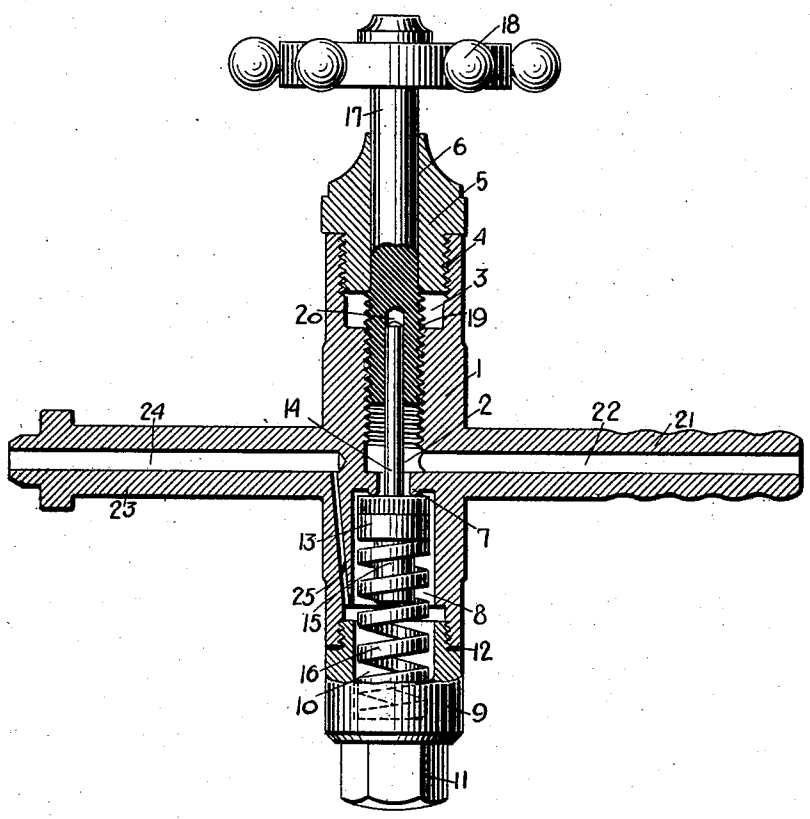
J. LANGSDORFF & L. KRUG.

HIGH PRESSURE VALVE.

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1,068,909. Patented July 29, 1913.



WITNESSES

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JOSEPH LANGSDORFF, OF JERSEY CITY, NEW JERSEY, AND LOUIS KRUG, OF NEW YORK, N. Y.

HIGH-PRESSURE VALVE.

1,068,909. Specification of Letters Patent. Patented July 29, 1913.

Application filed November 1, 1912. Serial No. 728,999.

To all whom it may concern:

Be it known that we, JOSEPH LANGSDORFF, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, and LOUIS KRUG, a citizen of the United States, and a resident of the city of New York, Windfield, borough of Queens, in the county of Queens and State of New York, have invented a new and Improved High-Pressure Valve, of which the following is a full, clear, and exact description.

This invention comprehends a high pressure valve of new and improved design.

The principal object of the invention is to provide a valve which will be maintained in closed position through the aid of a spring, assisted by the pressure of the fluid passing through the valve, opening of the valve being brought about through compression of the spring.

In the accompanying sheet of drawings we have shown the structure of the valve through the medium of a vertical sectional view, it being obvious, however, that many changes may be made in the size and shape without departing from the spirit of the invention as set forth.

The body member 1 is provided with a continuous axial bore or passageway extending therethrough; the intermediate portion 2 of this bore is threaded for a desirable length and communicates with the enlarged counter-bore 3 at one end, also threaded in its interior as at 4 in order to receive the lower threaded end of a cap 5 having an opening 6 extending therethrough; beneath the said intermediate portion 2 of the bore is the valve seat 7, and below the seat is a counter-bored portion 8 threaded at its lower end in order to receive the removable cap 9 having a pocket 10 therein, the outer open end of the cap being squared as at 11 in order to provide for convenient insertion and removal; in order to prevent leakage a washer 12 of any suitable material is preferably interposed between the lower end of the body portion and the cap. Within the counter-bored portion 8 the valve 13 is removably mounted, said valve being provided with an upwardly extending stem 14 extending into the intermediate portion 2 of the bore, the under portion of the valve being provided with an offset 15, the helical spring 16 engaging the under side of the valve and surrounding the said offset, the pressure of the spring maintaining the valve closed against the valve seat when in closed position, as shown in the drawings; the spring extends into the pocket 10 in the lower removable cap 9.

