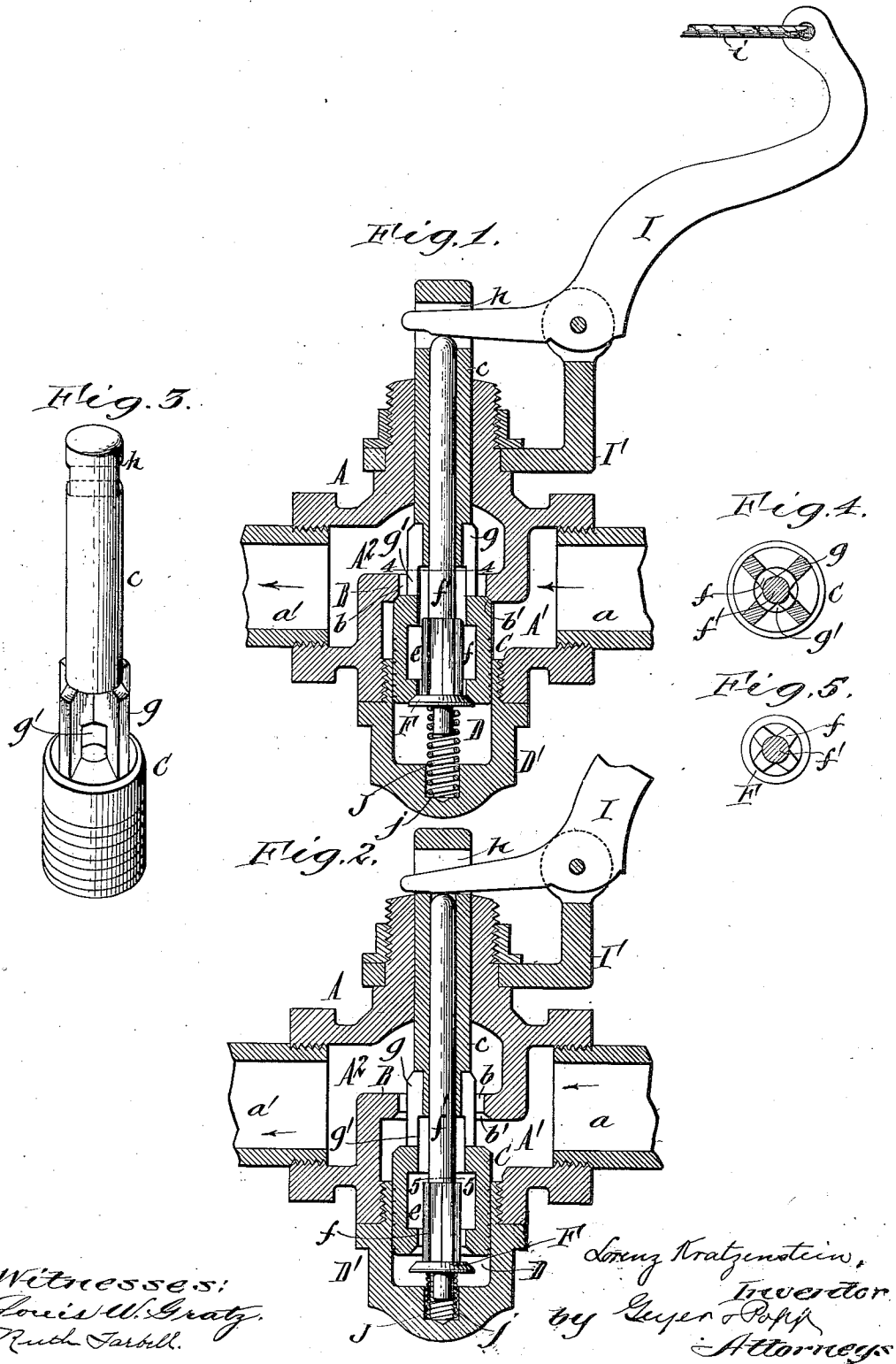


No. 848,999.

PATENTED APR. 2, 1907.

L. KRATZENSTEIN.
WHISTLE VALVE.

APPLICATION FILED FEB. 8, 1906.



Witnesses:
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UNITED STATES PATENT OFFICE.

LORENZ KRATZENSTEIN, OF BUFFALO, NEW YORK.

WHISTLE-VALVE.

No. 848,999.

Specification of Letters Patent.

Patented April 2, 1907.

Application filed February 8, 1906. Serial No. 300,077.

To all whom it may concern:

Be it known that I, LORENZ KRATZENSTEIN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Whistle-Valves, of which the following is a specification.

The object of my invention is to provide a whistle-valve of simple construction which can be opened against a high boiler-pressure with comparative ease.

In the accompanying drawings, Figure 1 is a sectional elevation of the improved valve, showing the same closed. Fig. 2 is a similar view showing the same open. Fig. 3 is a perspective view of the main valve and its stem. Fig. 4 is a cross-section of the main valve in line 4 4, Fig. 1. Fig. 5 is a similar section of the auxiliary or relief valve in line 5 5, Fig. 2.

