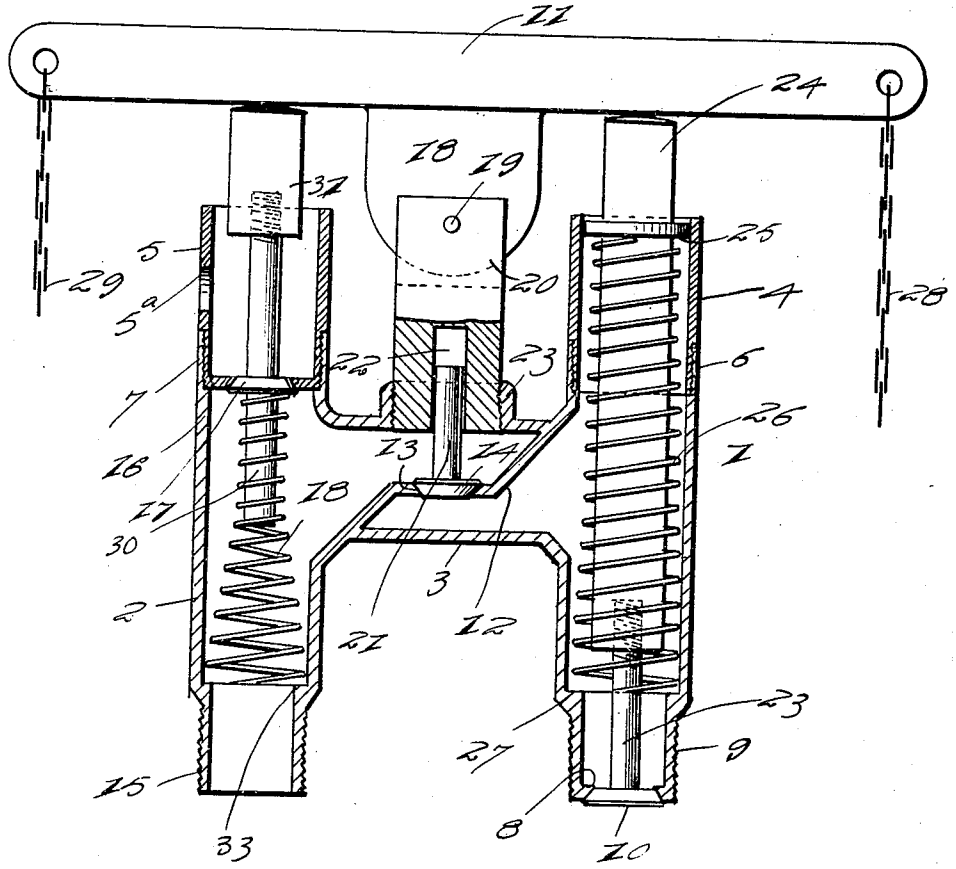
J. J. JUSTEN.

AIR VALVE FOR HOISTS.

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1,258,342.

Patented Mar. 5, 1918.



Witness

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JOSEPH J. JUSTEN, OF MILWAUKEE, WISCONSIN.

AIR-VALVE FOR HOISTS.

1,258,342. Specification of Letters Patent. Patented Mar. 5, 1918.

Application filed September 22, 1916. Serial No. 121,592.

To all whom it may concern:

Be it known that I, JOSEPH J. JUSTEN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Air-Valves for Hoists; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to improvements in air valves for hoists.

The object of the present invention is to improve the construction of air valves for hoists and to provide a fluid pressure valve of this character of simple, practical and comparatively inexpensive construction capable of closing automatically and of effecting a saving in the air in the handling of hoists.

A further object of the invention is to provide an air valve of this character which will be safe to handle, easy to install and capable of affording ready access to the valve seat.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing the figure is a vertical sectional view of an air valve for hoists constructed in accordance with this invention.

In the accompanying drawing in which is illustrated the preferred embodiment of the invention the air valve for hoists, which is also adapted for use for various other purposes where air is employed, comprises in its construction, a valve casing composed of spaced sides, 1 and 2 and a transverse connecting portion 3 formed integral with the sides. The sides which are tubular are preferably provided with detachable upper portions 4 and 5 having threaded connections 6 and 7 with the said sides 1 and 2. The side 1 is provided at the lower end with a valve seat 8 and is exteriorly threaded at 9 for connection with a suitable source of air supply and the air is admitted into the side 1 which constitutes an inlet for the compressed air. A valve 10 coacts with the valve seat and is adapted to be moved downwardly by an operating lever 11 to open the inlet side of the valve casing to admit air to the hoist. The transverse connecting portion 3 of the valve casing is provided with a partition 12 having a valve seat 13 with which coacts or coöperates a central check valve 14 located above the valve seat and adapted to close automatically by gravity and also under the influence of air pressure when the pressure above the valve seat 13 is in excess of that at the under side of the same. This will prevent any escape of the air in the hoist even should there be any reduction in the pressure of the air supply so that there will be no liability of the hoist accidentally dropping.

