

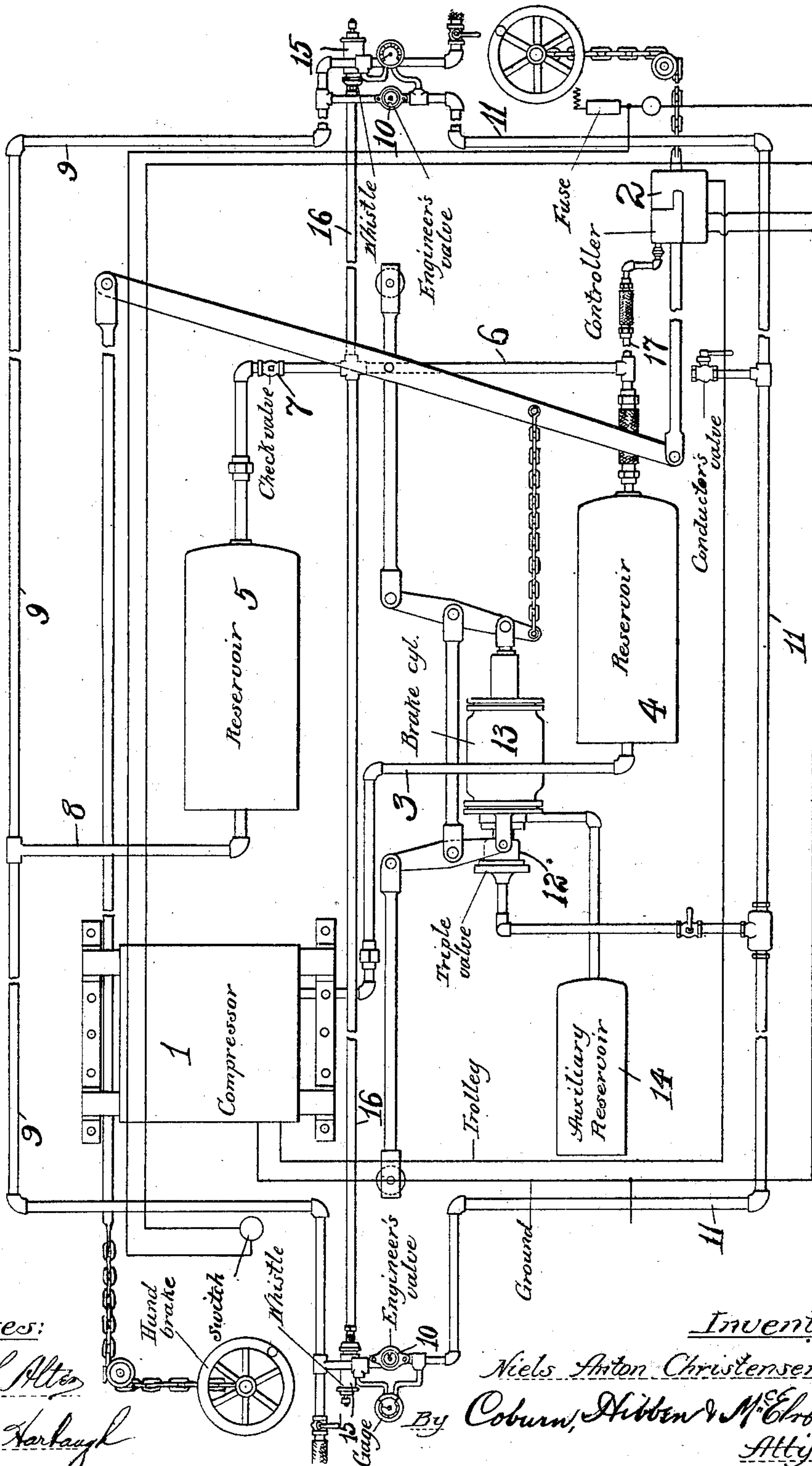
No. 679,945.

Patented Aug. 6, 1901.

N. A. CHRISTENSEN.
AIR BRAKE SYSTEM.

(Application filed July 26, 1900.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

NIELS ANTON CHRISTENSEN, OF MILWAUKEE, WISCONSIN.

AIR-BRAKE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 679,945, dated August 6, 1901.

Application filed July 26, 1900. Serial No. 24,864. (No model.)

To all whom it may concern:

Be it known that I, NIELS ANTON CHRISTENSEN, a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Air-Brake Systems, of which the following is a specification.

My invention pertains to an air-brake system, but relates more particularly to a means or arrangement whereby a whistle operated by the air-pressure of such system may be blown without affecting or in any wise interfering with the intended operations or conditions of the air-brake system proper.

In the use of whistles blown by air taken direct from the main reservoir in an automatic air-brake system when the engineer's valve is in running position an application of the brakes when blowing the whistle will take place every time unless a large main reservoir is provided and extreme care is used in not drawing off too much air or, in other words, in not whistling too much. To overcome this objection and to make the whistle independent of the air-brake system as to its operations and dependent only for its air-supply is the object of my invention.

