

No. 820,291.

PATENTED MAY 8, 1906.

F. H. DUKESMITH.  
EMERGENCY CUT-OUT COCK FOR AIR BRAKES.

APPLICATION FILED DEC. 11, 1905.

2 SHEETS—SHEET 1.

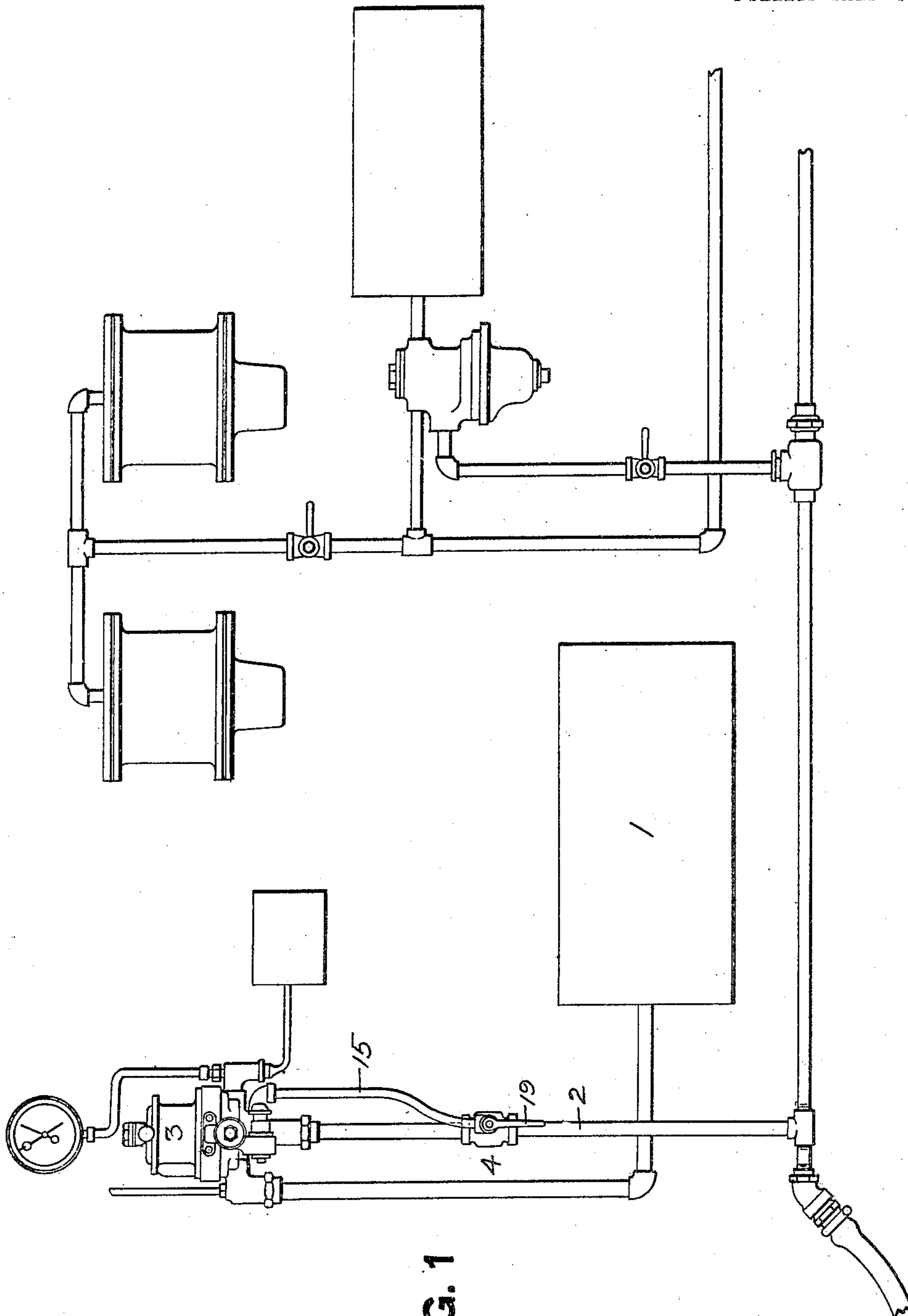


FIG. 1

WITNESSES.

