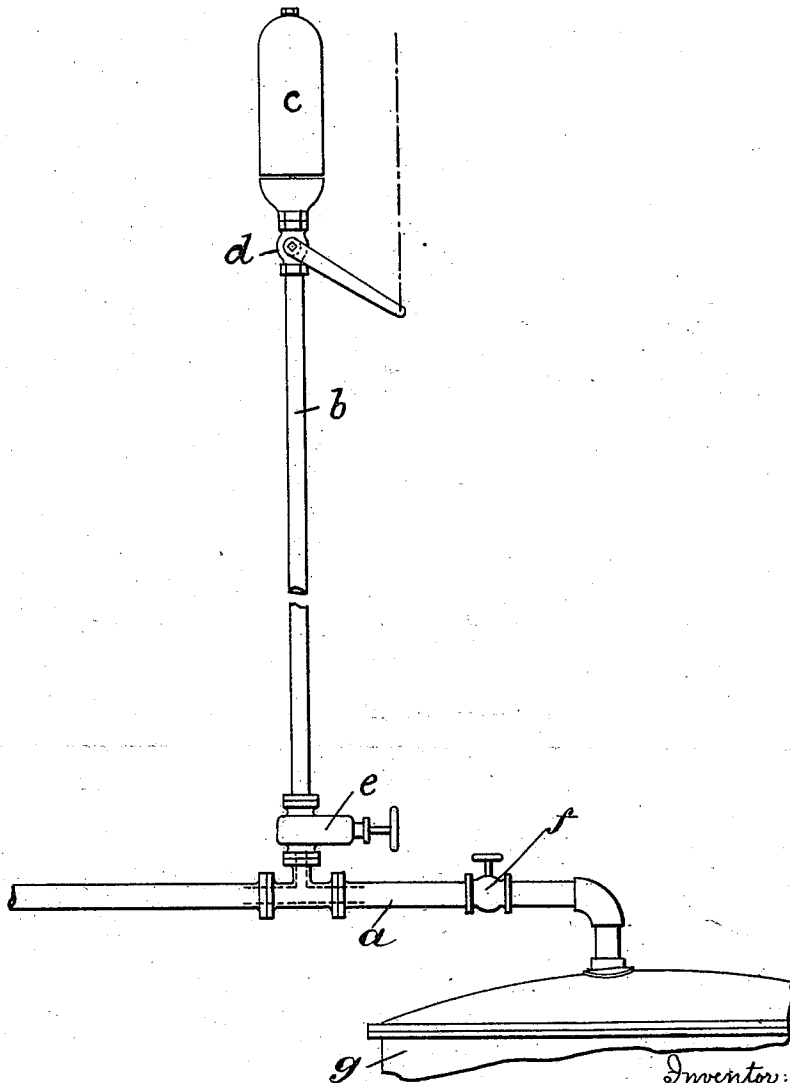


J. H. YATES.
STEAM WHISTLE.
APPLICATION FILED SEPT. 23, 1909.

989,936.

Patented Apr. 18, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES HENRY YATES, OF WITHERNSEA, ENGLAND.

STEAM-WHISTLE.

989,936.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed September 23, 1909. Serial No. 519,170.

To all whom it may concern:

Be it known that I, JAMES HENRY YATES, a subject of His Majesty the King of Great Britain, residing at 30 Prince's avenue, Withernsea, Yorkshire, England, marine engineer, have invented certain new and useful Improvements in Steam-Whistles; 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.

The chief object of the present invention is to supply steamship whistles with dry steam and to insure that there shall always be dry steam only in the vertical pipe so that when the whistle valve is opened, the full clear tone will be instantly sounded, the squealing, spluttering sounds usually heard at the commencement of a blast being entirely absent.

The invention may obviously be applied to other steam whistles than those used on shipboard, and by its use all drainage systems are entirely superseded.

The invention is based on the principle that steam flowing across the lower orifice of a vertical pipe closed at the top, induces an upward current of steam along the axis of such pipe and a downward current at its circumference.

According to my invention, the usual vertical pipe descending from the whistle is connected at its lower end with a pipe (for convenience hereinafter called the "whistle main") through which there is a constant flow of dry high pressure steam, in such manner that the flow of steam through this "whistle main" will be directly across the lower orifice of the vertical pipe which branches from it. A central ascending current and a peripheral descending current are thus induced in the said vertical pipe, and the vertical branch pipe to the whistle will always contain dry steam only, with the result that the blast will commence instantly with the full, clear tone when the usual whistle valve is opened. By my invention there is such a quick circulation of steam in the vertical pipe that there will be no water of condensation therein but only dry steam.

Any steam pipe used for some additional purpose may serve as the "whistle main" provided there is a constant flow of steam

through it:—for example, on shipboard the steam pipe of the steering engine may be utilized and the vertical whistle branch pipe may be connected therewith between the main boilers and the reducing valve; or the "whistle main" might be provided by a feed water heater pipe, and in small steamers not using a feed heater the "whistle main" may lead to the main feed suction pipe, connecting therewith as low as possible and near the feed suction valve, thus acting as a very fair feed water heater.

The prompt, clear and sharply defined speech of a whistle supplied with dry steam in accordance with my invention renders it a reliable instrument for signaling in fog, narrow waters and the like, as, for example, by the long and short blasts of the Morse code, without danger or delay of misunderstanding.

An incidental advantage of my invention is that there being only dry steam in the pipes and no quick changes of temperature and consequent sudden unequal expansion and contraction, the pipe joints and valves will keep tight for years, further there is no possibility of freezing in winter when under way, and the condensed water usually blown away from the whistle is saved.

It may be desirable to place a sluice valve or cock at or near the lower end of the vertical branch pipe to the whistle in order that the latter may be shut off from the "whistle main" if needed.

In the annexed diagram illustrating the application of my invention to a steamer's whistle, *a* is the "whistle main", which may be provided by any pipe through which there is a constant flow of dry high pressure steam and which may also be utilized for other purposes than supplying steam to the whistle, *b* is the vertical branch pipe leading therefrom to the whistle *c* and *d* is the usual whistle valve. The pipe *a* is provided with a valve *f*, and communicates with a suitable source of high pressure steam, such as the steam space of a boiler *g*. The flow of steam through *a* directly across the lower orifice of the vertical branch pipe *b* induces, as before mentioned, ascending and descending currents in the latter, and there is consequently always dry steam only in the pipes.

e is a sluice valve or equivalent fitted near

the lower end of the vertical branch pipe *b* for the purpose of shutting off the latter from the "whistle main" *a* when desired.

What I claim and desire to secure by Letters Patent of the United States is:—

In a device of the character described, a pipe having at its upper end a whistle, a steam pipe from which said whistle pipe branches vertically, said steam pipe extending on either side of the vertical branch pipe, and being in constant open communi-

cation with it, and a high pressure steam generator with which the steam pipe is connected, whereby high pressure steam flows constantly across the lower orifice of the vertical whistle pipe.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

JAMES HENRY YATES.

Witnesses:

MARY DIXON,
O. BLADES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
