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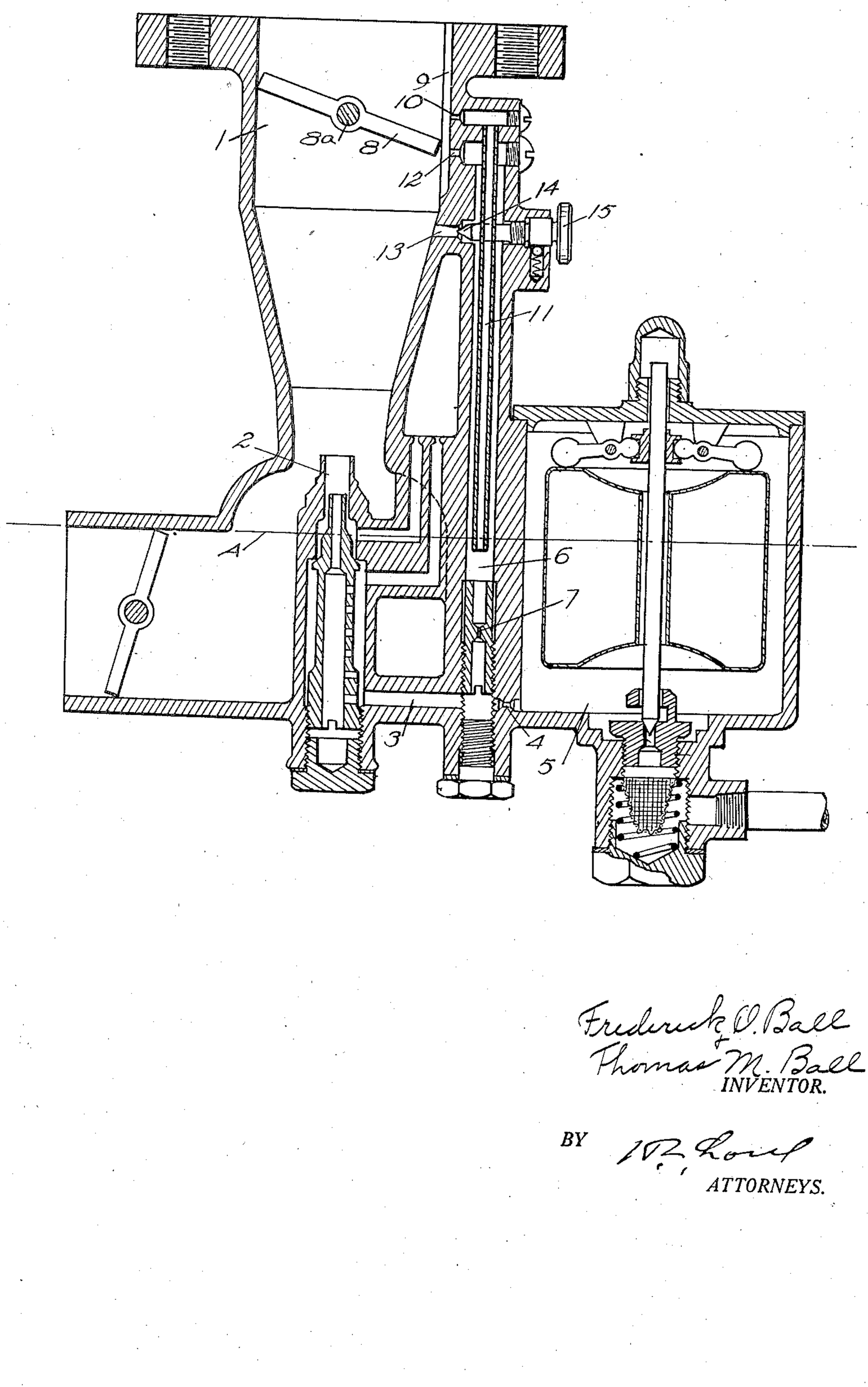
CARBURETOR

Filed July 29, 1926



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UNITED STATES PATENT OFFICE

FREDERICK O. BALL AND THOMAS M. BALL, OF DETROIT, MICHIGAN, ASSIGNORS TO BALL & BALL CARBURETER COMPANY, A PARTNERSHIP COMPOSED OF FREDERICK O. BALL AND CORNELIA M. BALL, OF DETROIT, MICHIGAN

CARBURETOR

Application filed July 29, 1926. Serial No. 125,638.

