Feb. 16, 1926. 1,573,690

C. E. EDWARDS

AIR MOISTENER

Filed Sept. 19, 1921

Fig. 1

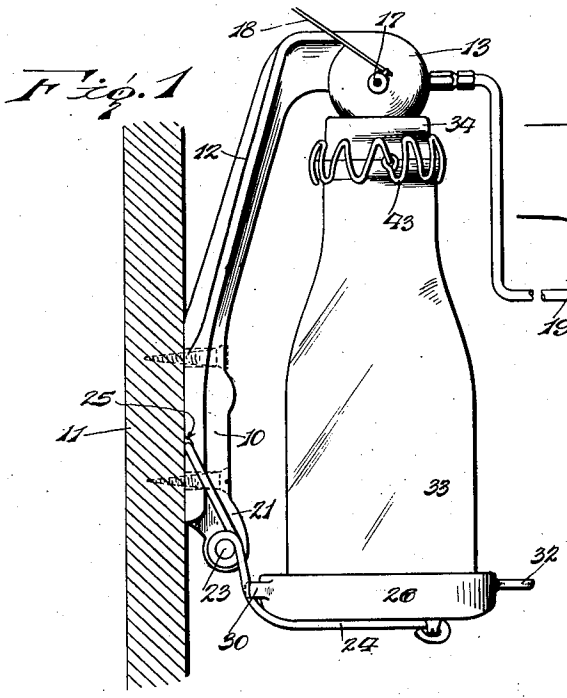


Fig. 6

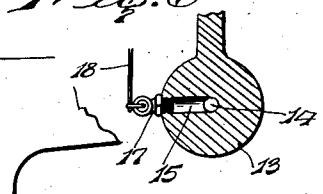


Fig. 4.

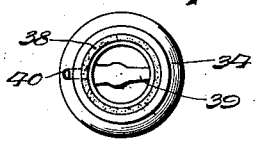


Fig. 2.

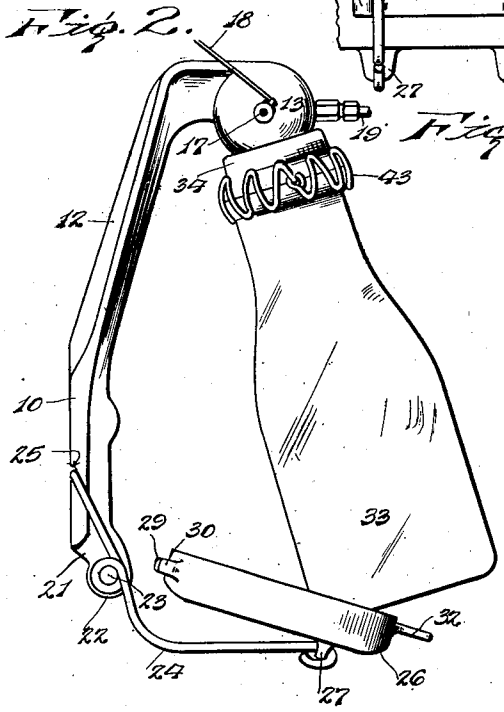


Fig. 5.

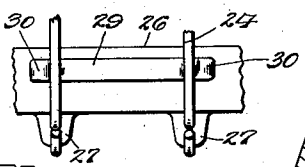
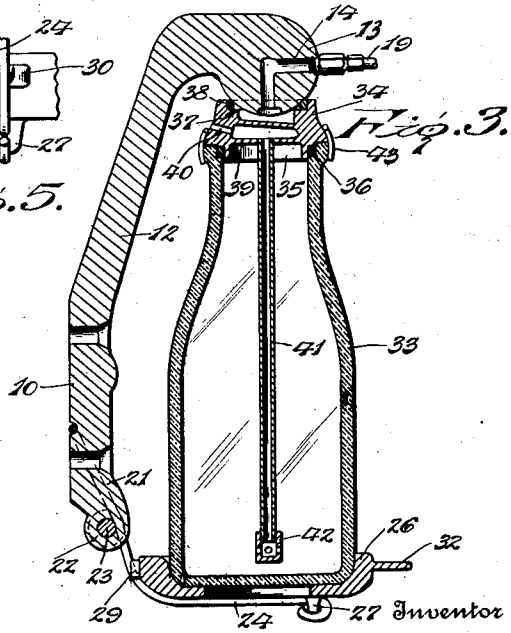


Fig. 3.



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By

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Patented Feb. 16, 1926. 1,573,690

UNITED STATES PATENT OFFICE.

CHARLES EMMETT EDWARDS, OF GALION, OHIO.

