

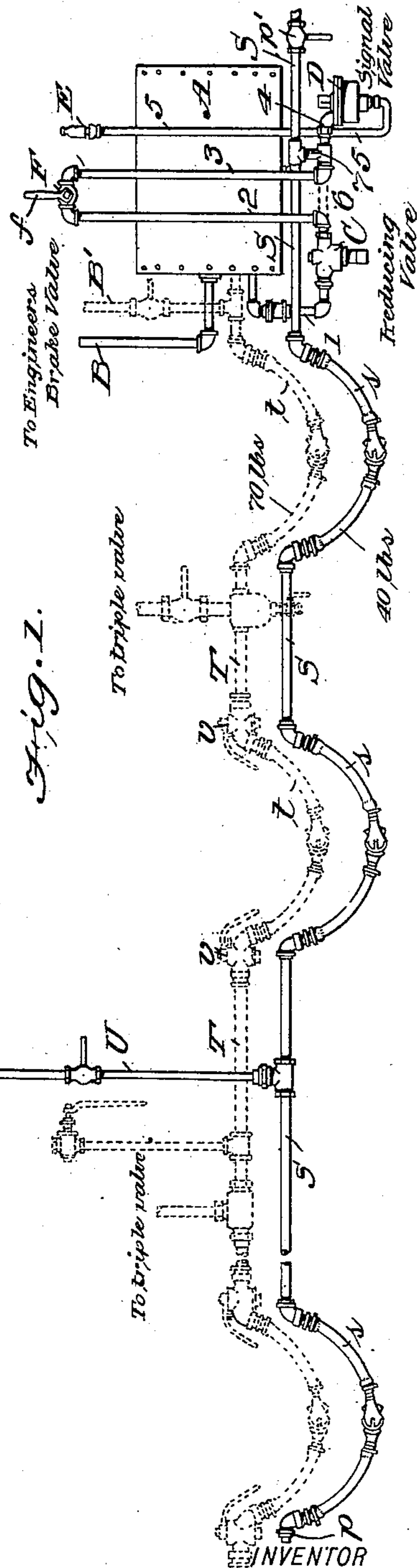
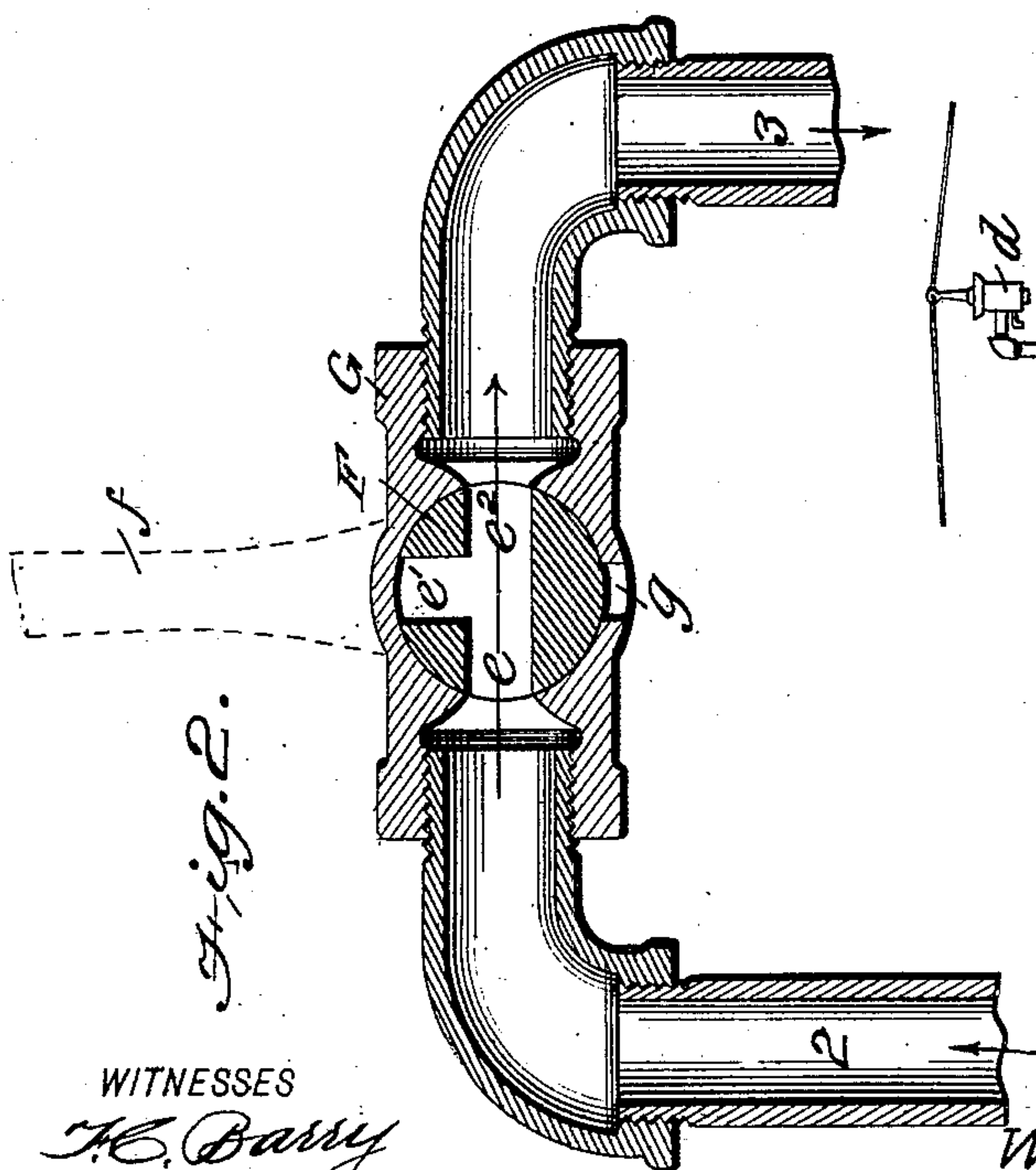
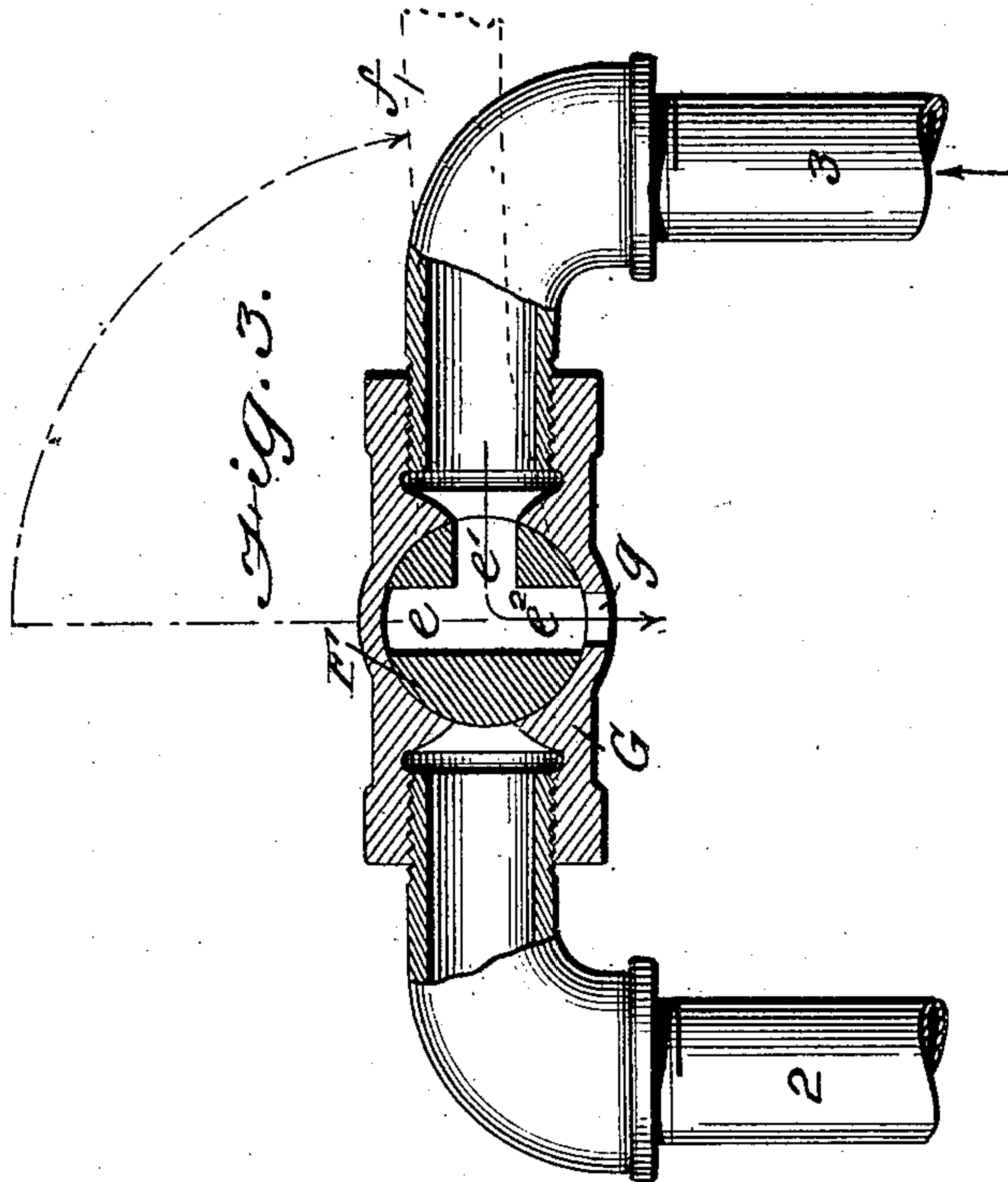
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MEANS FOR CONTROLLING PNEUMATIC SIGNAL PIPES ON RAILROAD TRAINS.

