

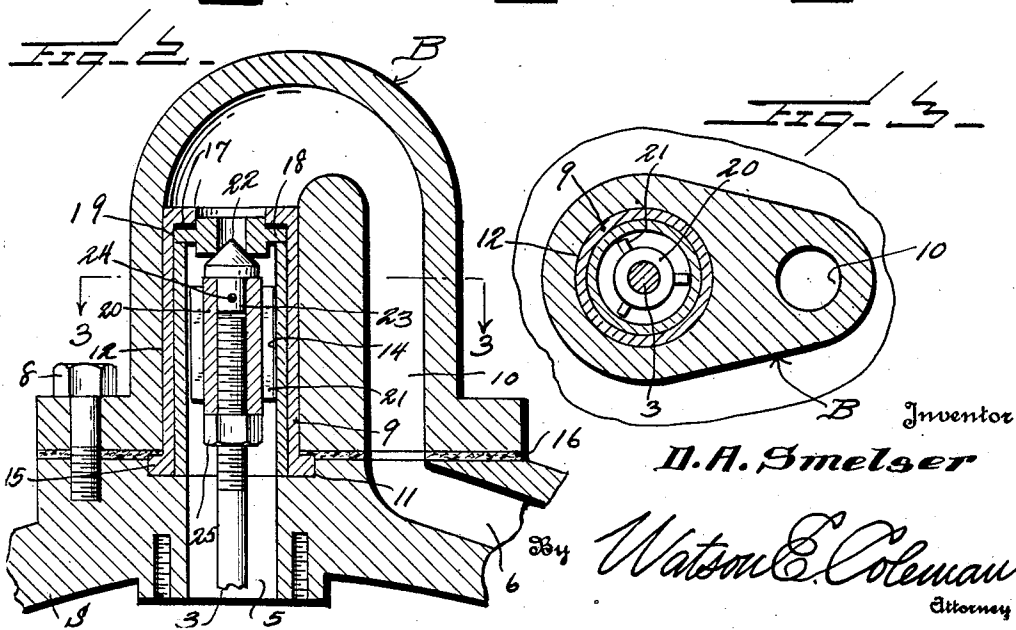
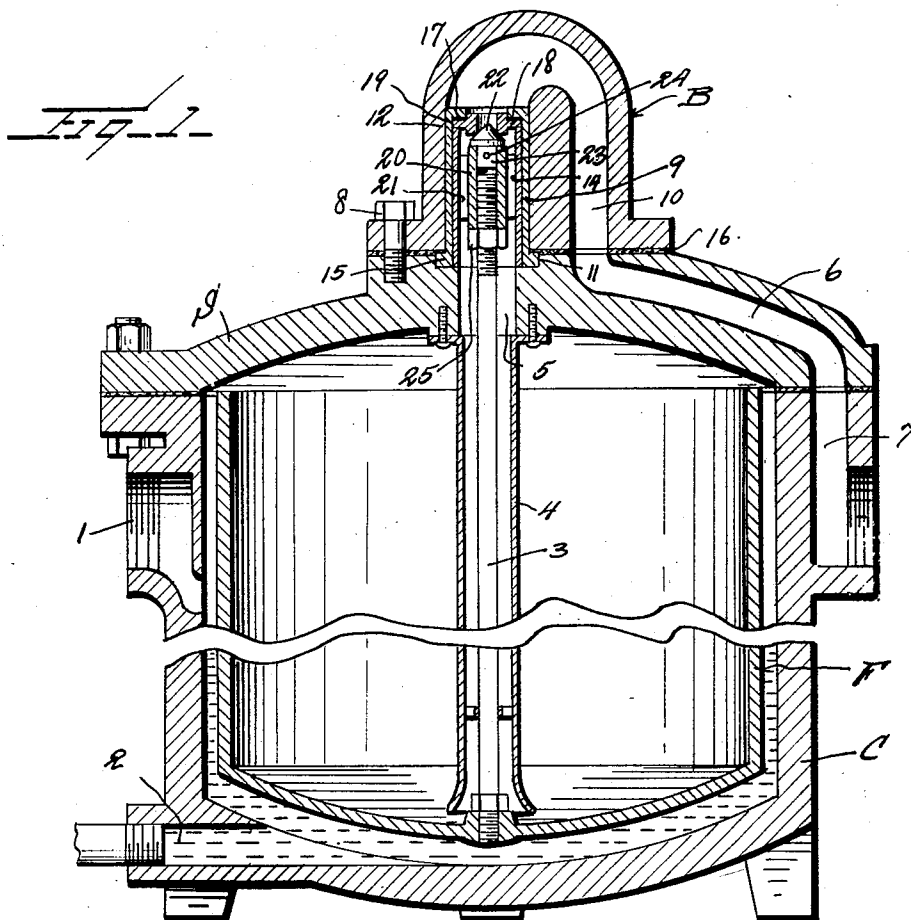
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STEAM TRAP

