

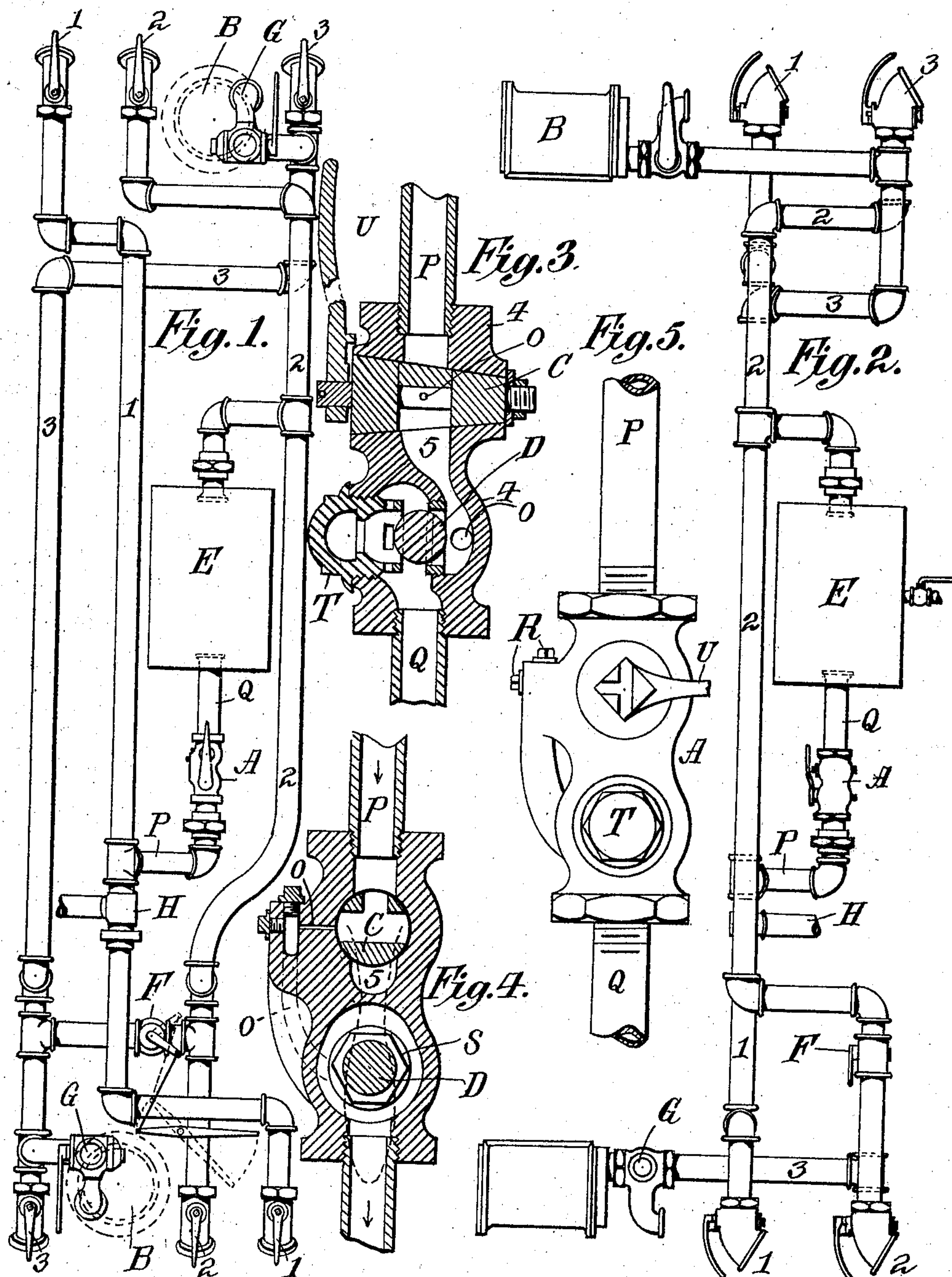
No. 816,008.

PATENTED MAR. 27, 1906.

J. M. GOODWIN.

APPARATUS FOR OPERATING DUMPING VEHICLES BY FLUID PRESSURE.

APPLICATION FILED AUG. 2, 1905.



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# UNITED STATES PATENT OFFICE.

