

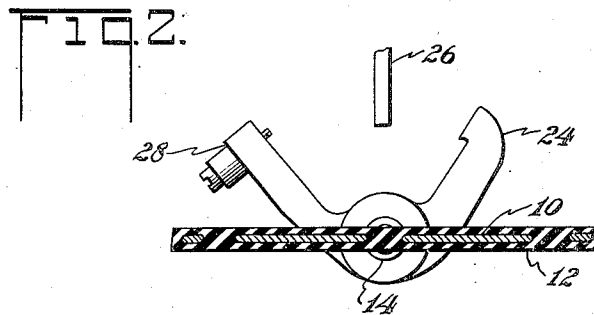
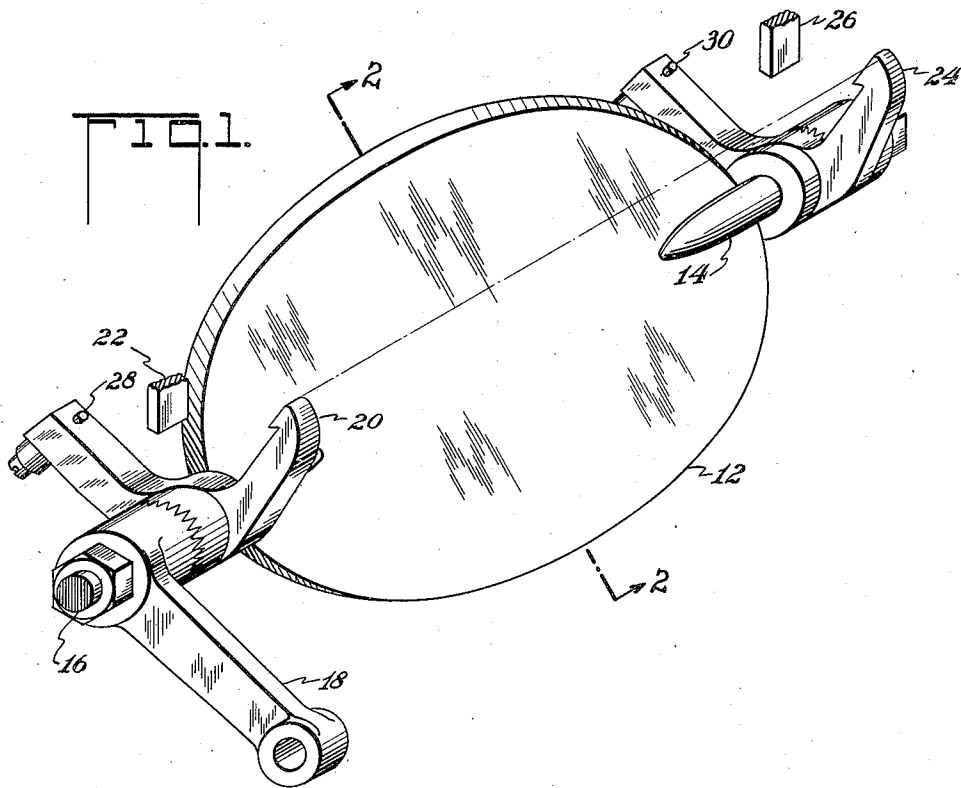
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2,059,687

DEICING THROTTLE

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DEICING THROTTLE

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4 Claims. (Cl. 251—11)

This invention relates to throttles for internal combustion engines and comprises a new and useful means having for an object the removal of ice which is apt to collect on certain parts by freezing of atmospheric moisture under low temperatures. The invention is adapted for use in carburetor throttles, or in air throttles of any type, such, for instance, as those used in conjunction with a fuel injection system.

In the drawing, Fig. 1 is a fragmentary perspective view illustrating the throttle of this invention; and

Fig. 2 is a transverse section on the line 2—2 of Fig. 1.

Referring first to Fig. 2, it will be seen that the throttle comprises a thin and flexible plate 10, preferably of metallic material, which is covered by a flexible covering 12, preferably of rubber vulcanized in position. Secured at either end of the throttle plate 10 (as by welding before vulcanizing) are aligned stub shafts 14 and 16, each of these passing through the usual bearings in the throttle barrel of the carburetor (not shown).

To the left-hand stub 16 there is secured a throttle lever 18, and a double-armed lever 20 engageable with a stop 22 carried on the body within which the throttle is mounted. To the right-hand stub shaft 14 is secured a similar double-armed lever 24 engageable with a fixed stop 26 on the body. The stop levers are so arranged that the right-hand lever 24 engages its stop 26 before the left-hand lever 20 engages its stop 22. This permits slight over-travel of the lever 18 whereby the operator may twist or distort the throttle at the end of its travel, thereby cracking off any ice incrustation. The rigidity of the throttle plate 10 is such that substantially no deformation takes place in normal operation between slightly open and full open positions. Only when the throttle is fully closed and jammed to cause engagement of both arms 20 and 24 with their respective stops 22 and 26, will the throttle plate 10 be warped. If desired, the full throttle stop arms 28 and 30 may be differentially adjusted, so that, when the engine is running with wide open throttle, the lever 18 may be moved to warp the throttle plate 10 to crack off any ice incrustation.

The use of the rubber 12 encasing the throttle plate 10 is advantageous, due to the lower degree of adhesion of ice thereto than if metal were used. The rubber is preferably of a size and shape similar to that of the ordinary all-metal throttle valve.

While I have described my invention in detail in its present preferred embodiment, it will be obvious to those skilled in the art, after understanding my invention, that various changes and modifications may be made therein without departing from the spirit or scope thereof. I aim in the appended claims to cover all such modifications and changes.

What is claimed is:

1. A throttle comprising a torsionally flexible plate, stub shafts extending from opposite sides of said plate, a control lever secured to one of said stubs, a stop means secured to the other stub, the whole adapted for twisting distortion of the throttle plate by over-travel of the control lever beyond the position at which said stop means becomes active.

2. In an engine, a flexible throttle valve having pivot studs at each end thereof engaging the barrel within which the throttle is contained, stop means on each side of said barrel, and a stop engaging means mounted on each said pivot stud for engagement with the stop on the corresponding barrel side, one said stop engaging means being organized to engage its stop prior to engagement of the other said means with its stop, said other means being engageable with its stop upon flexure of said throttle valve.

3. A flexible throttle valve comprising a thin distortable disk having stud shafts at each end thereof pivotally engaging the barrel within which the throttle valve is contained, stop means on one side of said barrel, stop-engaging means on the corresponding stud for engagement with said stop means, and a valve control lever mounted on the other said valve stud, so organized that over-control of said lever after engagement of said stop and stop-engaging means effects distortion of said distortable valve disk.

4. A flexible throttle valve comprising a thin distortable disk having stud shafts at each end thereof pivotally engaging the barrel within which the valve is contained, stop means on the sides of the barrel, stop-engaging means on said stud shafts each for engagement with one said stop means, the respective stop means being so organized as to not engage both respective stop-engaging means, except when said valve disk is distorted, and means for moving said valve through normal valve opening and closing, and through the range of disk distortion to effect engagement of both stop means with their respective engaging means.

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