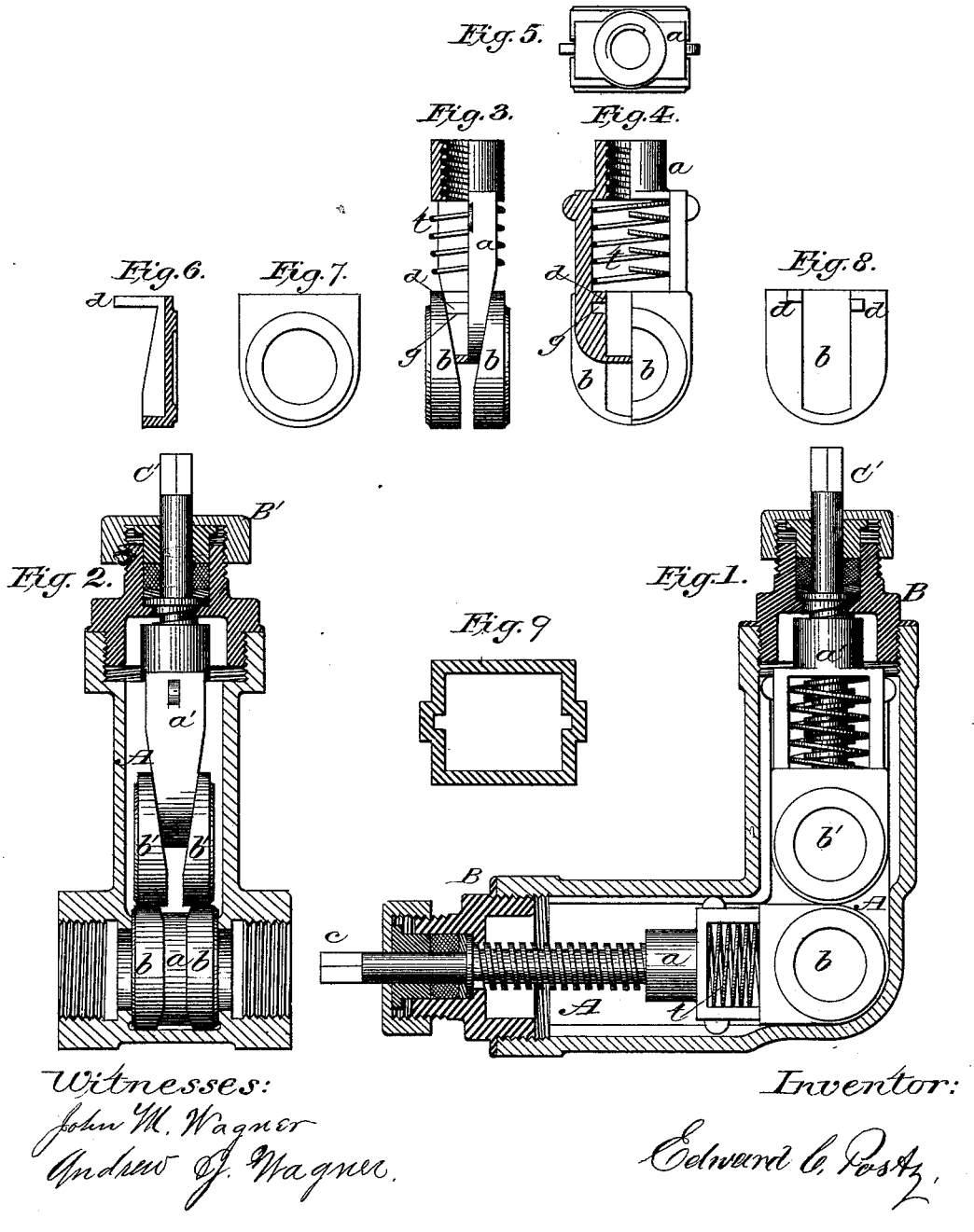
E. C. POST.
Stop-Valve.

No. 218,399. Patented Aug 12, 1879.



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EDWARD C. POST, OF MONROE, MICHIGAN.

IMPROVEMENT IN STOP-VALVES.

Specification forming part of Letters Patent No. **218,399**, dated August 12, 1879; application filed February 6, 1879.

To all whom it may concern:

Be it known that I, EDWARD C. POST, of Monroe, in the county of Monroe, in the State of Michigan, have invented a certain new and useful Improvement in Stop-Valves, of which the following is a specification.

This improvement has for its object more particularly, among other objects, a convenient and practical means of using the valve without stopping the work of the machine or engine while the valve is being repaired.

It is constructed with two parallel seats set opposite each other, between which are two pairs of wedge-shaped gates set on wedge-shaped yokes, each pair of said gates and yokes being attached to different stems, each stem working independent of the other at any desirable angle, and they conterminate between the two valve-seats interchangeably at pleasure.