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APPARATUS FOR OPERATING DUMPING-VEHICLES BY FLUID-PRESSURE.

No. 816,008.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed August 2, 1905. Serial No. 272,308.

*To all whom it may concern:*

Be it known that I, JOHN M. GOODWIN, a citizen of the United States, residing at Mount Vernon, Westchester county, New York, have invented certain new and useful Improvements in Apparatus for Operating Dumping-Vehicles by Fluid-Pressure, of which the following is a full, true, and concise specification.

The invention relates to apparatus for operating dumping-vehicles wherein the releasing of the several vehicle discharging-valves is effected by means of fluid-pressure derived from the train-line of the usual automatic air-braking systems; and it consists more particularly in the provision of a valve mechanism whereby such pressure may be accumulated and stored without disturbing the normal operation of the said braking system.

Referring to the accompanying sheet of drawings, forming a part hereof, Figure 1 represents in plan view the several parts of a single vehicle involved in the present invention. Fig. 2 is a view of the parts of Fig. 1 in side elevation. Fig. 3 is an enlarged central vertical section through the valve mechanism of this invention. Fig. 4 is a central horizontal section thereof with the valve in a different position of adjustment, and Fig. 5 is a plan view thereof with a still different adjustment.

Referring to Figs. 1 and 2, the pipe 1 represents a section of the train-line of an automatic air-brake system, the section shown being that portion of the train-line which forms a part of the usual individual brake equipment of each vehicle and being adapted to be coupled to other similar sections of contiguous vehicles to form a continuous supply-passage from the main compressor, extending throughout the length of the train of connected vehicles. The auxiliary braking-reservoir of each vehicle, not herein shown, is connected with its particular train-line section by the pipe shown at H, and the various other air-brake appliances are associated with it in the usual manner. It will be understood that in the operation of automatic air-brake systems the train-line supplies compressed air or other fluid to the auxiliary reservoirs and is normally maintained at a fixed pressure, which, if suddenly diminished, causes an immediate application of the

brakes. In utilizing the fluid-pressure of the train-line for other purposes, therefore, it is necessary to guard against any sudden withdrawal of the fluid except in cases when the brakes are already applied or the fluid-pressure in the train-line is not at the moment in demand. By means of the special valve A of this invention the fluid under pressure in the train-line is adapted to be withdrawn gradually through a restricted passage when the braking system is in its normal working condition and stored in a storage-reservoir E for subsequent utilization to release the discharge-valves of dumping-vehicles, and when circumstances permit the said valve may be adjusted or manipulated to open an unrestricted passage for the immediate charging of the storage-reservoir or for closing both passages, if desired, shutting off all communication between the train-line source and the reservoir. The flow through the restricted passage is so gradual that it does not effect an appreciable diminution of the pressure in the train-line, and the actual diminution or withdrawal is simultaneously compensated by the usual pressure-regulating means associated with the compressor.

The supply of fluid for the storage-reservoir E proceeds from the train-line 1 through pipe connection P, the valve A, and pipe Q. The reservoir E opens into a pipe-section 2, which is provided with couplers at each end, so that the several similar pipe-sections of a number of connected vehicles may be serially united to form a continuous storage pipe-line running the length of the vehicle, which pipe-line is charged with fluid-pressure from the several storage-reservoirs of the respective vehicles. The storage pipe-section 2 of each vehicle is in valved communication, through the cock F, with an operating pipe-section 3, which latter section is also adapted to be serially coupled to other operating-sections to form a continuous operating pipe-line extending the length of train, and the said sections 3 communicate, through valves G, with the operating-cylinders B at each end of the vehicle. The cylinders B are provided with pistons and suitable mechanical connections (not shown) for releasing or unlocking the discharge-valves of the vehicle, and the valves G are of the two-way stop-cock type adapted to exclude the compressed fluid from



the cylinder or to allow it to enter or exhaust, as desired. When the cock F is opened, as by the operation of the lever K, the compressed fluid of the storage pipe-line enters the operating pipe-line 3, operating such of the cylinders B as may have their valves G set for operation, and thereby permitting the operation of an entire train by the manipulation of a single cock on one of the vehicles.

