(No Model.) 2 Sheets—Sheet 1.

N. F. CHASE.

AUTOMATIC ATTACHMENT FOR LOCOMOTIVES.

No. 343,362. Patented June 8, 1886.

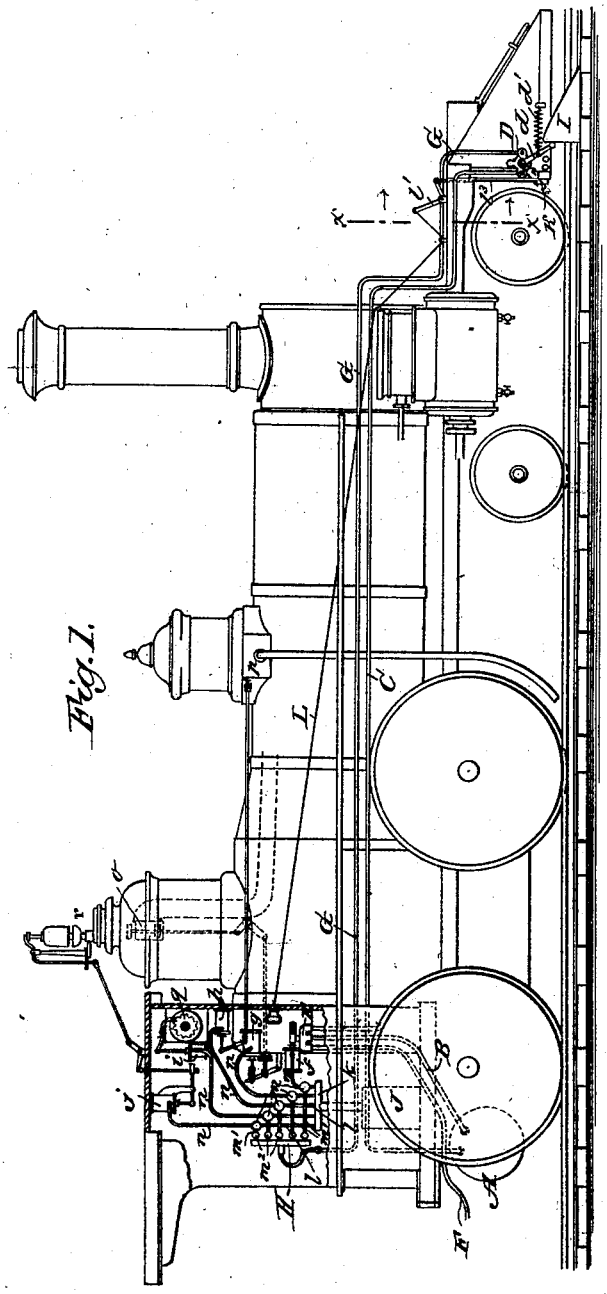

Fig. 1.

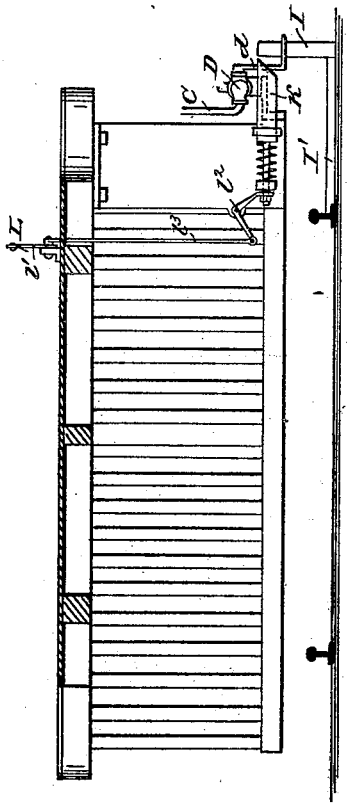

Fig. 2.

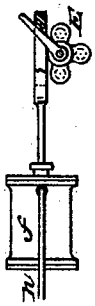

Fig. 3.