My invention is a double or two stem valve, each stem with all its parts being counterparts of the other, except the valve-seats, which are situated at the junction of the stems, so as to be used in communication with either stem at pleasure—*i. e.*, when one valve-stem is idle for repair or other reason, then the other stem may be used at once, and all over the same steam-port; and it is also my object to provide expanding gates in a straightway-valve, so contrived as to require but little taper upon the gates and yoke to jam them with certainty against the seats, and also that the screw-stem which lifts the yoke shall only revolve in the packing, and shall not move up and down in it, as it does ordinarily.

In the drawings, *a a'* are the wedge-shaped yokes; *b b* and *b' b'*, the wedge-shaped gates; C C', the screw-stems. *f f'* are the spiral springs which keep the gates *b b'* in position. A A is the gate-chamber, in which both pairs of gates perform their duty, and in which the two valve-seats *x x* are set opposite each other.

Figure 1 is a vertical section of the valve, showing the one pair of gates *b b*, with yoke *a*, stem C, and spring *f*, in position for closing the passage, and the other pair of gates, *b' b'*, with yoke *a'*, stem C', and spring *f'*, drawn up in reserve position—*i. e.*, out of use.

Fig. 2 is a vertical section of the valve through the stem C', edgewise of gates *b' b'* and yoke *a'*. This valve is constructed so that the two pairs of gates *b b* and *b' b'*, with their respective yokes, stems, and springs, shall travel from different points when being lowered upon the valve-seats, and they converge upon one point—*i. e.*, between the one pair of valve-seats. It will not be necessary that the two stems should be set at a right angle, as shown in the drawings; but they may be set at any other desirable angle.

Fig. 3 is a side view, Fig. 4 a vertical section, and Fig. 5 a top view, of yoke *a*, gates *b*, and spring *f*, showing the manner in which these parts are connected with each other. *f* is a coil-spring set in a recess in the middle of the yoke. It sets with its upper end against the upper wall of said recess, and at its lower end against the top of the gates *b b*, also at the same point upon the upper surfaces of the lugs *d d*, performing the duty of holding the lugs *d d* down upon the projections *g g*, as shown in Figs. 3 and 4.

Figs. 6, 7, and 8 are views of the gates *b*, showing the manner in which the lugs *d d* are arranged on the gates, so as to interlock and secure a perfect guide for the gates. These lugs are projections standing out from the inner surfaces of the gates near their upper ends, and are of sufficient length to pass nearly through the yoke, each pair being set so that one lug will interlock above its opposing lug on the other gate, and so that its companion lug shall interlock below its opposing lug on the other gate, the whole being so made to alternate in position that they will lift the gates simultaneously and evenly, thus preventing any canting of the gates and the consequent unequal wear of the parts.

The operation of this valve is, in all its parts, different from any other with which I am acquainted, and is as follows: Suppose the valve is connected to a machine of which the chambers are, under pressure, performing the duty of closing the passage through them, as shown in Figs. 1 and 2. It may be opened by turning stem C to the right, which raises the wedged part of the yoke *a* from between the gates *b b*, the spring *f* still holding the gates against the bottom of the gate-chamber A until the projection *g* of yoke *a* reaches the

lugs *d d*, (see Figs. 3 and 4,) during which the pressure in the chambers of the engine has had time to force the gates from their seats, after which the stem C will lift the gates freely without causing them to rub or slide over the valve-seats, as is the case with the gates of other valves, and which is very injurious to the faces of the gates as well as to those of the seats.

Now, suppose the gates *b b* must be removed for repair or other object. Then, at a convenient time, the passage of steam or gas through the valve may be closed by turning stem C′ to the left, which causes yoke *a′*, spring *f′*, and gates *b′ b′* to travel toward the bottom of the valve-chamber, the spring *f′* holding the lugs *d′ d′* against the projections *g′* of yoke *a′*, Figs. 3 and 4, until the gates *b′ b′* reach the bottom of the chamber, where they are opposite to their seats, when the spring *f′* will compress and allow the wedged part of the yoke *a′* to slide in between the inclined surfaces of the gates and force them against their seats. Then the cover and packing-box B may be removed, the defective gates taken off, repaired, or renewed, as the case may be, and returned to place, all being done without exhausting or even diminishing the pressure in the chambers of the engine, or any loss of gas thereby whatever.

The valve-seats of this valve being made of a hard metal, and the faces of the gates of a softer material, its wearing by work will be confined to the softer faces only, and these may, at any time, be removed and repaired in the manner set forth.

For ammonia and other ice engines especially, leaky stop-valves always cause trouble, loss of gas, delays, and sometimes injuries to the operatives, which troubles this double valve will obviate, because, should a leak occur from a defective stem, then the other may be used at once.

What I claim as new, and desire to secure by Letters Patent, is—

1. Two or more stems, C and C′, with their sets of gates *b b* and *b′ b′*, yokes *a* and *a′*, and springs *f* and *f′*, each set working from different points of departure at any desirable angle in their line of travel, and terminating upon and between the one pair of valve-seats.

2. The combination of yoke *a*, with its projections *g g*, spring *f*, and gates *b b*, with their lugs *d d*, arranged so as to interlock each other.

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