No. 758,902. PATENTED MAY 3, 1904.

F. DICKINSON.

VAPORIZER FOR EXPLOSIVE ENGINES.

APPLICATION FILED JUNE 15, 1903.

NO MODEL.

Fig. 3.

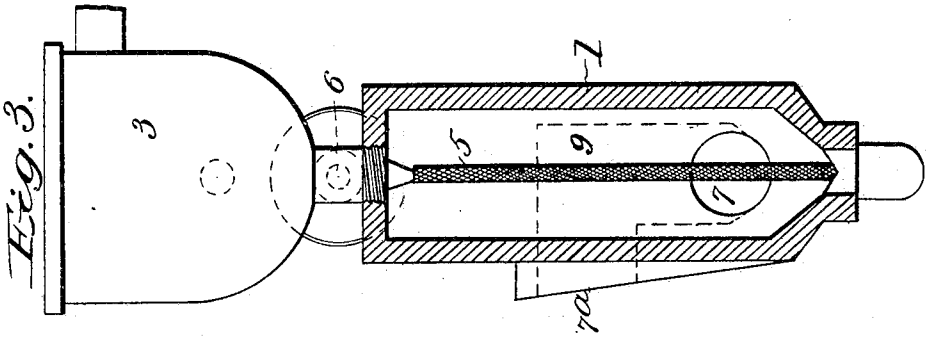


Fig. 2.

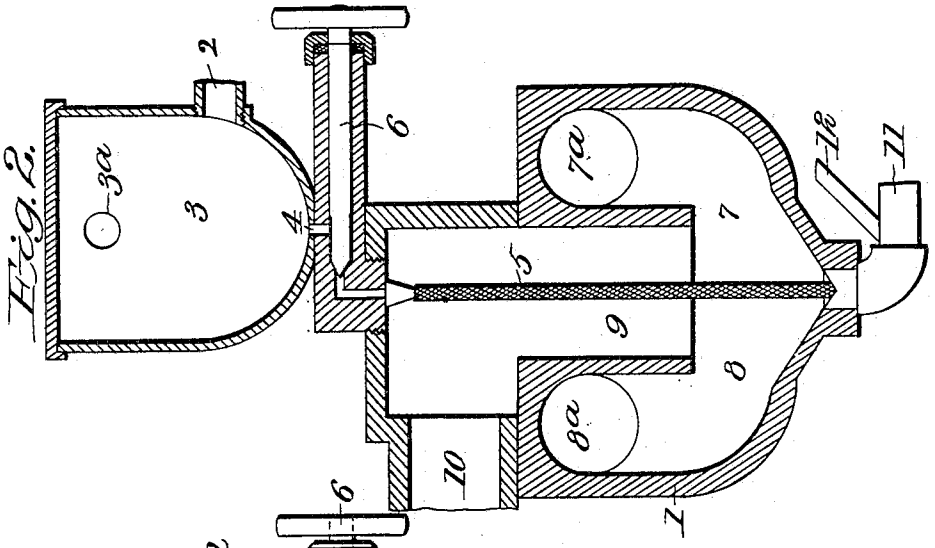
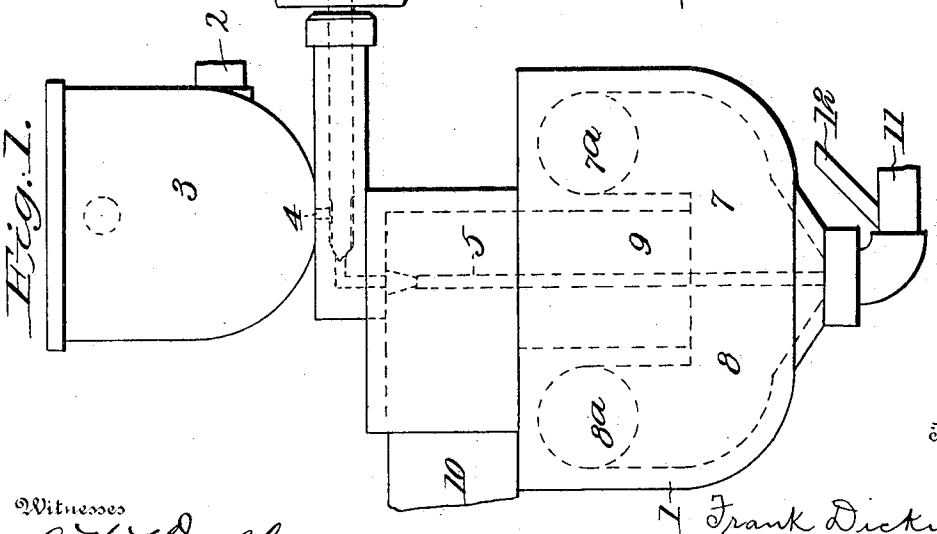


Fig. 1.



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UNITED STATES PATENT OFFICE.

