

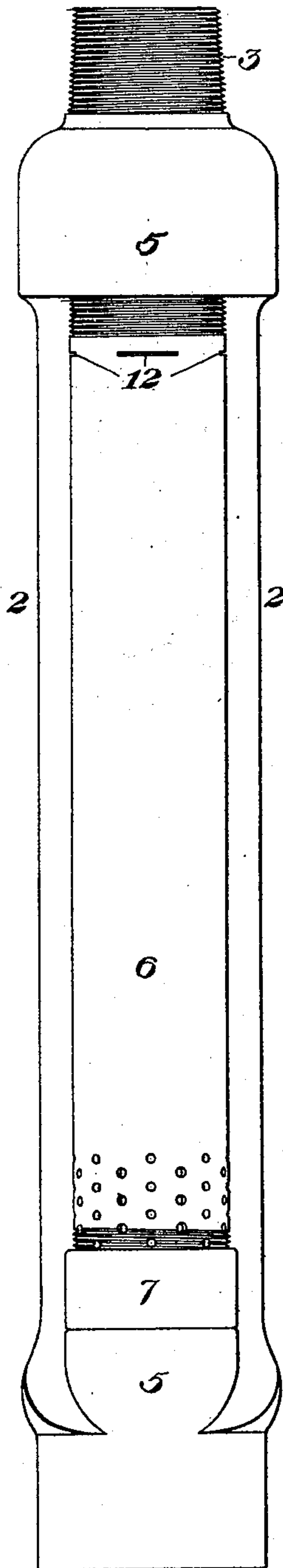
(No Model.)

W. E. BORIN.  
PUMPING REGULATOR.

No. 587,359.

Patented Aug. 3, 1897.

