

(No Model.)

2 Sheets—Sheet 1.

M. M. SMITH.
PUMP.

No. 483,637.

Patented Oct. 4, 1892.

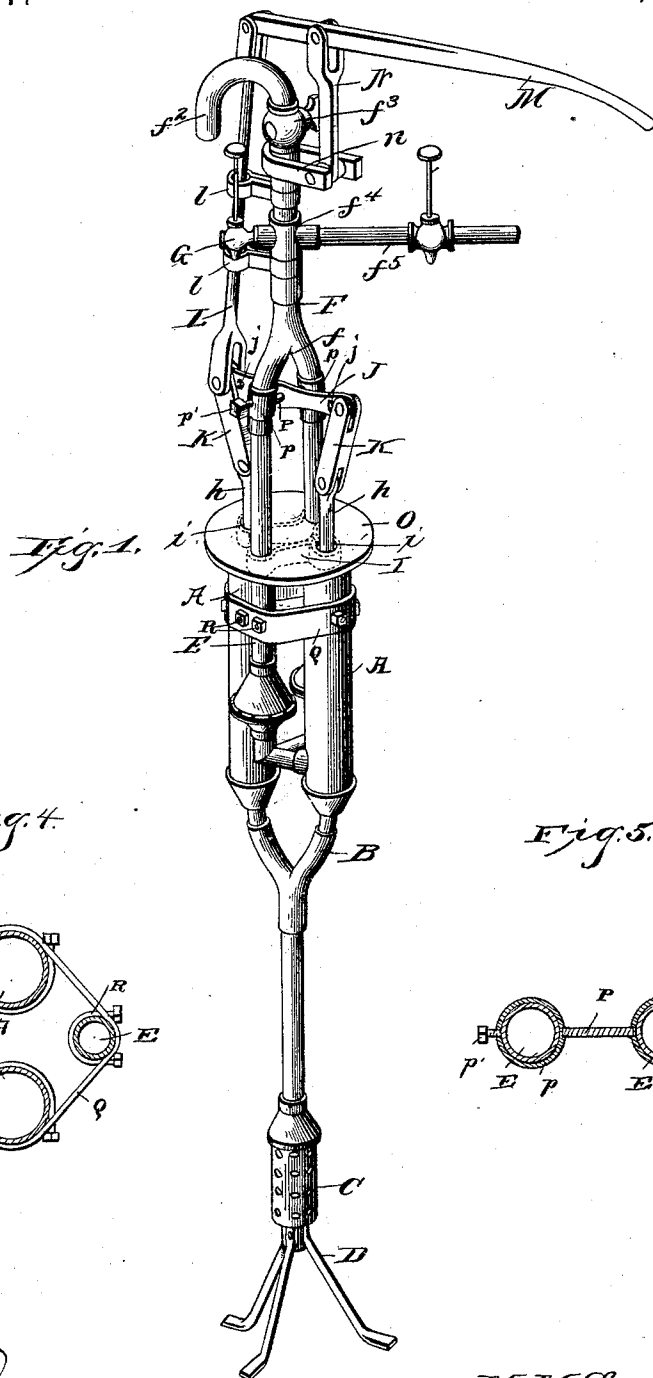


Fig. 4.

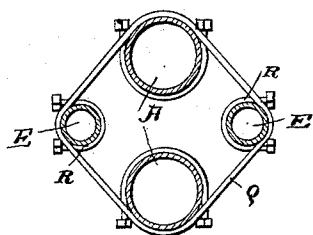
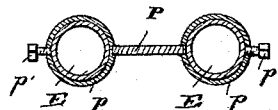


Fig. 5.



