

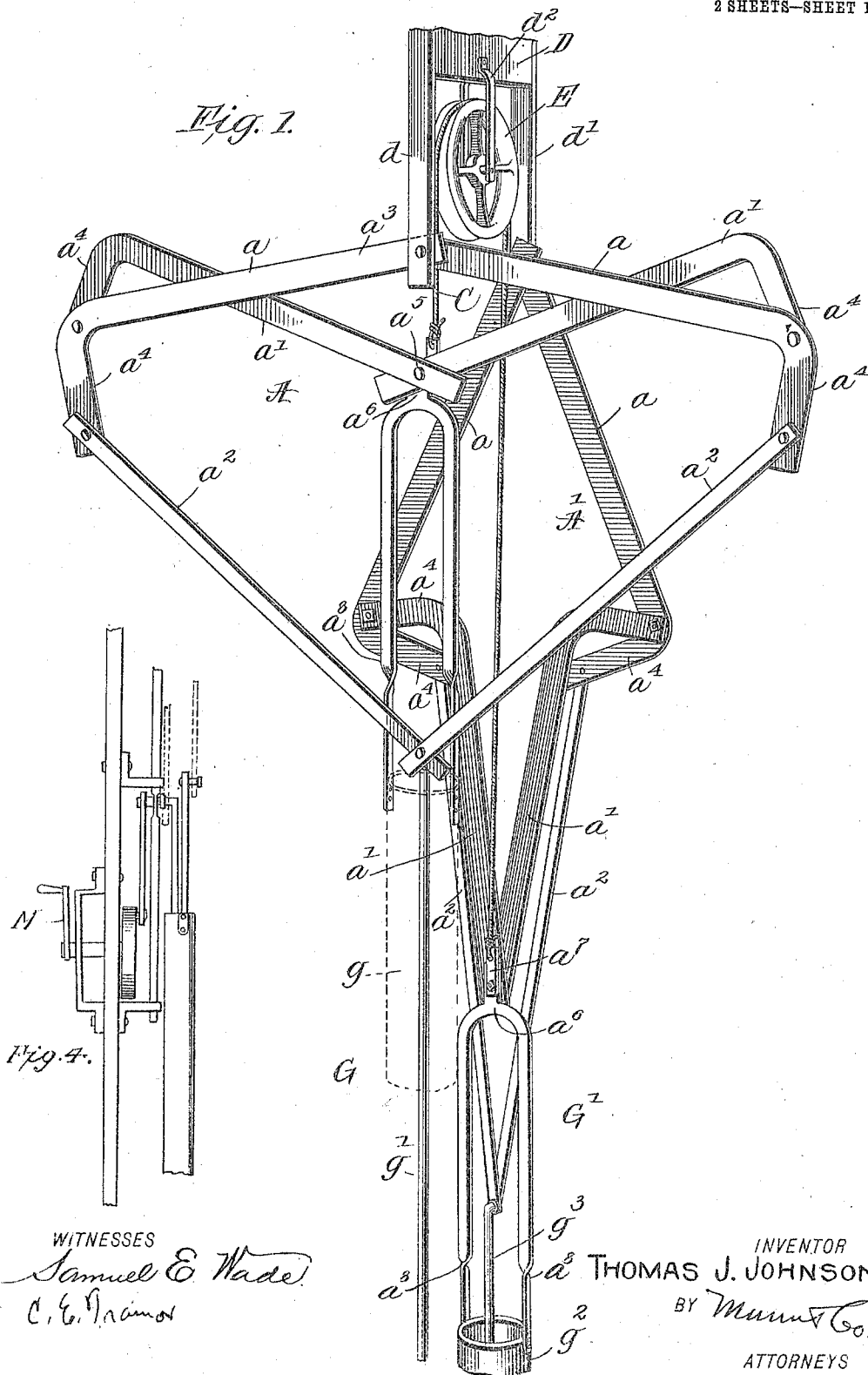
PUMP.

