June 5, 1934. H. H. TIMIAN 1,961,466

ENGINE

Filed July 27, 1931

Fig. 1

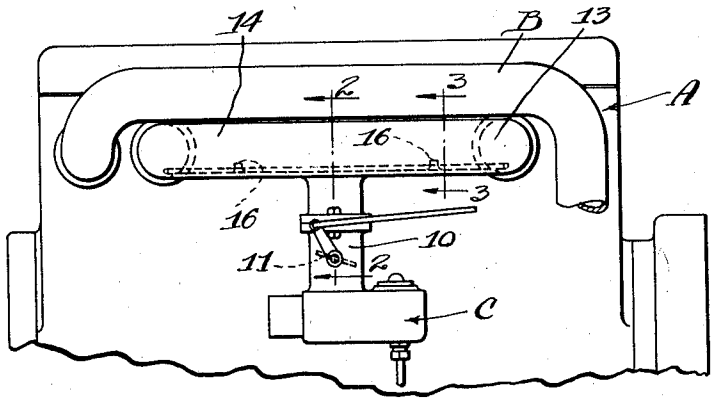
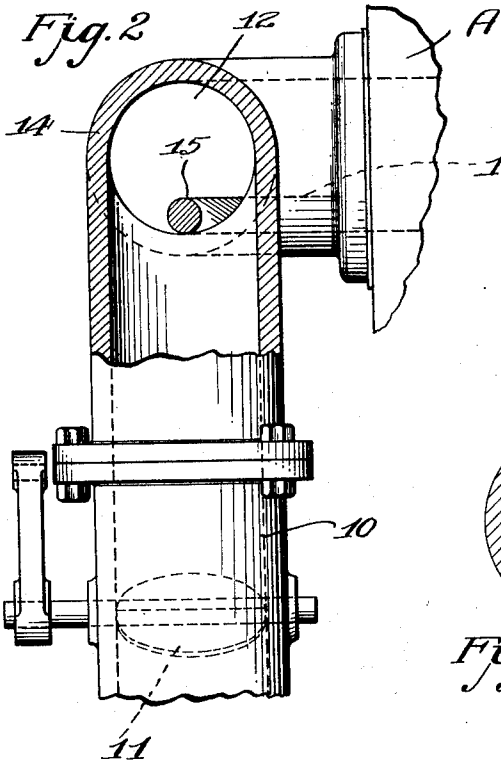


Fig. 2



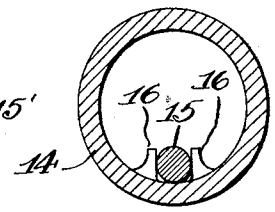


Fig. 3

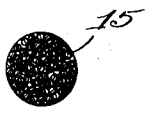


Fig. 4

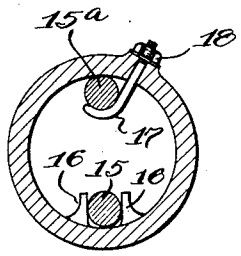


Fig. 6

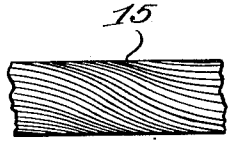


Fig. 5

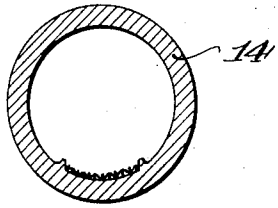


Fig. 7

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1,961,466

UNITED STATES PATENT OFFICE

1,961,466

ENGINE

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Application July 27, 1931, Serial No. 553,303

10 Claims. (Cl. 123—52)

This invention relates to internal combustion engines and refers more particularly to systems of fuel distribution and carburetion for such engines.

Heretofore difficulty has been experienced in efficiently distributing a carbureted mixture such as gasoline and air because of a tendency of the fuel mixture to "puddle" or collect wet particles at points in the distribution system such as along the floor or bottom wall of the branches or runner of the usual riser to the engine cylinders. This wet fuel collection disturbs the desired fuel mixture distribution, is passed to certain cylinders more than others resulting in engine roughness carbonization, fouling of spark plugs, high fuel consumption, and other undesirable characteristics.

It is an object of my invention to overcome the aforesaid difficulties by providing means in the manifold branches for absorbing the wet fuel particles sufficiently to prevent their passage to the engine cylinders prior to vaporization or mixture with the air and fuel stream passing through the manifold. More specifically in the embodiment illustrated I have provided a metallic absorbing material extending in contact with the manifold wall along the branches where the wet fuel mixture tends to collect.

Further objects and advantages of my invention will be apparent as this specification progresses, reference being had to the accompanying drawing in which:

Fig. 1 is a side elevation view of an internal combustion engine illustrating my improvements.

Figs. 2 and 3 are detail sectional views through 2—2 and 3—3 respectively of Fig. 1,

Fig. 4 is a detail sectional view through the absorbing material,

Fig. 5 is a longitudinal elevation view thereof,

Fig. 6 is a view corresponding to Fig. 3 illustrating a modified form of my invention, and

Fig. 7 is a similar view illustrating a further modified form.

In the drawing reference character A represents an internal combustion engine of the usual well known type having the usual exhaust manifold B and carburetor C. This carburetor in the illustrated embodiment of my invention is connected to the upwardly extending riser or primary fuel conducting portion 10 of the intake manifold D it being understood that for the well known down draft types of carburetors this riser will extend downwardly from the carburetor. Within the riser is the usual throttle valve 11 for governing the amount of fuel mixture passing to fuel distributing zone 12 when the fuel mixture stream divides and passes through manifold headers or branches 13, 14 for distribution to the usual groups of engine cylinders (not shown).

