Aug. 7, 1928. 1,680,255

E. L. POSTON

WATER TRAP FOR GAS WELLS

Filed Dec. 13, 1926

Fig. 1

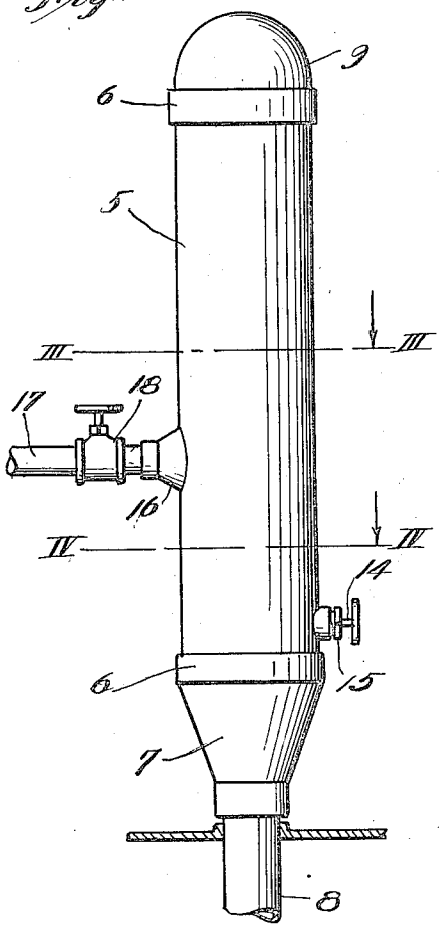
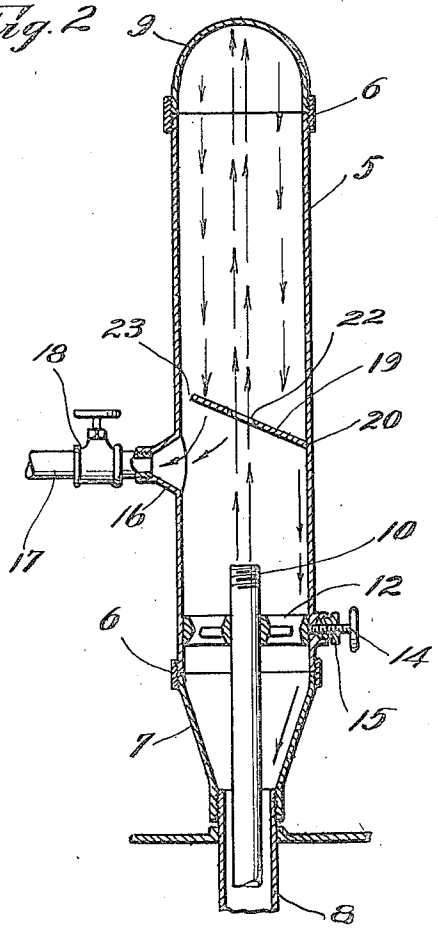


Fig. 2



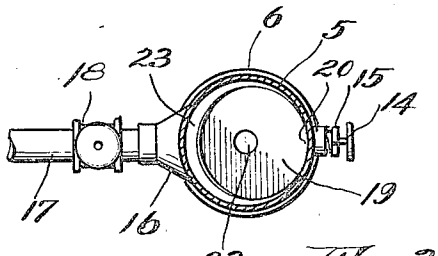


Fig. 3

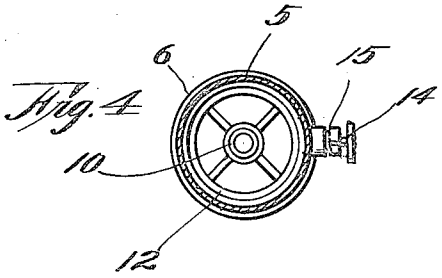


Fig. 4

Witness:

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UNITED STATES PATENT OFFICE.

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WATER TRAP FOR GAS WELLS.

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The present invention relates to appliances designed for use in connection with gas well apparatus, and the primary object in view is to provide improved water trap means for more efficiently separating the water from the gas flow, and divert such water from the gas as the latter enters the service line which conducts the gas from the well.

For carrying out this object, I have devised an improved construction which comprises a casing mounted at the mouth of the well, and communicating both with the gas discharge outlet and the service line, and having a baffle structure mounted in line with the gas discharge outlet in such a position as to permit the gas flow past the baffle structure but adapted to intercept the water on its return in the direction of the gas outlet, such trapped water being caused to drain back into the well casing. The apparatus further comprises a casing having a closed upper end forming an impact wall against which the combined gas and water flow is discharged after passing through the baffle structure, the water thereafter being trapped as it drains under the action of gravity from the space between the baffle and impact wall, leaving the dry gas to pass out of the casing by way of the service line, the mouth of which communicates with the casing below the baffle member.