FRANK DICKINSON, OF SPRINGPORT, MICHIGAN.

VAPORIZER FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 758,902, dated May 3, 1904.

Application filed June 15, 1903. Serial No. 161,536. (No model.)

To all whom it may concern:

Be it known that I, FRANK DICKINSON, a citizen of the United States, residing at Springport, in the county of Jackson and State of Michigan, have invented new and useful Improvements in Vaporizers for Explosive-Engines, of which the following is a specification.

This invention is characterized particularly by an improved construction with respect to the air-passages and the currents produced thereby which enter the mixing or vaporizing chamber, and also by a gauze pipe in which the gasolene flows through the vaporizing-chamber. It is desirable that the flow of oil be so controlled that it will not spatter or spill in the vaporizing-chamber or out of the air-inlets thereto, because the feed is thereby varied or made uncertain. This is apt to occur in engines having an open flow of gasolene through the vaporizing-chamber, being caused by the jar of the engine or by the pitching of the engine in marine use. My invention avoids this defect by a continuous flow of a stream of gasolene through a gauze tube in the mixing-chamber, which tube confines the stream therein, and yet permits the gas to be produced and taken up by the draft of air.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the vaporizer. Fig. 2 is a vertical cross-section thereof, and Fig. 3 is a cross-section at right angles to Fig. 2.

Referring specifically to the drawings, the casing of the vaporizer is indicated at 1, having therein a central cylindrical passage 9, which communicates at its upper end with a pipe 10, leading to the inlet-valve of the cylinder. Extending through the middle of this passage is a gauze pipe 5, through which the gasolene flows, and this pipe connects at the bottom of the casing with an overflow-pipe 11, leading back to gasolene-tank. This pipe 11 has an air-vent 12 to prevent back suction.

Opening into opposite sides of the passage 9 are air-pipes 7 and 8 from the air-inlets 7^a and 8^a. The course of these air pipes or passages is down from the inlets, which are located in the side of the casing near the top thereof, to the bottom of the vaporizing-passage 9, through which the current flows upwardly to the pipe 10 under the suction of the engine-piston. The flow of the current of air is thus contrary to that of the gasolene, and the inflowing currents surround the gauze tube on all sides.

At 2 is indicated the supply-pipe for the gasolene leading to a reservoir 3, which has an overflow 3^a, leading back to the tank. From the reservoir the gasolene flows through a passage 4, controlled by the needle-valve 6, to the top of the gauze tube.

The opposite location of the air-inlets into the vaporizing-passage causes the air-currents from the respective inlets to come in opposition at or near the bottom of the passage 9 and to focus into a whirling current, the axis of which is the gauze tube, which gives greater power to break up and vaporize the stream of gasolene. Also the gauze tube permits a continual flow of gasolene through the vaporizing-passage and confines the same, thereby preventing it from spilling into the vaporizer, thus avoiding the objections heretofore indicated. The auxiliary reservoir 3 gives a supply of gasolene at all times, irrespective of the stroke of the pump. The flow of air is not merely across the stream of gasolene, but is along the same in an opposite direction, which is believed to be an important advantage with respect to vaporization. There is little or no tendency to blow the stream out of its course or to spatter it around where it is not wanted, thereby possibly creating an uncertain proportion of gas in the explosive mixture.

Within reasonable limits the gauze tube and the vaporizing-passage may be made of any length desired, according to local conditions.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a vaporizer, the combination with an air-passage, of a gauze oil-pipe extending through the passage.

2. In a vaporizer, the combination with an air-passage, of an oil-pipe extending through

the passage and back to tank, permitting a continual circulation, and having a gauze section in the passage.

3. In a vaporizer, the combination with a perforated oil-pipe through which a stream of oil flows in one direction, of a passage around the pipe, through which a current of air flows in opposite direction.

4. In a vaporizer, the combination with a perforated oil-pipe through which a stream of oil flows in one direction, of a passage around the pipe through which a vortex of air flows in opposite axial direction.

5. In a vaporizer, the combination with a perforated oil-pipe through which a stream of oil flows, of a passage around the pipe having opposite air-inlets at one end and an outlet at the other end, producing a vortex of air through the passage around the pipe.

6. In a vaporizer, the combination with a gauze oil-pipe through which a stream of oil flows in one direction, of a passage around the pipe, having a plurality of air-inlets at one end and an outlet at the other end, through which passage a whirling current of air flows in opposite direction to the oil stream.

7. In a vaporizer, in combination, a casing having a vertical passage therein, a vertical perforated oil-tube extending through the passage, through which tube the oil flows downwardly, air-inlets in the casing opening into the lower end of the passage on opposite sides thereof, and a vapor-outlet from the top of the passage.

8. In a vaporizer, the combination with an oil-pipe having numerous fine perforations therein, and tank connections at each end, permitting a continual circulation, of an air-passage around the pipe.

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

FRANK DICKINSON.

Witnesses:
ANDY M. JOHNSON,
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