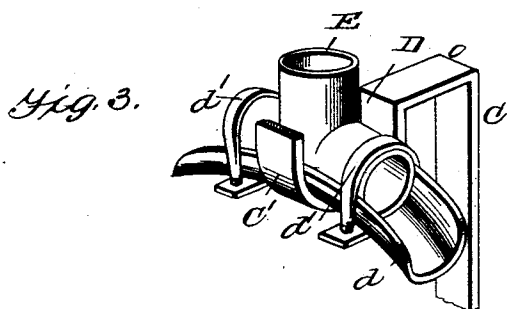
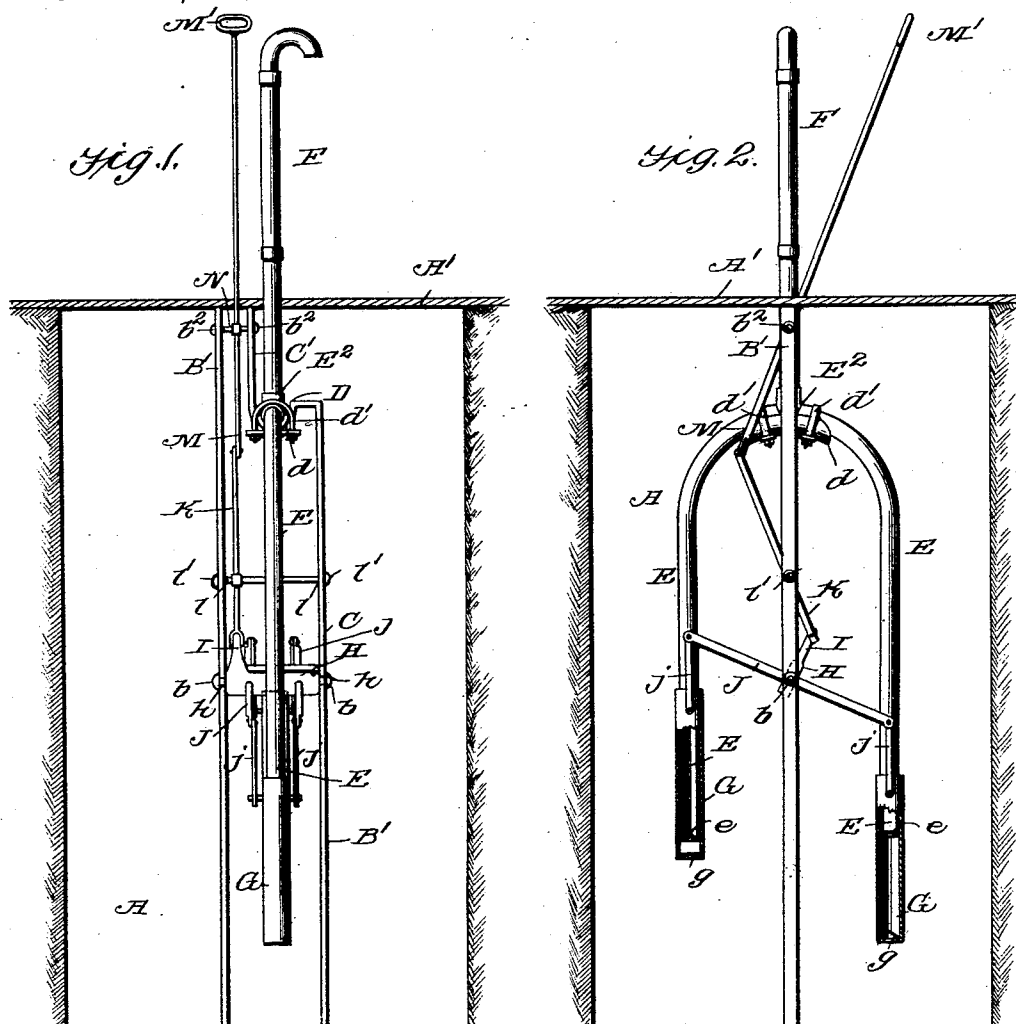


(No Model.)

J. A. HENRY.
PUMP.

No. 541,206.

Patented June 18, 1895.



Witnesses

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UNITED STATES PATENT OFFICE.

JACOB ALPHARD HENRY, OF SHILOH, OHIO.

PUMP.

SPECIFICATION forming part of Letters Patent No. 541,206, dated June 18, 1895.

Application filed February 27, 1895. Serial No. 539,908. (No model.)

To all whom it may concern:

Be it known that I, JACOB ALPHARD HENRY, a citizen of the United States, residing at Shiloh, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this invention is to provide a cheap, convenient, and effective pump more especially adapted for use in deep wells, and particularly where the conditions are such that a so-called submerged pump can be advantageously used.

The novel features of my invention will be pointed out and referred to in the claims hereof.

Figure 1 is a vertical section of a well, showing my pump in side elevation. Fig. 2 is a section taken at right angles to the plane of Fig. 1, showing the pump in elevation, with parts broken away to show some of its internal structure. Fig. 3 is a detail enlarged.

Like reference-letters indicate like parts in all the drawings.

A is the well, which may be of any usual or approved construction which has sufficient horizontal diameter to receive my invention.

A', is a platform covering the top of the well and furnishing a support for the pump, and the upper end of a frame on which it is mounted.