With this general object in view, the invention will now be described by reference to the accompanying drawing illustrating one form of apparatus I have devised for embodying the proposed improvements, after which those features and combinations deemed to be novel will be particularly set forth and claimed.

In the drawing—

Figure 1 is a side elevation, illustrating a water trap appliance constructed in accordance with the present invention;

Figure 2 is a vertical sectional view of the same; and

Figures 3 and 4 are transverse sections taken on the lines III—III and IV—IV, respectively, of Figure 1.

Referring now to the drawing in detail, this illustrates the improved appliance as comprising a casing structure including a cylindrical drum or casing portion 5 having its lower end secured by means of a collar 6 to a tapered reducing casing section 7, the lower end of which is attached by means of a threaded portion to the top of the well casing 8 (see Figure 2). To the upper end of the casing section 5, by means of a similar collar or band 6, is secured a substantially hemispherical casing member 9 for closing the upper end of the section 5, and thereby forming by means of the interior face of the section 9 an impact wall in line with the flow of gas as discharged from the upper end or mouth of the gas pipe line 10. The casing structure is secured and centered with reference to the pipe line 10 by means of a skeleton or spider frame 12 slipped over the upper end of the pipe 10 and within the casing section 5, and clamped in this position by means of a clamp screw 14 extending through the lower end of the section 5 and clamped or locked by means of a clamping nut 15.

Intermediate its ends the drum or casing section 5 is formed with a tapered gas outlet portion 16 leading to the service line or pipe 17 fitted with the usual valve 18. The interior of the drum or casing section 5 is also provided with a baffle member 19 secured to the interior wall of said drum or casing 5, as by means of welding or the like as indicated at 20 in Figure 2, the baffle member being thus secured in slightly inclined position, extending transversely across the interior of said drum or casing, and above the opening 16 into the service line pipe 17. The baffle member 19 is formed with an approximately central opening 22 substantially in line with the flow of gas as discharged from the upper end of the pipe 10, as indicated by the upwardly pointing arrows in Figure 2. The upper margin of the baffle member 19 is also somewhat spaced, as indicated at 23 in Figure 2, from the interior face of the drum or casing 5 for permitting the return flow of the gas from the upper portion of the casing structure on its way to the opening 16 and service line 17. In operation, the gas from the pipe line 10 is discharged upwardly in the direction of the upwardly pointing arrows in Figure 2, through the opening 22 and impinges upon the impact wall formed by the inner face of the casing section 9. As the flow is reversed, the water forming part of the flow descending of course by gravity, the water is for the most part trapped by the baffle member 19 and drains therefrom, due to the inclined position of said member, to the right hand

side of the casing 5, and thence as indicated by the downwardly pointing arows to the bottom of the casing structure and into the well casing member 8. The dry gas will of course be forced, on account of the pressure within the casing structure, out through the opening 16 into the service line 17, through which the flow may be regulated in the usual manner by means of the valve 18.

It will thus be apparent that I have devised a practical and efficient apparatus for carrying out the desired object of the invention, an advantage of which is the casing structure blows itself automatically, or clears itself of any water accumulation which drains out by way of the well casing, and hence no accumulation of water is allowed which would freeze in cold weather. Therefore the time and labor involved in the blowing and setting of the usual type of water trap is eliminated, and the operation of the apparatus as herein shown and described is extremely efficient, separating out practically all of the water which enters the casing with the gas flow, and there are no complicated parts or connections which are likely to get out of order.

While I have illustrated and described what I now regard as the preferred form of construction for embodying the invention, I desire to reserve the right to make such changes or modifications as may fall within the scope of the appended claims.

What I claim is:

1. A water trap construction for gas well apparatus comprising a casing closed at its upper end and having its lower end portion in communication with the discharge outlet from the well, a gas outlet communicating with said casing at some distance above said well discharge outlet, and a transverse baffle member having one margin thereof secured to the interior wall of said casing at one side thereof and projecting in upwardly inclined relation across the interior of the casing, said baffle member having an approximately central opening in line with said well discharge outlet to permit the gas discharge therefrom to impinge against the closed end of the casing, the upper margin of said baffle member being spaced from the wall of the casing at a slight distance above said gas discharge outlet.

2. A water trap construction for gas well apparatus comprising a substantially cylindrical casing closed at its upper end and having its lower end communicating with the well casing and provided with means for anchoring a discharge pipe outlet from the well centrally within the lower end portion of said first casing, a gas outlet communicating with said first casing at some distance above the upper end of said discharge pipe, a transversely inclined baffle member having its lower edge secured tangentially to the interior wall of said first casing at one side thereof, said baffle member having a central opening in line with said discharge pipe for permitting the gas discharged therefrom to impinge against the closed end of said first casing, the upper margin of said baffle member being spaced from the wall of the casing at a slight distance above said gas discharge outlet.

In witness whereof I hereunto affix my signature.

EDWIN L. POSTON.