(No Model.)

A. McINTOSH.

AIR BRAKE ALARM COCK.

No. 589,265. Patented Aug. 31, 1897

Fig. 1.

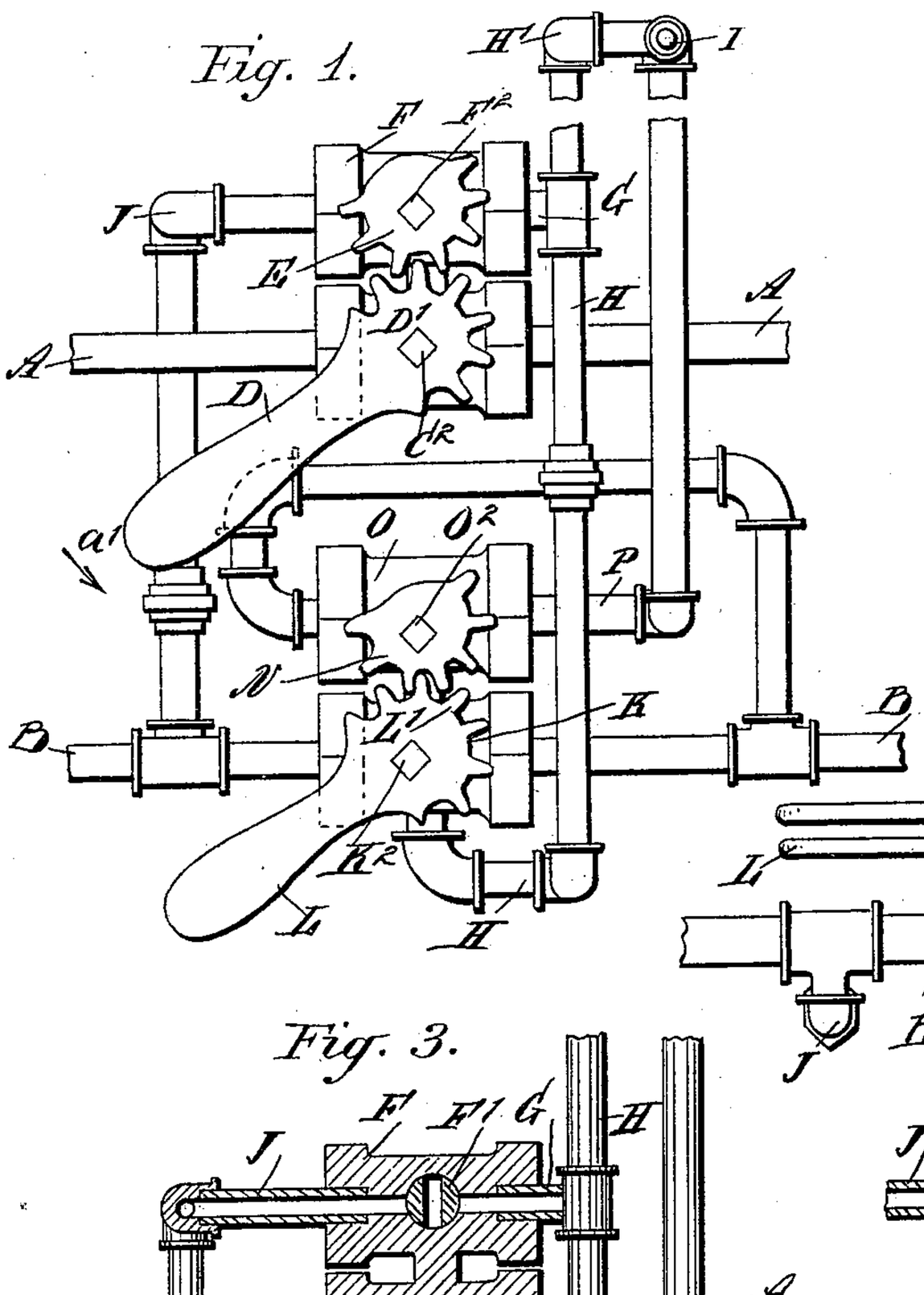


Fig. 2.

