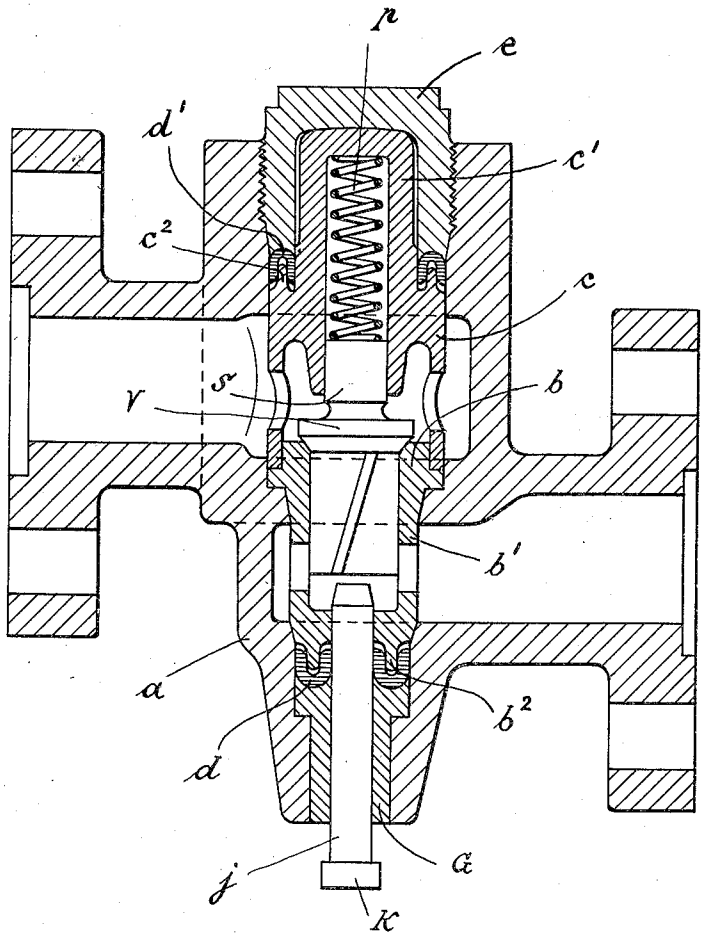
H. CROWE.

HYDRAULIC VALVE SEATING.

APPLICATION FILED JUNE 24, 1918.

1,303,035. Patented May 6, 1919.



Witnesses :
E. Alder
M. Fraix

Inventor :
Henry Crowe
by C. Lewis
His Attorney.

UNITED STATES PATENT OFFICE.

HENRY CROWE, OF SALTBURN, ENGLAND.

HYDRAULIC-VALVE SEATING.

1,303,035. Specification of Letters Patent. Patented May 6, 1919.

Application filed June 24, 1918. Serial No. 241,599.

To all whom it may concern:

Be it known that I, HENRY CROWE, a subject of the King of England, residing at Saltburn-by-the-Sea, in the county of York, England, have invented certain new and useful Improvements in Hydraulic-Valve Seatings, of which the following is a specification.

My invention relates to seatings of hydraulic operating valves controlling single and double acting hydraulic cylinders and pertains more particularly to that type of valve in which a cage is employed for holding a loose valve seat in position. The object of this invention is to provide an improved form of construction of such a cage and to design and arrange the latter in such a manner that the usual valve spindle packing gland is altogether dispensed with. A further object is to so construct the working parts that they are adapted to be removed by the removal of one single cover.

The hydraulic valve consists in the case of a single acting valve of one inlet and one exhaust miter valve, and in the case of a double acting valve of two inlet and two outlet or exhaust miter valves, all placed on one center line.

The inlet and exhaust valves being substantially similar in construction, one valve only is illustrated in the drawing which shows a sectional elevation.

To carry out my invention I make provision of a valve body of substantially known design having the usual branch connections for coupling the valve to the hydraulic cylinder and pressure supply main respectively, the latter devices not being shown since they are not intended to form part of the invention. The said valve body or casing is made to receive a loose valve seat b. This seat is formed with an extension b^1 which projects into the lower extended portion a of the valve body or casing where, by means of the reduced and ring-shaped integral ends b^2 of the extension b^1, the latter engages a U packing leather d serving as a hydraulic joint for the valve operating spindle j. In this manner the packing leather d is prevented from rising and at the same time the neck-bush G, which is fitted at the bottom of the valve body and serves as a guide for the spindle j and as a rest for the packing leather d, is held in position.

The valve seat b, in turn, is held in position by a cage c of which the reduced and recessed portion c^1 serves as a guide and receptacle respectively for the valve spindle S with valve V and the spring p influencing same. The cage c is provided with a ring-shaped shoulder c^2 adapted to receive a U packing leather d^1 which thus forms a hydraulic joint between the valve casing and the cage c, while a cover e screwed into the top of the valve body or casing and fitting over the reduced portion c^1 is adapted to press the packing leather d^1 onto the shoulder c^2 and to hold the cage firmly against the valve seat.

The valve operating spindle j is preferably provided with a detachable collar K on the bottom end, the diameter of said collar being slightly less than the diameter of the reduced portion of the neck bush G, so that when it is desired to remove the whole of the internal parts of the valve, and on removal of the cover e, upward pressure is applied to the valve operating spindle j whence the collar K presses on the underside of the neck bush G which in turn presses upward the loose valve seat b and the cage c, together with the U leathers, valve spindle and spring.

Having now fully described my said invention what I claim and desire to secure by Letters Patent is:—

1. In a hydraulic operating valve of the type described, the combination, with a valve seat loosely mounted in the casing of the valve and having an extension which projects into the lower portion of the said casing, of a U packing leather engaged by said extension, a neck bush mounted at the bottom of the casing and forming a rest for the packing leather, a spindle extending through the neck bush, the packing leather and the bottom part of the valve seat, a cage fitted in the upper portion of the valve casing, the said cage having a ring-shaped shoulder and a reduced and recessed centrally disposed portion, a spring-influenced valve spindle guided by the said recessed portion and means to hold the cage, valve seat and packing leathers in position.

2. The herein described valve seat loosely mounted in the valve casing, in combination with a cage resting on the said seat and having a reduced and recessed center portion and a ring-shaped shoulder, a U packing leather fitted over the said shoulder, a spring-influenced valve spindle guided by the recessed center portion of the cage, a

neck bush mounted at the bottom of the valve casing, an operating spindle extending through the neck bush, and the lower end of the downwardly extended valve seat, and means to permit of the simultaneous removal of all the working parts of the valve, substantially as set forth and shown.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY CROWE.

Witnesses:

JOHN WILLIAM WALTON,

FREDERICK CORNER.