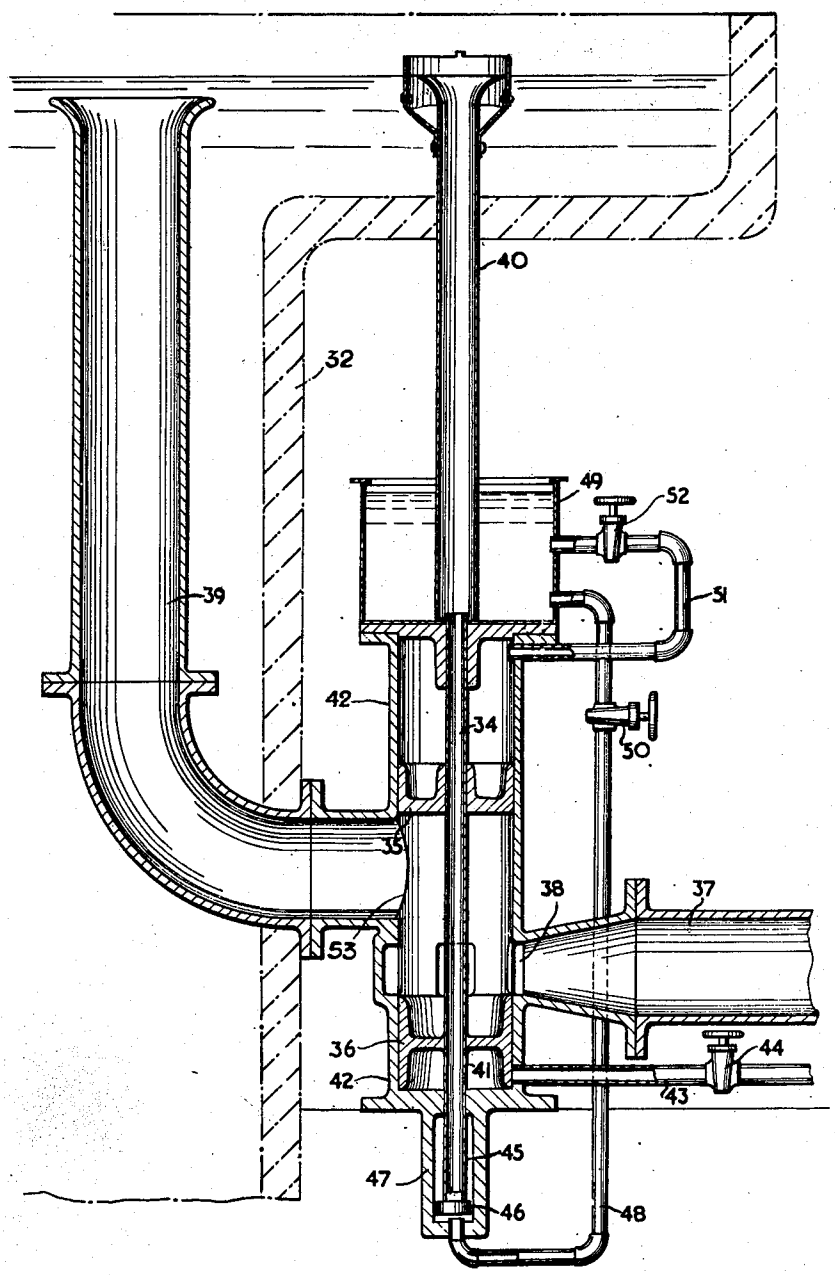
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HYDRAULIC CONTROL SYSTEM

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HYDRAULIC CONTROL SYSTEM

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4 Claims. (Cl. 137—68)

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The present invention relates to improvements in hydraulic control systems.

In order to ensure that the inflow to a reservoir from a supply pipe is automatically adjusted to the outflow from the said reservoir, it has been usual to provide a valve controlling the delivery of water from the supply pipe controlled by a float disposed in the reservoir.

An object of the present invention is to provide a simplified control for reservoirs and tanks.

According to the present invention a hydraulic system for controlling a supply of water from a water main to a reservoir includes in combination a cylinder having inlet and outlet ports adapted to be connected respectively to a water main and a reservoir, a hollow shaft in said cylinder and extending through said cylinder, a valve having upper and lower pistons slidable in said cylinder and mounted about said shaft to define a chamber therebetween, a standpipe having an entrance lip adapted to be arranged at a predetermined height in said reservoir and communicating with said hollow shaft, an outlet in said shaft below said lower piston whereby said lower piston is subject to water pressure in said shaft whenever water flows into it from said reservoir to raise said valve to close the inlet port against force of gravity, and a leak allowing escape of water from said shaft at a predetermined rate after said valve is raised.

