June 25, 1935. F. L. HUSSEY 2,006,141

STEAM POP-OFF VALVE

Filed Nov. 21, 1932

Fig. 1

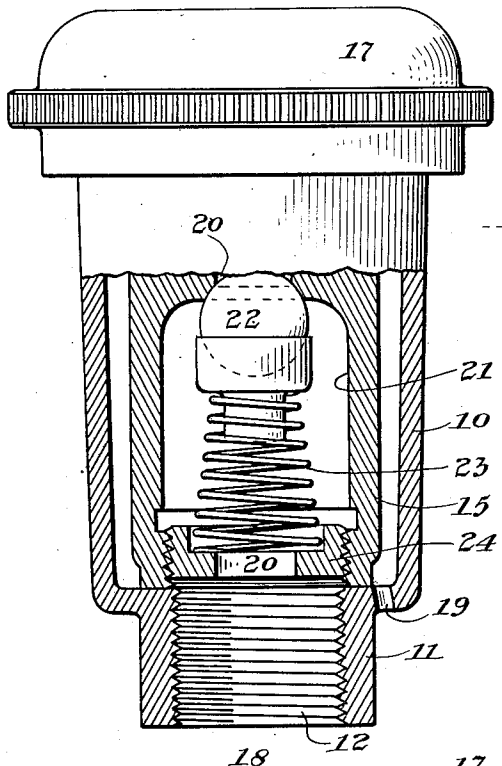


Fig. 2

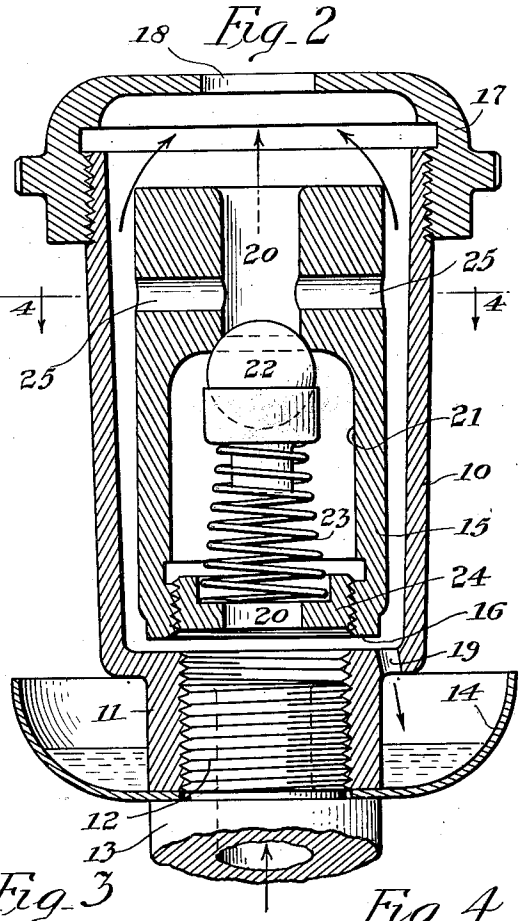


Fig. 3

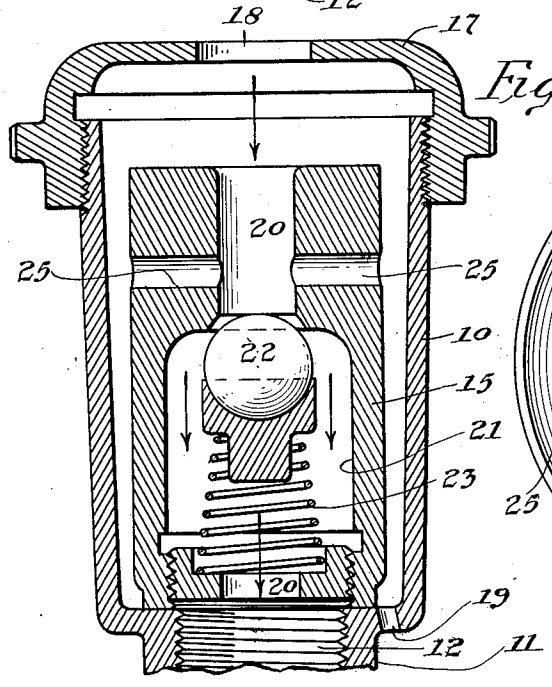
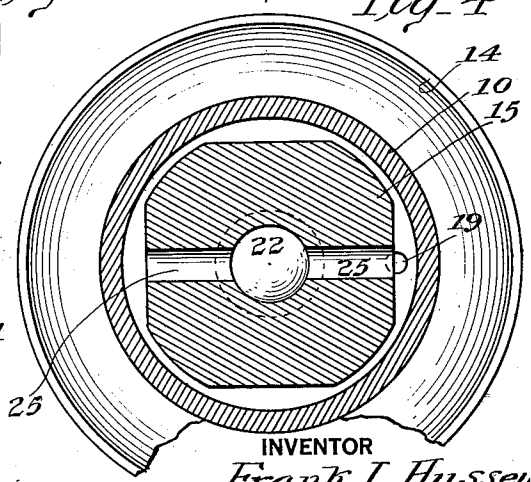


