Nov. 9, 1937. L. J. KICK 2,098,548

HOSE JACK

Filed April 15, 1936

Fig. 1.

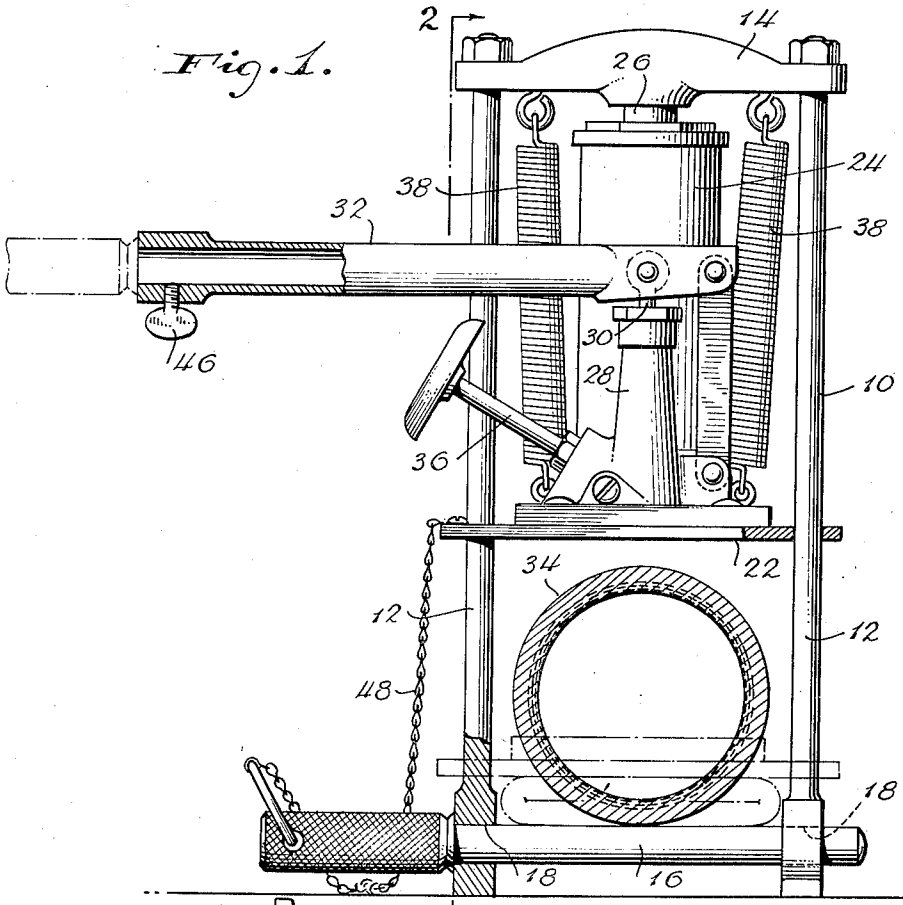


Fig. 2.

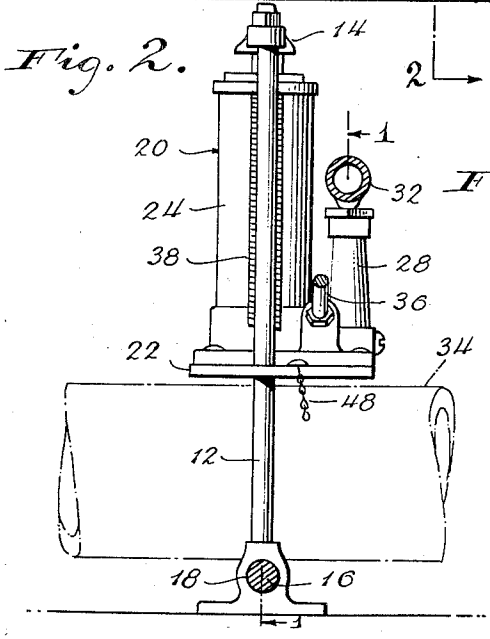
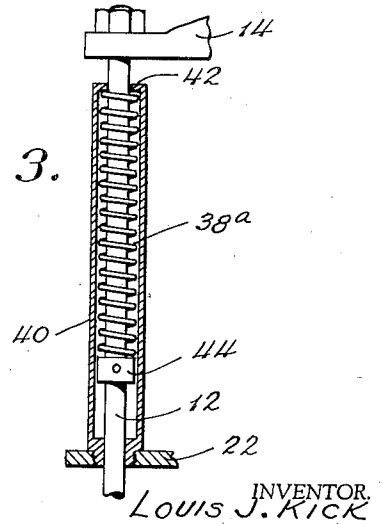


