No. 673,180. Patented Apr. 30, 1901.

H. G. TASSELL.

VAPORIZING DEVICE FOR EXPLOSIVE ENGINES.

(Application filed Dec. 4, 1900.)

(No Model.)

Fig. I

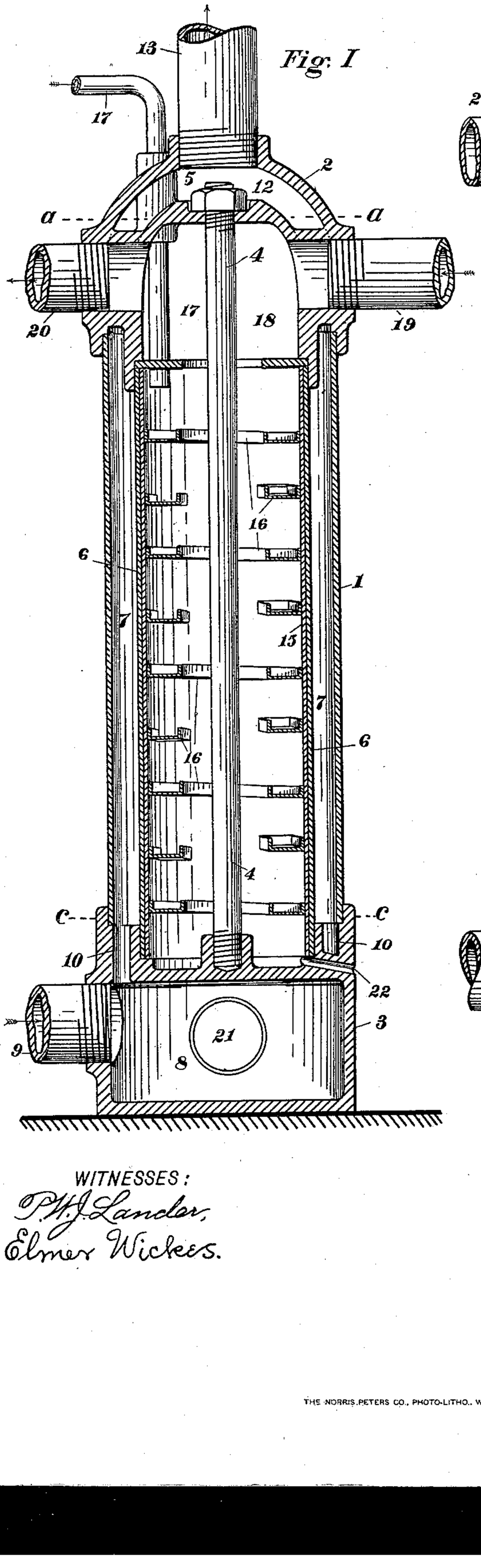


Fig. II

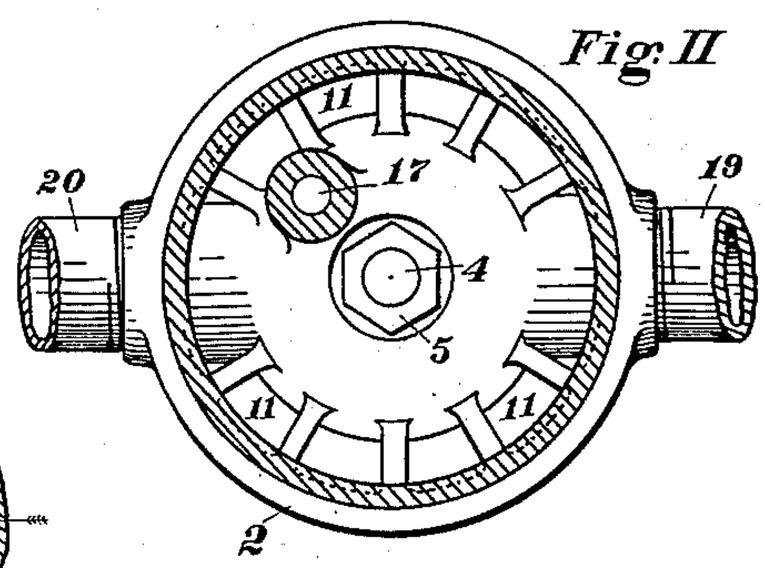


Fig. III

Fig. IV

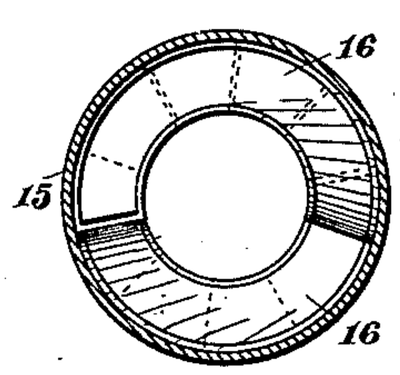
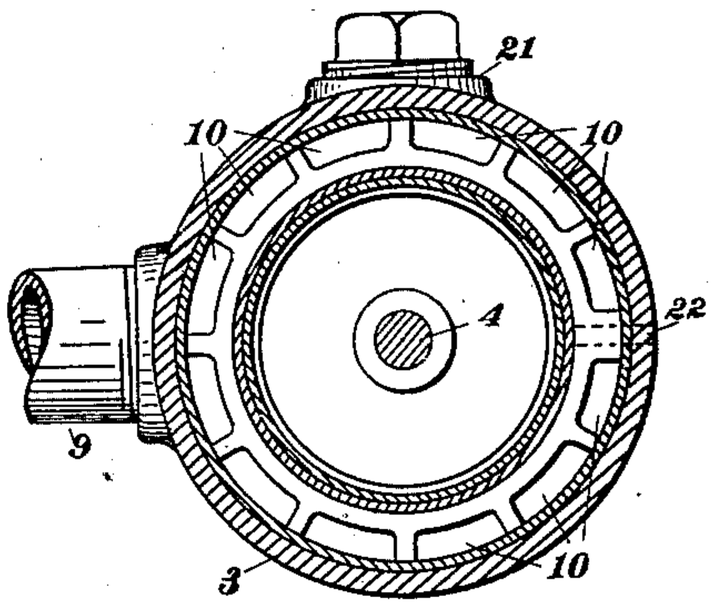


Fig. V



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UNITED STATES PATENT OFFICE.

HENRY G. TASSELL, OF SAN FRANCISCO, CALIFORNIA.

VAPORIZING DEVICE FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 673,180, dated April 30, 1901.

Application filed December 4, 1900. Serial No. 38,694. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. TASSELL, a citizen of the United States of America, residing at San Francisco, county of San Francisco, and State of California, have invented certain new and useful Improvements in Volatilizing Apparatus; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to apparatus for volatilizing carbon oils, especially for use in connection with gas-engines, and to certain improvements in such apparatus.

My improvements consist of a main containing-chamber and a concentrically-placed vaporizing-chamber within, forming an annulus through which the hot waste gases pass, the inner chamber containing a series of diffusing-troughs, helically inclined and acting successively to diffuse the hydrocarbon oil, and various other features of a novel nature, hereinafter particularly described by the aid of drawings that form a part of this specification.

The object of my invention is to provide devices whereby hydrocarbon oil is effectually volatilized or converted to vapor of simple construction and effective for the purpose.

Referring to the drawings herewith, Figure I is a central vertical section through a volatilizing apparatus for hydrocarbon oils constructed according to my invention. Fig. II is a cross-section on the line *a a* in Fig. I. Fig. III is an edge view of one of the diffusing-troughs detached. Fig. IV is a plan view of Fig. III, showing also the inner lining, to which these troughs are attached. Fig. V is a transverse section through Fig. I on the line *c c* in Fig. I.

