(Model.)

J. P. WILSON.

ACTUATING MECHANISM FOR PUMPS AND OTHER DEVICES.

No. 262,338. Patented Aug. 8, 1882.

Fig. 1.

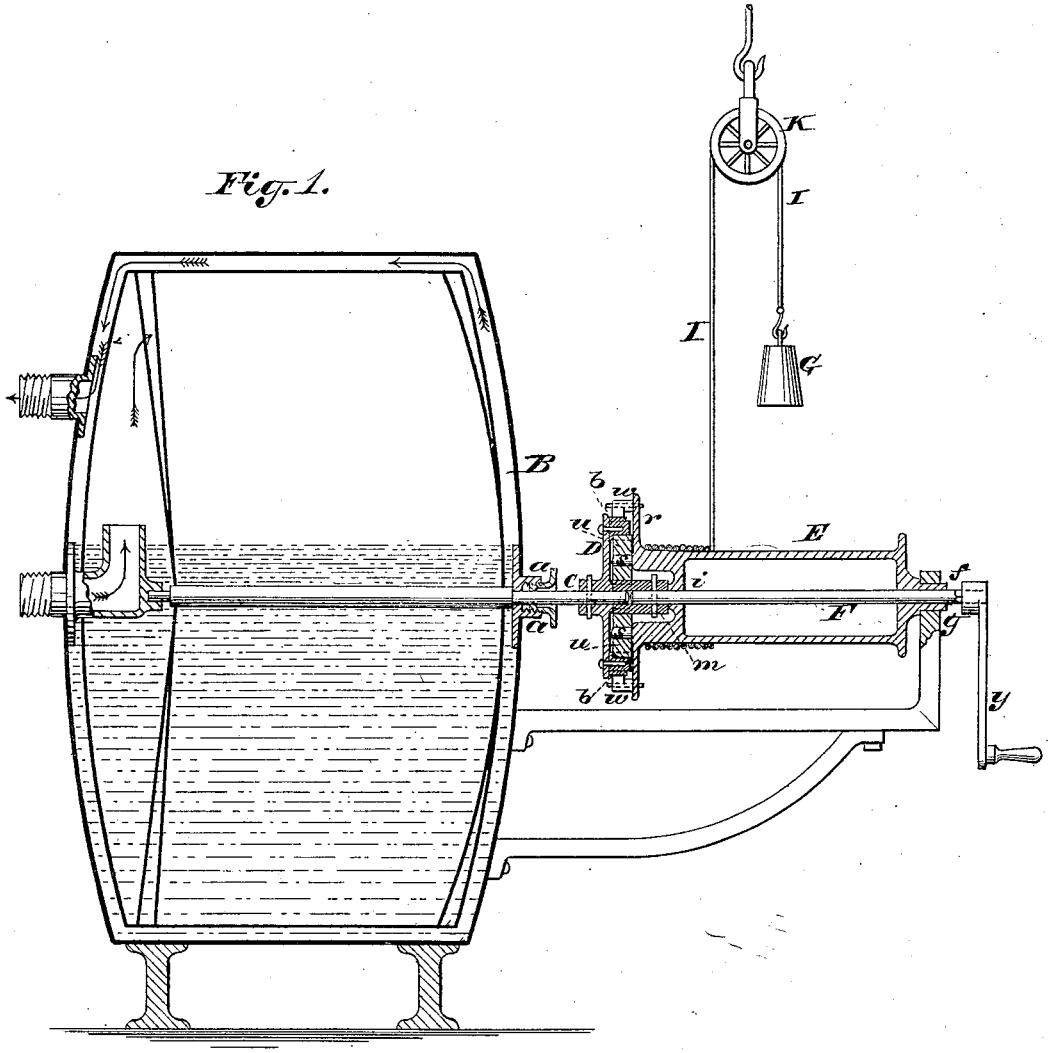


Fig. 2.

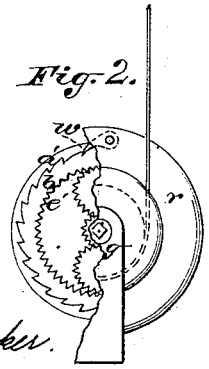
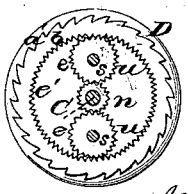


Fig. 3.



WITNESSES.
Henry R. Parker.
Chas. H. Duval

INVENTOR.
James P. Wilson
By James A. Whitney
His Attorney.

UNITED STATES PATENT OFFICE.

JAMES P. WILSON, OF NEWARK, NEW JERSEY.

ACTUATING MECHANISM FOR PUMPS AND OTHER DEVICES.

SPECIFICATION forming part of Letters Patent No. 262,338, dated August 8, 1882.

Application filed December 31, 1880. (Model.)

To all whom it may concern:

Be it known that I, JAMES P. WILSON, of Newark, in the county of Essex and State of New Jersey, have invented an Improvement in Actuating Mechanism for the Pumps of Carbureting-Machines and for other Purposes, of which the following is a specification.

This invention relates to that class of gas and air carburetors in which the pumps or gas or air forcing mechanism is actuated by a weight. In this class of apparatus it is of course necessary that the weight when run down should be again wound up, and unless some means is provided for preventing the stoppage of the pump during the operation of winding up the weight the cessation in the movement of the pump intermits the action of the carbureting apparatus and interrupts the supply of gas to the burners. Various devices have been proposed to overcome this difficulty, but all of them hitherto, so far as I am informed, have been more or less defective.

