

No. 827,421.

PATENTED JULY 31, 1906.

W. H. COLLINS

AIR BRAKE

APPLICATION FILED APR. 9, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

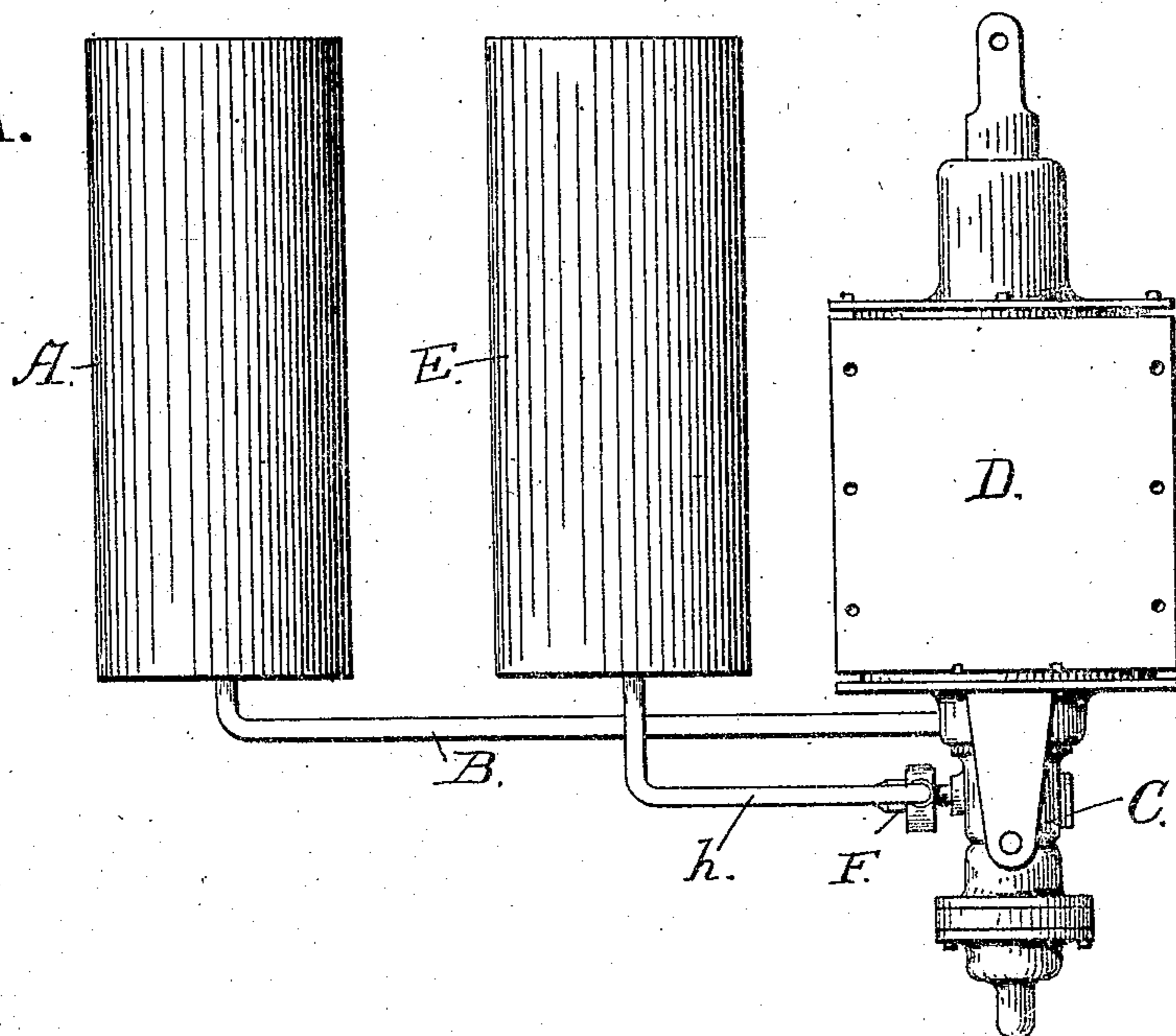
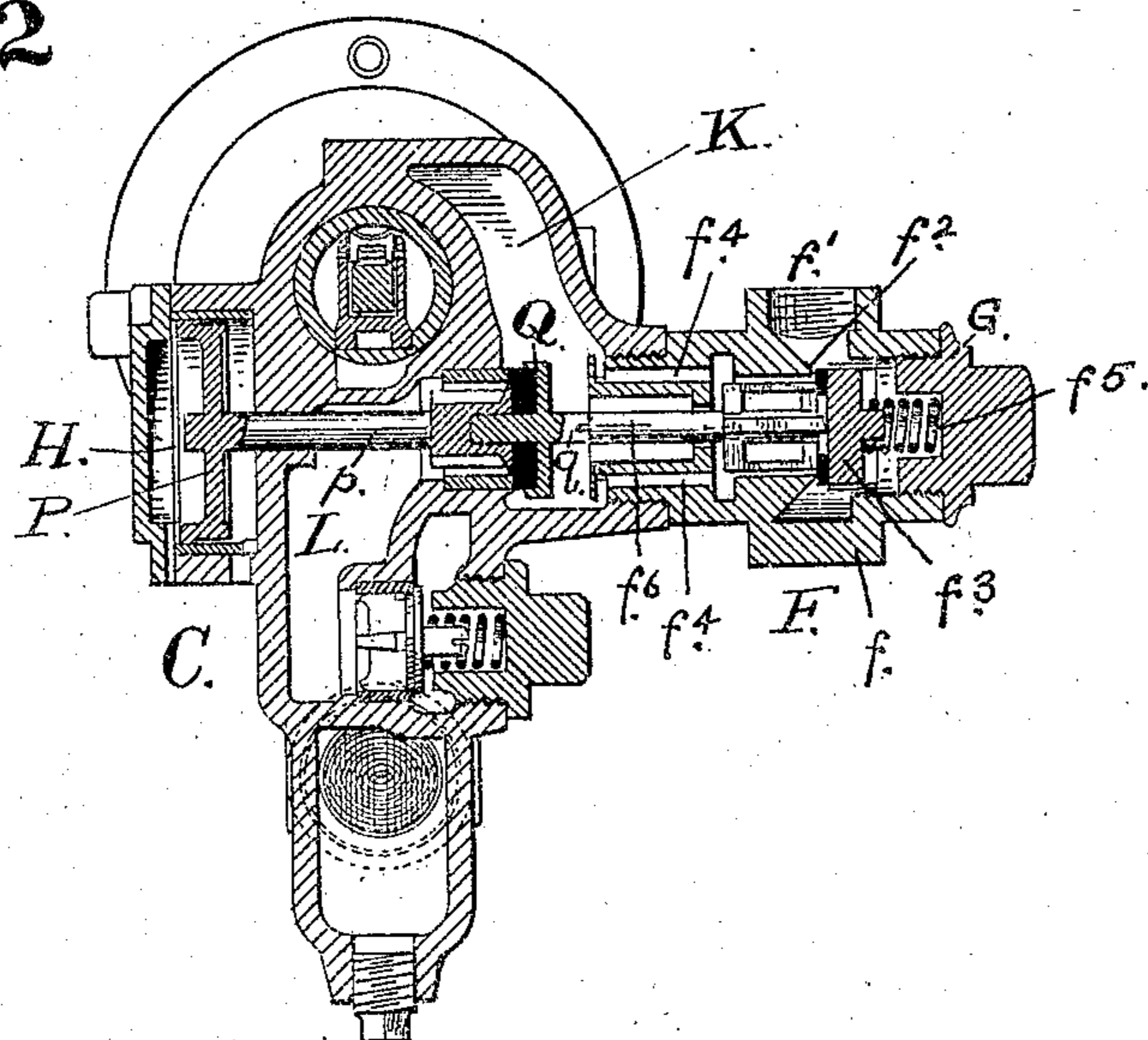