The side 2 of the valve casing is exteriorly threaded at the lower portion at 15 for connection with the cylinder of the hoist and the said side is provided at its upper portion with a valve seat 16 with which coacts a valve 17 normally held in its closed position by a spring 18 and adapted to be opened by the said lever 11 to permit the air pressure from the cylinder of the hoist to escape and exhaust through the upper portion of the side 2 of the valve casing. The valve seat 16 forms a port opening or passage through which the air pressure passes when the exhaust valve is open.

The lever 11 is provided with a depending ear or flange 18 which is pivoted at 19 to a support 20. The support 20 also forms a guide for the stem 21 of the check valve 14 and it is provided with an opening or socket 22 extending upwardly from the lower end of the combined support and guide, 20, which is threaded into an interiorly threaded flange 23 of the intermediate portion of the valve casing.

The valve 10 has a stem consisting of a lower section or portion 23 and an upper section or portion 24 suitably connected with the lower portion and arranged beneath one arm of the lever 11 and carrying a set collar 25 mounted on the upper portion or section of the stem of the valve 10 and engaged by a coiled spring 26 for closing the valve 10 automatically. The spring is interposed between the set collar 25 and the shoulder 27 formed interiorly of the tubular side 1 at the lower portion thereof. The upper

portion or section 24 of the stem of the valve 10 projects above the adjacent side of the casing and when the right hand arm of the lever is pulled downwardly by means of the chain 28 the valve 10 will be opened and compressed air will pass into the inlet and through the check valve of the intermediate portion of the valve casing and into the side 2 which is connected with the cylinder. As soon as the chain 28 is released the valve will be automatically closed by the spring 26. The other arm of the lever 11 is equipped with a chain 29 or other suitable operating means and when it is pulled downwardly the exhaust valve will open and permit the pressure in the cylinder of the hoist to exhaust through the upper end of the side 2 of the casing and as soon as the lever is released the spring 18 will automatically close the exhaust valve. The exhaust valve 17 has its stem extending upwardly and downwardly above and below the valve seat. The lower portion 30 of the stem of the exhaust valve being arranged within the upper portion of the spring 18 and the upper portion of the stem of the exhaust valve being provided with a section or portion 31 which is located below the adjacent side of the lever 11. The intermediately pivoted lever may be operated by any suitable means for opening the inlet or the exhaust valve as desired. Also the air valve is adapted to be employed for a variety of purposes where air is used and it may of course be used in connection with any fluid pressure. While the upper portion of the valve casing is shown constructed separate from the lower portion, the valve casing may be of course made in any other desired manner and it will be clear that ready access will be afforded to the valve members and the valve seat. The side 2 of the valve casing which receives the spring 18 is also provided at its lower portion with an interiorly arranged shoulder 33 to form a seat for the spring 18 and the latter is preferably cylindrical at the upper portion and conical at the lower portion as shown but any other desired form of spring may be employed. The detachable portion 5 of the side 2 of the casing is preferably provided with a lateral opening to form the exhaust port but any other arrangement of the exhaust port may of course be employed.

What is claimed is:—

A fluid pressure valve of the class described comprising a casing having opposite side tubular portions and a transverse connecting tubular portion located intermediate of the ends of the said side tubular portions and provided with a partition having a valve seat, one of the side tubular portions constituting an inlet and having a valve seat at the lower end, the other side tubular portion being designed to be connected at the lower end with a hoist and having its upper end constituting an exhaust, the exhaust tubular portion having an exhaust opening and provided above the transverse portion with a valve seat, feed and exhaust valves coacting with the valve seats of the side tubular portions and provided with stems extending through and projecting above the upper ends of the said side tubular portions, springs disposed on the stems for holding the valves normally closed, a combined guide and support mounted upon the intermediate tubular portion and located between the upper ends of the side tubular portions and provided with a guide opening, a lever fulcrumed on the combined guide and support and extending in opposite directions therefrom and movable in one direction to open the feed valve and in the opposite direction to open the exhaust valve, and a check valve operating within the transverse tubular portion and coacting with the valve seat of the partition thereof and having a stem guided in the opening of the combined guide and support.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH J. JUSTEN.

Witnesses:
FANNIE V. GASSMANN,
YETTA GRODNICK.

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