*J. R. Keller*  
*Robert C. Totten*

INVENTOR.

*Frank H. Dukessmith*  
*By Kay Totten & Winter*  
*Attorneys*

No. 820,291.

PATENTED MAY 8, 1906.

F. H. DUKESMITH.  
EMERGENCY CUT-OUT COCK FOR AIR BRAKES.

APPLICATION FILED DEC. 11, 1905.

2 SHEETS--SHEET 2.

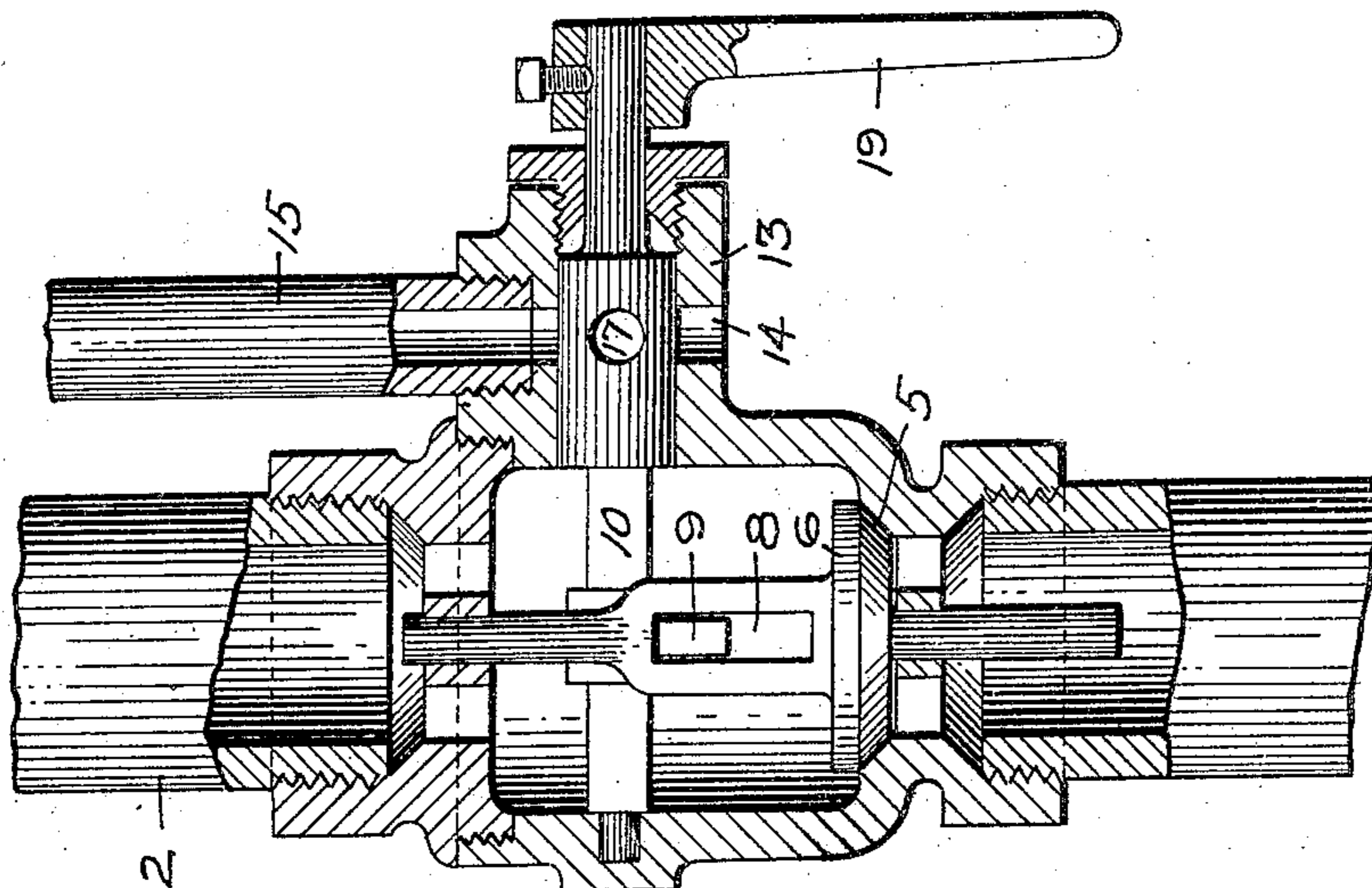


FIG. 2

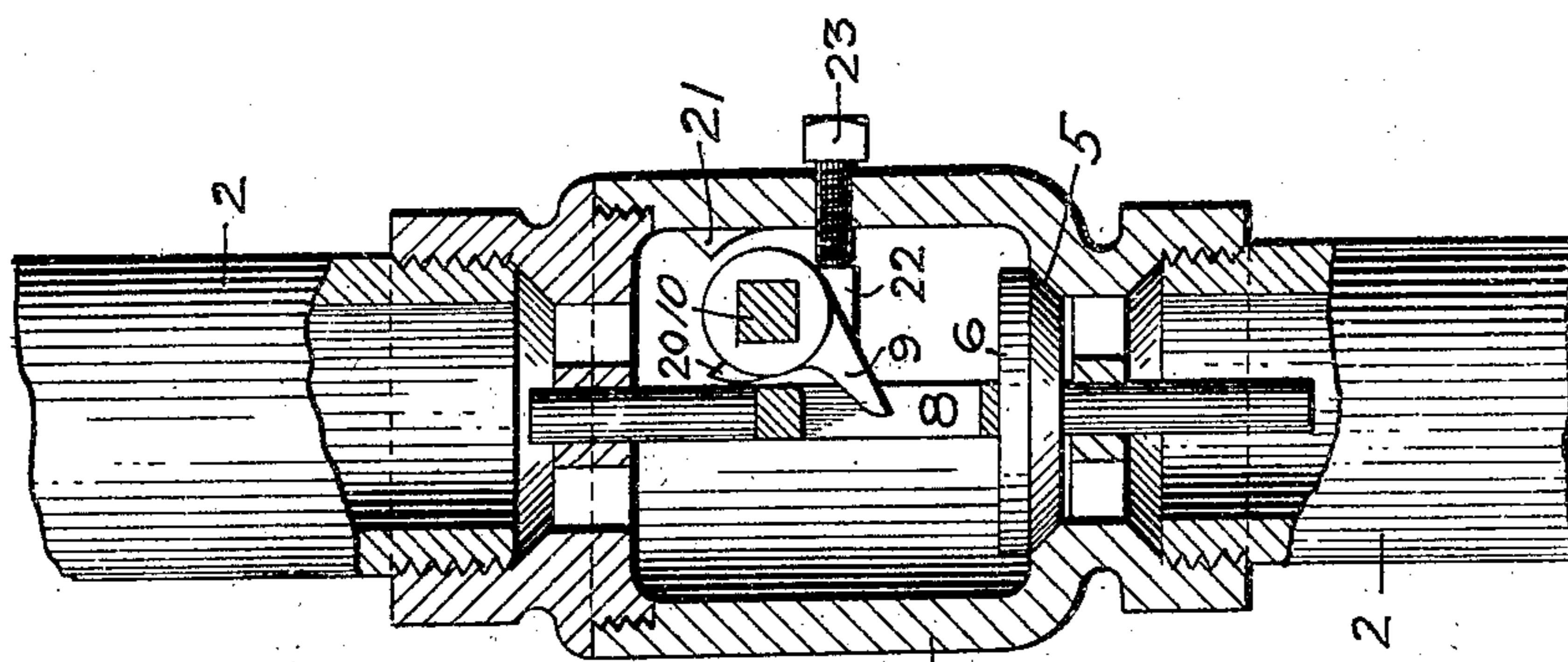


FIG. 3

WITNESSES.