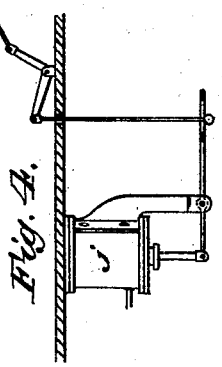

Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

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AUTOMATIC ATTACHMENT FOR LOCOMOTIVES.

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Fig. 5.

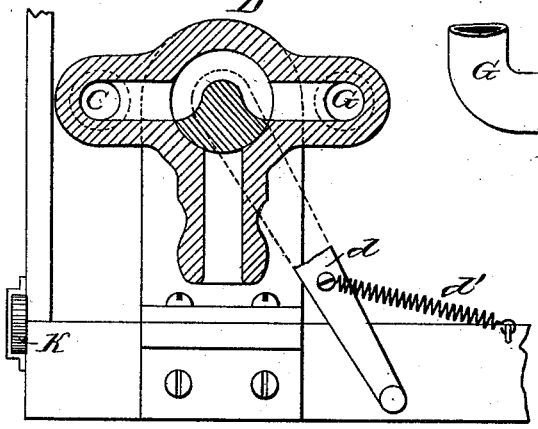


Fig. 6.

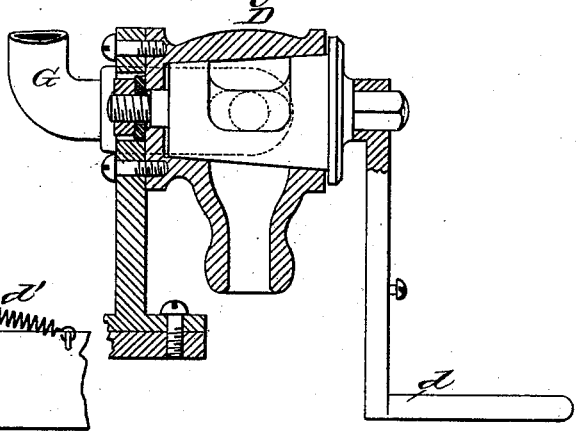
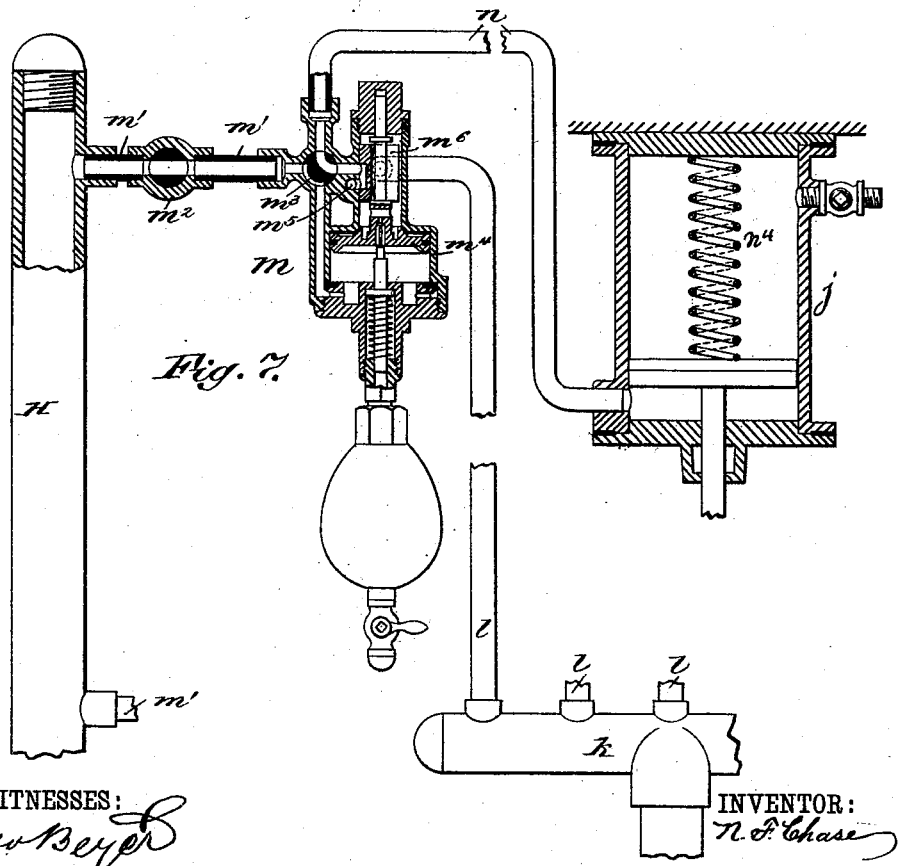


