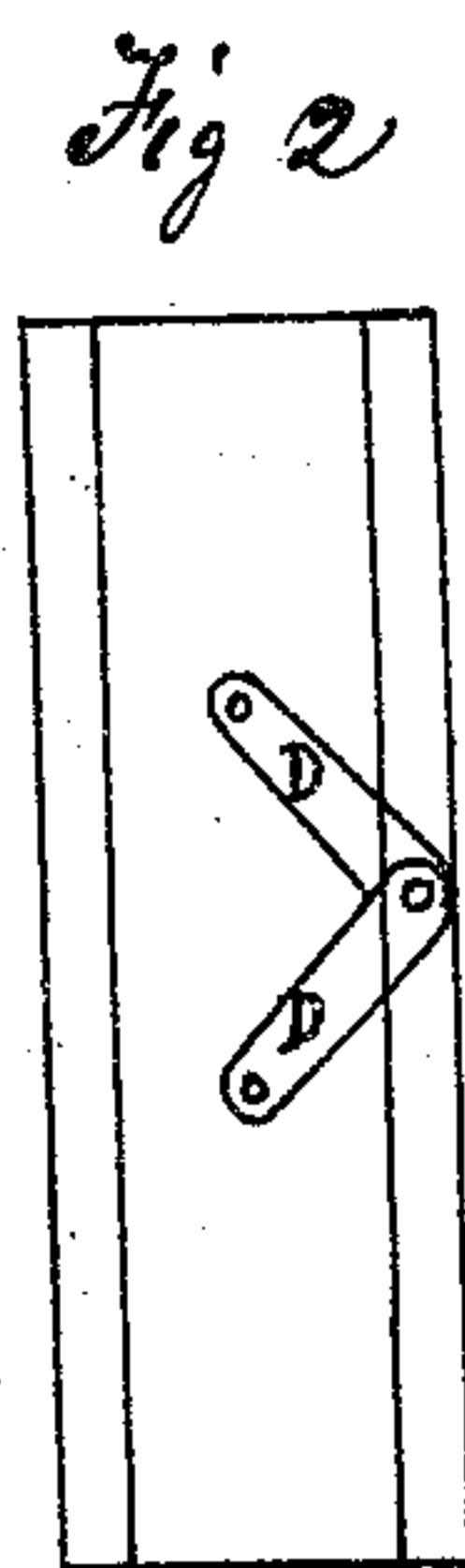
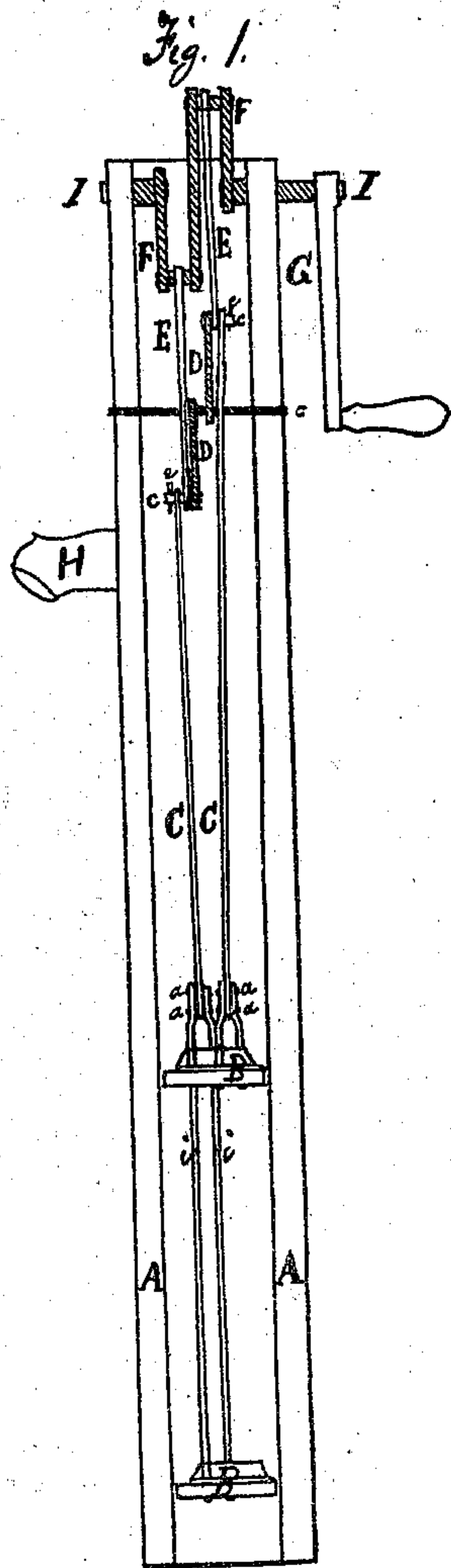


A. L. HATFIELD.
Pumps.

No. 143,759.

Patented Oct. 21, 1873.



Salmon Hatfield
Engineer

Aaron L. Hatfield

UNITED STATES PATENT OFFICE.

AARON L. HATFIELD, OF CLYDE, OHIO.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 143,759, dated October 21, 1873; application filed July 25, 1873.

To all whom it may concern:

Be it known that I, AARON L. HATFIELD, of Clyde, Ohio, have invented certain Improvements in Pumps.

The nature of my invention consists in certain improvements in double-action force or lift pumps, which the following specification describes.

In the accompanying drawings, A A, Figure 1, is the stock. B B are two plungers; C C, rods connecting the plungers and levers or guides D D, Figs. 1 and 2. E E are short rods or links connecting guides to pitmen F F. Said pitmen constitute part of shaft I, which is also supplied with a crank or pulley.

I am aware that pumps having two or more plungers have been used before.

My improvement is in the mode of connecting and operating the plungers.

Most double-action pumps require one or more extra stocks attached, and operated by a lever, push, and pull, alternately, which is exceedingly tiresome. Others, having but one stock, require the upper plunger to have a hollow rod or pipe, through which the rod of the lower plunger passes to make connection with cam, or otherwise, on crank-shaft, making it complicated, and too expensive for general use. To obviate these objections I have at-

tached to the lower end of rods C C pieces *i i*, which need be but short for the upper plunger, but spread and fastened to the plunger on opposite sides by screw and nut. The rod for lower plunger requires the pieces or guides *i i* to spread and run parallel the distance of the stroke of the plunger, so as to pass free, and not bind, through corresponding holes in the upper plunger, and fastened to the lower plunger with screw and nut. The upper ends of rods C C are hung on two bolts, *c c*, which are fixed permanently on guides D D. Guides D D play on pin *o*, and govern the motion of rods C C nearly in parallel lines, thus preventing cramping and friction. The lower ends of links E E are also hung on bolts *c c*, and secured by pin *e*, or screw and nut. The other end is connected to pitmen F, and propelled by a crank or pulley.

I claim—

The combination of pitmen F F, guides D D, links E E, rods C C, and guides *i i*, as and for the purpose specified.

AARON L. HATFIELD.

Witnesses:

CALVIN HATFIELD,
ERMOT QUIG.