

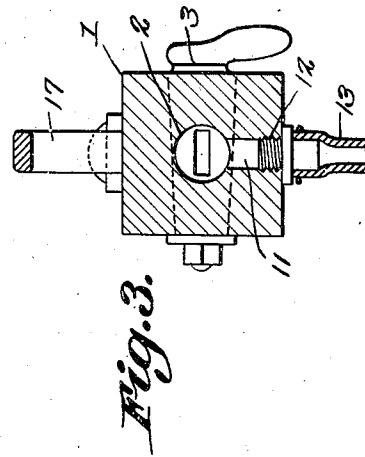
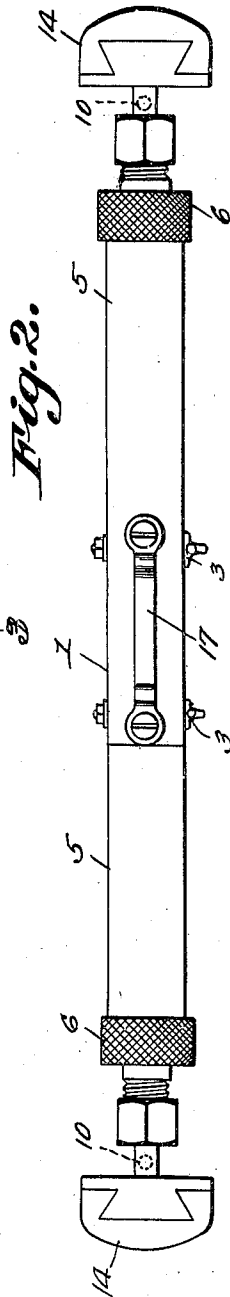
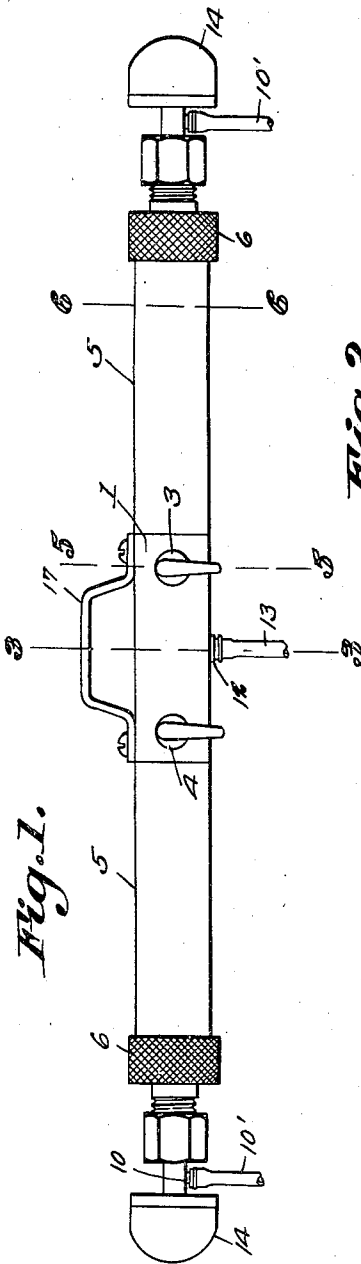
Sept. 27, 1949.

J. C. SHARPE
MULTIPLE PRESSURE FLUID MOTOR MECHANISM
FOR PUSHING AND PULLING

2,483,239

Filed Oct. 10, 1945

2 Sheets-Sheet 1



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Fig. 4.

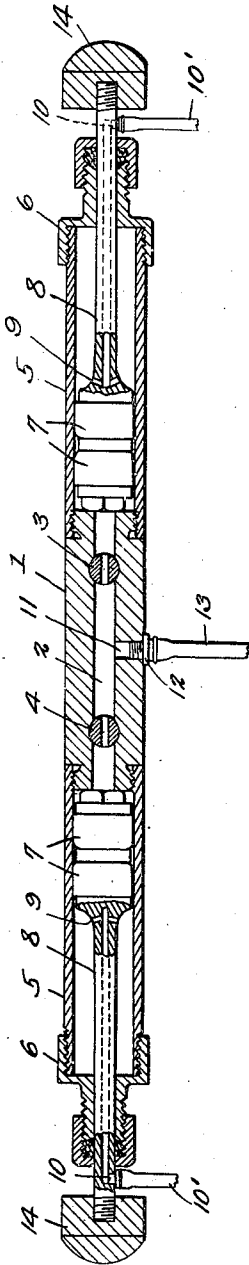


Fig. 7.

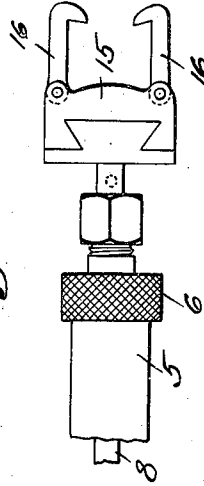


Fig. 6.

