

(No Model.)

F. SCHIEFFLER.
PNEUMATIC SIGNALING APPARATUS.

No. 571,315.

Patented Nov. 10, 1896.

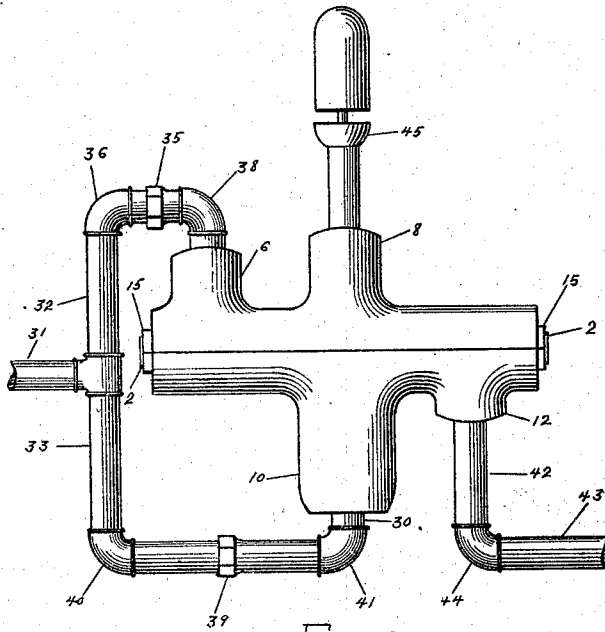


Fig 1

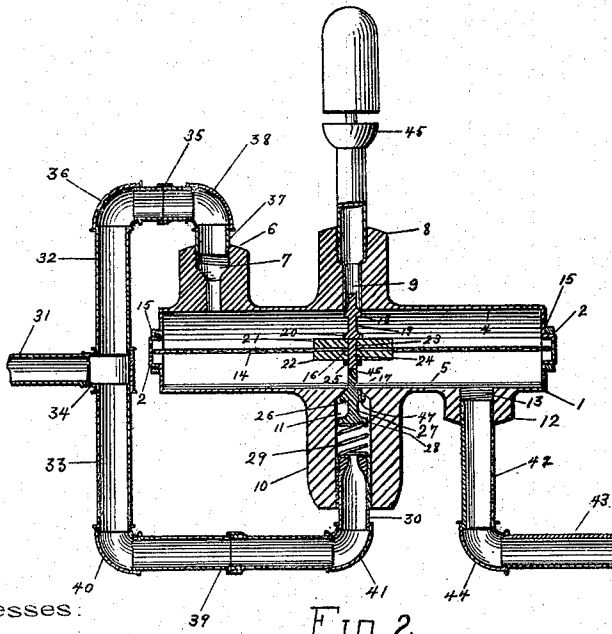


Fig 2

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FRED SCHIEFFLER, OF WEST BAY CITY, MICHIGAN.

PNEUMATIC SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 571,315, dated November 10, 1896.

Application filed March 13, 1896. Serial No. 583,138. (No model.)

To all whom it may concern:

Be it known that I, FRED SCHIEFFLER, a citizen of the United States, residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Diaphragmatic Signal Apparatus for Railroad-Trains; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in a diaphragmatic signal apparatus for railroad-trains; and it consists in the arrangement and construction of the parts with the object of producing improvements in a pneumatic signal device which will blow a signal-whistle from compressed air.

A further object of the invention is to construct a device in an economic and durable manner and in such a way that access may be had to its parts conveniently and expeditiously.

A further object of the invention is to provide a signal apparatus which will be simple and compact, which may be placed in the engineer's cab and but little room utilized thereby, and at the same time simple and cheap in its design and manufacture.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is an exterior view of a pneumatic signal apparatus which embodies my invention. Fig. 2 is a partial vertical section of Fig. 1, showing the mechanism of the same.

Referring to the drawings, 1 represents a cylindrical-shaped chamber which is provided with threaded lugs 2 2 on its ends and split longitudinally and forming half-sections 4 and 5 thereby. The upper section 4 is provided with an inlet-lug 6, provided with an opening 7, and a whistle supporting-lug 8, which is provided with an opening 9.

10 is the inlet-lug to the lower section 5, and 11 is its opening within.

12 is the outlet-lug, provided with an opening 13 therein.

14 is a diaphragm which is placed between the sections 4 and 5 and is secured by means of screwing the nuts 15 15 on the threaded lugs 2 2, which clamp the said diaphragm 14 thereby and form separate compartments therein.

The diaphragm 14 is provided with a perforated opening 16, which is centrally located and directly opposite the whistle-valve seat, which is provided in the lower end of the opening 9 of the whistle-support 8, also directly opposite the lower inlet-valve seat 17, which is provided in the upper end of the opening 11 of the lower inlet-lug 10.

18 is the whistle-valve, and 19 is its stem, which is provided with a shoulder 20.

