

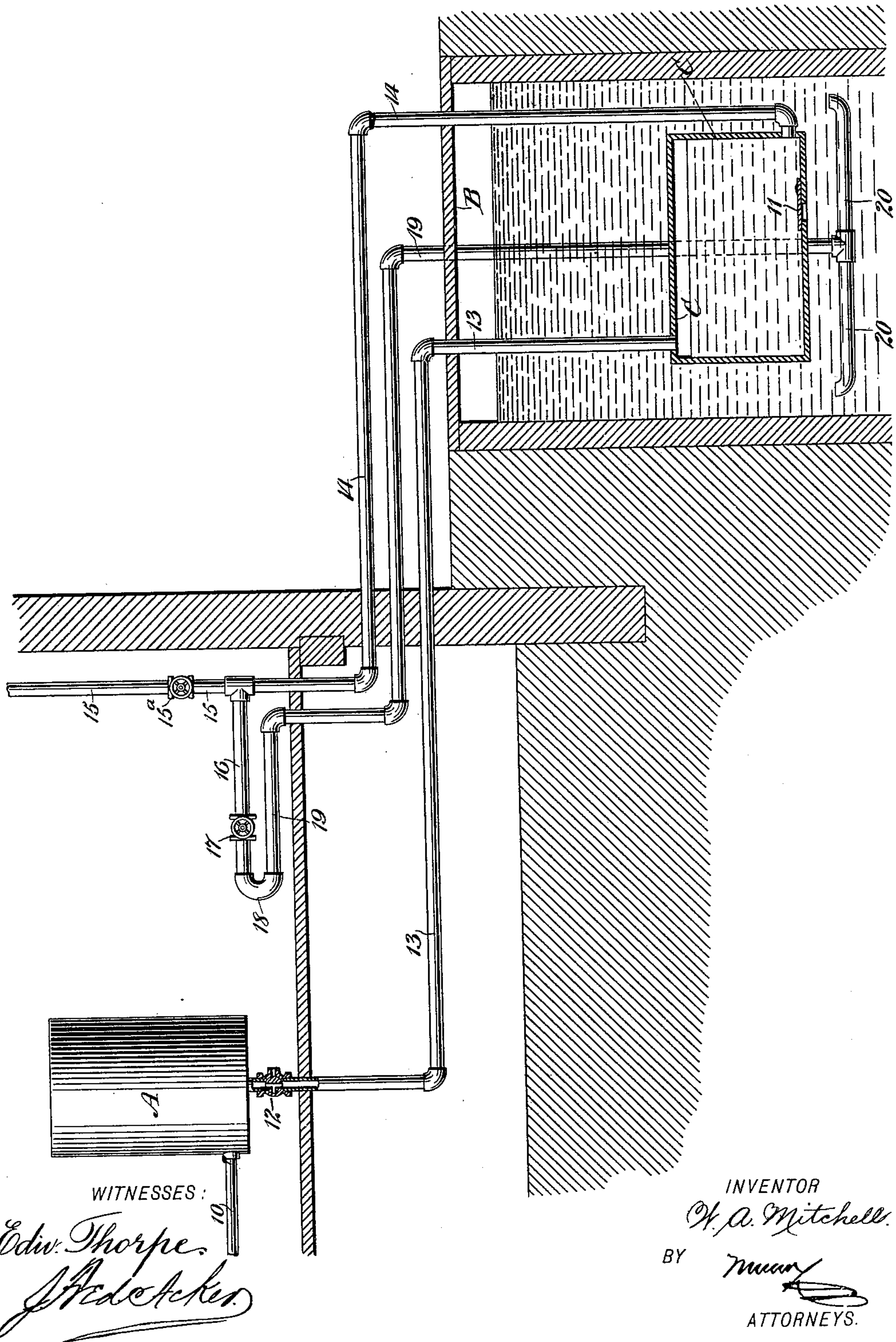
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Patented Oct. 25, 1898.

W. A. MITCHELL.
COMPRESSED AIR WATER ELEVATOR.

(Application filed Mar. 9, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

WILLIAM A. MITCHELL, OF NASHVILLE, TENNESSEE.

COMPRESSED-AIR WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 613,168, dated October 25, 1898.

Application filed March 9, 1898. Serial No. 673,175. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. MITCHELL, of Nashville, in the county of Davidson and State of Tennessee, have invented a new and Improved Compressed-Air Water-Elevator, of which the following is a full, clear, and exact description.

The object of my invention is to construct a compressed-air water-elevator in a simple, durable, and economic manner, so that water may be supplied from a cistern or equivalent source to any point in the dwelling or to any point near to or removed from the source of supply, it being possible to discharge any water that may be in the pipes and quickly refill the pipes with fresh cool water, thus preventing the necessity of using water that may have become warm or stale in the pipes.

