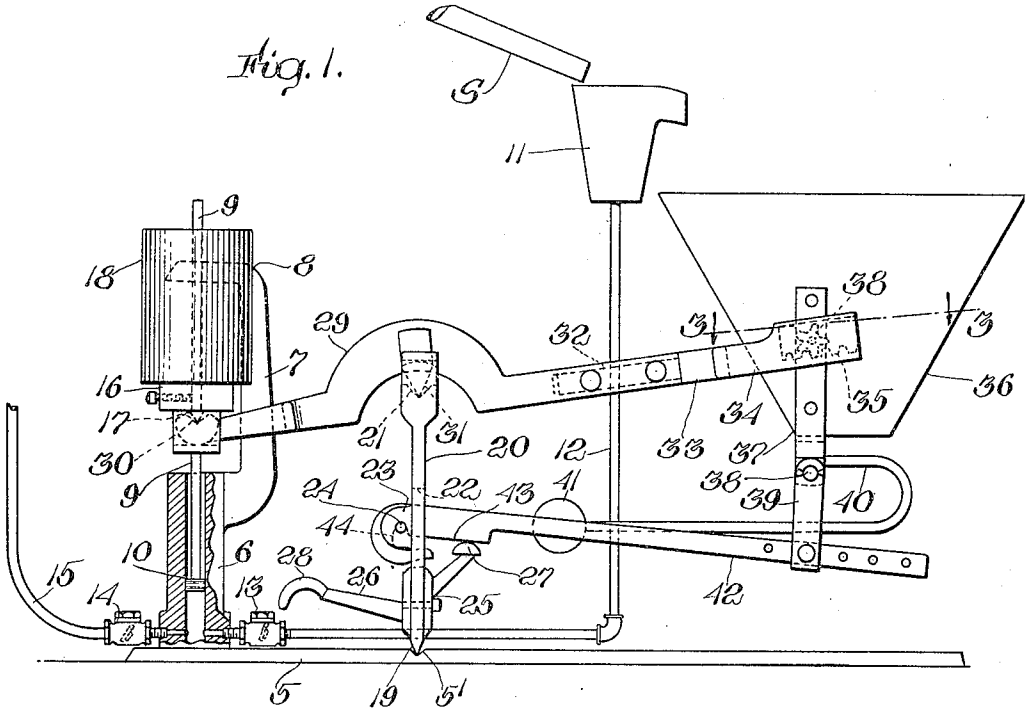
J. B. HASKELL.

AUTOMATIC PUMP.

APPLICATION FILED OCT. 9, 1914.

1,151,009. Patented Aug. 24, 1915.

Fig. 1.



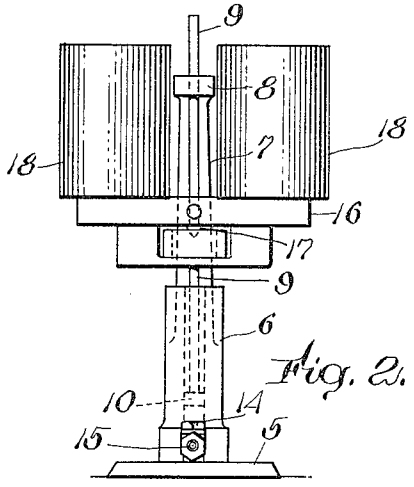
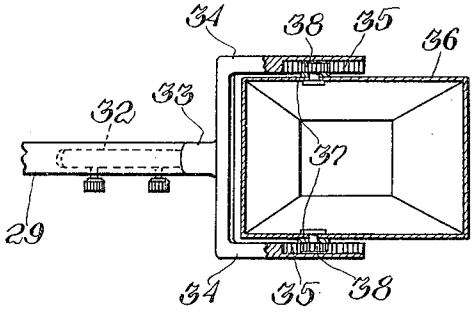


Fig. 2.

Fig. 3.



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AUTOMATIC PUMP.

1,151,009. Specification of Letters Patent. Patented Aug. 24, 1915.

Application filed October 9, 1914. Serial No. 865,956.

To all whom it may concern:

Be it known that I, JOHN B. HASKELL, a citizen of the United States, residing at Newton Highlands, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Automatic Pumps, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention has reference to improvements in automatic pumps, so called, in which some portion of the liquid to be pumped thereby is utilized to raise or move a weight which, when released, operates a plunger whereby another portion of liquid is forced through a pipe.

One object of the invention is to simplify the construction of automatic pumps of the nature herein described.

Another object of the invention is to improve the construction of the mechanism through which the weight is raised and to effect the return of said mechanism to place.

Other objects of the invention will appear from the following description.

The invention consists in such novel features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents a side elevation of the improved pump mechanism, portions of the pump cylinder being broken away and shown in section. Fig. 2, represents an end view of portions of the same. Fig. 3, represents a sectional view of the liquid receiving chamber and some of its related parts as taken on a line 3—3 Fig. 1.

Similar characters of reference designate corresponding parts throughout.

As shown in the drawings in its preferred form 5 designates the base of the machine which base may be of any known construction and supports the pump cylinder 6 having the upstanding arm 7 furnished with the member 8 having a guide to slidably receive the plunger rod 9 which latter has the head 10 slidable in the bore of the cylinder 6. Water is supplied to the lower end of the cylinder 6 from the tank 11 through the pipe 12 having the check valve 13 by which backward flow of the water under pressure of the plunger head 10 is prevented. Water, under pressure of said plunger head 10, passes through check valve 14 into pipe 15 to be delivered at the desired point.