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MEANS FOR CONTROLLING PNEUMATIC SIGNAL-PIPES ON RAILROAD-TRAINS.

No. 891,676.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM S. DE CAMP, a citizen of the United States, and resident of Chillicothe, in the county of Ross and State of Ohio, have invented a new and useful Improvement in Means for Controlling Pneumatic Signal-Pipes on Railroad-Cars, of which the following is a specification.

In the Westinghouse system of air brakes it is common to employ, in connection with the brake system, a signal pipe charged with air at a lower pressure than that contained in the brake pipe, which signal pipe is by means of suitable appliances utilized for enabling the conductor at any portion of the train to communicate with the engineer. For this purpose each car is provided with a suitable discharge valve by which the air pressure in the signal pipe is reduced and which reduction of air pressure through a signal valve on the locomotive is made to blow a whistle and thus apprise the engineer of the communication from the conductor. As will be readily understood, the signal pipes of the car are required to be connected by a hose coupling at points between the cars in the same manner as the brake hose coupling for the brake pipe. It has also been necessary to provide at each end of the signal pipe on a car a stop cock which is required to be turned off by hand whenever the hose coupling between the cars is separated for disconnecting one or more cars of the train. The necessity for thus turning off this stop cock is apparent, since otherwise it would result in the exhaustion of the air from the signal pipe and also from the main reservoir. After any car has been disconnected in the train and the stop cock of the signal pipe turned off, and it becomes necessary to reconnect such car to the same or any other train, it will be seen that it is also necessary for the brakeman to again open such closed stop cock in order to permit a through communication with the signal pipes of the other cars of the train. If it should happen that the brakeman should fail to thus open this closed stop cock it will be seen that all that portion of the train on the off side from the locomotive from said closed stop cock would be rendered inoperative.

The object of my invention is first to dispense with all these stop cocks in the signal pipe and thereby secure an economy in construction, but, more important still, to dispense with the necessity for any attention on

the part of the brakeman to this signal pipe beyond the mere coupling of the hose, and place the operative or non-operative condition of the signal pipe within the range of observation of the engineer and under his immediate control in the cab.

To these ends my invention consists in providing a signal pipe continuously open from end to end and uninterrupted between cars by any stop cocks or other closures and interposing between the reducing valve for the main reservoir and the signal valve of the engineer's whistle a three-way cock by means of which the continuity of the air from the main reservoir to the signal pipe may be maintained, or the air cut off from the signal pipe at the will of the engineer.

Figure 1 of the drawing represents in side view the air brake train pipe and the signal pipe extending through two cars of the train and connected to the main reservoir of the locomotive with its various accessory parts. The train pipe which applies to brakes being shown in dotted lines. Figs. 2 and 3 are enlarged views of the three-way valve located in the cab of the engine and under control of the engineer by which the objects of my invention are carried out.

In the drawing, Fig. 1, A represents the main reservoir located on the locomotive and having the pipe B extending to the engineer's brake-valve and the pipe B' extending from the engineer's brake valve to the train pipe T, through which in the usual manner the engineer is enabled to apply the brakes by a reduction of the air pressure in the train pipe.

The train pipe T is connected between the cars with the usual hose pipes and couplings, and said train pipe is also provided at each end on each car with the usual angle cocks, and also for each car the usual connection with the triple valve.

