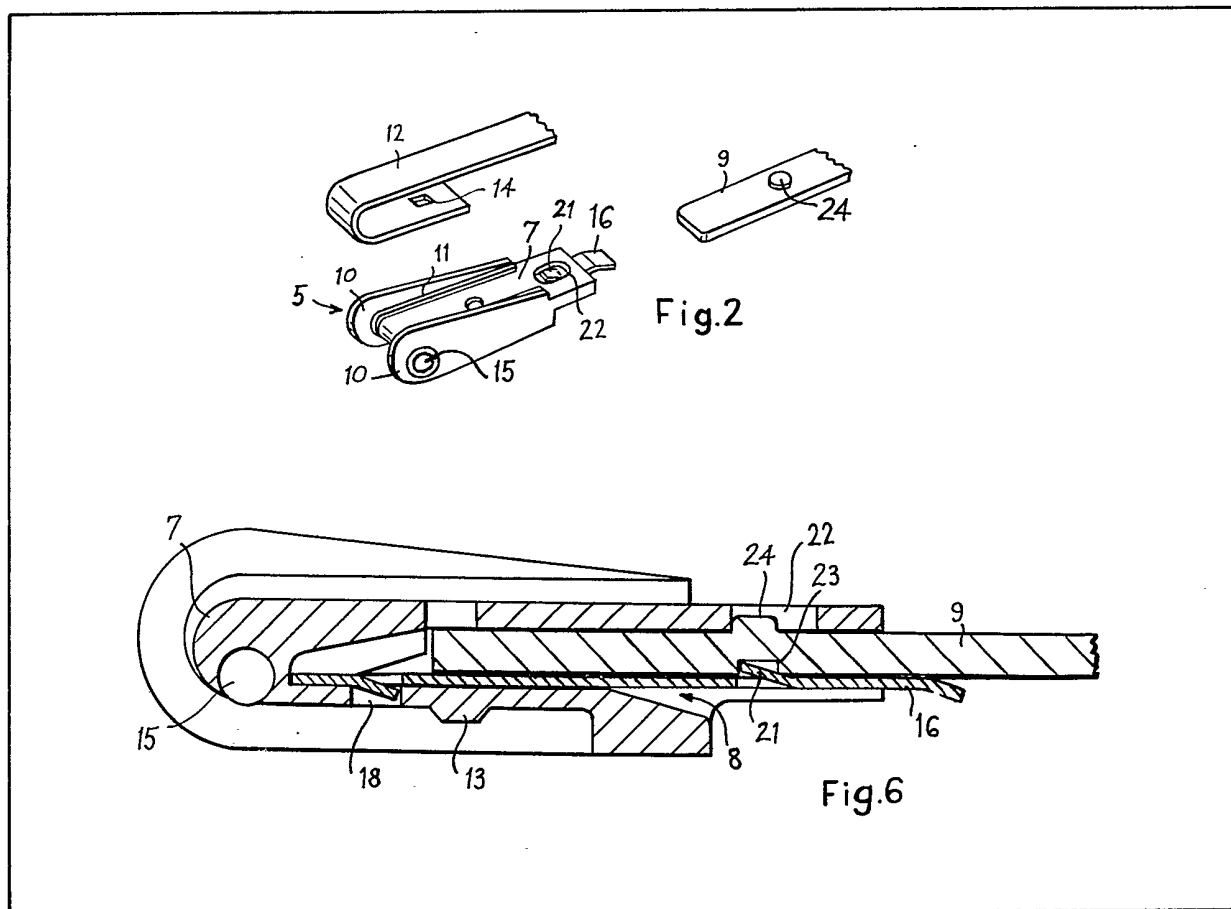
