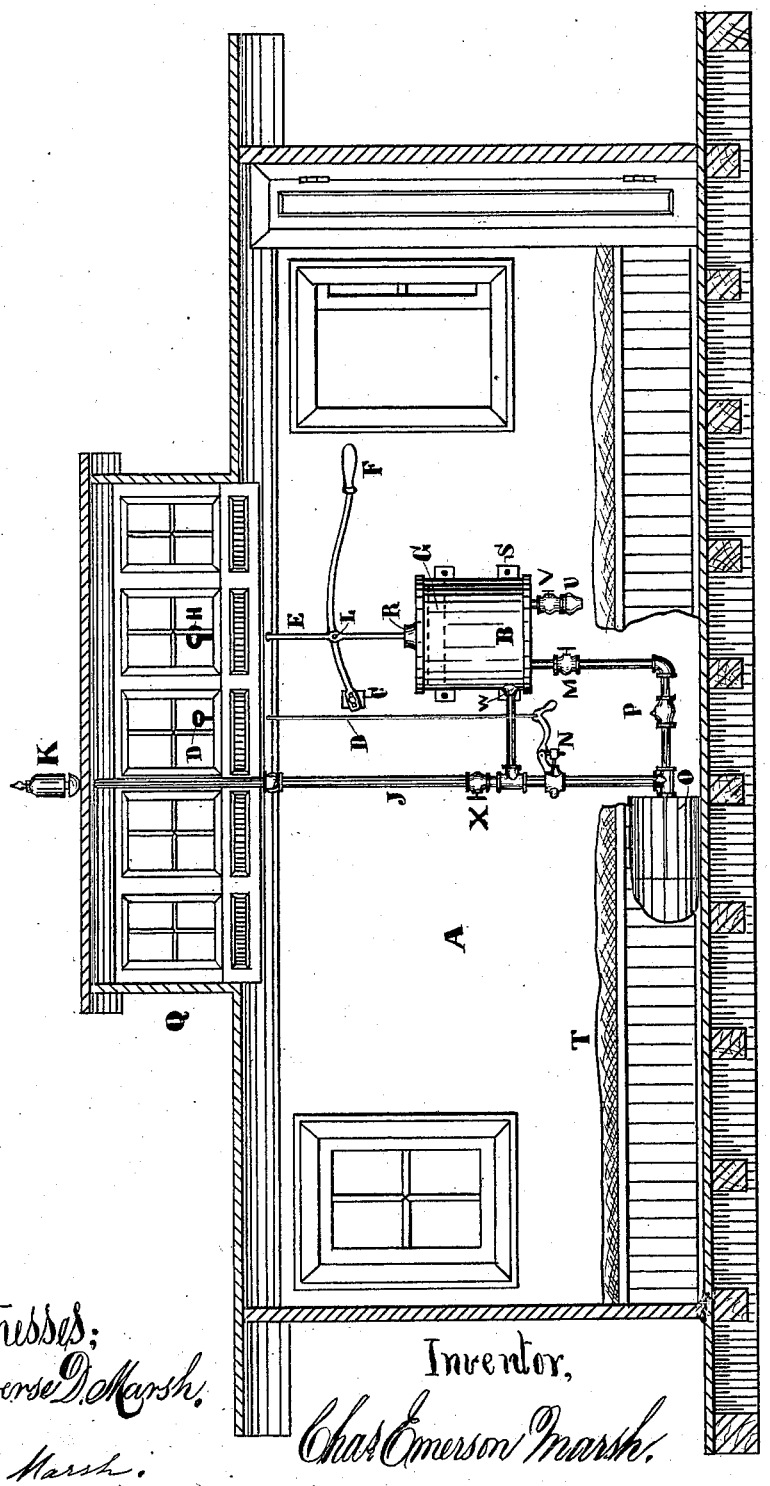
C. E. MARSH.

Signal for Freight-Trains.

No. 197,876 Patented Dec. 4, 1877.

Fig. 1



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CHARLES E. MARSH, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN SIGNALS FOR FREIGHT-TRAINS.

Specification forming part of Letters Patent No. **197,876**, dated December 4, 1877; application filed September 1, 1877.

To all whom it may concern:

Be it known that I, CHARLES EMERSON MARSH, of the city of Indianapolis, and State of Indiana, have invented a new and useful Improvement in Signals for Freight-Trains, which is fully set forth in the following specification and accompanying drawing.