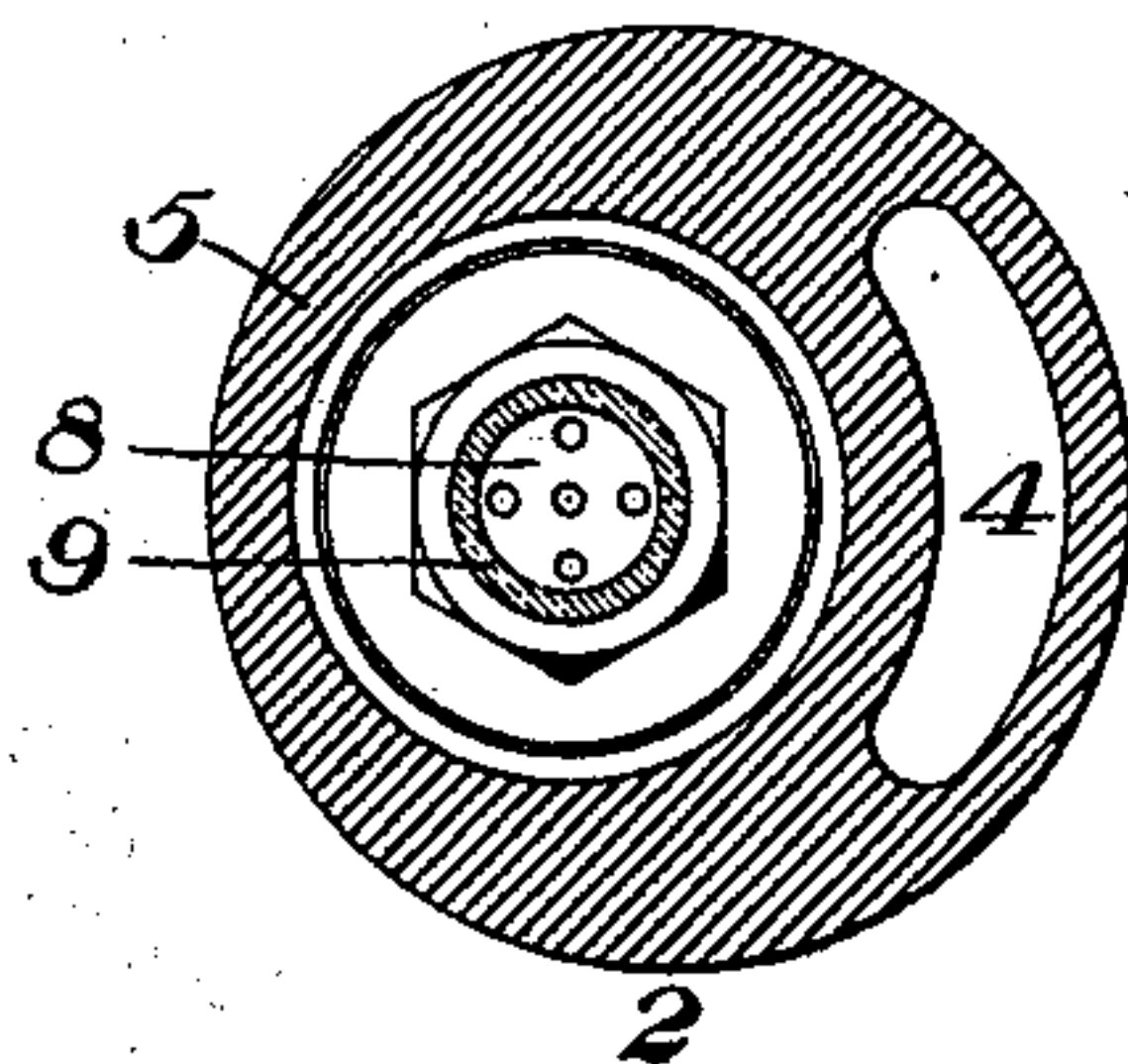
*Fig.1.*



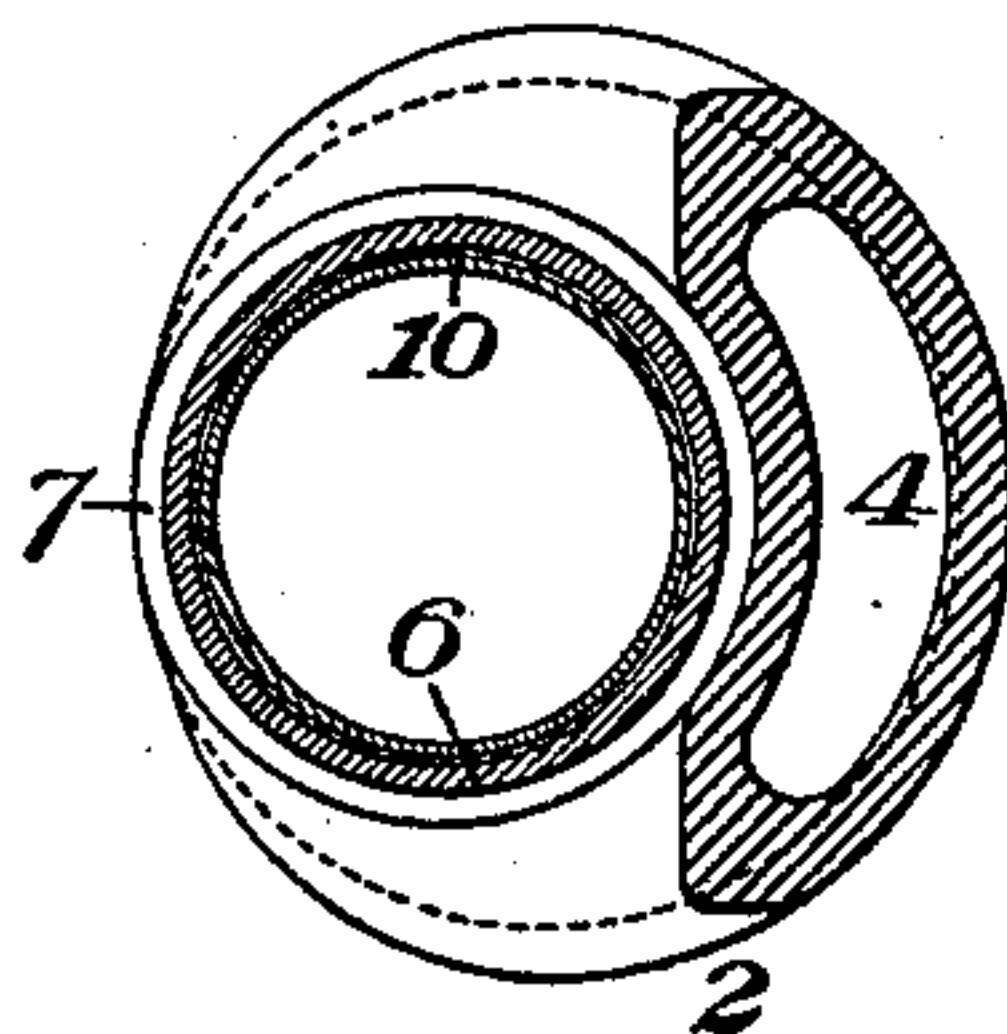
WITNESSES

Warren W. Swartz  
C. E. MacKown.

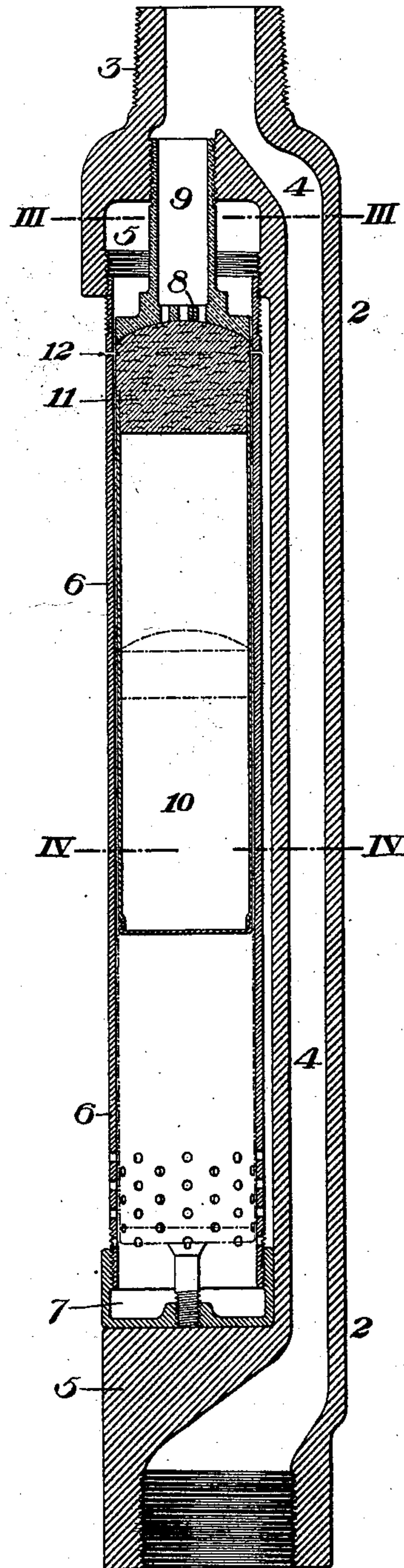
*Fig.3.*



*Fig.4.*



*Fig.2.*



INVENTOR

William E. Borin  
by his attorneys  
Baker & Baker



# UNITED STATES PATENT OFFICE.

WILLIAM E. BONIN, OF BAKERSTOWN, PENNSYLVANIA.

## PUMPING-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 587,359, dated August 3, 1897.

Application filed June 29, 1896. Serial No. 597,348. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. BONIN, of Bakerstown, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Pumping-Regulators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a side elevation of my improved regulator. Fig. 2 is a central vertical section of the same; and Figs. 3 and 4 are cross-sections on the lines III III and IV IV, respectively, of Fig. 2.

15 My invention relates to the pumping of deep wells and is designed to provide a means for keeping the oil in the well at or above a certain level, leaving a quantity of oil in the hole, whereby the sand is constantly flushed with fresh oil and the clogging up of the hole by accumulation of paraffin is prevented.

