Oct. 4, 1955 R. H. LOOTENS 2,719,905

COMBINED SCRAPER AND DEFROSTING DEVICE

Filed Dec. 24, 1953

FIG. 1

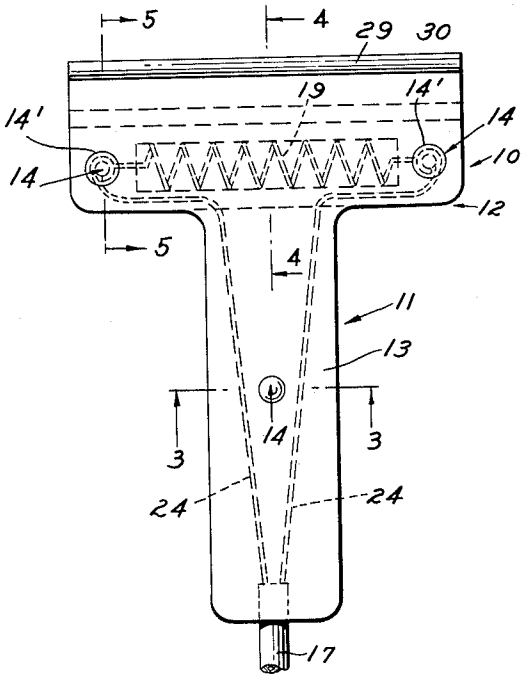
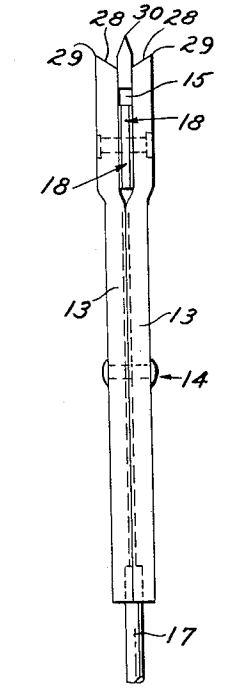


FIG. 2



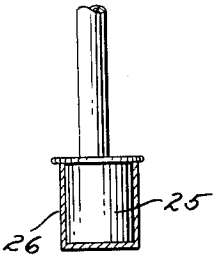


FIG. 3

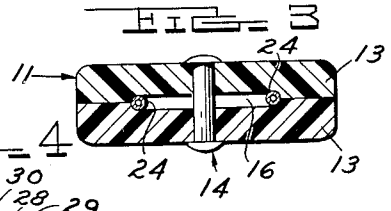


FIG. 4

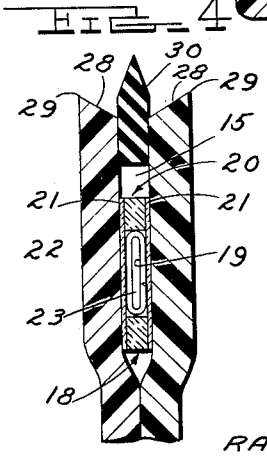
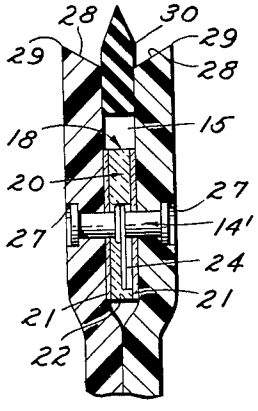


FIG. 5



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2,719,905

Patented Oct. 4, 1955

2,719,905

COMBINED SCRAPER AND DEFROSTING DEVICE

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Application December 24, 1953, Serial No. 400,207

4 Claims. (Cl. 219—21)

This invention relates generally to window cleaning devices and refers more particularly to an accessory adapted for use in connection with vehicles to wipe moisture or remove ice from the windows of vehicle bodies.

It is an object of this invention to provide a hand operated device having both a flexible wiper blade for removing moisture from a window and one or more ridged scraping edges for removing ice or frost from a window.

It is another object of this invention to provide an electrical resistance type heating element in the body of the device for heating the scraping edge or edges and thereby appreciably facilitate removal of ice or frost from a window.

It is still another object of this invention to provide means for electrically connecting the heating element to the electrical outlet ordinarily provided on vehicles for operating the usual cigar or cigarette lighter.

It is a further object of this invention to provide a window cleaner of the foregoing type composed of a relatively few simple parts capable of being inexpensively manufactured and assembled.

The foregoing as well as other objects will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawings, wherein:

Figure 1 is a front elevational view partly in section of a cleaning device constructed in accordance with this invention.

Figure 2 is a side elevational view of the device shown in Figure 1.

Figures 3, 4 and 5 are respectively sectional views taken on the lines 3—3, 4—4, and 5—5, of Figure 1.

The device selected herein for the purpose of illustrating the invention comprises a body **10** having a handle part **11** and a head **12** at the outer end of the handle part **11**. In practice the body **10** is composed of two substantially T-shaped plates **13** formed of any suitable material having dielectric and heat conducting characteristics such, for example, as a phenolic resin. In any case the two plates **13** are secured together in face to face relationship by fastener elements **14** in a manner such that the stem portions of the plates cooperate to form the handle part **11** and the transverse portions of the plates coact to provide the head **12**.

