

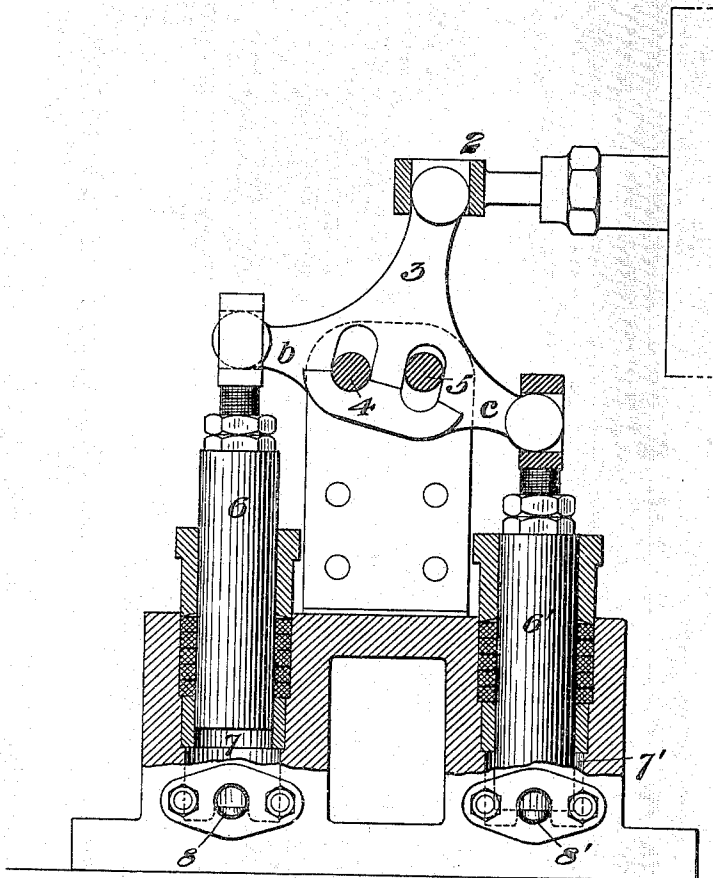
No. 640,519.

Patented Jan. 2, 1900.

W. AHLEN.
VALVE MOTOR.

(Application filed July 31, 1899.)

(No Model.)



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM AHLEN, OF DUQUESNE, PENNSYLVANIA.

VALVE-MOTOR.

SPECIFICATION forming part of Letters Patent No. 640,519, dated January 2, 1900.

Application filed July 31, 1899. Serial No. 725,589. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM AHLEN, of Duquesne, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Valve-Motors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, in which the figure shows a sectional side elevation of my improved valve-motor.

The object of my invention is to provide convenient means for operating in forward or reverse direction or shutting off the valve of a steam-engine or other motor and to reduce to a minimum the number and complication of parts employed for such purpose. It is especially useful in controlling the engine by which the feed-tables of a rolling-mill are driven, but it may be used for other purposes.

In the drawing, 2 represents the stem of a valve which is to be controlled by my improved device. 3 is a rocking lever which is mounted on two pins 4 5, having slots fitting around said pins, the construction being such, as explained below, that these pins may act alternately as the fulcrum on which the rocking lever can be turned. The rocking lever has opposite arms *b c* pivotally joined to the plungers 6 6' of two single-acting cylinders 7 7', which are connected by pipes 8 8' with a four-way valve located at a central or other convenient point and adapted at the will of the operator to put either of the cylinders into communication with the fluid-pressure or with the exhaust or both into communication with the source of pressure.

The operation is as follows: In order to bring the valve-stem 2 into middle position, and thus to shut off the valve, the operator connects both cylinders 7 7' with pressure, which, acting on pistons 6 6', (the parts being in the position shown, with the pin 4 at the base of its slot,) will by reason of the longer leverage between the stems 6' and fulcrum 4 than between the stem 6 and fulcrum 4 raise the arm *c* of the lever until the pin 5 is engaged by the end of its slot, at which time the valve-stem is at its middle position, and the pressure on the arms *b* and *c* being equal the valve-stem is held in that position. To move the valve-stem to the other end of its stroke at the left, the cylinder 7 is cut off from the

supply and put into communication with the exhaust, whereupon the cylinder 7' being connected with the pressure raises the piston 6', turns the lever 3 on the fulcrum of the pin 5, and displaces the water in the cylinder 7 by forcing in the plunger thereof. The parts are then brought into a position the reverse of that shown, the pin 5 being brought to the base of its slot and the pin 4 to the other end of its slot. To bring the valve-stem again into middle position, both cylinders are connected with pressure, or to move the valve-stem to the end of its instroke at the right the cylinder 7' is connected with the exhaust, the cylinder 7 being maintained in communication with the pressure. My improved device therefore possesses two fulcrums, on either of which the lever may turn or rest on both, and the lever being adapted to transmit motion to the parts to be actuated three positions can be given to such parts. I am thus enabled by two single-acting cylinders to bring the valve-stem into any of its three positions, whereas for accomplishing a similar purpose heretofore four single-acting cylinders have been employed. The advantages of simpler construction and less complication of packing are thus secured.

I claim—

1. The combination of two motors, each comprising a cylinder and plunger and adapted to be connected alternately or simultaneously with pressure, a lever acted upon by the moving parts of both motors, and two fulcrums on either of which the lever may turn or rest on both, said lever being adapted to transmit motion to parts to be actuated, whereby three positions are given to the parts actuated; substantially as described.

2. The combination of two motors adapted to be actuated alternately or simultaneously, a lever acted upon by the moving parts of both motors, and two fulcrums on either of which the lever may turn or rest on both, said lever being adapted to transmit motion to parts to be actuated, whereby three positions are given to the parts actuated; substantially as described.

3. The combination of two hydraulic motors adapted to be connected alternately or simultaneously with pressure, a lever connected with the moving parts of both motors, two ful-

crums on which the lever may turn, whereby,
on applying both motors the lever is forced
against both fulcrums, and by operating one
motor the lever is rocked upon the corre-
5 sponding fulcrum, and a valve connected with
and operated by the lever; substantially as
described.

In testimony whereof I have hereunto set
my hand.

WM. AHLEN.

Witnesses:

THOMAS W. BAKEWELL,
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