APPLICATION FILED JUNE 20, 1908. RENEWED JULY 26, 1909.

951,003.

Patented Mar. 1, 1910.

2 SHEETS--SHEET 1.



WITNESSES

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Samuel E. Wade

C. G. Yarns

INVENTOR

THOMAS J. JOHNSON

BY *Munn & Co*

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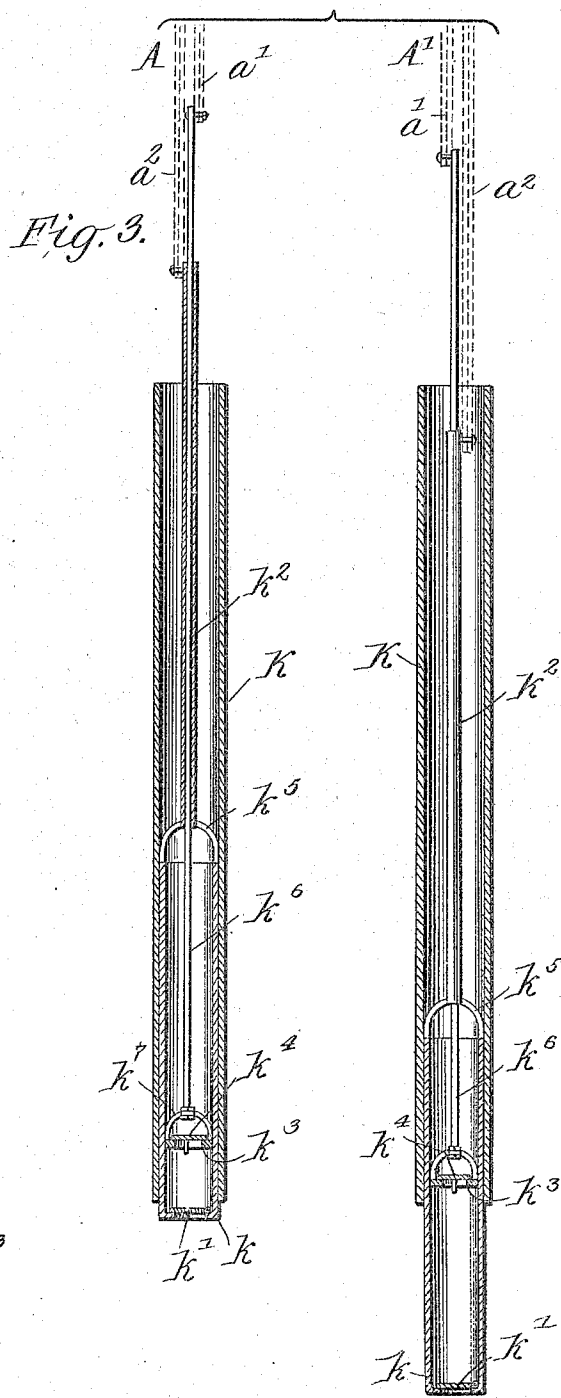
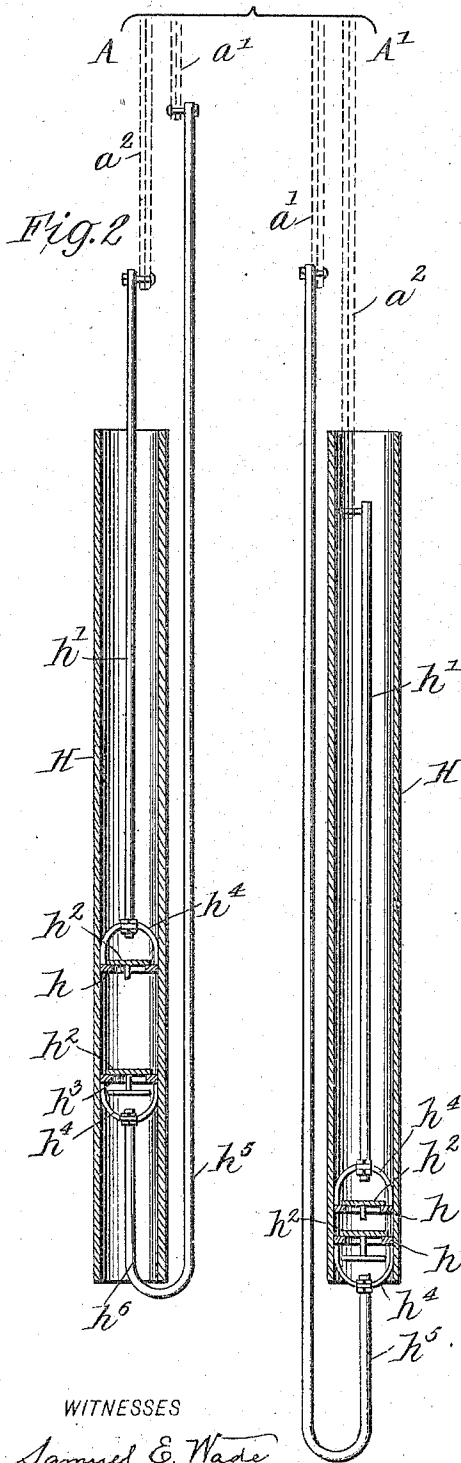
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# UNITED STATES PATENT OFFICE.