Fig. 2



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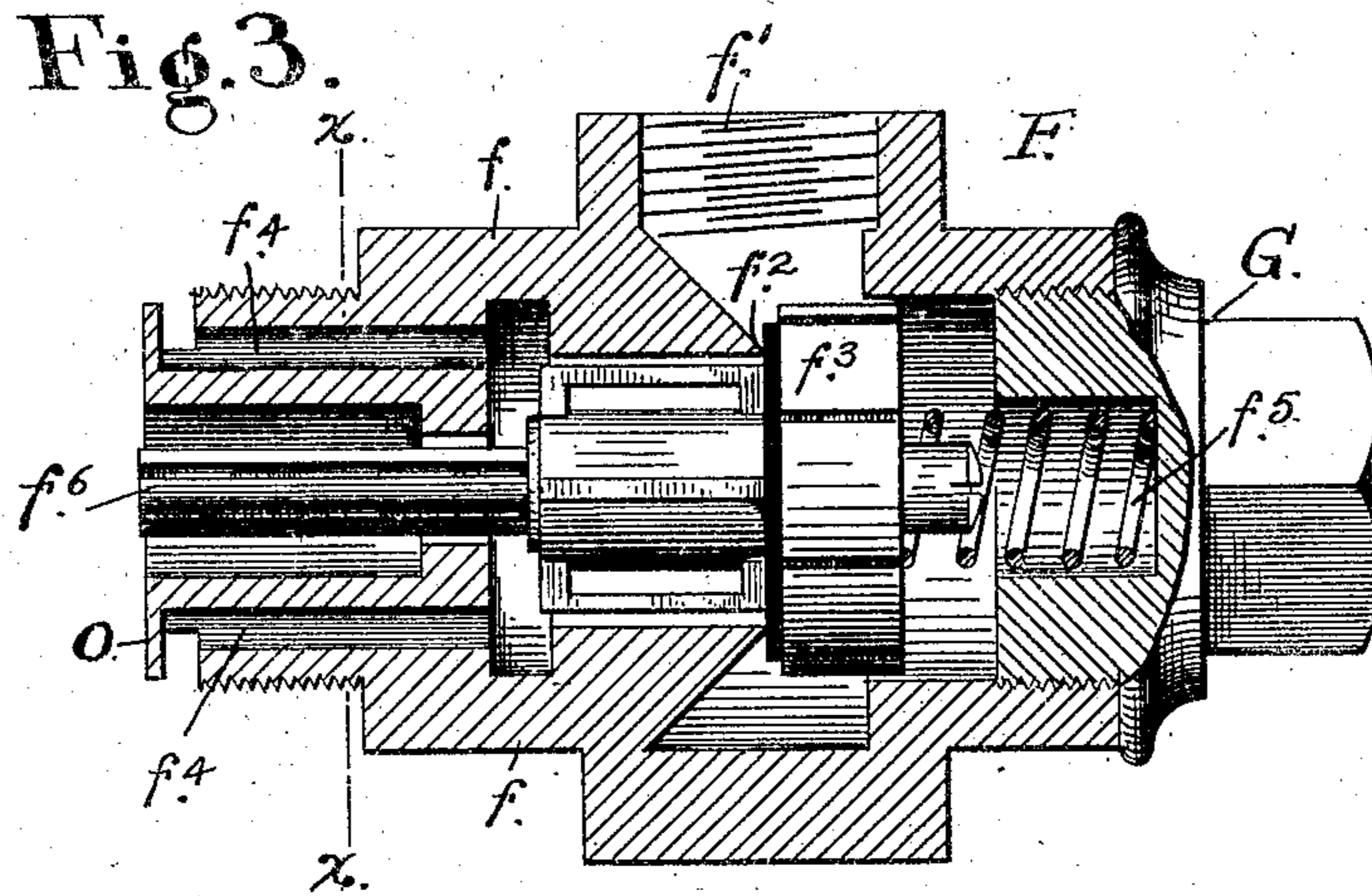
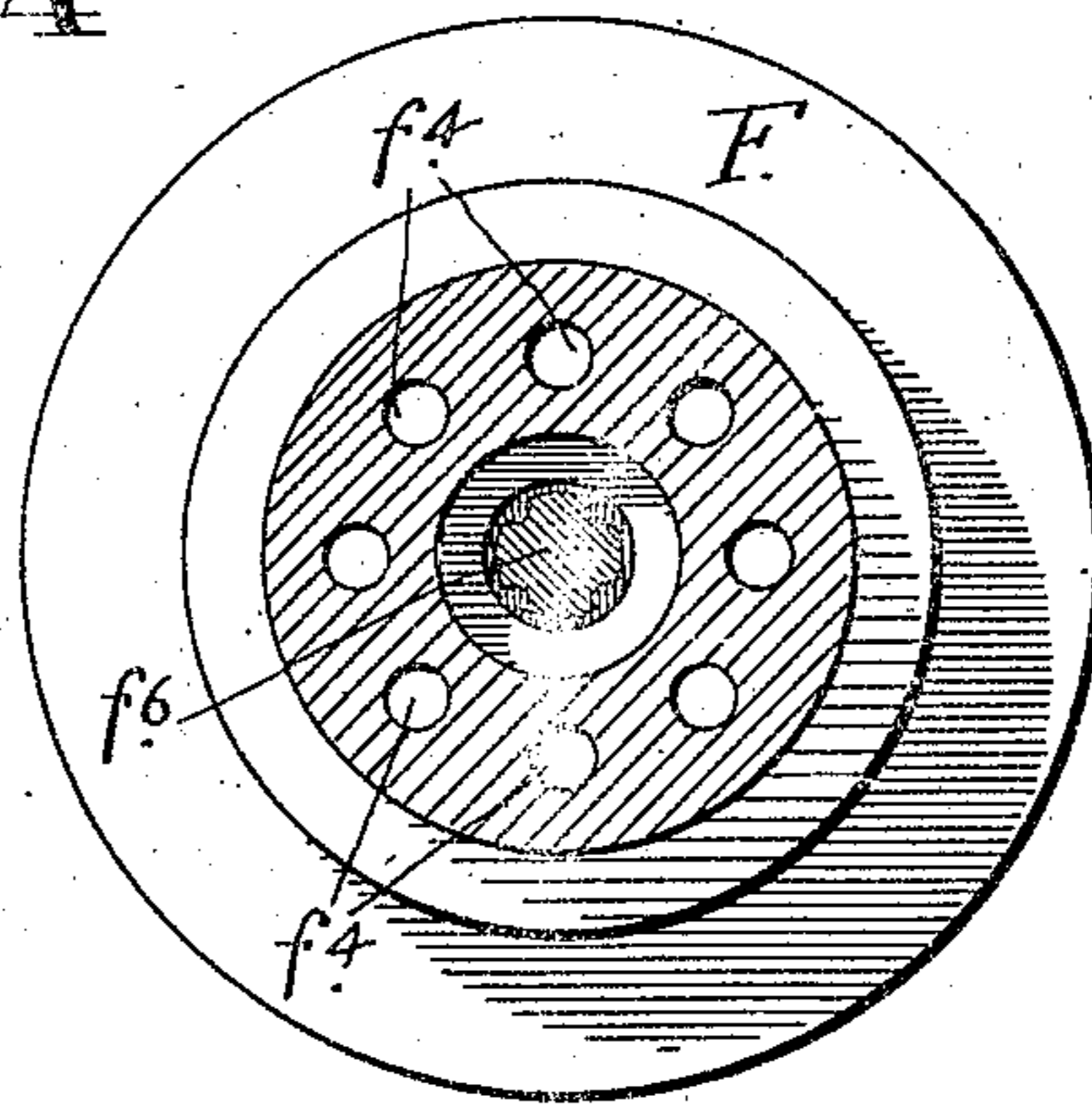