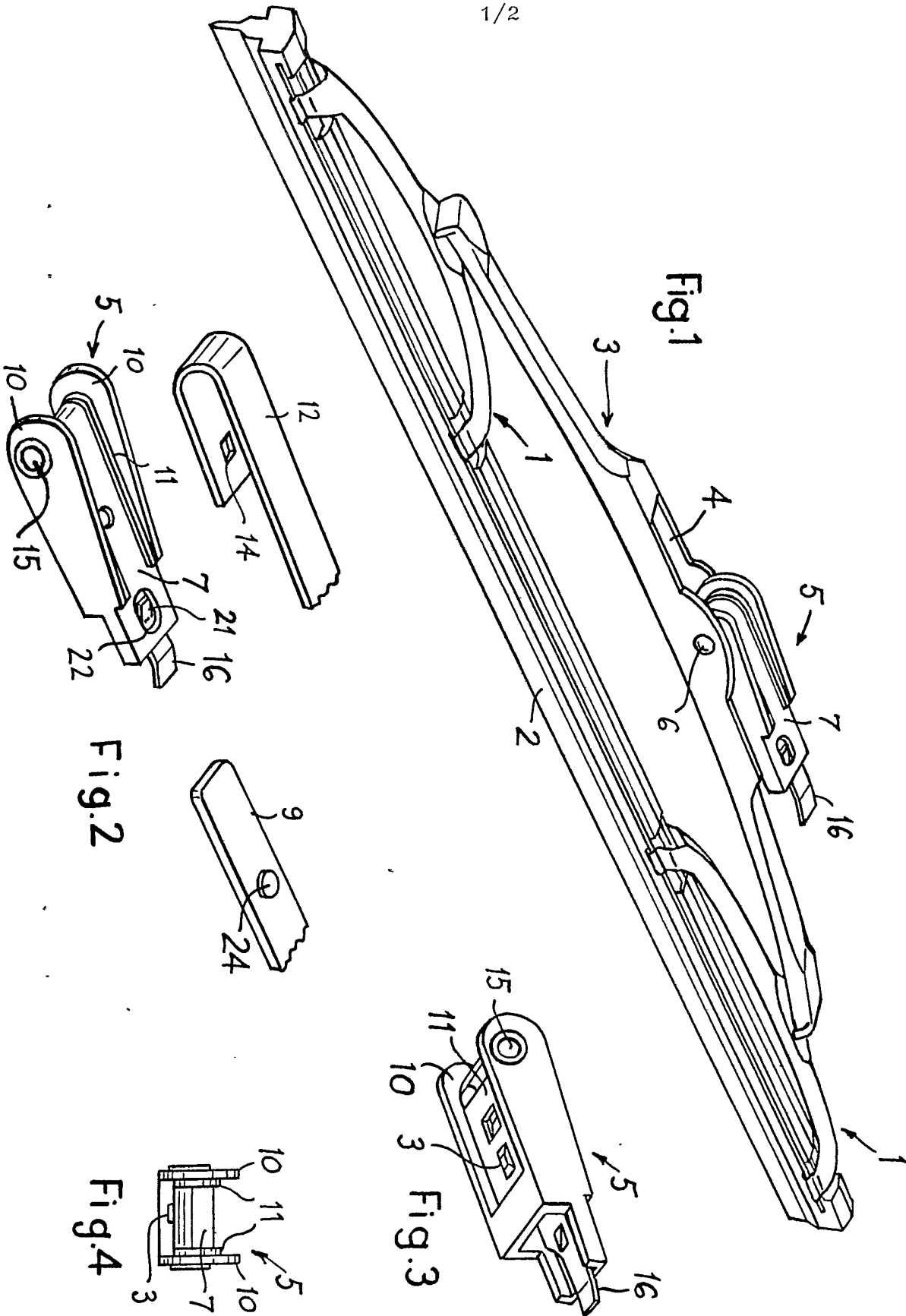


