No. 801,390. PATENTED OCT. 10, 1905.

A. A. LOW.

HYDROCARBON MOTOR.

APPLICATION FILED DEC. 2, 1904.

Fig. 1.

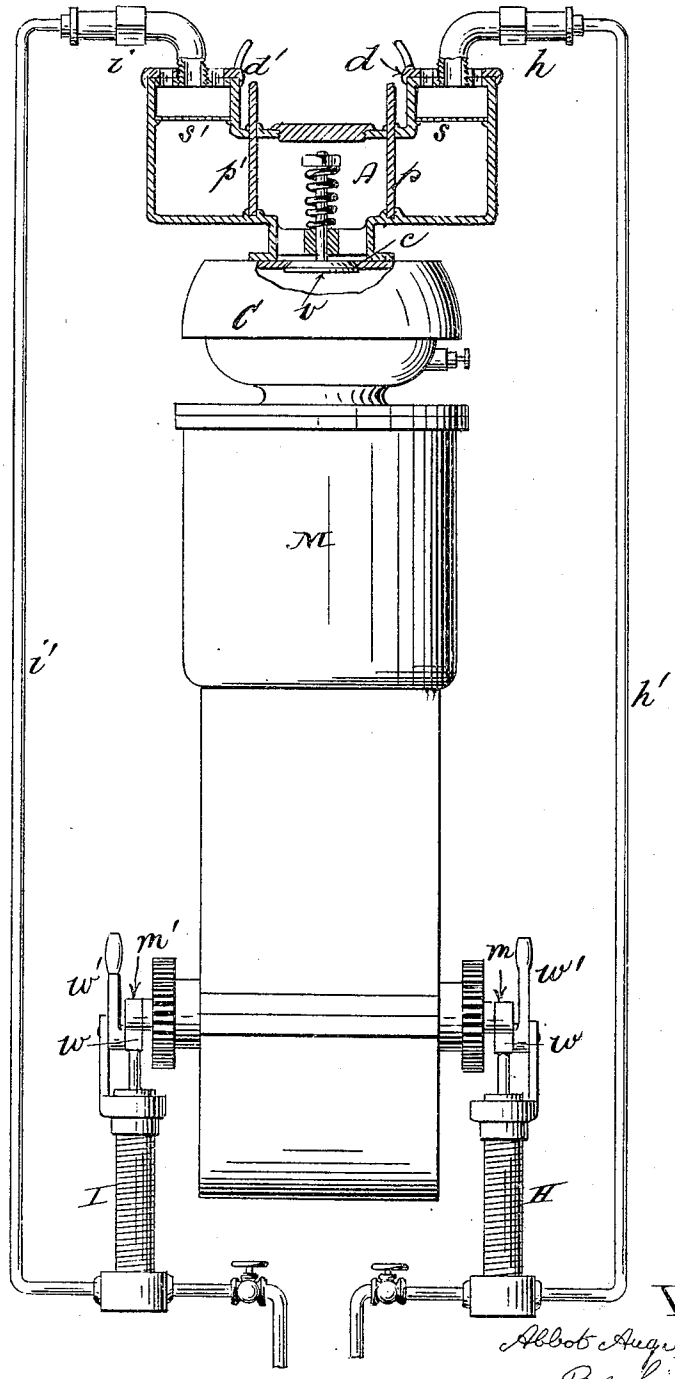
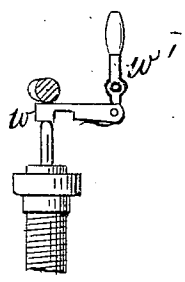


Fig. 2.



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UNITED STATES PATENT OFFICE.

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HYDROCARBON-MOTOR.

No. 801,390. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed December 2, 1904. Serial No. 235,138.

To all whom it may concern:

Be it known that I, ABBOT AUGUSTUS LOW, a citizen of the United States, residing at Horseshoe, St. Lawrence county, and State of New York, have invented certain new and useful Improvements in Hydrocarbon-Motors, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My invention relates to means for feeding the combustion-chambers of hydrocarbon-motors; and it consists in the construction and arrangement of parts hereinafter described and claimed specifically.

In the accompanying drawings, Figure 1 represents diagramatically, and partly in section, parts essential in carrying out my invention practically in connection with a motor. Fig. 2 is a detail view of one of the levers for controlling the supply of hydrocarbon or alcohol.

In the drawings, M represents a motor of any ordinary or desired construction, non-essential details and parts being omitted. Above the combustion-chamber C is situated a mixing-chamber A of peculiar construction, communicating with said combustion-chamber through a port *c*, closed normally by an inlet-valve *v*, which is held to its seat by a spring which yields, however, whenever there is a partial vacuum in the combustion-chamber sufficient to allow the charge to be drawn from the mixing-chamber A into the combustion-chamber C.