The object of my invention is to furnish a device by which the conductor of a freight-train may, while remaining in or upon the caboose, readily and with certainty communicate with the engineer forward in the locomotive-cab; and the invention consists of an air-pump and whistle attached to each other and to the caboose, and arranged to be operated by the manual power of the conductor or other person in or upon the caboose. By a single stroke of the piston of the air-pump the air is compressed within the barrel of the pump or chamber, and suddenly forced into the whistle outside of the caboose, making a sharp distinct sound, which can be easily heard at all times by the brakemen, engineer, or firemen.

The location and arrangement of an air-pump in a caboose, by which air is forced into and blows a whistle for the purpose of giving signals, constitute one of the leading essential elements of my invention.

The application of an air-pump whistle to a caboose for the purpose of giving signals by whistles once invented, divers methods of making the application become comparatively easy. Excepting, perhaps, a bellows, which may be located either inside or outside of the car, the readiest, simplest, and most effective method, and one in which there is the least complication of parts and least liability to derangement, is the one here described, which consists of an air-pump without a valve, in which, by withdrawing the plunger in the barrel of the pump, air rushes down through the whistle and its pipe connecting it with the barrel of the pump into the space left by the withdrawal of the plunger; and then, by suddenly forcing the plunger back in the barrel of the pump into the space from which it has been withdrawn, the air is forced out again through the whistle, causing it to blow. But to this simple arrangement may be added and connected an air-receiver, with which a reserve force of air, by the use of valves, may be compressed by the pump and held for use in case of any accident to the pump, or while repairing its plunger; or, instead of connecting the air-receiver with the hand-pump, it may be filled with compressed air by means of an eccentric or other proper mechanism operated from an axle of the car, and the compressed air be used, as occasion may require, to blow the whistle in case the pump should, from any cause, become inoperative.

The drawing shows a side elevation of a section of the interior of a caboose, and the attachment thereto of my air-pump and whistle.

A indicates the side of a car; B, the barrel of the air-pump; S, the lugs, by which it is attached to the side of the car; G, the plunger; E, the pump-rod; F, the hand-lever for operating the pump and whistle on the inside of the car; C, the attachment of the hand-lever by a pivot to the side of the car, and L its attachment by a pivot to the pump-rod; H, the handle of the pump-rod, projecting through and above the roof of the car, so that the pump may be operated by a person on the top of the car; R, a guide for the pump-rod; J, the pipe connecting the whistle K with the pump; W, the place where the pipe J is inserted into pump-barrel; Q, a turret or "look-out," now generally used on freight-train cabooses; T, a seat in the car; O, an air-receiver under the seat; V, a stop-cock; U, air-valve to be used when filling receiver; P, check-valve; M, a stop-cock to be used as a mere assistant to the check-valve P in retaining compressed air in the receiver, and in completely cutting off communication between the receiver and pump, except while filling the receiver; N, a stop-cock or valve; X, a stop-cock.

The operation is as follows: When it is desired to blow the whistle as a signal, the operator, if on the inside of the car, has but to seize the lever F and jerk it downward, by which means the plunger G descends in its barrel, forcing the air out at W through the pipe J into the steam-whistle K, causing it to blow. If the operator is on the outside he seizes the pump-rod E by its handle H, and suddenly pushes down the plunger, with like result. As the plunger descends the air enters freely around the guide R into the barrel above the plunger, and as it ascends the air is easily

forced out through the same aperture, while it rushes into the barrel below the plunger through the steam-whistle K by the pipe J. When not in use the plunger may be held in position at the top of the pump-barrel by means of a counter-balance or springs, so that the extra stroke of raising the plunger may be avoided. During the use of the pump for whistling signals its communication is entirely cut off from the receiver O by means of the cocks M and N. The cock V is also, of course, closed, and the cock X is open. When it is desired to pump the receiver full of compressed air communication is shut off from the whistle by closing the cock X, and the cocks M and V are opened, and N remains closed, as before. With the cocks thus turned and in readiness, by the operation of the pump and the valves U and P, air is forced into and retained by the receiver. After it is filled the cocks M and V are then closed, and X is opened, leaving the pump, as before, entirely independent of the receiver, and ready to operate the whistle. When it is desired to use the air from the receiver instead of from the pump to blow the whistle, it is done by turning the cock N, which may be operated from the outside by the rod D.

I do not confine myself to any particular form of air-pump, or to any particular place for locating it on or in the car; but

I claim as my invention—

1. The combination of a hand air-pump and whistle, connected together, without intervening valves, substantially as specified.

2. A hand air-pump without valves, in combination with and operating a whistle, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHAS. EMERSON MARSH.

Witnesses:

CONVERSE D. MARSH,

AUSTIN F. DENNY.