FRENCH & WAGSTAFF.

Insect-Destroyer.

No. 12,056. Patented Dec. 12, 1854.

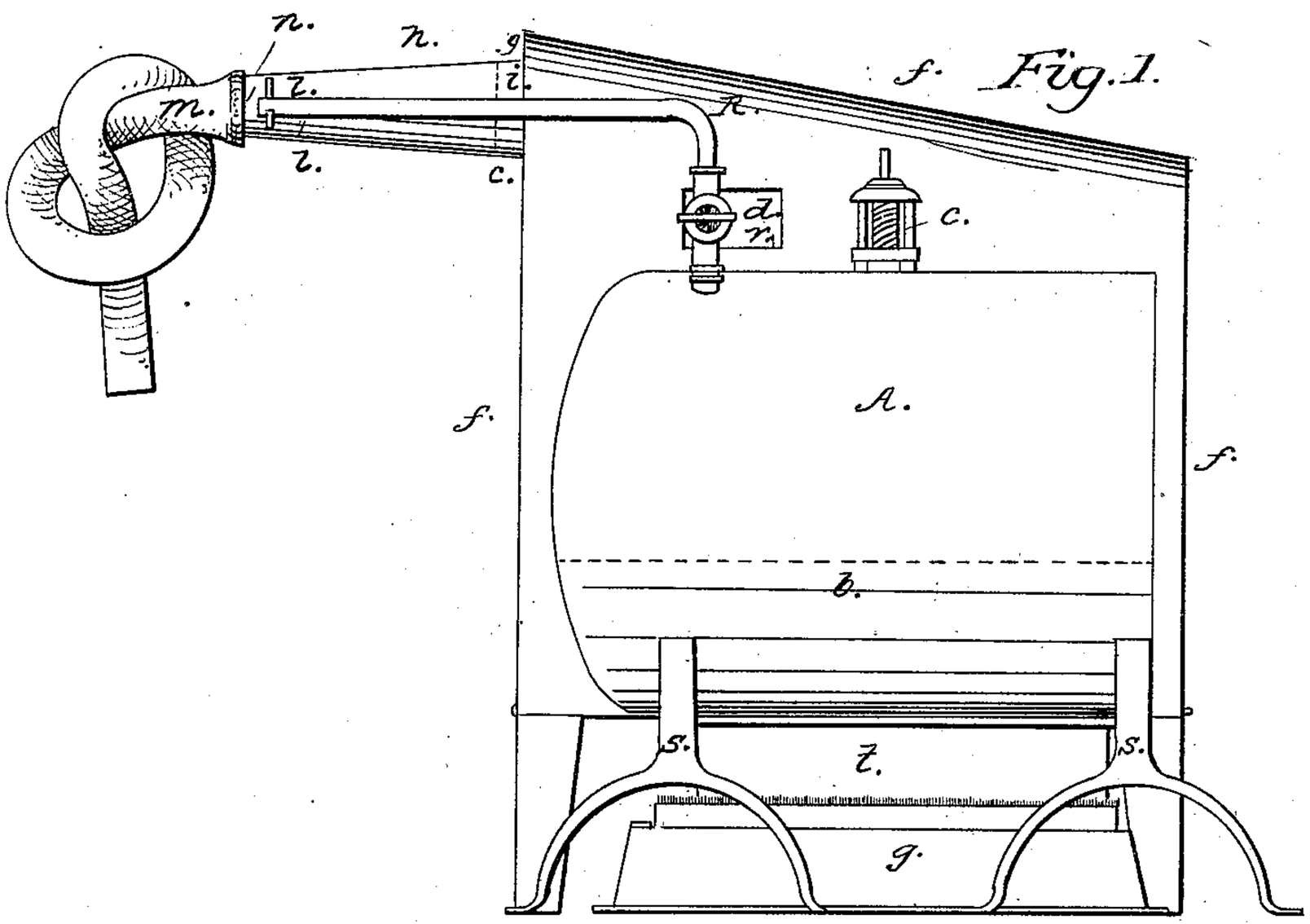

Fig. 1.

