

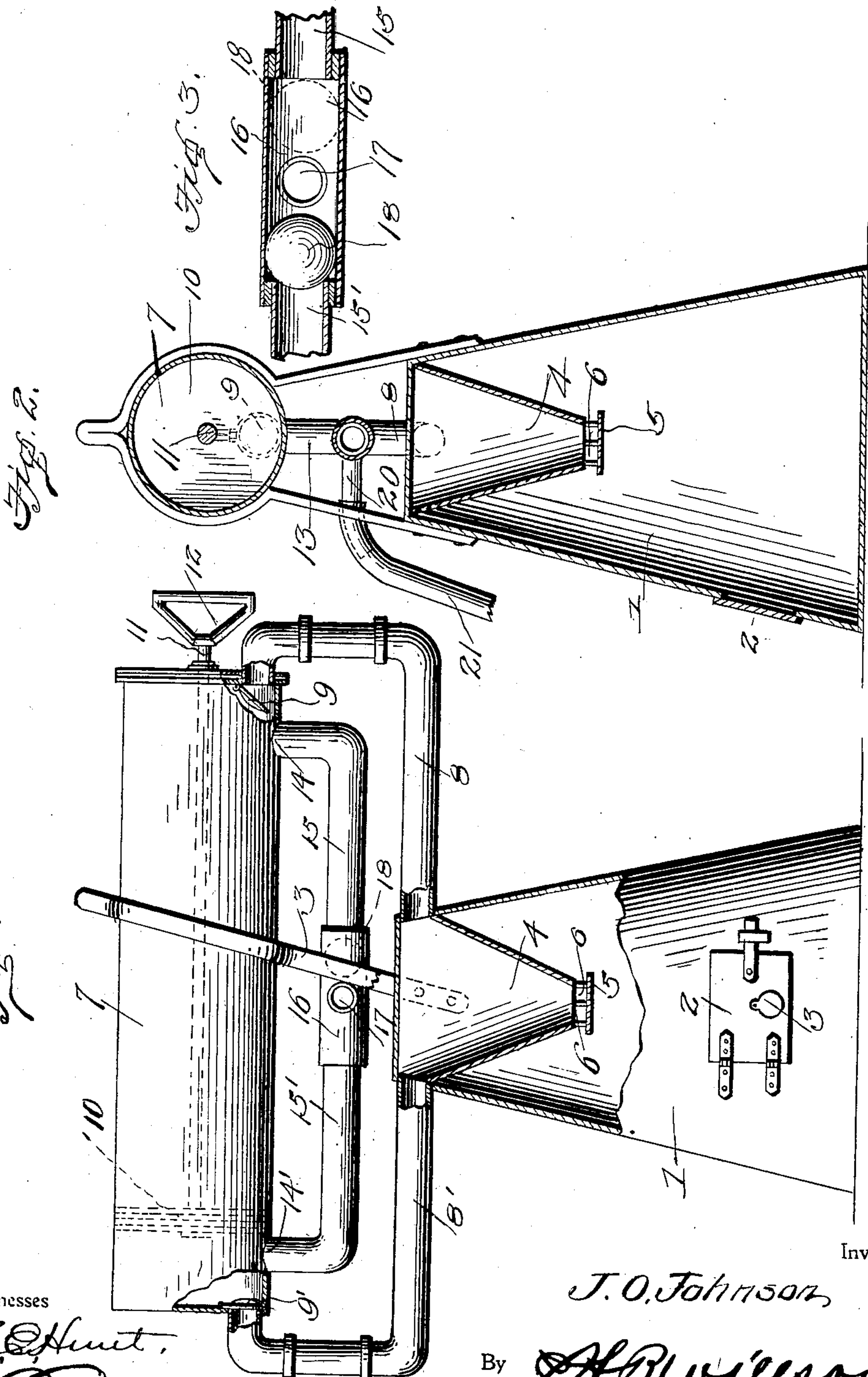
No. 762,637.

PATENTED JUNE 14, 1904.

J. O. JOHNSON.
ANIMAL EXTERMINATOR.

APPLICATION FILED AUG. 31, 1903.

NO MODEL.



Inventor

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UNITED STATES PATENT OFFICE.

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ANIMAL-EXTERMINATOR.

SPECIFICATION forming part of Letters Patent No. 762,637, dated June 14, 1904.

Application filed August 31, 1903. Serial No. 171,425. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH OLIVER JOHNSON, a citizen of the United States, residing at Visalia, in the county of Tulare and State of California, have invented certain new and useful Improvements in Animal-Exterminators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-

10 pertains to make and use the same. This invention relates to an animal-exterminator of a type designed to generate poisonous gases or vapors, which are forced into holes in the earth to destroy burrowing animals. Its object is to provide an exterminator of this character which shall be simple of construction, efficient in use, and inexpensive of production and which in the event of accident to the vapor-forcing means will automatically feed the vapor and avoid liability of explosions.

With this and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a longitudinal section, a portion of the generator appearing in elevation, of an animal-exterminator embodying my invention. Fig. 2 is a transverse section of the same, and Fig. 3 is a detail longitudinal section through the vapor-discharge valve.

