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W. H. HEARD

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CHARGE MIXING DEVICE FOR INTERNAL COMBUSTION ENGINES

Filed Aug. 7, 1928

Fig. 1.

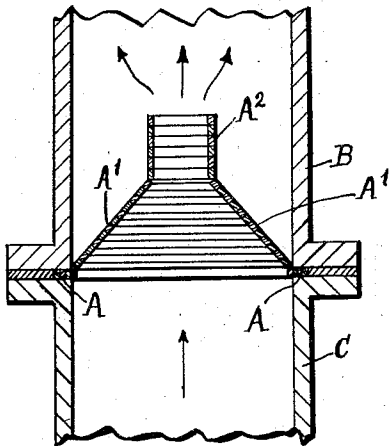


Fig. 2.

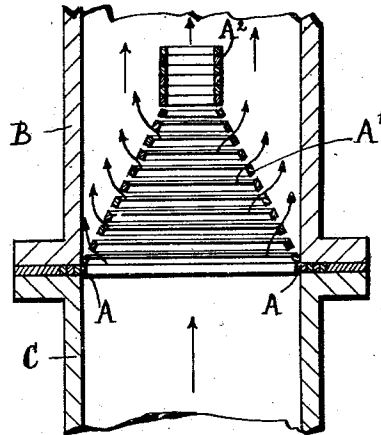


Fig. 3.

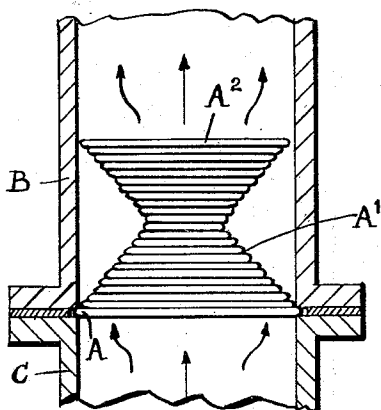
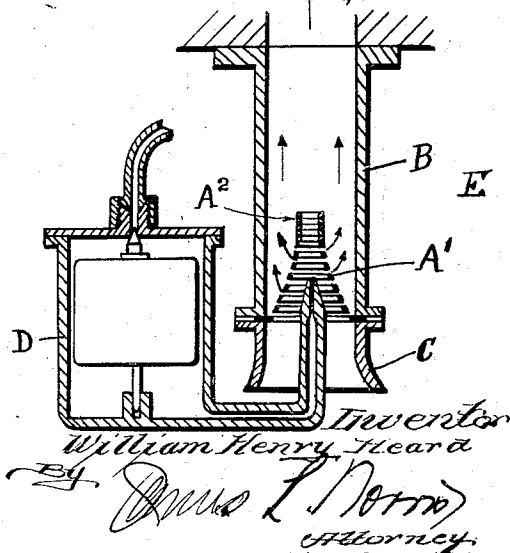


Fig. 4.



UNITED STATES PATENT OFFICE

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CHARGE-MIXING DEVICE FOR INTERNAL-COMBUSTION ENGINES

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The object of this invention is to construct a device to increase the atomization and create turbulence of the ingoing mixture in internal combustion engines and at the same time to prevent the oscillation of the mixture in the inlet pipe as the engine lowers speed, the said device automatically adjusting itself to the varying speeds of the engine.

The device consists of a helical wound spring or springs open at both ends or one end only, wound with the coils touching or at a suitable distance from one another, the internal bore of the device being of Venturi tube, conical or other suitable shape, the said device being inserted in a suitable position in the inlet pipe.

The wire from which the spring is made may be of round or other shape in section and may be tubular.

The annexed drawings illustrate several examples of carrying the invention into effect but it must be understood that I do not limit myself to the actual construction shown as such may be varied.

Figure 1 is a sectional elevation with the device having its coils closed and Figure 2 a similar view with the coils of one part open, the device being positioned in one tube and held by the meeting end of this tube with another tube.

In this construction the device is formed from wire approximately square in section and helically coiled in the flat at A to be held between the induction tubes B, C and then coiled conically as at A¹ and terminating at the apex of the coil with a straight tubular portion A², this portion being preferably non-extensible or slightly extensible.

Figure 3 is a similar view to Figure 1 except that the device is of wire, round in section and coiled Venturi shape.

Figure 4 is a sectional elevation of a carburettor D and induction tubes B, C leading to the engine and in this case the device is of coiled wire, square in section, and coiled bell shape with the apex or top closed in by a plate E.

The spring is of such a strength that the suction of the engine may stretch or separate the coils allowing the mixture to pass between

them thus splitting up the mixture and creating turbulence as the engine gains speed, whereas, as the speed of the engine is reduced, the device, acts as a choke tube creating a continuous suction and preventing the oscillation of the mixture in the inlet pipe.

The device may be mounted in any position in the inlet pipe or be incorporated in or attached to the carburettor itself, or to any other device connected with the induction system of an internal combustion engine.

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

A charge mixing device to be positioned in the induction pipe of an internal combustion engine, comprising a spring of which a portion is helically wound into a truncated conical form and having a passage at the apex of said truncated conical portion, the coils of said spring being in contact with one another when the engine is at rest or is running at low speed and being separable to permit the passage of combustible mixture therebetween by increased suction in the induction pipe due to increased speed of the engine.

In testimony whereof I have hereunto set my hand.

WILLIAM HENRY HEARD.