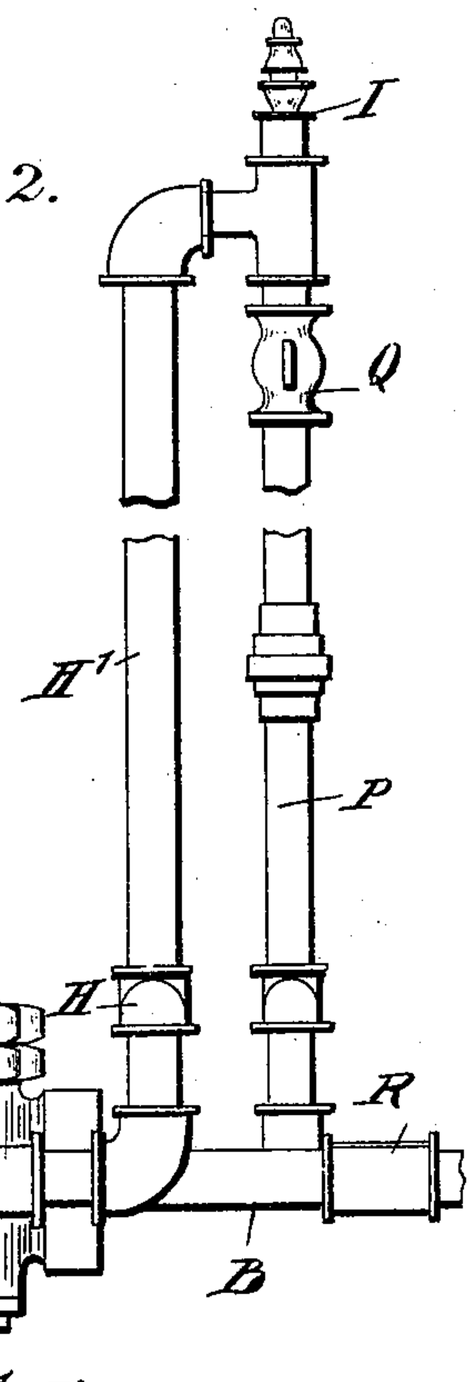


Fig. 3.