35 Referring now more particularly to the drawings, in which like reference characters denote corresponding parts throughout the several views, the numeral 1 represents a vaporizer or generator consisting of a heating tank or furnace, preferably of frusto-conical or frusto-pyramidal form and provided within it with a suitable grate or other support (not shown) for the fuel and vapor-producing substance or substances. Either wood, coal, 40 or a suitable hydrocarbon oil may be used as fuel, and the vaporizer or generating device will be constructed to suit the character of fuel employed. A door 2 permits access to the vaporizer or generator for the insertion 50 of fuel and vapor-producing substances and

for the removal of ashes and other waste, cleaning, repairs, &c., and in this door is a draft-opening governed by a pivoted draft-damper 3. Disposed in the top of the vaporizer or generator is a frusto-conical or frusto-pyramidal shield 4, which prevents the flames from rising too high and which is closed at its lower end by a deflector 5 and provided above the same with side openings 6 for the exhaust of smoke and vapor from the generator. The deflector 5 preferably consists of a plate of greater diameter than the lower reduced end of the shield to guard the openings 6 from direct access of the flames.

A pump-cylinder 7 extends horizontally 65 above the vaporizer or generator and is connected at its ends to the top of the generator above the shield by vapor-supply pipes 8 and 8', the inlet of the vapor from which to the pump-cylinder is controlled by the inwardly-opening automatic check-valves 9 and 9'. A piston 10 operates in the cylinder and is attached to a rod 11, having upon the exterior an operating-handle 12. The pump is supported from the tank or furnace 1 by brackets 13, which also serve the function of handles to enable the device to be readily transported from place to place. In the operation of the piston the vapor generated in the tank 1 is alternately drawn through the pipes 8 80 and 8' into the opposite ends of the pump-cylinder, as will be readily understood.

Communicating with the ends of the pump-cylinder are vapor-discharge ports 14 and 14', connecting with pipes 15 and 15', leading to 85 a central valve-casing 16. In this casing is formed an outlet-port 17, controlled by a traveling ball-valve 18. From the port 17 extends a nozzle 20, with which connects a discharge pipe or hose 21, which in practice is 90 inserted into the hole in the ground into which the poisonous vapor is to be forced to exterminate the burrowing animals.

In the operation of the invention the device is transported to the point of use and the hose 95 21 inserted into the burrowing-hole, and then the vaporizer or generator is set into operation to produce the vapor. Upon the operation of the pump-piston back and forth this vapor is alternately drawn into the pump- 100

cylinder through the two pipes 8 and 8' and alternately discharged therefrom through the pipes 15 and 15', each check-valve opening on the movement of the piston away from it to allow the vapor to enter and closing on the movement of the piston toward it to prevent the vapor from passing back into the inlet-pipe and compel it to take exit through the coacting discharge-pipe. The ball-valve 18 alternately controls the flow of vapor from the two discharge-pipes 15 and 15' to the outlet 17 and prevents the backdraft of any of the discharged vapor upon either suction movement of the piston. When the piston moves to the right in its casing 7, vapor is drawn in through pipe 8' and the vapor previously drawn in through pipe 8 expelled through pipe 15. The pressure of this discharging vapor in the pipe 15 forces the valve 18 from the dotted-line position shown in Fig. 3 to the full-line position shown therein, allowing the vapor to discharge through the port 17 and preventing it from being drawn into the left-hand end of the cylinder. Similarly when the piston is moved to the left in the casing vapor is drawn in through pipe 8, and the vapor previously drawn in through pipe 8' is expelled through pipe 15'. The vapor passing out through pipe 15' forces the valve from the full-line position to the dotted-line position in Fig. 3, whereby it is allowed to discharge through port 17 and prevented from passing into pipe 15. The charging of the subterranean passages with the vapor through the pipe 21 causes the quick destruction of the burrowing animals. One peculiarity in the mode of operation of my construction of exterminating device is that if during the operation of charging a subterranean passage with the gas or vapor the pump-piston or either of the check-valves should become inoperative from any cause the operation will not be arrested, for the reason that the pipe connections practically constitute a siphon, whereby as a result of the contraction of the heated vapor in the cool underground passage a vacu-

um is formed and a constant supply of gas or vapor rushes out to fill it. By this means the sudden accumulation of a sufficient amount of vapor to produce an explosion is prevented. 50

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation. 55

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention. 60

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an animal-exterminator, the combination with a vaporizer, of a double-acting pump communicating therewith and provided with discharge-passages and an outlet-port common to both passages, and a shiftable valve guarding the outlet-port, substantially as described. 65 70

2. In an animal-exterminator, the combination with a vaporizer, of a double-acting pump communicating therewith and provided with discharge-pipes, a valve-casing forming a union connecting said pipes and provided with an outlet, and a shifting ball-valve guarding the outlet, substantially as described. 75

3. The combination with a vaporizer, of a double-acting pump, check-valved supply-passages connecting the vaporizer with the pump, discharge-passages leading from the pump to an outlet, and an automatic valve guarding said outlet, substantially as described. 80

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 85

JOSEPH OLIVER JOHNSON.

Witnesses:

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