

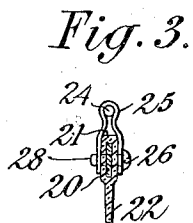
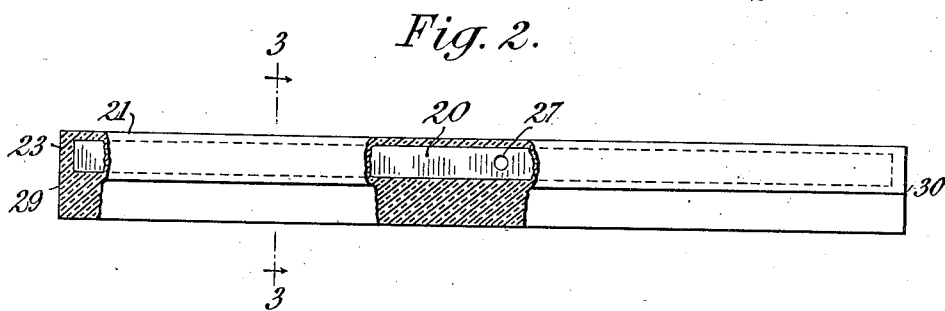
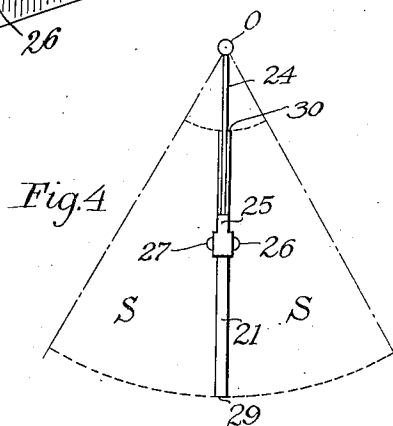
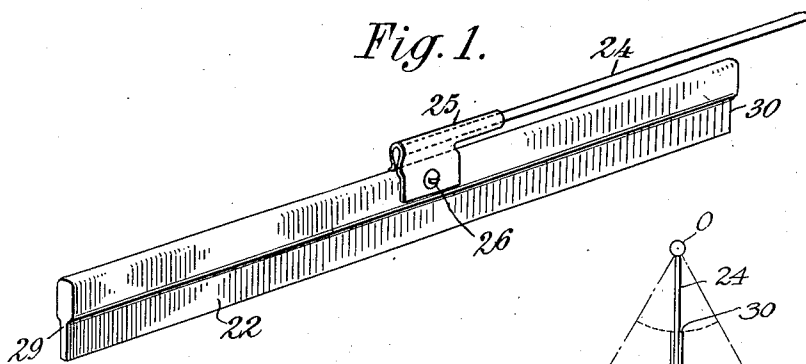
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SQUEEGEE AND THE MOUNTING THEREOF

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UNITED STATES PATENT OFFICE.

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SQUEEGEE AND THE MOUNTING THEREOF.

Application filed November 20, 1926. Serial No. 149,568.

This invention relates to improvements in squeegees such as are used as the wiping elements of automobile windshield cleaning devices, and to improvements in the mounting of such implements.

It is an object of the invention to provide a squeegee which shall be simple in construction and therefore economical, but which shall be durable and peculiarly adapted to accomplish its intended purpose by closely following the slight irregularities usually present in the surface to be cleaned.

It is a further object of the invention to so mount the squeegee that its cleaning effect shall be approximately uniform throughout its length.

In the drawings illustrating the invention—

Figure 1 is a perspective view of a squeegee embodying my invention, the usual attaching element and supporting arm therefor being indicated in broken lines.

Fig. 2 is a side view of the squeegee illustrated in Fig. 1, parts thereof being broken away to more clearly disclose underlying parts, and parts being indicated in longitudinal section.

Fig. 3 is a view of the squeegee in cross-section along the line 3—3 of Fig. 2, the usual attaching element and binding screw being indicated in broken lines.

Fig. 4 is a diagrammatic representation of the squeegee mounted for reciprocating movement about a center of oscillation.

In the form of the invention herein disclosed for purposes of illustration it comprises a supporting bar 20 and a sheath 21 preferably of some relatively soft waterproof material adapted for use as the cleaning element of the squeegee. If desired, a portion of the sheath may be extended to form a lip 22 adapted to be used as the working portion of the implement.

The bar 20 should be of some non-circular form in cross-section, as indicated in Fig. 3, in order that unintended rotary motion of the cleaning element about the bar may be prevented. The bar should also be of a sufficiently rigid material to satisfactorily perform its intended function as the holding and stiffening element of the squeegee, and it should preferably be of such material and relative proportions as to render the squeegee as a whole somewhat flexible. In its preferred form this bar 20 may, therefore, be a relatively thin strip of flat steel or other appropriate

metal, as indicated in Figs. 2 and 3 of the drawings. A relatively thin metal bar of such rectangular cross-section is adapted to prevent unintended relative movement between the cleaning element and the bar, and is adapted to permit a slight bending of the squeegee as a whole in a plane parallel to that of the surface to be cleaned.

