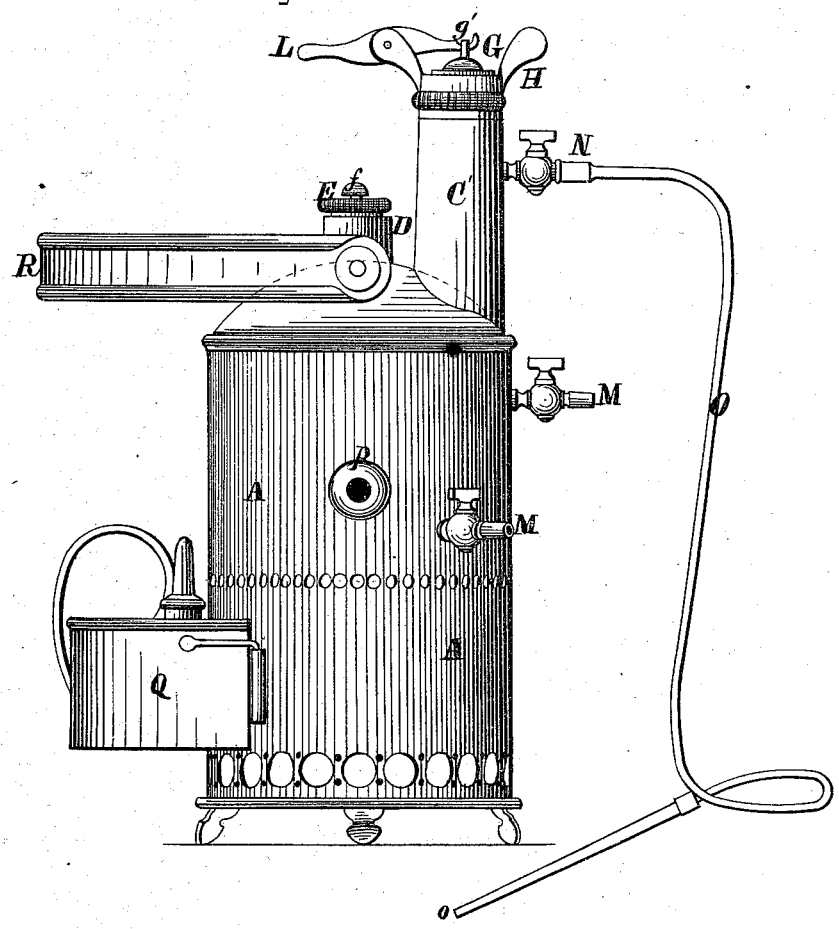
2 Sheets--Sheet 1.

W. T. TONGUE.

Insect-Destroyer.

No. 162,716. Patented April 27, 1875.

Fig. 1.



WITNESSES.

Jas. E. Hutchinson

John R. Young

INVENTOR.

William T. Tongue, by

Dindle and Co., his attys

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

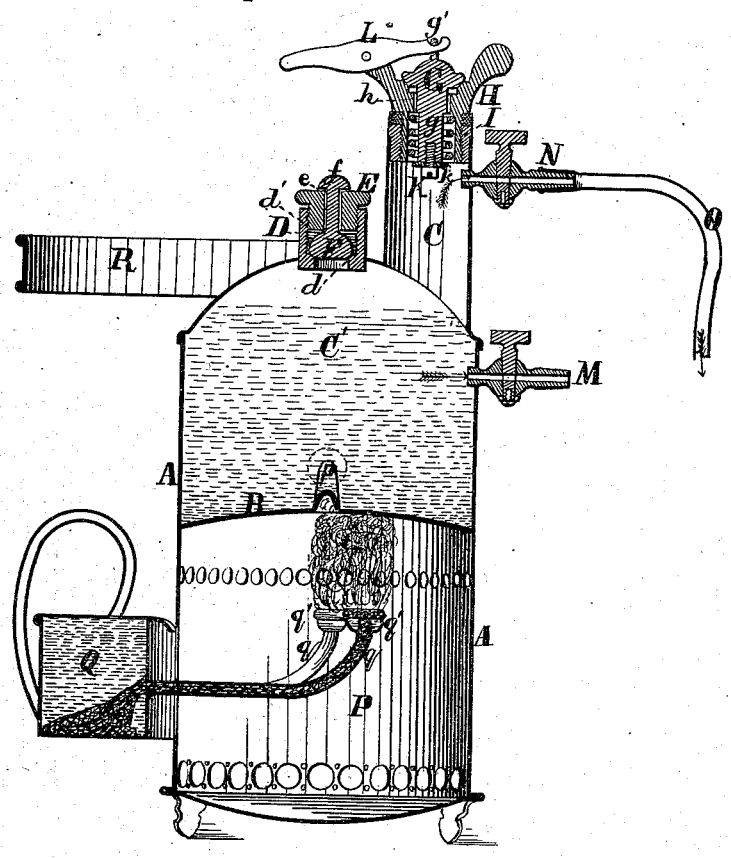
2 Sheets--Sheet 2.

W. T. TONGUE.

Insect-Destroyer.

No. 162,716. Patented April 27, 1875.

Fig. 2.



WITNESSES=

Jas. E. Hodkinson

John R. Young

INVENTOR.

William T. Tongue, by

Prindle and Co. his Attys

UNITED STATES PATENT OFFICE.

WILLIAM T. TONGUE, OF LIVERPOOL, ENGLAND.

IMPROVEMENT IN INSECT-DESTROYERS.

Specification forming part of Letters Patent No. **162,716**, dated April 27, 1875; application filed November 11, 1874.