- (21) Application No 7929648
- (22) Date of filing 24 Aug 1979
- (43) Application published 11 Mar 1981
- (51) INT CL<sup>3</sup> B60S 1/42
- (52) Domestic classification A4F 40 AF
- (56) Documents cited None
- (58) Field of search A4F
- (71) Applicants Magnatex Limited, Bath Road, Heathrow, Hounslow, Middlesex
- (72) Inventors Dennis Arthur Bird
- (74) Agents Baron & Warren, 16 Kensington Square, London W8 5HL

(54) Windscreen wiper arm connector

(57) A connector (5) for selectively coupling a windscreen wiper blade holder to the end of a wiper arm either of the bayonet or hook type comprises a body portion (7), conveniently a plastics moulding, having cavity (8) extending thereto for receiving a bayonet arm end (9), side walls (10) defining a channel and projection (13) for receiving and securing a hooked arm end (12), and a leaf spring (16) retained in cavity (8) by a tongue at its inner end engaging in an aperture (18) in the bottom wall of the cavity (8), the spring (16) being biased to press against the upper wall of the cavity to urge a tongue (21) at its other end into a hollow (23) in the underside of the bayonet arm end (9) and also hold a projection (24) on the arm end in a slot (22) in said upper wall (20).





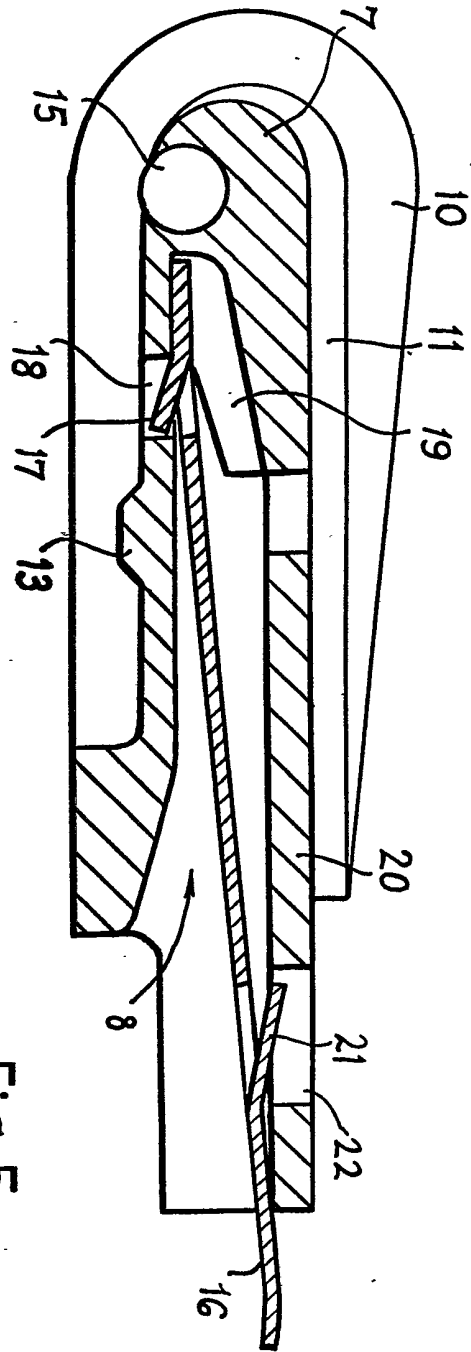


Fig. 5

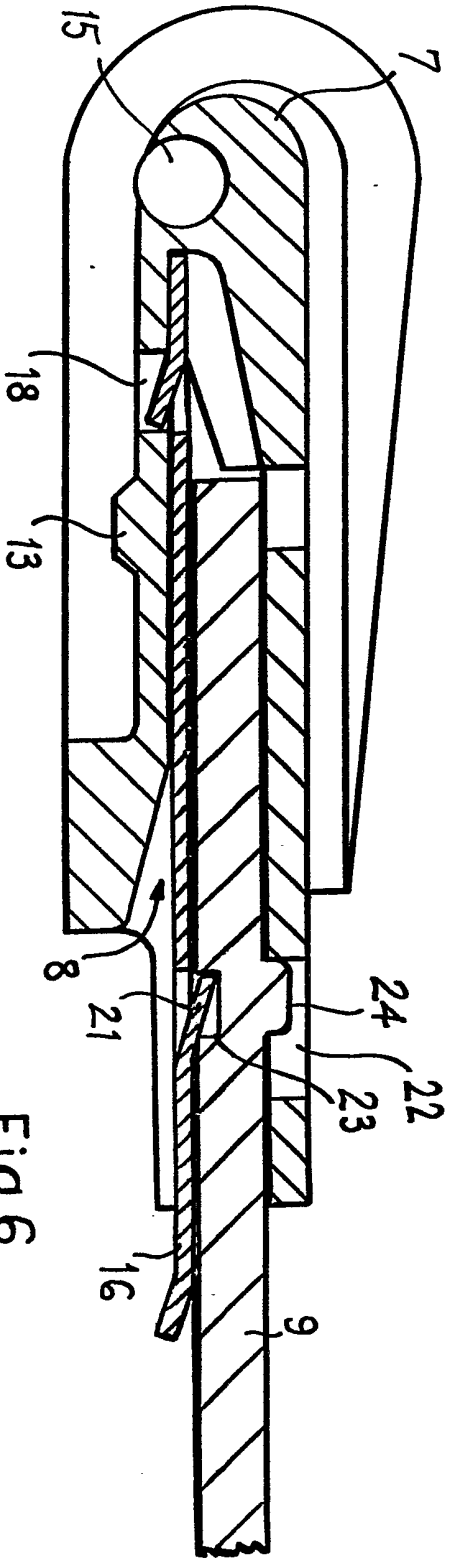


Fig. 6

## SPECIFICATION

**Windscreen wiper arm connector**

5 The invention relates to a universal connector for selectively coupling a windscreen wiper blade holder to the end of a wiper arm of either the bayonet or hook type.

The specification of United States Patent No. 10 4057869 describes such a universal connector which is constructed as a unitary moulding of a plastics material comprising a body portion having an elongate cavity or socket extending thereinto one end of the body portion for receiving a bayonet arm end, and having side walls projecting beyond the external surface of the body portion and defining with said external surface a channel for receiving a hooked arm end. The moulding includes two resilient tab portions one of which has an external projection for detachably securing a hooked arm end to the connector and the other of which has an opening to receive a retaining projection on the bayonet arm end when inserted into the cavity.

The present invention has for an object to provide 25 an improved construction of universal connector which is simpler to fabricate and employs a separate leaf spring for retaining the bayonet arm end.