Witnesses

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By *his* Attorneys,

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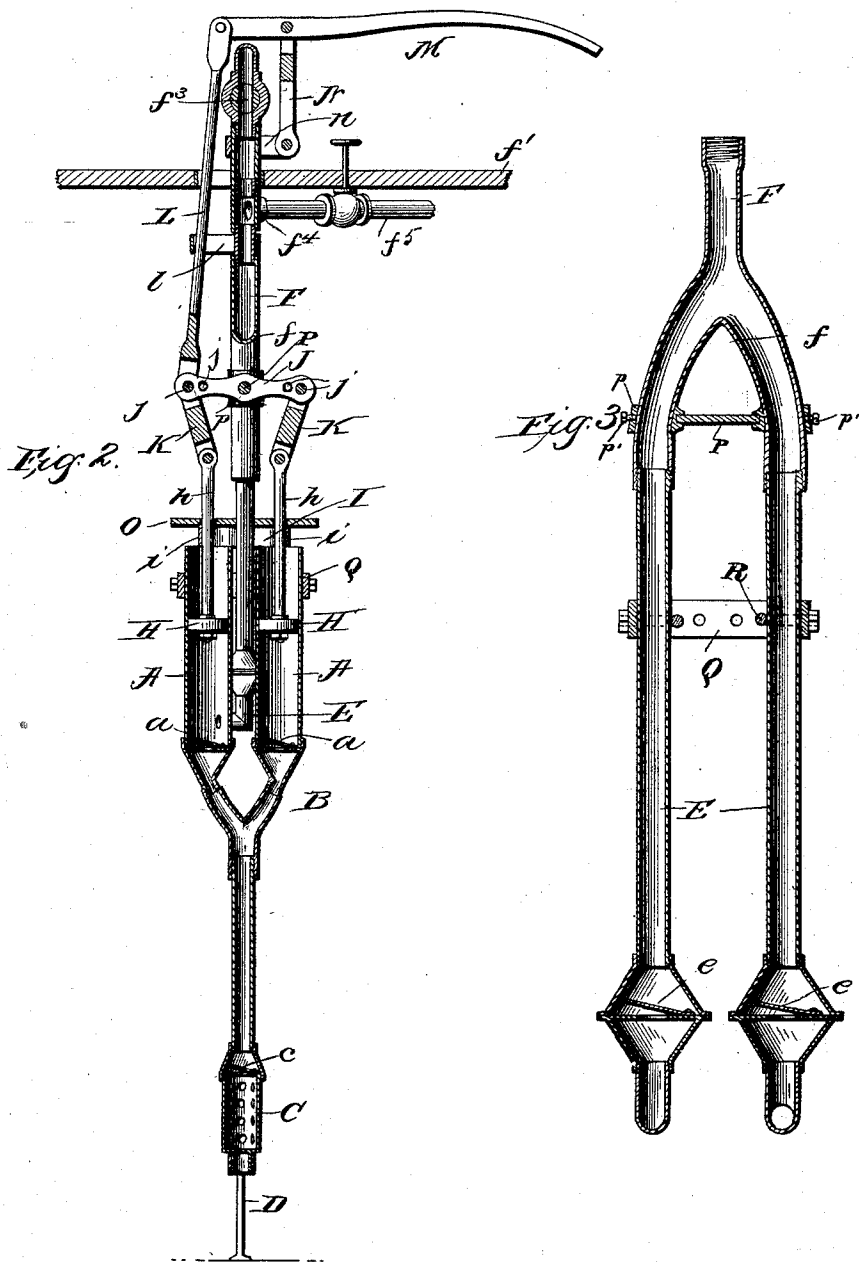
(No Model.)

2 Sheets—Sheet 2.

M. M. SMITH.
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No. 483,637.

Patented Oct. 4, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

MILLAGE MATH. SMITH, OF STOCKDALE, TEXAS.

PUMP.

SPECIFICATION forming part of Letters Patent No. 483,637, dated October 4, 1892.

Application filed January 19, 1892. Serial No. 418,590. (No model.)

To all whom it may concern:

Be it known that I, MILLAGE MATH. SMITH, a citizen of the United States, residing at Stockdale, in the county of Wilson and State of Texas, have invented a new and useful Pump, of which the following is a specification.

