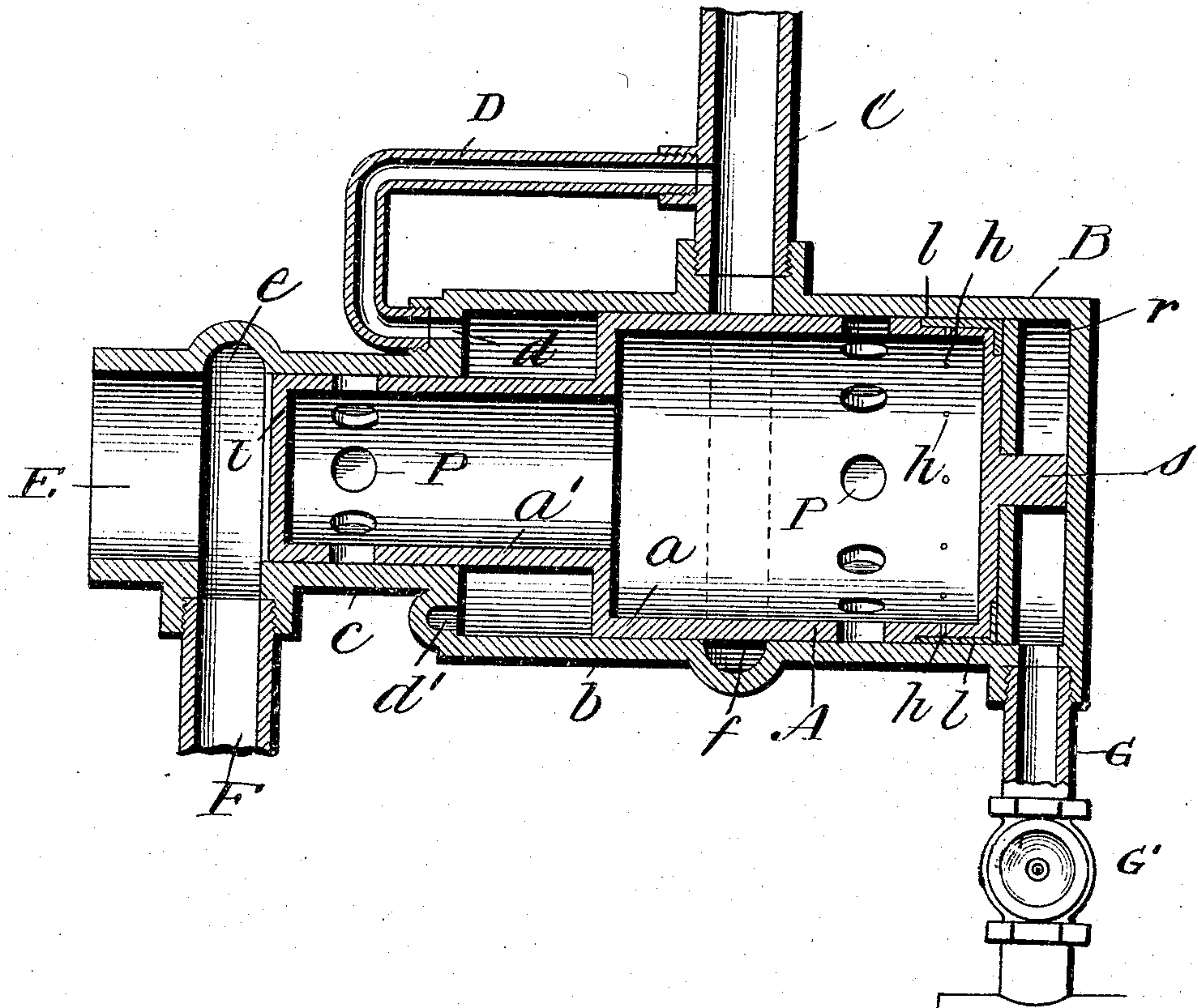


No. 785,137.

PATENTED MAR. 21, 1905.

J. G. WESTBROOK.
VALVE.

APPLICATION FILED APR. 1, 1903.



WITNESSES:

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JAMES G. WESTBROOK, OF OGDENSBURG, NEW YORK.

VALVE.

SPECIFICATION forming part of Letters Patent No. 785,137, dated March 21, 1905.

Application filed April 1, 1903. Serial No. 150,618.

To all whom it may concern:

Be it known that I, JAMES G. WESTBROOK, a citizen of the United States, residing at Ogdensburg, in the county of St. Lawrence and State of New York, have invented certain new and useful Improvements in Valves, of which the following is a specification.

This invention relates to improvements in sliding valves, and particularly to such as are designed for controlling the admission of pressure to a motor and the exhaustion of the same therefrom; and the object in view is the cushioning of the stroke of the valve for effecting a smooth easy movement thereof and assuring the maintaining of the same in a closed condition when not in operation.