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STEAM TRAP

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This invention relates to steam traps, and it is an object of the invention to provide a device of this kind constructed in a manner whereby the valve for controlling the discharge therefrom may be conveniently assembled or repaired or otherwise handled, such as for adjustment as the requirements of practice may necessitate.

The invention also has for an object to provide a device of this kind constructed and assembled in a manner whereby the controlling valve for the outlet is carried by the cover structure and is housed within a bonnet removably mounted upon the cover structure to permit ready access to the valve for repair, replacement or adjustment and whereby the removal of the cover structure permits ready access within the casing or bowl of the trap.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved steam trap whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:—

Figure 1 is a view partly in section and partly in elevation illustrating a steam trap constructed in accordance with an embodiment of my invention;

Figure 2 is an enlarged fragmentary sectional view taken through the central portion of the cover structure as herein disclosed and illustrating in detail the controlling valve mechanism and parts immediately associated therewith;

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 1.

As disclosed in the accompanying drawings, C denotes the casing or bowl of the trap having the wall thereof provided with a suitably positioned inlet port 1 and with a con-

ventional blow-down port 2 in the lower portion thereof.

Arranged within the casing or bowl C is a bucket float F, the central portion of which having coupled thereto the lower end portion of an upstanding rod or valve stem 3. The portion of the rod or stem 3 within the casing or bowl C and below the applied cover structure S is substantially surrounded by a discharge pipe 4. This pipe 4 depends from the central portion of the cover structure S and has its bore in communication with an opening 5 in the central portion of the cover structure S and through which the rod or stem 3 is directed. This pipe 4 terminates in relatively close proximity to the bottom wall of the bucket float F.

The cover structure S is held in applied position upon the casing or bowl C in a conventional manner and has formed therein to one side of its center a substantially radially disposed outlet port 6 which communicates with a continuing outlet port 7 suitably provided in the wall of the casing or bowl C.

Detachably secured, as at 8, to the central portion of the cover structure S is a bonnet B having a bore 9 with which the opening 5 in the cover structure S communicates, the upper or outer end of this bore 9 being continued by a returned port or passageway 10 in communication with the outlet port 6.

The bore 9 is of a diameter greater than that of the opening 5 and the upper or outer end portion of the wall of the opening 5 is enlarged to provide a surrounding rabbet 11 which is adapted to receive the flanged extremity of a sleeve 12 in which is snugly fitted a valve cage or sleeve 14. The diameter of the bore of this valve cage or sleeve 14 is substantially the same as that of the opening 5 and the lower or inner end of this cage or sleeve 14 is also received within the rabbet 11.

The flange 15 of the sleeve 12 is outwardly disposed and is of a thickness in excess of the depth of the rabbet 11 so that when the bonnet B is applied the gasket 16 interposed between the bonnet B and the associated portion of the cover structure S will result in a steam tight joint.

The outer end of the sleeve 12 is defined by

an inwardly disposed flange 17 which serves as an abutment for the separable valve seat 18.

A gasket 19 is interposed between the flange 17 and the marginal portion of the valve seat 18 to assure a steam tight joint at such point and which joint is assured by the fact that the valve seat retainer or sleeve 14 is of such length as to place the gasket 19 under compression when the bonnet B is applied and has contact with the flange 15 hereinafter referred to.

