(No Model.)

J. A. ALDRIDGE.

APPARATUS FOR VAPORIZING OIL.

No. 469,811. Patented Mar. 1, 1892.

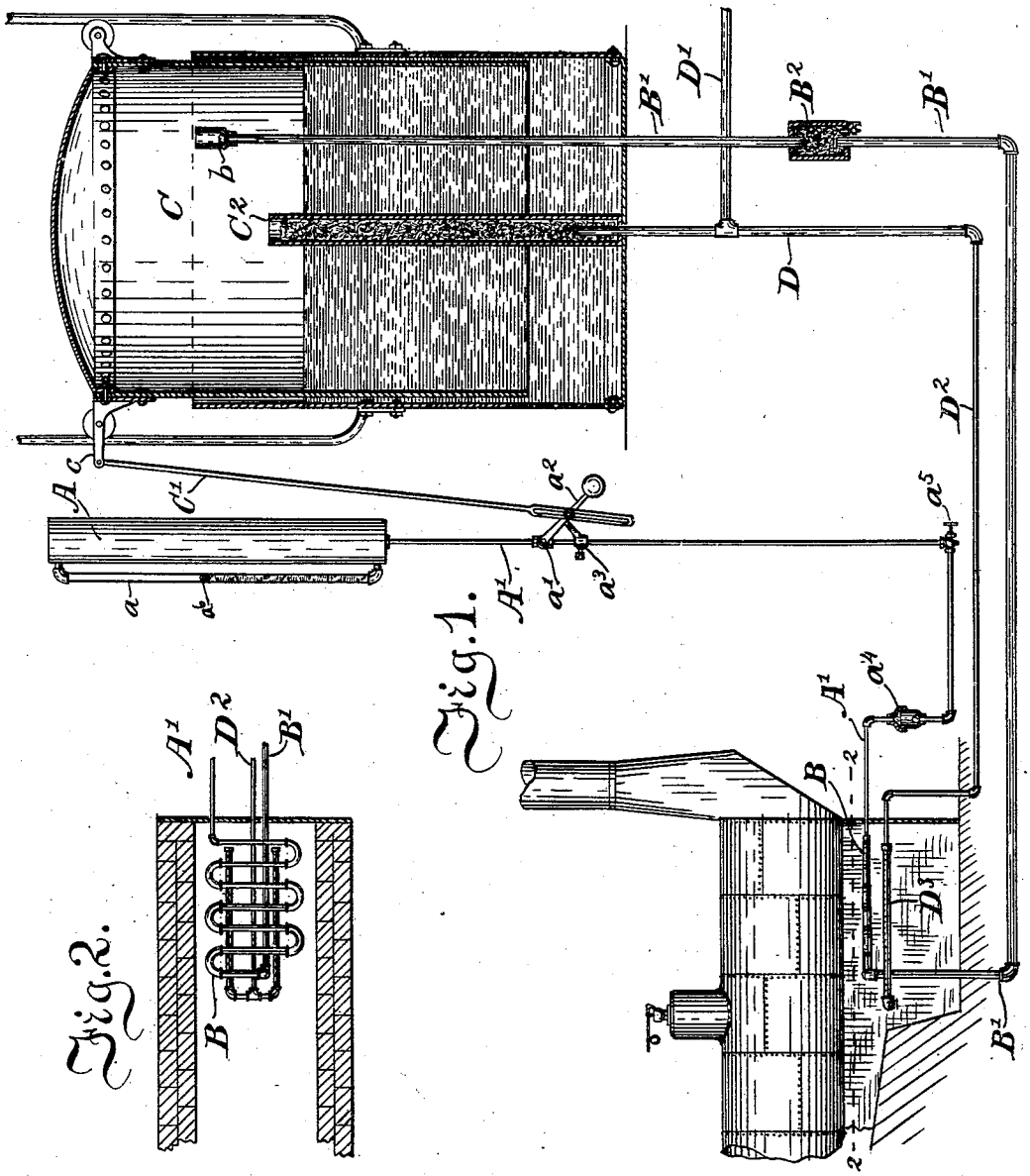

Fig. 1.

Fig. 2.

WITNESSES.

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JOSEPH A. ALDRIDGE, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF THREE-FOURTHS TO DAVID P. STIRK, OF SAME PLACE.

APPARATUS FOR VAPORIZING OIL.

SPECIFICATION forming part of Letters Patent No. 469,811, dated March 1, 1892.

Application filed February 14, 1891. Serial No. 381,441. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. ALDRIDGE, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Apparatus for Vaporizing Oil, of which the following is a specification.

The object of my said invention is to provide an apparatus for vaporizing fluid substances and feeding them to the place or places where they are to be consumed, which shall be self-regulating or automatic in its operation, wherein sufficient material is fed to the vaporizer to produce the amount of gas required by the consumption, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a general view, in elevation, of the apparatus which I employ, certain portions being shown in section to illustrate more clearly the construction and arrangement of parts; and Fig. 2 is a detail section looking downwardly from the dotted line 2 2 in Fig. 1.