THOMAS J. JOHNSON, OF NORMAN, OKLAHOMA.

## PUMP.

951,003.

Specification of Letters Patent.

Patented Mar. 1, 1910.

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*To all whom it may concern:*

Be it known that I, THOMAS J. JOHNSON, a citizen of the United States, residing at Norman, in the county of Cleveland and State of Oklahoma, have invented an Improvement in Pumps, of which the following is a specification.

My invention is an improvement in pumps, and consists in certain novel constructions, combinations and arrangements of parts, hereinafter described and claimed.

Referring to the drawings forming a part hereof, Figure 1 is a perspective view of the improvement. Fig. 2 is a central longitudinal section through a modified form of pumps. Fig. 3 is a similar view showing a different method of connecting pistons with the frames, and Fig. 4 is a front view of the upper end of the pump.

The present embodiment of my invention, comprises two extensible and contractible frames A, A' each of which frames consists of two pairs of arms *a*, *a'*.

The frames are connected with a fixed support D which is provided with depending portions *d*, *d'*, at each side, and each pair of arms *a* has its inner ends pivoted together and to the depending portion *d*, *d'* respectively.

It will be noticed that the arms *a*, *a'* consists each of a body portion *a*<sup>3</sup> and an angular portion *a*<sup>4</sup>, and the free end of the angular portion of the arm *a'* is pivotally connected to the arm at the junction of the body portion *a*<sup>3</sup> and the angular portion *a*<sup>4</sup>. The inner ends of the arms *a'* are pivotally connected as at *a*<sup>5</sup>, and the body portion of a yoke *a*<sup>6</sup> is also connected with the arms at their point of pivotal connection. The upper end of the yoke *a*<sup>6</sup> is connected by a cord C with the upper portion of the yoke *a*<sup>7</sup> connected with the frame A', the rope passing over the pulley E journaled on a bracket *d*<sup>2</sup> depending from the fixed support.

The cylinder *g* of one of the pumps G is connected with the arms *a*<sup>8</sup> of the yoke *a*<sup>6</sup>, and the piston rod *g'* of the pump is connected to the inner ends of arms *a*<sup>2</sup>, which arms are straight and have their outer ends connected with the ends of the angular portion *a*<sup>4</sup> of the arms *a*.

