P. Tattarull,

Steam-Boiler Cleaner.

No. 49,318. Patented Aug. 8, 1865.

Fig: 1.

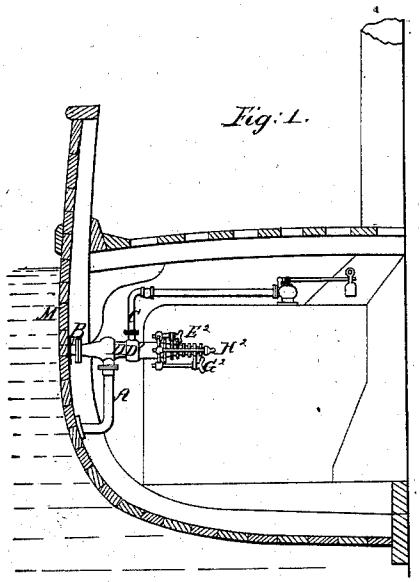


Fig: 2.

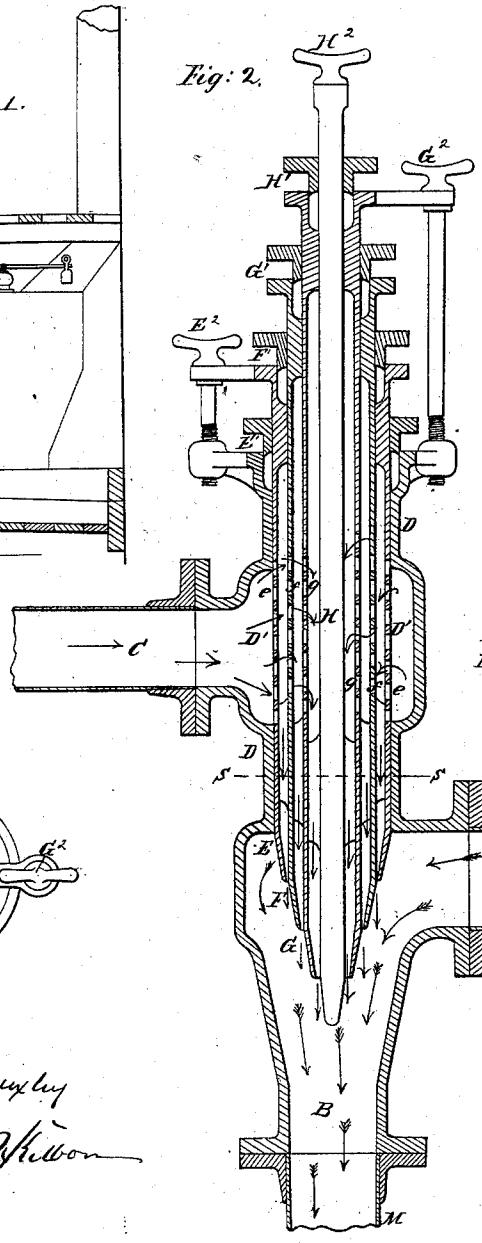


Fig: 3.

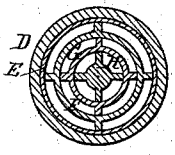
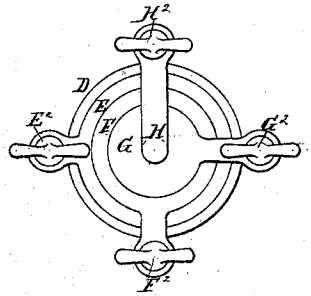


Fig: 4.



Witnesses;
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UNITED STATES PATENT OFFICE.

PETER TALTAVULL, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT FOR BLOWING OFF STEAM.

Specification forming part of Letters Patent No. **49,318**, dated August 8, 1865.

To all whom it may concern:

Be it known that I, PETER TALTAVULL, of the city and county of Washington, in the District of Columbia, have invented certain new and useful Improvements for Blowing off Steam from Boilers on Vessels; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and letters of reference marked thereon, like letters denoting the same parts in the several figures.

The object of my invention is to allow the blowing off of steam when necessary without noise—as, for instance, in landing or receiving passengers at a dock or wharf, or in various services required of war-steamers where silence is required, as on blockade duty.

The blockade of our coast for several years past, or that of a few harbors, has shown the necessity of steamers to make it more effectual, and their being prepared, particularly at night, to get under way at a moment's warning, as also to keep their position concealed by avoiding unnecessary noise and light. To keep up a good head of steam the furnace-doors should be shut, and to open them would more or less expose the position of the vessel.

By my arrangement I can keep the furnace-doors closed and get rid of surplus steam without noise. This is done by a discharge of the same below the water-line, and provides for its complete condensation before its passage through the side of the vessel.

In the drawings, Figure 1 is a cross-section of the vessel, showing in end elevation my apparatus. Fig. 2 is an enlarged section through the main portion of said apparatus. Fig. 3 is a cross-section on line *s s*, Fig. 2. Fig. 4 is a top or end view of Fig. 2.

To enable others skilled in the art to make and use my invention, I will proceed to describe it by the said drawings and the letters of reference marked thereon.

A and B are each iron pipes, communicating through the side of the vessel below the water-line. C is a pipe leading from the steam-space in the boiler, and communicating with the cylindrical chamber D, which is in a line with pipe B.

E, F, and G are hollow shells or pipes, thickly perforated with apertures, *e*, *f*, and *g*, as represented, and mounted concentrically one within the other. H is a rod of metal which lies in the center of this set of tubes E F G. Wings are provided, projecting from the surface of H, G, and F, which maintain the proper distances of the several shells and of the rod H each from the other. (See Fig. 3.)

