(No Model.) 2 Sheets—Sheet 1.

H. E. HUNT.

VALVE.

No. 555,377. Patented Feb. 25, 1896.

Fig. 1.

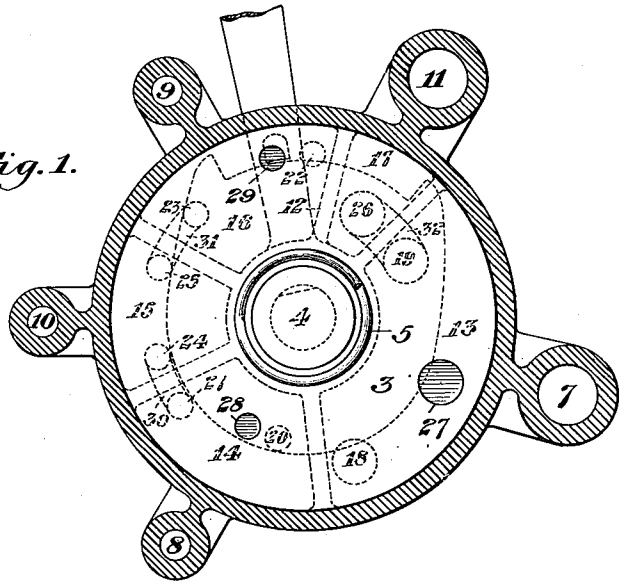
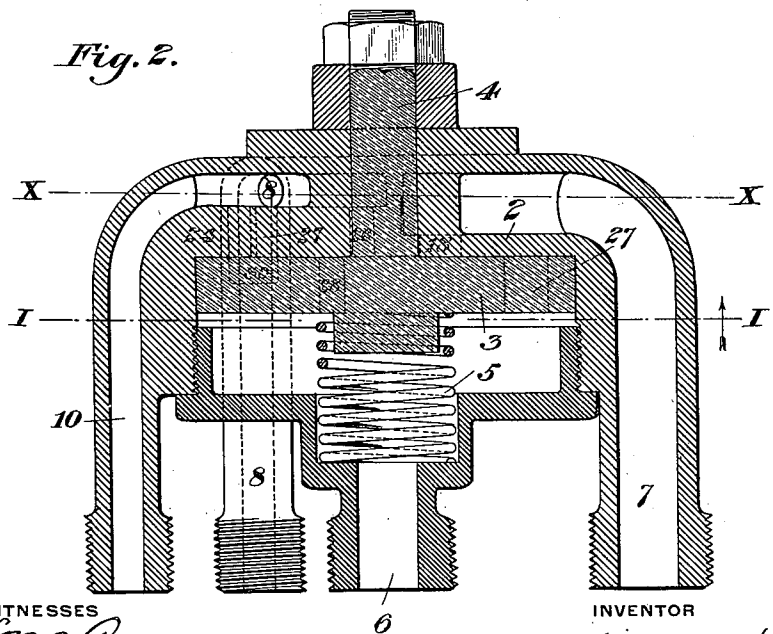


Fig. 2.



WITNESSES

INVENTOR

Herbert E. Hunt

by Bakewell & Bakewell

his attys.

(No Model.) 2 Sheets—Sheet 2.

H. E. HUNT.

VALVE.

No. 555,377. Patented Feb. 25, 1896.

Fig. 3.

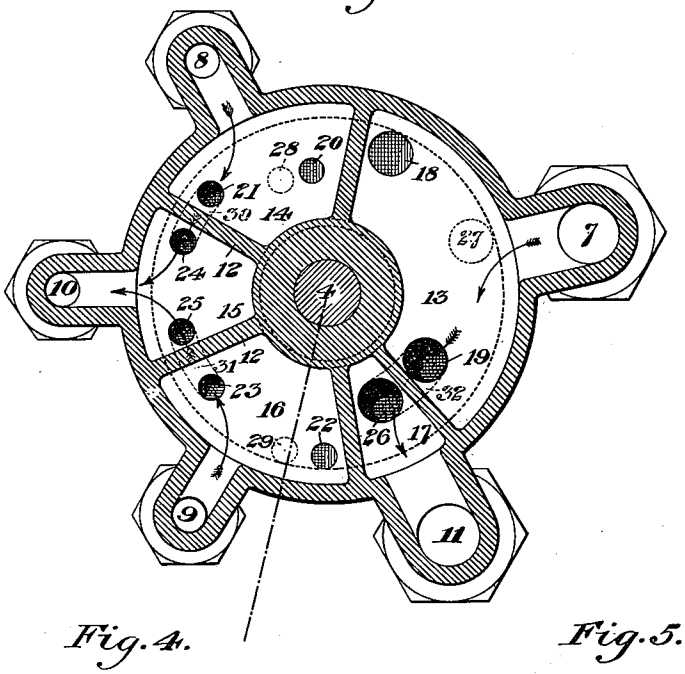


Fig. 4.