The present invention consists in a universal connector for selectively coupling a windscreen wiper blade holder to the end of a wiper arm of either the bayonet or hook type, comprising a body portion having an elongate cavity extending thereinto from one end of the body portion and into which a bayonet arm end is to be received and detachably secured, and having side walls projecting beyond the external surface of the body portion, at least part-way therearound, and defining with said external surface a channel for receiving a hooked arm end and including means for detachably securing a hooked arm end to the connector, characterised in that a leaf spring extends along said cavity, the inner end of said cavity being shaped to hold the inner end of the leaf spring against a wall of the cavity with a retaining projection thereon engaged in an aperture in said wall, and the spring being biased to press against the opposite wall of the cavity adjacent its open end, an aperture being provided in said opposite wall for receiving a projection on a bayonet arm end when inserted in the cavity and pressed towards said opposite wall by the spring.

Preferably, the aperture of said opposite wall is in the form of a slot and the leaf spring is provided with a projection adapted to engage in a hollow in the underside of the retaining projection on a bayonet arm end to hold the projection adjacent the inner end of the slot (i.e. the end remote from the open end of the cavity), the projection engaging against the outer end of the slot if the hollow at its underside should accidentally become detached from the projection on the spring. This structure not only provides double security against accidental detachment of the bayonet arm end from the blade holder but also facilitates the operation of detaching the bayonet arm end from the connector by depressing the outer end of the leaf spring.

A further feature of the invention consists in forming the side walls around the body portion with a stepped formation to provide two channels of different widths to receive hooked arm ends of different widths, thereby increasing the universality of the connector.

The body portion and side walls may be integrally moulded of a plastics material.

In order that the invention may be more clearly understood, reference will now be made to the accompanying drawings, in which:—

Fig. 1 is a perspective view of a windscreen wiper fitted with a connector according to the present invention,

Fig. 2 is a perspective view of the connector from above and showing the ends of hook and bayonet type wiper arms in exploded relation to the connector,

Fig. 3 is an underside perspective view of the connector,

Fig. 4 is a front end view of the connector,

Fig. 5 is a longitudinal section through the connector, and

Fig. 6 is a similar view to Fig. 5 with a bayonet arm end inserted therein.

Referring to the drawings, Fig. 1 shows a conventional windscreen wiper comprising a blade holder consisting of two yokes 1 which hold the squeegee element 2 in known manner and are interconnected by a bridge piece 3 having a channel formation 4 at its central region between the walls of which a connector 5 is pivotally secured by a rivet 6. The construction of the wiper blade and its holder may take other forms without departing from the scope of this invention.

