

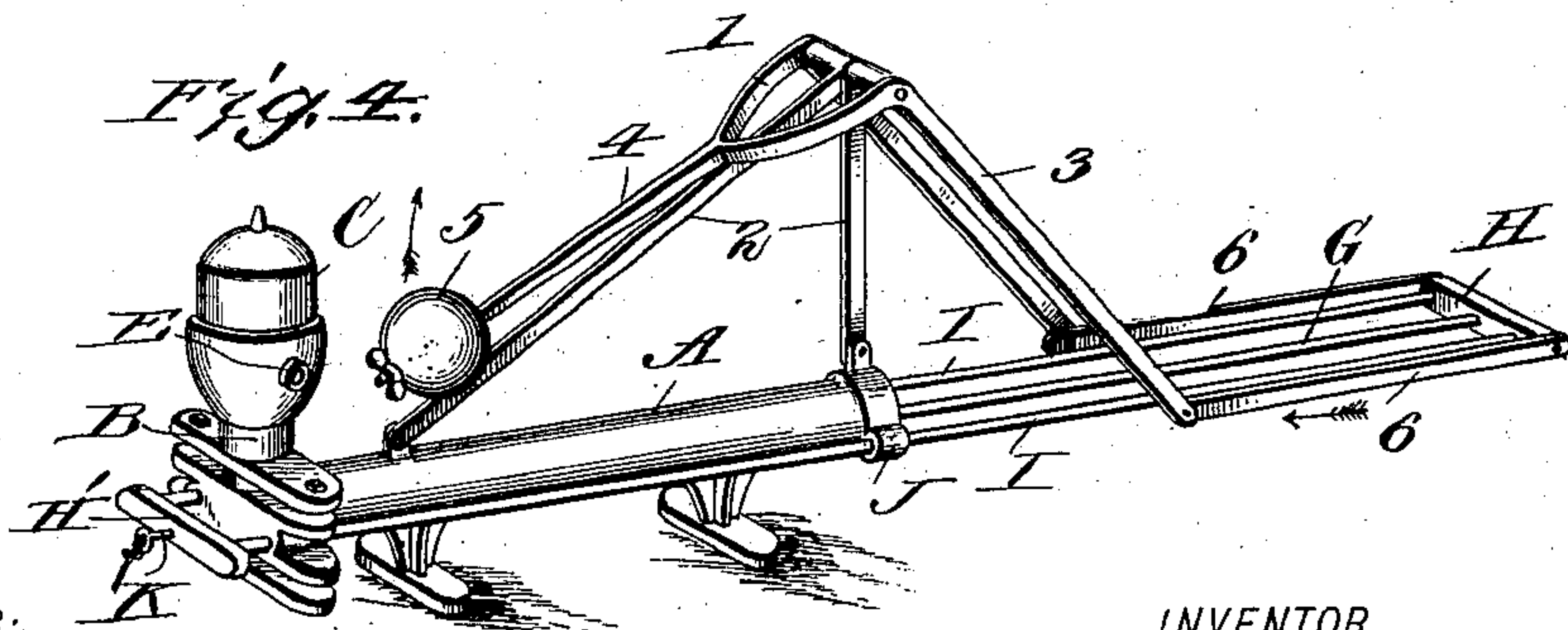