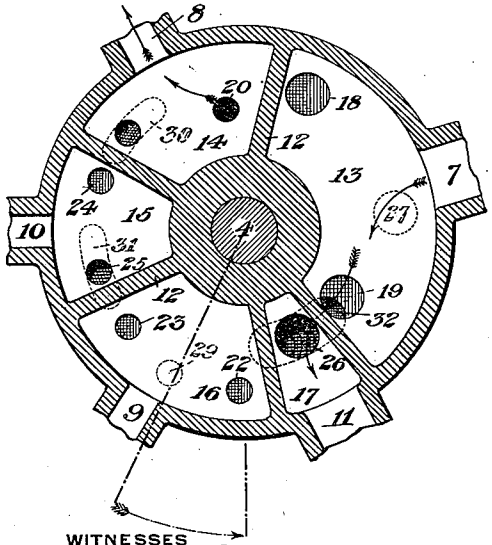
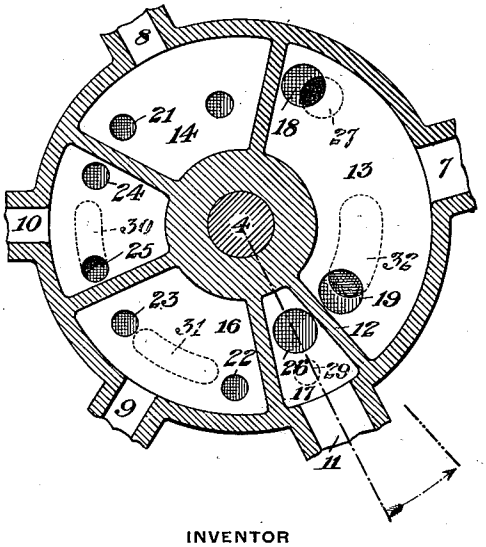


Fig. 5.



WITNESSES

INVENTOR

Herbert E. Hunt

by Bakewell & Bakewell

his attys.

UNITED STATES PATENT OFFICE.

HERBERT E. HUNT, OF PITTSBURG, PENNSYLVANIA.

VALVE.

SPECIFICATION forming part of Letters Patent No. 555,377, dated February 25, 1896.

Application filed October 30, 1895. Serial No. 567,347. (No model.)

To all whom it may concern:

Be it known that I, HERBERT E. HUNT, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a cross-section of my improved valve, taken on the line I I of Fig. 2, looking upward. Fig. 2 is a vertical central section of the valve; and Figs. 3, 4, and 5 are cross-sections on the line X X of Fig. 2, looking downwardly.

Like symbols of reference indicate like parts in each figure.

My invention relates to the class of valves, and is designed to afford a five-way disk-valve of improved construction, more especially for use upon street-cars where the air passing through the valve controls the air-braking system and also the cylinder arranged to actuate the controller.

In the drawings, 2 indicates the flat circular seat for the rotary disk-valve 3, which is provided with a stem 4, and is normally held against its seat by a spring 5.

6 is the supply-pipe leading from the air-reservoir to the valve.

7 is the pipe leading from the valve to the braking-cylinder.

8 and 9 are the pipes leading to the opposite ends of the controller-actuating cylinder, and 10 and 11 are pipes leading to the open air. Between the entrances to these pipes are bridges 12, forming separate chambers 13, 14, 15, 16 and 17. Within the chamber 13 is a supply-port 18 and an exhaust-port 19 for the brake-cylinder. Within the chamber 14 is a supply-port 20 and an exhaust-port 21 for one end of the controller-actuating cylinder, the corresponding ports for the other end of such cylinder being ports 22 and 23 in the chamber 16. In the chamber 15 are two exhaust-ports 24 and 25, one for each end of the controller-actuating cylinder, and in the chamber 17 is an exhaust-port 26 for the brake-cylinder.

The disk-valve contains supply-port 27, arranged to register with the port 18 and supply air to the brake-cylinder, port 28, arranged to register with the port 20 and supply air to one end of the controller-actuating cylinder, and port 29, arranged to supply air to the other end of such cylinder and registering with the port 22 in certain positions, these being through-ports. It also contains on its inner face three grooved or recessed ports 30, 31 and 32, the first two serving to exhaust both ends of the controller-actuating cylinder, and the third to exhaust the brake-cylinder.

Figs. 2 and 3 show the valve in normal position of complete release, the brake-cylinder releasing the through-port 32 registering with the ports 17 and 19, and the other cylinder being on release by the port 30, connecting the ports 21 and 24, and the port 31, connecting ports 23 and 25.

To move the car the valve-lever is turned to the left, bringing the port 28 into registry with the port 20, at the same time cutting out ports 23 and 24, while the brake is on partial release, all as shown in Fig. 4. To return the controller to inoperative position, the lever is moved in the opposite direction, whereupon the ports 20 and 28 are thrown out of registry, the air in the controller-actuating cylinder exhausting as the port 30 connects the ports 21 and 24. Further movement in the same direction brings the ports 22 and 29 into registry, thus admitting air to the other end of the cylinder, driving the controller-lever back to its original position; and still further movement brings the ports to the position of Fig. 5, wherein the ports 27 and 18 are in partial registry, admitting air to the brake-cylinder and setting the brakes, this being the service stop. A slight further movement gives a full registry of the ports 27 and 18, giving an emergency stop.

It will be noticed that the port 29 is outside of the port 26, so that they cannot register in the position of Fig. 5.

The advantages of my invention will be apparent to those skilled in the art, since in the single valve are contained the supply and release ports for both the brake-cylinder and the controller-actuating cylinder, and the ports are so arranged that one of these cylinders must be cut off when the other is in operation.

Many variations may be made in the form

and arrangement of the parts by the skilled mechanic without departing from my invention, since

What I claim as my invention is—

1. A valve comprising a valve-casing having five chambers, two chambers having exhaust-ports, and the others having supply and exhaust ports, and a rotary disk-valve having ports arranged to register therewith; substantially as described.

2. A valve having a casing provided with five chambers, a disk-valve having grooved ports arranged to connect two of these chambers with a third, and a port which in a different position of the valve connects the remaining chambers; substantially as described.

In testimony whereof I have hereunto set my hand.

HERBERT E. HUNT.

Witnesses:
C. BYRNES,
G. I. HOLDSHIP.