The covering element 21 should be of some relatively soft material adapted to closely follow the surface to be cleaned, and should also be of a material adapted to protect the metal supporting bar and thereby prevent oxidation or corrosion. One material which has been found quite satisfactory for such purpose is soft rubber.

If desired, the covering element may be extended slightly beyond and closed over the ends of the supporting bar, as indicated at 23, so as to completely seal the bar and exclude the moisture of the atmosphere.

The squeegee may be manufactured either by preparing a covering element having a portion in the form of a flattened tube to receive the supporting bar which may be subsequently inserted endwise, or the rubber of the covering element may be applied to the supporting bar in a green state and subsequently vulcanized. A covering element having a flattened tubular portion appropriate for the intended purpose may be formed by extrusion in the manner in which commercial rubber tubing of small diameters is made. If the covering element is first prepared and the supporting bar subsequently inserted, the latter may, if desired, be coated with liquid cement before its insertion so as to cause the covering element to firmly adhere thereto, and the inner surfaces of the tubular portions of the covering element which extend beyond the ends of the bar, as at 23, may also be united by liquid cement. However, the use of such cement to fasten the covering element to the bar is not essential in view of the non-circular cross-sectional form of the supporting bar and the relatively flat tubular portion of the covering element within which it is enclosed which alone satisfactorily prevents undesired relative movement between said parts.

A squeegee of the above-described character may be pivotally secured to the end of the usual supporting arm 24 (Fig. 1) by means of the usual attaching element 25 and fastening screw 26 (Fig. 3). The screw may be passed through one leg of the attaching ele-

ment, thence through an opening 27 (Fig. 2) in the squeegee, and have its end firmly secured in a threaded opening in the opposite leg of said element as at 28. The threaded end of the screw 26 should preferably be shouldered or the threaded portion should be so disposed that the screw can be drawn into firm engagement with the threaded leg of the attaching element without causing the two legs thereof to clamp the squeegee and prevent the intended free pivotal movement of the latter about the screw. The screw 26 serves as means to prevent relative endwise movement between the covering element and the supporting bar when not cemented together or secured by vulcanization.

An important feature of this invention is the result of the discovery that a squeegee pivotally mounted at the center in accordance with the practice followed in the prior art, when attached to a windshield cleaning device by which it is caused to move in a circular arc about a center of oscillation O, Fig. 4, over the surface S, S, to be cleaned, is most effective at the part most distantly removed from the point of pivotal support and least effective at a point nearest said support. In the preferred form of this invention, therefore, the opening 27 to receive the screw 26 of the attaching element 25 is not centrally disposed with respect to the length of the squeegee but is placed slightly off center. A relative location of this opening 27 which has given satisfactory results is such that its approximate distances from the ends 29, 30 are respectively as five is to four. When so placed, the cleaning effect of the working element of the squeegee is substantially uniform from end to end.

Squeegees manufactured in accordance with the above-described invention, although relatively inexpensive are usually durable for the reason that the metal supporting bar is entirely enclosed and protected from moisture, as a result of which it is free from any tendency to rust or corrode. The galvanizing, japanning, or other treatment of the surface of the metal to protect it from the elements and render it sightly becomes unnecessary, thereby resulting in a material saving. The inserted supporting bar is not

only smaller and simpler than the externally disposed structure of the prior art, thereby resulting in a saving of material and labor, but the inserted bar lends itself more readily to a form which will permit the squeegee to have the requisite degree of flexibility to keep all parts of the wiper in contact with the surface to be cleaned. The pivotal mounting of the squeegee at a point slightly removed from its center tends to cause its cleaning effect to be uniform throughout its length.

Another important feature of squeegees constructed in accordance with this invention is that there are no metal surfaces between which the working element is confined and over the edges of which it is constantly bent, as is true of squeegees having the working element mounted within an enveloping metal support.

The invention should not be regarded as limited to the specific form of device herein selected for purposes of illustration, but is intended to include modifications and variations thereof within the scope of the appended claims.

What I claim is:

1. A squeegee comprising a flexible metal bar of non-circular cross-sectional form, a protective sheath of relatively soft moisture-proof material enveloping said bar and covering all surfaces thereof including its ends, and a flexible lip extending from one of the margins of said sheath to form a cleaning element.

2. A squeegee comprising a relatively thin flat metal bar to serve as a flexible support and a cleaning element of relatively soft material having a moisture-proof protective portion in the form of a sheath enveloping said bar.

3. A squeegee comprising a relatively thin flat metal bar to serve as a flexible support and a cleaning element of relatively soft material having a moisture-proof protective portion in the form of a sheath enveloping said bar, said sheath having a flexible lip extending along one of its margins to serve as a wiper.

In witness whereof, I have hereunto signed my name.

JOSEPH DEMAND.