The outer or main shell 1 I make, preferably, of a section of wrought-iron tube, inserted at the top and bottom into the chambers 2 and 3 and held therein by a central rod 4, having a screw-nut 5 at the top, as shown in Fig. I. The inner tube 6, forming the chamber, is similarly inserted at the top and bottom in the chambers 2 and 3 and is also held by the rod 4, leaving an annulus 7 between the two tubes 1 and 6, through which the hot waste gases from a gas-engine are conducted. The hot waste gases from an engine being supplied by the apparatus enter the compartment 8 of the chamber 3 through a pipe 9, pass up through the apertures 10 into the annulus 7, around the tube 6, and out at the top through the apertures 11 in the chamber 2 (seen in Fig. II) into the compartment 12, and from there through a waste-pipe 13 to the open air.

Within the inner tube 6 is loosely inserted a removable lining 15, made of thin sheet metal, to the interior of which is attached a series of open flat troughs 16, closed at one end and set helically and successively with a slope, each trough overlapping the next, as indicated in Fig. IV. Oil enters through a pipe 17, falls into the first or highest trough 16, spreads out over its bottom, and flows around to the open end of this trough and falls into the next one, and so on down to the last one, being exposed in a thin film to the action of the heat from the annulus 7. The vapor thus formed rises within the troughs 16, around the rod 4, and into the compartment 18 in the top chamber 2, where it mingles with a regulated amount of air entering by a pipe 19 and then passes to the engine or place of consumption through the pipe 20, as indicated in Fig. I.

At starting and before the chamber 7 is heated by the hot waste gases from an engine some kind of fuel, such as fibrous material saturated with oil, is inserted in the chamber 8 through an aperture, as at 21, and ignited. This provides gas for starting an engine, after which the action is automatic.

In the case of there being any liquid residuum or oil not evaporated this runs off through drain-passage 22, to be again passed through the apparatus or applied to other purposes.

Having thus explained the nature and objects of my invention and manner of constructing the same, what I claim as new, and desire to secure by Letters Patent, is—

1. In volatilizing apparatus for hydrocarbon oils, the top and bottom chambers provided with grated passages for the passage of hot gases, an outer and an inner tube connecting said chambers, forming an annular space communicating with said passages and

said chambers, and means for supplying oil to the interior of said inner tube, substantially as specified.

2. In volatilizing apparatus for hydrocarbon oils, the top and bottom chambers, an outer and an inner tube connecting the same and forming an annular space for the passage of hot gases, a central rod for detachably holding said parts together, and a passage for oil to the interior of said inner tube, substantially as specified.

3. In volatilizing apparatus for hydrocarbon oils, the top and bottom chambers 2, 3, concentric tubes connecting said chambers and forming an annular space between them for the passage of hot gases, an inlet-pipe for hot gases to chamber 3, an outlet-pipe from chamber 2, an inlet-pipe for oil to the interior of the inner tube, an inlet-passage for air to the interior of said inner tube, an outlet-passage for aerated vapor from said interior of the inner tube, and a series of superimposed overlapping troughs helically arranged in the interior of said inner tube, as and for the purpose specified.

4. In volatilizing apparatus for hydrocarbon oils, top and bottom chambers 2, 3, an outer and an inner tube connecting said chambers, forming an annular space between them for the passage of hot gases, a passage for oil to the interior of the inner tube, a removable lining to said inner tube, and a series of superimposed overlapping troughs helically arranged and secured within said removable lining, as and for the purpose specified.

5. In volatilizing apparatus for hydrocarbon oils, top and bottom chambers 2, 3, concentric tubes 1, 6, connecting said chambers, having an annular space between them for the passage of hot gases, an inlet-passage for hot gases to chamber 3, an outlet-passage for waste gas from chamber 2, an inlet-passage for oil to interior of tube 6, an inlet-passage for air to said interior, an outlet-passage for aerated vapor from said interior, a drain-passage from said interior, and a series of superimposed, sloping, overlapping troughs arranged in said interior, as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY G. TASSELL.

Witnesses:

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ELMER WICKES.