Sept. 6, 1927. 1,641,336

T. B. KLAPPER

WINDSHIELD CLEANER

Filed May 3, 1927

Fig. 1.

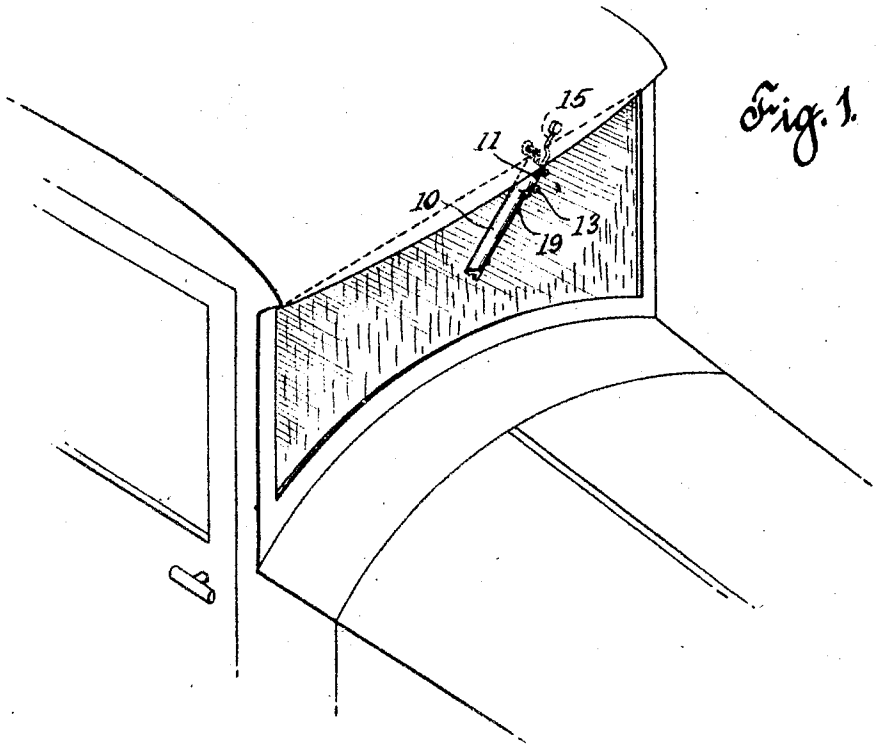


Fig. 2.

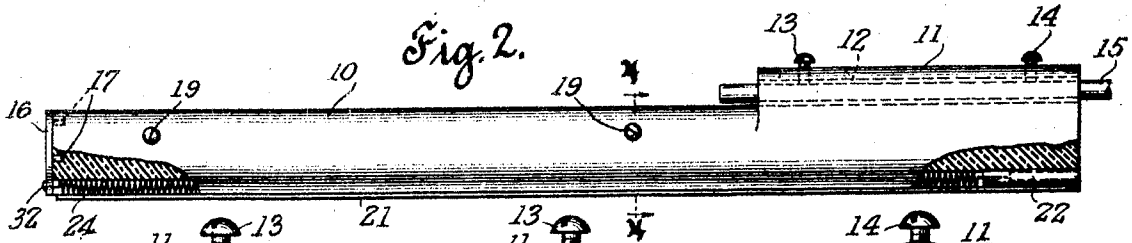


Fig. 3.

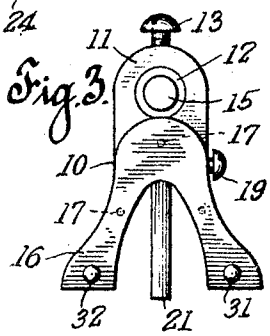


Fig. 4.

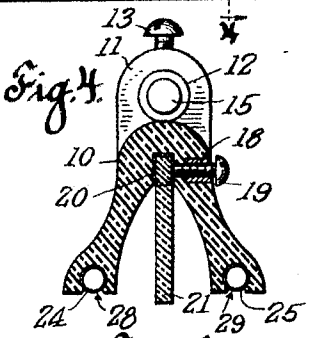


Fig. 5.

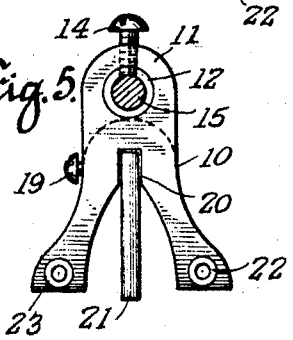


Fig. 6.

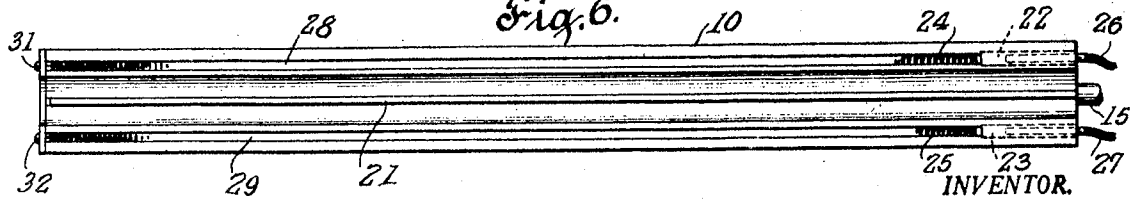
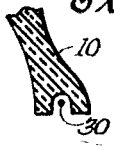


Fig. 7.