D′ is an enlarged space or swell on chamber D, extending all around, directly opposite the holes *e*, *f*, and *g* in the pipes, and communicates freely with pipe C. It follows that the steam coming from the boiler through the pipe C passes into the enlarged space D′, flowing freely inward through the several holes *e*, *f*, and *g* in the direction of the arrows, and fills the spaces between the several pipes or shells. From thence it flows along in lines parallel to central stem or axis, H, and escapes with considerable velocity into the pipe B, and flows along through the same out of the side of the vessel into the water or sea. This forces along an active current of water, which flows in through the pipe A and out from the pipe B with a rapidity proportioned to the quantity and velocity of the steam escaping. It is important that the cold water thus received and discharged shall be sufficient to condense all the steam.

The discharge ends of the several pipes E, F, and G, as well as axis H, are somewhat tapered or contracted, made conical as represented, so that by adjusting them relatively one to the other the areas of the outer orifices may be varied so as to discharge the steam with greater or less velocity, as desired. The other or inner ends of these pipes are provided with stuffing-boxes E′, F′, G′, and H′, and with screws E^2, F^2, &c., by which each pipe may have a longitudinal movement and the open ends adjusted to any extent desired. The outer shell, E, being once properly fixed, with its holes properly presented to the enlarged space D′ to receive the steam, requires no further adjustment. The shell F, by being pushed in or toward the side of the vessel, contracts the area of discharge for the steam between it and E. A contrary movement enlarges this area. Similar results obtain from similar longitudinal movements between the other concentric parts.

It will thus be seen that by these adjust-

ments the area for the escape of steam may be varied at pleasure and with ease. It may discharge the steam at the full boiler-pressure, (any cock, safety-valve, or other device in pipe c being assumed to be wide open,) in which case the velocity will generate a very rapid current of cold water through the pipes A and B; or it may discharge the steam under no considerable pressure except that necessary to force the steam a few feet below the level of the sea, in which case the ordinary safety-valve or any other suitable devices may be used in the pipes C, or to control the communication thereof with the boiler; but in such case the current through the pipes A and B will be moderate, and the device will be much less efficient than in the former case, by reason of the current of water through A and B being very moderate.

In the use of my invention the pipes A and B may be provided with "Kingston" valves, or any other known means of making them water-tight when required for repairs or other reason; but they should be allowed to stand entirely open when in proper condition for use. An ordinary safety-valve loaded with weights or springs may indicate in the ordinary manner the degree of pressure at which the steam shall commence to blow off. Under ordinary circumstances reasonable precautions will prevent the production of any steam to be blown off, and at such times the parts F, G, and H may be drawn outward or toward the center of the vessel to their fullest extent. Now, as soon as the steam commences to be discharged through the safety-valve the fact will be manifested by the movement of the safety-valve lever or other suitable means, and the engineer will vigilantly attend to the adjustment of my apparatus and the proper supporting of the safety-valve in case it is important to maintain strict silence and discharge considerable quantities of steam. The moment any indications of concussions or noise are manifested outside the vessel the safety-valve must be supported by the ordinary cord or other means, and the parts H, G, and F moved by turning the screws so as to contract the openings between the shells where the steam escapes into pipe B, allowing it to escape at a higher pressure.

The necessity of separately supporting the safety-valve lever may be obviated by any convenient mechanical connection of the parts H, G, and F to a cock, screw-valve, or other device, whereby the steam shall be discharged from the boiler into the pipe C independently of the safety-valve; but in case the steam is to be discharged through the ordinary safety-valve at a given pressure, it becomes important to sustain the safety-valve in some manner, as otherwise it would close when the pressure accumulated in the pipe C by the contraction of the escape-orifices between E, F, G, and H Any skillful engineer will find no difficulty in adjusting the parts with these directions so as to discharge any required quantity of steam and to condense the same by the torrent of cold water continually received and discharged from the sea.

In case the violence of the action going on within the pipe B shall cause inconvenience by producing sound within the vessel, the exterior of the part B and the other parts may be cases to any desired thickness with fibrous material, tan-bark, or other convenient means of deadening sound.

I prefer the same device to be employed in blowing off the water from boilers by connecting the blow-off pipe to a supplemetary pipe, which may be used whenever the ordinary and frequently-occurring operation of blowing off shall be required to be performed with great stillness.

The side of the vessel is designated by M. The pipes A and B may open through the same at points very near or considerably distant from each other, as may be most convenient.

My apparatus may also be made use of to pump the ship by simply attaching another pipe or arm at or near the elbow of pipe A, extending down to the bilge, and having a stop-cock near the said elbow, to be opened at time of pumping. The blowing off of the steam will create a suction, and the water in the hold will be drawn up through this additional pipe or arm, and also through the vertical arm of A, and will be forced out of the side of the vessel through pipe B, thus pumping the ship in simply blowing off surplus steam.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is as follows:

1. The steam-pipe C, leading from the boiler, the water-inducting pipe A, and the water-discharging pipe B, combined and arranged so as to receive and discharge a powerful current of water through the side M of the vessel, substantially in the manner and for the purpose herein set forth.

2. The combination of the concentrically arranged and adjustable pieces E, F, G, and H, operating in the manner substantially as described, and for the purpose set forth.

3. The combination of the pipes A, B, and C with the adjustable pieces E, F, G, and H, adapted to control the discharge of fluid, substantially as and for the purpose herein set forth.

PETER TALTAVULL.

Witnesses:

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JOS. PECK.