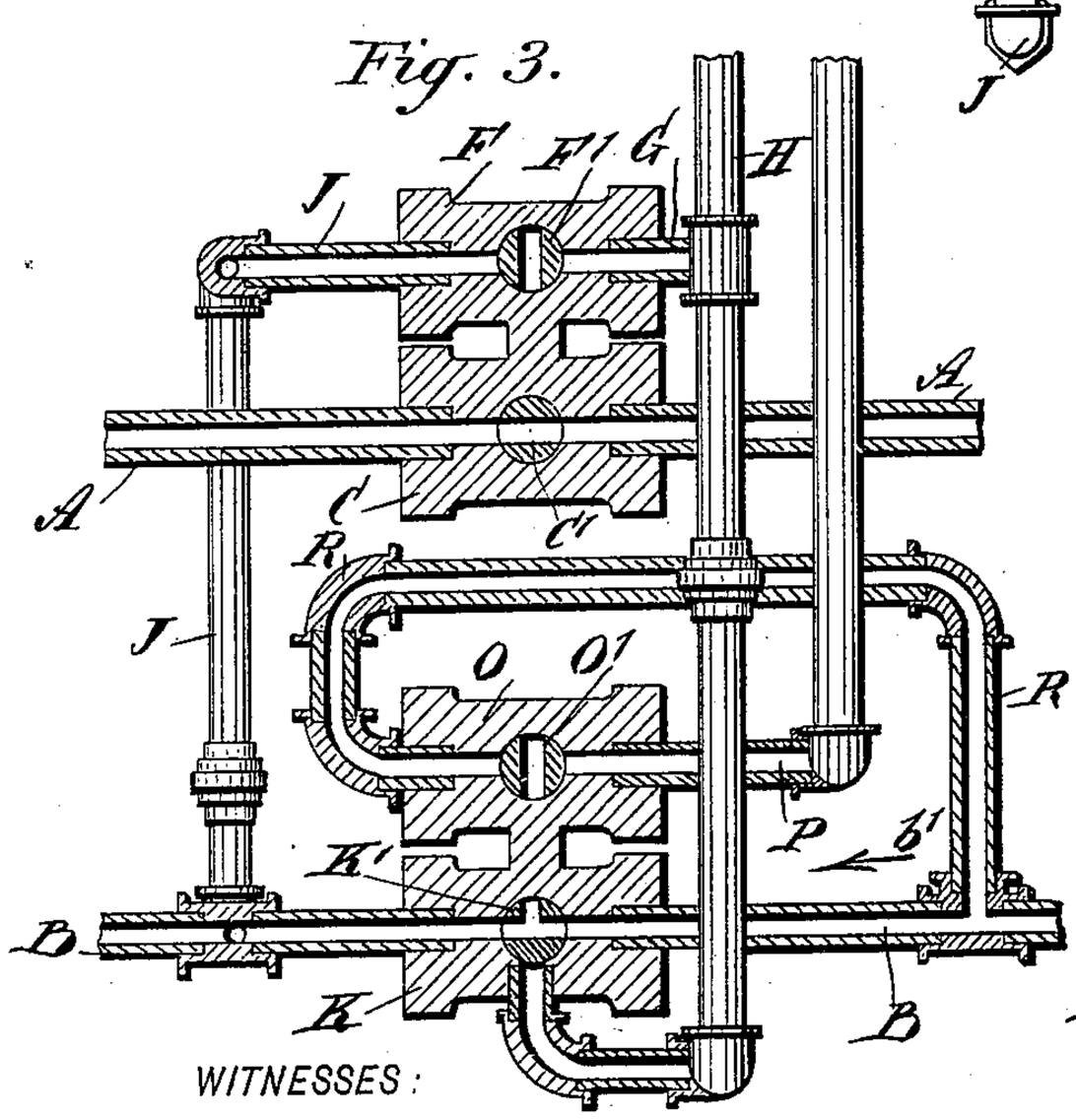


Fig. 4.

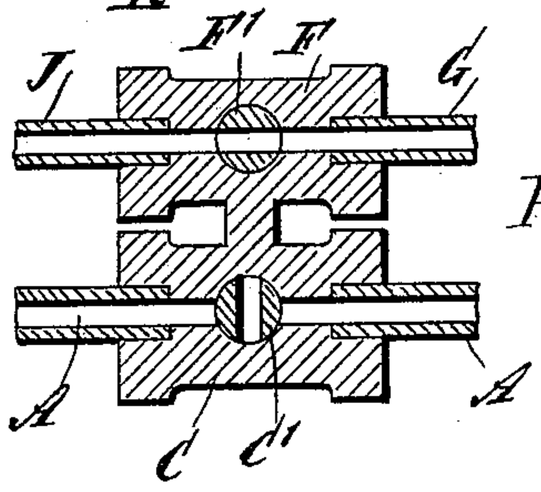
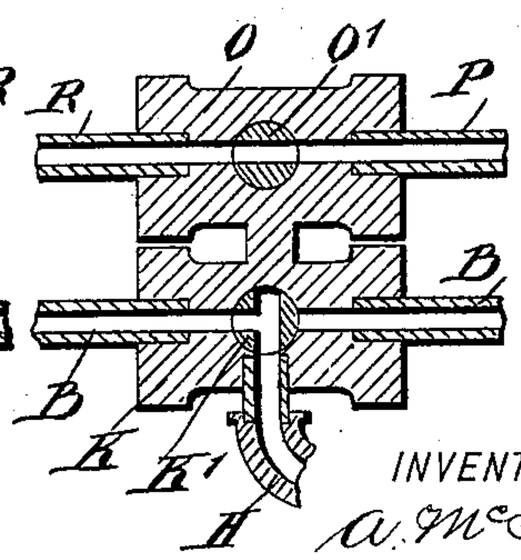


Fig. 5.