It is to be noted that the valve seat 18 is of a type to permit the same to be readily reversed so that the life of such valve seat can be materially prolonged.

The rod or valve stem 3 also extends upwardly through the applied valve cage or sleeve 14 and said end portion has threaded thereon a cylindrical member 20 having radiating therefrom and disposed lengthwise thereof the flanges 21 for contact with the inner wall of the cage or sleeve 14 to provide an effective guide for the valve 22. This valve 22 has a conical head for proper coaction with the valve seat 18 and a shank 23 which extends within the outer end of the cylindrical member 20 and is held thereto by a removable pin 24 or the like. The rod or stem 3 also has threaded thereon a lock nut 25 for coaction with the inner or lower end of the member 20 so that the valve 22 will be effectively locked in its desired adjustment with respect to the upper or outer end of the rod or stem 3.

When it is desired to repair the valve mechanism, to replace a part thereof, to adjust the valve 22 or to reverse the valve seat 18, it is only necessary to detach the bonnet B whereupon the sleeve 12 and the cage or sleeve 14 and valve seat 18 can be readily removed. When so removed the member 20 can be adjusted to set the valve 22 as desired.

It is believed to be obvious that when the bonnet B is in applied position the various parts comprised in the valve mechanism are fixedly maintained in required working or coacting assembly. It is also believed to be clearly apparent from the foregoing that when it is required to have access within the casing or bowl C for any purpose it is only necessary to remove the cover structure S.

From the foregoing description it is thought to be obvious that a steam trap constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my

invention in practice except as hereinafter claimed.

I claim:—

1. A steam trap comprising a casing having an opening in its top, a float within the casing carrying a stem extending out through the opening in the top, a bonnet detachably secured to the top wall of the casing and having a bore in communication with the opening in said top wall, said bonnet and top wall having an outlet leading from the bore of the bonnet, a sleeve snugly engaging within the bore of the bonnet, the outer end of the sleeve having an inturned flange, the inner portion of the sleeve having an outturned flange, the bore of the opening in the top wall of the casing being enlarged to provide a rabbet to receive said flanged end of the sleeve, a valve seat retainer snugly fitting within the sleeve and also engaging with the rabbet, a valve member clamped between the inturned flange of the sleeve and the adjacent end of the valve seat retaining sleeve when the bonnet is in applied position upon the top wall of the casing, and a valve carried by the stem for coaction with the valve seat.

2. A steam trap comprising a casing having an opening in its top, a float within the casing carrying a stem extending out through the opening in the top, a bonnet detachably secured to the top wall of the casing and having a bore in communication with the opening in said top wall, said bonnet and top wall having an outlet leading from the bore of the bonnet, a sleeve snugly engaging within the bore of the bonnet, the outer end of the sleeve having an inturned flange, the inner portion of the sleeve having an outturned flange, the bore of the opening in the top wall of the casing being enlarged to provide a rabbet to receive said flanged end of the sleeve, a valve seat retainer snugly fitting within the sleeve and also engaging within the rabbet, a valve member clamped between the inturned flange of the sleeve and the adjacent end of the valve seat retaining sleeve when the bonnet is in applied position upon the top wall of the casing, and a valve carried by the stem for coaction with the valve seat, said valve seat being reversible and separable from the sleeve and the valve retaining sleeve.

3. A steam trap comprising a casing having an opening in its top, a float within the casing carrying a stem extending out through the opening in the top, a bonnet detachably secured to the top wall of the casing and having a bore in communication with the opening in said top wall, said bonnet and top wall having an outlet leading from the bore of the bonnet, a sleeve snugly engaging within the bore of the bonnet, the outer end of the sleeve having an inturned flange, the inner portion of the sleeve having an outturned flange, the bore of the opening in the top wall of the casing being enlarged to pro-

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the top wall of the casing, a valve guide ad-
justably mounted on the outer portion of the
10 stem for coaction with the valve seat retain-
ing sleeve, and a valve carried by said valve
guide for coaction with the valve seat.

In testimony whereof I hereunto affix my
signature.

15 DAVID A. SMELSER.

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