

May 13, 1930.

J. A. JOHNSON

1,758,703

WINDSHIELD

Filed Jan. 30, 1929

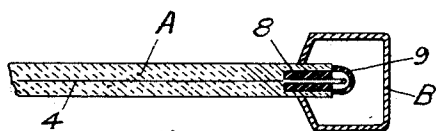
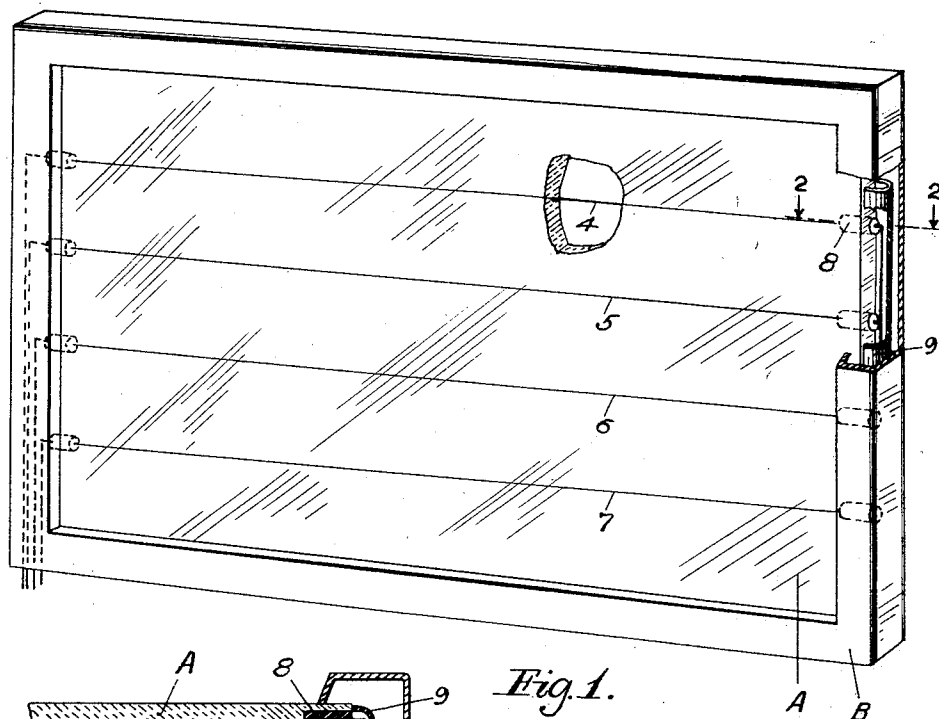


Fig. 2.

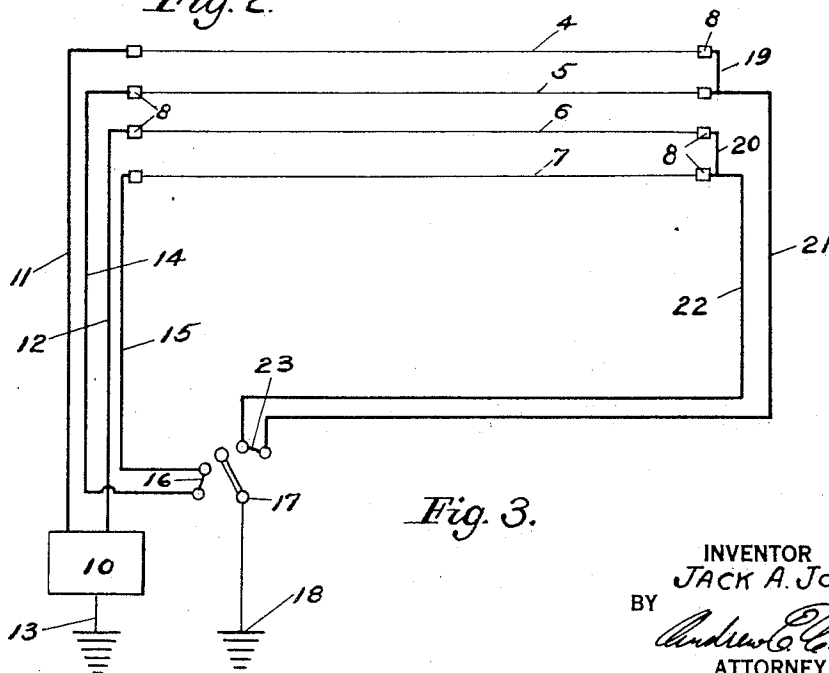


Fig. 3.