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ADAM McINTOSH, OF ALBANY, NEW YORK.

AIR-BRAKE ALARM-COCK.

SPECIFICATION forming part of Letters Patent No. 589,265, dated August 31, 1897.

Application filed May 7, 1897. Serial No. 635,467. (No model.)

To all whom it may concern:

Be it known that I, ADAM MCINTOSH, of Albany, in the county of Albany and State of New York, have invented new and Improved Air-Brake Alarm-Cocks, of which the following is a full, clear, and exact description.

The invention relates to fluid-pressure brakes, and its object is to provide a new and improved air-brake alarm device which is simple and durable in construction, very effective in operation, and arranged in such a manner that the train-pipe nozzle-cock and the cock for the signal-pipe cannot be closed without giving an alarm to the engineer and the conductor of the train on which the device is used.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional plan view of the improvement. Fig. 4 is a sectional plan view of the angle-cock for the train-pipe when shut off, and Fig. 5 is a like view of the cock for the signal-line when shut off.

The air-brake system is provided with the usual train-pipe A and with a signal-pipe B, both extending from the locomotive to the cars in the usual manner. The train-pipe A is provided at the end of each car with an angle-cock C, containing a two-way plug C′, carrying at its stem C^2 a handle D, formed with a segmental gear D′ in mesh with a segmental gear E, secured on the upper end of the stem F^2 of a plug F′, forming part of an auxiliary cock F, preferably cast on the angle-cock C, as shown in the drawings. The auxiliary cock F is connected at one end by a pipe G with a pipe H, having a branch pipe H′, leading to the whistle or other alarm I, arranged in each car and on the locomotive in the usual manner. The other end of the auxiliary cock F is connected by a pipe J with the signal-pipe B. The plug F′ stands at right angles to the plug C′ of the angle-cock C, so that when the angle-cock plug is opened, as shown in Fig. 3, the auxiliary plug F′ is in a closed position, and when the handle D is moved in the direction of the arrow *a′* then the angle-cock plug C′ is shut and the other plug F′ is opened to connect the pipes J and G with each other.

Now it is understood that when the angle-cock is in an open position, as shown in Fig. 3, the plug F′ is closed, and when the angle-cock is closed for any reason or other then the cock F′ is opened, so that air from the signal-pipe B can pass through the pipe J, cock F, and pipe G to the pipe H and from the latter through the branch pipe H′ to the alarm I to sound the same. Thus the engineer as well as the conductor is at once notified that the angle-cock in the train-pipe has been shut.

In the signal-pipe B is arranged a three-way cock K, containing the three-way plug K′, carrying on the upper end of its valve-stem K^2 a handle L, standing in the same direction as the handle D, previously mentioned and shown in Fig. 1. A segmental gear L′ is formed on the handle L and is in mesh with a segmental gear secured to the upper end of the stem O^2 of a two-way plug O′, mounted to turn in the auxiliary cock O, preferably cast on the signal-pipe cock K. One end of this auxiliary cock O is connected with a pipe P, containing an ordinary valve Q and opening to the whistle or other alarm I below the pipe H′. (See Fig. 2.) The other end of the auxiliary cock O is connected by a pipe R with the train-pipe B on that side of the valve K opposite to the side on which the pipe J enters the signal-pipe B. The plugs K′ and O′ are so arranged relative to each other that when the plug K′ is open, as shown in Fig. 3, the plug O′ is shut off—that is, it disconnects the pipes R and P; but when the handle L is turned in the direction of the arrow *a′* then the plug K′ closes one end of the signal-pipe B and connects the other end with the pipe H. (See Fig. 5.) At the same time the plug O′ is moved into an open position to connect the pipes R and P with each other.