A further object is to provide a self-filling water-cylinder adapted to be placed in the source of water-supply with which the compressed-air pipes and water-supply pipes connect.

A further object of the invention is to provide a return-pipe connected with the service-pipe and with the cistern or source of water-supply, the return-pipe being adapted to conduct water from the service-pipe into the cistern in such manner that the water delivered by the return-pipe, together with any air that may be within the return-pipe, will agitate and purify the water in the cistern, fresh cool water, as above stated, at the same time entering the service-pipes from the cistern.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawing, forming a part of this specification, which represents a section through a portion of a building and a section through a cistern and the water-cylinder within the cistern, showing one of the valves connected with the air-compressor, also in section, but the air-compressor and pipes in side elevation.

A represents a reservoir for compressed air, connected by a suitably-valved pipe 10 with an air-compressor of any description.

B represents a cistern in which a cylinder C is supported at a point above the bottom of

the cistern, and the said cylinder is provided in its bottom with a check-valve 11, which opens inward. A three-way cock 12 is attached to the bottom of the compressed-air reservoir or at a point near the bottom, the casing or shell of the cock being capable of communication with the outside atmosphere and with the interior of the reservoir. The air-supply pipe 13 is connected with the three-way cock 12 and is then carried down into the cistern and into the upper portion of the cylinder C. A water-supply pipe 14 is connected with the bottom portion of the cylinder C, preferably at a side opposite that at which the air is entered, and the water-supply pipe 14 is conducted upward from the cistern and connected with a service-pipe 15, which service-pipe is adapted to be conducted to any desired place and is provided with a valve 15^a, which when closed will prevent the water passing much higher than the upper portion of the supply-pipe 14. A branch pipe 16 is connected with the upper portion of the water-supply pipe 14, and this branch pipe is provided with a valve 17 and usually an elbow 18, the elbow being connected with a return-pipe 19. This return-pipe is carried down into the cistern at one side of the cylinder C and to a point below the cylinder, terminating in a cross-pipe 20, open at both of its ends. The branch pipe 16 may be provided with a faucet, from which water may be drawn, if so desired.

In operation if the water-cylinder C is empty it can be quickly refilled, as it is practically self-closing, and such refilling is brought about by turning the three-way cock 12 so as to shut off the air-supply and open communication between the air-supply pipe 13 and the outside atmosphere. As the compressed air escapes from the pipe 13 and cylinder C the water rushes into the cylinder, the valve 11 opening. When the cylinder has been filled, the three-way cock is restored to its normal position, which places the compressed-air reservoir in communication with the compressed-air-supply pipe 13, and the valve 15^a being open water may be drawn from the service-pipe at any desired point. The valve 17 prevents the return of the water from the service-pipe to the cistern.

As heretofore stated, the pipe 19 is adapted

to return to the cistern any water and air that may be in said pipe, one of the objects of such return being to stir up the water and purify the same by having pure air forced into it, which will drive out the impurities. Another object of the return water and air pipe is as follows: Water that has been standing in pipes for some time will become warm, and in the event a person desires fresh and cool water the valve 17 is opened for a few seconds, and the water in the service-pipe is allowed to return to the well or cistern or to any source from which it may have been forced. This return water may be made to agitate and purify the water in the cistern, since if the controlling-valve is left open air will follow the return column of water, and by this means fresh water will be supplied to the service-pipe, and at the same time no water will be wasted. Thus when cool fresh water has been carried to the house the return water will have been received in the cistern.

It will be understood that any desired number of cylinders may be employed, so that if one is empty another may be used while the empty one is being filled, and thus a constant stream of water may be thrown, the pipes being fitted with suitable valves for the operation.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a cistern or other source of water-supply, a cylinder located

within the cistern and provided with a valve opening inward, a compressed-air reservoir, a valved pipe leading from the said compressed-air reservoir, a water-receiving reservoir in the cistern, and a water-supply pipe leading from the water-reservoir, and adapted for connection with a water service, of a valved return-pipe, the said return-pipe extending within the cistern, and adapted when the valve is opened to return water to the cistern, as specified.

2. The combination, with a cistern or other source of water-supply, a reservoir supported within the said cistern, and provided with an inwardly-opening valve, a compressed-air reservoir, a three-way cock connected with the said reservoir, and an air-supply pipe connected with the said cock and with the water-reservoir in the cistern, and a water-supply pipe also connected with the water-reservoir, extending out from the cistern and adapted for connection with a water service, of a return-pipe for water and air, connected with the upper portion of the water-supply pipe and provided with a valve normally preventing water passing from the supply-pipe through the return-pipe, one end of the said return-pipe being carried downward within the cistern, terminating in a branch or branches, as and for the purpose specified.

WILLIAM A. MITCHELL.

Witnesses:

PERCY D. MADDIN,
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