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UNITED STATES PATENT OFFICE.

THEODORE B. KLAPPER, OF GARDEN CITY, NEW YORK.

WINDSHIELD CLEANER.

Application filed May 3, 1927. Serial No. 188,436.

The main object of my invention is to produce a simple and practical wind-shield cleaner which will keep the part of the wind-shield within its scope free and clear from sleet and snow.

Another object of my invention is to provide a construction which can be readily attached to existing wind-shield wiping mechanisms.

Another object is to provide a means for wiping as well as drying the glass of the wind-shield.

Another object is to provide a construction which is durable and yet is easily repaired.

Another object is to provide a construction which will apply heat to the glass without injury to the wiper.

Another object is to provide a heating cleaner which is electrically and thermally efficient.

I accomplish this object by constructing a holder in whole or in part of insulating material which may preferably be molded and providing it with one or more channels adjacent the wind-shield and mounting in these channels electrical heating members spaced away from the wiper.

By means of my particular construction hereinafter set forth in detail, the wiping member proper is protected from the heat produced by the heating member and the heating member is so placed that it is protected in turn from the wind and transmits substantially the entire heat to the face of the wind-shield.

Referring to the drawings Fig. 1 shows a perspective view of the wiper attached to a motor car.

Fig. 2 is a longitudinal side view of one embodiment of my invention partly broken away to show means for holding the heating element.

Fig. 3 is a lower end view of the same.

Fig. 4 is a transverse section on the upper plane of the line 4—4 of Fig. 2 showing means for holding the wiper in place.

Fig. 5 is a view of the upper end.

Fig. 6 is a view of the active face of the cleaner.

Fig. 7 is a fractional section showing another form of heating element.

The body 10 in the preferred form may be made of any suitable material, which preferably has high insulation properties both as to heat and as to electricity and may be moulded. This casing or body is of inverted U-shaped section as shown in Figs. 3, 4 and 5. It carries at its upper end the extension rib 11 into which may be moulded the tube 12 carrying the set screws 13 and 14 which may engage the rod 15 which may be actuated by the usual wiper mechanism (not shown).

The metallic lower end plate 16 has pins 17, moulded in the body 10. The threaded bushings 18 carrying the set screws 19 for engaging the metallic holder 20 of the wiper 21 may also be moulded into the body 10. This body or casing 10 also carries the sockets 22 and 23 which serve as terminals for both the heating units 24 and 25 and the flexible connecting terminals 26 and 27.

The grooves 28 and 29 as may be seen in Fig. 4 are preferably open through less than 180°, thus securing the heating coils 24 and 25 and heat insulating them in all directions save towards the wind-shield. Instead of the heating coils 24 and 25, a straight wire, such as 30 in Fig. 7, may be employed.

In assembly a straight portion of each heating coil of correct diameter and resistance is introduced into its channel in the upper end and a straight portion is threaded through an aperture in the plate 16. The coil proper is then pulled into its channel and soldered as at 31 and 32. Then the sockets, such as 22 and 23, are inserted and the upper ends of the heating coils are soldered thereto. The wiper and its backing or holder is detachably secured by the screws 19.

By means of my construction the wiping member 21 is protected from the effects of the heating members 24 and 25 and as soft rubber is the preferable material of said wiping member, this is an important feature. It will be seen that a channel is provided on either side of the wiping member to allow the melted ice, sleet, or snow, to run out of the bottom of the casing. Also that the heating members are so retained and positioned so that a large percentage of their heat is applied substantially directly to the wind-shield with little loss of heat to the open air.

It should be understood that while I have described one embodiment of my in-

vention, I do not wish to limit myself except to the extent of the claims hereinafter set forth.

I claim:

1. A wind-shield cleaner comprising an insulating body having spaced apart flanges, heater members mounted in said flanges adjacent the outer surfaces thereof and a wiper element mounted in said body between said flanges and thermally and electrically insulated from said heater elements.

2. A wind-shield cleaner comprising a body having spaced apart flanges, heater elements mounted in said flanges and provided at one end of said body with means for the attachment of circuit wires and having a conducting end plate connecting said elements on the other end of said body and a flexible wiper element carried by said body between said flanges and spaced apart from said heater elements.

3. A wind-shield cleaner comprising a body member having an insulating flange with an open groove in its outer face, a heater element mounted in said groove and exposed toward the wind-shield and a flexible wiper member secured to said body and spaced apart a substantial distance from that portion of the flange which carries the heater element, said flange serving to prevent radiation of heat from said heater element in substantially all directions except toward the wind-shield.

4. A wind-shield cleaner comprising an insulating body having a flange with a longitudinal groove in its outer face, a heater element removably mounted in said groove and exposed at the outer face thereof, and a flexible wiper member having one edge detachably secured to said body and the other edge spaced away from said heater element and adapted to co-act with the wind-shield glass when in use.

5. A wind-shield cleaner comprising a body having means for securing it to an operating mechanism, said body having spaced apart flanges, heater elements mounted in the outer face of said flanges and insulated from the remainder of said body and a wiper element secured to said body and projecting between said heater elements.

6. A wind-shield cleaner comprising a body having a flange of insulating material provided with a longitudinal groove in its outer face, a helically coiled heater wire removably mounted in said groove and exposed toward the wind-shield and a flexible wiper having one edge secured to said body and the other edge projecting adjacent said heater element but spaced apart therefrom.

THEODORE B. KLAPPER.