No. 634,990. Patented Oct. 17, 1899.

T. H. McDONALD.

FUMIGATOR.

(Application filed Oct. 21, 1898.)

(No Model.)

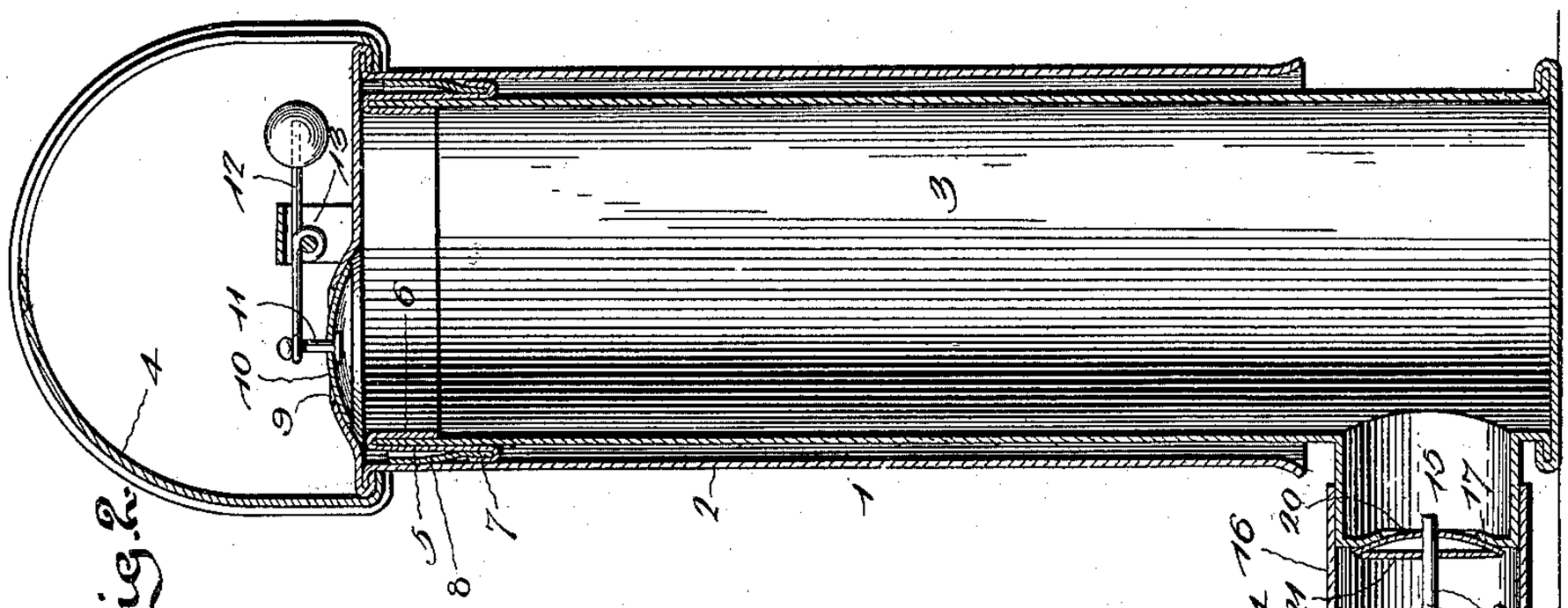

Fig. 2.

