

No. 764,685.

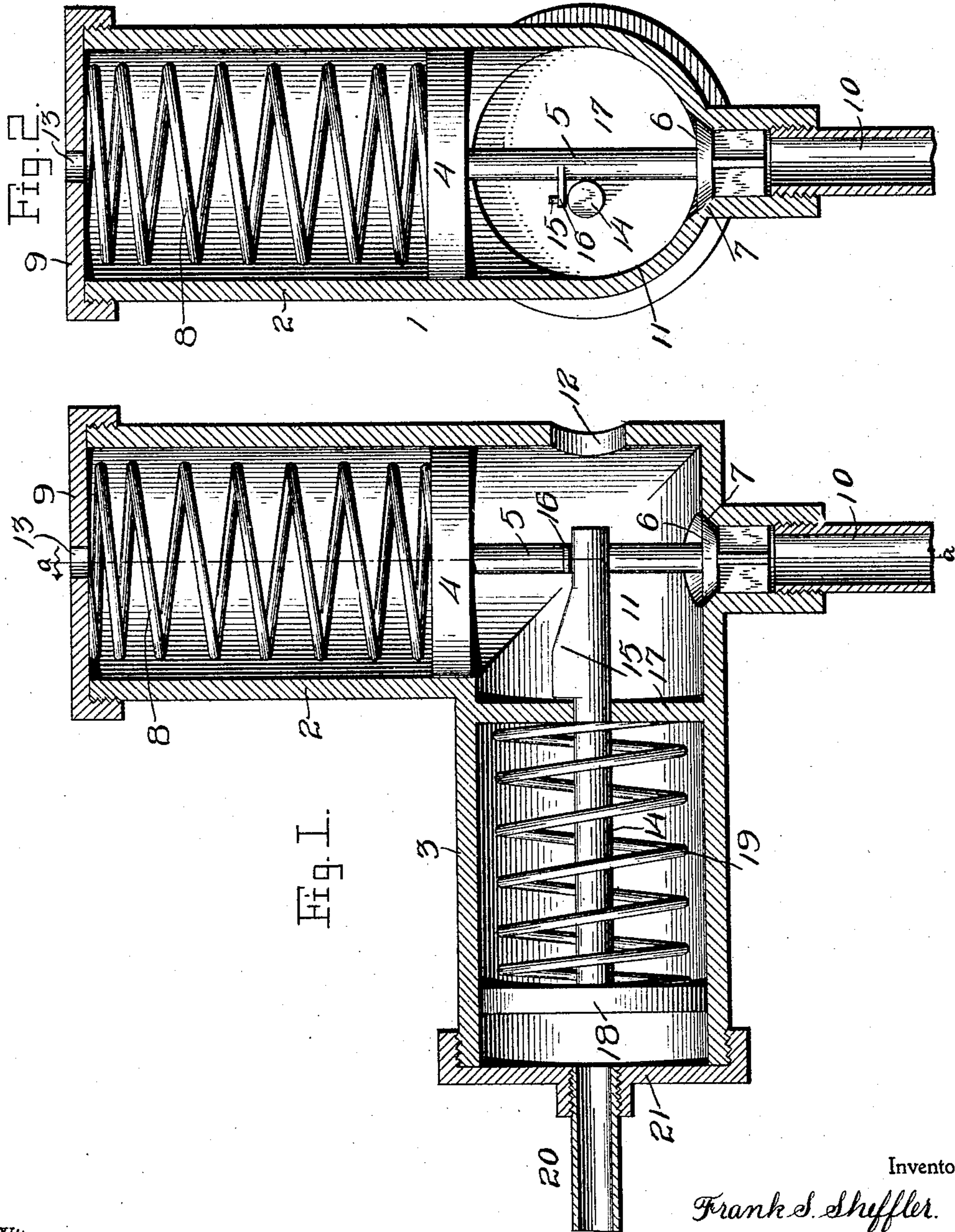
PATENTED JULY 12, 1904.

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AIR BRAKE.

APPLICATION FILED JAN. 25, 1904.

NO MODEL.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## AIR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 764,685, dated July 12, 1904.

Application filed January 25, 1904. Serial No. 190,579. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK S. SHEFFLER, a citizen of the United States, residing at Newcastle, in the county of Lawrence and State of Pennsylvania, have invented certain new and useful Improvements in Air-Brakes; and I do 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.

My invention relates to improvements in air-brakes, and more particularly to a valve by means of which the exhaust of the triple valve is placed under the control of the engineer, so that he may recharge the train-line and auxiliary reservoir without releasing the brakes.

The object of my invention is to provide a valve of this character which will be simple in construction and durable and efficient in operation.

With this and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a sectional view through my improved valve. Fig. 2 is a sectional view through the same, taken at right angles, the plane being indicated by the line *a a* of Fig. 1.