This invention relates to pumps; and it has for its object to provide a pump of the double-cylinder type, in which a continuous and steady stream of water is sucked from the well and forced to the point of use, and in such a pump to provide means for operating the same, whereby the same power will be required to raise the plunger that it does to force the same downward, and to this end providing such improved mechanisms and connections which will evenly distribute the power exerted by the operator to actuate the pump.

With these and many other objects in view, which will readily appear as the nature of the invention is fully understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a double-cylinder pump constructed in accordance with my invention. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a detail vertical sectional view through the crotched discharge-pipes. Fig. 4 is a detail sectional view through the clamping-band. Fig. 5 is a similar view through the adjustable walking-beam pivot.

Referring to the accompanying drawings, A A represent opposite parallel cylinders either opened or closed at their upper ends and provided with the check-valves *a* in the bottoms thereof. Connected with the bottom of each cylinder A is the Y suction-pipe B, extending beneath the same and of a sufficient length and size, according to the depth or size of the well within which the pump is located, the same being designed to be used in deep or shallow wells, either of a large or small bore. Secured to the extreme lower end of the suction-pipe B is the closed perforated strainer C, within which is located the foot-valve *c* and to the bottom of which is con-

nected the feet or legs D, which form a rest or support for the pump-cylinders thereabove and also support the said strainer above the bottom of the well. Connected with the cylinders near the lower ends thereof are the opposite discharge-pipes E, arranged opposite to each other and extending from their opposite connections, with their respective cylinders in a parallel line between and above the same, to the main conducting-pipe F, to which said opposite parallel discharge-pipes are connected, and form a crotch *f*, lying directly above the space between said cylinders. Each of the opposite discharge-pipes E are provided with the check-valves *e* adjacent to their connections with the cylinders A, and thus allow the water forced from the cylinders to pass up and out of the conducting-pipe F, while at the same time preventing the return of the water while the opposite discharge-pipe is in use, the same being alternately in use, as will be apparent. The main conducting-pipe F extends above the flooring or curbing *f'* of the well and may be braced and connected thereto in any convenient manner, and the said pipe terminates in a discharging-pipe *f''*, the flow of water from which is controlled by the turning plug *f'''*. The conducting-pipe F is further provided below the curb or floor with suitable T connections *f''''*, to which may be connected ordinary lead pipes *f'''''* for conducting the water where desired, and, further, with the ordinary anti-freezing cock G, which is adapted to let the water out below the ground to prevent freezing, as is usual.

Working within each of the cylinders A A are the solid plungers H, which as the same are worked up and down within the cylinders alternately suck the water from the suction-pipe and discharge the same through the discharge-pipes connected with their respective cylinders, while the plunger-rods *h*, connected therewith, extend above the top of each cylinder and work out of the water. Directly above the upper ends of the cylinders is located the metallic guide-head and brace I, encircling the opposite discharge-pipes E and provided with bearings *i*, lying directly over the upper open ends of the cylinders and ac-

commodating said plunger-rods working therein. Pivotally mounted between the opposite parallel discharge-pipes E and in the crotch thereof upon the vertically-adjustable pivot-rod P is the horizontal walking-beam or lever J, extending to either side of said crotch and provided with a series of perforations *j* in the ends thereof. Connecting-links K are pivotally secured to the upper ends of the plunger-rods *h* and to the ends of said walking-beam or lever, being adjustably connected therewith, according to the length and power of the stroke desired. It is readily seen that as the said walking-beam vibrates the links K have a swinging movement and assume a position in line with the plunger-rods when the walking-beam is at its upper and lower limits, thus causing a greater leverage to be exerted upon the respective pistons and render the stroke easier to be effected from the pump-handle. Direct and short strokes may be had by adjusting the links to the inner perforations or the horizontal lever.

