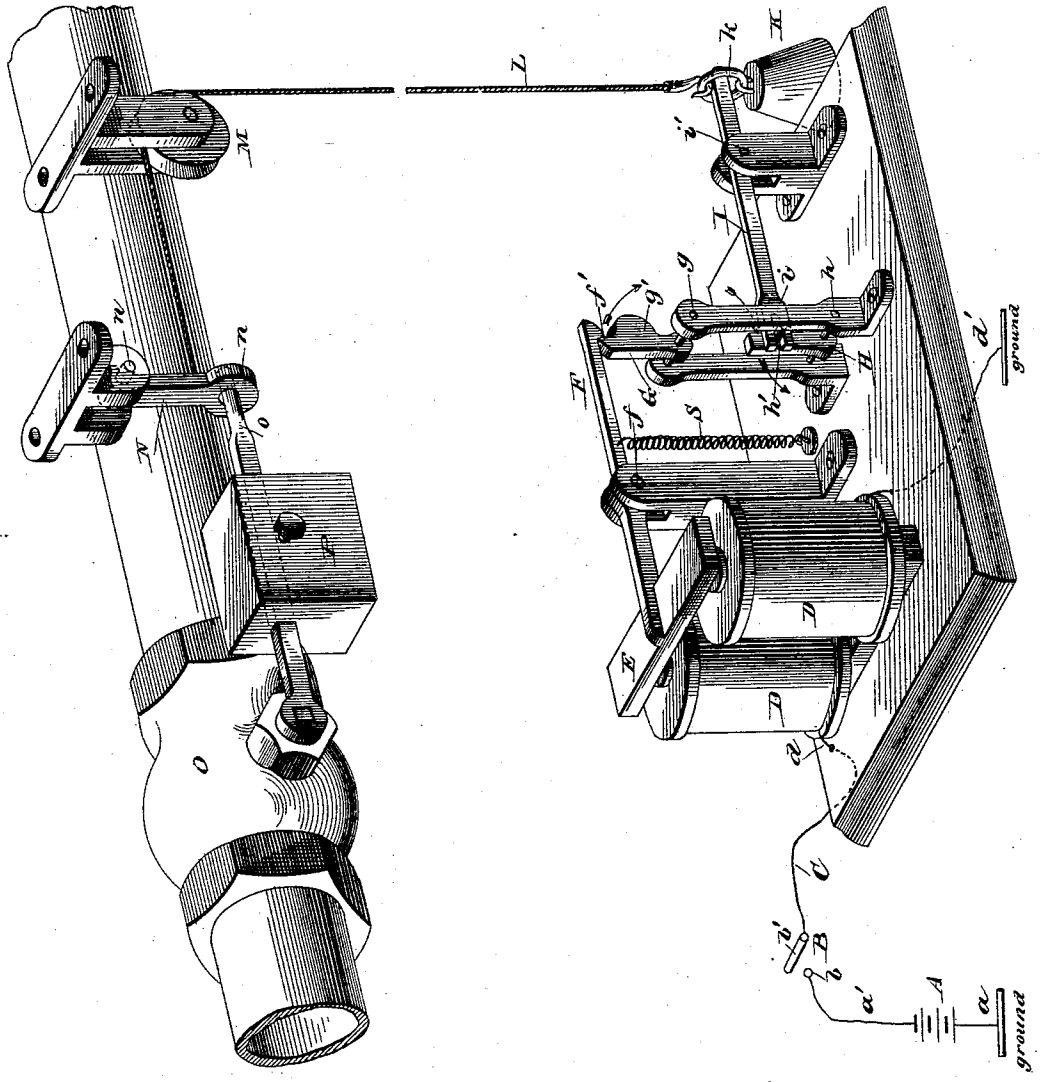
(No Model.)

J. WAGNER.

VALVE OPERATING MECHANISM.

No. 484,265. Patented Oct. 11, 1892.



Witnesses;

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VALVE-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 484,265, dated October 11, 1892.

Application filed May 31, 1892. Serial No. 435,042. (No model.)

