

J. MARTIN & H. SIBBALD.
CARBURETER ATTACHMENT.
APPLICATION FILED AUG. 16, 1913.

1,092,279.

Patented Apr. 7, 1914.

Fig. 1.

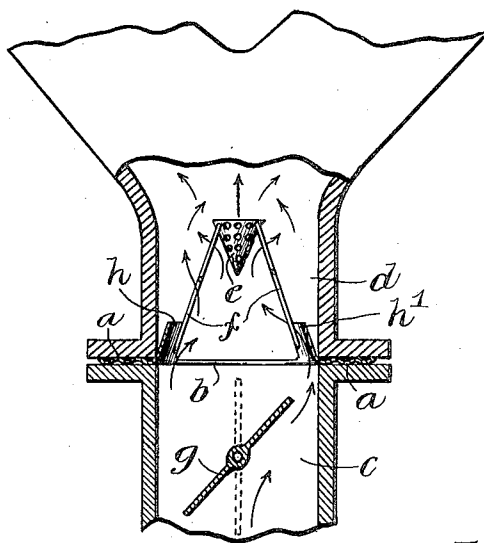


Fig. 2.

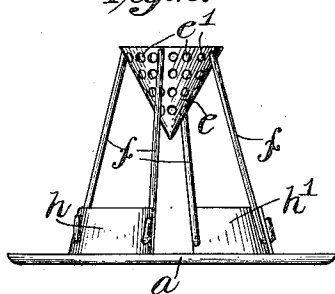


Fig. 3.

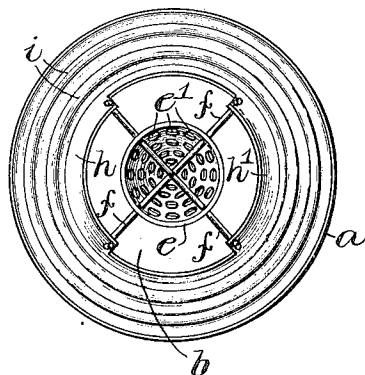
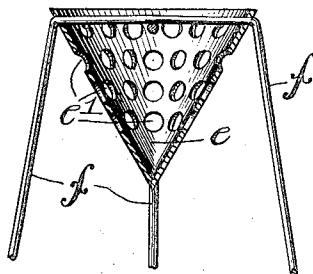


Fig. 4.



Attest:
J. M. McKee
A. Richardson

Julius Martin
Harry Sibbald Inventors:
by *Ernest J. Wentworth*
their Atty.

UNITED STATES PATENT OFFICE.

JULIUS MARTIN AND HARRY SIBBALD, OF NEW YORK, N. Y.

CARBURETER ATTACHMENT.

1,092,279.

Specification of Letters Patent.

Patented Apr. 7, 1914.

Application filed August 16, 1913. Serial No. 785,074.

To all whom it may concern:

Be it known that we, JULIUS MARTIN and HARRY SIBBALD, both citizens of the United States, and both residing in the borough of Bronx, in the city of New York, county of Bronx, and State of New York, have invented certain new and useful Improvements in Carbureter Attachments, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

Our invention relates to carbureter attachments, and more particularly to an appliance adapted to be inserted in the carbureter offtake for the purpose of securing a more thorough admixture of the hydrocarbon and air.

The main object of our invention is to provide an attachment of this character which, without material obstruction of the carbureter offtake pipe, will agitate and deflect the moving column of hydrocarbon and air in a manner to break up any globules of hydrocarbon and bring a sufficiently large proportion of the hydrocarbon into intimate contact with the air to insure a more thorough admixture of the two, and the production of a highly volatile mixture possessing high combustion value.

A further object is to provide an appliance of this character adapted to secure a thorough admixture of the hydrocarbon and air at all engine speeds.

A still further object is to provide an attachment of this character wherein the admixture of the hydrocarbon and air is secured by a mechanism having no movable parts, thus avoiding likelihood of a loss of efficiency through reduced suction or a disarrangement of parts.

A still further object is to provide an appliance of this character wherein the parts will be so arranged as to insure the deflection, division and agitation of the moving column of hydrocarbon and air and the recombination thereof in a more stable mixture, without any substantial diminution in the capacity of the carbureter offtake pipe or the engine manifold.

A still further object is to provide an appliance of this character which will secure increased engine efficiency by reason of the more thorough admixture of the hydrocarbon and air, or will secure equal engine efficiency with a reduction in the volume of hydrocarbon entering into each charge.

And a still further object is to provide an attachment of this character adapted to be mounted within the carbureter offtake, the means securing which will also serve as a packing between the carbureter discharge and the engine manifold, thus insuring a tight joint at this point through means forming a part of our said attachment.