*J. R. Keller*  
*Robert C. Votter*

INVENTOR.

*Frank H. Dukessmith*  
*By Kay Votter & Winter*  
*attorneys*

# UNITED STATES PATENT OFFICE.

FRANK H. DUKESMITH, OF MEADVILLE, PENNSYLVANIA.

## EMERGENCY CUT-OUT COCK FOR AIR-BRAKES.

No. 820,291.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed December 11, 1905. Serial No. 291,255.

*To all whom it may concern:*

Be it known that I, FRANK H. DUKESMITH, a resident of Meadville, in the county of Crawford and State of Pennsylvania, have  
5 invented a new and useful Improvement in Emergency Cut-Out Cocks for Air-Brakes; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to air-brake systems; and the object is to provide an emergency cut-out cock for use on locomotives which will cut the engineer's valve of that locomotive out of service, but which is so  
15 arranged as to nevertheless permit the engineer to apply the brakes in case of emergency.

In running trains double-header it is necessary to allow the front engineer to have absolute control of the brakes of the train.  
20 Consequently it is the custom to cut the engineer's valve of the second engine entirely out, so that he cannot interfere with the operation of the brakes by the front engineer. It is, however, desirable to provide means whereby the second engineer can apply the  
25 brakes in case of an emergency, notice of which might not be brought to the attention of the front engineer. This result has heretofore been accomplished by providing a cut-off valve in the pipe between the main reservoir and engineer's valve; but such former  
30 arrangement required complicated piping, and the valve has been so constructed that it is liable to leak. My invention provides  
35 for this purpose a simple form of valve, one which cannot leak and which is placed directly in the train-pipe itself, so that it does not require complicated piping. The invention consists in the arrangement of parts  
40 hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a diagrammatic view of a brake system, showing my cut-off valve applied thereto. Fig. 2 is a vertical sectional view through the  
45 cut-off valve, and Fig. 3 is a similar section at right angles to the section of Fig. 2.

In the drawings, 1 indicates the main reservoir, 2 the train-pipe, and 3 the engineer's valve, which may be of the usual construction and connected in the usual way. It is  
50 the practice to place in the train-pipe an ordinary cut-out cock. My improved valve can be put in the place of such cut-out cock. It is shown at 4. It comprises a suitable casing having therein a seat 5, with which coöperates a check-valve 6, seating downward or

toward the train-pipe. The stem of the check-valve is provided with an eye 8, into which projects a finger 9 on a rod 10, so that  
60 when the rod is turned in the proper direction this finger will raise the valve 6 from its seat and lock the same in open position, so as to permit the air to pass through the train-pipe in both directions. The rod 10 can be  
65 turned in either direction to either raise the valve 6 or to release the same, thus permitting it to drop to its seat by gravity, but nevertheless so it can rise in case of a rush of air out through the emergency-exhaust of the engineer's valve. The rod 10 passes through  
70 a fitting 13 on the casing and provided with an opening, with which the rod has a ground fit. The fitting 13 is provided with a vertical opening 14, which is connected by means of a pipe 15 with the service exhaust-port of  
75 the engineer's valve 3. The end of the rod 10 is enlarged and provided with an opening 17, which when the rod is in its normal position—that is, with the check-valve 6 locked  
80 open—will register with the opening 14 in the fitting, so as to have the service exhaust-port in the engineer's valve open to the atmosphere, and when said rod 10 is in its cut-out  
85 position—that is, with the check-valve 6 released—the ports 17 and 14 will be out of register, thus closing the service exhaust-port of the brake-valve.

