

C. Hood, Pump Lift.

N^o 27,905.

Patented Apr. 17, 1860.

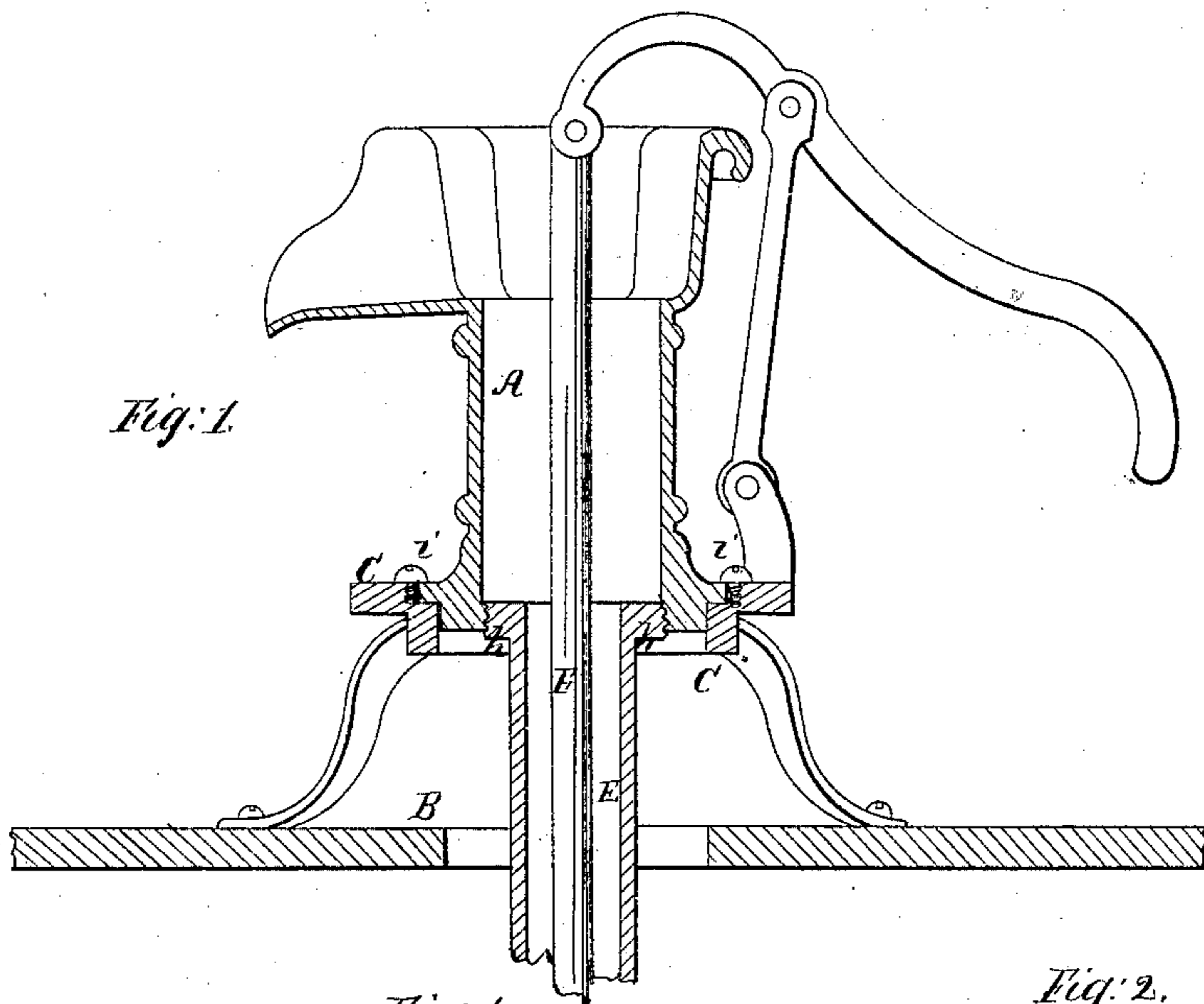


Fig. 1.