Fig. 7.



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UNITED STATES PATENT OFFICE.

NORMAN F. CHASE, OF MONTROSE, NEW YORK.

AUTOMATIC ATTACHMENT FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 343,362, dated June 8, 1886.

Application filed January 29, 1886. Serial No. 190,254. (No model.)

To all whom it may concern:

Be it known that I, NORMAN F. CHASE, of Montrose, county of Westchester, and State of New York, have invented new and Improved Automatic Attachments for Locomotives, of which the following is a full, clear, and exact description.

The object of my invention is to devise means whereby a person on a railway-track or at a station may cause certain devices upon the locomotive of a passing train to be operated for signaling the engineer or stopping the locomotive, so that signals of "danger," &c., may be effective and given at any place on the line.

The invention consists, principally, in applying to a locomotive, and preferably to the air-reservoir of a Westinghouse or other air-brake or other expansive-force supply, means whereby such force may be used to close the throttle-valve, ring a gong-bell, blow the whistle, and sand the track all at the same time or singly, or as many of the devices named as desired, the action being controlled by a cock arranged to be operated by an obstacle adjacent to the track.

The invention also consists of the construction, arrangement, and combination of parts, all as hereinafter described and claimed.

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

Figure 1 is a broken side elevation of a locomotive having my invention applied thereto. Fig. 2 is a transverse sectional elevation taken on the line *x x*, Fig. 1. Fig. 3 is a detailed view of the air-chamber and valve for operating the brake; and Fig. 4 is a detailed view of the air-cylinder and connections for operating the whistle-valve. Figs. 5 and 6 are opposite enlarged sectional views of the three-way cock D; and Fig. 7 is an enlarged detailed view of the pipes H K, one valve, *m*, and one air-cylinder with connecting-pipes.

A represents the compressed-air reservoir of an ordinary Westinghouse brake. From this reservoir leads the pipe B and also the pipe C, which latter reaches to the front of the locomotive and connects with one port of the three-way cock D. The pipe B connects with the three-way cock E, from one port of which leads the pipe F, that connects with the brake-cylinders attached to the cars. (Not shown.) Connected to one of the ports of the three-way cock D is the pipe G, which reaches to the cab of the engine and is connected with the T-pipe H. The other port of the three-way cock D opens into the open air to allow exhaust from one or all of the series of valves *m m*, as hereinafter described. The said three-way cock D, in the arrangement shown, is connected to one side of the cow-catcher of the locomotive, and the lever *d* for operating the cock projects at one side of the cow-catcher, as shown in Fig. 2, so that an obstruction, I, placed alongside the track, as shown in Figs. 1 and 2, will operate the cock as the locomotive moves past the obstruction, which will put in action the pistons of the cylinders *f g h i j*, as and for the purposes hereinafter described.

J is an auxiliary cylinder into which air is compressed, and this cylinder is connected by the T-pipe *k* and small pipes *l* to the triple valves *m m*, which are exactly like the triple valves used in the Westinghouse brake. The triple valves *m* are each connected by short pipes *m'* to the above-mentioned T-pipe H, and also each by a separate pipe, *n*, to the cylinders *f g h i j*.