Various means may be provided for turning the rod 10. I have shown for this purpose an ordinary handle 19, which when  
90 thrown down will turn the rod 10 to cause the finger 9 to engage the eye of the valve-stem, raise the same from its seat, and lock the same into position. When the handle 19 is thrown up, the finger 9 will be shifted, so as  
95 to release the valve. A projection 20 on the rod is adapted to contact with a stop 21 on the casing to prevent the rod being turned too far in one direction, while a projection 22  
100 on the rod contacting with a screw 23 prevents said rod being turned too far in the other direction.

The operation of this device is as follows: We will assume that the engine is running  
105 single head. In this case the handle 19 will be thrown up, thus raising the valve 6 from its seat and locking it in open position, thus permitting the air to pass through the train-pipe freely in either direction. In this position of the rod 10 the port 17 therein will register with the ports in the fitting 13, so that  
110 the service exhaust-port of the engineer's

valve is open to the atmosphere. As a consequence the brakes can be applied and released in the usual way and without in any way being interfered with by my valve.

5 When the engine is second in double-heading, the handle 19 will be thrown down, thus causing the projection 9 to release the check-valve 6 and at the same time bringing the ports 17 and 14 out of register. As a consequence

10 the engineer's brake-valve is no longer open to the atmosphere through the service-exhaust. It is, however, open to the atmosphere through the usual emergency-exhaust. When my valve is so placed, the engineer on

15 the second engine cannot release the brakes, for the reason that main-reservoir pressure would seat the check-valve 6 and prevent raising the pressure in the train-pipe. Neither can he apply the brakes with service appli-

20 cation, for the reason that the service-port of his brake-valve is closed by the rod 10. He can, however, apply the brakes in emergency, since the emergency-port of the brake-valve is open to the atmosphere. When his

25 brake-valve is moved to emergency position, the check-valve 6 will be raised from its seat by the outrush of air from the train-pipe and will not interfere with the emergency application of the brakes.

30 The valve described is simple in construction, cannot leak, for the reason that the check-valve can be made rubber-faced or the seat of the same material, is connected in place of the usual cut-out cock found in all

35 systems, and requires no complicated piping, the only piping necessary being the pipe 15, coming from the service exhaust-port of the engineer's brake-valve.

What I claim is—

40 1. In an air-brake system, the combination of a main reservoir, a train-pipe and an engineer's valve connected in the usual way, said engineer's valve being provided with a service exhaust-port and an emergency ex-

45 haust-port and arranged to connect the train-pipe to either of said exhaust-ports, and cut-out-valve mechanism in the train-pipe con-

50 nected to the service exhaust-port of the engineer's valve, and arranged in one position to hold the train-pipe and service exhaust-port open through the engineer's valve, and in another position to hold the train-pipe closed against main-reservoir pressure, and to hold the service exhaust-port of the engineer's valve closed, while leaving the emer-

55 gency exhaust-port open.

2. In an air-brake system, the combination of a main reservoir, a train-pipe and an engineer's valve connected in the usual way, said engineer's valve being provided with a

60 service exhaust-port and emergency exhaust-port and arranged to connect the train-pipe to either of said ports, and cut-out-valve mechanism in the train-pipe including a check-valve seating away from the engineer's

65 valve and a part controlling the service exhaust-port of the engineer's valve and arranged in one position to hold said service exhaust-port open with the check-valve

70 locked in open position, and in another position to hold said service exhaust-port closed with the check-valve free to seat itself.

3. In an air-brake system, the combination of a main reservoir, a train-pipe and an engineer's valve connected in the usual way,

75 said engineer's valve being provided with a service exhaust-port and an emergency exhaust-port and arranged to connect the train-pipe to either of said ports, and cut-out-

80 valve mechanism in the train-pipe connected to the service exhaust-port of the engineer's valve, said valve mechanism comprising a check-valve seating away from the engineer's

85 valve, and means for locking said check-valve in open position and simultaneously opening the service exhaust-port, and arranged when said check-valve is unlocked to close the service exhaust-port.

In testimony whereof I, the said FRANK H. DUKESMITH, have hereunto set my hand.

FRANK H. DUKESMITH.

Witnesses:

ROBERT C. TOTTEN,  
J. R. KELLER.