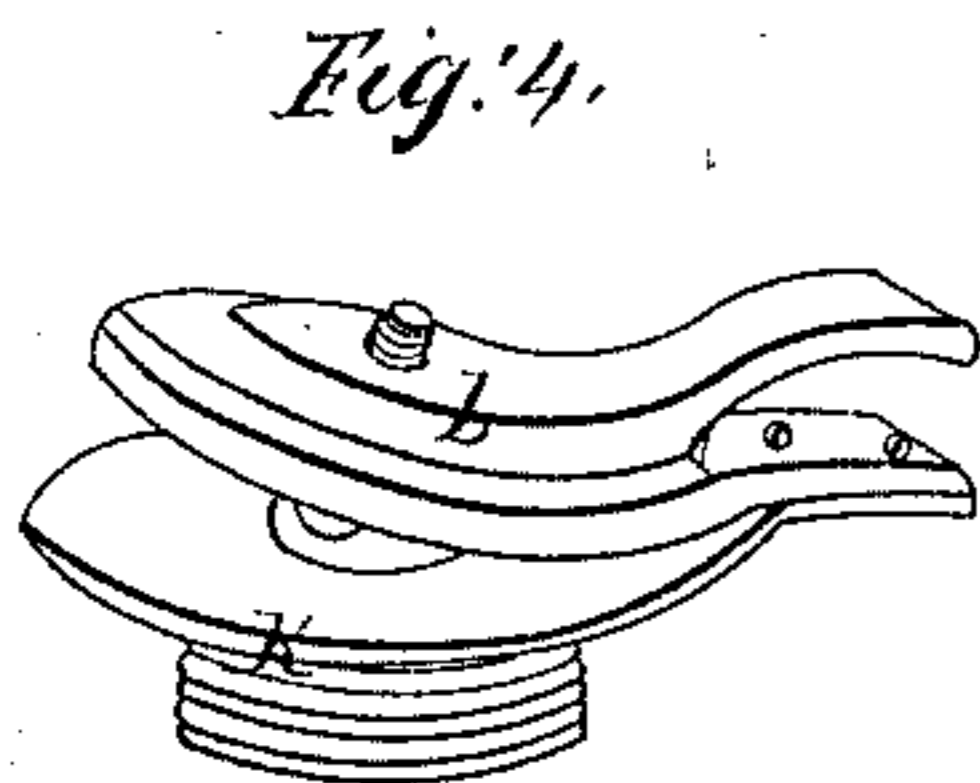


Fig. 4.

Fig. 1.

