also disclosed in the present embodiment of the invention as of a flap type.

After the plungers 12 have been forced out, the valve 40 is opened to allow a quick return of the plungers 12 and which return is in unison on account of the connecting head or member 10. After the plungers 12 have been returned the stops 20 are replaced upon the chains C again at positions closely adjacent to said head or member 10 so that as the plungers 12 are again forced outwardly the requisite pulling action will be transmitted to the chains C.

From the foregoing description it is thought to be obvious that a rodline jack constructed in accordance with our invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that our invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason we do not wish to be understood as limiting ourselves to the precise arrangement and formation of the several parts herein shown in carrying out our invention in practice except as hereinafter claimed.

We claim:

1. A rod line jack comprising cylinders arranged side by side and in spaced relation, plungers working in said cylinders extending exteriorly thereof, means to inject fluid under pressure into the cylinders behind the plungers, a cross head connecting the extended portions of the plungers and movable with the plungers, cross members connecting the cylinders, means carried by one of the cross members for clamping the same to a pipe or rod section, a member for gripping a second pipe or rod section, a flexible member secured to said grip member, the cross head having an opening through which said flexible member passes, and a stop member detachably engaged with the flexible member, said stop member having holding contact with the cross head.

2. A rod line jack comprising cylinders arranged side by side and in spaced relation, plungers working in said cylinders extending exteriorly thereof, means to inject fluid under pressure into the cylinders behind the plungers, a cross head connecting the extended portions of the plungers and movable with the plungers, cross members connecting the cylinders, means carried by one of the cross members for clamping the same to a pipe or rod section, a member for gripping a second pipe or rod section, a flexible member secured to said grip member, the cross head having an opening through which said flexible member passes, a stop member detachably engaged with the flexible member, said stop

member having holding contact with the cross head, and a saddle carried by one of the cross members for engagement with a pipe or rod section.

3. A rod line jack comprising cylinders arranged side by side and in spaced relation, plungers working in said cylinders extending exteriorly thereof, separately operating means for injecting fluid under different pressures into the cylinders behind the plungers, a cross head connecting the extended portions of the plungers and movable with the plungers, cross members connecting the cylinders, means carried by one of the cross members for clamping the same to a pipe or rod section, a member for gripping a second pipe or rod section, a flexible member secured to said grip member, the cross head having an opening through which said flexible member passes, and a stop member detachably engaged with the flexible member, said stop member having holding contact with the cross head.

4. A rod line jack comprising, in combination, cylinders arranged side by side and in spaced relation, means for maintaining the cylinders in such relative positions, said means including a grip to engage a pipe or rod section, plungers working in the cylinders, a cross head connecting the plungers, a grip member for engaging a second pipe or rod section, a flexible member secured to said grip member, a holding member engageable with the flexible member for contact with the cross head, a fluid reservoir carried by the cylinders, a pump within the reservoir, a pipe line leading from the reservoir to the cylinders inwardly of the plungers, means for operating the pump to inject fluid within the cylinders, a return pipe line leading from the first named line and delivering within the reservoir, and a quick acting valve interposed within the return line.

5. A rod line jack comprising a structure including cylinders arranged side by side and in spaced relation, plungers working in said cylinders, means to inject fluid under pressure into the cylinders behind the plungers, a cross head operatively connected with the plungers for movement therewith, means carried by the supporting structure for clamping such structure to a pipe or rod section, a member for gripping a second pipe or rod section, a flexible member secured to said gripping member, the cross head having an opening through which said flexible member passes, and a stop member detachably engaged with the flexible member for holding contact with the cross head.

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