

(No Model.)

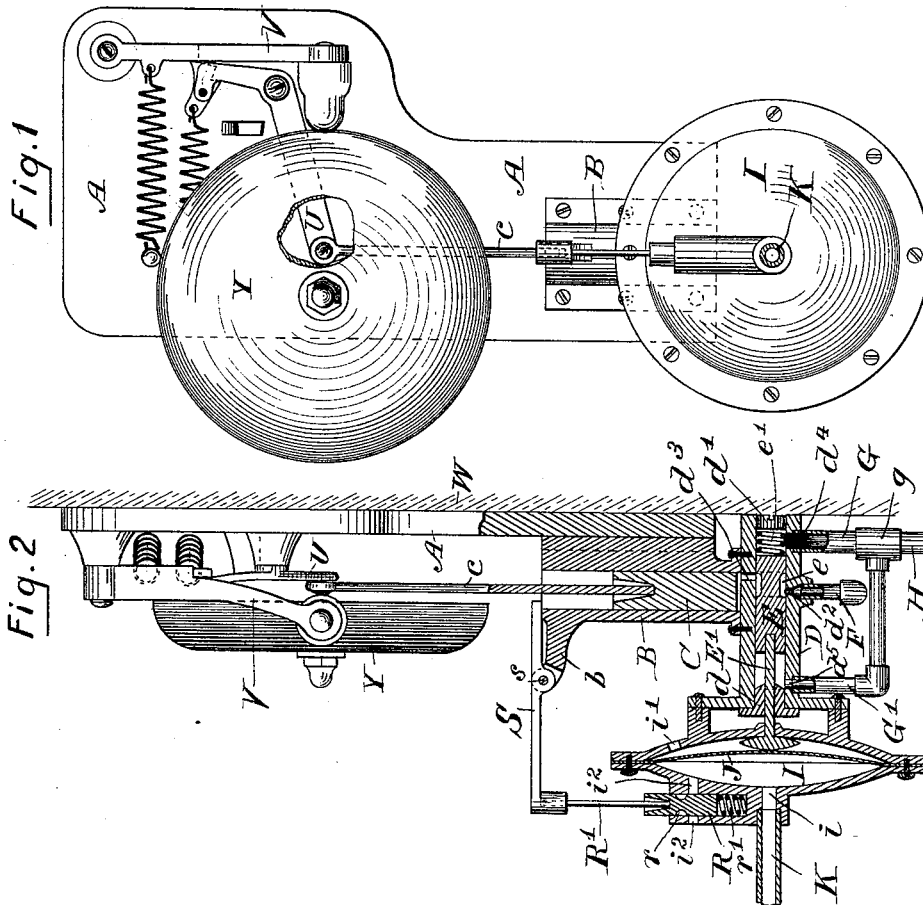
2 Sheets—Sheet 1.

C. F. WEST.

TRAIN SIGNALING APPARATUS.

No. 387,026.

Patented July 31, 1888.



Witnesses,

Frank A. Merrill.

A. M. Johnson.

Inventor,

Chas. F. West.

By his Attorney J. B. Thurston.

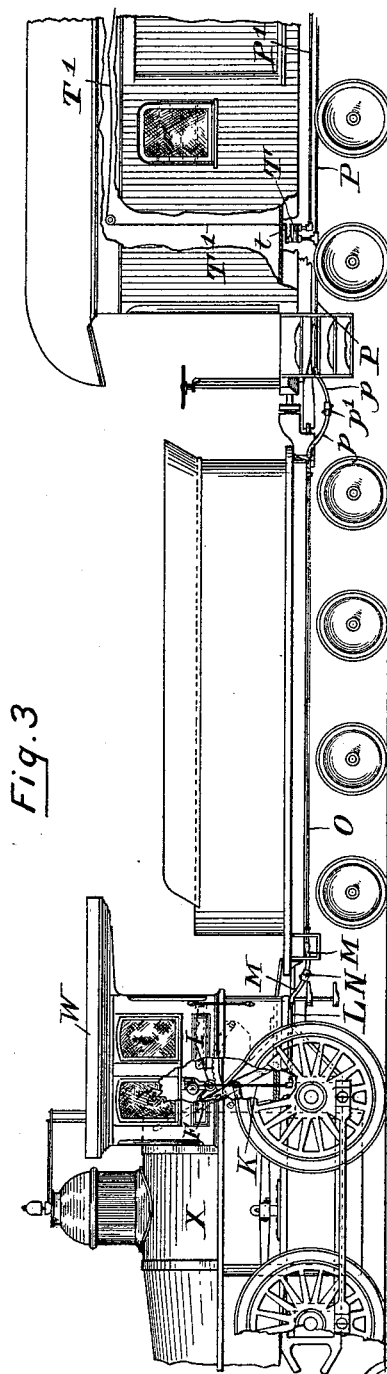
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UNITED STATES PATENT OFFICE.

CHARLES F. WEST, OF CONCORD, NEW HAMPSHIRE.

TRAIN-SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 387,026, dated July 31, 1888.

Application filed February 20, 1888. Serial No. 264,584. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. WEST, a citizen of the United States, residing at Concord, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improvements in Train-Signaling Apparatus, of which the following is a specification.

This invention relates to appliances for operating or sounding a gong from a distance, and is more especially applicable to railway trains for operating the gong on the locomotive.

The object of the invention is to provide sure and reliable means—without recourse to the ordinary bell-cord, which must pass through the several cars, or to electricity—for signaling the engineer.