The connector 5 is conveniently moulded of a plastics material, such as polycarbonate, with a body portion 7 having an elongate cavity 8 extending thereinto from one end of the body portion for receiving the end of a wiper arm of the bayonet type as represented at 9. The body portion has side walls 10 projecting beyond the external surface of the body portion 7, at least part-way therearound as shown. Step portions 11 are formed at the junctions of the side walls 10 and the body portion along the upper surface and around the front end thereof. Thereby two channels of different widths, defined respectively by the spacing between side walls 10 and between steps 11 and the contoured external surface of the body portion are formed around the exterior of the body portion for alternatively receiving the ends of wiper arms of the hook type, as indicated at 12 of different widths. The under-surface of the body portion is provided with a projection 13 adapted to flex the limbs of the hook apart and thereby engage in an aperture 14 in the hooked arm end to detachably secure the arm end to the connector. The connector is formed with a transverse aperture 15 for securing it to the wiper blade holder by the rivet 6.

Fitted within the cavity 8 is a metal leaf spring 16 which is retained therein by a struck-up tongue 17 near its inner end engaging in an aperture 18 in the bottom wall of the cavity 8. Maintenance of engagement of the tongue 17 in the aperture 18 is

ensured by the inner end of the leaf spring 16 being held against the bottom wall of the cavity by projection 19 at its inner end. The leaf spring is shaped so that its outer end is biased towards the upper wall 20 of the cavity with its extreme end projecting therebeyond so that it is accessible to be depressed. Adjacent its outer end the leaf spring is provided with a struck-up tongue 21 which normally extends into a slot 22 formed in the upper wall 20. When a bayonet arm end 9 is inserted into the cavity 8 between the leaf spring and the wall 20, the tongue 21 engages in the hollow 23 in the underside of the retaining projection 24 formed up in the arm end. The leaf spring resiliently holds the projection 24 in the slot 22 at its inner end as shown in Fig. 6. To detach the wiper arm 9, the free end of the leaf spring is depressed, thereby allowing the tongue 21 to move to the outer end of the slot 22 where it will be retained until released by further depressing the leaf spring 16 either directly by hand or by pivoting the arm about the fulcrum between its free end and the upper wall 20 of the cavity.

#### CLAIMS

1. A universal connector for selectively coupling a windscreen wiper blade holder to the end of a wiper arm of either the bayonet or hook type, comprising a body portion having an elongate cavity extending thereinto from one end of the body portion and into which a bayonet arm end is to be received and detachably secured, and having side walls projecting beyond the external surface of the body portion, at least part-way therearound, and defining with said external surface a channel for receiving a hooked arm end and including means for detachably securing a hooked arm end to the connector, characterized in that a leaf spring extends along said cavity, the inner end of said cavity being shaped to hold the inner end of the leaf spring against a wall of the cavity with a retaining projection thereon engaged in an aperture in said wall, and the spring being biased to press against the opposite wall of the cavity adjacent its open end, an aperture being provided in said opposite wall for receiving a projection on a bayonet arm end when inserted in the cavity and pressed towards said opposite wall by the spring.

2. A connector as claimed in claim 1, characterized in that the aperture in said opposite wall is in the form of a slot and the leaf spring is provided with a projection adapted to be urged into said slot.

3. A connector as claimed in claim 2, in combination with a wiper arm of the bayonet type having a projection on one face of the bayonet arm end which forms a hollow in the other face of the arm end, characterized in that the projection on the spring is adapted to engage in the hollow in said bayonet arm end to hold the projection on said arm end adjacent the inner end of the slot, the arm end being resisted from disengagement from the connector, if the projection on the spring should accidentally become detached from said hollow, by the projection thereon engaging against the outer end of the slot.

4. A connector as claimed in claim 1 or 2, characterized in that the side walls around the body portion have a stepped formation providing channels of dif-

ferent widths to receive hooked arm ends of different widths.

5. A universal wiper arm connector constructed substantially as hereinbefore described with reference to the accompanying drawings.

Printed for Her Majesty's Stationery Office by The Tweeddale Press Ltd., Berwick-upon-Tweed, 1981.  
Published at the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.