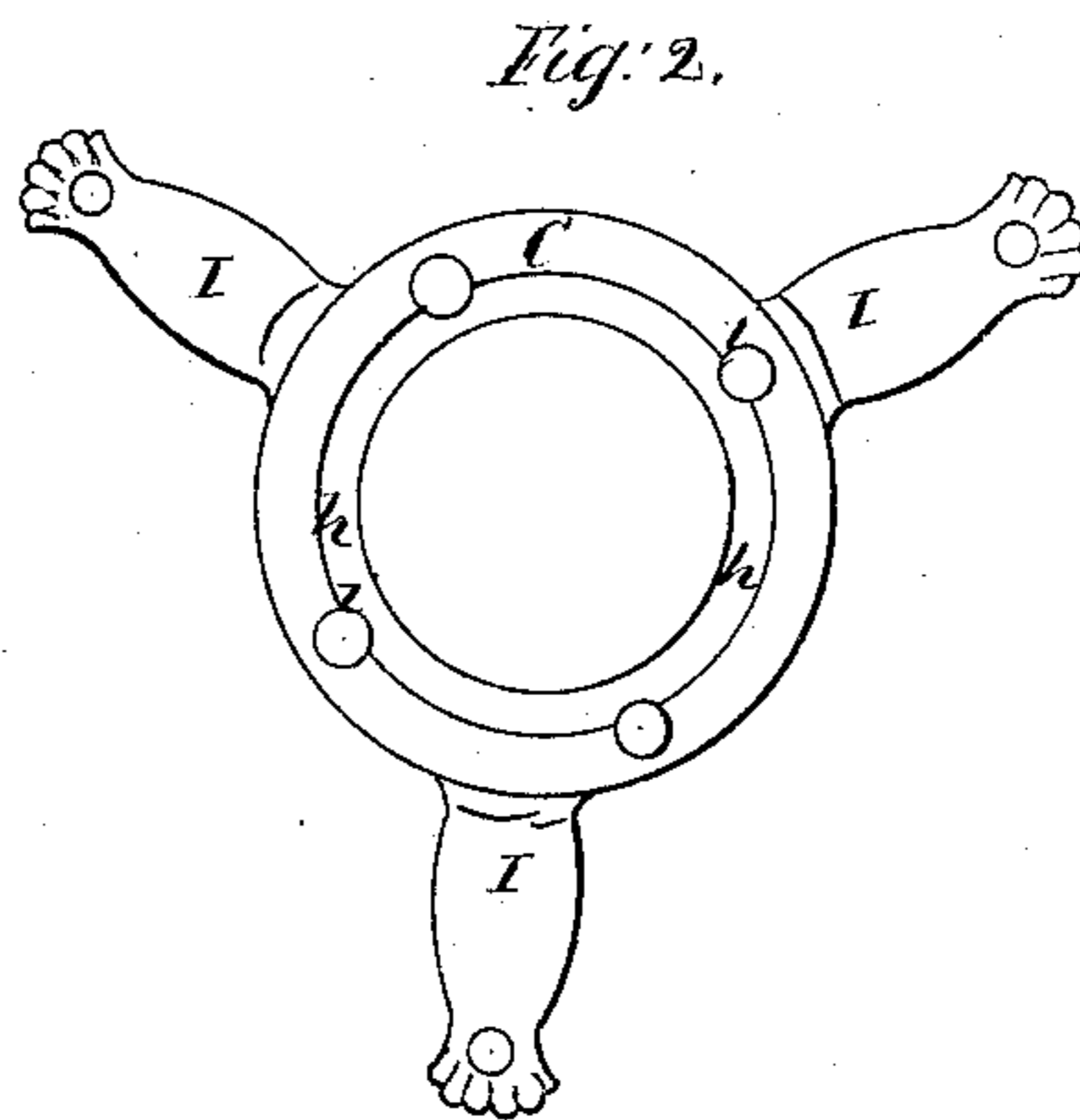
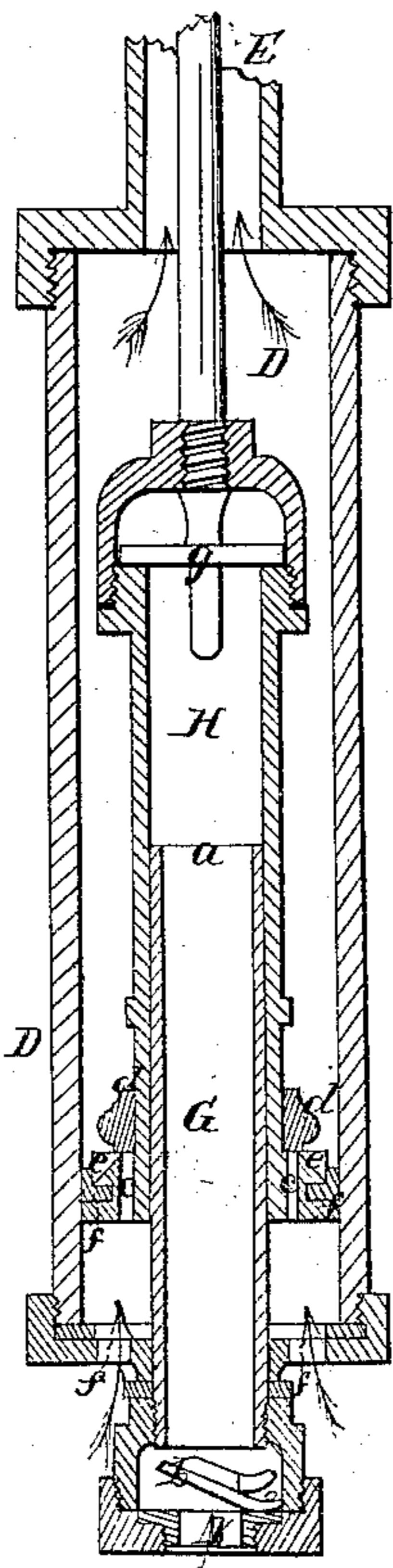
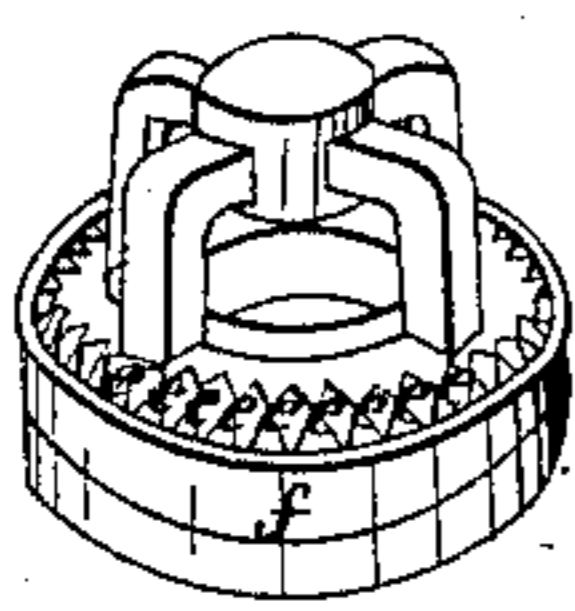


