

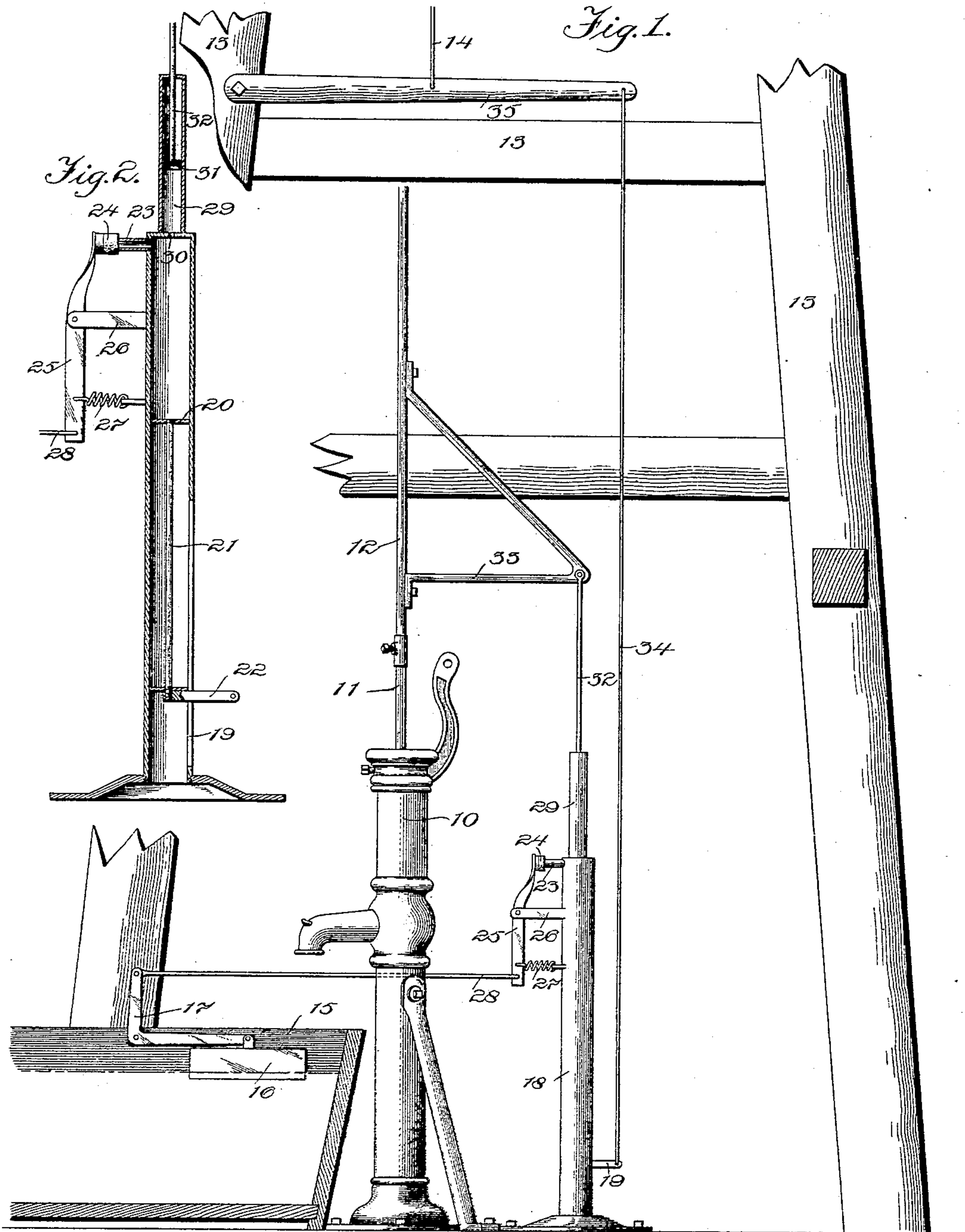
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C. EDGERTON & L. H. ROBERTS.
PNEUMATIC GOVERNOR FOR WIND MOTORS, PUMPS, &c.

(Application filed Aug. 2, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

CHARLES EDGERTON AND LINDLEY H. ROBERTS, OF PATON, IOWA.

PNEUMATIC GOVERNOR FOR WIND-MOTORS, PUMPS, &c.

SPECIFICATION forming part of Letters Patent No. 616,456, dated December 27, 1898.

Application filed August 2, 1898. Serial No. 687,573. (No model.)

To all whom it may concern:

Be it known that we, CHARLES EDGERTON and LINDLEY H. ROBERTS, citizens of the United States, residing at Paton, in the county of Greene and State of Iowa, have invented a new and useful Pneumatic Governor for Wind-Motors, Pumps, &c., of which the following is a specification.