This invention is designed to improve the idling system of carburetors. The conventional idling arrangement for a plain tube carburetor in which the bypass orifice emerges at the throttle valve has some objections. The air and gasoline going up the bypass in slugs makes a noise in idling, and also gives off uneven hissing noise, and this also results in some unevenness in the idling condition. With the present invention objectionable noises are obviated and a very uniform performance of idling is accomplished. Features and details of the invention will appear from the specification and claims.

The invention is illustrated in the accompanying drawing which shows a central vertical section through a carburetor.

1 marks the suction passage of the carburetor, 2 the main nozzle, 3 the fuel passage leading to the nozzle, 4 a metered opening for the main fuel system, 5 a float valve connected with the passage 3 having a fuel level at A—A, and 6 an idling well connected with the passage 3 by a metered opening 7.

A throttle 8 is arranged in the upper part of the suction passage and is of the butterfly type and carried by a shaft 8^a in the usual manner.

An idling slot 9 is arranged in the wall of the suction passage in the zone of the throttle valve and permits a slight passage of idling air when the throttle is closed. An idling fuel nozzle 10 opens into the slot 9 above the throttle valve and is connected by a tube 11 with a point in the idling well 6 to receive fuel from the well. An air nozzle connection 12 also leads to the slot 9 in position to be influenced by the reduced pressure above the throttle and this connection also leads to the idling well 6. An air inlet connection 13 leads to the well from any convenient source, as shown, from the suction passage, or mixing chamber below the throttle. Adjustment of the idling flow of fuel may be made by adjustment of the controlling connections. As shown this is accomplished by the needle valve 14 operating on the connection 13. The needle valve has the handle 15.

In operation the idling fuel, including some air, is drawn up the tube 11 and delivered through the nozzle 10. Air is drawn through the nozzle 12, the air being delivered to the well by way of the connection 13. The reduced pressure above the throttle involves the intake of fuel and air through the nozzles 10 and 12 and the restriction through the connection 13 involves a reduced pressure in the well inducing a flow of fuel to the nozzle through the metered opening 7.

What is claimed as new is:—

1. In a carburetor, the combination of a suction passage; a throttle in the passage; a main fuel nozzle delivering fuel to the passage below the throttle; an idling fuel nozzle leading to the suction passage above the throttle; and an idling air nozzle leading to the passage separately from and directly below the idling fuel nozzle and subjected to the reduction of pressure above the throttle.

2. In a carburetor, the combination of a suction passage; a throttle in the passage; a main fuel nozzle delivering fuel to the passage below the throttle; an idling fuel nozzle leading to the suction passage above the throttle; an idling air nozzle leading to the suction passage separately from and below the idling fuel nozzle and subjected to the reduction of pressure above the throttle; a fuel well communicating with the idling fuel and air nozzles; and an air connection leading to the fuel well.

3. In a carburetor, the combination of a suction passage; a throttle in the passage, said suction passage having a bypass slot adjacent to the throttle and opening into the suction passage; a main fuel nozzle delivering fuel to the passage below the throttle; an idling fuel nozzle leading to the passage above the throttle and delivering fuel through the slot; and an idling air nozzle delivering air to the slot separately from the idling fuel nozzle, said slot carrying the air from the idling air nozzle past the idling fuel nozzle to the suction passage.

4. In a carburetor, the combination of a suction passage; a throttle in the passage, said suction passage having a bypass slot adjacent to the throttle; a main fuel nozzle delivering fuel to the passage below the throttle; an idling fuel nozzle leading to the

passage above the throttle and delivering fuel through the slot, said slot leading to the suction passage and an idling air nozzle delivering air to the slot separately from the idling fuel nozzle.

In testimony whereof we have hereunto set our hands.

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