The invention consists primarily in a carbureter attachment embodying therein a base having a central opening therein of substantially the same diameter as the carbureter offtake pipe, a reticulated conical distributor having its apex directed toward said opening in said base, the dimensions of the base of said distributor being smaller than those of said opening in said base, and divergently arranged supports of small dimension extending from said base and secured to said distributor, whereby said distributor is spaced away from the opening in said base and clearance is afforded about said distributor; and in such other novel features of construction and combination of parts as are hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings:— Figure 1 is a view showing a portion of the offtake lead of the carbureter, and a portion of the engine manifold, our attachment being shown in position relative thereto; Fig. 2 is an elevation of our attachment removed from the carbureter offtake; Fig. 3 is a top view of our attachment; and Fig. 4 is a detail sectional view of the distributor, illustrating the means of mounting same in relation to the base.

Like letters refer to like parts throughout the several views.

In the embodiment of our invention shown in the drawings, *a* indicates a base consisting of a flange adapted to seat between the flanges of the carbureter offtake and the manifold intake. The configuration of this flange should be such as to conform to the flanges upon the carbureter, and upon the manifold, and while in the accompanying drawings we have shown a circular flange, it is understood that the configuration of this flange is immaterial. Centrally thereof the base *a* is provided with an opening *b*, the diameter or dimensions of which coincide with the area of the carbureter offtake, indicated at *c* and the manifold intake indicated at *d*.

Carried by the base *a* and spaced away therefrom a distance sufficient to leave clearance thereabout, is a distributor *e* consisting of a hollow cone open at the bottom and having its apex directed toward the opening *b* and substantially centrally thereof. The distributor *e* is preferably made of sheet metal having a number of small openings *e'* therein, although if desired any other reticulated material may be used, the effect of which will be to deflect a portion of the mixture flowing from the carbureter to the engine toward the sides of the manifold intake while permitting a portion thereof to pass through the openings, thus causing diversified currents about the distributor and a slight retardation at some points thereof and not at others while causing acceleration of a portion of the mixture at the base of the distributor.

The diameter or dimension of the base of the distributor *e* is considerably smaller than that of the opening *b* thus affording clearance about said distributor, and between it and the walls of the engine manifold *d*.

The number and arrangement of the openings *e'* are such as to approximate in the aggregate area, the area of the base of the distributor, thus insuring a capacity of the distributor sufficiently great to avoid any material obstruction to the flow of the mixture from the carbureter to the manifold. This distributor is supported from the base *a* by a plurality of fine wire supports *f*, converging from the base *a* toward the base of said distributor *e*, the object of these supports being merely to rigidly hold the distributor *e* at the desired distance from the base *a* without having any confining effect upon, or offering any substantial resistance to the flow of, the mixture. To avoid displacement of the distributor, we attach the supports *f* thereto in a manner to not only hold the distributor with relation to the base, but to hold it in a manner to avoid the stresses of use from disconnecting said distributor from its supports. To secure this result, we provide the distributor adjacent the base thereof with oppositely disposed openings through which the wire supports *f* pass, the ends of said supports being secured to the base. By this construction it is practically impossible for the distributor to be accidentally disconnected from its supports and the distributor is held with the desired rigidity so as to withstand the effect of the suction about same caused by the engine.

When the throttle valve *g* of the carbureter is turned as shown in full lines, Fig. 1, to accommodate the carbureter to low engine speeds, there is a tendency of the mixture to flow toward and adjacent the wall of the manifold *d*.

To insure the desired operative effect of

the distributor *e*, particularly at low engine speeds, we provide the base *a* with the vanes or deflectors *h h'*, projecting above said base and directed upwardly and inwardly so as to deflect a portion of the mixture toward said distributor and prevent stratification adjacent the wall of the manifold intake. These vanes or deflectors will also at all times set up cross currents, thus aiding in the agitating and commingling of the mixture while flowing from the carbureter to the manifold. The vanes or deflectors *h h'* are positioned upon opposite sides and above the axis of the pivots of the butterfly valve *g* so that the mixture when said valve is partially closed, will have a general direction toward said vanes or deflectors.

To permit the application of our attachment without material loss of space or unnecessary multiplication of parts, we form the base *a* of a soft metal having a series of continuous parallel corrugations *i* extending thereabout, so that this base will of itself form an adequate packing without the necessity for employing separate gaskets.

The operation of the herein described attachment is substantially as follows:—When the attachment is in place in the duct formed by the carbureter offtake and the manifold intake, the distributor *e* will be positioned substantially axially of, above, and spaced away from, the carbureter offtake *c*, with the apex thereof positioned substantially axially of said offtake. The opening *b* in the base *a* will be in substantial alinement with that of said offtake *c*. Hence there will be no appreciable obstruction of the manifold intake excepting by the distributor *e*, the position of the openings of which will give sufficient capacity to avoid any substantial retardation of the flow of the mixture. As the mixture flows from the carbureter to the manifold, a portion thereof will impinge upon the outer surface of the distributor and be deflected outwardly, and a portion thereof will pass through the openings in said distributor. If any large globules of hydrocarbon be carried in suspension, their impact with the distributor will have the effect of breaking them up and thus bring the entire body of hydrocarbon into more intimate relation with the air forming a part of the mixture. The inverted conical construction of the distributor will cause the pressure in the interior thereof to rise more slowly than at points surrounding the distributor, so that as the deflected volume of the mixture passes the edge of the base of the distributor it will have an inward flow, thus causing the location of the distributor in the position shown, to set up cross currents which will prevent stratification and secure a more thorough admixture of the air and hydrocarbon. The supporting wires *f* will offer substantially no resistance to the