With this and other objects in view the invention comprises certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawing the figure represents a detail longitudinal vertical central section of a valve embodying the features of the present invention.

Referring to the drawing by letters, B indicates a suitable valve-casing provided with an annular portion *b*, closed at one end by any suitable head and at the other end formed with an annular shoulder *d''*, a reduced annular portion *c* extending from said shoulder and terminating in exhaust E. A pressure-supply pipe C communicates with the enlarged portion *b* of the casing B approximately centrally thereof, discharging into an annular groove *f*, formed internally in said casing, and a port F leads from the reduced annular portion *c* and communicates with an internal annular groove *e*, formed in said portion, the port F communicating with any suitable motor.

The abutment *d''* is provided with an annular groove *e'*, communicating with a by-pass D, which by-pass in turn communicates with the supply C for purposes hereinafter specified. Within the casing B is slidably mounted a hollow valve-piston A, formed with a comparatively large portion *a* and a reduced portion *a'*, the reduced portion being designed to reciprocate within the reduced portion *c* and the enlarged portion of said valve moving within the enlarged portion of the casing.

The valve A is provided with a plurality of ports P in its enlarged portion and also in its reduced portion, those in the reduced portion being spaced longitudinally of the valve a distance from those in the enlarged portion equal to the distance between the groove *f* and the groove *e*, so that in operation when the ports P of the enlarged portion are caused to register with the groove *f* the ports P will register with the groove *e*. The valve A may be provided with any suitable packing for preventing escape of pressure, and I have illustrated a preferred form by way of a leather or other suitable packing band *l*, seated within an annular groove formed in the outer surface of the valve A and pressed outwardly by pressure admitted through apertures *h*, said band being retained in position by a disk *r* of the same diameter as the enlargement *a* of the valve A, said disk resting against the front end of the valve through said disk and forming an abutment for limiting the forward throw of the valve, whereby a space will always be maintained between the forward end of the valve and the end of the casing B. A pressure-supply pipe G communicates with the casing B in front of the disk *r* for purposes hereinafter specified. Any suitable fluid-pressure may be admitted through the pipe G under the control of valve G', either manually or mechanically operating, such pressure being supplied from any preferred source, a compressed-air tank being indicated in the drawing as one illustration.

In operation when it is desired to admit pressure from the supply C to the port F the valve G' is manipulated for admitting the pressure to the front of the valve A, which is under sufficient head to throw the piston to its seat against the pressure entering through by-pass D. When the ports P register with the grooves *f* and *e*, respectively, pressure is admitted from supply C through valve A to port F, and when it is desired to shut off said communication the valve G' is again manipulated, said valve being of the common three-way type for shutting off the pressure upon the front end of the piston A and permitting the contained pressure to be exhausted. While the said pressure is being exhausted the

pressure admitted through the by-pass D will throw the piston to the position indicated in the figure, cutting off the supply from pipe C and permitting an exhaust from port F out the
5 tube E.

This valve, as illustrated, may be used with any of the common and well-known motors—such, for instance, as a single-stroke engine—for throwing one member of a clutch, although
10 it will be understood that I decidedly do not desire to be considered as limiting myself to any particular enginery to be operated.

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

1. In a mechanism of the class described, the combination with a casing formed with an annular shoulder, of a valve mounted within said casing having an enlarged portion snugly
20 fitting the casing at one side of said shoulder and a reduced portion snugly fitting the casing at the other side of said shoulder, means for supplying pressure to said valve-casing, a by-pass leading from said means to and com-
25 municating through the wall of said casing at the point of said shoulder, means for reciprocating said valve within said casing and ports in the path of movement of said valve.

2. In a mechanism of the class described,
30 the combination with a valve-casing formed

with an internal annular shoulder, a supply-pipe communicating with said casing, a by-pass communicating between the said supply-pipe, and the interior of the casing, said by-pass extending through said shoulder, a valve
35 within said casing normally retained in a closed condition by pressure supplied through said by-pass, means for moving said valve within the casing against pressure and ports in the path of the movement of the valve. 40

3. In a mechanism of the class described, the combination with a valve-casing formed with an internal, annular shoulder provided with an annular groove, a supply-pipe com-
45 municating with said casing, a by-pass communicating between said supply-pipe and said groove, said by-pass extending through said shoulder, a valve within said casing normally retained in a closed condition by pressure sup-
50 plied through said by-pass, means for moving said valve within the casing against said pressure, and ports in the path of movement of the valve.

In testimony whereof I have signed my name to this specification in presence of two wit-
55 nesses.

JAMES G. WESTBROOK.

Witnesses:

GEORGE B. SHEPARD,
HENRY H. CHAPMAN.