H. W. ASHMUSEN.

CARBURETER.

APPLICATION FILED NOV. 24, 1909.

985,122.

Patented Feb. 28, 1911.

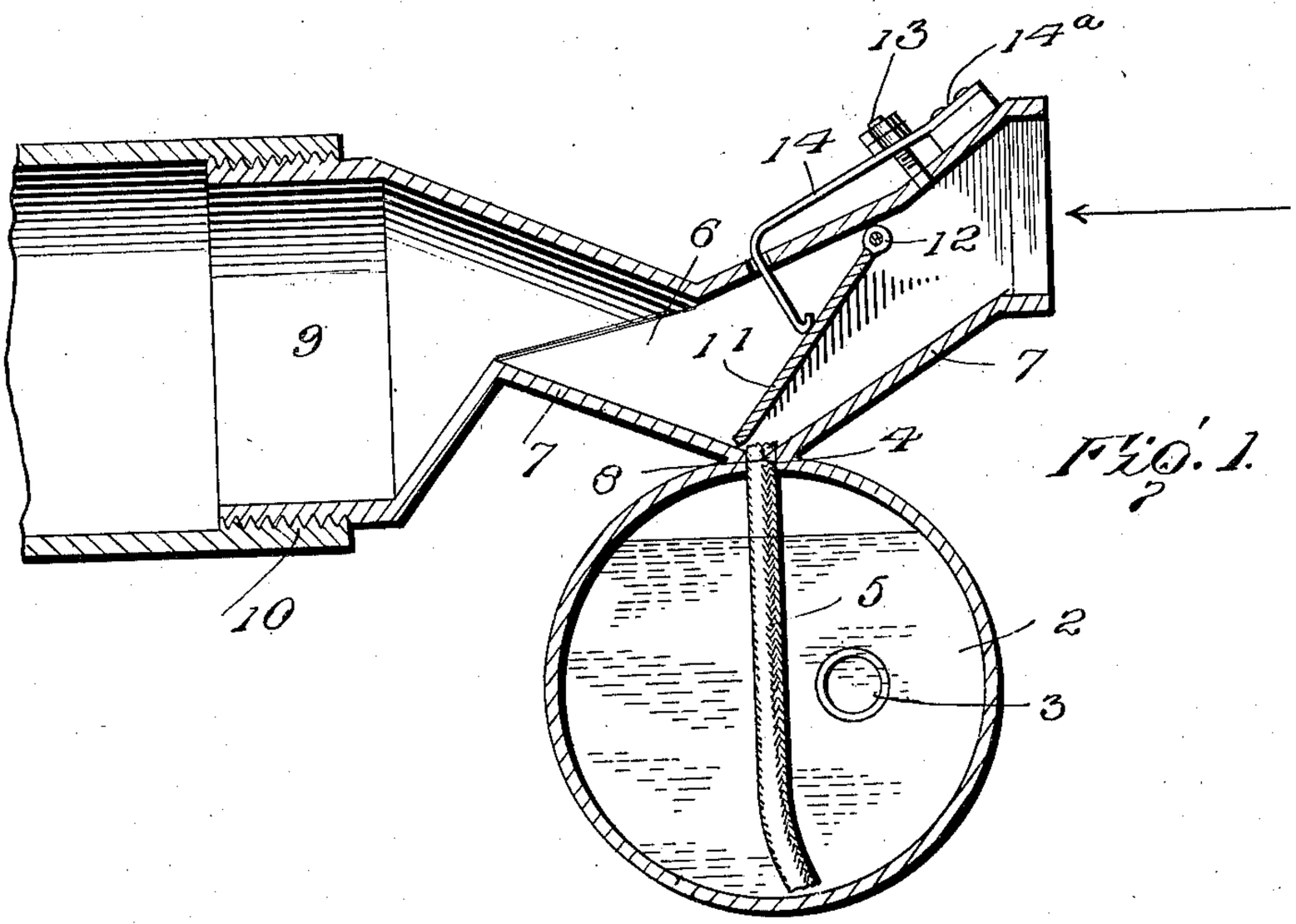

FIG. 1.