In the embodiment of my invention illustrated in the drawings the numeral 1 denotes a casing comprising two right-angularly-disposed portions 2 and 3, which are preferably of cylindrical form. Slidably mounted in the portion 2 is a piston 4, connected by a rod or stem 5 to a valve 6, which is held normally on its seat 7 by the pressure of a coil-spring 8, confined in the portion 2 of the casing between its closed end 9 and the said piston 4. The valve 6 controls a pipe or connection 10, leading from the exhaust of the usual triple valve, through which the air in the brake-cylinder must exhaust in order to release the brakes. The air in the said pipe 10, which passes through the valve 6 into a central chamber 11 of the casing 1, escapes from the same to

the atmosphere through an opening 12, and the closed end 9 of the portion 2 of the casing is provided with a vent-opening 13 to permit the piston 4 to work freely. The stem 5 of the valve 6, which is disposed in the central chamber 11 of the casing, is actuated by a rod 14, slidably mounted in the portion 3 of the casing. The movement of the valve-stem is effected by a cam 15, provided adjacent to one end of the rod 14 and adapted to engage a projection or coacting surface 16 upon the said stem. One end of the rod projects through and slides in a central opening in a partition 17 at the inner end of the portion 3 of the casing, and the opposite end of said rod 14 has secured to it a piston or head 18, which slides in said portion 3. The operating-rod 14 is held normally in its retracted position—that is, with its cam 15 out of engagement with the projection 16—by a spring 19, coiled about it and confined between the partition 17 and one side of said piston 18. The other side of said piston is exposed to the pressure of the air in the train-line by means of a pipe 20, which affords communication between the train-line and the closed outer end 21 of the portion 3 of the casing.

The operation of the valve is as follows: Normally it is held closed by the spring 8, the pressure of which is slightly greater than the pressure in the brake-cylinder, which is usually about twenty pounds, so that the air in the latter cannot escape, and the brakes are thus held set when once they are applied. When the valve is thus held closed, the pressure in the train-line and the auxiliary reservoirs may be pumped up to the desired point, which is usually about seventy pounds. The pressure of the spring 19 is greater than that of the air in the train-line, so that the operating-rod is held normally in its retracted position, as previously stated. When it is desired to release the brakes, the pressure in the train-line is increased by the engineer to a few pounds above its normal pressure in order to overcome the tension of the spring 19 and force the piston 18 and its rod 14 toward the valve-stem 5. The movement of the cam 15 on said rod will elevate the stem 5 and its at-

tached valve 6 to permit the air in the brake-cylinder to pass through the triple valve, pipe 10, valve 6, and the opening 12 and exhaust to the atmosphere. As soon as the air in the 5 train-line is reduced the spring 19 will return the rod 14 to its normal position and the spring 8 will seat the valve 6. When the engineer desires to use the retainer, he must on releasing move the engineer's brake-valve in 10 running position, which allows the feed-valve to have control of the train-line and only allowing it to pump to seventy pounds. When the engineer desires to release the brakes, he must move the brake-valve in full release po- 15 sition, thereby cutting out the feed-valve and making direct connection between the main reservoir and train-line, allowing ninety pounds to flow into train-line.

From the foregoing description, taken in 20 connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, 25 and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what 30 I claim as new, and desire to secure by Letters Patent, is—

1. A device of the character described comprising a casing, a valve in said casing provided with a stem and adapted to normally 35 close the exhaust of the brake-cylinders passing through the triple valve, an operating-rod adapted to be actuated by the increase of pressure in the train-line, and a cam upon said rod adapted to actuate said stem, substantially as 40 described.

2. A device of the character described comprising a casing, a valve in said casing provided with a stem and adapted to normally

close the exhaust of the brake-cylinders passing through the triple valve, a right-angul- 45 arly-disposed projection upon said stem, a slidably-mounted operating-rod disposed at right angles to said stem and adapted to be operated by an increase of pressure in the train-line, and a cam upon said rod adapted 50 to engage said projection to open said valve, substantially as described.

3. A device of the character described comprising a casing, a spring-seated valve in said casing adapted to normally close the exhaust 55 of the brake-cylinder passing through the triple valve, a spring-retracted operating-rod adapted to be operated by an increase in the train-line pressure, and a cam upon said rod adapted to engage the stem of said valve to 60 open the latter, substantially as described.

4. A device of the character described comprising a casing formed with right-angularly-disposed portions, a valve-seat and an exhaust- 65 opening, a valve coacting with said valve-seat and adapted to control the exhaust from the triple valve, a stem carried by said valve and guided in one of the said right-angularly-disposed portions of the casing, a spring for closing said valve, a projection upon said 70 valve-stem, an operating-rod slidably mounted in the other right-angularly-disposed portion of said casing, a cam upon said rod adapted to engage said projection upon the valve-stem, a spring for holding said rod in a retracted 75 position, and a piston upon said rod adapted to be actuated by an increase of pressure in the train-line, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit- 80 nesses.

FRANK S. SHEFFLER.

Witnesses:

C. W. FENTON,

CHAS. H. YOUNG.