



HU000028845T2

(19) **HU****MAGYARORSZÁG**
Szellemi Tulajdon Nemzeti Hivatala(11) Lajstromszám: **E 028 845**(13) **T2****EURÓPAI SZABADALOM**
SZÖVEGÉNEK FORDÍTÁSA(21) Magyar ügyszám: **E 06 125161**(51) Int. Cl.: **B60S 1/38** (2006.01)(22) A bejelentés napja: **2006. 11. 30.**

(96) Az európai bejelentés bejelentési száma:

EP 20060125161

(97) Az európai bejelentés közzétételi adatai:

EP 1792794 A2 **2007. 06. 06.**

(97) Az európai szabadalom megadásának meghirdetési adatai:

EP 1792794 B1 **2016. 02. 17.**

(30) Elsőbbségi adatok:

20050115734 **2005. 11. 30.** **KR**

(72) Feltaláló(k):

KIM, In Kyu, 426-768, Ansan-si, Gyeonggi-do (KR)

(73) Jogosult(ak):

The Korea Development Bank,
Yeongdeungpo-gu Seoul150-973 (KR)

(74) Képviselő:

Danubia Szabadalmi és Jogi Iroda Kft.,
Budapest

(54)

Ablaktörő lapát

Az európai szabadalom ellen, megadásának az Európai Szabadalmi Közlönyben való meghirdetésétől számított kilenc hónapon belül, felszólalást lehet benyújtani az Európai Szabadalmi Hivatalnál. (Európai Szabadalmi Egyezmény 99. cikk(1))

A fordítást a szabadalmas az 1995. évi XXXIII. törvény 84/H. §-a szerint nyújtotta be. A fordítás tartalmi helyességét a Szellemi Tulajdon Nemzeti Hivatala nem vizsgálta.



(11) **EP 1 792 794 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
17.02.2016 Bulletin 2016/07

(51) Int Cl.:
B60S 1/38 (2006.01)

(21) Application number: **06125161.7**

(22) Date of filing: **30.11.2006**

(54) **Wiper blade**

Wischerblatt

Essuie-glace

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI
SK TR**

(30) Priority: **30.11.2005 KR 20050115734**

(43) Date of publication of application:
06.06.2007 Bulletin 2007/23

(60) Divisional application:
11167404.0 / 2 366 594

(73) Proprietor: **The Korea Development Bank
Yeongdeungpo-gu
Seoul 150-973 (KR)**

(72) Inventor: **Kim, In Kyu
426-768, Ansan-Si, Gyeonggi-Do (KR)**

(74) Representative: **Intès, Didier Gérard André et al
Cabinet Beau de Loménie
158, rue de l'Université
75340 Paris Cedex 07 (FR)**

(56) References cited:
**EP-A2- 0 436 510 EP-A2- 1 637 419
EP-A2- 1 757 502 WO-A1-02/04268
DE-A1- 10 005 418 DE-A1- 10 107 021
DE-A1- 10 330 702 DE-U1-202004 012 132
FR-A1- 2 329 483 JP-A- 62 172 509
JP-U- 55 001 586 US-A1- 2004 159 994**

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] The present invention relates to a wiper blade mounted to a wiper apparatus for a vehicle to wipe a windshield.

[0002] Fig. 1 is a perspective view of a vehicle to which a conventional wiper blade is mounted, and Fig. 2 is a front view of the conventional wiper blade.

[0003] As shown in Fig. 1 and Fig. 2, the conventional wiper apparatus comprises a wiper arm 15 installed at one side of a vehicle body 10 and rotated from side to side by a wiper motor (not shown), and a wiper blade 20 mounted to the wiper arm 15, moved on and contacted with a windshield 12 to wipe it, and provided with a wiper strip 30.

[0004] The wiper blade 20 is coupled with the wiper arm 15 and is rotated within a predetermined angle range according to operation of the wiper motor. To this end, a main link 22 of the wiper blade 20 is coupled with the wiper arm 15. A plurality of intermediate links 24 are connected to the main link 22 through pins 25 for uniformly transmitting pressure of the wiper arm 15 to the main link 22. A plurality of sub links 26 are connected to the intermediate links 24 with pins 27 to connect the intermediate links 24 to the wiper strip 30. Also, clips 28 are formed at both ends of the sub link 26 and coupled with coupling grooves formed in the wiper strip 30.