The object of our invention is to provide a pneumatic governor for wind-wheels or the like which is of simple, strong, durable, and inexpensive construction and which may be set in motion by the raising and lowering of a comparatively small float and applies a greatly-increased power to the rod that throws the wind-wheel in or out of gear.

Our invention consists in certain details of construction, arrangement, and combination of parts, as hereinafter more fully set forth, pointed out in our claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a side elevation of a pump, a part of a trough, the governor applied to and connected therewith, and a portion of the windmill-frame and rod that controls the throwing of the wind-wheel in and out of gear. Fig. 2 shows a vertical sectional view of the governor proper.

Referring to the accompanying drawings, the reference-numeral 10 is used to indicate a metal pump, 11 the pump-rod, and 12 the windmill-rod attached thereto. 13 indicates that portion of the windmill-frame shown, and 14 the rod which controls the throwing of the wind-wheel in and out of gear. 15 indicates a water-tank, and 16 a float therein, pivoted to a bell-crank lever 17, which is fulcrumed to the tank. All of the above-described parts are of the construction ordinarily used. Hence a detailed description of the construction and function thereof is deemed superfluous.

The governor proper is composed of an upright cylinder 18, fixed to the platform adjacent to the pump and having a longitudinal slot 19 in one side. 20 indicates a piston within this cylinder designed to move vertically above the slot and having a rod 21 connected therewith and extended first downwardly and then outwardly through the slot, forming the arm 22. Near the upper end of

this cylinder is a small tube 23, extending horizontally outward and providing a communication from the cylinder to the outside atmosphere. A valve 24 is provided to engage the outer end of this tube and is mounted on a lever 25, fulcrumed to the support 26. A contractile coil-spring 27 is attached to the opposite end of the lever and to the cylinder 18 to normally hold the valve open. A rod 28 connects the lever 25 with the bell-crank lever 17.

At the top of the cylinder 18 a smaller cylinder 29 is mounted, and an opening 30 provides communication between the cylinders.

31 indicates a valve within the cylinder 29, fixed to the rod 32, and thus forming an air-pump. The rod 32 is in turn fixed to the bracket 33, which bracket is fixed to the windmill-rod 12. Hence when the wind-wheel is working, the air-pump continuously forces air into the large cylinder 18.

Fixed to the end of the arm 22 is a rod 34, and 35 indicates a lever fulcrumed to the windmill-frame and having the rod 34 fixed to its outer end and the regulator-rod 14 attached to its central portion. By this means the power applied to the rod 34 is increased as applied to the rod 14.

In practical operation it is obvious that the air-pump will be operated simultaneously with the pump proper and that air will be continuously forced into the large cylinder 18 and through the tube 23. When the water in the tank has reached a certain predetermined height, the valve 24 is closed. When this occurs, the escape of air from the cylinder is obviously stopped, and inasmuch as the pumping of air continues the piston 20 is forced downward. It is obvious that each time the air-pump is operated the pressure is increased until the piston in the large cylinder is forced down. If for any reason it required an unusually great amount of power to throw the windmill out of gear, it is obvious that the air-pump would continue to operate and increase the power until the piston moved downwardly. It is obvious, further, that when the water in the tank is lowered the valve 24 will be moved from the tube 23, and thus permit the escape of the compressed

air in the cylinder 18. The pressure upon the piston being removed, it is forced upwardly by means of the usual weight on the lever that controls the windmill-regulator, 5 and the wheel is thrown into gear.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States therefor, is—

1. A pneumatic governor for windmills 10 comprising a cylinder having an opening near its top, a valve for said opening a piston in the cylinder, an arm connected with the piston and projected beyond the cylinder, a rod connected therewith and designed for attachment 15 to the device for throwing the windmill in and out of gear, an air-pump connected with the cylinder, means for operating the air-pump from the windmill-rod, a valve designed to close said opening a spring for normally opening said valve, a float and means 20 for closing the valve upon the raising of the

float, substantially as and for the purposes stated.

2. A pneumatic governor for windmills comprising a cylinder having an opening near 25 its top, a valve for said opening a piston in the cylinder, an air-pump operated by the windmill to deliver air to the cylinder an arm connected with the piston and projected beyond the cylinder, a rod connected therewith, 30 a lever fulcrumed to the windmill-frame and having said rod fixed to its outer end, a windmill gear-rod attached to the central portion of the lever, a float and means for closing the valve upon raising of the float, substantially 35 as and for the purposes stated.

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