G. T. TAYLOR.

Valve.

No. 168,808. Patented Oct. 11, 1875.

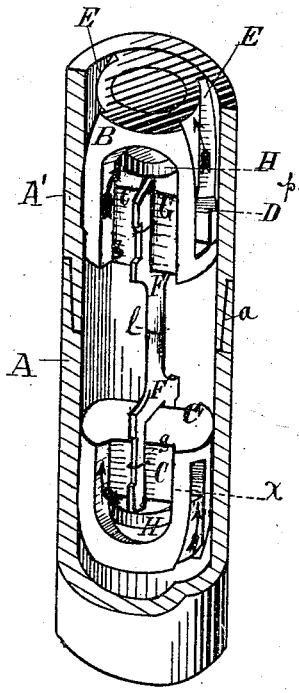

Fig. 1.

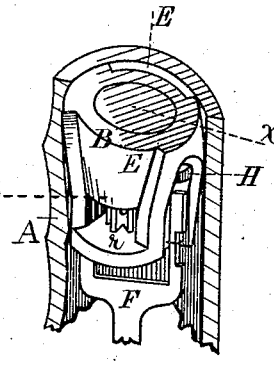

Fig. 2.

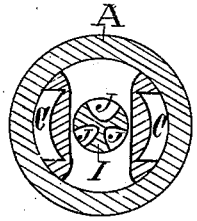

Fig. 3.

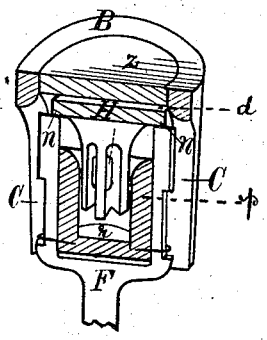

Fig. 4.

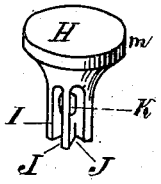

Fig. 5.

Witnesses.
Lewis Shaw
H. C. Metcalf

Inventor;
George T. Taylor,
Per C. A. Shaw
Atty.

UNITED STATES PATENT OFFICE.

GEORGE T. TAYLOR, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN VALVES.

Specification forming part of Letters Patent No. **168,808**, dated October 11, 1875; application filed July 6, 1875.

To all whom it may concern:

Be it known that I, GEORGE T. TAYLOR, of Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Valves, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a longitudinal sectional view, showing the pipes connected and the valves opened; Fig. 2, a sectional view, showing one of the valves closed; Fig. 3, a transverse section taken on the line *x*, Fig. 1; Fig. 4, a longitudinal sectional view taken on the line x^2, Fig. 2, and showing one of the valves open, with its casing detached from the pipe; and Fig. 5, a view of the valve detached from its casing.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to that class of valves which are employed in what are known as "vacuum railway-car brakes;" and consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a more effective brake of this character is produced than is now in common use.

It is well known that in that class of atmospheric car-brakes which operate by compression or condensation of the air, valves are employed which are so constructed and arranged as to be seated or closed automatically when the train is broken up or a car becomes separated, thus enabling the detached car to brake itself by the expansive action of the air retained in the pipes and cylinders; but in what are known as "vacuum-brakes," or those which are operated by exhausting the air from the pipes and cylinders, instead of condensing it therein, this automatic action does not take place, and when a car becomes accidentally or otherwise detached from the train, the brakes are released instead of being applied, as is usually desirable.

My invention is designed to obviate this imperfection; and to that end I make use of instrumentalities the nature and operation of which will be readily understood by all conversant with such matters from the following description.

In the drawings, A A′ represent the pipes of the brake, which are designed to be coupled between the cars, as shown at *a*, or in any other convenient manner to render them air-tight. Within are the valve-casings B B, in which are disposed the floating valves H. These valves (which are best seen in Fig. 5) have annular projecting heads fitted to work nicely in the casings, and are provided with tapering elongated bodies, grooved, as shown at I, to form the flanges J J J, the grooves constituting air-ducts, and being connected in the center of the valve by the aperture K. The valve-casing B has a chamber, *d*, formed in one of its ends, which is closed by the head *z*, under which head in said chamber the valve H is inserted, as seen in Figs. 4 and 2. The body of the casing is provided with a central longitudinal aperture on the line *p*, forming a seat, in which the lower end or tapering body of the valve is fitted to work, in such a manner that when the valve is seated its flanged or small end projects into the chamber *r*, formed in the casing at the opposite end of the same from the chamber *d*. The opposite sides of the casings, at their contiguous ends, are cut out, as shown at C C, forming conduits or air-passages, connecting the chambers *d* with the interior of the pipes, the opposite ends of the casings being also cut out, as shown at E E, to form air-passages, connecting the chambers *r* with the pipes in a similar manner. Disposed within the pipes, and fitted to slide longitudinally in the ways or rundlets *g g* on the casings B, are two bifurcated rods, F F. The bodies of these rods are designed to come into contact when the pipes A A′ are coupled, as shown at *l*, thus forcing the forked ends G against the under sides of the valve-heads *m*, and unseating or pushing the valves into the chambers *d*, as seen in Figs. 1 and 4.

In the use of my improvement, the operation of one of the valves will be as follows: The pipes A A′ between the cars are coupled, as shown in Fig. 1, bringing the ends *l* of the rods F into contact, and unseating or opening the valves H by forcing them into the cham-

bers *d*. The valves being in this position, if, now, the pump is worked to exhaust the pipes and cylinders of the brake, air will pass freely through the passages C C under the valve-head *m* in the chambers *d*, through the aperture K and grooves I into the chambers *r*, and thence through the passages E E to the pipe, the operation of the other valve being substantially the same, except that the current will pass through the casing in a reverse direction—that is to say, will enter the passages E E, and pass out through the passages C C.

When the pipes A A′ are accidentally or otherwise uncoupled, and the rods F F left free of contact, the air being exhausted in the pipes, the surrounding atmosphere will rush through the passages C C into the chambers *d* above the valve H, forcing it down into its seat on the line *p*, thus closing the pipes, and permitting the brakes to operate automatically, in a manner which will be readily obvious without a more detailed explanation.

Having thus explained my improvement, what I claim is—

In a vacuum air-brake for railway-cars, the pipes A A′, casings B B, valves H H, and rods F F, constructed and arranged to operate substantially as set forth and specified.

GEORGE T. TAYLOR.

Witnesses:

C. A. SHAW,

H. E. METCALF.