In the drawings, 2 represents a hollow case having at its upper end a screw-plug 3 or other suitable means for attaching the device 25 to the lower end of a pump-barrel and provided with a chamber 4, through which the oil passes upwardly through the case into the pump-barrel, with which the chamber or passage connects. The upper and lower ends of 30 the case are provided with registering bosses 5, the upper of which is hollow and is provided with internal screw-threads, with which engage external screw-threads upon the end portion of a hollow valve-casing 6, which casing is provided at its lower end with a screw-threaded portion engaged by a cap 7, which 35 abuts against the lower lug, and thus causes the casing to act as a brace for the case. In the upper end of the valve-casing is secured 40 the perforated valve-seat 8, having a tube 9 leading therefrom into the upper portion of the chamber or passage 4. Within the casing is a loose hollow float 10, having at its upper end a cork closure 11, which acts as a valve 45 and closes the upper end of the chamber when the float is lifted.

The casing 6 is perforated in its lower portion, as shown, and is provided with slots 12 around its upper end and below the valve-seat to admit air above the fluid therein.

The action is as follows: The regulator being secured at the lower end of a pump-bar-

rel and lowered into the well, the oil or oil and water entering the perforations in the valve-casing forces the float upwardly and closes the upper end of the casing. The pump 55 then operates to draw fluid up through the side passage and continues so to do until the level of the oil in the well and in the valve-chamber is lowered, so that the float-valve 60 drops away from the seat when air passing up through the seat enters the pump, and it ceases to force up the oil. As soon as the oil accumulates and rises sufficiently high to again lift the float-valve to its seat the pump 65 again begins to force up oil, thus keeping a certain depth of oil in the well at all times.

The advantages of the invention will be apparent to those skilled in the art, since the exhausting from the well of all oil and the consequent paraffining is avoided, as is also the accumulating of a large amount of oil and water, which would give the same effect. The sand is therefore constantly flushed with fresh oil, thus increasing the productiveness of the 75 well.

By employing a float-valve, which closes the air-inlet when the liquid reaches a certain level, the oil which is on top of the water in the well will be prevented from flowing in 80 through this air-opening, and this is an important feature of my invention, as without the float-valve the oil would be pumped from off the top of the water, leaving the water to cover the oil-bearing rock and cause paraffin- 85 ing. By the use of this float-valve, the air-opening being closed whenever pumping takes place, the liquid always flows in from the bottom, thus compelling the water to be pumped out first and causing the flushing of 90 the rock with fresh oil.

The arrangement of the valve and its casing or guide, as well as its relation to the oil-passage, may be changed, and many other variations will suggest themselves to those 95 skilled in the art without departing from my invention, since

I claim—

1. A deep-well pump having an air-inlet admitting air to the suction-passage and stopping the flow of the liquid when the air-inlet 100 is open, and a float-valve resting on the liquid in the well and arranged to close the air-inlet when the liquid reaches a certain level.

2. An attachment for deep-well pumps, consisting of a case having a suction liquid-passage, an air-inlet leading to the liquid-passage and admitting air to stop the flow of liquid when the inlet is open, and a float-valve moved and operated by the rising and lowering of the liquid in the well, said valve closing the air-inlet when the liquid rises to a determined level.
- 10 3. A pumping-regulator consisting of a case having a fluid-passage therethrough, a perforated valve-casing having a float-valve therein, and an air-passage leading from above the valve-seat and communicating with
- 15 the fluid-passage.

4. A pumping-regulator, consisting of a case having at one side a fluid-passage therethrough and provided with a valve-casing perforated at its lower end and having air-admission holes in its upper portion, a valve-seat at the upper end of the casing having a passage leading to the fluid-passage, and a float-valve within the casing.

In testimony whereof I have hereunto set my hand.

WILLIAM E. BONIN.

Witnesses:

G. I. HOLDSHIP,  
C. BYRNES.