To all whom it may concern:

Be it known that I, WILLIAM THOMAS TONGUE, of Liverpool, in the county of Lancaster, England, have invented certain new and useful Improvements in Insect-Destroyers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a side elevation of my improved apparatus as arranged for use, and Fig. 2 is a vertical central section of the same.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to produce a simple, convenient, and effective means whereby roaches, ants, bugs, and other like vermin may be destroyed; and to this end it consists in the construction and combination of parts which form my improved apparatus, substantially as and for the purpose hereinafter specified.

In the annexed drawings, A represents a cylindrical casing or shell, constructed of sheet metal, and divided vertically by means of a horizontal partition, B. The upper end of the shell A has, preferably, a dome shape, and from one side of the same extends upward a cylindrical chamber, C, which is inclosed at its upper end by means of a safety-valve, hereinafter described, and at its lower end communicates with the chamber C′ that is formed within the upper portion of said shell, which latter chamber is intended for the reception of water. At the upper end of the chamber C′ is provided an opening for the admission thereto of water, which opening is surrounded by a curb, D, that at its lower end and inner side is provided with a valve-seat, *d*, and above the latter has formed upon its inner face a screw-thread, *d′*. A screw-cap, E, is loosely fitted into the interior of the curb D, and at its center is provided with an opening, *e*, which receives and contains the stem *f* of a valve, F, which latter corresponds to and, when in place, bears upon the seat *d*. For convenience, and to prevent separation from the cap E, the upper end of the stem *f* is enlarged by heading down, while the upper side of the valve F is made semi-spherical, so as to have a bearing at its center only against the lower side of said cap. As thus arranged, it will be seen that by screwing down the cap E the valve F will be pressed upon its seat, and at the same time adapt itself thereto, as the stem *f* has sufficient play within the opening *e* to give to said valve considerable freedom of motion laterally, and also to prevent the rotary movement of said cap from being communicated to said valve. The safety-valve G has the form shown in Fig. 2, and fits into a screw-plug, H, which, in turn, fits into the threaded upper end of the chamber C. At a point just above the vertical center of the plug H its opening *h* is enlarged somewhat, and the contiguous portion of the spindle *g* of the valve G correspondingly reduced, and within the annular recess thus formed is placed a spiral spring, I, which is held in place by means of a washer, *k*, and screw K, upon the lower end of said spindle. As thus arranged, the spring I, bearing upon the upper end of the recess within the plug H, and against the washer *k*, presses the valve G down upon its seat, the degree of such pressure being determined by the strength of said spring. In order that the safety-valve may be raised when desired, an eye, *g′*, is formed at its upper end, and within the same is contained one end of a lever, L, that is pivoted to or upon one side of the plug H. If, now, the outer end of the lever L is depressed, its inner end and the lever will be correspondingly raised. Suitable gage-cocks M and M are placed within the side of the chamber C′, for the purpose of determining the height of water in the same, and a steam-cock, N, is fitted to the upper portion of the steam-chamber C, for the purpose of supplying steam to a flexible pipe, O, which latter terminates in a small metal nozzle, *o*. The lower portion of the casing A forms a combustion-chamber, P, which is inclosed at its lower end, and at its upper end is provided with two tubes, *p* and *p*, that extend laterally outward and upward, and, passing through the water-chamber C′, terminate at the outer sides of the casing, and form flues for the escape of the gaseous products of combustion. A series of small openings through the casing A, at the upper and the lower ends of the combustion-chamber P, enables air to pass

freely inward for the purpose of combustion. Heat is supplied by means of a lamp, which, as seen in Fig. 2, consists of a reservoir, Q, that is attached to or upon one side of the casing A, and is provided with two or more wick-tubes, *q* and *q*, which extend inward and upward, and at their upper ends are each provided with a suitable burner, *q'*, the style of said burner being varied in order to adapt the lamp to the use of alcohol or of hydrocarbon oils. A bail, R, attached to the upper end of the casing, for use in carrying the same, completes the apparatus, the operation of which is as follows:

Water is supplied to the boiler, and the lamp lighted and placed in position. After steam has been generated, the cock N is opened, so as to permit such steam to pass outward through the nozzle *o*, which latter is then placed within or near cracks or other places which afford a refuge for vermin, and the steam caused to penetrate every portion of the same until said vermin are entirely destroyed.

It will be seen that the penetrative force of the steam will enable it to be used for the destruction of vermin in places where no liquid or powder could be employed, and that the heat of said steam will be sufficient to cause destruction to any form of life. In addition to these advantages, steam is cleanly, and will not in any manner soil or injure clothing, carpets, or furniture.

The apparatus described is simple, compact, easily used, and renders the ordinary tedious and unpleasant operation of destroying vermin pleasant and expeditious.

Some of the features of this apparatus were patented to me in Great Britain upon the 20th day of December, 1871.

I am aware of Patents No. 71,486, issued November 26, 1867, and No. 74,165, issued February 4, 1868, and do not claim the features therein shown. I also disclaim the common and well-known forms of steam-generators.

Having thus fully set forth the nature and merits of this invention, what I claim as new is—

As an improvement in means for destroying insects by steam, the hereinbefore-described apparatus, consisting of the casing A, containing the water-chamber C', steam-chamber C, combustion-chamber P, and flues *p* and *p*, the safety-valve G *g*, the steam-cock N, and the discharge pipe and nozzle O *o*, all constructed and combined to operate in the manner and for the purpose substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of October, 1874.

WILLIAM THOMAS TONGUE.

Witnesses:
EDMUND WRIGHT,
J. BRAME.