My invention herein comprises certain novel combinations of parts whereby the operation of rewinding the weight is caused to communicate a motion to the pump substantially uniform with that which it receives from the weight itself, so that by means of my said invention I am enabled to provide absolutely against any interruption in the movement of the pump, and consequently any interference with the continuous and uniform operation of the carburetor.

Figure 1 is a central vertical sectional view of an apparatus embracing my said invention, and Figs. 2 and 3 are detail views of certain parts of said apparatus.

B is the pump, the operation of which insures the passage to the carburetor of the gas or air to be carbureted. This is a rotary pump, of which the axial shaft is represented at C in Fig. 1, and one end of which extends through a suitable stuffing-box, *a*, in one side of the pump. As the pump may be of any usual or suitable construction, it requires no further or specific description in this connection other than concerns the relation of its shaft C with the operating mechanism herein presently explained.

On the outer end of the shaft C is a disk, D, provided with a rim, *b*. This rim has at its outer circumference a ratchet, *a'*, and in its inner circumference an internal system of cogs, *c'*, as represented more clearly in Figs. 2 and 3.

E is the winding-drum, one end of which is provided with the cylindrical tubular sleeve *f*, which rotates in a fixed bearing, *g*, the opposite end of which is journaled at *i* upon the shaft F. This shaft is projected inward through the sleeve *f*, and has fastened upon its inner end a sleeve, *m*, the shaft F being in line with the shaft C of the pump. The sleeve *m* may be most conveniently attached to the shaft F by having the end of the said shaft projecting part way through the bore of the said sleeve, and there fastened by a transverse pin or key, as represented in Fig. 1. The extremity of the shaft C is projected into the outer portion of the bore of the sleeve *m* in such a manner as to afford an axial bearing thereto, from which it results that support is afforded to the inner end of the shaft F, and consequently to the inner end of the drum E. That portion of the sleeve *m* concentric with the end of the shaft C is fashioned into a small spur-wheel or pinion, as more fully represented at *n* in Fig. 3. The innermost end of the drum E has formed upon it a circumferential flange, *r*. Formed on the inner face of this flange *r* are circular studs S, which form the journals of pinions *u*. These pinions *u* are placed on opposite sides to the pinion *n*, which, as just explained, is provided at one end of the sleeve *m* and firmly attached to the shaft F.

Pivoted at opposite sides of the circumference of the flange *r* are pawls *w*, which play into the ratchet *a'* of the rim *b* of the disk D, attached, as hereinbefore explained, to the shaft C of the pump.

G is the weight, the cord or strap I of which is extended over the pulley K in the usual way, and thence in the ordinary way attached to and around the drum E. During the operation of the weight G to actuate the mechanism, the rotatory movement of the drum E, operated from the weight G in the usual manner, is transmitted through the pawls *w* and ratchet *a'* to the shaft C of the pump, to operate the latter. When, however, it becomes necessary to wind up the weight G, which requires that the drum E be turned in a reverse direction, the operation is as follows: The rotation of the

shaft F, by means of a crank, *y*, or otherwise in a direction necessary for elevating the weight G causes the pinions *u*, which are pivoted to the drum E by means of the studs S, to revolve. These pinions *u* act as simple continuous levers to move the drum E around in one direction by the pressure or leverage exerted by their turning against their journals S, while the other ends of the levers *u* are pressing, through means of the cogs *e*, to force the shaft C in the opposite direction. Hence it is obvious that the pinions *h* and *u* can be proportioned to exert any certain percentage less of power to drive the shaft C in one direction than is applied to drive the drum E in the opposite direction. This allows of a nice adjustment for the friction to be overcome in winding up the weight G without increasing the power applied to drive the pump or shaft C while so doing. It will be observed, therefore, that a regular uniform and continuous movement in one direction is given to the shaft C of the pump, whether the drum E is turned in one direction by the weight or in an opposite direction, as in the rewinding or raising of the weight.

It will be plainly understood from the foregoing explanation that the leverage obtained to wind up the weight G is by means of the gears or continuous levers *u*, which drive the pump or shaft C forward by means of the cogs *e*, while they revolve the drum E backward by means of the studs or journals S. Hence it is obvious that only the excess of power applied to the shaft F over and above that required to drive the pump or shaft C forward, is used to elevate the weight.

Of course when the disk D is rotated through the pawls *w* from the drum E, the pinions *u* being interlocked between the pinion *n* and system of cogs *e'* of the rim *b*, the drum E, shaft F, pinion *n*, and rim *b* move together as one while the drum is being rotated by the weight, as aforesaid.

The apparatus herein described and claimed or embraced within my invention may be used for actuating purposes other than pumps when desired, there being many machines and devices other than pumps—such, for example, as large clocks—to which my said invention may be advantageously applied, the pump being shown herein only as one example out of many illustrative of the purposes to which my said invention may be attached.

What I claim as my invention is—

1. The organized mechanism composed of the following elements: first, a winding-drum provided with a suitable rope and weight; secondly, a shaft to be driven; thirdly, a pawl and ratchet connecting the drum and driven shaft; fourthly, mechanism interposed between the drum and driven shaft to continue the rotation of the said shaft when the movement of the drum is reversed, the whole combined and arranged substantially as and for the purpose herein set forth.

2. The combination, with the pump-shaft C, of the disk D, constructed with the external ratchet-teeth and internal gear-teeth, the drum E, provided with a pawl or pawls, the shaft F, provided with a pinion on its inner end, and one or more spur-pinions attached to the drum E, the whole arranged for joint use and operation, substantially as and for the purpose herein set forth.

JAMES P. WILSON.

Witnesses:
JAS. H. MATTHAEI,
JAMES A. WHITNEY.