Extending through the opening 6 in the upper cap 5 is a spindle 17 carrying a handle 18 at its upper end, the lower end portion of the spindle being threaded as at 19 and engaging the threaded intermediate portion 2 of the bore, the said lower end being further provided with a bore 20 in which the upper end portion of the stem 14 of the valve is received.

Carried by the body member 1 is an arm 21 having an opening 22 extending therethrough which communicates with the said intermediate portion 2 of the bore, this arm being adapted to receive a tube or hose whereby the fluid passed through the valve is conducted away; a second arm 23 is also provided on the body member 1, there being an opening 24 extending therethrough, this opening communicating with the counter-bored portion 8 of the body member beneath the valve seat 7 and the valve 13 through the passageway 25; the end of this arm is adapted to be connected to the source of supply. The bore of the body is contracted below or beyond the intersection with the outlet 22, to provide the desired formation for the valve seat 7.

As shown in the drawing, the pressure of the spring 16 is maintaining the valve closed against the valve seat 7 so that the passage of fluid through the valve is prevented, the pressure of the said fluid acting against the under portion of the valve and assisting in firmly seating it in position. The handle 18 and the spindle 17 are availed of in opening and closing of the valve in the following manner: As the handle is turned in one direction the threads on the spindle cause it to advance into the body member, and the end wall of the bore 20 in this spindle engages the end of the stem 14 extending upwardly from the valve 13, moving the said valve downwardly against the pressure of the spring 16 and permitting the passage of fluid through the opening in the arm 23 into the opening in the arm 21 through the passageway 25; in order to close the valve, or, rather, in order to permit the said spring to close the valve, the handle 18 is turned in the

opposite direction, after which the bottom wall of the bore 20 moves away from the end of the spindle 17, the pressure of the spring then keeping the valve closely in engagement with the seat.

The structure described sets forth a valve in which the handle takes no part in maintaining the valve closed; the spring performs this function, and the positioning of the passageway 25 below the valve permits the pressure of the fluid to materially assist the spring.

The valve is adapted for uses and materials which are widely different, it being apparent that the relative strength of the various portions thereof may be varied in order to produce a mechanically successful device.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

The herein-described high pressure valve, comprising a valve body, lateral arms extending from the body between the ends thereof, one of which arms has an axial inlet passage and the other of which has an axial outlet passage, the body having a bore intersected by and communicating directly with the said outlet passage, the bore being contracted beyond the point of intersection with the outlet passage, and counterbored beyond the contracted portion, the counterbore forming a cylindrical housing integral with the body, there being an outwardly facing valve seat at the inner end of the said housing, and a port leading from the inlet passage to the interior of the housing at a point removed from the valve seat, a removable closure for the outer end of the cylindrical housing, a valve disposed in the said housing and movable axially therein between the valve seat and the port from the inlet, a helical compression spring abutting at its inner end against the valve, and at its outer end against the mentioned closure, the valve having an axially disposed offset within the spring, and having a stem at the opposite side extending through the passage between the counter-bore and outlet passage and across the latter into the bore of the body, and a valve spindle in said bore movable axially therein into or out of engagement with the valve stem, the said spindle terminating short of the outlet passage.

In testimony whereof I, JOSEPH LANGSDORFF, have signed this specification in the presence of two subscribing witnesses.

JOSEPH LANGSDORFF.

Witnesses:
OTTO KASEL,
EDWARD STEFTEN.

In testimony whereof I, LOUIS KRUG, have signed this specification in the presence of two subscribing witnesses.

LOUIS KRUG.

Witnesses:
GOTTLIEB MAIER,
JACOB GRASSMANN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."