AIR MOISTENER.

Application filed September 19, 1921. Serial No. 501,590.

To all whom it may concern:

Be it known that I, CHARLES E. EDWARDS, a citizen of the United States, residing at Galion, in the county of Crawford and State of Ohio, have invented certain new and useful Improvements in Air Moisteners, of which the following is a specification.

This invention relates to an improved air moistener and has as one of its principal objects to provide a device of this character for supplying a flow of moistened air to an internal combustion engine to be mingled with the fuel mixture for increasing the combustibility thereof and accordingly increasing the efficiency of the engine.

The invention has as a further object to provide a device wherein the flow of moistened air may be diluted and augmented by an auxiliary air flow.

And the invention has as a still further object to provide a device which may be readily installed and which may be employed in connection with internal combustion engines of substantially any conventional design.

Other and incidental objects will appear hereinafter.

In the drawings:

Figure 1 is a side elevation showing the device mounted upon the dash of a motor vehicle, a portion of the intake manifold of the vehicle engine being also illustrated.

Figure 2 is a detail side elevation showing the manner in which the container of the device is removed from the supporting bracket therefor,

Figure 3 is a vertical sectional view taken medially through the device,

Figure 4 is a plan view of the top ring employed in connection with the container,

Figure 5 is a fragmentary elevation looking at the rear of the supporting cup for the container, and

Figure 6 is a detail section taken through the ball head of the supporting bracket.

In carrying the invention into effect, I employ a bracket comprising a base portion 10 which is formed to seat flat against the vehicle dash, as conventionally illustrated at 11, the base portion being provided with suitable openings therethrough to receive screws or other appropriate fastening devices securing the bracket to the dash. Rising from the base portion is a forwardly inclined arm 12 upon the free end of which is formed a spherical head 13. As best shown in Figure 3, the head is provided with a discharge passage 14 opening through the lower side of the head as well as the front side thereof and leading from the passage 14 at the junction between the angularly disposed portions thereof is an auxiliary air inlet passage 15. Threaded into the passage 15 at its outer end is an auxiliary air inlet valve 17 of appropriate construction and connected with the plug of said valve is a rod 18 leading to the instrument board of the vehicle or other point convenient to the driver's seat. Connected at one end with the passage 14 is a discharge pipe 19, the opposite end of which is, as shown in Figure 1, connected with the intake manifold of the vehicle engine, the manifold being conventionally shown at 20. The pipe 19 may, as suggested, enter the trunk of the manifold or may be connected thereto at any other approved point between the engine carbureter and the engine. Depending from the base portion 10 of the bracket is a forwardly inclined short arm 21 formed at its lower end with a sleeve 22 and extending through said sleeve to project at opposite ends thereof is a pin 23. Associated with said pin is a holder for the container of the device including a substantially U-shaped supporting spring 24. This spring is preferably formed from a length of suitable resilient wire, the sides thereof being coiled around the ends of the pin 23 while the connecting portion between the sides of said spring is arranged to seat in a transverse groove 25 formed in the rear flat face of the base portion of the bracket. At their free end portions the sides of the spring are bent to extend horizontally forward beneath the head 13 of the bracket and mounted upon said spring is an annular base cup 26. At its lower side this cup is formed with spaced depending ears 27 and, as will now be observed, the sides of the spring 24 are looped at their free ends through said ears for pivotally connecting the base cup with the spring, the spring thus extending beneath the base cup for normally supporting said cup in horizontal position thereon. Formed on the rear face of the cup is, as particularly shown in Figure 5, a reinforcing rib 29 at the ends of which are hooks 30 to coact with the sides of the spring for locking the base cup against skewing upon the spring. Projecting from the forward face of said cup is a thumb lug 32.