21 and 22 are disks or washers which are provided with perforated holes or openings centrally located at 23 and 24.

The disks 21 and 22 are placed directly opposite each other and on the opposite sides of the diaphragm 14 with their holes or openings 23 and 24 directly opposite the hole or opening 16 of the said diaphragm 14. The stem 19 is then inserted therein with its lower end projecting through the lower washer 22 and all said parts clamped together by means of the shoulder 20, resting upon the upper side of the upper disk or washer 21, and the nut 25 screwed up and against the lower disk or washer 22.

26 is the lower inlet or auxiliary valve, and 27 is its stem, which is provided with an enlargement 28 on its lower end.

29 is the auxiliary spring, and 30 is a nipple which is provided with an inner boss or contraction at its upper end.

The lower inlet-valve stem 27 has its upper end projecting above its valve 26 to a sufficient height to rest against the lower end of the whistle-valve stem 19, whereby when the valves 18 and 26 are seated they are kept in their position by means of the enlarged end of the inlet-valve stem resting upon the auxiliary spring 29, which rests upon the upper end of the nipple 30.

31 is the pipe that leads to the compressed-air apartment, which is shown broken off, and is connected to the vertical pipes 32 and 33 by means of a T-joint at 34.

The upper apartment 4 receives its air by way of the pipe 32, which is connected to a horizontal union 35 by means of an elbow 36,

35 being connected to the vertical inlet-nipple 37 by means of the elbow 38, and the lower apartment 5 receives its air by way of the vertical pipe 33, being connected to the horizontal union 39 by means of the elbow 40, 39 being connected to the nipple 30 by means of the elbow 41.

42 represents the pipe which is connected to the lower apartment 5 by means of the opening 13, provided in the lug 12 and screwed therein, and its opposite end connected to the train-pipe 43 by means of the elbow 44.

In practice by opening an exhaust-valve in the train-pipe 43 I exhaust a sufficient quantity of air from the lower apartment 5 to permit the center of the diaphragm 14 to sway downward, which opens the whistle-valve 18 and blows the whistle 45 thereby, and at the same time opens the lower valve 26, which admits the air to the lower apartment 5. When the train-pipe is closed, the diaphragm 14 is pressed upward and the whistle-valve closed by the equal pressure of air and the auxiliary spring 29, which holds the said whistle-valve in its position by means of the upper end of the lower valve-stem 27, resting against the lower end of the upper valve-stem 19 at 46 and pressing against the same.

The lower valve is provided with a small perforated port 47 for the purpose of supplying a sufficient quantity of air which may be lost by leaks or other causes from the train-pipe 43, whereby an equal pressure may be kept in the apartments relating thereto.

In taking the device apart for repairs or other causes it is only necessary to detach the unions 35 and 39. Then by removing the annular nuts 15 15 the upper apartment 4 is easily detached from the lower apartment 5, whereby the time and trouble of removing bolts is avoided and at the same time producing a device that may be set up in the engineer's cab which will take up but little space and is simple and cheap in its design and manufacture.

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

1. In a pneumatic signal apparatus for railway-trains, two substantially-alike chambers provided with inlet and outlet connections on opposite sides, a dividing flexible diaphragm therefor, an opening therein, the disks or washers 22, and 23, provided with openings therein, the nut 25, the whistle-valve stem 19, provided with the valve 18 near its upper end and the shoulder 20, the said disks placed on opposite sides of the said diaphragm with their openings directly opposite the said opening in the said diaphragm and the said whistle-stem inserted therein against the said shoulder 20 and secured thereto by the nut 25, the lower valve-stem 27, the auxiliary valve 26, and the nipple 30, the said lower valve-stem provided with the valve 26, provided with the port 47, and the enlargement on its lower end, with its upper end resting against the lower end of the said upper valve-stem and its lower end resting on the upper side of the auxiliary spring 29, the lower end of the said auxiliary spring resting on and supported by the upper end of the lower inlet-nipple 30 substantially as described.

2. In a pneumatic signal apparatus for railroad-trains the combination of a cylindrical-shaped chamber 1 split longitudinal in two substantially-alike parts provided with the upper inlet-lug 6 the lower inlet-lug 10 and whistle-supporting lug 8 and the threaded lugs 2, 2, on its ends, the nuts 15, 15, in combination with the vertical pipe 32, and 33 and the T-joint 34, the said vertical pipes connected thereby, the unions 35 and 39 and the elbows 36 and 40 the upper inlet-nipple 37 and the elbow 38 the lower inlet-nipple 30 the elbow 41 and the whistle 45 combined with the diaphragm 14 the washers 21 and 22 the upper valve-stem 19 the nut 25 the lower valve-stem 27 and the spring 29 all said parts combined substantially as described.

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

FRED SCHIEFFLER.

Witnesses:

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