The cylinder *f* is for operating the cock E for admitting air to the pipe F for applying the brakes. The cylinder *g* is for operating the throttle-valve *o*, which is effected through a plain and a bell-crank lever and suitable connections, as shown. The cylinder *h* is for opening the sand-valve *p* for sanding the track. The cylinder *i* is for ringing a gong-bell, *q*, and the cylinder *j* is for opening the valve *r* of the steam-whistle, through the medium of a plain and bell-crank lever and suitable connections, as shown.

When the lever *d* of the three-way cock D stands in the position shown in full lines in Figs. 1 and 5, it connects the pipe C with the pipe G, as shown in Fig. 5, so a pressure of air from the main air-reservoir A will pass through these pipes to T-pipe H, thence through valves m^2 and pipes *m'* and passages m^3, and lift the pistons m^4 (see Fig. 7) in the triple valves *m*, which will open the exhaust m^5 in each of the triple valves and permit the air from the cylinders *f*, *g*, *h*, *i*, and *j* to exhaust into the open air through the said ex-

haust m^5 and the pipes n; but when the lever d is forced to the position shown in dotted lines in Fig. 1 by coming in contact with any object, as I, the pipe G will be opened to the open air through one of the ports of the three-way cock D, which will permit the exhaust of air from below the pistons m^4 of the triple valves m, which pistons will move downward by the expansion of air above, as in the ordinary Westinghouse brake, and cause the valve m^6 of each triple valve to close the exhaust m^5 and establish communication between the cylinders f g h i j, or either of them, and the auxiliary reservoir J, through the pipes n l and T-pipe k, which will cause the pistons of the cylinders to operate, respectively, the device above mentioned, to which they are connected. The pistons of the cylinders may be forced toward the entrance of pipes n when the exhaust m^5 is pressed by a spring, n^4, placed in the cylinders, as shown in Fig. 7.

When the lever d is forced to the position shown in dotted lines in Fig. 1 by coming in contact with the obstruction I, it will pass the spring-latch K, which will retain it in that position until the latch is withdrawn by pulling upon the rod L, whereupon the spring d will return the cock to its normal position, connecting the pipes C G. The rod L acts through the two bell-crank levers l' l^2 and the connecting-rod l^3, as shown clearly in Figs. 1 and 2.

The pipes m', that connect the T-pipe H with the triple valves m, each have fitted in them a cock, m^2, so that any one of the cylinders f, g, h, i, or j may be thrown out of action and put again in action when desired.

The obstruction I is formed with an arm, I′, which is to be placed against the rail, as shown in Fig. 2, so that the upright portion will always stand in the right position to be struck by the lever d, which will signal the engineer, sand the track, and apply the brakes, as described, without any act upon the part of the engineer. In this manner a person on the track may have entire control of the train.

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

1. The combination, with a locomotive and a main and auxiliary reservoir of compressed air or other force-supply, cylinders connected with the reservoirs, and intermediate valves for admitting air from the auxiliary reservoir to the cylinders, of pipes leading from the main air-reservoir and the valves to a cock, D, attached to the locomotive, and provided with a lever for operating the valve, the lever being arranged to strike an obstacle placed upon the railway-track as the locomotive passes it, substantially as and for the purposes described.

2. The combination, with the locomotive, the main air-reservoir A, the auxiliary reservoir J, and the cock D, connected with the reservoir A by the pipe C, and with the cylinder f by pipes G, m', and n, of the said cylinder connected with the auxiliary reservoir, and the triple valves m for permitting entrance to and exhaust of air from the cylinder f, substantially as and for the purposes set forth.

3. The combination of a locomotive, the main compressed-air reservoir A, the auxiliary air-reservoir J, the cock D, connected with the main reservoir A by pipe C, and connected also to the triple valves m by pipe G, T-pipe H, and small pipes m, with several cylinders f g h, &c., connected to the triple valves and to the auxiliary air-reservoir J, the cock being adapted to be operated by striking an obstacle on the track, substantially as described.

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GEORGE F. FERRIS.