

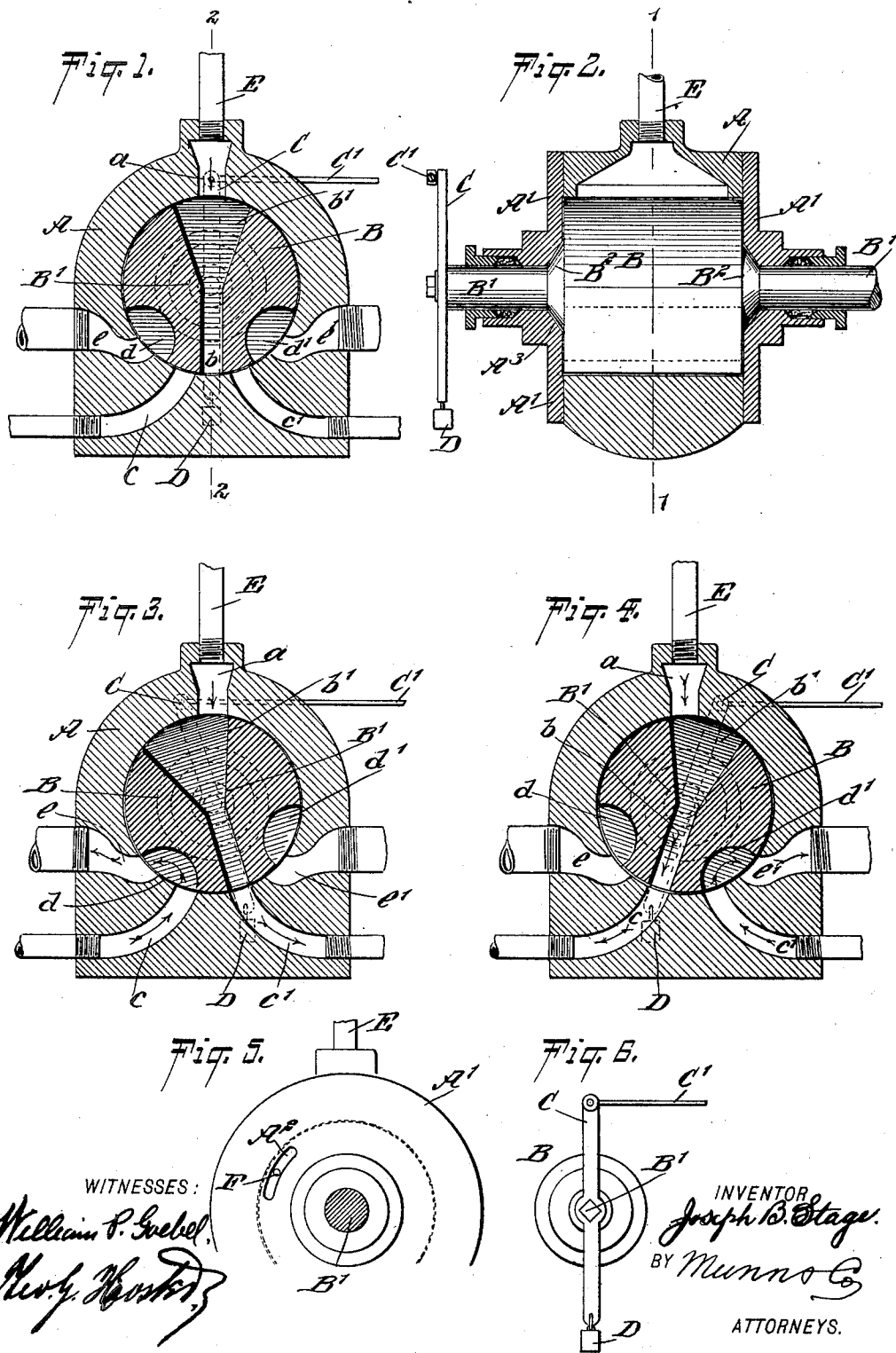
No. 630,124.

Patented Aug. 1, 1899.

J. B. STAGE.
ROTARY VALVE.

(Application filed Dec. 24, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

JOSEPH BRADLEY STAGE, OF TALBOT, MICHIGAN.

ROTARY VALVE.

SPECIFICATION forming part of Letters Patent No. 630,124, dated August 1, 1899.

Application filed December 24, 1898. Serial No. 700,252. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BRADLEY STAGE, of Talbot, in the county of Menominee and State of Michigan, have invented a new and Improved Rotary Valve, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved rotary valve which is simple and durable in construction, not liable to leak, more especially designed for use in the steam-feed for sawmills, and arranged to automatically shut off the steam in case of a break in the connections from the valve to the sawyer to bring the sawmill-carriage to a stop.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claim.