Fig. 3.



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HOSE JACK

Louis J. Kick, Union City, N. J.

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3 Claims. (Cl. 251—5)

My invention relates to improvements in hose jacks.

One of the objects of my invention is to provide an improved construction for a hose jack which can be applied quickly to a fire hose, for example, and operated with comparatively little effort and by one man to completely stop the flow of water at very high pressures without necessitating shutting off the water at the pump.

Another object of my invention is to provide an improved hose jack of the character referred to which is relatively simple and rugged in construction, and which has provisions for releasing the hose either gradually or quickly, as might be desired, so that the water under the high pressure again starts to flow under complete control of the single operator.

Another object of my invention is to provide an improved hose jack of the character referred to which is safe in every respect for use particularly in handling fire hose under any conditions which might arise, and which is relatively light and easily carried from one place to another and used without difficulty.

Other objects and advantages will hereinafter appear.

For the purpose of illustrating my invention, an embodiment thereof is shown in the drawing, wherein

Figure 1 is a side elevational view, partly in section, of a hose jack constructed and operating in accordance with my invention, the section being taken on the line 1—1 in Fig. 2;

Fig. 2 is a sectional view, the section being taken on the line 2—2 in Fig. 1; and

Fig. 3 is a fragmentary view, partly in section, showing a modification.

With reference to Figs. 1 and 2, my improved hose jack comprises a four-sided frame 10 comprising the opposite side members 12 fixed as represented to an end member 14, and a bar or bolt 16 inserted through registering openings 18 in the side members 12 to constitute the other end member of the frame.

A hydraulic jack unit, represented generally by the reference numeral 20, is disposed within the frame 10 and is supported on a base 22 which is guided by the side members 12 of the frame, for which purpose the base is provided with openings through which the members 12 pass with a free, sliding fit.

The hydraulic jack unit 20 is of a conventional design, and in the present disclosure of an embodiment of my invention is shown as being of the specific type used for hydraulic automobile jacks and known in the trade as "Hy-Jack" and manufactured by the Ero Manufacturing Company of Chicago, Illinois and Philadelphia, Pennsylvania.

Since the details of construction and principle or manner of operation of the hydraulic jack unit 20 are well known to those skilled in the art, it is not believed to be necessary to discuss these in detail. For the present purpose, however, it can be said that the unit 20 comprises a cylinder member 24 fixed to the base 22, and a plunger member 26 within the cylinder member. An auxiliary cylinder 28 and an associated plunger 30, and a lever 32, all disposed and associated with respect to each other as shown, constitute means for pumping oil or other liquid into the cylinder 24 between the respective adjacent ends of the latter and the plunger 26. This forces the members 24 and 26 apart to compress the hose 34 between the end 16 of the frame and the base 22. In this way, the flow of water through the hose is entirely stopped, so that one nozzle might be substituted for another, or a section of hose removed or inserted without necessitating shutting off the water at the pump.

Hydraulic jack units of the general type disclosed are provided with valve means, designated generally by the reference numeral 36, for relieving the pressure of the oil or other liquid to permit movement of the cylinder and plunger members 24 and 26 together. In operation, therefore, the operator can open the valve 36 gradually so that after the new connection or change has been made in the hose line, flow of water at the high pressure through the line can be restored entirely under his control, and gradually.