Fig. 2.

Fig. 3.



Witnesses;

S. J. Allen
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Inventor;
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by his Attorney
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UNITED STATES PATENT OFFICE.

CORNELIUS HOOD, OF SENECA FALLS, NEW YORK.

PUMP.

Specification of Letters Patent No. 27,905, dated April 17, 1860.

To all whom it may concern:

Be it known that I, CORNELIUS HOOD, of Seneca Falls, in the county of Seneca and State of New York, have invented a new and Improved Well-Pump; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1, is a vertical section of the stock and cylinder, the intermediate portion of the elevating pipe and piston being broken away. Fig. 2, is a plan view of the chair, or elevated seat for the pump stock, Fig. 3, is a perspective view of the creased plunger or piston. Fig. 4, is a perspective view of independent valve and seat.

Similar letters refer to corresponding parts in all of the figures.

As represented in Fig. 1, it will be understood that A is the top or stock of the pump, which is elevated from the floor or platform B, by a peculiar annular-seated chair C, for purposes that will be hereinafter explained; and that the pump barrel D, is designed to be placed in the water at the bottom of the well, the pipe E, and rod F, shown broken off in the drawing, being increased to the length required by the depth thereof, by adding sections, which are connected by a screw joint, or in any other suitable manner.

The pump barrel D, consists of a double cylinder, the inner one G, being of considerably less diameter than the outer one, and rising from the base or lower end thereof to about half the height of the latter. It is open at the top *a*, and extends below the outer one sufficiently to admit of connecting with it a valve, *b* which may consist of an ordinary flap-valve or any other kind suitable for the purpose.

