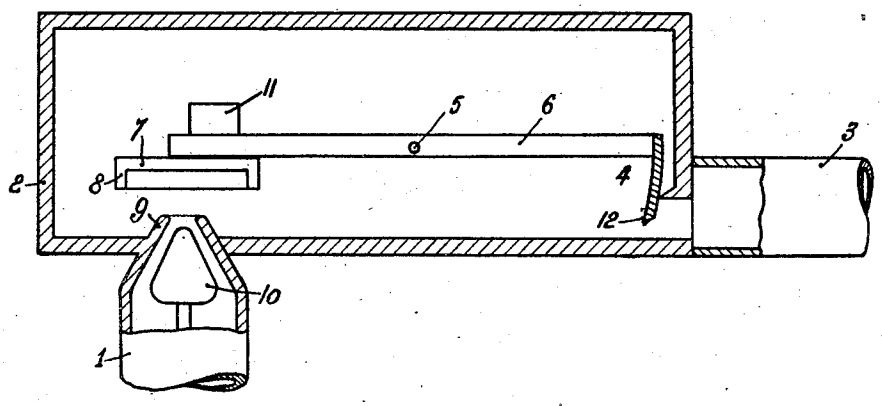
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DEVICE FOR ENSURING THE AUTOMATIC REGULATION OF THE DELIVERY OF HYDRAULIC MAINS

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DEVICE FOR ENSURING THE AUTOMATIC REGULATION OF THE DELIVERY OF HYDRAULIC MAINS

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5 Claims. (Cl. 137—152)

The present invention has for its subject a device for ensuring the automatic regulation of the delivery of hydraulic mains.

This device consists of a movable cylindrical valve located in a closed chamber and moving in front of the orifice of the outlet conduit, the movements of the said valve being regulated by a jet, from the supply conduit, acting on a plane surface. This plane surface, in the form of a disc, and the valve are mounted at opposite ends of an arm capable of oscillating about an axis. This axis is at the same time the axis of the cylindrical surface of the valve.

The single figure in the accompanying drawing shows a method of construction of the device according to the invention.

The water enters a closed chamber 2 through the supply conduit 1. The outflow conduit 3 is also branched from the chamber 2.

In front of the inlet orifice of the conduit 3 is located a valve 4 in the form of a cylindrical sector of which the centre is at 5, which is the axis of oscillation of the whole device.

The valve 4 is mounted on an arm 6 capable of oscillating about 5. At the opposite end is located a plane surface 7 adapted to receive the jet leaving the pipe 1. This surface 7 is in the form of a disc, preferably provided with a rim 8.

The outlet end 9 of the pipe 1 is shaped in a manner to promote the formation of a jet. It may be provided with an adjustable needle valve 10.

The assembly consisting of the valve 4, the arm 6 and the surface 7 is suitably balanced for any desired value of the jet leaving the pipe 1. This balance may be adjusted by means of a counterweight 11.

The lower end of the valve 4 is preferably constructed in the form of a blade 12.

The operation of the device is as follows.

The jet leaving 1 impinges upon the surface 7 and its action tends to apply to this an upward thrust. This thrust is balanced by the weight 11 in such a manner as to obtain for a given value of the jet a definite position of the valve 4. By reason of its cylindrical shape the valve is not subjected to any force of thrust. There only comes into action the effect of its weight proper.

When the delivery of the pipe 1 increases, the power of the jet increases, the thrust on the disc 11 becomes predominating and causes the arm 6 to oscillate. The valve 4 thus closes, immediately reducing the delivery of the pipe 3. This action takes place until the delivery has been restored to its normal value. If on the contrary the delivery of the pipe 1 is reduced, the valve 4 is raised, thus increasing the delivery of 3 and consequently re-establishing the desired delivery.

The value of the delivery to which the device is adapted to respond may be modified by varying the weight 11, or the diameter of the orifice 9 of the pipe 1, or by operating the needle valve 10.

It has been assumed that the chamber 2 is closed, which is the most suitable case in practice, as it supports the load to which the pipes 1 and 3 are subjected. It may however be open at the top on condition that its height corresponds to the said load.

Various modifications may be made in the various parts of the device without departing from the scope of the present invention.

I claim:

1. An automatic delivery regulator for hydraulic means, comprising a closed chamber provided with an inlet orifice in the bottom thereof and a discharge orifice in one end thereof, a double-armed lever mounted for free oscillation about a horizontal axis within said chamber, a cylindrical segmental valve carried by one end of said lever, the axis of said valve coinciding with the axis of said lever, a disc carried by the under side of the other end of said lever and positioned over said inlet orifice whereby the inflow of liquid will oscillate said lever to close the valve, and a rim surrounding the periphery of said disc to provide a concave member to receive the inflowing liquid.

2. An automatic delivery regulator for hydraulic mains, comprising a closed chamber provided with an inlet orifice in the bottom thereof and a discharge orifice in one end thereof, a double-armed lever mounted for free oscillation about a horizontal axis within said chamber, a cylindrical segmental valve carried by one end of said lever, the axis of said valve coinciding with the axis of said lever, a pan carried by the under side of the other end of said lever and positioned with its concave side directly over and facing the inlet orifice whereby the inflow of liquid will oscillate said lever to close the valve, and a needle valve nozzle associated with said inlet orifice for directing a jet of liquid into said pan.

3. An automatic delivery regulator for hydraulic mains, comprising a closed chamber provided with an inlet orifice in the bottom thereof and a discharge orifice in one end thereof, a double-armed lever mounted for free oscillation about a horizontal axis within said chamber, a cylin-

drical segmental valve carried by one end of said lever, the axis of said valve coinciding with the axis of said lever, a pan carried by the under side of the other end of said lever and positioned with its concave side directly over and facing the inlet orifice whereby the inflow of liquid will oscillate said lever to close the valve, a needle valve nozzle associated with said inlet orifice for directing a jet of liquid into said pan, and a counterweight carried by the end of said lever on which the pan is mounted.

4. An automatic delivery regulator for hydraulic mains, comprising a closed chamber provided with an inlet orifice in the bottom thereof and a discharge orifice in one end thereof, said discharge orifice being of greater cross-section than the inlet orifice and having its lower periphery coincident with the bottom of said chamber, a double-armed lever mounted for free oscillation about a horizontal axis within said chamber, a cylindrical segmental valve carried by one end of said lever, the axis of said valve coinciding with the axis of said lever, and a disc carried by the under side of the other end of said lever and positioned over said inlet orifice whereby the inflow of liquid will oscillate said lever to close the valve.

5. An automatic delivery regulator for hydraulic mains, comprising a closed chamber provided with an inlet orifice in the bottom thereof and a discharge orifice in one end thereof, said discharge orifice being of greater cross-section than the inlet orifice and having its lower periphery coincident with the bottom of said chamber, a double-armed lever mounted for free oscillation about a horizontal axis within said chamber, a cylindrical segmental valve carried by one end of said lever, the axis of said valve coinciding with the axis of said lever, a pan carried by the under side of the other end of said lever and positioned with its concave side directly over and facing the inlet orifice whereby the inflow of liquid will oscillate said lever to close the valve, a needle valve nozzle associated with said inlet orifice for directing a jet of liquid into said pan, and a counterweight carried by the end of said lever on which the pan is mounted.

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