It is proposed to provide tension springs 38, each connected at one end to the end member 14 and at its other end to the base 22, for the purpose of pulling the cylinder 24 and the base 22 upwardly to the full-line position shown when the valve 36 is opened to relieve the pressure.

In the modification shown in Fig. 3, instead of using the tension springs 38 for the purpose explained, compression springs 38a are disposed on the side members 12 of the frame. In this construction, each of the springs 38a is enclosed and protected by a casing 40 fixed at its lower end to the base 22 and provided at its upper end with an inwardly extending flange 42.

The springs 38a are compressed between the flanges 42 and collars 44 fixed on the frame members 12. During operation to compress a hose, therefore, the springs 38a are compressed, and operate when the valve 36 is opened to restore the

parts to their respective positions as shown in Fig. 1.

The jack can be placed quickly over a hose line at any point desired, and the bolt **16** put in place to complete the frame. With the valve **36** closed, and upon manipulation of the lever **32**, the parts then function to compress the hose and completely stop the flow of water.

When not in use, the bolt **16** might be inserted into the hollow lever **32**, as shown in dash-line, and held therein by means of a set screw **46**.

It is proposed to secure the bolt **16** to the jack by a chain **48** so that it will not be lost.

From the foregoing it will be seen that I have provided an improved construction for a hose jack which is reliable and relatively simple in construction and manner of operation, and by which fire hose particularly can be quickly compressed to completely shut off the flow of water at high pressures without shutting off the water or reducing the pressure at the pump. Furthermore, it will be seen that my improved jack can be operated easily by one man, and transported readily from one place to another and used under conditions which ordinarily would make it impossible to make a change of nozzles or break the line to insert or remove a hose section without shutting off the water at the pump.

It will be understood that various modifications such as in the size, shape and arrangement of the parts might be made without departing from the spirit of my invention or the scope of the claims.

I claim as my invention:

1. A hose jack comprising a four-sided frame, a hydraulic jack unit disposed within said frame and comprising a base and a cylinder fixed thereto and a plunger within said cylinder, said base engaging and being guided by the opposite side members of said frame, said plunger being fixed with respect to an end of said frame, means associated and moveable with said cylinder for pumping liquid into the cylinder between the respective adjacent ends of the latter and the plunger whereby said cylinder is forced away from said end of said frame to compress the hose between the other end of said frame and said base, valve means associated and moveable with said cylinder for relieving the liquid pressure to permit movement of said cylinder and plunger together to release the hose, and tension spring means secured at one end thereof to said frame and at the other end thereof to said unit and operating to urge said cylinder toward said plunger.

2. A hose jack comprising a four-sided frame, a hydraulic jack unit disposed within said frame and comprising a base and a cylinder fixed thereto and a plunger within said cylinder, said base engaging and being guided by the opposite side members of said frame, said plunger being fixed with respect to an end of said frame, means for pumping liquid into the cylinder between the respective adjacent ends of the latter and the plunger whereby said cylinder is forced away from said end of said frame to compress the hose between the other end of said frame and said base, valve means for relieving the liquid pressure to permit movement of said cylinder and plunger together to release the hose, and two tension springs disposed respectively on opposite sides of said cylinder and each fixed at one end thereof to said frame end and each fixed at its other end to said base thus operating to urge said cylinder toward said plunger.

3. A hose jack comprising a four-sided frame, a hydraulic jack unit disposed within said frame comprising a base slidably guided by the side members of the frame, a cylinder member carried by said base, a plunger member within said cylinder having one end fixed to an end of the frame, means for pumping liquid into the cylinder between the respective adjacent ends of the cylinder and the plunger whereby said members are forced apart to compress the hose between the other end of the frame and the base, said means comprising a pump lever mounted upon said base and so arranged that manual effort on the pump handle is also directly transmitted to the base, valve means for relieving the liquid pressure to permit movement of said members together to release the hose, and tension springs located on opposite sides of the cylinder so connected to the base and the frame as to urge said members toward each other.

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