The invention is further described with reference to the accompanying drawing showing diagrammatically one form of construction in side elevation.

A hollow piston rod **34** has upper and lower pistons **35**, **36** mounted thereon a fixed distance apart and slidable in an upper cylinder **42**. A main water supply pipe **37** communicates through inlet ports **38** and outlet port **53** in the upper cylinder **42** with pipe **39** leading through the wall **32** to the reservoir. The piston **35** has a slightly larger area than the piston **36**, this difference, however, not being such that the head of water in pipe **39** is sufficient to lift the weight of pistons **35**, **36** and connected parts. When the water of the reservoir has risen above the top end of a standpipe **40** (which projects through the wall **32** into the reservoir) this water can pass down the hollow piston rod **34** and through ports **41** in this piston rod to the space in the upper cylinder **42** beneath the piston **36** causing the piston to rise and close the ports **38**. Water can then leak away from the upper cylinder **42** through waste pipe **43** at a rate controlled by stop valve **44**.

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The piston rod **34** may have an extension **45** upon it with a piston head **46** working in a lower cylinder **47**, to the lower end of which a pipe **48** is connected passing up to a tank **49** and being under the control of a stop valve **50**. A second pipe connection **51** controlled by an adjustable stop valve **52** is arranged between the tank **49** and the upper cylinder **42** in which the piston **35** works, this tank **49** and the valve control means **50**, **52** acting therefore as a dashpot.

It will be noticed that the top of the standpipe acts as a weir at a predetermined set height so that the valve only operates when water passes over this weir due to a rise in level in the reservoir.

I declare that what I claim is:

1. A hydraulic system for controlling a supply of water from a water main to a reservoir including in combination a cylinder having inlet and outlet ports adapted to be connected respectively to a water main and a reservoir, a hollow shaft in said cylinder and extending through said cylinder, a valve having upper and lower pistons slidable in said cylinder and mounted about said shaft to define a chamber therebetween, a standpipe having an entrance lip adapted to be arranged at a predetermined height in said reservoir and communicating with said hollow shaft, an outlet in said shaft below said lower piston whereby said lower piston is subject to water pressure in said shaft whenever water flows into it from said reservoir to raise said valve to close the inlet port against force of gravity, and a leak allowing escape of water from said shaft at a predetermined rate after said valve is raised.

2. A hydraulic system for controlling a supply of water from a water main to a reservoir including in combination a cylinder having inlet and outlet ports adapted to be connected respectively to a water main and a reservoir, a hollow shaft slidable in said cylinder and extending therethrough a valve having upper and lower pistons slidable in said cylinder and fixedly mounted on said shaft to define a chamber therebetween, a standpipe having an entrance lip adapted to be arranged at a predetermined height in said reservoir and communicating with said hollow shaft, an outlet in said shaft below said lower piston whereby said lower piston is subject to water pressure in said shaft whenever water flows into it from said reservoir to raise said valve to close the inlet port against force of gravity, and a leak allowing escape of water from said shaft at a predetermined rate after said valve is raised.

3. A hydraulic system as claimed in claim 1

including dashpots for controlling the rate of opening and closing of said valve.

4. A hydraulic system for controlling a supply of water from a water main to a reservoir including in combination an upper cylinder having inlet and outlet ports adapted to be connected respectively to a water main and a reservoir, a lower cylinder, a hollow shaft slidable in said upper and lower cylinders and extending therethrough, a valve having upper and lower pistons slidable in said upper cylinder and fixedly mounted on said shaft to define a chamber therebetween, a standpipe having an entrance lip adapted to be arranged at a predetermined height in said reservoir and communicating with said hollow shaft, an outlet in said shaft below said lower piston whereby said lower piston is subject to water pressure in said shaft whenever water flows into it from said reservoir to raise said valve to close the inlet port against force of gravity, and a leak allowing escape of water from said shaft at a predetermined rate after said valve is raised, a piston head on said shaft slidable in said lower cylinder, a container for liquid communicating with the upper cylinder above said upper piston and communicating with the lower cylinder below said piston head to effect dashpot control of said valve.

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