May 28, 1929. C. W. VAUGHN 1,714,647

CONDENSATION DRAINER

Filed May 10, 1927

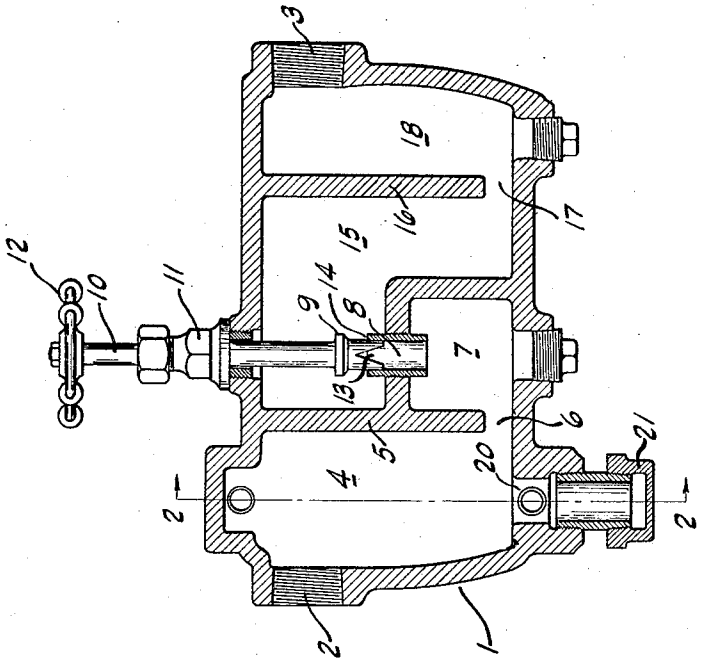


Fig. 1.

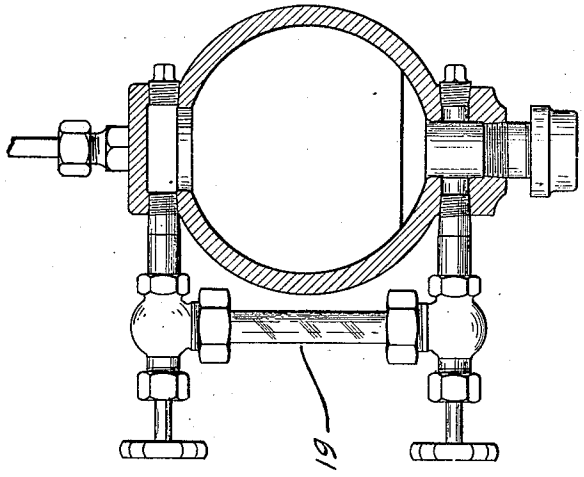


Fig. 2.

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CONDENSATION DRAINER.

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The invention relates to condensation drainers to be used in connection with steam piping particularly in connection with steam piping of machines which are used intermittently and with pipe lines in which the condensation rate is high for any reason and in which the steam pressure and temperature are subject to frequent changes.

An object of this invention is to provide a condensation drainer which also completely seals the steam piping.

Another object of this invention is to provide a condensation drainer in which the flow of the condensed steam may be regulated according to the amount of condensation in the steam line.

Another object of this invention is to provide a condensation drainer which prevents the passing of the pipe scales or other foreign matter into the water piping of the system.

With this and other objects in view, the invention consists in the novel combination and arrangement of which will be fully set forth in the following specification and accompanying drawing; while I have shown and described certain features as constituting my invention, it will be understood that parts have been shown for purpose of illustration, and that I do not desire to be limited to such details, as obviate modification will occur to a person skilled in the art.

In the accompanying one sheet of drawing,

Figure 1 is a fractional view of my device,

Figure 2 is a cross section taken along the line 2—2 in Figure 1.

A valve casing 1 is connected to a steam piping not shown at the inlet port 2, and connected to the water piping at the outlet port 3. The exhaust steam passes through the port 2 into a chamber 4, strikes a baffle plate 5 and condenses thereon.

The condensed steam or water drops down to the bottom of casing and passes through the aperture 6 below the baffle-plate 5 into a small compartment 7 the outlet 8 of which covered by the valve 9, said valve 9 has a V shaped notch transversely cut in the lower end thereof. The valve-stem 10 of the valve 9 is threaded into the packing box 11 and it has a handwheel 12 thereon. The turning of the handwheel 12 raises or lowers the V shaped notch 13 relatively to the valve-seat 14.