Similar letters of reference indicate corresponding parts throughout the several views.

A is the case of the valve, having the customary inlet-chamber A' and inlet connection a and the outlet-chamber A² and outlet connection a', with which latter the whistle (not shown) communicates.

B indicates the usual diaphragm separating the inlet and outlet chambers and having the passage b, and b' is a valve-seat, preferably of conical form, arranged at the inlet end of said passage.

C is the main valve, having a beveled face, which normally closes against the seat b', and a hollow stem c, which extends upwardly through the diaphragm-passage b and the neck of the valve-case. This valve is constructed in the form of a piston, which slides in an auxiliary chamber D, arranged within the inlet-chamber A' in line with the passage b, this chamber being preferably formed in a removable screw-cap D'. The main valve is fitted snugly in the auxiliary chamber, but not so closely as to form a steam-tight joint. It is made hollow to form a longitudinal relief-passage e, which extends from end to end thereof and to the lower end of which is applied an auxiliary or relief valve F. This valve is considerably smaller in area than the adjacent rear end of the main piston-valve C and is preferably conical and adapted to close against a corresponding seat at the lower end of the passage e. As shown in the drawings, the main valve is connected with its stem by radial longitudinal arms g, separated by ports g', through which the steam in the chamber D

is allowed to escape into the outlet-chamber A² when the relief-valve F is opened.

The relief-valve has ordinary guide-wings f, and its stem f' is arranged in the hollow stem of the main valve and made of such a length that its upper end extends into a longitudinal slot h of the main stem when the relief-valve is closed, as shown in Fig. 1. This slot is formed in the projecting portion of the main-valve stem and receives the lower arm of an operating-lever I, to which the usual pull cord or cable i is connected. The stem of the relief-valve projects normally above the bottom of the slot h, so that upon pulling the operating-lever the same first acts upon said stem and opens the relief-valve and then bears upon the bottom of the slot and opens the main valve.

The operating-lever is pivoted to a bracket I', attached to the top of the valve-case.

J is a spring which tends to close the relief-valve and holds the same in place. In the construction shown this spring is seated in a socket j, formed in the bottom of the chamber D, and its upper end surrounds a stud projecting from the back of the relief-valve.

In the normal position of the parts of the valve the main and relief valves C F are closed, and the steam-pressure in the inlet-chamber A' acts against the side of the main valve and also against its back and the back of the relief-valve, inasmuch as the steam leaks around the main valve into the auxiliary chamber D.

Upon pulling the lever I to sound the whistle the stem of the relief-valve is depressed independently of the main-valve stem by the first portion of the stroke of the lever, opening said valve and allowing the steam in the chamber D to escape into the outlet-chamber through the hollow main valve and the ports g' and releasing the pressure from the rear side of the main valve. During the last portion of the stroke of the lever the same depresses the stem of the main valve, opening the latter and allowing the steam to pass freely to the whistle.

Owing to the comparatively small area of the relief-valve, the same can be opened with little effort, and owing to the comparatively close fit between the main valve and the wall of the chamber D the steam in the inlet connection cannot leak into the chamber D as rapidly as the steam in the chamber is released when the relief-valve is opened. It is therefore only necessary to overcome the

lateral steam-pressure against the main valve, which requires but a slight effort on the part of the operator.

Upon releasing the operating-lever the main and relief valves are both closed by the steam-pressure, the spring J aiding in seating the relief-valve, as hereinbefore described.

Aside from the advantage of easy operation this improved valve contains but few parts and can therefore be manufactured at comparatively small cost.

While the valve is designed especially as a steam-whistle valve, it may be used in connection with other appliances, if desired.

15 I claim as my invention—

1. The combination of a valve-case having inlet and outlet chambers, a passage connecting the same and an auxiliary chamber arranged within said inlet-chamber, a main valve controlling said passage and fitted in said auxiliary chamber, said valve having a relief-passageway connecting the auxiliary chamber with the outlet-chamber of the case and a hollow stem extending through the wall of the case, a relief-valve of smaller diameter than the main valve arranged in the auxil-

iary chamber controlling, said relief-passageway and having a stem arranged in the stem of the main valve, and a common operating device for said stems arranged to act upon the relief-valve stem in advance of the main-valve stem, substantially as set forth. 30

2. The combination of a valve-case having inlet and outlet chambers, a passage connecting the same and an auxiliary chamber arranged within said inlet-chamber, a main valve controlling said passage and fitted in said auxiliary chamber, said valve having a relief-passageway connecting the auxiliary chamber with the outlet-chamber, a relief-valve of smaller diameter than the main valve controlling said relief-passageway, and a spring arranged in the auxiliary chamber for closing the relief-valve, and means for opening said valves, substantially as set forth. 40 45

Witness my hand this 5th day of February, 1906.

LORENZ KRATZENSTEIN.

Witnesses:

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