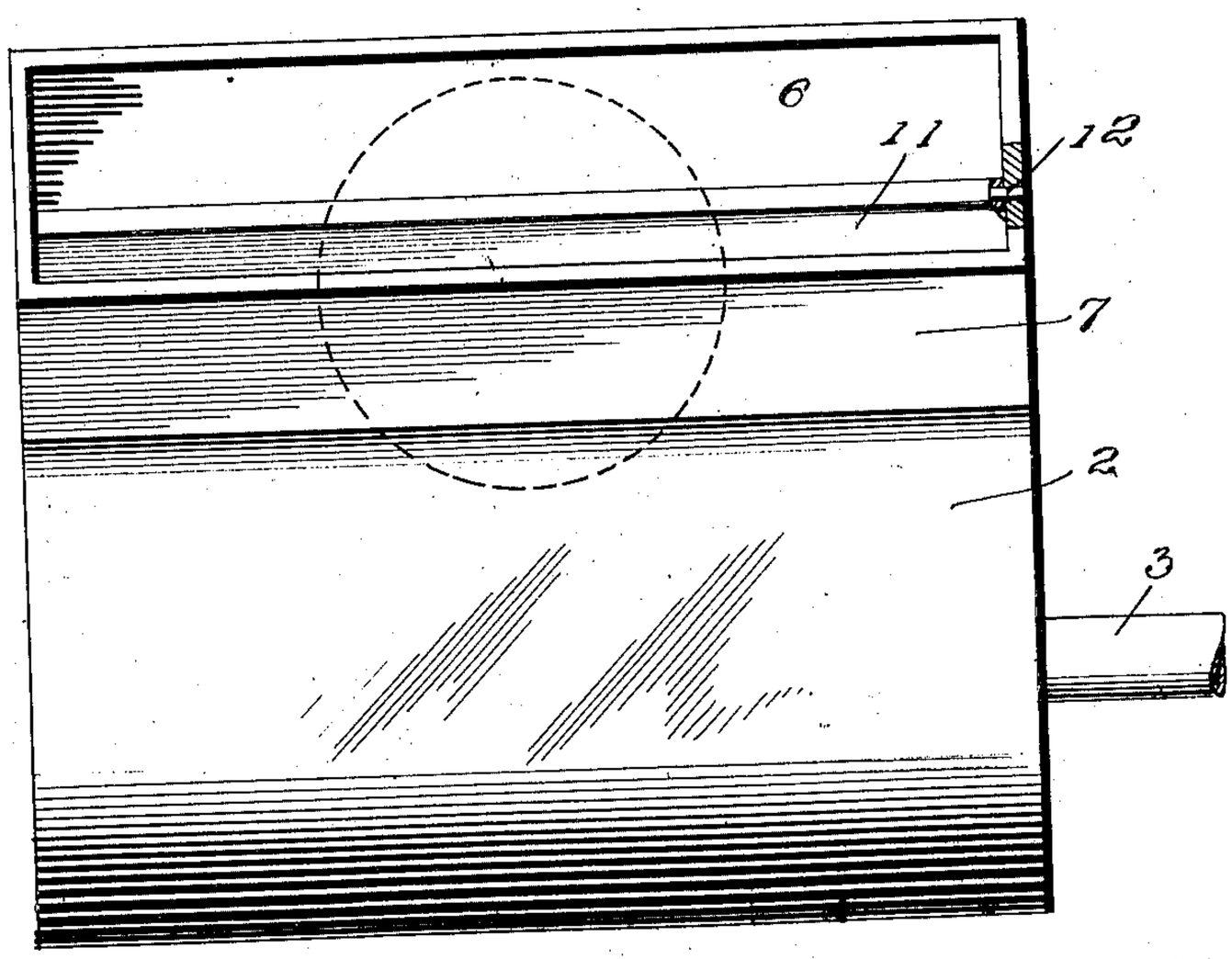

FIG. 2.

Witnesses
W. N. Woodcock,
Juana M. Fallin,

Inventor
H. W. Ashmusen

By Stanley Racey, Attorneys.

UNITED STATES PATENT OFFICE.

HENRY W. ASHMUSEN, OF KINGS PARK, NEW YORK.

CARBURETER.

985,122. Specification of Letters Patent. Patented Feb. 28, 1911.

Application filed November 24, 1909. Serial No. 529,832.

To all whom it may concern:

Be it known that I, HENRY W. ASHMUSEN, citizen of the United States, residing at Kings Park, Long Island, in the county of Suffolk and State of New York, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

My invention relates to carbureters for internal combustion engines, and particularly to that type of carbureter wherein liquid fuel such as gasolene is volatilized by a wick or mass of absorbent material over which a stream of air is passed, the air in its passage taking up the vapor of the fuel.