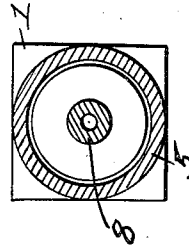
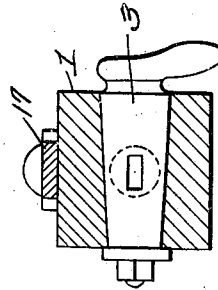


Fig. 5.



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UNITED STATES PATENT OFFICE

2,483,239

MULTIPLE PRESSURE FLUID MOTOR MECHANISM FOR PUSHING AND PULLING

John C. Sharpe, Hayward, Calif.

Application October 10, 1945, Serial No. 621,510

1 Claim. (Cl. 60—97)

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The present invention is directed to improvements in hydraulic motors.

The primary object of the invention is to provide a motor so constructed that it may be conveniently used for expanding or contracting various metal objects or the like, such for instance parts of automobile bodies and fenders.

Another object of the invention is to provide a motor constructed in such manner that fluid under pressure, preferably oil, will constitute the operating medium for the same.

Still another, and important object of the invention is to provide means whereby the pistons utilized for expanding or contracting the materials or objects can be either forced outwardly from the operating cylinder or drawn thereunto to either bend or contract the objects being worked upon.

With these and other objects in view, this invention resides in the novel features of construction, formation, combination and arrangement of parts to be hereinafter more fully described, claimed and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of the device.

Figure 2 is a top plain view.

Figure 3 is a sectional view on line 3—3 of Figure 1.

Figure 4 is a longitudinal sectional view.

Figure 5 is a sectional view on line 5—5 of Figure 1.

Figure 6 is a similar view on lines 6—6 of Figure 1.

Figure 7 is a fragmentary view showing a contracting member on one of the pistons.

Referring to the drawings, 1 designates a body having a longitudinal passage 2 therein, there being plug valve 3 and 4 mounted in the body and bridging the passage, the purpose of which will later appear. Threaded on each end of the body 1 are cylinders 5 and having their outer ends closed by caps 6. Slidably mounted in each cylinder is a piston 7 having connected to their outer ends hollow piston rods 8. Formed in each piston rod 8 adjacent the head thereof are ducts 9 and through which pressure fluid enters the cylinders 5 between the caps 6 and the pistons 7.

Each piston rod has formed in its outer end a port 10 through which is introduced pressure fluid from any suitable source, preferably from the conventional pump jack from which leads the hose 10'. This pressure fluid will obviously pass through the hollow piston rod and flow from the ducts 9 into the associated cylinder 5, during which pressure will build up between the cap 6

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and piston head 7 in order to move the piston inwardly.

A port 11 is formed centrally in the body 1 and has threaded therein a nipple 12 to which is connected a hose 13 which is in communication with a suitable pump jack or other suitable source of pressure supply.

In Figures 1, 2 and 3, the outer ends of the piston rods 8 have engaged thereon pressure heads 14, which may be of any desired form and interchangeably mounted in order that various types of heads may be used to suit different types of operations. It may be noted that the pressure heads are designed primarily for use in expanding operations, whereas in Figure 7, there is shown a pressure head 15 having hooks 16 therein for use in contracting the work.

In operation fluid under pressure from the hose 13 will enter the port 11 and if both of the valves 3 and 4 are in their open position pressure will be exerted simultaneously on the opposed piston heads to force the same outwardly. Obviously if one of the valves is open and the other closed pressure will be exerted on one piston only.

Thus far, the operation of the pistons is to expand the work, and when it is desired to contract the same and simultaneously cause the pistons to move inwardly fluid under pressure is admitted to the hollow piston rods, from the hose 10', and from thence through the ducts 9, whereupon pressure will be exerted against the caps 6 and piston heads 7 causing the said heads to move inwardly with the respective cylinders 5.

If it is desired to move only one of the piston heads 7, it is only necessary to introduce pressure fluid into a selected piston rod. When the work is to be contracted, the pressure heads 15 are utilized, as will be obvious.

The body 1 is provided with a handle 17 in order that the tool may be conveniently handled during use. However, it will be understood that the tool may be of any size, weight or dimensions to suit different types of operations, the handle being primarily used on tools for comparatively light operations.

What is claimed is:

A device of the class described, comprising a body having a longitudinal passage therethrough, a pair of valves mounted in the body in spaced relationship and extending transversely of the passage, said body having a pressure fluid conducting port therein and communicating with the passage at a point between the valves, a cylinder mounted on each end of the body and in direct fluid communication with said passage, a piston

slidably mounted in each cylinder, caps closing the outer ends of the cylinders, said pistons having rods thereon slidable in the caps, said rods having longitudinal passages therein and ducts opening into the cylinder heads of the pistons, means for introducing fluid under pressure through the passages of said rods and from said ducts into the cylinders between the caps and piston heads to move the pistons selectively inwardly, said valves being selectively operable to move said pistons outwardly.

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