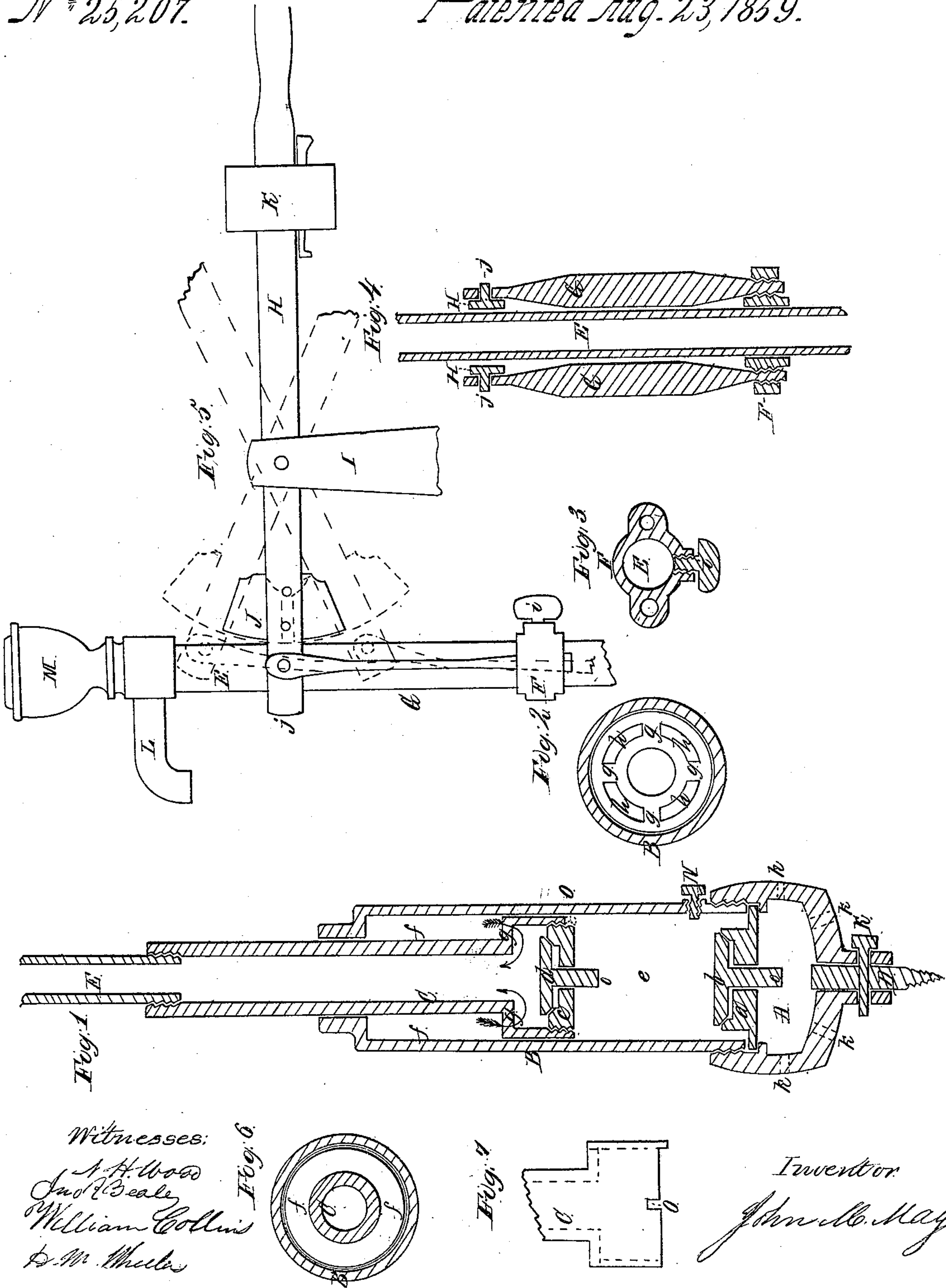


J. M. May

Double-Acting Pump.

N^o 25,207.

Patented Aug. 23, 1859.



Witnesses:

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Fig. 6.

Fig. 4.

Inventor.

John M. May

UNITED STATES PATENT OFFICE.

JOHN M. MAY, OF JANESVILLE, WISCONSIN.

PUMP.

Specification of Letters Patent No. 25,207, dated August 23, 1859.

To all whom it may concern:

Be it known that I, JOHN M. MAY, of Janesville, in the county of Rock, in the State of Wisconsin, have invented a new and
5 useful Improvement in Forcing and Lifting Pumps for Forcing and Lifting Water and Fluids; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in making a pump for lifting and forcing water and fluids so constructed that the cylinder and piston and two valves and valve
15 seats form a double action pump by dividing the cylinder into two parts by a moving partition formed of the lower end of the piston while the other portion of the piston serves as the eduction pipe. Also in employing
20 spring connections to attach the pipe to the pumping lever, the springs being made fast to a collar attached to the pipe and jointed to the lever by pivots, the end of the lever
25 next to the pipe being provided with a segment of a circle having for its center the fulcrum of the lever. Also in providing the lower end of the pump with a screw to fasten the stationary part of the pump to a
30 piece of wood or other suitable material in the bottom of the well or reservoir and a set screw in the cylinder and notch or projection in the lower edge of the piston to form a lock or catch to hold the piston and
35 cylinder together when turning the same.