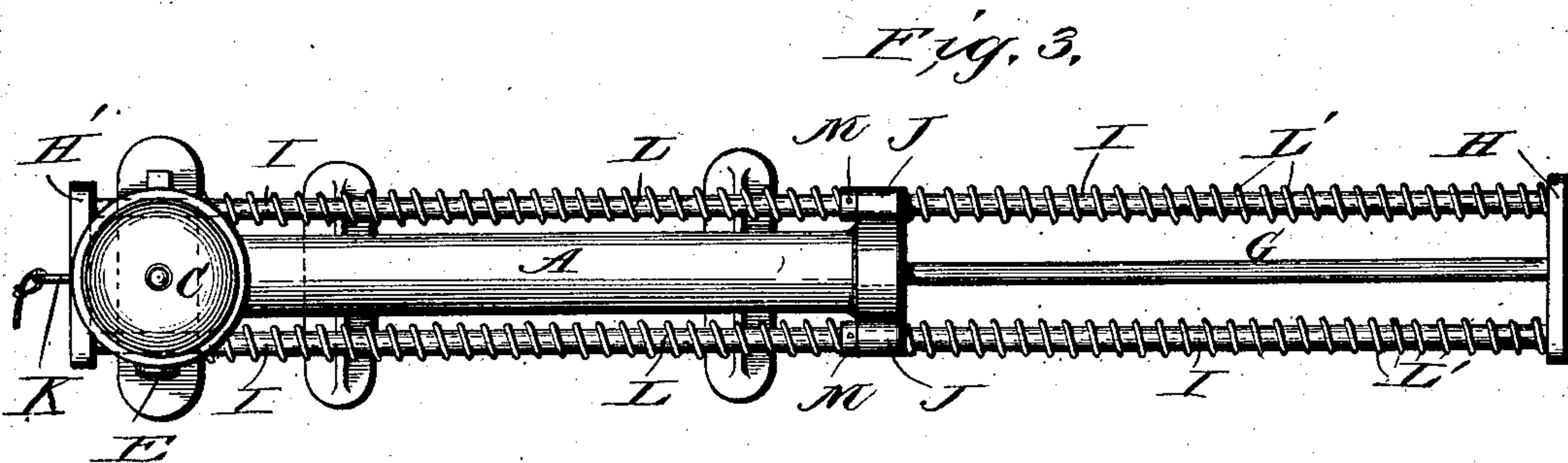
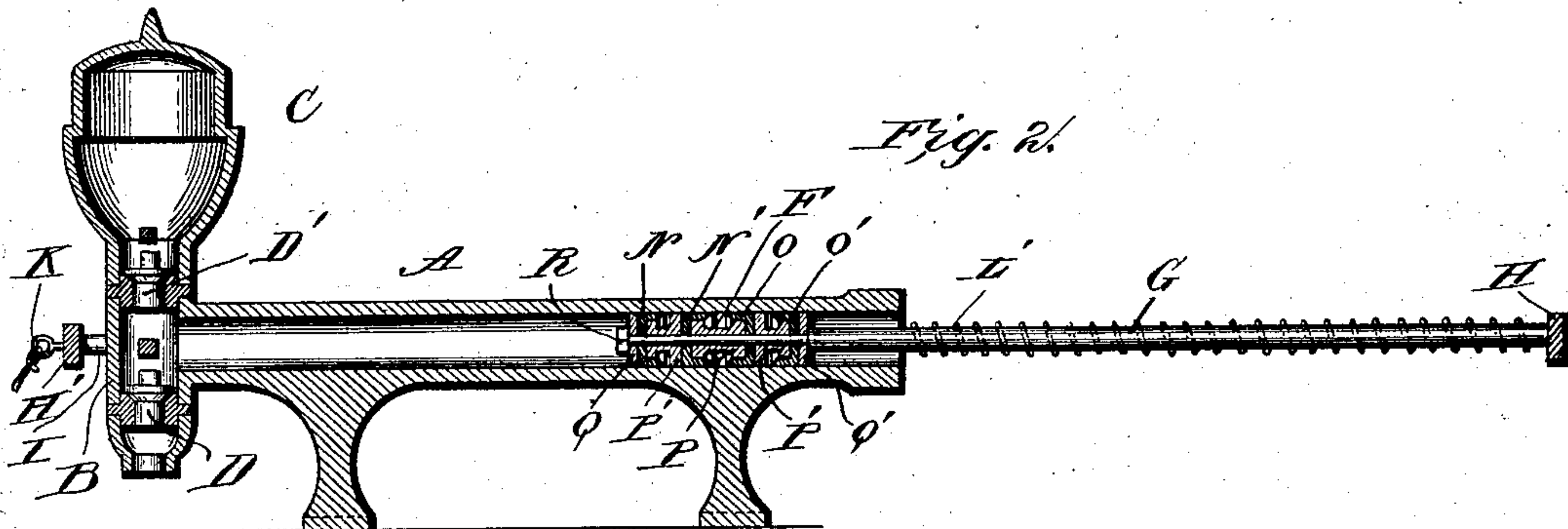