Fig. 4



Witnesses,
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UNITED STATES PATENT OFFICE.

WILLIAM H. COLLINS, OF TUCSON, ARIZONA TERRITORY, ASSIGNOR OF
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AIR-BRAKE.

No. 827,421.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed April 9, 1906. Serial No. 310,804.

To all whom it may concern:

Be it known that I, WILLIAM H. COLLINS, a citizen of the United States, residing in Tucson, Pima county, Territory of Arizona, have
5 invented certain new and useful Improvements in Air-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of air-brakes, and has for its object the increasing
10 of the brake-cylinder pressure in an emergency application of the brake.

My invention consists, in connection with the auxiliary reservoir and quick-action
15 triple valve of the brake system, of an additional auxiliary reservoir and an emergency-valve controlling the same, as I shall hereinafter fully describe by reference to the accompanying drawings, in which—

20 Figure 1 is a diagrammatic view showing the general relation of parts. Fig. 2 is a sectional view of the quick-action triple valve, showing the application thereto of my emergency-valve. Fig. 3 is a longitudinal section, enlarged, of said emergency-valve.
25 Fig. 4 is a cross-section of the same on the line $x x$ of Fig. 3.

Referring to Fig. 1, A is the auxiliary reservoir, from which a pipe B leads to the quick-
30 action triple valve C, which is bolted to the brake-cylinder D. The particular triple valve to which my invention is best applicable is that known as the "New York" quick-action triple valve, and, as shown in Fig. 2, it
35 is herein illustrated in connection with such valve. Referring now to Fig. 2, it will be sufficient, as far as the ordinary operation of this valve is concerned, to say that pressure applied through port H operates the piston P,
40 the rod p of which opens the quick-action valve Q and allows the emergency-pressure from the auxiliary reservoir A to be applied through port K, through the open valve Q and port L to the brake-cylinder. To in-
45 crease this emergency-pressure, I add a second auxiliary reservoir (designated in Fig. 1 by E) and an emergency-valve, which as a whole is designated by F. The location of valve F is seen in Fig. 2, wherein it is shown
50 screwed into the triple-valve casing in the opening which is usually occupied by the cap of the quick-action valve Q.