The plunger, or piston, H, is an open cylinder fitted to work upon the outside of cylinder G, and form a tight joint; its lower end is enlarged to fill the annular space between cylinders D and G, and is packed with leather, or other suitable material, on its periphery to cause it to work water tight in cylinder D. A series of perforations *c c* is provided in a circle around the cylinder to allow the water to pass from the lower to the upper space in the cylinder D, and a ring-valve, *d*, falls upon and closes these holes in the upward movement of the plunger. The top of the plunger tube is closed by a stem valve, *g*, and the rod F, is

connected therewith by a bail in the ordinary manner.

The operation is as follows: As the plunger H rises it forces up all the water in the annular chamber above it, while the chamber below fills through the openings *f' f'* in the bottom. The inner cylinder G, and interior of the plunger tube have also filled through the valve *b* from the vacuum formed within them, the valve *g* being kept closed meanwhile by the pressure of water above it. As the plunger descends the ring-valve *d* rises and permits the water to pass from the lower to the upper portion of the outer cylinder, while the water in the interior cylinder and within the plunger tube is forced to rise through valve *g* by the closing of the lower valve *b*. By this means a continuous flow of water is effected, and the capacity of the inner cylinder may be made sufficient to raise as much by the down stroke of the plunger as by the up stroke; but as this renders the working of the lever more laborious, I prefer to make the capacity of cylinder H less than the outer one, so that less exertion is required in raising the lever (to throw the plunger down) than in depressing it. This variation will hardly effect the continuity of the flow of water from the spout.

I construct that part of the plunger at the lower end which packs against the inner surface of cylinder, D, with notches or creases *e e*, Fig. 3, in a perpendicular direction, and arranged closely together around its periphery. These indentations do not extend quite to the lower edge of the piston head, which is left in the ordinary manner, and the leather, or other packing material, which is used to form a tight joint, is turned up far enough to cover a portion of the series of notches, which fill with water from the pressure above, and press the leather rim closely against the cylinder, rendering the packing tighter, and keeping it perfect until the material is entirely worn out. This obviates a very serious difficulty, namely, that the packing of the plunger, which is subject to so much wear from friction against the cylinder that it soon becomes loose and leaky, will always be held to an equal and uniform pressure let it be ever so thin. I also construct the flap-valve *b*, Fig. 1, in an improved manner attaching the hinged or leather portion of it to a separate seat, *k*, Figs. 1 and 2, which has a screw thread cut

on its tubular portion by which it is screwed into the bottom of the cylinder, and may be removed by hand, or by any convenient instrument in any place where it is accessible, 5 by simply turning it around. As this valve often works imperfectly from dirt, gravel, or other obstructions lodging in it, requiring that it should be taken out and examined, it becomes a great convenience to do so with 10 little time and labor. As ordinarily inserted the leather is held in the joint between the end of the cylinder and head, answering the purpose of packing to that also, as well as to the valve, and therefore the cylinder 15 has to be unscrewed in order to remove it. As I construct it, with the independent seat piece, *h*, its removal and insertion are performed with the greatest facility.

The chair C, consists of an elevated cast 20 iron ring having a recess *h* to receive a projecting flange from the top or stock, which is held firmly in position by the screw bolts *i i* which are inserted in the chair near the recess *h*, and their heads rest upon the flange

of the top to secure it. By loosening them 25 the pump can be revolved to bring the spout or handle into the desired position. The legs I I, which may be more in number if desired, are bolted to the platform and elevate the top so as to admit of thorough ven- 30 tilation underneath it and around the pipe E, while by so doing the size and weight of metal employed for the top are considerably reduced, and a saving effected. The legs may be cast as a part of the ring C, or bolted 35 to it.

What I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement and combination of the hollow piston H, with the internal short cyl- 40 inder G, and external cylinder D, valves *g, b*, and annular valve *d*, to form a continuous acting pump, substantially as and for the purposes set forth.

CORNELIUS HOOD.

Witnesses:

WM. CLARK,
JOHN BRYANT.