One object of my invention is to provide a carbureter of this character in which a small amount of fuel will be gathered around the wick at its point of projection into the vaporizing chamber.

Another object is the provision of an air valve which shall direct the air into intimate contact with the wick, so that it may take up its full charge of fuel, and which shall also act to control the amount of air passing into the vaporizing chamber.

My invention consists in the arrangement of parts and details of construction set forth in the accompanying specification and more particularly stated in the claims appended.

For a full understanding of the invention and the merits thereof, and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a longitudinal vertical section of my carbureter; and, Fig. 2 is a front elevation thereof.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to these figures, 2 designates a fuel reservoir or chamber of any desired character, but shown as cylindrical and as having closed ends, the chamber being connected by the feed pipe 3 with any desired fuel supply (not shown). The upper portion of the chamber 2 is provided with a longitudinally extending relatively narrow slot 4 through which passes the longitudinally extending vaporizing wick 5 of any desired material, the wick being preferably deep enough to extend down to the bottom of the chamber 2, and therefore to draw up any fuel which may be within the chamber 2. Any desired means may be used for regulating the depth of fuel in the chamber 2. Preferably, however, it is kept at the level shown by the dotted lines in Fig. 1.

Disposed above the chamber 2 and formed in any suitable manner is the vaporizing chamber 6, open at both ends, one end being open for the entrance of air, and the other connecting with the feed pipe of the engine. The bottom of the chamber 6 is inclined downward from its opposite ends toward the mouth of the slot 4 so that the bottom walls of the chamber 6 intersect the walls of the chamber 2 on each side of the slot 4. Preferably, one of the walls forming the bottom of the chamber 6 is provided with prongs 8 which engage with the wick 5 so that the wick is held with a portion of it projecting through the slot 4 and into the chamber 6. Any suitable means may be provided, however, for holding the wick in its proper position. The upper wall of the chamber substantially conforms in shape to that of the lower wall, and the extremity is enlarged, as at 9, and is cylindrical in section for engagement with the feed pipe of an internal combustion engine, the outer face of the enlarged portion being screw-threaded, to this end, as at 10.

Mounted within the chamber 6 is the downwardly inclined valve 11 which is pivoted, as at 12, at its upper edge and which at its lower edge preferably rests upon the bottom 7 of the chamber 6 just beyond the top of wick 8, so as not to come in contact with the wick. While this is the preferable construction, I do not wish to limit myself to a valve whose free edge shall rest beyond the wicking, as the valve might be arranged so that its free edge would rest upon the floor of the chamber 6, slightly forward of the wicking. Means must be provided for yieldingly holding the valve with its free edge in contact with the floor of the chamber 6, and to this end I provide a spring 14 which is adapted to yield upon an indraft of air caused by the suction stroke of the engine, so that the valve may open. It is necessary, however, to alter the degree of strength of the spring to suit various circumstances of running. Hence I provide a screw pin which engages with a spring and by which its tension may be increased or decreased. In the drawings the spring 14 is attached at its rear end by a screw 14^a to the wall of the chamber 6, the spring

then extending along the chamber and into the opening through the same and into contact with the valve 11. For adjusting this spring I use a screw pin 13 which passes through the spring and into the wall of the chamber. It is obvious that by this means the strength of the spring may be adjusted so as to increase the pressure on the valve, and thereby regulate the degree of its opening movement according to any particular circumstance of operation.

The operation of my invention will be obvious. The wicking 5 will volatilize the liquid fuel, and the air passing in at the open end of the chamber 6 will be forced downward by the deflecting valve 14 into intimate contact with the protruding end of the wicking, and will thence pass to the engine fully charged with fuel. It will be seen that the valve 11 not only acts as a valve to limit and control the amount of air mixed with the charge upon its suction stroke, but that it also acts as a deflector whereby the air is directed immediately over the upper end of the wicking 5 so that the air will be more fully and thoroughly charged with the vaporized fuel.

While it would be entirely possible to have the floor of the chamber 6 extend in a straight line, I prefer to make it of the shape shown, for the reason that the bottom wall of the chamber, converging as it does to the wick 4, forms to a certain extent a trough whereby a small amount of liquid fuel will be gathered around the wick where it protrudes into the chamber 6. This, when the engine is stopped, keeps the upper end of the wick moistened with gasolene so that a full supply of gasolene vapor may be secured upon the first suction stroke of the engine.