flow of the gaseous mixture. The segmental vanes or deflectors h h' will also have a tendency to set up cross currents within the manifold intake between the distributor and the carbureter, these deflectors having their highest efficiency when the throttle valve of the carbureter is partially closed, under which conditions they will have the effect of directing the mixture toward the axis of the manifold intake d or against the distributor e , a condition which will insure the efficient operation of the device whether the engine be run at either high or low speed.

It is to be noted that our attachment comprises no moving parts and offers substantially no resistance to the flow of the gaseous mixture, while breaking up the column thereof and agitating it by means of cross currents in a manner to thoroughly mix the entire volume of hydrocarbon and air, prevent stratification thereof, and secure a more intimate contact of the hydrocarbon with the air in a manner to secure a mixture having higher combustion values. By reason of these conditions, the quantity of hydrocarbon entering into the mixture may be reduced and fouling of the engine cylinder, or parts appurtenant thereto, may be minimized.

It is not our intention to limit the invention to the precise details of construction shown in the accompanying drawings, it being apparent that the general design may be varied without departing from the spirit and scope of the invention.

Having described our invention, what we claim as new and desire to have protected by Letters Patent, is:—

1. A carbureter attachment embodying therein a base having a central opening therein of substantially the same diameter as the carbureter offtake pipe, a reticulated conical distributor having its apex directed toward said opening in said base, the dimensions of the base of said distributor being smaller than those of said opening in said base, and divergently arranged supports of small dimension extending from said base and secured to said distributor, whereby said distributor is spaced away from the opening in said base and clearance is afforded about said distributor.

2. A carbureter attachment embodying therein a base having a central opening therein of substantially the same diameter as the carbureter offtake pipe, a reticulated conical distributor having its apex directed toward said opening in said base, the dimensions of the base of said distributor being smaller than those of said opening in said base, divergently arranged supports of small dimension extending from said base and secured to said distributor, whereby said distributor is spaced away from the opening in

said base and clearance is afforded about said distributor, and a deflector carried by said base and inclined toward and spaced away from said distributor, whereby, at low engine speeds, the mixture will be directed toward said distributor.

3. A carbureter attachment embodying therein a base having a central opening therein of substantially the same diameter as the carbureter offtake pipe, a reticulated conical distributor having its apex directed toward said opening in said base, the dimensions of the base of said distributor being smaller than those of said opening in said base, divergently arranged supports of small dimension extending from said base and secured to said distributor, whereby said distributor is spaced away from the opening in said base and clearance is afforded about said distributor, and a plurality of oppositely disposed segmental vanes or deflectors carried by said base and adapted to be arranged on opposite sides of the axis of a butterfly throttle valve, said vanes being inclined toward each other and spaced away from said distributor whereby, at low engine speeds, the mixture will be directed toward said distributor.

4. A carbureter attachment embodying therein a base having a central opening therein of substantially the same diameter as the carbureter offtake pipe, a hollow, sheet-metal, conical distributor provided with a plurality of openings therethrough and having its apex directed toward said opening in said base, the dimensions of the base of said distributor being smaller than those of said opening in said base, and divergently arranged supports of small dimension extending from said base and secured to said distributor, whereby said distributor is spaced away from the opening in said base and clearance is afforded about said distributor.

5. A carbureter attachment embodying therein a base having a central opening therein of substantially the same diameter as the carbureter offtake pipe, a reticulated conical distributor having its apex directed toward said opening in said base, the dimensions of the base of said distributor being smaller than those of said opening in said base, and a plurality of wires passing through oppositely disposed openings in said distributor and having the ends thereof respectively attached to said base, whereby said distributor is spaced away from the opening in said base and clearance is afforded about said distributor.

6. A carbureter attachment embodying therein a base having a central opening therein of substantially the same diameter as the carbureter offtake pipe, said base being provided with a plurality of parallel, continuous corrugations, a reticulated conical distributor having its apex directed

toward said opening in said base, the dimensions of the base of said distributor being smaller than those of said opening in said base, and divergently arranged supports of
5 small dimension extending from said base and secured to said distributor, whereby said distributor is spaced away from the opening in said base and clearance is afforded about said distributor.

In witness whereof, we have hereunto 10
affixed our signatures, in the presence of two
subscribing witnesses, this 14th day of
August, 1913.

JULIUS MARTIN.
HARRY SIBBALD.

Witnesses:

THOMAS LYON,
LOUIS MULLER.