

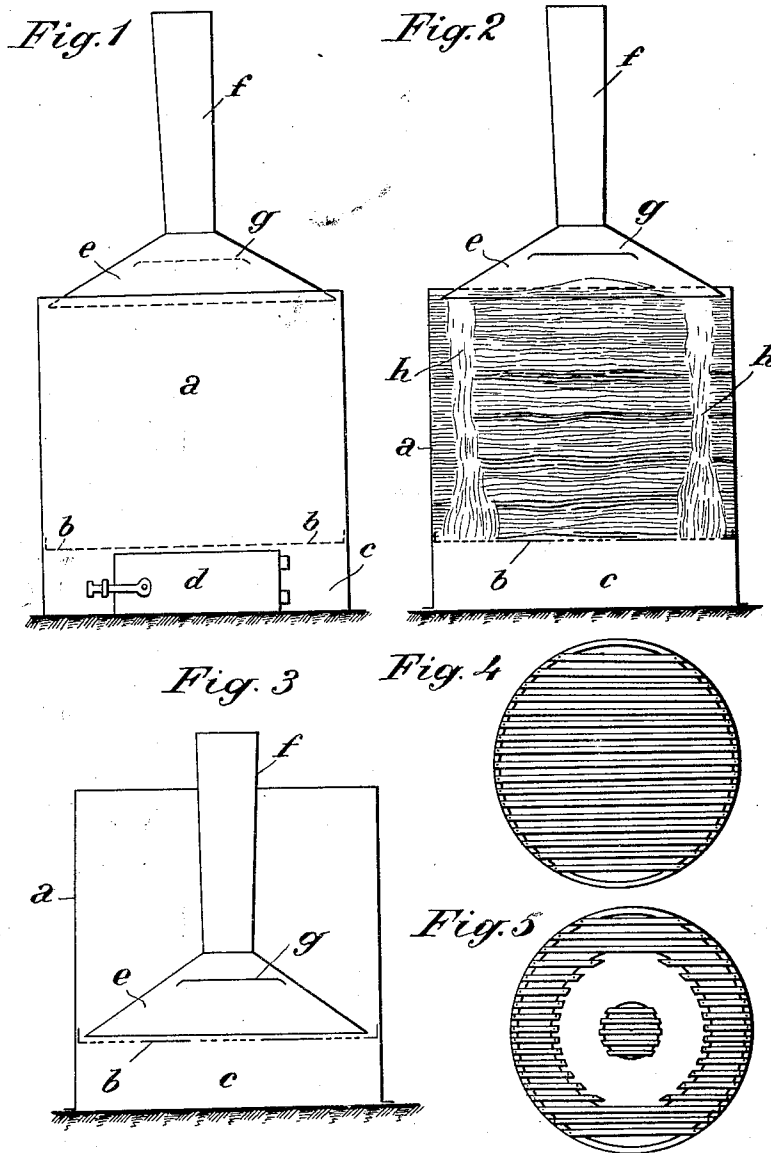
Feb. 7, 1928.

1,658,136

U. NARDONE

SMOKE GENERATING FURNACE

Filed Dec. 20, 1926



UGO NARDONE
INVENTOR

By *Ugo Nardone*
his ATT'Y.

UNITED STATES PATENT OFFICE.

UGO NARDONE, OF FONDI, CASERTA, ITALY.

SMOKE-GENERATING FURNACE.

Application filed December 20, 1926, Serial No. 155,851, and in Italy January 12, 1926.

The object of my present invention is to provide a smoke generating oven or furnace for agricultural purposes the draught of which is automatically varied so as to have a constant generation of smoke without variation of air admission or combustion gas outlet apertures.

I am aware that a device is known for controlling air admission in furnaces which comprises a member bearing or, in a manner, floating on the fuel piled in the furnace, and so connected by rods to the damper in the funnel that on decrease of fuel pile also the air admission is decreased.

Differently from the said known device my invention provides a stack bearing top cover slidable along the walls of furnace without varying the air admission and outlet apertures, the said stack bearing cover always resting on the fuel pile as the latter is lowered by combustion, thus rendering the varying of air admission and of smoke outlet unnecessary.

The smoke generated by my improved furnace may be used for forming clouds to protect vegetation against hoar-frost, insects or parasites.

One form of my invention is shown by way of example in the annexed drawings in which

Figs. 1 and 2 are respectively an elevation and sectional view of furnace with stack bearing cover in raised position,

Fig. 3 the same in lowered position,

Fig. 4 the grate and

Fig. 5 a modified form of grate.

My said smoke generating furnace comprises combustion chamber *a*, grate *b*, ash-pit *c*, door *d*, cover *e*, stack *f* and partial closure disk or damper *g* for bottom opening of funnel.

When used on the fields the furnace is placed with its ash-pit side on the ground previously levelled or smoothed. If a greater or lesser quantity of smoke or duration of smoke generation is warranted, the feeding of the furnace is varied according to the admission of air necessary for different kinds of fuel. If only a small quantity of smoke is wanted, the furnace is charged with straw or other suitable smoke gener-

ating fuel material in loosely compressed layers piled on grate *b* (Fig. 4) provided with air passage holes throughout its surface, the upper layers being wetted with water, whereupon the movable cover *e* with its stack *f* is placed on the fuel pile. If, on the other hand, a large quantity of smoke is wanted, a grate with limited air passages (Fig. 5) is used on which the fuel is closely packed, leaving however passages *h* through the whole height of fuel pile which start from the circumference of the grate and discharge at the inner rim of cover *e* (Fig. 2). Number and diameter of passages *h* are variable according to the duration of smoke generation desired and the kind of fuel burnt as the latter, according to its nature requires different quantities of air. Again, the upper layers of fuel are wetted with water and closely compressed, whereupon the cover *e* with its stack *f* is placed on the fuel heap which according to the desired development of combustion may be domelike or flat.

In order to start my smoke generating furnace a suitable quantity of oil impregnated rags is placed in the ash-pit which are to burn for say two or three minutes. The straw on and over the grate *b* begins then to smoulder and discharge smoke through the funnel.

As combustion takes place from down upwards, the upper layers of straw, as the lower ones are reduced to ashes, sink gradually down with the cover and stack placed upon them. As the cover during the whole combustion weighs on the straw heap the height of draught in the furnace, of course, is diminished as the fuel heap decreases, and consequently during the whole of the operation the conditions of draught proportional to the fuel used, and the desired combustion remains unaltered.

By partially closing the dampers of ash-pit and funnel bottom the quantity of smoke and time of generation may at any time be varied at will.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be used I declare that what I claim is:

In a smoke generating furnace of the

character described, a combustion chamber,
a cover to rest on the fuel pile and vertically
movable in the chamber as the fuel burns,
a stack for the cover, a fire grate disposed in
5 the lower part of the chamber and provided
with air passages starting from the periph-
ery of the grate and discharging under the

inner rim of the cover, and a damping disc
arranged on the cover to partially close the
opening into the funnel.

In testimony whereof I have hereunto
signed my name.

10

UGO NARDONE.