In practice I have found that my improved carbureter is extremely effective, and that a great degree of control can be secured by regulating the movement of the valve 11, as previously described.

I have found in practice that for carbureters to be used on motor vehicles, capillary attraction is much better as a means of disseminating vapor and mixing it with the air than are any spraying devices, for the reason that the unsteadiness of the motor vehicle causes the fuel to splash and constantly vary in level within the carbureter. As a consequence, it is sprayed unequally. By supplying the fuel to the air through a wick, there is no chance of the fuel being splashed or rendered unsteady, no matter how unsteady the vehicle itself may be, and hence better carburation is secured. It will be seen that the valve 11 forms a deflector at slow speeds, which carries the air into intimate contact with the upper end of the wick, which would not be the case were no deflector used, but the amount of air admitted to the carbureter decreased by a valve located near the mouth of the carbureter. The valve is so arranged, however, that it permits a full charge of air when desired, as in running at high speed.

Having thus described the invention what is claimed as new is:—

1. A carbureter including a vaporizing chamber open at one end for the admission of air and at the other end for the outward passage of air, a wicking in said chamber extending entirely across the same, means for supplying liquid fuel to the wicking, and a valve, the lower edge of which is parallel to the upper edge of the wick, said valve controlling the admission of air to the chamber.

2. A carbureter including a vaporizing chamber open at one end for the admission of air, a wicking in said chamber extending entirely across the chamber, means for supplying fuel to the wicking, and a deflector extending downward toward the wicking and directing the air entering the vaporizing chamber into contact with said wicking, said deflector having its lower edge parallel to the upper end of the wick.

3. A carbureter including a fuel chamber, a vaporizing chamber having an air inlet at one end, a wick in the fuel chamber extending into the vaporizing chamber, the floor of said vaporizing chamber extending downward from opposite ends toward the wick to form a pocket for the collection of fuel.

4. A carbureter including a fuel chamber, a vaporizing chamber having an air opening at one end, a wick in the fuel chamber projecting into the vaporizing chamber and extending transversely across the vaporizing chamber, and a valve pivoted in the vaporizing chamber and having its free end resting upon the floor of said chamber beyond the wick, said floor being formed with a depressed portion on either side of the wick.

5. A carbureter including a fuel chamber, a vaporizing chamber, a wick located in the fuel chamber and projecting up into the vaporizing chamber and extending entirely across the chamber, a deflecting valve supported within the vaporizing chamber and controlling the admission of air thereto, said valve extending over the upper end of the wick and having its lower edge parallel to the upper end of the wick, and a spring holding said valve normally closed.

6. A carbureter including a vaporizing chamber, a wicking projecting into said chamber and extending entirely across the chamber, means for suppiying fuel to said wicking, an inclined valve supported at one end within said chamber and controlling the passage of air therethrough, the free edge of the valve normally resting upon the floor of the chamber beyond the projecting

end of the wicking, said free edge of the valve being parallel to the wicking, a spring holding said valve closed, and means for adjustably varying the tension of the spring.

7. A carbureter including a fuel chamber, a vaporizing chamber located above the fuel chamber, said fuel chamber having a longitudinally extending slot opening into the vaporizing chamber, a wicking carried in said slot extending down into the fuel chamber and projecting slightly above the floor of the vaporizing chamber, said wicking having a width equal to the width of the vaporizing chamber, a valve pivotally mounted within the vaporizing chamber, said valve inclined from the mouth of said chamber down toward the wicking, the free edge of said valve being parallel to the end of the wicking and resting upon the floor of the chamber adjacent to the wicking, resilient means for holding the valve closed, and means for adjustably varying the tension of the resilient means.

8. A carbureter including a fuel chamber, a vaporizing chamber located above the fuel chamber, said fuel chamber having a slot communicating with the vaporizing chamber, through the floor thereof and extending entirely across the vaporizing chamber, said vaporizing chamber being downwardly inclined from its entrance end to said slot, and then upwardly inclined to the exit end thereof, a valve located within said chamber, pivotally mounted at its upper end and normally resting with its free end in contact with the floor of the chamber, the free end of the valve being parallel to the upper end of the wicking, a spring for holding said valve normally closed, and an adjusting screw for varying the tension of said spring.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY W. ASHMUSEN. [L. S.]

Witnesses:

W. N. WOODSON,

FREDERIC B. WRIGHT.