When the valve is in the position shown in Figure 1 the water flows through the opening between the corner of the V shaped notch 13 and a valve seat 14 into an outlet chamber striking a second baffle-plate 16, then through an aperture 17, the water passes below the baffle-plate 16 into a small compartment 18 or to the outlet chamber from which the water is lead away into the water piping through the outlet port 3.

A water gauge 19 is attached to the chamber 4 to indicate the water level in said chamber for a purpose to be hereinafter described.

The opening 20 at the bottom of the chamber 4 is for the purpose of cleaning said chamber and is ordinarily covered by the cap 21.

When the water gauge 19 indicates that the water level in the chamber 4 is too high then the operator by turning the handwheel 12 rotates the valve and permits a larger flow of water from the chamber 7 into the outlet chamber 16. When the water gauge 19 indicates that the water level in chamber 4 is too low and there is a danger of the steam to escape through the drainer the operator closes the valve by turning the handwheel 12 in the opposite direction than previously, thereby mechanically sealing the drainer and preventing the escape of the steam.

The valve seat 14 can be adapted to any condensation condition and insure the perfect sealing of the exhaust end of the steam line. The fact that the invention provides two sealing chambers and mechanical sealing arrangement by means of the valve makes the drainer fool-proof. The pipe scale or any foreign matter which may be in the water is deposited in chambers 4 and 7, but if by accident, it is drawn into the valve 14 and tends to block the entrance thereof the turning of the valve will grind the grit or foreign matter out of the valve and will again insure an unobstructed passage through the valve.

It is desirable to clean the chamber 4 periodically by removing the cap 21 and blowing through the water gauge hole thereby removing the grit through the hole 20.

Having thus described my invention, what I now claim and desire to secure by Letters Patent is:

1. A condensation trap comprising an inlet chamber having an inlet opening thereon; a second chamber, the top thereof being disposed at a level below said inlet opening; said first and second chambers being in communication with each other; a valve for regulating the flow thru the top of said second chamber; a third chamber in communication with the top of the second chamber; said valve regulating the flow between said second and third

chambers; and an outlet chamber disposed on a level with said third chamber and having an aperture adjacent to the bottom thereof for connecting said last two chambers with each other, said outlet chamber having an outlet opening thereon disposed above said aperture.

2. A condensation trap comprising an inlet chamber having an inlet opening thereon, a pocket at one side of said chamber and below the level of said inlet opening, a baffle plate separating said inlet chamber and said pocket so as to allow a relatively small passage into said pocket adjacent to the bottom thereof; an outlet chamber, a baffle plate dividing said outlet chamber into a first and a second compartment and permitting a relatively small passage between said compartments at a point adjacent to the bottom of said chamber; a second pocket at one side of said first compartment and extending over said first pocket, said second compartment having an outlet opening thereon disposed above the level of said relatively small passage; and a valve in the top of said first pocket for regulating the flow therefrom into said second pocket.

3. A condensation trap comprising an inlet chamber having an inlet opening thereon, a pocket at one side of said chamber and below the level of said inlet opening, a baffle plate separating said inlet chamber and said pocket so as to allow a relatively small passage into said pocket adjacent to the bottom thereof; an outlet chamber, a baffle plate dividing said outlet chamber into a first and a second compartment and permitting a relatively small passage between said compartments at a point adjacent to the bottom of said chamber; a second pocket at one side of said first compartment and extending over said first pocket, said second compartment having an outlet opening thereon disposed above the level of said relatively small passage; a valve in the top of said first pocket for regulating the flow therefrom into said second pocket, and a stem on said valve extending outside of said trap and adapted to be manually operated.

4. A condensation trap comprising an inlet chamber having an inlet opening thereon, a pocket at one side of said chamber and below the level of said inlet opening, a baffle plate separating said inlet chamber and said pocket so as to allow a relatively small passage into said pocket adjacent to the bottom thereof; an outlet chamber, a baffle plate dividing said outlet chamber into a first and a second compartment and permitting a relatively small passage between said compartments at a point adjacent to the bottom of said chamber; a second pocket at one side of said first compartment and extending over said first pocket, said second compartment having an outlet opening thereon disposed above the level of said relatively small passage; and a valve seat connecting said first and second pockets, and a valve on said seat for regulating the flow therethru.

In testimony whereof I affix my signature.

CLIFFORD WILLIAM VAUGHN.