

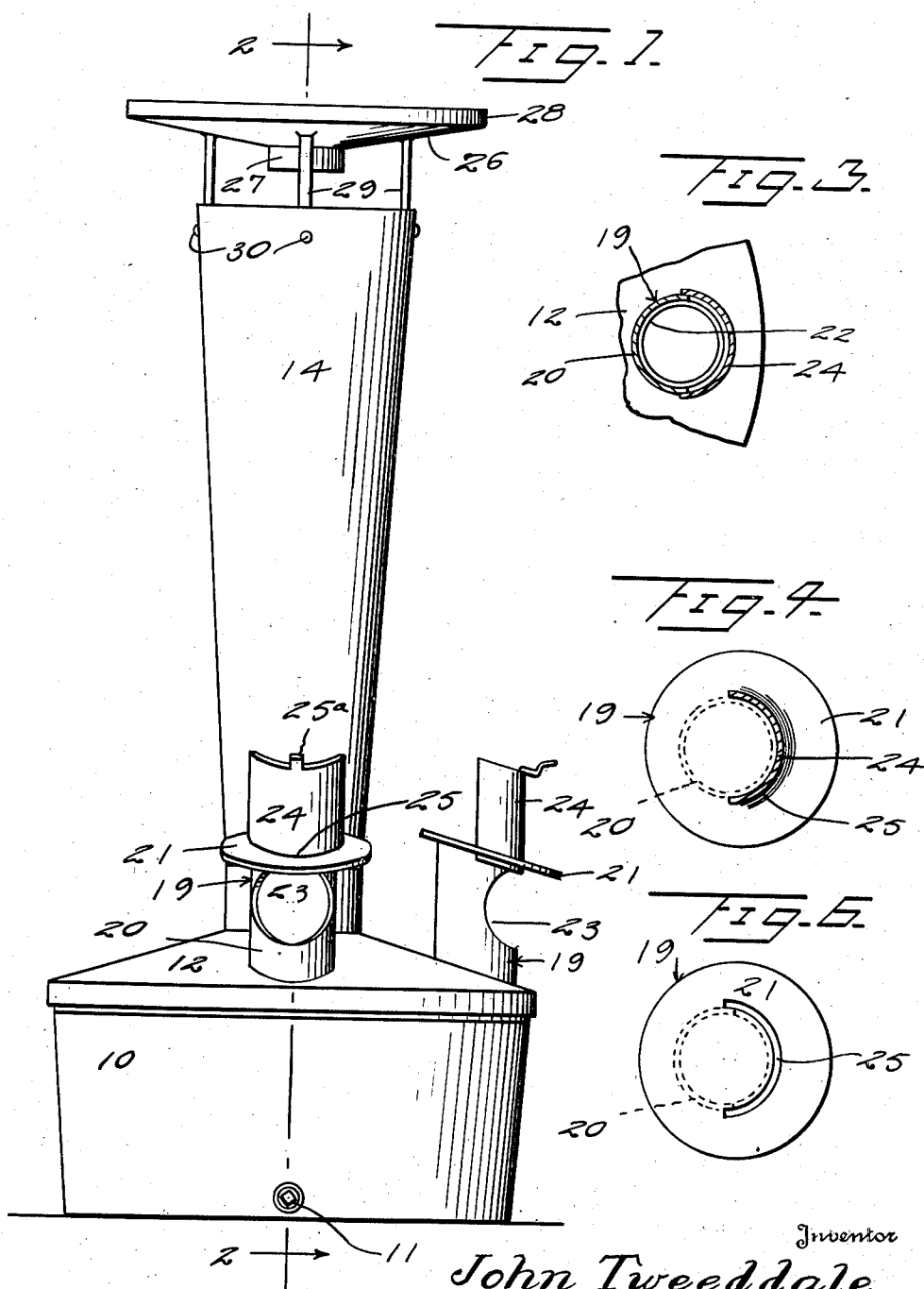
July 3, 1945.

J. TWEEDDALE
OIL SMOKE GENERATOR

2,379,766

Filed July 8, 1942

2 Sheets-Sheet 1



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UNITED STATES PATENT OFFICE

2,379,766

OIL SMOKE GENERATOR

John Tweeddale, Torrance, Calif.

Application July 8, 1942, Serial No. 450,165

1 Claim. (Cl. 158—91)

This invention relates to an oil smoke generator designed to provide maximum smoke for smoke-screen purposes in warfare, to combat frost in citrus fruit grooves or the like.

It is especially aimed to provide a generator or smoke producer wherein maximum production of smoke from oil is realized, wherein the smoke will ascend without movement toward the center of the apparatus, wherein anti-flare or blackout shield means are provided, wherein draft regulation is afforded and wherein the parts may be separated to occupy minimum space in storage or transportation.