BB'CC'D indicate the frame, of which the upper end C' of one post stands much closer to the upper end B' of the other leg than the lower part C does to the corresponding part B; the offset D forming a sort of saddle to support the weight of the pump portion, as will be fully explained; and by preference the part D is made somewhat U-shaped and provided with a properly fitted seat or half box, d, and stirrup or stirrups, d', for that purpose.

The lower ends of the frame legs stand on the bottom of the well, and where the depth calls for it there should be a series of braces at suitable intervals, which need not, however be shown.

The discharge pipe E, E, is branched, the lower ends E', E', being plungers, and, when

desired, their outer surfaces may be polished to receive a packing; as will be explained.

E² is a T coupling resting on the half box or bearing, d, the T, the half box and the saddle of the frame being firmly bound together by one or more stirrups d', or some equivalent device.

F is the upper end of the pipe with its tip bent over in the usual way.

e, e, are valves of some approved sort at the lower ends of the plungers.

G, G, are the cylinders, closed at their lower ends except when the valves, g, g, are raised.

I propose to ordinarily interpose a packing between the upper ends of the cylinders and the adjacent parts of the plungers, as is customary in this general class of pumps.

H I is a rock shaft having at its ends journals, h, h, seated in bearings, b, b, formed in, or attached to, the posts B, C.

J, J, are rocking arms or levers mounted in or upon the rock shaft and projecting horizontally therefrom to about equal distances from its opposite sides when the arm portion I is in a vertical position; at which time the ends of the arms are about vertically over the upper ends of the cylinders, the distance between said arms being a little greater than the diameter of each cylinder; so as to facilitate connecting the arms with the cylinders by means of links j, j, which are preferably pivoted thereto, as is indicated in Fig. 2.

K is a lever mounted upon a rocking shaft L having at its end journals, l, l, which turn in bearings, b', b', on the posts; the lower end of this lever being connected with the arm I of the rock shaft by means of a joint which has a little freedom of movement. The upper end of this lever is connected by a similar loose joint to the lower end of a hand lever M, mounted on another rocking shaft N, the ends of which are journaled in bearings, b², b², of the posts.

The lever M projects up through the platform A', and is or may be provided with a handle M' to fit it to be conveniently grasped by the operator when pumping.

As will be readily understood from the above description and an examination of the drawings, a forward and backward vibratory

movement of the handle will impart a corresponding rocking motion to the rock shaft H I, and will alternately raise and thrust downward the cylinders G G, thus forcing water up through the discharge pipe in a nearly continuous stream, and it will be understood that nearly all of the up and down strain or thrust will be borne by that part of the frame which is between the rock shaft and the saddle.

Suppose the parts to be in the position shown in Fig. 2, and the operator standing to the left of the pipe F. It is apparent that if he pulls the upper end of the lever M toward him his feet will impart a thrust or push upon the platform in an opposite direction with a force which is practically equivalent to that with which he pulls upon the lever; the push or thrust of his feet upon the platform being reversed when he pushes the end of said lever from him, these operations being repeated as long as he works the pump. Of course the initial lateral strain or thrust is exerted upon the rocking shaft N and bearings b^2 , and thence through the upper ends of the posts to the platform A'; where, however, it is practically counterbalanced by the effort of the operator himself, and it is advantageous to have the upper ends of the posts close together so as to permit the use of a short shaft N for the lever M, as it is also to have the lower portions of those posts farther apart to provide for the proper support of the longer rock-shaft which lies between the branches of the discharge pipe and carries the rocking arms J J. Again, the shown construction of the frame with both posts upon one side of the pipe above the saddle or offset facilitates putting in the pipe and removing it without disturbing the frame.

Having now described the best mode known to me for carrying out my invention, I wish to be understood that I do not desire to be limited to the precise details of construction shown; because many modifications will readily suggest themselves to any one skilled in the art to which my invention pertains, with-

out departing from the scope or spirit of my improvement.

What I claim is—

1. As an improvement in pumps, the combination with the branched pipe, of the frame comprising two vertical posts of which the lower ends are disposed upon opposite sides of the branches of the pipe, the upper ends of both posts being upon the same side of the pipe, a hand lever pivoted between the upper ends of the posts, a rock-shaft mounted on the posts below the point at which the pipe is branched, arms on the rock-shaft connected with the pumps at the lower ends of the branched pipe, and means connecting the said rock-shaft with the hand lever, substantially as set forth.

2. As an improvement in pumps, the combination of the frame within the well, and connected at the top to the well platform, and provided with the saddle to receive the pipe, the pipe secured to the frame, the cylinders, the rock shaft, and a series of levers for operating the cylinders, whereby the up and down strain or thrust is sustained by the frame between the rock shaft and the saddle, substantially as set forth.

3. As an improvement in pumps, the combination with the branched pipe, of the frame comprising two vertical posts of which the lower ends are disposed upon opposite sides of the branched pipe, the cylinders, the rock-shaft mounted upon the frame between the branches of the pipe, and carrying horizontal arms and a vertical arm, means for securing the pipe to the frame, the vertical hand lever, and an intermediate lever and rock-shaft connecting the hand lever with the vertical arm of the rock-shaft H I substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

J. ALPHARD HENRY.

Witnesses:

JAMES B. SNYDER,
F. J. PRAME.