The head portions of the plates **13** are offset laterally with respect to one another to provide a space **15** therebetween and the stem portions of the plates have registering recesses in adjacent faces which cooperate to form a space **16**. The outer end of the space **16** opens into the space **15** and the inner ends of the stem portions are fashioned to provide an opening through which an electrical cable **17** may be extended into the space **16**.

Supported within the space **15** is a heating element **18** of the electrical resistance type comprising a length of coiled wire **19** and a sheath of electrical insulation **20** enclosing the wire coil **19**. The wire coil **19** extends lengthwise of the head **12** and the opposite ends are respectively

electrically connected to the two fastener elements **14'** at the head of the body **10**. Thus, these fasteners **14'** in addition to clamping the head portions of the plates **13** together also serve as terminals for the heating coil **19**.

The electrical insulation **20** comprises opposite side plates **21** and an intermediate plate **22** having an elongated opening **23** therethrough intermediate the ends thereof. The opposite sides of the opening **23** are closed by the plates **21** and the dimension of the opening **23** is predetermined to accommodate the heating coil **19**. The several plates of the sheath **20** are clamped together by the two fastener elements **14'** which serve as terminals for the heating coil **19**, and the intermediate plate **22** is suitably recessed at opposite ends to enable connecting the ends of the coil **19** to the fastener elements **14'**. The fastener elements **14'** are also connected to electrical conductors **24** which extend outwardly from the cable **17** through the space **16** in the handle part **11**. The free ends of the electrical conductors **24** are connected to an electrical plug **25** which is of a nature to enable inserting the same into the usual cigarette or cigar lighter socket indicated by the numeral **26** in Figure 1 of the drawing. The socket **26** is identical to those ordinarily installed on the instrument panels of vehicle bodies and the cable **17** is of sufficient length to enable cleaning the windows of the vehicle body while the plug **25** is engaged in the socket **26**. In this connection it will be noted from Figure 5 of the drawing that the heads at opposite ends of the fastener elements **14'** are located within recesses **27** formed in opposite sides of the head **12** so that the body **10** may be laid down by the user without the danger of short circuiting the heating coil **19**.

It has previously been stated that the body **10** is formed of a heat conducting material so that when the coil **19** is in operation, the head **12** and more particularly the edges **28** of the plates **13** at the outer end of the body **10** are heated. The edges **28** converge toward the space **15** and provide sharp scraping edges **29** which extend for the full length of the head **12**. These scraping edges **29** when heated by the coil **19** render it possible to readily remove ice or frost from the windows of a vehicle body. If desired, provision may also be made for wiping moisture from the windows and this is accomplished herein by providing the device with a flexible wiper blade **30**. The blade **30** extends for the full length of the head **12** and is clamped between the head portions of the plates **13** by the fastener elements **14'**. The outer edge **31** of the blade **30** is fashioned to provide an effective wiping edge and extends outwardly beyond the scraping edges **29**. The arrangement is such that the blade **30** may be used in conjunction with either of the scraping edges **29** to wipe the window following the scraping operation or may be used independently of the scraping edges and heating coil as a squeegee for removing moisture from the window. The blade **30** also provides heat insulation between opposite sides of the head.

The drawings and the foregoing specification constitute a description of the improved combined scraper and defrosting device in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A heated windshield scraper having a handle and transverse head, and comprising a pair of identical generally flat members formed of a heat conducting material, each of said members having a handle portion and a transverse blade portion, said blade portions each having a scraping edge formed by the intersection between a side of said blade portions and an oblique end surface thereof, said members being assembled together in side by side abutment with the scraping edges of said blade portions

at the outside to provide two alternately usable scraping blades, said blade portions being laterally offset to provide a space therebetween, a resilient wiper blade of heat insulating material disposed between said blade portions in heat insulating relation and extending outwardly beyond said scraping edges, electrical resistance heating means in said space below said wiper blade, and means for connecting said heating means to an external source of current.

2. An article as defined in claim 1 in which said members are formed of a heat conducting plastic material.

3. An article as defined in claim 1 in which said members are formed of a phenolic resin.

4. A heated windshield scraper having a handle and transverse head, and comprising a pair of identical generally flat members formed of a heat conducting material, each of said members having a handle portion and a transverse blade portion, said blade portions each having a scraping edge formed by the intersection between a side of said blade portions and an oblique end surface thereof, said members being assembled together in side by side abutment with the scraping edges of said blade portions at the outside to provide two alternately usable

scraping blades, said blade portions being laterally offset to provide a space therebetween, a resilient wiper blade of heat insulating material disposed between said blade portions in heat insulating relation and extending outwardly beyond said scraping edges, electrical resistance heating means in said space below said wiper blade, said handle portions having complementary recesses defining a passage when said members are assembled, and a conductor in said passage connected to said heating means and adapted to connect said means to an external source of current.

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