Removably supported by the base cup 26 is a container 33. As suggested in the drawing, the container may be in the nature of an ordinary milk bottle and the base cup is formed to snugly receive the lower end of the bottle. Mounted upon the container is an air intake fitting comprising a top ring 34 shaped to fit the mouth of the container and being flared to overhang the rim thereof. Formed on the ring is a depending annular flange 35 extending into the mouth of the container and fitting in said mouth to surround said flange is a gasket 36 confined beneath the ring. At its upper end the ring is provided with an internal shoulder 37 and resting upon said shoulder is a gasket 38 coacting with the spherical head 13 of the bracket. Extending diametrically within the top ring is a hollow cross web or tube 39 at one end of which is an air inlet passage 40 through the ring and depending from said web into the container is an air inlet pipe 41 extending to a point near the bottom of the container. Threaded upon the lower end of this pipe is an apertured cap 42. Removably connecting the air intake fitting with the container is a clamping band 43. As shown in Figures 1 and 2, this clamping band is formed from a length of suitable resilient wire connected at its ends and bent to provide a series of reversely presented loops extending in a direction parallel to the axis of the ring. The band is thus adapted to expand and contract circumferentially and the loops thereof are bowed longitudinally to engage over the flared base portion of the ring 34 and beneath the rim of the container. When applied the band is, of course, distended circumferentially so that the band will thus act to clamp the top ring 34 upon the container while the loops thereof will tend to bind or clamp said ring downwardly against the rim of the container for compressing the gasket 36 and forming a sealed joint between said ring and the container, the band, of course, acting to center the ring with respect to the container. Also, in this connection, particular attention is directed to the fact that the spring 24 will serve to press upwardly against the bottom of the container for compressing the gasket 38 between the head 13 of the body member and the top ring 34 to form a closed joint between said head and the ring and similarly, the spring will also act to compress the gasket 36 between the ring and the container. Air tight joints will thus be maintained.

Attention is now directed to the fact that, as shown in Figure 2, the container may be removed by pressing downwardly upon the thumb lug 32 until the side wall of the base cup 26 at the forward side of said cup clears the lower end of the container. The container may then be grasped and the lower end thereof shifted outwardly when the cup will rock upon the spring 24 to release the container. As soon as the container is freed from the base cup, the container may, of course, be completely displaced and to replace the container the operation, as just described, is, of course, reversed, the top ring 34 being first engaged with the head 13 of the bracket when the lower end of the container is then shifted into position within the base cup. Accordingly, the container may from time to time be easily filled with water and, as will now be seen, when the engine is running, engine suction in the manifold 20 will be communicated through the pipe 19 for drawing in air through the passage 40 and through the pipe 41 into the container to rise through the body of water therein. Air so drawn into the container will be moistened when the moistened air will be carried off through the passage 14 and pipe 19 to the intake manifold to become mingled with the fuel mixture therein. The combustibility of the mixture will, as is well known, be thus increased, for increasing the efficiency of the engine. In order that a supply of air in addition to the moistened air may be admitted to the manifold, I provide the valve 17. By manipulating the rod 18, this valve may be adjustably opened, as desired, for admitting fresh air to the passage 14. This fresh air will accordingly be drawn into the pipe 19 for augmenting the flow of moistened air and within proper limits further increasing the combustibility of the fuel mixture. I accordingly provide a highly efficient device for the purpose set forth and as will now be appreciated, a device which may be readily employed in connection with internal combustion engines of substantially any convention design.

Having thus described the invention, what is claimed as new is:

1. A device of the character described including a bracket having a head provided with an outlet passage, a container, an air intake fitting carried by the container for supplying air thereto, a clamping band surrounding the container coacting with said fitting for securing the fitting upon the container, and means supporting the container to sustain said fitting coacting with the head, the container being in communication with said passage.

2. In an air moistener, the combination of a bracket provided with a head having an air outlet passage, a liquid container provided at its upper end with a mouth confronting the head to communicate with said passage, a holder for the container carried by the bracket and acting against the lower end of the container for clamping the container between said holder and the head, and means independent of the head for admit-

ting air to the container below the level of a liquid therein.

3. In an air moistener, the combination of a bracket provided with a head having an outlet passage, a liquid container provided at its upper end with a mouth confronting the head to communicate with said passage, a holder for the container carried by the bracket and acting against the lower end of the container for clamping the container between said holder and the head, means for admitting air to the container, and manually controlled means upon the head for admitting auxiliary air to said outlet passage.

4. In an air moistener, the combination of a bracket provided with a head having an air outlet passage, a liquid container, a separate air intake fitting mounted upon the upper end of the container and mating with the head to connect the container with said passage, said fitting being provided with means for discharging the intake of air below the level of a liquid in the container and a holder for the container carried by the bracket and acting against the lower end of the container for clamping the container and fitting between the head and holder as well as clamping the fitting upon the container.

5. In an air moistener, the combination of a bracket provided with a head having an outlet passage, a liquid container, a freely removable ring mounted upon the container and mating with the head to connect the container with said passage, a cross tube carried by the ring, the ring being provided with an air intake passage leading to the tube, an air intake pipe depending from the tube into the container, and a holder for the container carried by the bracket and acting against the lower end of the container for clamping the container and fitting between the head and holder as well as clamping the fitting upon the container.

In testimony whereof I affix my signature.

CHARLES EMMETT EDWARDS. [L. S.]