A practical embodiment of my invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement on the line 1 1 in Fig. 2 and with the valve-plug in a normal or shut-off position. Fig. 2 is a transverse section of the same on the line 2 2 in Fig. 1. Fig. 3 is a sectional side elevation of the improvement with the valve-plug in a different position. Fig. 4 is a similar view of the same with the valve-plug in still another position. Fig. 5 is a side elevation of the improvement, showing the limiting-stop for the valve-plug; and Fig. 6 is a side elevation of the valve-plug, showing the weighted handle.

The improved rotary valve is provided with a valve-casing A, having a bore for the valve-plug B to turn in, said valve-plug having its stem B' journaled in suitable bearings in the heads A' for the casing A. On one outer end of the stem is secured an arm C, connected at its upper end with a rod C' or the like, leading to the operator's place to enable the operator to move the valve-plug into the desired position and turn on the steam to the cylinder to move the carriage in one direction and shift the valve-plug to move the carriage in the opposite direction, so as to completely shut off the steam when desired.

On the lower end of the arm C is hung a weight D, adapted to return the valve-plug

to a normal or shut-off position, as shown in Figs. 1 and 2, in case the connections from the arm C to the operator break, it being understood that the weight D is sufficiently heavy to swing the arm to a vertical position, so as to bring the valve-plug into a normal or cut-off position.

The valve-casing A is provided on top with an inlet *a*, connected by a pipe E with a boiler or other steam-supply, and said inlet *a* registers at all times with the upper widened mouth *b'* of a port *b*, extending centrally through the plug B, as is plainly indicated in Fig. 1. The lower end of the port *b* registers with a solid portion of the valve-casing A at the time the valve B is in its normal position, as indicated in Fig. 1; but said port is adapted to register with either of the ports *c* or *c'*, leading to opposite ends of the cylinder, connected by its piston with the sawmill-carriage in the usual manner.

In the peripheral surface of the valve-plug B, on opposite sides of the port *b*, are arranged exhaust-cavities *d d'*, of which the exhaust-cavity *d* is adapted to connect the cylinder-port *c* with the exhaust-port *e* in the casing A, and the other exhaust-cavity *d'* is adapted to connect the cylinder-port *c'* with the exhaust-port *e'*, arranged in the casing A and leading to the outside.

In one of the faces of the valve-plug B is a stop-pin F, extending into a segmental slot A² in the corresponding head A' for the valve-casing, so as to limit the turning motion of the valve-plug in its bore in the casing. Thus when the operator moves the arm C in one direction, as indicated in Fig. 3, then the port *b* registers with the cylinder-port *c'*, while the other cylinder-port *c* is connected by the exhaust-cavity *d* with the exhaust-port *e*. The mouth *b'* of the port *b* is at all times in register with the inlet *a*, so that steam from the boiler can now pass through the casing and valve to the cylinder to move the carriage in one direction, and when it is desired by the sawyer to return the carriage he pulls the arm C in the opposite direction to turn the valve-plug B into the position shown in Fig. 4, so that live steam can pass through the valve-plug by way of the ports *b* and *c* to the other end of the cylinder to return the carriage, the exhaust-steam passing

through the port c' , cavity d' , and exhaust-port e' to the outside.

In case of a break in the connection from the sawyer to the arm C the weight D swings
5 the valve-plug B into an angular position, (shown in Fig. 1,) so that the steam is cut off from both ports $c c'$. The faces of the valve-plug B are preferably provided with conical offsets B^2 , fitting in the corresponding recesses A^3 in the heads A' to prevent leakage
10 of steam past the valve-stem. (See Fig. 2.)

The device is very simple and durable in construction, is not liable to get out of order,
is not liable to allow the steam to leak, and
15 permits an automatic shifting of the valve in case of breakage in the connections of the actuating devices for the arm C.

By the construction shown and described the valve is not liable to be clogged by water
20 of condensation, and hence can be readily actuated at all times to prevent the carriage

from accidentally running to the end of its travel.

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

A valve comprising a casing having a steam-inlet, two cylinder-ports and two exhaust-ports, a plug-valve mounted to turn in the casing and having exhaust-cavities and an
30 inlet-port registering at all times with the inlet-port of the casing and adapted to register with either one of the cylinder-ports, a pin extended from the plug-valve into a slot formed in a head of the casing, an arm rigidly attached to a stem of the valve, a weight
35 on said arm and a shifting rod extended from the arm, substantially as specified.

JOSEPH BRADLEY STAGE.

Witnesses:

ALICE M. BOWERS,
NORMAN BOWERS.