[0005] Further, the wiper blade 20 is provided with a joint 29 to reduce a friction force between the main link 22 and the intermediate links 24. Also, document DE 20 2004 012 132 U1 discloses a conventional wiper blade, wherein a wiper strip is inserted in a wiper frame through a mounting slit thereof. DE 101 07 021 discloses an alternative, wherein a wiper strip and a wiper frame are coextruded.

[0006] In the wiper blade according to the prior art, however, a process of assembling a wiper strip as well as a structure for securing it are complicated, whereby there is a problem in that a time required for assembling the wiper blade is increased to lower a productivity of the articles. Also, in the conventional wiper blade, since the links are moved relative to each other when the wiper blade is operated, noises can be generated in the operation of the wiper blade. In addition, in the conventional wiper blade, the wiper blade is lifted up from the windshield by the wind when the vehicle is driven at a high speed, which causes a contacting force between the wiper blade and the windshield to be lowered. Accordingly, in order to solve the above problem, the structure in which an additional windbreak rib is provided on the main link has been proposed. However, a complete solution has not been proposed, so that there is a room for improvement of the wiper blade.

[0007] The present invention is conceived to solve the aforementioned problems in the prior art. An object of the present invention is to provide a wiper blade, which has a wiper frame formed to have elasticity, has an improved structure for securing a wiper strip, causes a wiper

strip to be directly coupled with the wiper frame, and is easily assembled, thereby saving a time required for an assembling process and having improved durability and contacting force.

[0008] An aspect of the present invention is defined in the appended claims.

[0009] According to a wiper blade of the present invention there are the advantages in that a structure of a wiper frame for securing a wiper strip is simple, a process of assembling the wiper strip to the wiper frame is simple, a time required for the assembling process can be reduced, and the manufacturing costs can be remarkably reduced and the durability of the article can be significantly improved since the wiper frame is formed to have predetermined elasticity and therefore no additional part is necessary. It is also possible to form a plurality of wiper frames in a short time using the jig for heat treating a wiper frame.

Fig. 1 is a perspective view of a vehicle to which a conventional wiper blade is mounted;
Fig. 2 is a front view of the conventional wiper blade;
Fig. 3 is a perspective view of a wiper blade according to the present invention;
Fig. 4 is an exploded perspective view of the wiper blade according to the present invention;
Fig. 5 (a) is a sectional view of a wiper strip and Fig. 5(b) is a sectional view of a wiper strip of the wiper blade according to the present invention;
Fig. 6 is a sectional view of the wiper blade according to the present invention;
Fig. 7 is a plane view of a wiper frame of the wiper blade according to the present invention;
Fig. 8 is a plane view schematically showing a jig for heat treating a wiper frame;
Fig. 9 is a view showing a state where the wiper frame is machined in the jig for heat treating a wiper frame;
Fig. 10 is a view showing a state where a plurality of wiper frames are machined in the jig for heat treating a wiper frame; and
Fig. 11 is a flow chart illustrating a method for manufacturing the wiper frame of the wiper blade.

[0010] Explanation of reference Numerals for major portions shown in the drawings :

50: Wiper Blade	60: Wiper Strip
62: Body portion	64: Upper End portion
65: Rail Groove	68: Strip portion
69: Cut-out portion	70: Wiper Frame
74: Coupling Aperture	76: Coupling Slit
78: Auxiliary Coupling Slit	80: Connector

[0011] Hereinafter, preferred embodiments of the present invention will be described in more detail with

reference to accompanying drawings.

[0012] Fig. 3 is a perspective view of a wiper blade according to the present invention, and Fig. 4 is an exploded perspective view of the wiper blade according to the present invention. Also, Fig. 5 (b) is a sectional view of a wiper strip of the wiper blade according to the present invention, Fig. 6 is a sectional view of the wiper blade according to the present invention, and Fig. 7 is a plane view of a wiper frame of the wiper blade according to the present invention.

[0013] As shown in Figs. 3 to 7, a wiper blade 50 according to the present invention comprises a wiper strip 60 in contact with a surface of a windshield to wipe out moisture, dust and the like got on the surface of the windshield, and a wiper frame 70 with which the wiper strip 60 is coupled.