The same letter in each figure represents the same part.

A is the lower casting holding between it and the end of the cylinder B, the valve
40 seat *a*, and valve *b*, and is so constructed as to receive the screw D, to hold the pump steadily in its place by being screwed a sufficient distance into any suitable substance at the bottom of the well or reservoir and
45 also is perforated to let the water into the pump thus serving as the induction pipe.

C, is the piston the lower end of which receives the valve seat *c*, and valve *d*, and forms a moving partition when the pump
50 is operated and divides the cylinder into two parts or chambers the areas of which are increasing and diminishing, the part *e*, below the partition being (when the partition is in the perpendicular center of the
55 cylinder) about twice as great in the areas

as the part *f*, *f*, above the partition. The part of the piston above the partition serves as the eduction pipe and the partition and pipe parts are joined or cast whole as shown
by arms *g*, *g*, *g*, *g*, leaving apertures *h*, *h*, *h*, *h*,
60 *h*, to allow the water to pass freely into the chamber *f*, *f*, as the piston descends and allows the water to escape into the pipe part of the piston as the piston ascends.

E, is the conducting pipe and terminates
65 in the discharging spout L, and the cap M.

F, is a collar fitting the pipe E, and held to its place by thumb screw *i*, and holds firmly the lower end of the springs G, G, the upper end of the springs being attached
70 by pivots *j* to the lever H, which is held in place by the fulcrum post I.

The lever H, is forked to receive the segment of a circle J, and pipes E.

The spring G, G, serve as connecting links
75 to move the pipe and piston to keep the pipe in its place against the periphery of the segment of circle J, and when the end of the lever H, is raised above or carried below a horizontal line the springs being bent out
80 of line with the pipe acting with the segment J, aid at the dead or extreme points in reversing the motion of the pipes in pumping which different positions are shown by the dotted lines in Fig. 5 or instead of the
85 springs G, G, one spring placed between the pipe and fulcrum post and under the lever and fastened to the pipe and lever may be used, also the lever H, may be made
90 straight or of one piece without being forked and the segment J, may be fastened to the side of the lever H.

The screw D is held to the part A, by the pin *k*, the cylinder B, and the piston C, are
95 locked together when revolved in the path of a horizontal circle by the notch O, or projection P, in the lower edge of the piston and the set screw N, near the bottom of the cylinder for the purpose of forming a lock
100 or catch for turning the pump and screw D, to fasten and unfasten the stationary part of the pump to the bottom of the well or reservoir, the set screw also serving as a gage to stop or prevent the piston from descending
105 too low in the cylinder.

The part or chamber of the cylinder *e*, is of about double the area of the part or chamber *f*, *f*.

The descending stroke closes the valve *b*, and opens the valve *d*, and part of the

water contained in chamber *e*, is required to fill the chamber *f*, *f*, and the rest of the water is forced into the pipe *E*, and when the descending stroke is made the valve *a*, closes and the valve *b*, opens and while the chamber *e*, of the cylinder is being filled with water by induction at the bottom of the pump the contents of the chamber *f*, *f*, is discharged in the direction of the arrows into the piston pipe and pipes *E*, and with the upward stroke discharges an amount of water about equal to that contained in the chamber *f*, *f*, the downward stroke also discharging about the same amount of water at the same time filling the chamber *f*, *f*, thus making a cheap and effective double action pump employing only two valves.

In pumping the pipe rises and falls vertically being guided by the segment of a circle *J*.

The springs *G*, *G*, are in line with the pipe *E*, when the lever *H*, is horizontal and as the lever is raised or lowered the upper ends of the springs *G*, *G*, are bent forward toward the perpendicular line of the fulcrum post. The strength and elasticity of the springs aid at the dead points *i. e.* the point where the motion is reversed in raising or lowering the pipe *E*, thus the springs aid materially in pumping and aid at the precise time most important viz; at the dead points at the moment too when the springs

have the greatest tension and are most serviceable.

What I claim as my invention and desire to secure by Letters Patent is,— 35

1. I claim cylinder *B*, in combination with part *A*, when constructed, arranged and operated with piston *C*, and pipe *E*, substantially as described and for the purposes set forth. 40

2. I also claim the screw *D*, when used for the purpose of fastening and unfastening the stationary part of the pump in the well or reservoir, to any suitable substance, substantially as, and for the purposes described. 45

3. I also claim set screw *N*, in combination with notch *O*, or projection *P*, or their equivalents to form a catch or wrench for turning the screw *D*, and pump nearly in the path of a horizontal circle in fastening and unfastening the stationary part of the pump in the well or reservoir substantially as described, the set screw *N*, also serving to gage the descent of the piston, and to protect the valves from injury as set forth. 50 55

4. I also claim the devices consisting of springs *G*, *G*, segment *J*, and lever *H*, when connected together substantially as described and for the purposes set forth.

JOHN M. MAY.

Witnesses:

N. H. Wood,

H. M. WHEELER.