

(No Model.)

J. HOYT.
Relief-Valve for Air-Cylinders.

No. 228,532.

Patented June 8, 1880.

FIG. 1.

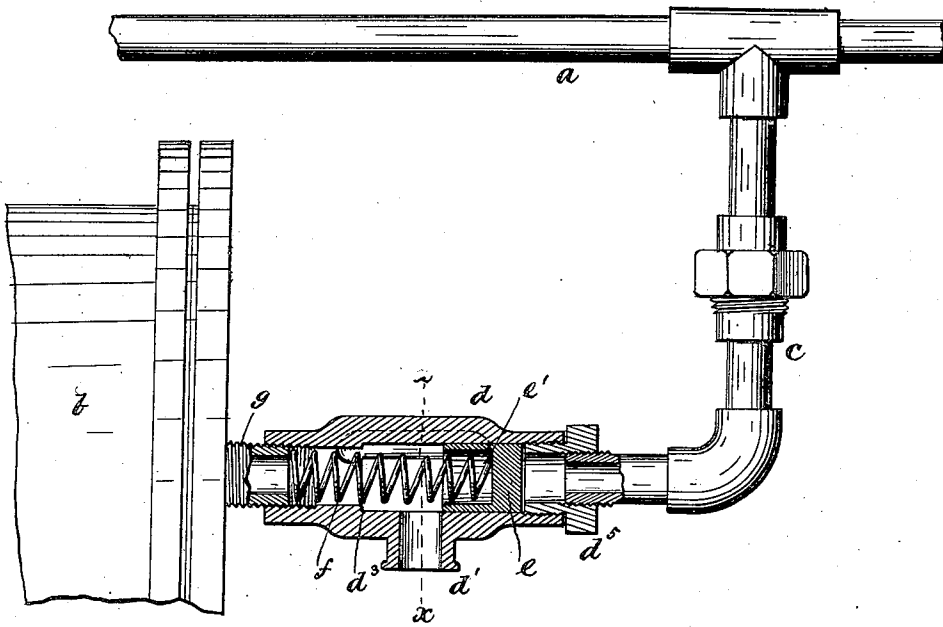


FIG. 2.

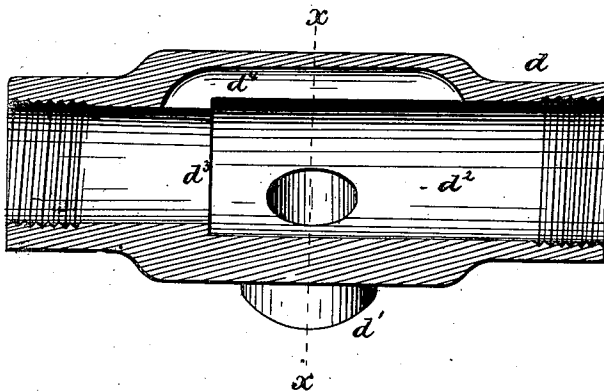
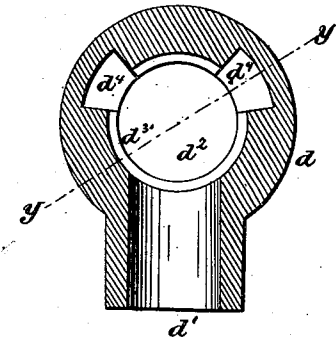


FIG. 3.



Witnesses:
Perry B. Turpin
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Inventor
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UNITED STATES PATENT OFFICE.

JOSEPH HOYT, OF JACKSON, MICHIGAN.

RELIEF-VALVE FOR AIR-CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 228,532, dated June 8, 1880.

Application filed April 30, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HOYT, a citizen of the United States, resident at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Relief-Valves for Air-Cylinders; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to relief-valves for air-brakes for railway-cars; and it consists in the peculiar construction and arrangement of the several parts, hereinafter fully explained, and pointed out in the claim.

In the drawings, Figure 1 is a vertical longitudinal section of my invention, showing the several parts in position, and arranged with reference to the main air-pipe and the air-cylinder. Fig. 2 is a longitudinal section of the valve-case, made on the line *yy* of Fig. 3; and Fig. 3 is a cross-section of the valve-case on line *xx* of Fig. 1.

a is the main air-pipe, *b* is the air-cylinder, and *c* is the connecting air-pipe between the main pipe *a* and the cylinder *b*, all of ordinary construction. *d* is the relief-valve case, placed so as to connect the end of the pipe *c* with a nipple or pipe projecting from the cylinder *b*. The valve-case is provided with the exit-port *d'*, and it has its central longitudinal opening *d''* slightly contracted at the end next the cylinder *b*, so as to form a circumferential shoulder, *d'''*, by which the movement of the valve *e* is limited.

d⁴ d⁴ are two channels formed in the inner side of the casing *d* and in the side opposite to the exit-port *d'*. These channels extend on opposite sides of the line *xx*, drawn vertically through the center of the exit-port *d'*, as shown in Fig. 2. When the valve *e* is thrown back, so that it closes the exit *d'*, the channels form open passage-ways between the pipe *c* and the cylinder.

e is the valve, which is placed in the larger end of the bore *d²*, and is held from sliding out by a coupling-nut, *d⁵*, screwed into the

end of the casing *d*. The valve plays between the shoulder *d'''* and the inner end of the coupling-nut *d⁵*. It snugly fits the bore *d²* and against the end of the nut *d⁵*, and closes the opening into the pipe *c*. It has a socket, *e'*, in which is placed the end of a coil-spring, *f*, and it is made long enough that when its end abuts against the shoulder *d'''* it will extend over and close the exit-port *d'*.

In the end of the casing *d* next the cylinder I insert a nipple, *g*, which may be farther into or out of the casing. The end of the spring *f* bears against the inner end of this nipple, and the tension thereof can be increased or diminished by turning the nipple farther into the casing or turning it out.

The operation of the device is very simple and easily understood by reference to the drawings. The pressure in the main pipe forces the valve back against the shoulder *d'''* and closes the exit-port *d'*, and the air passes over the valve through the channels *d⁴*. When the engineer cuts off the air at the engine the pressure becomes equalized in the pipes, and the valve is forced back against the end of the nut *d⁵*, as shown, and opens the exit-port and releases the brakes instantly.

The casing *d* can be easily removed from its position, and the valve taken out, when desired, for repairs or other necessity.

It will be seen that the distance between the forward ends of the feed-channels *d⁴* and the inner end of the nut *d⁵* is such that the valve, when forced toward the air-cylinder, will close the exit-port *d'* before it opens the said channels *d⁴*.

Heretofore devices of this class have been constructed with an outer shell, in which the valve was held, and which have had the education-ports closed and opened alternately by the movement of the valve, for the purpose of relieving two cylinders, as shown in patent to J. T. Bassett, October 17, 1871, or the said ports were closed by a hollow piston-valve, provided interiorly with a ring-valve sliding in an opposite direction, and being also provided at one end with a ring-bearing, through which are formed air-passages, as may be seen in the patent to Taylor and McCamish, April 3, 1877. Such constructions are not my invention, and I do not claim them.

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

5 The improved relief-valve consisting of the casing *d*, having the circumferential shoulder *d'*, channels *d''*, nuts *d'''* and *g*, valve *e*, and spring *f*, all constructed and arranged to operate substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 23d day of April, 1880.

JOSEPH HOYT. [L. S.]

Witnesses:

R. D. KNOWLES,
CHARLES WOLF.