In order to overcome the tendency for the wet fuel to puddle or collect in branches 13 and 14 I have provided the material or insert 15 which has the characteristic of rapidly absorbing and spreading the wet fuel particles. In the illustrated form this insert 15 is a twisted multi-fibre metallic wire as illustrated in Figs. 4 and 5, the metal being preferably iron, although certain other metals have the desired property and may be used advantageously, such as brass, or aluminum. This wire insert 15 lies along the bottom wall of the branches extending across zone 12 and may extend to the manifold outlets to the engine as at 15′ in Fig. 2. The wet fuel particles for the most part collect along the lower walls of the branches although during high speed acceleration of the motor the wet fuel particles also tend to collect and pass along the upper walls of the branches. With the latter conditions in mind a similar fabricated absorbent insert 15ª may be inserted along the upper walls of manifold branches 13, 14 as illustrated in Fig. 6.

Any suitable means may be employed to locate or position the inserts 15, 15ª in position, such means preferably not interferring materially with the fuel stream through the manifold. Thus in Figs. 1, 3 and 6 the wire 15 may lie in the flanged lugs 16 suitably spaced longitudinally of the manifold branches and wire 15ª may be suspended by hooks 17 extending through the manifold branches and locked by threaded nuts 18.

If desired the absorbent material may be fabricated in other forms than as illustrated, such as in the form of a metallic closely woven ribbon as illustrated in Fig. 7.

What I claim as my invention is:

1. An engine intake manifold structure having an open fuel mixture conducting portion extending longitudinally of the engine and terminating in an outlet adjacent said engine, said conducting portion having a localized zone in which fuel precipitate tends to accumulate, and a liquid conducting and absorbent member associated with said zone for inducing flow of said precipitate towards the outlet of said conducting portion by capillary attraction of said precipitate for said conducting member.

2. An engine intake manifold structure having an open fuel mixture conducting portion terminating in an outlet adjacent said engine, said conducting portion having a localized zone in

which fuel precipitate tends to accumulate, and a liquid conducting means consisting of a cable constructed of a plurality of woven wires associated with said zone for inducing flow of said precipitate towards the outlet of said conducting portion by capillary attraction of said precipitate for said cable.

3. An engine intake manifold structure having an open fuel mixture conducting portion terminating in an outlet adjacent said engine, said conducting portion having a localized zone in which fuel precipitate tends to accumulate, and a liquid conducting means consisting of a cable constructed of a plurality of woven wires associated with said zone and extending substantially longitudinally of said fuel mixture conducting portion, said cable inducing flow of said precipitate towards the outlet of said conducting portion by capillary attraction of said precipitate for said cable.

4. In a fuel mixture conducting system for an internal combustion engine, an intake manifold including a primary fuel mixture conducting portion and branch portions communicating with said primary conducting portion, said branch portions providing open passages for conducting fuel mixture to the engine, and a liquid absorbent and liquid conducting member supported adjacent the wall of one or more of said branch portions for collecting fuel precipitate and conducting same longitudinally of said branch portions by the capillary attraction of said precipitate for said liquid absorbent member.

5. In a fuel mixture conducting system for an internal combustion engine, an intake manifold including a primary fuel mixture conducting portion and branch portions communicating with said primary conducting portion, said branch portions providing open passages for conducting fuel mixture to the engine, and a liquid absorbent and liquid conducting member supported adjacent the wall of one or more of said branch portions for collecting fuel precipitate and conducting same longitudinally of said branch portions by the capillary attraction of said precipitate for said liquid absorbent member, said absorbent member overlying the mouth of said primary conducting portion.

6. In a fuel mixture conducting system for an internal combustion engine, an intake manifold including a primary fuel mixture conducting portion and branch portions communicating with said primary conducting portion, said branch portions providing open passages for conducting fuel mixture to the engine, and a liquid absorbent and liquid conducting member supported adjacent the wall of one or more of said branch portions for collecting fuel precipitate and conducting same longitudinally of said branch portions by the capillary attraction of said precipitate for said liquid absorbent member, said absorbent member comprising a woven wire cable.

7. In a fuel mixture conducting system for an internal combustion engine, an intake manifold including a primary fuel mixture conducting portion and branch portions communicating with said primary conducting portion, said branch portions providing open passages for conducting fuel mixture to the engine, and a liquid absorbent and liquid conducting member supported adjacent the wall of one or more of said branch portions for collecting fuel precipitate and conducting same longitudinally of said branch portions by the capillary attraction of said precipitate for said liquid absorbent member, said absorbent member comprising a woven wire cable, extending longitudinally of said branch portions.

8. In a fuel mixture conducting system for an internal combustion engine, an intake manifold including a primary fuel mixture conducting portion and branch portions communicating with said primary conducting portion, said branch portions providing open passages for conducting fuel mixture to the engine, and a liquid absorbent and liquid conducting member supported adjacent the wall of one or more of said branch portions for collecting fuel precipitate and conducting same longitudinally of said branch portions by the capillary attraction of said precipitate for said liquid absorbent member, said absorbent member comprising a length of metallic fabricated material.

9. In a fuel mixture conducting system for an internal combustion engine, an intake manifold including a primary fuel mixture conducting portion, open branch fuel mixture conducting portions, and a fuel mixture distributing zone intermediate said primary and branch portions and communicating therewith, and a liquid absorbent and liquid conducting member extending longitudinally within said branches and across said zone.

10. In a fuel mixture conducting system for an internal combustion engine, an intake manifold including a primary fuel mixture conducting portion, open branch fuel mixture conducting portions, and a fuel mixture distributing zone intermediate said primary and branch portions and communicating therewith, and a liquid absorbent and liquid conducting member extending longitudinally within said branches along the lower walls thereof whereby to absorb the fuel precipitate and conduct same to the engine by the capillary attraction of said precipitate for said liquid absorbent member.

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