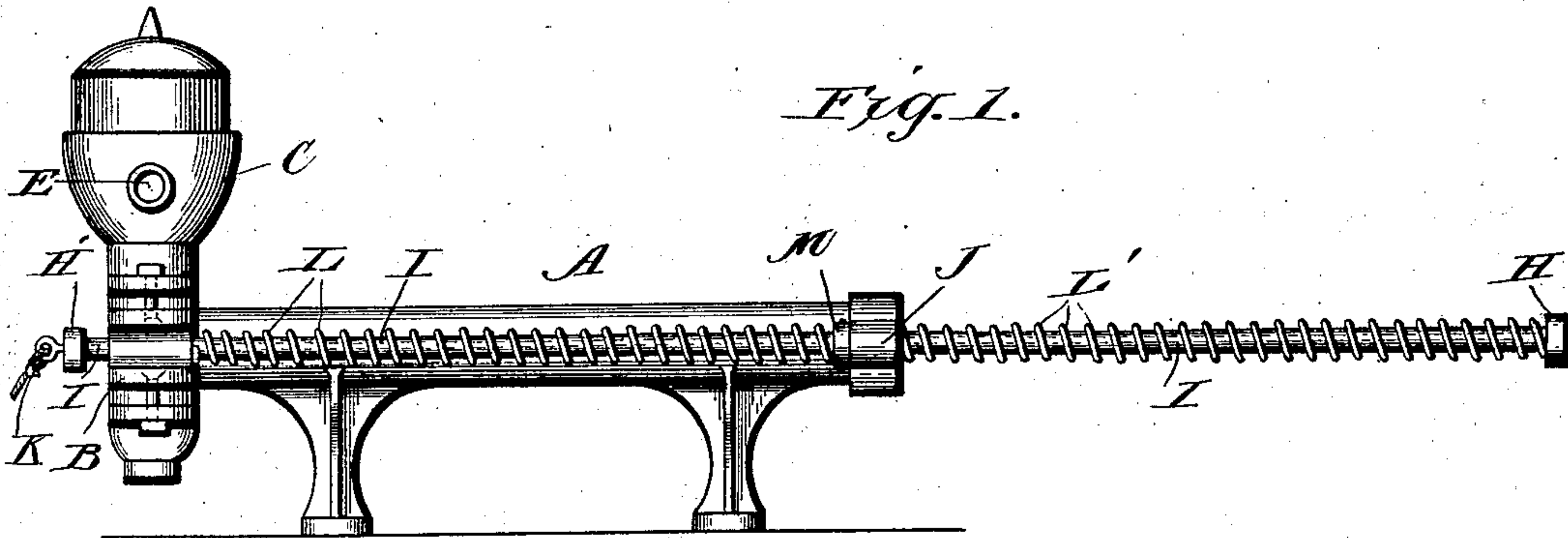
No. 721,640.

