

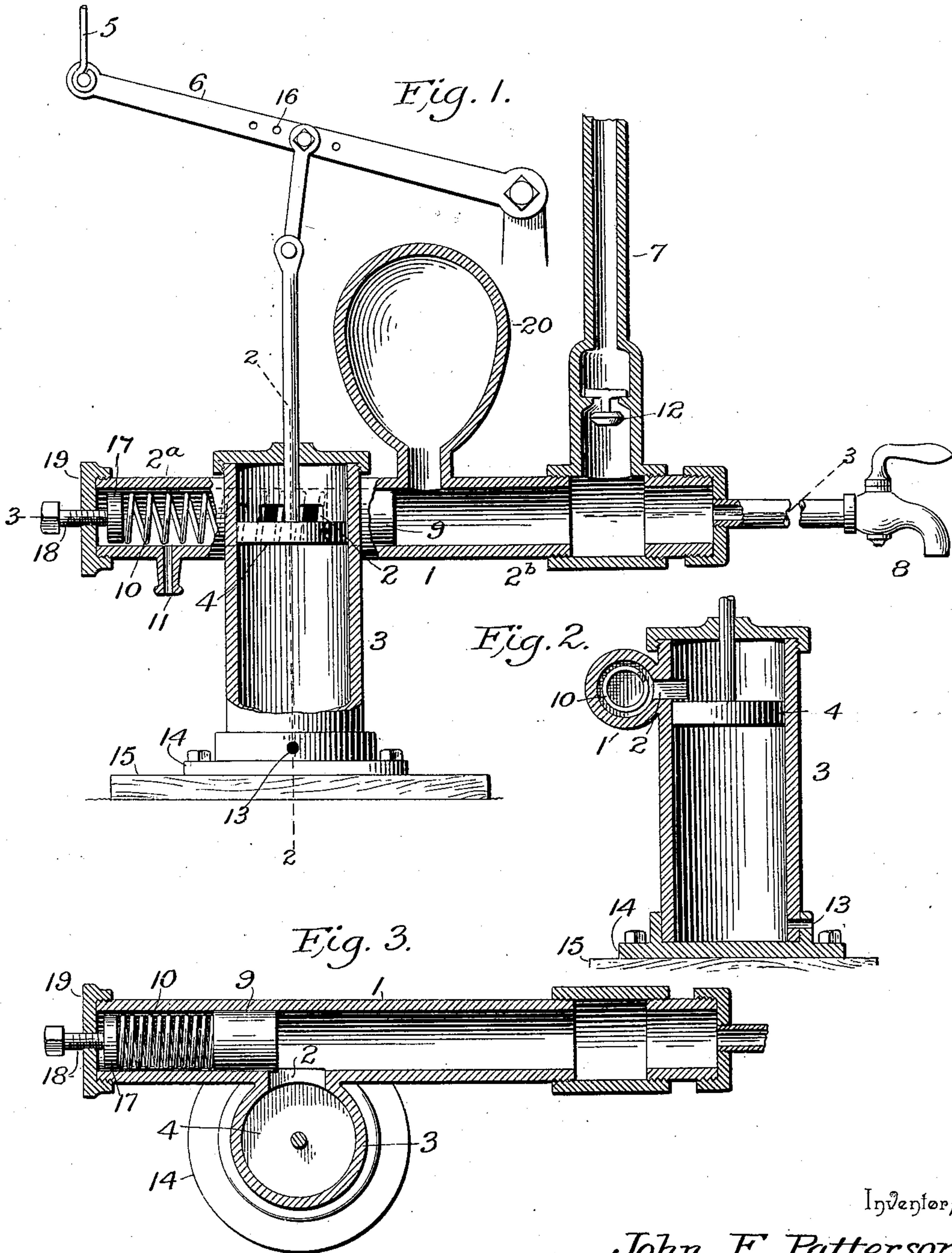
No. 636,354.

Patented Nov. 7, 1899.

J. F. PATTERSON.
WINDMILL REGULATOR.

(Application filed Dec. 3, 1897.)

(No Model.)



Inventor,

John F. Patterson,

Witnesses

James F. Orhamel

By his Attorneys,

J. F. Wiley

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

JOHN FRANKLYN PATTERSON, OF BATH, NEW YORK.

WINDMILL-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 636,354, dated November 7, 1899.

Application filed December 3, 1897. Serial No. 660,641. (No model.)

To all whom it may concern:

Be it known that I, JOHN FRANKLYN PATTERSON, a citizen of the United States, residing at Bath, in the county of Steuben and State of New York, have invented a new and useful Windmill-Regulator, of which the following is a specification.

This invention relates to improvements in windmill-regulators.

Heretofore windmill-regulators have been provided consisting of a vertical cylinder having a piston connected with the operating mechanism of a windmill and a casing communicating with the cylinder, near the top thereof, and provided with an exhaust-port and having a spring-actuated valve adapted when the device is relieved of pressure to establish a communication between the cylinder and the exhaust port or opening to permit the water within the cylinder to escape and allow the piston to rise and throw the windmill into operation; but it has been found by experience that when the piston descends and throws the windmill out of operation the wind-wheel does not cease rotating immediately on the piston arriving at the bottom of the cylinder and through its momentum makes a half of a revolution and sometimes three-quarters of a revolution, thereby subjecting the device to great strain resulting from the continued action of the pump after the cylinder has become filled with water.

The objects of the present invention are to relieve the windmill-regulator of the pressure and strain resulting from the excess of water due to the action of the pump after the windmill has been thrown out of the wind and to provide a simple, inexpensive, and efficient device adapted to be readily connected with a pumping-windmill and capable of throwing the same into and out of operation when a cock or faucet is opened and closed.

