W. F. STUART.

SIPHON AND STARTING DEVICE THEREFOR.

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1,083,228.

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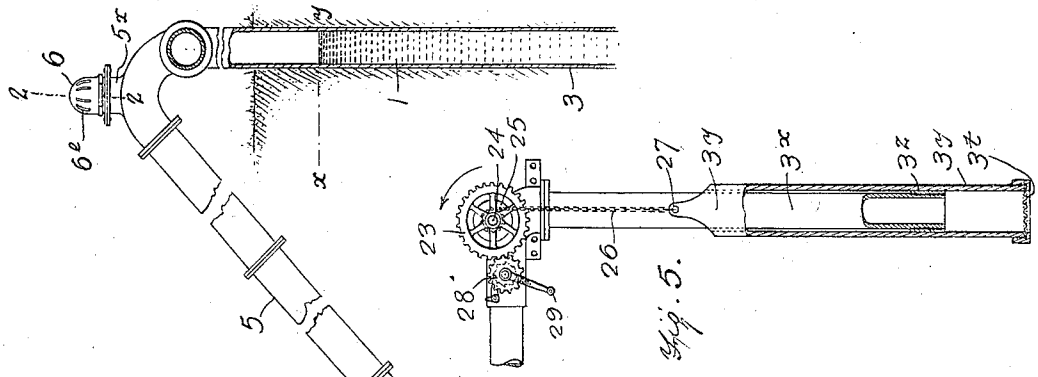


Fig. 5.

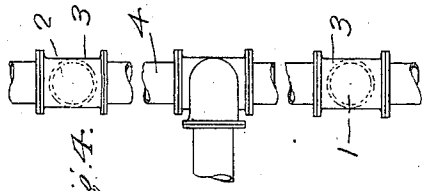


Fig. 4.

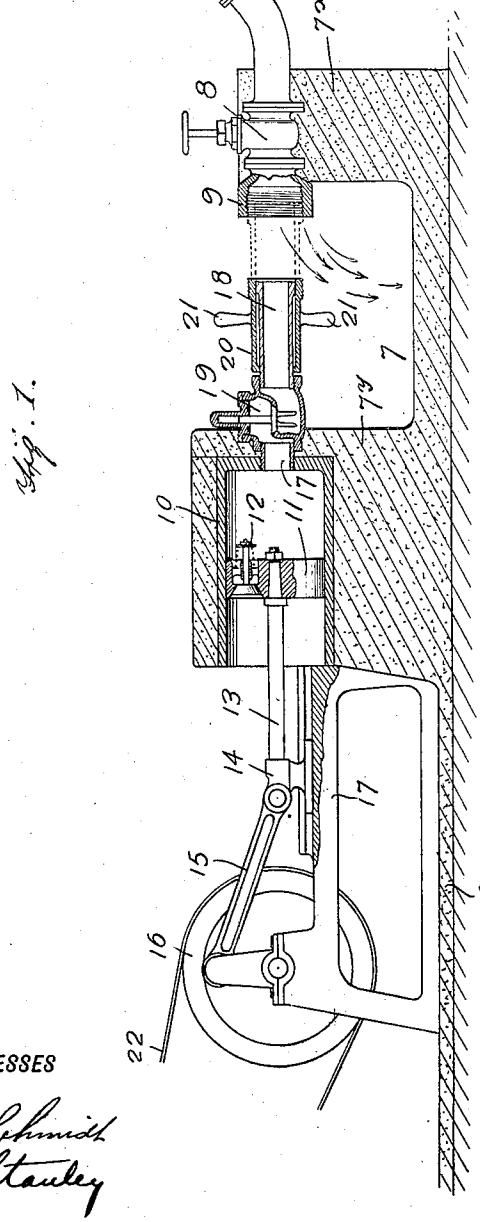


Fig. 1.

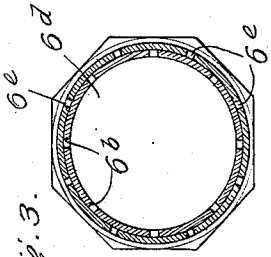


Fig. 3.

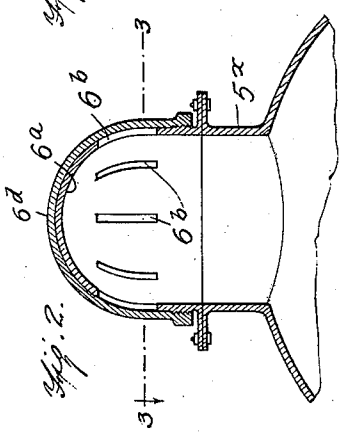


Fig. 2.

WITNESSES

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SIPHON AND STARTING DEVICE THEREFOR.

1,083,228. Specification of Letters Patent. Patented Dec. 30, 1913.

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To all whom it may concern:

Be it known that I, WILLIAM F. STUART, a citizen of the United States, and a resident of Garden City, in the county of Finney and State of Kansas, have made certain new and useful Improvements in Siphons and Starting Devices Therefor, of which the following is a specification.

My invention relates to improvements in siphons and starting devices therefor, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a simple means for starting a siphon which is used for irrigation or handling water for any purpose where conditions are right so that the water may flow continuously without a further application of power.

A further object of my invention is to provide simple means for checking the flow of the siphon at will.

A further object of my invention is to provide a simple device for starting the flow which may be removed from or applied to the end of the siphon.