The single figure in the drawing is a diagrammatic representation of the air-brake equipment of a car, showing my invention applied, the part between the central portion of the car and the platforms being omitted.

While I prefer to show my system of automatically-controlled independent motor-compressor for maintaining the required pressure in the main reservoir, it will be understood that my invention is not to be limited to any character of compressor.

The compressor which is shown at 1 may be of the same general construction and operation as that described in my Patent No. 635,280, dated October 17, 1899, the same being a combined motor and compressor, and the controller 2 may be that described in my Patent No. 644,128, dated February 27, 1900, the same being an automatic controller.

The compressor delivers through a pipe 3 into a reservoir 4 and also into a second reservoir 5, connected with the first reservoir by a pipe 6, provided with a check-valve 7, openable in the direction of such second reservoir. These reservoirs form practically the

main reservoir, so far as the air-brake system proper is concerned, the air being drawn directly from reservoir 5 and the reservoir 4 supplying air through check-valve 7 until equalization is reached. The reservoir 5 connects by pipe 8 with the reservoir-pipe 9, running to either end of the car when operated from both ends and communicating with any suitable engineer's valve 10. This engineer's valve is in connection with and control of the other usual elements of an air-brake system, comprising the train-pipe 11, triple valve 12, brake-cylinder 13, and auxiliary reservoir 14. The usual air-whistle 15 communicates through pipe 16 with the reservoir-pipe 6 on the side of the check-valve toward the first reservoir 4, or, as it may be termed, the "compressor" side or "near" side. The controller or automatic governor is also in communication with pipe 6 by means of the pipe or connection 17.

When the air-brake system is operated in the usual and well-known way, the pressure is, in fact, taken from both reservoirs 4 and 5, but directly from reservoir 5. When the pressure is reduced below the minimum of the governor, the compressor is thrown into action and the reservoirs replenished. When, however, the whistle is blown, the pressure is taken from the reservoir 4 without disturbing the pressure in reservoir 5, and consequently without affecting the train-pipe pressure even though the engineer's valve should be in running position. Inasmuch as the automatic governor communicates with reservoir 4, it will cause such reservoir to be replenished to maximum pressure after a depletion due to such whistling. If the whistle were connected directly with the main reservoir, as is the common arrangement, or with the reservoir 5, for instance, the brakes would be liable to be applied every time the whistle was blown when the engineer's valve was in running position, caused by the surging or flow of air from the train-pipe through the engineer's valve and into the reservoir to compensate for the pressure used. In such arrangement large reservoirs are necessary and great caution must be exercised in blowing the whistle. These are objectionable and, in fact, impractical requirements. In my system, however, the whistle may be blown as often or as long as

desirable without affecting the brake system, from whose operations it is consequently entirely independent, being dependent thereon only for its supply of air. The air for the
 5 whistle is supplied entirely from the first reservoir, and any reduction in pressure therein, due to the blowing of the whistle or otherwise, will not affect the pressure in the second reservoir, and by having the governor
 10 connected to the first reservoir the compressor will start replenishing the air as soon as the whistle has been blowing long enough to reduce the pressure to the minimum of the governor.
 15 The reservoir 5 is the true main reservoir, and the reservoir 4 is supplemental to it, so far as the air-brake system proper is concerned. The brake system takes off air from both reservoirs, directly from reservoir 5 and
 20 indirectly from reservoir 4; but the air-whistle, communicating with the piping or connections between the compressor or source of supply and the true main reservoir and on the compressor side of the check-valve,
 25 cannot take off air from such main reservoir, and therefore the whistling cannot affect the brake system. When the reservoir 4 is used, the whistle may be said to draw therefrom, although such reservoir may be considered as
 30 an enlargement of the supply-pipe from the compressor.

I claim—

1. In an air-brake system, the combination
 35 with a main reservoir having a check-valved connection with a source of fluid-pressure, and in communication with the system, of a

whistle communicating with such source on the near side of the check-valve.

2. In an air-brake system, the combination
 40 of a main reservoir connected with the system, an air-compressor delivering pressure thereto through a check-valve connection, and an air-whistle communicating with such connection on the compressor side of the check-valve.

3. In an air-brake system, the combination
 45 of two main reservoirs, check-valved piping therebetween, the first reservoir being in communication with a source of air-pressure and the second reservoir with the brake system, and an air-whistle communicating with
 50 said piping on the side of the check-valve toward the first reservoir.

4. In an air-brake system, the combination
 55 of two reservoirs, check-valved piping therebetween, an air-compressor delivering into the first reservoir, the second reservoir communicating with the brake system, an air-whistle and an automatic governor for the
 60 compressor both communicating with said piping on the compressor side of the check-valve.

5. The combination with a brake system,
 65 of an air-whistle communicating with and receiving air-pressure from such system, such system and whistle being independent of each other as to their operations.

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Witnesses:

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