The valve A (shown more clearly in Figs. 3 to 5) is comprised of a valve-casing 4, which is of such construction that it may be formed as a single casting of iron, and the inlet-pipe P leads directly to the valve-plug seat of a conical valve-plug C, which may be rotated in its seat by means of the handle U. The valve-plug C is adapted to control a restricted port or passage O and an unrestricted port 5, opening either one or both or closing both, according to the position of adjustment of the handle U. The construction of the valve-plug for accomplishing this effect will be obvious from the drawings. Both passages O and 5 lead to the under side of a check-valve D, which is shown herein as a ball-valve, but of course may be of the puppet or other type, if desired. The ball D is seated on an annular brass seat S, threaded into the valve-casing 4, and its play thereon is confined and limited by means of the cover-cap T. (Shown in Fig. 3.) Upon the removal of the cap T the ball D, as well as its seat S, may be removed from the casing. When the handle U is set as shown in Fig. 3, communication between the train-line and the storage-reservoir is completely shut off; but when placed in the position shown in Fig. 4 fluid from the train-line is permitted to flow through the restricted passage O, past the check-valve D, and into the reservoir E, gradually filling the same, as above described, the unrestricted passage 5 being closed by the adjustment. When the handle is placed transversely to the valve—for example, in the position shown in Fig. 5—the unrestricted port 5 is opened and the reservoir E is promptly charged from the train-line. The check-valve D serves in both cases to prevent backflow through the valve A into the train-pipe in the event of the existence of a lower pressure in the latter than in the reservoir, and thereby prevents disturbance of the braking system by reason of the presence of the reservoir. The bores in the casing which form the restricted passage O are provided with removable plugs R for the purpose of cleaning out accumulations of foreign matter therein, and convenience of adjustment is facilitated by an index marked on the head of the plug, Fig. 5, showing the several positions of adjustment.

It will be understood from the foregoing that the pipe-line 2, as well as the reservoir

E, is charged by the fluid-pressure admitted by the valve A and that, in fact, both the reservoirs and the pipe-line together constitute the real storage-receptacle of the system. It will therefore be obvious that where the latter is of sufficient capacity for the purposes in hand the storage-cylinders (designated E) may be omitted and the fluid-pressure admitted directly to the pipe-line 2, which then becomes the storage-reservoir itself, and, moreover, while I have described the invention as related merely to one system of fluid operation of vehicles it will be apparent that the valve mechanism may be also employed in other relations where fluid-pressure is to be derived from the braking system.

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

1. In a system of operating dumping-vehicles by fluid-pressure, the combination of a train-line source of fluid-pressure, a storage-reservoir adapted to be supplied therefrom, and a valve connecting said source and reservoir provided with restricted and unrestricted ports and means for manually adjusting said valve to allow the fluid of the source to pass through either of said ports to said reservoir.
2. In a system of operating dumping-vehicles by fluid-pressure, the combination of a train-line source of fluid-pressure, a fluid-storage reservoir adapted to be supplied from said source, and a valve connecting said source and reservoir provided with means of adjustment to allow a restricted or an unrestricted passage of fluid from the source to the reservoir and a check-valve contained in said valve arranged to prevent backflow there-through.
3. In a system of operating dumping-vehicles by fluid-pressure, the combination of a train-line source of fluid-pressure, a storage-reservoir adapted to be supplied from said source and a valve connecting the same thereto, said valve comprising a check-valve for preventing backflow therethrough and means of adjustment to open and close a restricted passage from the source into said reservoir.
4. In a system of operating dumping-vehicles by fluid-pressure, the combination of an automatic air-brake system having a train-line source of air-pressure, with a storage-reservoir and a valve connecting the same with said train-line source, said valve comprising in a unitary structure a restricted port, an unrestricted port, means for closing either one or both of the same and a check-valve for preventing backflow through said ports.
5. In a system of operating dumping-vehicles by fluid-pressure, the combination of an automatic air-brake system having a train-line source of air-pressure, with a storage-



reservoir and a valve connecting the same  
with said train-line source, said valve being  
comprised of a valve-casing having a valve-  
plug seat, restricted and unrestricted ports  
5 leading from said seat, a check-valve under  
which said ports open and the plug for said  
seat adapted to close one or both of said  
ports.

In testimony whereof I have signed my  
name to the specification in the presence of 10  
two subscribing witnesses.

JOHN M. GOODWIN.

Witnesses:

E. W. GOODWIN,  
C. JOHNSON.