Fig. 4



INVENTOR

Frank L. Hussey

BY

Brayton Richards

ATTORNEY

Patented June 25, 1935

2,006,141

UNITED STATES PATENT OFFICE

2,006,141

STEAM POP-OFF VALVE

Frank L. Hussey, San Francisco, Calif., assignor to Blue Ribbon Products Company, Inc., San Francisco, Calif., a corporation of California

Application November 21, 1932, Serial No. 643,668

2 Claims. (Cl. 277—45)

The invention relates to improvements in steam pop-off valves and has for its object the provision of a simple and effective arrangement for disposing of the inevitable water of condensation accumulating and passing through such valves.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing forming a part of this specification, and in which

Fig. 1 is a side view, shown partially in vertical section, of a steam pop-off valve employed in the improved construction;

Fig. 2 a complete vertical section of the same shown in position of actual use;

Fig. 3 a view of the same showing the operation thereof when admitting air; and

Fig. 4 a horizontal section taken substantially on line 4—4 of Fig. 2.

The embodiment of the invention illustrated in the drawing comprises a suitable valve casing 10 having an internally threaded sleeve 11 at its lower end adapted and arranged to engage the external threads on a nipple 12 at the top of a vertically arranged steam pipe 13. An evaporation pan 14 is provided as shown with a central perforation adapted to fit over the nipple 12 and be imprisoned between the sleeve 11 and pipe end 13, as shown in Fig. 2. This arrangement furnishes a simple and convenient construction for mounting the evaporation pan 14 in intimate contact with and immediately surrounding the base of the valve casing 10 and the top of the steam pipe 13.

Arranged within the valve casing 10 is a main valve head 15 having an annular valve seat 16 at its bottom seating on the bottom of the casing 10 around the opening in the sleeve 11, thereby normally closing the upper end of the pipe 13 when the valve head 15 is seated, said valve head being held by its weight in closed position. A removable cap 17 is threaded as shown to the top of the casing 10 and provided with a central steam escape opening 18, said cap serving to permit of the insertion of the valve head in the casing and preventing its escape during use.

At its bottom the casing 10 is provided with a drain opening 19 through which water of condensation will drain from the valve casing into the evaporation pan 14, from which said water will be quickly evaporated and disseminated by the heat passing to said pan from the steam pipe 13.

The valve head 15 is provided with a central vertical passageway 20 having an intermediate enlargement 21 in which is arranged a ball valve 22 normally held to its seat by means of a spring 23, which in turn is held within the valve head by means of a threaded plug 24. Transverse passageways 25 are shown in the valve head 15 above the ball 22. In operation, when the steam pressure in the pipe 13 rises sufficiently, the valve head 15 will be raised from its seat to permit the escape of steam, in the usual way. Should the valve head 15 rise to the top of the valve casing 10, nevertheless the steam may escape through the passageways 25 and the central upper passageway 20. Any water of condensation collecting in or under the valve casing 10 will drain through the opening 19 into the evaporation pan 14 and thus be quickly evaporated and disseminated without danger of being forcibly ejected from the valve casing.

Thus a simple and efficient construction is provided which will automatically collect and disseminate any water of condensation without danger of spattering or spreading the same over persons or furniture. The specific form and arrangement of parts is a simple and effective one for the purpose.

When the valve head 15 is closed and condensation or contraction occurs within the steam pipe 13, tending to form a vacuum in the system, the ball valve 22 will automatically open against the resistance of the spring 23 and thereby supply sufficient air to destroy such vacuum and the consequent pressure in the system.

While the preferred construction and arrangement of parts has been set forth and described in detail, these are capable of variation and modification without departing from the spirit of the invention. It is therefore not desired to limit the patent to the precise details disclosed, but to have the same include such variations and modifications as fall within the scope of the appended claims.

I claim:

1. A valve of the class described comprising a casing having a central escape opening in the top and an entry opening in the bottom; a valve in said casing automatically lifted by fluid under pressure entering through said entry opening until said valve contacts with the top of the casing, there being a central vertical passageway through said valve registering with the opening in the top of the casing when the valve is so lifted; and a yielding ball valve closing the lower end of the upper portion of said passageway,

there being a transverse opening through said valve above said ball and a drain opening leading from the bottom of said casing.

2. A valve of the class described comprising a casing having a central escape opening in the top and an entry opening in the bottom; a valve in said casing automatically lifted by fluid under pressure entering through said entry opening until said valve contacts with the top of the casing, there being a central vertical passageway through said valve registering with the opening in the top of the casing when the valve is so lifted; a yielding ball valve closing the lower end of the upper portion of said passageway, there being a transverse opening through said valve above said ball and a drain opening leading from the bottom of said casing; and an evaporation pan surrounding the base of said casing to receive the flow from said drain opening.

FRANK L. HUSSEY.