Kerosene-oil or other form of hydrocarbon is forcibly introduced into the mixing-chamber A by means of an injector *h* or equivalent mechanical expedient of any well-known construction, supplied through a pipe *h'* by means of forcing mechanism H, actuated by a cam *m* on the motor-shaft or by any other desired means. In like manner alcohol may be forcibly introduced into the mixing-chamber A by means of an injector *i*, or equivalent, supplied through a pipe *i'* by means of forcing mechanism I, actuated by a cam *m'* on the motor-shaft or by equivalent means.

Either forcing mechanism H or I may be thrown into or out of action by a controlling-lever and connections or other mechanical expedient, as by the well-known wedge *w* and lever *w'*, (shown in Fig. 2,) so that the alcohol and hydrocarbon may be supplied to the mixing-chamber A simultaneously or otherwise, as may be desired. Screens *s s'* are interposed in the mixing-chamber A, between the injectors *h i'* and the inlet-valve *v*, to obviate all danger of back firing, and the mixing-chamber A is also provided with movable partitions *p p'*, by which communication with either injector may shut off when desired. Dampers *d d'* regulate the admission of air under atmospheric pressure to the mixing-chamber. By this combination and arrangement of parts and devices alcohol may be used either alone for preliminary heating or as an auxiliary to the hydrocarbon to increase the inflammability of the combined charge, or it may even be used exclusively to furnish motive power to the engine under certain conditions of use, as may be found most expedient. The best and most economical results are attained, however, by the admixing of hydrocarbon vapor and alcoholic vapor with air preparatory to the admission of the compound charge into the combustion-chamber C. This may be done by the admission of the atmosphere to the mixing-chamber A through the dampers *d d'* in whole or in part.

It will be noticed that the mixing-chamber A is of peculiar construction in that it is elongated in form, extends transversely above and across the combustion-chamber, and has a vertical extension at each extremity provided with a horizontal screen against which a vertical jet of hydrocarbon is caused to impinge on one side of the mixing-chamber and a vertical jet of alcohol on the other. Furthermore, each vertical extension of the mixing-chamber may be cut off from the other and from the inlet-valve *v* by a partition, so that either one or both of said vertical extensions may be used, as may be found expedient.

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

1. In combination with the combustion-chamber of a hydrocarbon-motor, a mixing-chamber of elongated form provided with a vertical extension at each extremity, a horizontal screen in each of said vertical extensions, means for injecting alcohol against the screen in one vertical extension and means for injecting kerosene against the screen in the other extension, and an induction-valve interposed between said mixing-chamber and the said combustion-chamber, for the purpose and substantially in the manner set forth.

2. In combination with the combustion-chamber of a hydrocarbon-motor, a mixing-chamber of elongated form provided with a vertical extension at each extremity, a hori-

zontal screen in each of said vertical extensions, a damper on each of said extensions for regulating the admission of atmospheric air thereto, means for injecting alcohol against the screen in one vertical extension and means for injecting kerosene against the screen in the other extension, and an induction-valve interposed between said mixing-chamber and the said combustion-chamber, for the purpose and substantially in the manner set forth.

3. In combination with the combustion-chamber of a hydrocarbon-motor, a mixing-chamber of elongated form provided with a vertical extension at each extremity, a horizontal screen in each of said vertical extensions, two movable partitions in the body of the mixing-chamber, one for each of the said vertical extensions thereof, means for injecting alcohol against the screen in one vertical extension and means for injecting kerosene against the screen, in the other extension, and an induction-valve interposed between said mixing-chamber and the said combustion-chamber, for the purpose and substantially in the manner set forth.

4. In combination with the combustion-chamber of a hydrocarbon-motor, a mixing-chamber of elongated form provided with a vertical extension at each extremity, a horizontal screen in each of said vertical extensions, a damper on each of said extensions for regulating the admission of atmospheric air thereto, two movable partitions in the body of the mixing-chamber, one for each of the said vertical extensions thereof, means for injecting alcohol against the screen in one vertical extension and means for injecting kerosene against the screen in the other extension, and an induction-valve interposed between said mixing-chamber and the said combustion-chamber, for the purpose and substantially in the manner set forth.

5. In combination with the combustion-chamber C, and induction-valve v, the mixing-chamber A, formed with the vertical extensions at each extremity thereof, the horizontal screens s, s', the partitions p, p', the dampers d, d', the injector i, and supply-pipe i', and the injector h and supply-pipe h', arranged and operating substantially in the manner and for the purpose set forth.

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