In said drawings the portions marked A represent the tank containing the oil or compound from which the vapor is to be manufactured; B, the coil in the furnace, in which said material is reduced to vapor; C, the gasometer, and D the vapor-pipe leading from said gasometer. The tank A is of any desired form adapted to hold a quantity of the liquid which is to be vaporized and is provided on its side with a gage-pipe a, by which the quantity of liquid in the tank can be readily observed, a cork a^6 being preferably placed therein, which floats on the top of the liquid and thus enables the observation to be made more readily. Leading from the bottom of this tank, which is located at an elevation above the furnace, is a pipe A′, which connects with the coil in said furnace wherein the fluid is vaporized. Said pipe is provided with a valve a', having a weighted lever a^2 connected therewith, which normally tends to keep said valve open. A stop a^3 is adjustably mounted on said pipe and arranged so that the lever a^2 will rest thereon when it has reached that position which opens the valve a' to the extent desired for feeding the required quantity of oil to the coil B. A check-valve a^4 is also provided in this pipe between the valve A′ and the coil. It consists of an enlarged portion with a concave seat in its bottom, with a ball mounted therein of a size adapted to fill and close the end of the pipe should there be any back-pressure from the vapor in the coil, thus preventing any gas from backing up into this pipe beyond the valve. A valve a^5 is also provided at the lowest point of the pipe A′, by means of which the pipe may be drained when desired. The coil B is simply a coil of pipe of a size considerably larger than the size of the pipe A′, which connects therewith, the size preferably increasing from the point of connection with said pipe A′ to the opposite end of the coil, as shown, (see Fig. 2,) to allow for the expansion of the vapor as it generates. It is arranged in a horizontal plane directly above the burner of the furnace, as shown. A pipe B′ leads therefrom into the gasometer C, a filter B^2, of a construction similar to that of the filter C^2, being interposed between said coil and said gasometer, through which the vapor passes before passing into the gasometer. Another check-valve b is provided at the discharge end of this pipe within the gasometer, similar in arrangement to the valve a^4 in the pipe A′, except that its top is open and discharges directly into the gasometer instead of into a further extension of the pipe. The gasometer C is similar in construction to many in common use and needs no special description. On the side adjacent to the tank A it is provided with an outwardly-projecting arm c, to which a connecting-rod is joined, which connecting-rod extends down and is connected with the lever a^2 of the valve a'. Said connecting-rod is preferably slotted in its lower end, as shown, to permit a limited vertical movement of the gasometer without operating the valve, as will be presently described. Located centrally within said gasometer is a filter C^2, which consists of a tube extending above the fluid substance in said gasometer and filled with common filtering material. The pipe D is connected to com-

municate with the lower end of the filter C^2 and receives the vapor from the gasometer to be conducted to the place or places where it is to be used. A branch pipe D′ is shown, which may extend to any burner or burners which it is desired to supply, and a branch pipe D^2 is shown, which extends to the burner D^3 in the furnace wherein the vapor is generated. Said burner D^3 may be of any form desired, but preferably consists of two parallel parts or pipes arranged a short distance apart in the same plane and connected at one end by a short imperforate pipe. The branch pipe D^2 also is preferably arranged so that it will pass between these two parts of the burner the entire length thereof before discharging thereto, as shown, thus securing the superheating of the vapor before it reaches the burners.

The operation of my invention is as follows: The tank A being filled with the oil or compound, which may be any suitable or well-known substance, which is to be vaporized, and sufficient vapor being provided in the gasometer to start the fire at the burner D^3, said fire is started and the valve a' is opened, which permits the fluid substance from the tank to flow from the tank into the coil B and there by the action of the heat to be reduced to vapor and fed through the pipe D′ and filter D^2 therein to the gasometer, from whence it is conducted through the pipes D, D′, and D^2 to the points where it is to be consumed and to the burner D^3. The excess of vapor fed to the gasometer from the vaporizer over what is required for use where it is being consumed causes the gasometer to rise, as will be readily understood. When it has been elevated a distance equal to the length of the slot in the lower end of the rod c', said rod operates to lift said lever a^2 and thus gradually close the valve a', or close it to that point where the amount of substance fed to the coil will only be sufficient to supply that quantity of vapor required by the consumption. When the supply coming to the gasometer does not equal that going out, it begins to fall and the valve is again opened, permitting the oil or other substance to flow more freely to the vaporizer and supply vapor in larger quantities to supply the demand. By this arrangement an automatic vapor-supply is provided which is self-regulating and after once put into use requires no attention except to replenish the supply of oil in the tank as it becomes exhausted, the arrangement being such that substantially the necessary quantity of vapor shall at all times be supplied which the consumption from the various points requires.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, in an oil-vaporizer, of the tank A, the pipe A′, leading therefrom to the vaporizer-coil, the valve a' in said pipe A′, arranged to normally open, a rod connecting the stem of said valve with the gasometer, one of which connections is formed to permit a limited movement without operating said valve, the check a^4, also in said pipe A′, the coil B, located in close proximity to the burner and connected with said pipe A′, the gas-pipe B′, leading from said coil to the gasometer, the filter B^2 therein, the gasometer C, the filter C^2 in said gasometer, the gas-pipe D, leading from said filter C^2, the branch pipe D′, leading to points where it is desired to use the gas, the branch pipe D^2, leading to the burner in the furnace, and said furnace, all substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 3d day of February, A. D. 1891.

JOSEPH A. ALDRIDGE. [L. S.]

Witnesses:
E. W. BRADFORD,
FRANK W. WOOD.