

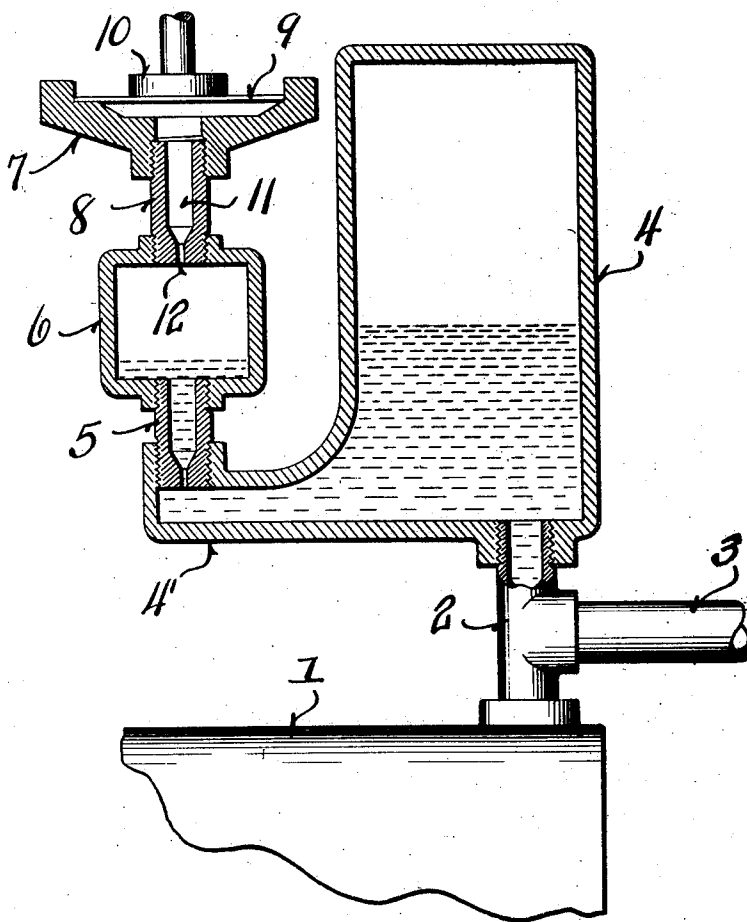
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PULSATION ELIMINATOR FOR PUMPS

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PULSATION ELIMINATOR FOR PUMPS

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This invention relates to a pulsation eliminator for pumps.

In automatic water pumps, it has been found that where the automatic controller is connected directly to the air cushion chamber of the pump and not to the pressure tank, pulsations are transmitted to the controller with consequent rapid wear and frequent need of adjustments.

Further defects which have resulted from this arrangement are that when the cushion chamber of the pump is water logged, or in other words, completely filled with water, the controller automatically flops in and flops out of position for each stroke of the pump.

This invention is designed to overcome the defects noted above, and objects of such invention are to provide a novel form of pulsation eliminator for pumps which is so constructed that it will permit the connection of the controller directly to the discharge end of the pump, and which will prevent any transmission of pulsation whatsoever to the controller, irrespective of whether or not the main or primary chamber of the pump is water logged or filled with air.

Further objects are to provide a very simple type of structure which does not require much additional space, which is easy to produce, and which is very easy to apply.

An embodiment of the invention is shown in the accompanying drawing in which:

The single figure is a sectional view through the device showing it connected with the discharge end of a pump and with a controller.

Referring to the drawing, it will be seen that the pump is indicated generally by the reference character 1 and that its discharge end or portion communicates by means of the T 2 with a discharge or delivery pipe 3 and with the lower end of the primary air chamber or cushioning chamber 4 for the pump. This cushioning chamber has a laterally extending portion 4' which is provided with a threaded upper aperture into which a throttling nipple 5 is screwed. This throttling nipple carries an auxiliary air chamber or cushioning chamber 6. The upper end of this auxiliary cushion chamber

or air chamber communicates with the lower portion of the controller 7 by means of the throttling nipple 8 similar to the nipple 5. The diaphragm 9 and the pressure head or plate 10 of the controller have been indicated in the drawing.

Each of the cushion nipples is provided with a relatively large main passage 11 from which extends a restricted or throttled passage 12.

In the operation of the device, it is apparent that the main cushioning for the water delivered by the pump takes place in the primary chamber 4 in the usual manner and thus takes away the shocks from the delivery portion of the system. The pressure, however, within the primary chamber 1 is somewhat pulsating even under the best conditions. However, the pulsations are slowed down or greatly lessened by passage through the throttling nipple 5 into the auxiliary chamber 6. Here, the slight remaining pulsation is almost wholly eliminated and is totally eliminated by the cooperative action of the throttling nipple 8 prior to reaching the diaphragm 9 of the controller.

In other words, applicant has provided a pulsation eliminator which is provided with an entrance through a throttling nipple and with an exit through a throttling nipple, such chamber being adapted to contain air and to thereby cushion any pulsation that may pass the first nipple.

From actual tests conducted with this device, it has been found that the pulsations are wholly eliminated before they can arrive at the diaphragm of the regulator or controller. It has been found that the elimination of the pulsation occurs not only when the primary chamber contains air, but also when the primary chamber is water logged or is free from any air whatsoever. Even under these severe conditions, pulsations are not transmitted to the controller and consequently it is possible even under the most disadvantageous conditions to have a perfectly working controller, although mounted directly upon the pump.

It will be seen further that the device is very simple, may be readily manufactured,

and easily applied.

Although the invention has been described in considerable detail, such description is intended as illustrative rather than limiting as the invention may be variously embodied and as the scope of such invention is to be determined as claimed.

I claim:

The combination of a water pump having a delivery portion, a primary air chamber communicating with said delivery portion, a lateral extension on said primary air chamber having a threaded upper aperture, an auxiliary air chamber, a throttling nipple having one end connected with the auxiliary air chamber and the other end threaded into the aperture on the lateral extension, a controller and a second throttling nipple providing communication between said controller and the auxiliary air chamber.

In testimony that I claim the foregoing I have hereunto set my hand at Fort Wayne, in the county of Allen and State of Indiana.

VERNON L. TANNEHILL.

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