To all whom it may concern:

Be it known that I, JACOB WAGNER, a citizen of the United States of America, residing at Sidney, in the county of Shelby and State of Ohio, have invented certain new and useful Improvements in Electrical Valve-Operating Mechanisms, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to electrical valve-operating mechanisms, and particularly to that class in which the apparatus is permanently set either to close the valve or open it.

The object of my invention is the production of an apparatus which will automatically operate a valve on the closing of an electric circuit by a switch located at any desired distance from the valve and which will require but a minimum amount of battery-power to work it.

My invention is especially applicable to those valves used in the mains of water-works, &c., which require considerable power to operate them; and it consists in the novel construction and combination of parts hereinafter described, and particulary pointed out in the claims.

The drawing is a perspective view of my invention, in which—

A is a battery, having one of its poles *a* connected with the ground and its other pole *a'* connected with a contact-point *b* of a switch B, which has a switch-lever *b'* in connection with one end of a main wire C. The other end of main wire C is connected to one pole *d* of an electro-magnet D, whose other pole *d'* is in connection with the ground. The electro-magnet D has an armature E, which is attached to one end of a lever F, fulcrumed at *f*, the other end of said lever being hooked, as shown at *f'*, to engage the upper end of an arm G, pivoted at *g* and weighted, as at *g'*, on one side. When arm G is released from hook *f'*, it swings down by gravity in the direction shown by the arrows. S is a coiled spring attached to lever F and to the base-board, its purpose being to hold the armature normally out of contact with the electro-magnet. Directly beneath arm G is placed an arm H, fulcrumed at *h* and carrying a pin *h'*, normally resting in the bifurcated end *i* of a trip-lever I, fulcrumed at *i'*, the other end of the trip-lever entering a ring *k* on a weight K. To ring *k* is attached one end of a cable L, which passes over a pulley M and has its other end attached to an arm N, pivoted at *n* and formed with an integral ring *n'* at its lower end. This ring *n'* normally supports the outer end of a lever *o* of a valve O. On this valve-lever is hung a weight P, heavy enough to close the valve when said lever is released from the ring *n'*.

The operation of my apparatus is as follows: When it is desired to close the valve O, the electric circuit is completed by closing the switch B, thus magnetizing the electro-magnet D and drawing down the armature E, disengaging the hooked end *f'* from the top end of arm G. As the said arm is weighted on one side, it swings by gravity in the direction shown by the arrows and strikes the top end of arm H, swinging it so as to disengage the pin *h'* from the bifurcated end *i* of the trip-lever I, permitting the weight K to pull down the other end of the lever and slide off it, thereby bringing the full effect of the weight onto the cable L, which in turn pulls lever N, so as to release the end of the valve-lever *o* from ring *n'*. The valve-lever being weighted sufficiently to overcome all resistance then drops and closes the valve.

The method of resetting the apparatus is so obvious as to need no description.

It is apparent that by attaching the valve-lever to the valve so that the downward movement of the lever will open it my invention can be applied to open a normally-closed valve.

With my apparatus I am enabled to operate large valves requiring considerable power to open or close them by means of a comparatively-weak electric current.

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

1. A valve, a weighted lever attached at one end to said valve, a pivoted arm normally supporting the free end of said lever, a rope attached to said arm, a pulley over which the rope passes, a weight attached to the rope, a trip-lever normally supporting said weight, means for holding the trip-lever, a normally-open electric circuit, means for closing the same, a battery for energizing the circuit, an

electro-magnet included in the circuit, an armature, and mechanism operated by the armature as the circuit is closed to release the trip-lever, thereby permitting the weight to drop and disengage the pivoted arm from the weighted valve-lever.

2. A valve, a weighted lever attached at one end to said valve, a pivoted arm normally supporting the free end of said lever, a rope attached to said arm, a pulley over which the rope passes, a weight attached to the rope, a trip-lever normally supporting said weight, a pivoted pin-carrying arm normally engaging the trip-lever, a weighted swinging arm, a hooked lever adapted to engage the swinging arm, an armature attached to the hooked lever, an electro-magnet, a normally-open electric circuit, in which the electro-magnet is included, a battery, and a switch for closing the circuit, substantially as described, and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB WAGNER.

Witnesses:
LEWIS PFAADT,
S. WILKIN.