W. S. LANEY.
Force-Pumps.

No. 195,897. Patented Oct. 9, 1877.

FIG.1.

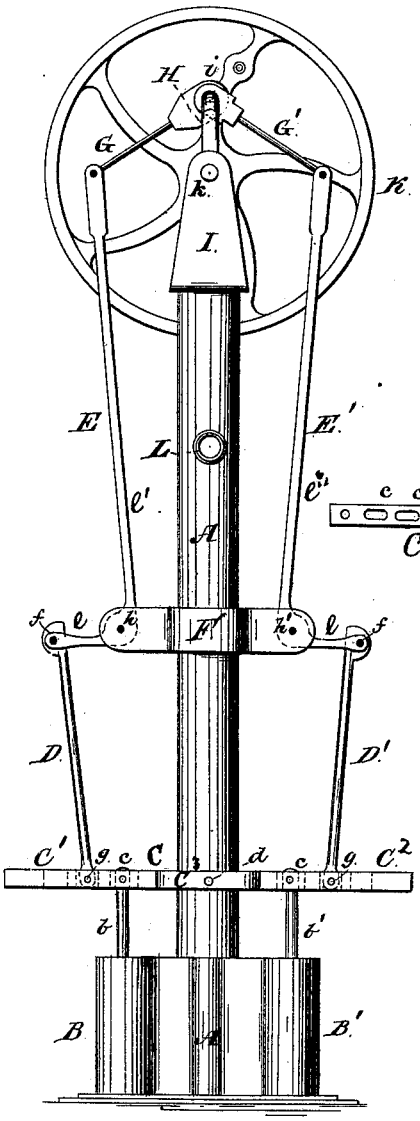



FIG.3.

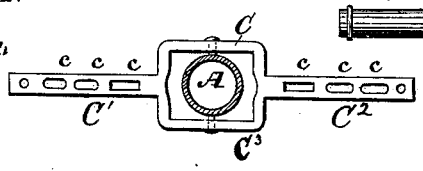
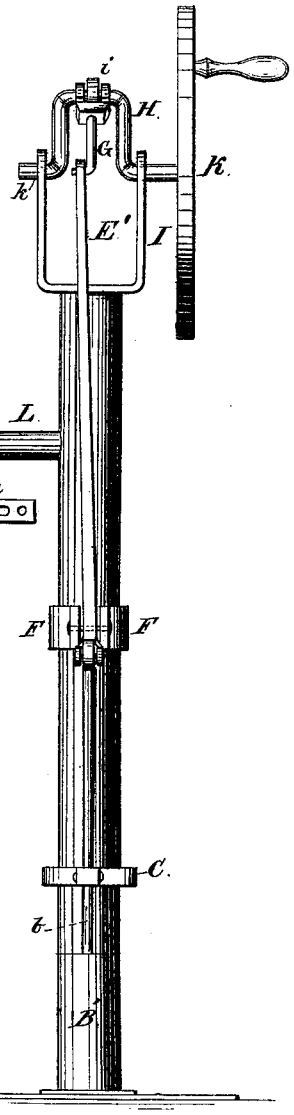



FIG.2.




WITNESSES

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# UNITED STATES PATENT OFFICE.

WILLIAM S. LANEY, OF LITHOPOLIS, OHIO.

## IMPROVEMENT IN FORCE-PUMPS.

Specification forming part of Letters Patent No. **195,897**, dated October 9, 1877; application filed July 28, 1877.

*To all whom it may concern:*

Be it known that I, WILLIAM S. LANEY, of Lithopolis, in the county of Fairfield and State of Ohio, have invented certain new and useful Improvements in Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in force-pumps, the nature of which will be hereinafter fully described.

In the drawings, Figure 1 is a front view, and Fig. 2 is a side elevation, of my device; and Fig. 3 is a detailed view of walking-bar.

A is the main pump-stock, and B B′ are the stocks attached to the lower end of the main stock, and in which the pistons or piston-rods *b b′* are placed and operate. I employ two stocks, B B′, in a double-acting force-pump, while in a single-acting pump but one is required. The upper ends of the piston-rods *b b′* are pivoted to the walking-bar C, as shown.

C is the walking-bar, composed of the arms $c^1$ $c^2$, connected together by an intermediate loop or ring, $c^3$, surrounding and affixed or pivoted to the main stock at *d*, and so constructed with slots *c c* that the lower ends of the intermediate rods D D′ may be set out or in on the ends $C^1$ $C^2$, and thereby increase or diminish the length of stroke given to the pistons.

I prefer to employ the walking-bar C as described, for the purpose indicated; but it will be understood that the said bar may be fixed rigidly in the horizontal position indicated, in which case rods *b b′* will not be pivoted to, but will pass up through it, so that their upper ends may be pivoted to the lower ends of the intermediate rods D D′.

In this latter arrangement there could be no adjustment of rods to regulate the stroke of the pistons, the arms $C^1$ $C^2$ serving simply as guides to support the rods *b b′* in a vertical position.

E E′ are two bell-crank levers, composed of the horizontal and vertical arms *e e′*, and pivoted to the bearings *h h′*, fixed rigidly to the pump-stock A, as shown. To the outer ends of the horizontal arms *e* are pivoted the upper ends of the intermediate rods D D′, while the vertical arms *e e′* are extended upward, and are connected by pivoted swinging levers G G′ to the eccentric-shaft H, supported in suitable bearings on the upper end of the pump-stock, as shown.

K is a balance-wheel, affixed on one end of the crank-shaft H to facilitate the operation of the device.

The operation of the several parts of the device will be fully comprehended by inspection of the drawings.

I have described my device as constructed and arranged for a double-acting force-pump; but it will be seen that there are two complete sets of levers and rods connected with and operated by a single eccentric-shaft, H; and it will be readily understood that either of these sets will operate independently of the other, if desired, by uncoupling from the crank H one or the other of the swinging levers G G′, so that my invention may be applied to single-acting force-pumps.

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

In a double-acting force-pump, the combination of the swinging levers G G′, bell-crank levers E E′, rods D D′, and walking bars or guides $C^1$ $C^2$ with the piston-rods *b b′* in lower pump-stocks B B′, main stock A, and single crank-shaft H, arranged and operating substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM S. LANEY.

Witnesses:
J. V. LEE,
FRANK W. ARNOLD.