Pivoted to one end of the walking-beam or horizontal lever J is a pump-rod L, extending from its connection up through the bearing-guides *l*, seated in the flooring or curbing *f'*, and is connected above the same to one end of the pump-handle M. The pump-handle M is pivoted in the upper bifurcated end of the swinging standard N, the lower end of which is pivoted to the flooring or curbing, or in the arms *n*, secured to the main conducting-pump and extending out therefrom above the flooring or curbing. The swinging standard compensates for the swinging out and in of the pump-rod as the walking-beam carries the lower end thereof in its quarter or half circle of movement and materially assists in the easy manipulation of the pump.

A metallic shield or cap O is supported upon the guide-head and brace I and serves to shield the upper open ends of the cylinders and to keep foreign matter from falling into the same.

It is now thought that the construction and operation of the herein described double-cylinder pump is apparent without further description. The construction and adjustability of the adjustable-crotch walking-beam pivot-rod P may be noted at this point. The ends of said horizontal rod P, working in the crotch *f* at the upper ends of the pipes E, are secured in the adjustable pipe-bands *p*, encircling the upper ends of the discharge-pipes E directly below the crotch connection, and are vertically adjustable thereon to be held in any desired position, according to the stroke desired, by means of the set-screws *p'*, working through said bands or, more properly speaking, collars and impinging upon said discharge-pipes.

To secure the requisite strength and connection of the various parts of the pump to-

gether, I employ a clamping-band Q, which encircles the pump-cylinders and opposite discharge-pipes E and has the same securely clamped thereto by means of the U-shaped bolts R, encircling the said cylinders and discharge-pipes E, and bolted to said encircling clamping-band, as illustrated in the drawings. This serves to securely tighten the various parts of the pump and hold them in position.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a pump, the combination, with the opposite cylinders having open upper ends, the opposite discharge-pipes, and the plunger-rods extending through the open ends of the cylinders, of the combined guide-head and brace encircling and supported by the discharge-pipes and provided with bearings lying directly over the center of the open upper ends of the cylinders to receive said plunger-rods, and a metallic shield or cap resting upon said combined guide-head and brace over said open upper ends of the cylinders to serve as a covering therefor and protect the same from foreign matter, substantially as set forth.

2. In a double-cylinder pump, the combination, with the cylinders, of the opposite parallel discharge-pipes connected with their respective cylinders and extending centrally above the same and connected with a main conducting-pipe, forming a crotch, the plunger-rods extending above the top of the cylinders, a horizontal lever or walking-beam located in said crotch and vertically adjustable therein upon said discharge-pipes and provided with a series of perforations in each end, swinging connecting-links adjustably engaging the ends of said walking-beam and pivoted directly to the plunger-rods, a pump-rod pivoted to one end of said walking-beam, a swinging standard, and a pump-handle pivoted in said standard and connected with said pump-rod, substantially as set forth.

3. In a pump of the class described, the combination, with the opposite cylinders and the opposite parallel discharge-pipes connected with their respective cylinders and extending parallel to each other above said cylinders, of the metallic clamping-band continuously encircling the parallel cylinders and discharge-pipes and U-shaped clamping-bolts embracing each cylinder and each discharge-pipe and having their ends clamped to said band, substantially as set forth.

4. In a double-cylinder pump, the combination, with the cylinders, the opposite parallel discharge-pipes connected at the upper ends by an inverted-Y or crotch connection and the plungers, of the vertically-adjustable collars mounted upon and adapted to be adjusted on said connection, a fixed pivot-rod carried by said collars between said dis-

charge-pipes and in the crotch of said inverted-Y connection, a horizontal lever or walking-beam pivotally mounted upon said rod between said pipes and connected with
5 each plunger, and means for oscillating said walking-beam, substantially as set forth.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in the presence of two witnesses.

MILLAGE MATH. SMITH.

Witnesses:

C. WILBURN,
HENRY SMITH.