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WINDSHIELD

Application filed January 30, 1929. Serial No. 336,215.

This invention relates to windshields for motor vehicles and the primary object is to provide means of a novel, efficient, and practical nature for preventing the accumulation of ice, frost, or condensation on the windshield to obstruct the driver's vision. More specifically the invention comprises an electric heating or hot wire system, in which high resistance circuit controlled wires are imbedded or inserted in the windshield proper, so that the glass thereof may be heated, at will, under which circumstances its surfaces will remain relatively clear regardless of weather conditions and differences in temperature inside and outside of the car.

In the accompanying drawing, illustrating a preferred embodiment of my invention:

Fig. 1 is a perspective elevation of a windshield unit embodying my invention, fractional portions being broken away for purpose of illustration.

Fig. 2 is an enlarged sectional detail view on the line 2—2 in Fig. 1.

Fig. 3 is a diagrammatic illustration of the circuit control system employed.

Referring to the drawing more particularly and by reference characters A designates the glass of a windshield having a frame B. This frame may be of any suitable construction although a frame that is channel shaped in cross section, as shown, is best adapted in the present instance.

Extending horizontally through the glass A is a series of vertically spaced high resistance wires 4, 5, 6, and 7, terminating at the side edges of the glass in insulating terminal plugs 8. The wires 4—7 may be merely secured between two sheets of glass, but I prefer to imbed them in the body of a single pane. In either event the plugs 8 are intended to serve the double purpose of connections between the wires 4—7 and the main circuit wires, and also to fit tightly in place to exclude air from reaching the wires 4—7. It is also preferable to place a semi-tubular

insulation guard 9 over the circuit wires running up into the end posts of the frame B.

The left ends of the wires 4 and 6 connect directly with one pole of a source of current, as a battery 10, by circuit wires 11 and 12, respectively, the other pole of the battery being grounded as at 13. The left ends of the wires 5 and 7 are connected by circuit wires 14 and 15, respectively to the terminal 16 of a switch 17, grounded as at 18. The wires 4—5 and 6—7 are connected in pairs, at their right ends, by short wires 19 and 20, and these wires are in turn connected by wires 21 and 22, respectively, to a second terminal 23 of the switch 17.

As shown in Fig. 3, the switch 17 is in an open position. This switch is of course placed in a convenient position in the car for operation by the driver.

When the switch is closed to terminal 16 currents are caused to flow through the two circuits 10, 11, 4, 19, 5, 14, 16, 17, 18, 13, and 10, 12, 6, 20, 7, 15, 16, 17, 18, 13, thus causing all the wires 4—7 to become heated, and this heat is in turn spread quite uniformly throughout the glass A. Should it be desired to confine the currents to fewer of the wires 4—7, and thus more restrict the heating areas, but permit the application of a more effective current flow, the operator closes the switch 17 to the terminal 23. The two previously described circuits are now open while new circuits are respectively closed through elements 10, 11, 4, 19, 21, 23, 17, 18, 13, and 10, 12, 6, 20, 22, 23, 17, 18, 13, thus only heating the resistance wires 4 and 6.

It is of course understood that the invention may be applied to windows, other than windshields, if so desired. It is further understood that suitable modifications may be made in the mechanical and electrical design and arrangements, as herein set forth, without departing from the invention, as such, provided, however, that such modifications

come within the spirit and scope of the appended claim.

Having now therefore illustrated and described my invention, what I claim to be new and desire to protect by Letters Patent is:

5 The combination with the pane of a windshield or the like, of vertically spaced heating wires imbedded in and extending horizontally through the pane for heating the
10 same, and terminal plugs, for the wires, imbedded in the end edges of the pane.

Signed at Minneapolis, Minnesota, this
28th day of January, 1929.

JACK A. JOHNSON.

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