The signal pipe S extends through the car and is coupled between the cars by means of flexible hose *s*, and has on each car a vertical pipe U provided at the top with a discharge valve *d*. By means of this discharge pipe *d* the conductor is enabled to reduce pressure in the signal pipe S and thus communicate with the engineer on the locomotive through the whistle E. The means by which this whistle is rendered operative by a reduction of pressure in the signal pipe is as follows: A pipe 1 connects the main reservoir A with a reducing valve C. This reducing valve on

the other side, in the ordinary construction, is connected by a pipe 6, shown in dotted lines, with a signal valve D connecting with the pipe 5 leading to the whistle E. The reducing valve C simply performs the function of taking the air pressure at 70 pounds from the main reservoir A and transmitting it to the signal valve D and the signal pipe S through the connecting pipe 7 at a pressure of 40 pounds. Now if by the operation of a discharge valve *d* this signal pipe pressure of 40 pounds is suddenly reduced this reduction, manifesting itself through the branch pipe 7 upon the signal valve D, causes a movement of the signal valve which transmits the air to the whistle E in the manner already well known.

In my invention I remove from all of the signal pipes S in each car the stop cocks which are ordinarily employed at the ends of said signal pipe on each car, and instead of having the reducing valve C directly connected with the signal pipe through the connection 7, as shown by dotted lines at 6, I break away this connecting pipe at 6 and interpose two branch pipes 2 and 3 by means of suitable elbow couplings and extend these branch pipes 2 and 3 up into the cab of the locomotive, and at the ends of these pipes 2 and 3 I connect a three-way valve F, shown in enlarged views in Figs. 2 and 3. This three-way valve consists of a plug F rotating in a casing G whose opposite ends are connected respectively to the two parallel upright pipes 2 and 3. The plug of the valve is provided with a diametrical through-passage *e*, *e*² and also with a right angular port *e'* communicating with the passage *e*, *e*². On one side of the casing G opposite the plug of the valve is formed a discharge orifice *g*. When the plug valve is in the position shown in Fig. 2 with its handle arm *f* vertical, the through-passage *e*, *e*² is in open communication with the two pipes 2 and 3 and allows the air to pass from the reducing valve to the signal pipe just the same as if there was a direct connection, as shown by the dotted line 6. When, however, the handle arm *f* of the plug valve is turned to the position shown in Fig. 3, the pipe 2 leading to the reducing valve and to the main reservoir is closed and the pipe 3 connecting the signal pipe is opened to the outer air through the ports *e'*, *e*², and the discharge orifice *g*. When in this latter position it will be seen that all the air in the signal pipe is bled from the same through the three-way cock orifice *g*.

From the foregoing it will be seen that the three-way valve F within the cab enables the

engineer to cut off the air from the signal pipe S of the entire train, thus obviating the necessity of stop cocks in this signal pipe at both ends of each car when disconnecting a car from the train. It will also be seen that he is enabled at will to again throw the air into this signal pipe, and thus render the signal pipe operative independently of the memory of the brakeman. In connection with my system it is necessary that the opposite ends of the signal pipe should be capable of closure and for this purpose a stop cock *p'* is arranged at the front end of the locomotive, and at the rear end of the train a suitable screw plug, cap or dummy coupler *p* is provided for the hose of the signal pipe at the extreme end of the train.

I claim:

1. In a pneumatic signal system for railroad cars, the combination with the continuously open and uninterrupted signal pipe; of a valve located on the locomotive, arranged to simultaneously cut off communication between the signal pipe and air supply and bleed the signal pipe.

2. In a pneumatic signal system for railroad cars, the combination with the continuously open and uninterrupted signal air pipe, the main air reservoir, the reducing valve, the signal valve and whistle; of means for cutting off communication between the reducing valve and signal pipe and discharging the air from the signal pipe, said means being located on the locomotive and under the control of the engineer.

3. In a pneumatic signal system for railroad cars, the combination with the continuously open and uninterrupted signal air pipe, the main reservoir, the reducing valve, the signal valve and whistle; of a three-way cock located in a pipe between the reducing valve and the signal pipe.

4. In a pneumatic signal system for railroad cars, the combination with the continuously open and uninterrupted signal air pipe, the main reservoir, the reducing valve, the signal valve and whistle; of two branch pipes connected, one to the low pressure side of the reducing valve and the other to the signal pipe, said two branch pipes being extended to the cab of the engine and provided with a three-way cock adapted to open communication between said branch pipes or close the same and open the signal pipe to the outer air.

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Witnesses:

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