Other objects and advantages will appear in the following specification, and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application in which—

Figure 1 is a sectional view through the device, Fig. 2 is a section along the line 2—2 of Fig. 1, Fig. 3 is a section along the line 3—3 of Fig. 2, Fig. 4 is a plan view showing a plurality of wells and pipes therefor, and Fig. 5 is a modified form of pipe having telescopic sections.

The device which forms the subject of the present application is primarily designed for use in sections in which there is a source of water supply from which the land gradually inclines to a region which would be fertile with sufficient water. This condition obtains largely in certain sections of the country. Some of these cultivable tracts are situated a considerable distance from the water source, and could be conveniently watered from the source by means of siphons. The difficulty lies in starting the siphon.

In carrying out my invention, I sink a number of wells, such as that shown at 1 and 2 (see Figs. 1 and 5) and into these wells I place pipes 3. The pipes 3 are connected at their tops with a lateral pipe 4, which in turn is connected with the main siphon pipe 5. At 6 in the main siphon pipe I have shown a device for shutting off or admitting air. This is best illustrated in Fig. 2 of the drawings. It consists of an extension 5^x of the pipe 5 to which is securely bolted a hemispherical dome 6^a having slots 6^b. Surrounding the hemispherical dome is an outer dome 6^d having slots 6^e arranged to register with the slots 6^b in the inner dome 6^a. The outer dome 6^d is threaded to engage threads on the inner dome and may be rotated, so as to bring the slots 6^e and 6^b into alinement, thus admitting air. When these slots are not in alinement the air is shut off. The siphon extends down beneath the level of the water shown at X—Y and the lower end of the siphon terminates in a concrete support 7^x which forms in fact the wall of a receiving tank 7. The siphon pipe 5 is provided with a valve 8 and the pipe terminates in the female member 9 of a union. The opposite wall of the receptacle or tank 7 forms a support for the means for starting the siphon. This comprises a cylinder 10 carried by the wall 7^y. A piston 11 is disposed in the cylinder and is provided with a valve 12. The piston is connected by means of the rod 13, cross head 14 and pitman 15, with the drive wheel 16 which is located on a base 17 disposed on the concrete floor 18. The cylinder 10 communicates, by means of a pipe 17, with a pipe 18, a check valve 19 being interposed between the pipes 17 and 18. The pipe 18 is provided with an outer telescopic member 20, which is threaded at its end to engage the member 9 and is provided with handles 21 for rotating the pipe section 20 so as to secure the latter into the member 9.

From the foregoing description of the various parts of the device the operation thereof may be readily understood.

As previously stated the wells 1 and 2 are sunk in the source of supply. Obviously there may be any number of these wells. The valve 6 is turned so as to shut off the entrance of air from the pipe 5. The telescopic section 20 of the pipe 18 is connected with the member 9 in the manner described and the drive wheel 16 is set going in any

suitable manner as by a belt 22. The reciprocation of the piston 11 will cause the air to be pumped out of the pipe 5, the water rising to take its place. As soon as there is a sufficient head of water to start the siphon flowing the valve 8 may be closed. The telescopic member 20 may be unscrewed from the member 9 and moved back into the position shown in Fig. 1. Now when the valve 8 is opened the water has free access to the tank 7 and will continue to flow steadily into the latter as long as there is any water in the wells, or until the level X—Y of the water is lowered to that of the discharge end of the siphon. It will be seen that the flow will continue automatically without any further attention on the part of the operator. Now if it is desired to cut off the flow, the only thing necessary is to turn the valve 6, so as to admit air. This will break the siphonic action and the flow of water from the pipe 5 will therefore be checked. In order to start up the siphonic action again the air valve 6 must be closed and the apparatus must be again connected up as described for starting the initial flow. But unless it is desired to drain the pipe the water can be controlled at will by simply opening and closing the valve 8. The valves 12 and 19 serve to permit the air to be forced out through the open end of the cylinder. On the inward stroke of the piston the valve 12 opens, while on its outward stroke the valve 12 closes and the check valve 19 opens.

In Fig. 5 I have shown a modified form of the device which is used for open surface wells. This consists of a fixed inner pipe 3^x and a slidable outer pipe 3^y. Between the end of the inner pipe 3^x and the outer pipe 3^y is a resilient gasket 32 of any suitable material such as leather. At the end of the pipe 3^y is a strainer 3^t which prevents the entrance of sticks or other matter which might clog up the pipe. At 23 I have shown a gear wheel which is mounted on a shaft 24, bearing a drum 25. A chain 26 is wound around the drum and is connected at 27 to one end of the pipe 3^y. A gear 28 is arranged to engage the gear 23 and is provided with a crank handle 29. By turning the handle 29 the telescopic pipe 3^y may be raised or lowered to any distance therefore being adjustable for wells of various depths.

I claim:

1. The combination with a siphon, of a receptacle, the end of the long arm of the siphon being arranged to empty into said receptacle, a cut-off valve carried by the long arm of the siphon, said cut-off valve being disposed in the wall of the receptacle, a pump carried by the opposite wall of the receptacle, telescopic means for connecting said pump with the end of said siphon, and a valve carried by said siphon above the level of the fluid for breaking the flow of the siphon.

2. The combination with a siphon, of a receptacle, the end of the long arm of the siphon being arranged to empty into the receptacle and being provided with a union member, a cut-off valve carried by the long arm of the siphon, a pump carried by the opposite wall of the receptacle, a pipe extending from the pump toward said union member, and a slidable sleeve carried by said pipe and provided with a union member arranged to engage said first named union member for connecting the pump with the long arm of the siphon.

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