[0014] As shown in Fig. 5 (a), the wiper strip 60 includes a body portion 62, rail grooves 65 formed in an upper end portion 64 of the body portion 62 to be opened to both sides, and a strip portion 68 formed in a lower end portion of the body portion 62 to be brought into contact with a surface of a windshield.

[0015] The wiper frame 70 exerts a certain elastic force to the wiper strip 60 such that the wiper strip 60 is brought into close contact with a windshield 12. To this end, as shown in Fig. 7, the wiper frame 70 is made of a thin metal plate and is formed to be curved along the lengthwise direction. Also, the wiper frame 70 comprises coupling slits 75 extending in the lengthwise direction. At this time, each coupling slit 75, which is a structure for coupling the wiper strip 60 thereto, has a predetermined width such that the rail grooves 65 of the wiper strip 60 can be fitted to the coupling slit.

[0016] In addition, a coupling aperture 74 is formed at one end of each coupling slit 75 so that a portion of the upper end portion 64 of the wiper strip 60 can be disposed in the coupling aperture in order to fit the rail grooves 65 of the wiper strip 60 to the coupling slit.

[0017] An end of the coupling aperture 74 connected to the coupling slit 75 is formed to be inclined in the fitting direction of the wiper strip 60, and thus guides so that the rail grooves 65 of the wiper strip 60 are fitted to the coupling slit 75.

[0018] In the meantime, only one of the coupling slits 75 may be formed in the wiper frame 70. However, it is preferred that a plurality of coupling slits be successively formed in order to maintain the rigidity of the wiper frame 70 and make it easy to couple the wiper strip 60 thereto. Also, the wiper strip 60 is formed such that its upper end portion corresponds to the coupling slits 75 of the wiper frame 70. That is, a cut-out portion 69 is formed in the upper end portion 64 of the wiper strip 60 by cutting out a part of the upper end portion 64 corresponding to a portion in which the coupling slit 75 is not formed.

[0019] Also, when the plurality of coupling slits 75 are formed in the wiper frame 70 as described above, a through hole may be formed between the coupling slits 75. In addition, a protrusion may be formed on the upper

end portion of the wiper strip 60, to be inserted into the through-hole of the wiper frame 70. Accordingly, as the protrusion of the wiper strip 60 is inserted into the through-hole of the wiper frame 70, the wiper strip 60 and the wiper frame 70 are fixedly coupled. In the embodiment of the present invention, although it is described that the through-hole is formed in the wiper frame 70 and the protrusion corresponding to this through-hole is formed on the wiper strip, it is possible to form a protrusion on the wiper frame 70 and a through-hole in the upper end portion of the wiper strip 60. In addition, a plurality of the through-holes or protrusions may be formed, and a shape of the through-hole or protrusion may be variously modified.

[0020] Also, an auxiliary coupling slit 78 is formed in the wiper frame 70 to be connected to the other end of the coupling aperture 74. The auxiliary coupling slit 78 is formed collinearly with the coupling slit 75 and fitted to the rail grooves 65 formed in an end of the wiper strip 60. To this end, the other end of the wiper strip 60 is fitted to the coupling slits 75 via the coupling aperture 74, and then, the one end of the wiper strip 60 is inserted into the coupling aperture 74 by compressing the one end of the wiper strip 60. At this time, once the compression force exerted on the wiper strip 60 is removed, the rail grooves 65 formed at the one end of the wiper strip 60 is fitted to the auxiliary coupling slit 78.

[0021] In the meanwhile, a connector 80 is installed to a portion of the wiper frame 70 to couple the wiper frame 70 to a wiper arm 15 (Fig. 1). Preferably, a seating portion 72 may be formed in the portion of the wiper frame 70 to guide a connecting position of the connector 80. The seating portion 72 may comprises a step section which may be formed to have the length and width corresponding to a coupling section of the connector 80. In addition, in order to increase the area which is exposed to wind, an area of a side of the wiper frame 70 is increased as it goes to its center. At this time, a central portion of the side of the wiper frame 70 of which the area is increased is partially cut out in order to couple the wiper frame with the connector 80.