The invention consists in the combined use of steam and compressed air, or air alone, with suitable mechanism for accomplishing the desired result, all of which will be clearly described in the following specification, and fully illustrated in the accompanying drawings, forming an inseparable part thereof, of which—

Figure 1 represents an ordinary locomotive-gong, mounted upon a suitable bed-plate, to which my improved steam and compressed-air signaling mechanism is secured. Fig. 2 is a broken side elevation of the same. Fig. 3 shows a portion of a locomotive, its tender, and one end of a car to which my improved signaling apparatus is applied.

Similar letters indicate corresponding parts throughout the various views.

A bed-plate, A, is provided, which is preferably long enough to accommodate a gong, Y, with its ordinary striker, as well as my improved apparatus for operating said striker. This may be located wherever desired in the locomotive cab, a convenient locality being that shown in Fig. 3—i. e., on the running-board, just forward of the engineer's seat. It may be set in a vertical position and secured to the side of the cab W, or otherwise.

A cylinder, B, is secured upon and parallel with the bed-plate, at or near one end, to which is fitted a piston, C, provided with a piston-rod, c. A valve-chamber, D, is secured to the lower or outer end of this cylinder, at right angles, and provided with plugs d d' , threaded or otherwise secured in its ends. The interior of the valve-chamber is preferably

cylindrical, and a piston-valve, E, is turned to fit the same.

Steam-ports d^2 d^3 are formed in the said valve-chamber D, the former admitting steam from the supply-pipe F, which may connect, at some convenient point, with the boiler X to said valve-chamber by means of an annular groove, e, in the said piston-valve E, and the latter admitting said steam thence to the cylinder B and its piston C.

An exhaust-port, d^4 , and passage for leakage d^5 are located at opposite ends of the said valve-chamber D, and connect, respectively, with the pipes G G', terminating in a T-coupling, g, upon the exhaust-pipe H. The valve-stem E' passes through the plug d , and enters an air-chamber, I, which may be secured to the steam-valve chamber D, as shown in Fig. 2, and is operated upon by a diaphragm, J, which is forced against the end of said valve-stem by compressed air entering said chamber I at i, by means of the pipe K, which extends downward and is joined to a horizontal pipe, L, connected by flexible pipes M and suitable couplings N to a similar pipe, O, hung underneath and extending to the rear end of the tender, as shown in Fig. 3.

Air-pipes P are provided underneath or at any desired location on the several cars of a train extending their entire length, and these are connected right through by means of flexible pipes p and suitable couplings, p', which apply to the pipe O on the engine-tender as well. The said air-chamber I has also one or more perforations, i', for admitting air back of the diaphragm J, and through which the same may be expelled by the action of the compressed air upon the opposite side of said diaphragm, as heretofore explained.

An exhaust-port, i^2 , must also be provided in said air-chamber I, which is alternately covered and opened by a valve, R, which in the drawings is shown to be a piston-valve having an annular groove, r. When in its normal position, the said valve is retained, as shown in Fig. 2, by aid of a spring, r', which, at the proper time, is compressed sufficiently to carry the groove r of the said valve R in line with the said exhaust-ports i^2 by the action of the steam-piston C on one end of a rocker-arm, S, fulcrumed at s to a suitable projection, b, formed integral with or attached to the steam-

cylinder B, the opposite end of said arm being adapted to move the said valve R by means of the valve-stem R'.

A spring, *e'*, is placed in the valve-chamber D, expanding between the plug *d'* and the piston-valve E, for returning the said valve, its stem E', and the diaphragm J to their normal position—in Fig. 2 these same parts being shown under pressure, the piston C just taking steam.

At any convenient point within a car, or just below the floor of a car, as shown in Fig. 3, the pipe P is tapped, and a valve, T, is connected, the pipes P' leading directly to the air-reservoir of the air-brake system, and being continuously under pressure.

An operating-cord, T', passes from the valve-lever *t* through a car in convenient reach of a trainman or passenger, by pulling which air is admitted to the pipe P and its connections, and finally reaches the air-chamber I, where it forces the diaphragm J, the valve-stem E', and valve E into the positions shown in Fig. 2, when steam is admitted to the piston C, and the gong is sounded, by reason of the piston-rod *c* operating the ordinary bell-crank U and bell hammer V.

It is obvious that the piston C may be operated by compressed air in lieu of steam, by connecting its supply-pipe with the compressed-air-storage reservoir attached to the locomotive, with equally as good results.

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

1. In a gong-bell-sounding mechanism, a steam-actuated piston, a compressed-air actuated valve for controlling its steam supply, suitable pipes, and a valve or valves for conducting compressed air from a storage-reservoir located on the several cars of a train, substantially for the purpose set forth.

2. In an apparatus for ringing the signal-gong in a locomotive-engine, a cylinder, and piston, having its piston-rod in direct connection with a bell-crank which operates the bell-hammer, a valve for controlling the movement of said piston, and means for actuating said valve from the several cars of a train, comprising pipes having suitable couplings, as shown, and branch pipes connecting with the compressed air reservoirs of the air-brake system, provided with valves, and operating-cords entering the several cars, all substantially for the purpose set forth.

3. The combination of a locomotive signal-gong, a steam-actuated piston for ringing the same, a valve for admitting steam to said piston, and means, comprising air-conducting pipes with suitable couplings and valves, for actuating said valve E from the interior of any of the several cars of a train by compressed air from the air-brake system, substantially in the manner and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES F. WEST.

Witnesses:

NATHANIEL E. MARTIN,
J. B. THURSTON.