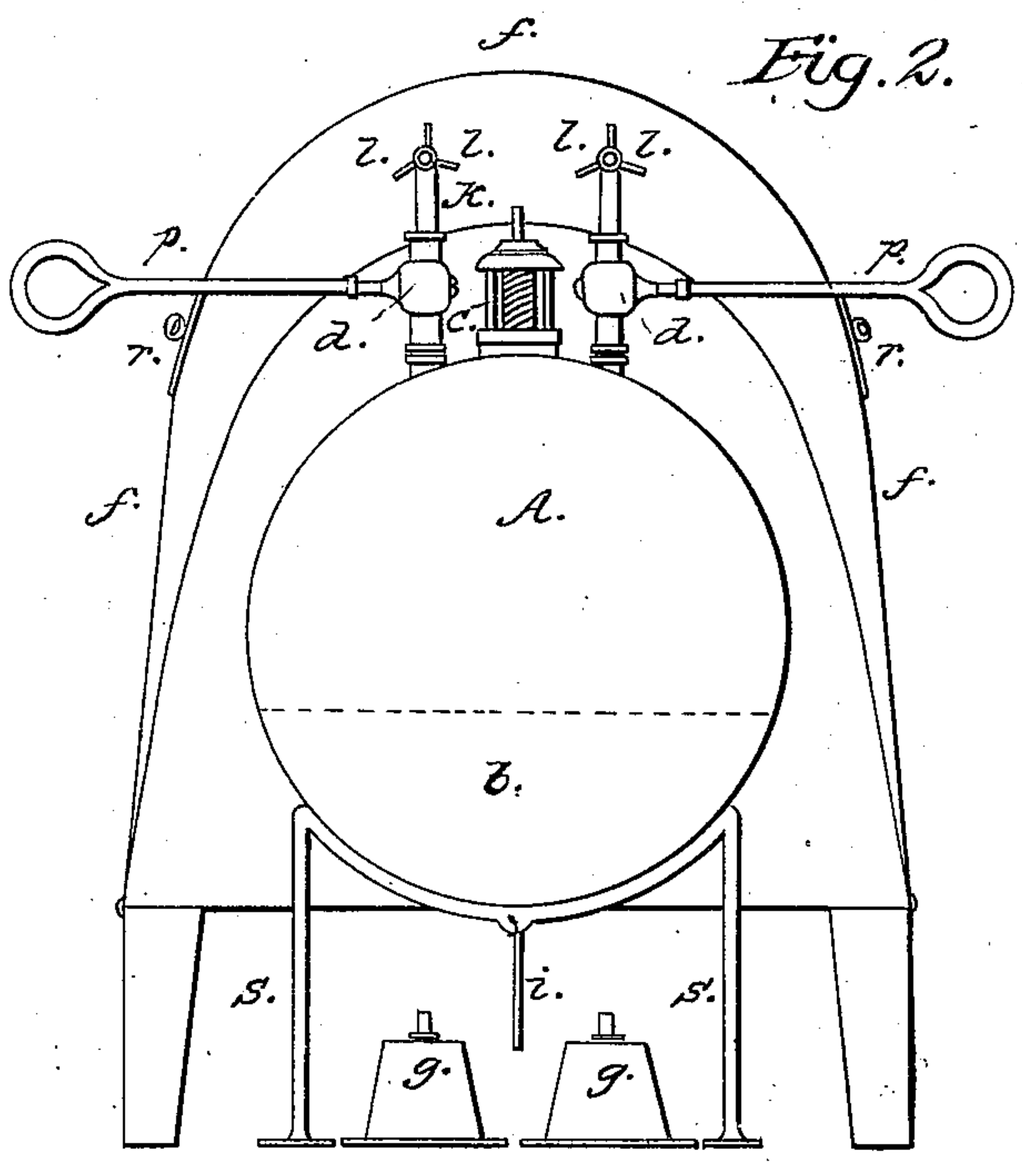

Fig. 2.

UNITED STATES PATENT OFFICE.

G. W. FRENCH AND WILLIAM WAGSTAFF, OF CAMBRIDGE, MASSACHUSETTS.

METHOD OF DESTROYING VERMIN.

Specification of Letters Patent No. 12,056, dated December 12, 1854.