Mounted on the plunger rod 8 is the cross head or member 16 having the knife blade bearing 17 and on said cross head 16 are the cylinders or receptacles 18, 18 constituting weights and adapted to receive additional weights or heavy material.

In the V shaped groove 5′ of the base 5 is the knife edge bearing 19 of the standard 20 having at its upper portion the V shaped seat 21. This standard 20 has the slot 22 at the sides of which are lugs as 23 carrying the transversely extending pin 24 and on said standard 20, at the lower portion thereof are mounted the angularly extending arms 25 and 26 having respectively the bearings 27 and 28.

The weight operating lever 29 has the seat 30, engaged with the knife blade bearing 17 of the cross head 16, and knife blade bearing 31 engaged with the seat 21 of the standard 20. Connected with said lever 29, for longitudinal adjustment at the joint 32 is the member 33 having a fork the members 34, 34 of which have at their inner faces the racks 35, 35.

Sustained between the fork members 34, 34 of the lever member 33 is the receptacle 36 having walls flaring from its bottom and provided with side members 37, 37 located at one side of the vertical median line of said receptacle and provided with the pinions or gears 38, 38 which are engaged with the racks 35, 35 of the fork arms 34, 34. The lower ends of said members 37, 37 are connected by the pivot 38 with the member 39 and these portions of said members 37, 37 have the counter-weight arm 40 having the counter-weight 41 which acts constantly to effect the swinging of said receptacle 36, on pivot 38, to an upright position.

Member 39 is rigidly but adjustably secured to the locking arm 42 which at its free end is slidable through the slot 22 of standard 20 and has the blade or wider portion 43, which may rest on the bearing 27, and the hook 44 adapted to engage the pin 24 in order to prevent the longitudinal movement of said locking arm 42.

Water or other liquid is supplied to the tank 11 from the source S and is supplied to the pump cylinder 6 through pipe 12 as described above. Tank 11 and pipe 12 are proportioned to contain a quantity of water at least equal to the amount which it is desired to force into pipe 15 at one downward stroke of the plunger 9—10. After tank 11

has been filled with water to the desired level the further supply of water received by tank 11 is delivered therefrom to the receptacle 36. The accumulation of water in receptacle 36 eventually becomes sufficient to overbalance the weights 18, 18 as well as the weight or resistance of the plunger 9 and its attached parts and as a result the receptacle 36 and its related end of lever 29 moves downward and effects the lifting of cross head 16 and weights 18, 18 as well as an upward stroke of the plunger 9—10 whereupon the bore of cylinder 9 receives its supply of water.

While receptacle 36 is in the elevated position shown in Fig. 1 of the drawing the locking arm 42 has its hook 44 engaged with pin 24 whereby longitudinal movement of said locking arm 42 is prevented thereby resisting, through the rigid member 39 of arm 42, the lateral movement of said member 39 which is necessary to permit the swinging of the members 37, 37 on pivot 38. The downward movement of receptacle 36 however forces downward the member 39 and its related end of arm 42 and blade 43 of this arm 42 rocks on bearing 27 as on a fulcrum and effects the lifting of the hook 44 of arm 42 out of engagement with pin 24 whereupon arm 42 is free to slide, its blade 43 riding on said pin 24.

As the receptacle 36 is overbalanced with reference to the axis of the pinions 38, 38 said receptacle is free to swing on said axis when pivot pin is free to move laterally with the swinging of the lower ends of the members 37, 37 to break the line of extension of said members 37, 37 and member 39. The swinging of said receptacle 36 is of course effected by the overbalanced weight of the water contained therein and in such swinging of receptacle 36 the pinions 38, 38 are free to travel to a limited degree on the racks 35, 35.

The swinging or tipping of receptacle 36 of course effects the discharge of a large portion or all of the water contained therein and reduces the weight at this end of lever 29 whereby the weighted plunger 9—10 may move downward and exert pressure on the water in the bore of cylinder 6 to force said water into pipe 15. As soon as the receptacle 36 is relieved from the overbalancing weight of the water the action of counterweight 41 is effective to swing receptacle 36 to the upright position and in such movement of receptacle 36 its members 37, 37 act to draw member 39 and its locking arm 42 in the direction to again engage the hook 44 of said arm 42 with the pin 24 thereby again effectually locking receptacle 36 against premature swinging.

The operation above described is of course repeated intermittently.

Having thus described my invention I claim as new and desire to secure by Letters Patent.

1. A pump comprising a pump cylinder having a weighted plunger, a lever for operating said plunger against its weight, said lever having a fork the arms of which have racks, a water receptacle having pinions engaged with said racks, a member extending from said receptacle, and coöperating locking means including a locking arm pivotally connected with said member.

2. A pump comprising a pump cylinder having a weighted plunger, a lever pivotally mounted and engaged with a member of said plunger, said member having a fork furnished with racks, a water receptacle having pinions located at one side of the vertical median line of said receptacle, said pinions mounted on said racks, a counterweight for said receptacle, a member extending from said receptacle, a locking arm mounted to swing and move longitudinally, said arm having an element pivotally connected with said receptacle member, and means releasably engaged with said arm when said receptacle is in a raised position for preventing longitudinal movement of said arm.

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Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."