

J. F. HAENNIG.
 AUTOMATIC PUMP VENT.
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1,053,382.

Patented Feb. 18, 1913.

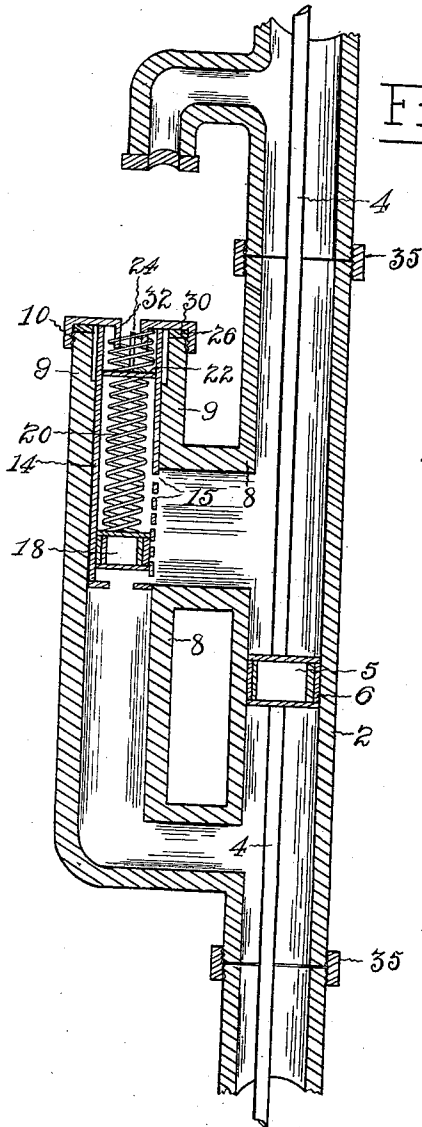


FIG. 1.

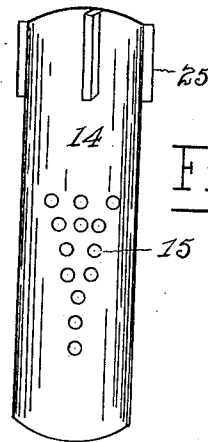


FIG. 2.

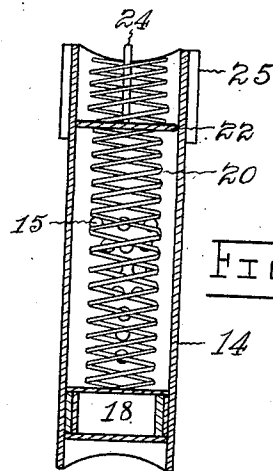


FIG. 3.

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AUTOMATIC PUMP-VENT.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH F. HAENNIG, a citizen of the United States, residing at Masonville, in the county of Delaware and State of Iowa, have invented certain new and useful Improvements in Automatic Pump-Vents, of which the following is a specification.

My invention has for its object to provide a simple and inexpensive device that may be attached to the cylinder of a pump below the frost line, whereby after the pump has ceased to operate the water in the pump above my attachment will be automatically drawn off, and thus prevent the possibility of freezing, and the water below undisturbed, and no unnecessary escape of water while pumping.

It will be fully described and shown in the following specification, when taken in connection with the drawings accompanying the same and forming a part hereof, how the device is constructed to accomplish my object.

Figure 1 is a vertical section of the cylinder of the pump and my attachment in position. Fig. 2 is a side view of the attaching member. Fig. 3 is a vertical section of Fig. 2.

Like characters of reference denote corresponding parts in each of the figures.

Having reference to the drawings 2 designates the cylinder of the pump, and the ordinary plunger at the bottom and the operating handle at the top (not shown). Within the cylinder is the pump rod 4 upon which is screwed a second plunger 5 provided with the ordinary packing 6. In one side of the cylinder is secured my attachment in the form of a bent pipe 8 which provides means for taking the water from the cylinder and returning it to the cylinder at a short distance above the point where the water is received from the cylinder. Integral with this pipe is a neck 9 which terminates at the top with screw threads 10.

Within the pipe 8 is inserted a member 14 open at both ends which may extend down a trifle below the upper bend in the pipe 8. This member 14 is provided with one or more openings 15 preferably set in a V shape which open into the pipe 8. Within the member 14 is set a plunger 18, to the upper

end of which is secured a spring 20 preferably coiled and which preferably extends up to the top of the member 14. In this spring is secured a valve 22 having a stem 24. The member 14 is also provided with lugs 25 which slide down in grooves (not shown) in the neck 9 and hold the member 14 in a given position. Upon the top of the member 14 around the edge is packing 26 and upon this is screwed a cap 30 engaging the screw threads 10 upon the neck 9. This cap is provided with a tube 32 which extends down a short distance into the member 14 and in which the valve stem 24 projects as shown in Fig. 1. This attachment so constructed may be made in a single piece and coupled to the main cylinder 2 by couplings 35.