To all whom it may concern:

Be it known that we, GEORGE WASHINGTON FRENCH and WILLIAM WAGSTAFF, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and Improved Method of Destroying Insects in Furniture, Carpets, Furs, Cloths, and Fruit Trees; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

It is well known that insects may be destroyed by heat. It has been the practice where upholstered furniture was to be freed of insects to remove the fabrics and stuffing from the frames, and subject them to a temperature which if applied to the woodwork would be injurious.

The undersigned have found that heat applied to insects in the larva state, by a peculiar process which they have devised, will destroy them at a comparatively low temperature without injury to the most delicate fabrics, without the necessity of separating the fabrics and stuffing from the frames, without removal from dwellings and in a very short time.

The following description will give an idea of the methods employed. A plain copper boiler of from three to six gallons capacity, having two stop-cocks and a safety valve, is partly filled with water. This boiler is placed on supports over alcohol lamps having continuous straight wicks so as to bring a large amount of flame under the boiler at once. Over the boiler coming down to the level of the lamps is a sheet iron hood leaving an interval of two inches on each side and an inch at either end from three to four inches on the top. The top of the hood is inclined upward toward the end over the cocks. Near the top at this end are two short conical tubes to which are secured, two other conical tubes of about six inches in length, connected with vulcanized rubber hose of from four to six feet in length. In the center of each tube at the junction of the hose, is a tube communicating with the boiler through the stop-cocks before mentioned. When either cocks is opened a jet of steam issues into the hose in connection, and carries forward with it the heated air which is supplied from the hood, thus forcing the mixture of heated air and steam through the hose. The heated air may be derived from any other source, as, for example, from a separate chamber.

The current of mixed air and steam by making an opening in the bottom of a chair or sofa, and introducing the end of the hose, may be made to heat the interior in a very short time, to a temperature much above that at which the larvæ are effectually destroyed. The heated air alone, might injure the hair stuffing. The steam alone would leave the articles moist and would possibly do injury to certain fabrics. The mixture of the two is thoroughly effective in the destruction of the larvæ, and the small amount of vapor is spontaneously expelled.

For stuffed backs of sofas and easy chairs the current of heated air and steam will be introduced into the backs and sides as well as the bottom. The two sections of hose serve to expedite the process.

Furs, woolens, garments, drapery, &c. may be suspended in a portable tent or chamber and a jet of mixed heated air and steam discharged into the inclosed space. A temperature of 120° Fah. having been attained in all parts of the chamber, the larvæ will all have been destroyed.

Larvæ on fruit trees may be destroyed by directing a jet of mixed heated air and steam for a moment on their nests.

The following description with the aid of the accompanying diagrams will enable any copper-smith to make the apparatus, and in connection with the foregoing enable any upholsterer or cabinet maker to employ the process.

Figure 1 is a side view and Fig. 2 an end view of the apparatus, the hood being in section.

A is the boiler; *b*, the water; *c*, a spring safety valve; *d d*, cocks through which steam passes into fixed tubes *k k* and thence through the aperture *n* into the hose *m m*.

l l l are short pieces of brass wire soldered to the sides of the tubes *k k* to confine them to the center of the metallic conical tube *h*.

i i is the short section of tube to which the conical tube *h* is secured by the pin *o o*.

f f f f is the hood.

r r are small doors through which the long handles *p p* are introduced for working the cocks from without.

g g are lamps with long flat wicks.

s s are iron stands for the support of the boiler.

t is a movable sheet iron plate resting on the centers of the stands, and designed to separate and aid the two flames.

We disclaim the employment of heated air alone, or of a jet of steam from a boiler under pressure; but

What we claim as our invention and desire to secure by Letters Patent of the United States, is,

The use of a current of steam issuing from a boiler under high pressure, in such manner as to mix with a current of heated air, and to drive the mixture forcibly forward in a somewhat confined state until it comes in contact with furniture fabrics &c. in order rapidly to heat the surfaces and crevices for the purpose of destroying vermin, without injury to either cabinet ware, woolen or other fabrics, substantially as set forth.

G. W. FRENCH.
W. WAGSTAFF.

Witnesses:
G. M. OSGOOD,
J. B. DANA.