The enlarged section, Fig. 3, shows the construction of the emergency-valve F. It

consists of an outer shell f , externally thread- 55
ed at one end to adapt it for connection with the triple-valve casing, as shown in Fig. 2. The shell is internally threaded at the other end to receive the cap G, which in practice may be the same cap which in the ordinary 60
system covers the quick-action valve Q and which is removed in order to connect the valve F. Said shell is also provided with a coupling-flange f' to connect the pipe h ,
which leads to the additional or second aux- 65
iliary reservoir E. The interior of the shell f is provided with a seat at f^2 , upon which is a valve f^3 , which controls the communication between the pipe h and the ports f^4 , made,
preferably, in annular series, as seen in Fig. 70
4, in the inner end of shell f , which ports best open out sidewise, behind a shield O, into the port K of the triple-valve casing. A
spring f^5 holds the valve f^3 to its seat, and the
stem f^6 of said valve passes inwardly to and 75
contacts with the stem q of the quick-action valve Q, as seen in Fig. 2.

The operation is as follows: On charging
up the brake system air will flow from the auxiliary reservoir A through port K of the 80
triple valve C, on top of the quick-action valve Q, and thence through ports f^4 under the valve f^3 , raising said valve from its seat f^2 against spring f^5 , and will then pass through
pipe h to the additional or second reservoir E, 85
charging it with the same pressure as both train-line and reservoir A. When the pressure in the additional reservoir E has become equalized with the train-line pressure, the
valve f^3 will be closed by the spring f^5 under 90
the cap G and on top of said valve. Upon making an emergency application of the
brake the valve f^3 will be raised from the seat f^2 by the contact of the stem q of the quick-
action valve Q with the stem f^6 of said valve 95
 f^3 , thus allowing the air in the additional reservoir E to discharge past said valve f^3 and to flow through the ports f^4 into the port K
and thence through the open quick-action
valve Q to the brake-cylinder D, which air, it 100
will thus be seen, is in addition to the air vented into the brake-cylinder from the reservoir A. By this arrangement there is double the amount of reservoir volume of air
vented into the brake-cylinder in an emer- 105
gency application than where the single auxiliary reservoir is used, resulting in an increased pressure in the brake-cylinder.

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

1. In an air-brake, and in combination with the brake-cylinder, the auxiliary reservoir and an emergency-valve controlling the discharge from said reservoir to the brake-cylinder, a second emergency-valve operated by the first emergency-valve, and a second auxiliary reservoir the discharge from which to the brake-cylinder is controlled by said second emergency-valve.

2. In an air-brake, and in combination with the brake-cylinder, the auxiliary reservoir and an emergency-valve controlling the discharge from said reservoir to the brake-cylinder, a second emergency-valve operated by the first emergency-valve and disposed relatively to said first valve to discharge through it to the brake-cylinder and a second auxiliary reservoir the discharge from which to the brake-cylinder is controlled by said second emergency-valve.

3. In an air-brake, the combination of a brake-cylinder, an auxiliary reservoir, an emergency-valve controlling the discharge from said reservoir to the brake-cylinder, a

second emergency-valve fitted in relation to the first emergency-valve to effect, by the contact of their stems, the operation of the second by the first, and a second auxiliary reservoir, the discharge from which to the brake-cylinder is controlled by said second emergency-valve.

4. In an air-brake, the combination of a brake-cylinder, an auxiliary reservoir, a triple valve having an emergency-valve controlling the discharge from the auxiliary reservoir to the brake-cylinder, a second emergency-valve the shell of which is fitted to the casing of the triple valve, so that said emergency-valves have their stems alined to contact, whereby they work in unison, and discharge, the second through the first, and a second auxiliary reservoir, the discharge from which to the brake-cylinder is controlled by said second emergency-valve.

In witness whereof I have hereunto set my hand.

WILLIAM H. COLLINS.

Witnesses:

EDWARD M. DICKERMAN,
M. R. MILLER.