The invention consists in the construction and novel combination and arrangement of parts, as hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claim hereto appended.

In the drawings, Figure 1 is a longitudinal sectional view of a windmill-regulator constructed in accordance with this invention. Fig. 2 is a vertical sectional view on line 2 2

of Fig. 1. Fig. 3 is a horizontal sectional view on line 3 3 of Fig. 1.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

1 designates a tubular casing or cylinder disposed horizontally and communicating by a port 2 with a vertical cylinder 3, receiving a piston 4, and the latter is connected with the operating wire or rope 5 of a windmill through the medium of a lever 6. The horizontal cylinder or casing 1 has one portion communicating with a supply-pipe 7 of the pump of the windmill, and a cock or faucet 8 is also connected with the cylinder or casing 1 by means of a suitable piping.

A spring-actuated slide-valve 9 is arranged within the casing or cylinder 1, and when the cock or faucet 8 is open and the water running it is held by its spring 10 at a point between the port 3 and the supply-pipe 7; but as soon as the cock or faucet is closed the back pressure of the water within the casing or cylinder 1 operates on the slide-valve 9 and carries it to the other side of the port 2 against the action of the spring 10 to the position illustrated in Fig. 3 of the accompanying drawings. The water is then permitted to enter the cylinder 3 and force the piston 4 downward, thereby drawing on the operating wire or rope 5 and throwing the windmill out of the wind and stopping the pump, as will readily be understood. As soon as the cock or faucet is opened the pressure on the slide-valve 9 is reduced and the spring 10 is permitted to return the slide-valve to the position illustrated in Fig. 1. The cylinder 3 is then put in communication with the arm 2^a of the cylinder or casing 1, which is provided at the said arm 2^a with a discharge-opening 11, that permits the water in the cylinder 3 to be exhausted. The piston is then raised by the action of the weighted arm of the windmill, which is thrown into operation.

The cylinder or casing 1 is provided at its arm 2^b with a T-shaped coupling, and the supply-pipe is provided with a check-valve 12, adapted to close as soon as the cock or faucet is shut off, whereby the pump is relieved of back pressure. The stem of the check-valve is substantially T-shaped, the

arm being arranged above the valve-seat and supporting the valve in the position illustrated in Fig. 1 of the accompanying drawings.

The vertical cylinder 3 is provided with a suitable head at its top, and it is provided at its bottom with a vent 13 and has a flange 14, the latter being secured to a suitable support 15. The vent 13 permits air to escape from the bottom of the cylinder as the piston 10 descends and enables it to enter the cylinder when the piston moves upward.

The lever 6 is provided with a series of perforations 16, whereby it is adjustably connected with the piston-rod, so that the desired pull on the operating wire or rope may be readily obtained from the stroke of the piston 4. By adjusting the piston-rod to and from the fulcrumed end of the lever it will be apparent that the length of the stroke of the lever and the consequent pull on the operating wire or rope may be regulated.

The outer end of the spring 10 is engaged by a follower or head 17, which is adapted to be advanced into the casing or cylinder 1 by an adjusting-screw 18, whereby the tension of the spring is regulated and is made to produce the necessary pressure for operating the slide-valve 9 when the cock or faucet is open. The arm 2^a of the cylinder or casing 1 is provided with a head 19, which has a threaded opening for the reception of the adjusting-screw 18, and an air-dome 20 is mounted on the arm 2^b.

When the piston 4 arrives at the bottom of the cylinder 3, the windmill will be thrown out of the wind; but should the momentum of the wind-wheel be sufficient to cause it to rotate another revolution or even a half of a revolution the water within the device could not be compressed without the use of the air-dome sufficiently to accommodate the superfluous water and the device would receive a severe shock as well as the mill and the pump; but by employing the air-dome any superfluous water or the overflow resulting from the operation of the pump after the piston has reached the bottom of the cylinder will be accommodated.

The construction is adapted to be applied to steam heating apparatus, boilers, and the like where it is desirable to sound a signal or

alarm when the pressure reaches a dangerous point, and in such event the piston 4 may be connected with any suitable alarm or with a damper for controlling the draft to shut off the same, and thereby relieve the pressure.

The cock or faucet 8 may be located any distance from the windmill, and one or more cocks or faucets may be employed, so that water may be carried from a pump to various points, and when any one of such cocks or faucets is opened the windmill will be thrown into operation.

It will be seen that the windmill-regulator is exceedingly simple and inexpensive in construction, that it is positive and reliable in operation, and that it is adapted to dispense with tanks and reservoirs and enable water to be pumped as consumed.

What I claim is—

A device of the class described comprising a vertical cylinder, a piston arranged in the cylinder and designed to be connected with a signal, the operating mechanism of the windmill, or an analogous device, a horizontal casing located near the top of the cylinder, connected with the same by a suitable port and extending from opposite sides of the cylinder, one arm of the casing being provided with an exhaust port or opening, a spring-actuated slide-valve mounted in the casing and adapted, when the device is relieved of pressure, to establish a communication between the cylinder and the exhaust port or opening, a supply-pipe communicating with the other arm of the casing, and the air-dome 20 located above the casing and communicating with the same at a point between the cylinder and the supply-pipe and adapted to form a yielding cushion, whereby the device is relieved of the strain and pressure resulting from the excess of water produced by the action of the pump, after the piston has reached the bottom of the cylinder.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN FRANKLYN PATTERSON.

Witnesses:

SIGMUND ROTHSCHILD,
WALLACE ORCUTT.