The mode of operating this device whereby my object is accomplished is substantially as follows: Power is applied to the pump rod 4 which operates the plunger within the well and forces the water up the cylinder until it comes to the plunger 5 where it is stopped and turned into the pipe 8 when it passes up the pipe and against the plunger 18. The force of the water will drive up the plunger 18, compress the spring 20 and force up the valve 22 until it strikes the lower end of the pipe 32 and closes it. This will bring the plunger 18 somewhere up alongside of the openings 15. If the pressure of water be very strong, then it forces it up to the top of the openings 15. The water will then pass out through the opening 15 into the pipe 8 and out into the upper portion of my device and into the cylinder 2 and out at the spout 38. When the pump has stopped then the plunger 18 will be forced down in the member 14 by its own gravity and pressure of the spring 20 and open part or all of the openings 15. This will draw down the valve 22 and allow the water to pass out of the tube 32 and drain all of the water in the cylinder 2 that is above the level of the top of the cap 30. It will be remembered that this attachment is placed upon the cylinder below the frost line, and hence when the water is drained out of the cylinder down to the top of the cap 30 there can be no more freezing.

It will be seen that by this mode of construction and attachment to the cylinder of

the pump that at all times the water will be drawn off automatically from the main cylinder above the top of the cap 30.

What I claim and desire to secure by Letters Patent is—

1. In a device of the class described, a pump cylinder, a plunger in the cylinder for deflecting the flow of water from the cylinder, means for returning the water to the cylinder, a plunger outside of the cylinder and within the means for returning the water to the cylinder for preventing the flow of water back into the cylinder, and means connected with the plunger outside of the cylinder for automatically drawing off the water in the upper end of the cylinder when the pump has ceased pumping.
2. In a device of the class described, a pump cylinder, a pipe connected to the cylinder at two points for taking the water from the cylinder and returning it into the cylinder, means within the cylinder for deflecting the water into said pipe, a stop in said pipe for preventing the water that is in the pipe from passing back into the cylinder, and a valve operated by said stop and pressure of water for automatically drawing off the water in the cylinder above said valve.
3. In a device of the class described, a pump cylinder, a pipe supplying water communications with the cylinder at two points for directing the flow of water from the cylinder and returning it to the cylinder, a plunger within the cylinder for directing the flow of water in the cylinder into said pipe, a spring actuated member within said pipe having an opening therethrough, and a valve in said member adapted to open and close the opening in the member and automatically prevent the water from flowing out of said member at the top when the pump is in operation and to draw off the water automatically in the upper part of the cylinder when the pump has ceased to operate.
4. In a device of the class described, a pump cylinder, a pipe connected to the cylinder for taking the water from the cylinder and returning it to the cylinder, means in the cylinder for deflecting the flow of water through said pipe, a neck on said pipe having an opening at the top, and means connected with said neck consisting of a valve actuated by the concerted action of a spring and the pressure of water for automatically closing said opening in the neck when the pump is operating and open it to draw off the water in the upper part of said cylinder when the pump is not in operation.
5. In a device of the class described, a pump cylinder, a pipe having water communications with the cylinder at two different points, means in the cylinder for directing the flow of water from the cylinder

into said pipe, a neck on said pipe having an opening in the upper part thereof, a plunger at the base of said neck, a valve at the top of said neck, a spring connected with the plunger and with the valve and operated by the pressure of water against the plunger to automatically close said opening in the neck when the pump is in operation and to open the same when the pump has ceased pumping and permit the water in the cylinder above said opening in the neck to be drawn automatically off through the opening.

6. In a device of the class described, a pump cylinder, a pipe connected with the cylinder to take the water from the cylinder and return it to the cylinder, a pump rod in the cylinder, a plunger on the pump rod above the lower connection of said pipe with the cylinder for directing the water from the cylinder into said pipe, a neck on said pipe having an opening in the upper part of the neck, a plunger in said neck, a spring attached to said plunger, and a valve connected to said spring adapted to automatically close the opening in the neck when the pump is in operation and open it when the pump has ceased pumping whereby the water from the upper part of the cylinder is automatically drawn off.

7. In a device of the class described, a pump cylinder, a pipe connected to the cylinder for taking the water from the cylinder and returning it to the cylinder, means for directing the water from the cylinder into said pipe, a neck on said cylinder having an opening near the top, a member in said neck open at the top and having water communications with said pipe, and a valve actuated by the simultaneous and united action of a spring and the pressure of water in the pipe, adapted to automatically both close and open the opening near the top of said neck.

8. In a device of the class described, a pump cylinder, a pipe connected to the cylinder for taking the water from the cylinder and returning it to the cylinder, a neck on said pipe having an opening at the top, a member open at both ends within said neck and having an opening in its side into the pipe, a valve in said member, a spring connected to the valve, a plunger connected to the spring and said plunger operated by the pressure of the water to close the valve over the opening in the neck when the pump is in operation and open the same when the pump has ceased, whereby the water in the upper part of the cylinder is automatically drawn off through the top of the neck of the pipe.

9. In a device of the class described, a pump cylinder, a pipe connected to the cylinder at two different points for taking the water from the cylinder and returning it to the cylinder, a pump rod, a plunger on the

5 pump rod in the cylinder between the two connections of the pipe with the cylinder, a neck on said pipe, a cap on said neck provided with an opening therethrough, a member in said pipe open at both ends and having openings in its side, a valve in said member provided with a stem adapted to project into the opening in the cap, a spring engaging said valve, a plunger in said member connected to said spring and operated 10 by the pressure of water to open and close the opening in the cap by the valve.

In testimony whereof, I affix my signature in the presence of two witnesses.

JOSEPH F. HAENNIG.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."