It will be understood that the frames A, A' are precisely alike, one of the frames being connected with the cylinder *g* and the piston *g'* of the pump G, and the other being connected with the cylinder *g*<sup>2</sup> and piston *g*<sup>8</sup> of

the pump G'. If, however, only one pump is used, the frame *a'* is provided with weights to balance the weights of the piston and cylinder of the pump G and the water supported thereby, the weights being connected in the same manner as the piston and cylinder of the pump G.

Power may be applied in any suitable manner as for instance by the crank M and it will be evident that if the piston rod of the pump is moved upwardly, the cylinder will also move upwardly but at a greater rate of speed, whereby the relative movement of the piston with respect to the cylinder will be downward, and on a reverse movement of the frame, the piston will move upward relative to the cylinder.

The frames A, A' contract and expand vertically and that portion of the frame to which the piston rod is connected moves at a lesser rate of speed than that portion to which the cylinder is connected, thus providing for a stroke of the piston with respect to the cylinder.

It will be evident from the description, that the pumps are perfectly counterbalanced, the weight of the one with the water therein counterbalancing the weight of the other and the contained water.

In Fig. 2, is shown a modified form in which the cylinder H is fixed, and is provided with two pistons *h*, *h*<sup>3</sup>, each provided with an upwardly opening valve *h*<sup>2</sup>, each of the valves being retained in place by a spider *h*<sup>4</sup>, the spider of the upper piston being arranged thereabove, and the spider of the lower piston being arranged therebelow. A piston rod *h'* is connected with the piston *h*, and the upper end of the piston rod is connected to the arms *a*<sup>2</sup> of the frame A. The piston *h*<sup>3</sup> has connected with its spider a piston rod *h*<sup>5</sup>, extending out through the bottom of the cylinder as at *h*<sup>6</sup>, and upwardly along side thereof to a connection with the arms *a'* of the frame A'.

In the modified form shown in Fig. 3, the cylinder K is also fixed, and is provided with a cylindrical piston *k*, having its lower end closed by a flap valve *k'*, and provided at its upper end with a spider *k*<sup>5</sup>, to which is connected a tubular piston rod *k*<sup>2</sup>, the upper end of the rod being connected with the arms *a*<sup>2</sup> of the frame A. The second piston *k*<sup>3</sup> is arranged within the cylindrical piston and is provided with a valve *k*<sup>4</sup> opening upward, and inclosed by a spider 7, to which is con-

nected the piston rod  $k^6$ , the said rod extending through the tubular rod  $k^2$  to a connection with the arms  $a'$  of the frame  $A'$ .

In operation the arms  $a^2$  are moved in the same manner as described for Fig. 1, thus moving the pistons in the cylinders, and the weights on the respective sides of the frame are so proportioned, that when one side moves downward, its weight of water serves as power to lift the water on the other side.

I claim:

1. In a device of the class described, a plurality of pump cylinders and pistons therefor, a fixed support having at each side thereof a downward extension, a pulley journaled between the extensions, a pair of frames connecting each cylinder with one of the downward extensions, said frames consisting each of three pairs of bars, the members of two of said pairs being provided with angular portions, one of said last named pairs having their adjacent ends connected with one of the extensions, and their remote ends connected with the free ends of the other of the last named pairs, at the junction of the angular portion and the body portion,

a yoke connected with the adjacent ends of said pair, the arms of the yoke being connected with the cylinder of the pump, the third pair of arms having their outer ends pivotally connected with the free ends of the first named pair of arms and their adjacent ends connected with the piston of the pump, and a cord passing over the pulley and having each end connected with the body portion of the adjacent yoke.

2. In a device of the class described, a plurality of pump cylinders and pistons therefor, a fixed support, an extensible and contractible frame connecting each cylinder with the support, a connection between said frames whereby when one is contracted, the other will be expanded, and a connection between the pistons and the respective frames whereby to move the pistons a lesser distance than the cylinders, for the purpose set forth.

THOMAS J. JOHNSON.

Witnesses:

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J. B. WILLIAMS.