PATENTED FEB. 24, 1903.

W. H. WESTERMAN.  
PUMP.

APPLICATION FILED AUG. 30, 1902.

NO MODEL.



WITNESSES:

*Fred. Bradford*  
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INVENTOR

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# UNITED STATES PATENT OFFICE.

WILLIAM H. WESTERMAN, OF MARIETTA, OHIO.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 721,640, dated February 24, 1903.

Application filed August 30, 1902. Serial No. 121,620. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. WESTERMAN, residing at Marietta, in the county of Washington and State of Ohio, have invented certain new and useful Improvements in Pumps, of which the following is a specification.

This invention relates to that class of pumps adapted to be worked by flexible power-connecting means such as is well known and commonly employed where a series of remotely-located pumps are mechanically worked from a common source of power.

The invention consists in the new and improved pump elements, which will be hereinafter fully described, and the novel features pointed out in the claims.

In order to enable others to make and use my invention, I will proceed to describe it in detail with reference to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a view showing my invention in side elevation. Fig. 2 is a central vertical longitudinal sectional view through the cylinder and its connected water-passages. Fig. 3 is a plan view, and Fig. 4 is a perspective view, showing a modified form of my invention employing a weighted lever.

In the drawings, A indicates an elongated pump-cylinder open at one end and provided at the other end with a T-shaped head B, having at its upper end an air-chamber C. The lower end of this head B is adapted for connection with a water-supply or suction tube. (Not shown.) Within the head B are arranged two check-valves D D', both seating by gravity. It is apparent that when water is drawn into the cylinder A by rearward movement of the plunger, hereinafter referred to, the valve D will lift and that upon a return movement of the said plunger the valve D will be seated and the valve D' lifted, allowing the water to be forced into the air-chamber C and out through its exit E. Obviously the cylinder A should have some support, and as illustrating one means therefor I show in my drawings pedestals or pillars cast in one piece with the cylinder; but any other suitable support may be utilized.

F indicates the pump-plunger, and G the plunger-rod, the latter having at its outer end

a cross-head H. On opposite sides of the pump-cylinder I arrange rods I, supported in bearings J. The rear ends of these rods I are fixed to the cross-head H and the forward ends thereof have similar connection with a cross-head H', to which latter the flexible power-connecting means is coupled by a swivel-hook or other suitable device, as at K. The rods I have arranged thereon two compression-springs L L', one between the cross-head H and the bearing J at the open end of the pump-cylinder and the other between the bearing J at the suction end of the cylinder and an adjustable collar M.

The plunger F is formed of four leather cups N N' and O O', all spaced apart by recessed rings P P' P'. On the plunger-rod G collars Q Q' are arranged in front and rear of the series of leather cups just referred to. The inner collar Q rests against a suitable shoulder or stop on the plunger-rod, and the outer collar Q' is secured by a nut R, as shown. Such a plunger as just described will be self-priming by the water collected in the recesses of the spacing-rings P P'.

It is apparent that the springs L L' will exert power effecting to draw back the plunger filling the cylinder with water. The water is forced out of the cylinder and into the air-chamber by pulling action on the flexible power-line W, connected with the cross-head H'. This flexible power-line may consist of a rope, chain, or a jointed rod extending from a windlass, engine, or other power device adapted to pull and then allow backward movement of the line.

Obviously the above-described pump elements may be modified by employing a weight for drawing back the plunger and flexible power-line without departing from the spirit of my invention. In Fig. 4 of my drawings I show a weight arrangement operating substantially the same as the spring arrangement hereinbefore described. In carrying out the modification stated I employ a pivoted and weighted lever 1, supported by suitable braces 2, bolted to the pump-cylinder and extending upwardly, adapted to provide the stated necessary support. The lever 1 is formed of two arms 3, adapted to receive the upper end of the braces 2 and be pivoted thereto. The member 4 of the lever is pro-



vided with an adjustable weight 5, as shown. The arms 3 extend downwardly at an angle and are spaced apart, adapted in operation to straddle the pump-cylinder. The free ends 5 of the arms 3 connect the cross-head H by two pitmen 6, as shown.

With the modified elements just described it is apparent that when the power-line is pulled, forcing the plunger inwardly, the 10 weighted end of the lever will be lifted and that when the power-line is released it will be drawn backward by the weight, and likewise the plunger will effect to refill the pump-cylinder with water drawn up through the 15 suction-pipe, lifting the check-valve therein, as hereinbefore described.

In the above description of my invention I have stated that the plunger F is formed of four leather cups N N' and O O', spaced 20 apart by recessed rings P P' P'; but I do not desire to be limited to any particular number of the said cups and rings, since more or less of them may be used.

Having thus fully described my invention, 25 what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a pump-cylinder having at one end inlet and discharge openings closed by check-valves, and a plunger 30 having its rod projecting rearwardly through the free open end of the cylinder, a cross-head at the rear end of the plunger-rod, slid-

ing rods extending beyond both ends of the pump and supported in bearings at both ends thereof, the said sliding rods having fixed 35 connection with the cross-head at the rear end of the plunger-rod and also a similar cross-head located beyond the suction end of the pump, power means connecting the latter cross-head, and power means connecting 40 the cross-head at the end of the plunger-rod, the former stated power means operating to force in the plunger and the latter stated power means adapted to draw backwardly the plunger and its connected means sub- 45 stantially as described.

2. In combination with a pump of the character described, bearings on opposite sides and at both ends of the pump-cylinder, sliding rods supported by the said bearings 50 at both ends of the pump-cylinder, cross-heads connecting both ends of the said rods, expanding-springs arranged on the rods and exerting pressure in one direction, one cross-head having fixed connection with the rear 55 end of the piston-rod and the other cross-head being adapted for connection with the power-line substantially as shown and described.

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Witnesses:

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