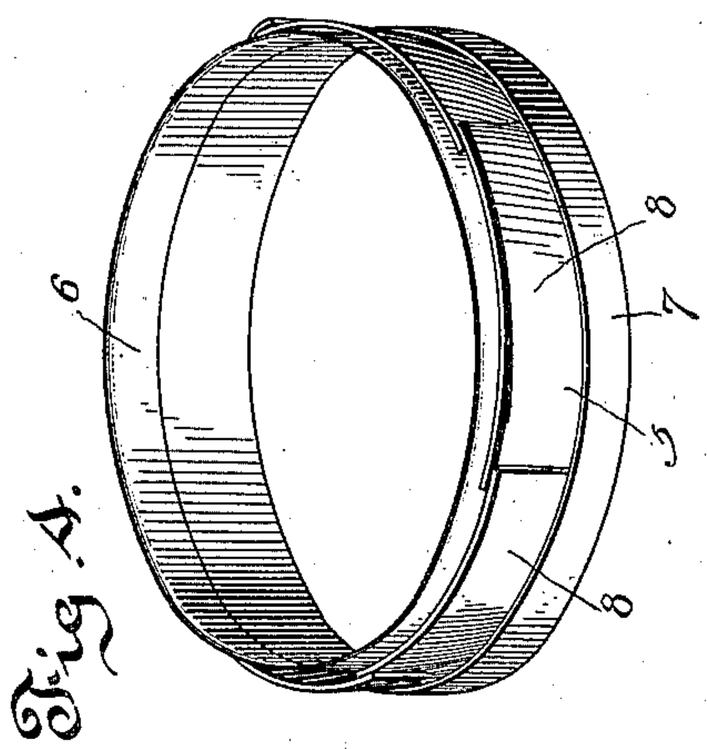

Fig. 4.

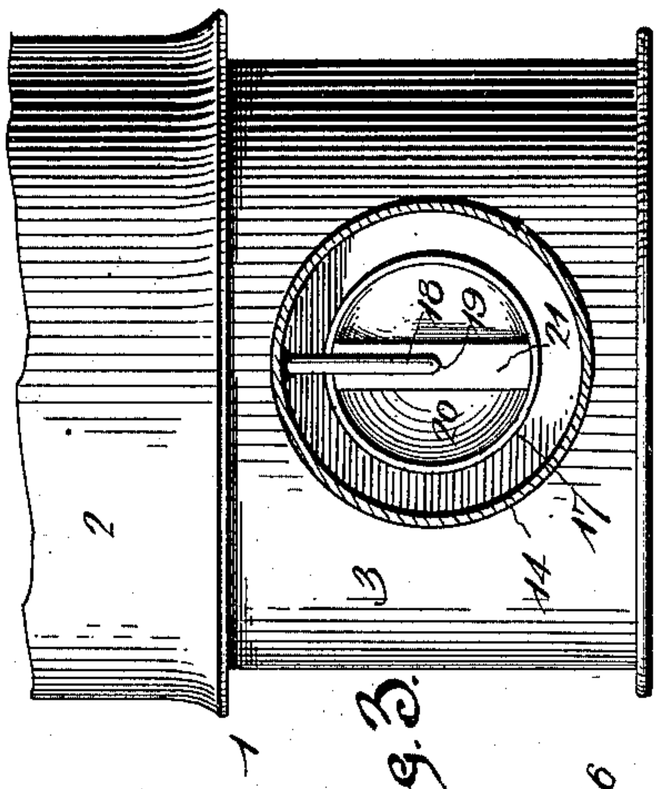

Fig. 3.

Fig. 1.

Witnesses
J. Frank Culverwell.
T. F. Riley

Thomas H. McDonald, Inventor.
By his Attorneys,
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UNITED STATES PATENT OFFICE.

THOMAS HARVEY McDONALD, OF POTOMAC, MONTANA.

FUMIGATOR.

SPECIFICATION forming part of Letters Patent No. 634,990, dated October 17, 1899.

Application filed October 21, 1898. Serial No. 694,221. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HARVEY McDONALD, a citizen of the United States, residing at Potomac, in the county of Missoula and State of Montana, have invented a new and useful Fumigator, of which the following is a specification.

The invention relates to improvements in fumigators.

The object of the present invention is to improve the construction of that class of fumigators employing a casing composed of telescoping sections adapted to be reciprocated for forcing smoke or fumes into the holes of animals—such as squirrels, rabbits, gophers, and the like—and to provide a simple, inexpensive, and efficient device adapted to permit one section to be reciprocated on the other without friction and capable of preventing air from escaping to any material extent through the space between the walls of the said sections.

A further object of the invention is to provide an efficient valve adapted to prevent the smoke and fumes from being sucked back into the device on the upstroke of the upper section of the casing and capable of opening readily on the downstroke of the upper section to permit the fumes or smoke to be discharged from the device.

Furthermore, the invention has for its object to arrange such valve practically outside of the casing in order to prevent it from coming in contact with the fuel and at the same time to afford ready access to it.

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 claims hereto appended.

In the drawings, Figure 1 is a perspective view of a fumigator constructed in accordance with this invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a transverse sectional view of a valve-casing. Fig. 4 is a detail perspective view of the ring or band which forms a packing to prevent the escape of air or fumes through the space between the sections.