The more specific objects and advantages of the invention will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:

Figure 1 is a view in side elevation of the apparatus;

Figure 2 is a vertical sectional view on an enlarged scale, partly broken away, taken on the plane of line 2—2 of Figure 1;

Figure 3 is a horizontal section taken on the line 3—3 of Figure 2;

Figure 4 is a horizontal section taken on the line 4—4 of Figure 2;

Figure 5 is an inverted plan view of the anti-flare or blackout shield;

Figure 6 is a plan view of the downdraft anti-flare shield;

Figure 7 is a cross section taken on the line 7—7 of Figure 2.

Referring specifically to the drawings wherein like reference characters designate like or similar parts, 10 designates a reservoir for oil which may be supplied through an opening closed by a screw plug 11. The side wall of reservoir 10 preferably inclines outwardly at a slight angle in upward direction and at the upper edge thereof a convex cover 12 is secured, the same having a return flange or head 13 at its lower edge.

A smoke emitting stack 14 of tubular form and tapered with its smaller end lowermost is detachably and frictionally engaged over an upwardly flaring collar 15 provided centrally of the cover 12.

A downdraft tube 16 is disposed within reservoir 10, being secured at 17 to the cover 12. Such tube is tapered with its smaller end lowermost and open and such tube has longitudinally extending openings 18 provided therein communicating with the interior of the reservoir 10, in order to supply air for combustion of the oil in

the reservoir. The oil and air mixture in the reservoir, may be ignited in any suitable way, for instance by a standard model torch or by the remote control electrical device disclosed in my co-pending application, Serial No. 341,549.

An anti-flare shield 19 consisting of a conduit or tube 20 and an inclined top 21, is frictionally and detachably telescoped over an extension or collar 22, formed at the upper end of the downdraft tube 16 and extending above the cover. An air inlet opening 23 is provided in the shield at the duct 20 and such opening may be entirely closed or partially closed to regulate inlet of air, by manipulation of a vertically slidable plate or closure 24, preferably of arcuate form, engaged in an arcuate slot 25 of the top 21, it being clear that the sliding fit of the closure 24 in slot 25 is such that sufficient friction exists between the top and the closure to hold the latter in different adjusted positions. A handle 25^a may be provided on the closure. It will also be noted that the top 21 is preferably relatively large and extends outwardly around the conduit or tube 20, for anti-flare and blackout purposes.

Over the stack 14, I provide an anti-flare or blackout shield 26 whose main wall is convex at the lower surface. Extending from such surface, is a central ring or flange 27 and marginally of the main wall of shield 26, a flange 28 extends upwardly. A series of legs 29 depend from the shield and are bolted as at 30 to the upper end of the stack, to secure the shield at any desired distance from the outlet of the stack, usually four inches or more.

I have found that maximum production of smoke cannot be obtained from the combustion of oil with a generator unless all of the parts of the latter are properly designed in proportion to each other and which proportions are only ascertained through much experiment and use. Unless such proportions are proper the color and weight of the smoke produced by the generator will not be satisfactory for screening purposes, nor will its volume be sufficient to make the device practical because a considerable part of the smoke will be consumed by flame at the base of the stack. The proportions used in the instant device enable it to produce a larger volume of smoke than any device of its nature heretofore constructed. The present generator has been actually built and operated and I prefer to build it with the base of the reservoir twenty-three and one-quarter inches in diameter. The size and proportion of all other parts can be figured from such dimensions. I have found that the fuel in

the reservoir will ignite instantly and will burn without attention until exhausted.

The concave shape of the shield 26 is important. The rim 28 causes the smoke to ascend vertically marginally of the shield rather than to curve over the shield and toward the center and reduce the diameter of the column of produced smoke. The ring 27 acts as a draft regulator in conjunction with the convex curve of the shield and is instrumental in increasing the smoke output by preventing the wind from carrying it away from the stack top horizontally.

It will be realized that the closure 24 when moved to closed position will exclude air and serve to extinguish the flame to stop the burning of the oil.

As stated, various parts of the invention may be separated to occupy minimum space in shipment or storage.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

5 A device of the class described having a reservoir and a stack leading therefrom, a cover on the reservoir, a downdraft tube on the cover extending into the reservoir, an anti-flare shield coacting with the inlet of said downdraft tube and provided with an inlet opening, said shield comprising a conduit, and the downdraft tube 10 having an upward extension forming a collar telescopically engaged by the conduit, a top on said conduit relatively large with respect thereto for blackout and anti-flare purposes, said top 15 having a slot therein, and a closure movably mounted in said slot and slidable across said opening.

JOHN TWEEDDALE.