Now it will be seen that while the signal-pipe cock K is in an open position, as shown in Fig. 3, the auxiliary cock O is closed, and consequently no air can pass to the whistle

or alarm I; but when the handle L is moved to the right then the plugs K′ and O′ move simultaneously into the position shown in Fig. 5—that is, the plug O′ moves into an open position to connect the pipes R and P with each other and the other plug K′ connects one end of the signal-pipe with the pipe H, previously mentioned. When this takes place and the air passes to the signal-pipe B in the direction of the arrow *b′*, then air will pass from the signal-pipe through the pipe R, the auxiliary cock O, pipe P, to the alarm I, so as to sound the same, thus notifying the engineer and conductor that the cock for the signal-pipe B has been closed. If the air passes in the inverse direction of the arrow *b′* through the signal-pipe B, then the air passes through the three-way cock K′ to the pipe H, (see Fig. 5,) and from the latter to the branch pipe H′ to the alarm I, so as to sound the same. Thus no matter which way the air passes to the signal-pipe the alarm will be sounded whenever the cock in the pipe is closed.

The rear end of the last car in the train has the valve Q closed, so that an alarm is not sounded when the handles D and L are moved into such positions as to close the valves C and K.

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

1. An air-brake alarm provided with an angle-cock in the train-pipe containing a plug, a second or auxiliary cock also provided with a plug, a connection between the stems of said plugs, whereby the plugs are operated in unison, the plugs being so arranged that when one is opened the other is closed and vice versa, one end of said auxiliary cock being connected by a pipe with the signal-pipe, and the other end of the said auxiliary cock being connected by a pipe with the alarm to sound the latter when the train-pipe angle-cock is closed, substantially as shown and described.

2. An air-brake alarm, comprising a three-way cock in the signal-pipe, and an auxiliary cock opening and closing in unison with the closing and opening of the said signal-pipe cock, the auxiliary cock being connected with the alarm and with the signal-pipe, substantially as shown and described.

3. An air-brake alarm, comprising a three-way cock in the signal-pipe, an auxiliary cock opening and closing in unison with the closing and opening of the said signal-pipe cock, the auxiliary cock being connected with the alarm and with the signal-pipe, and a connection between the said three-way cock and the alarm, substantially as shown and described.

4. An air-brake alarm, comprising an angle-cock in the train-pipe containing a plug, a second or auxiliary cock located adjacent to the train-pipe angle-cock and also containing a plug, a segmental gear secured on the stem of one of said plugs, a handle secured on the stem of the other plug and formed with a segmental gear, the said gears being in mesh, whereby the plugs are operated in unison, the cocks being so arranged that when the angle-cock plug is opened the auxiliary plug is closed and vice versa, a connection between the auxiliary cock and the signal-pipe, and a connection between the auxiliary cock and the alarm, substantially as shown and described.

5. An air-brake alarm, comprising an angle-cock in the train-pipe, an auxiliary cock opening and closing in unison with the closing and opening of the said angle-cock, a three-way cock in the signal-pipe, and a second auxiliary cock opening and closing in unison with the closing and opening of the said three-way cock, a connection between the first auxiliary cock and the signal-pipe, and a connection between the signal-pipe cock and the alarm, a connection between the first auxiliary cock and the alarm, a connection between the second auxiliary cock and the alarm, and a connection between the second auxiliary cock and the signal-pipe, substantially as shown and described.

6. An air-brake alarm, comprising an angle-cock in the train-pipe, an auxiliary cock, means for operating the said cocks in unison, the cocks being so arranged that when one is opened the other is closed, the said auxiliary cock having connection with the signal-pipe and the alarm, a cock in the signal-pipe and connected with the alarm, and a second auxiliary cock connected with the alarm and the signal-pipe, substantially as shown and described.

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