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

1 designates a cylindrical casing composed of upper and lower telescoping sections 2 and 3, the upper section being provided with a rigid bail or handle 4, whereby the said upper section is adapted to be reciprocated to cause the device to act as a force-pump for driving smoke or fumes into the holes of burrowing animals. In order to enable the upper section to reciprocate freely over the lower section and at the same time to prevent the escape of smoke and fumes through the space between the sections, a packing-ring 5 is employed and is arranged at the upper end of the lower section. The packing-ring 5, which is constructed of thin resilient sheet metal, is arranged on the outer face of the lower section and is provided at its upper edge with an inwardly-extending annular flange or rim 6, which is arranged on the inner face of the lower section and forms with the packing-ring a groove or recess to receive the upper edge of said section. The lower edge of the packing-ring is bent upward to form an exterior annular flange 7, and it provides an outer or lower groove in which are secured the lower edges of an annular series of resilient wings or sections 8, which incline upward and outward to form a spring-packing and which have their upper edges engaging the inner face of the upper section of the casing. The spring sections or wings have their ends slightly overlapped, as shown in Fig. 4 of the accompanying drawings, and while they form a reasonably tight joint they do not interfere with the free movement of the upper section and they reduce the friction to a minimum.

On the upstroke of the upper section of the casing air enters the same through a valve-opening 9, and on the downstroke the opening is automatically covered or closed by a valve 10, provided with a stem 11 and connected with a weighted lever 12. The valve is concavo-convex and the top of the upper section is flared upwardly around the valve-opening to form a seat for the valve. By constructing the valve in this manner it is rendered highly efficient, and the lever, which is fulcrumed on a suitable support 13, has an eye at one end to receive the stem of the valve and its other end is weighted.

The fuel or other smoke or fume producing

material is placed within the casing on the bottom of the lower section and the smoke or fumes escape through a lower valve-casing 14, consisting of a cylindrical section 15, extending horizontally from the casing, and an outer cap or section 16, fitted on the section 15. The section 15 is provided with a valve-seat 17, and the other section 16 is provided with a substantially L-shaped support 18, having a horizontal arm 19, receiving a vertically-disposed valve 20 of concavo-convex form. The valve, which fits against the valve-seat on the upstroke of the upper section, is provided at its concave face with a cross-bar 21, having a perforation registering with a corresponding perforation of the valve. These perforations receive the horizontal supporting-arm 19, and the valve is supported in a vertical position and is enabled to slide freely in opening and closing.

The outer section or cap of the valve-casing is provided with a tubular extension 22, on which is fitted a flexible hose 23, adapted to be introduced into the holes of burrowing animals to enable the smoke or fumes from the device to be forced therein.

The invention has the following advantages: The fumigator, which is exceedingly simple and inexpensive in construction, is easily operated and the upper section is adapted to slide freely in its vertical reciprocation. The friction of such movement is reduced to a minimum and the spring-packing forms an efficient joint and will prevent the escape of smoke and fumes through the space between the sections. The valve mechanism is simple in construction and positive and reliable in operation and access may be readily had to the same.

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

What is claimed is—

1. A device of the class described comprising a telescoping casing composed of upper and lower sections, suitable valves, and a spring-packing consisting of a band, arranged on one of the sections, and an annular series of resilient wings or sections arranged at an angle to the band and located in the space between the sections of the casing, substantially as described.

2. A device of the class described having telescoping sections, and provided in the space between the same with a series of wings or sections mounted on one of the said sections, bearing against the other section and overlapping and forming a continuous spring-packing, substantially as described.

3. A device of the class described comprising a casing having upper and lower sections, and a spring-packing comprising a band arranged on one of the sections of the casing and provided at its edges with inner and outer annular flanges, one of the flanges being adapted to receive the edge of the casing on which the packing is mounted, and a series of spring-wings secured within the other flange of the band, and arranged at an angle to the latter, substantially as described.

4. In a device of the class described, the combination of a casing having telescoping sections and provided at its top with a valve, a horizontal valve-casing composed of a section mounted on the said casing and provided with a valve-seat, and an outer section or cap provided with a tubular extension adapted to receive a hose or discharge-pipe, a support arranged within the valve-casing and provided with an arm, and a valve mounted on the arm, substantially as described.

5. In a device of the class described, the combination of the telescoping sections, a horizontal valve-casing composed of an inner section having a valve-seat, and an outer section, a support mounted in the outer section and having a horizontal arm, and a vertical valve slidingly mounted on the horizontal arm, substantially as described.

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

THOMAS HARVEY McDONALD.

Witnesses:
J. W. MATLOCK,
WM. SMITH.