[0022] In the meantime, the wiper frame 70 may be arranged slantingly to be inclined at a predetermined angle in order to bring the wiper strip 60 into more close contact with the windshield by the wind. When the wiper frame 70 is arranged to be inclined as described above, the wiper strip 60 is formed to be inclined with respect to the wiper frame 70 so as to be brought into perpendicular contact with the windshield.

[0023] To this end, as shown in Fig. 5 (b), a wiper strip 160 has a body portion 162, rail grooves 165 formed in an upper end portion of the body portion 162 to be opened to both sides, a strip portion 168 formed in a lower end portion of the body portion 162 to be brought into contact with a surface of a windshield. At this time, the body portion 162 may be formed in an inclined wedge shape and a groove section 169 may be formed in a portion of the body portion 162 in order to reduce the weight and ma-

terial cost of the wiper strip.

[0024] Also, when the wiper frame 70 is arranged to be inclined as described above, the connector 80 is formed to be inclined in the direction opposite to the inclination direction of the wiper frame 70 in order to couple the connector 80 with the wiper arm 15 (Fig. 1).

[0025] In the meantime, the wiper frame 70 configured as described above is formed through a jig for heat treating a wiper frame to have a predetermined curvature by machining a wiper frame workpiece made of steel.

[0026] Fig. 8 is a plane view schematically showing a jig for heat treating a wiper frame according to the present invention.

[0027] As shown in Fig. 8, in a jig 200 for heat treating a wiper frame according to the present invention, a first jig 212 provided with a first working surface 213 having a predetermined curvature and a second jig 216 provided with a second working surface 217 having a predetermined curvature corresponding to the first working surface 213 are arranged opposite to each other at both ends of the jig 200.

[0028] The first jig 212 and the second jig 216 are installed to a fixed forming frame 210 with a fixing means such as bolts or the like. Preferably, the first jig 212 is fixedly installed while the second jig 216 is moveably installed. Also, a pressing means 218 is installed to a lower portion of the second jig 216 to press it to move the second jig 216.

[0029] As described above, the heat treatment jig 200 to which a wiper frame workpiece 220 is mounted is fed to a heating furnace for annealing. Accordingly, in a state where the wiper frame workpiece 200 is bent to have an approximate curvature between the first jig 212 and the second jig 216, the workpiece can be pressed and annealed at the same time.

[0030] Meanwhile, in order to improve the heat treatment performance of the heat treatment jig 200, a heating means (not shown) may be provided in the first and second jigs 212 and 216 or the forming frame 210.

[0031] A view showing a state where a plurality of wiper frames are machined in the jig heat treating a wiper frame according to the present invention is described with reference to Fig. 9.

[0032] First, the wiper frame workpiece 220, which has been subjected to the heating and cooling processes to have elasticity, is bent to have an approximate curvature by means of an additional machining apparatus.

[0033] Next, the wiper frame workpiece 220 bent to have the approximate curvature is mounted to the jig 200 for heat treating a wiper frame. At this time, the wiper frame workpiece 220 is disposed between the first and second jigs 212 and 216. Thereafter, in a state where the pressing means 218 is operated to cause the second jig 216 to press the wiper frame workpiece 220, the heat treatment jig 200 feeds the wiper frame workpiece 220 to the heating furnace (not shown), and the wiper frame workpiece 220 is then annealed.

[0034] Meanwhile, in a state where upper and lower

surfaces of the wiper frame workpiece 220 is respectively pressed by the first and second working surfaces 213 and 217 of the first and second jigs 212 and 216, the wiper frame workpiece 220 is heated to an appropriate temperature to have a curvature which is the same as that of the first and second jigs 212 and 216 and to remove internal stress of the workpiece, thereby having a predetermined shape.

[0035] Accordingly, with the jig 220 for heat treating a wiper frame, the wiper frame workpiece 220 is formed to have a curvature corresponding to a specification of the article and to have a shape of the wiper frame.

[0036] In the meantime, in the jig 200 for heat treating a wiper frame, only one wiper frame workpiece 220 is put between the first jig 212 and the second jig 216 to be machined, or a plurality of wiper frame workpieces 220 can be put in a lump therebetween to be machined. To this end, as shown in Fig. 10, an auxiliary jig 230 may be installed between the plurality of wiper frame workpieces 220 so that the wiper frame workpieces have a desired curvature.

[0037] Fig. 10 is a view showing a state where a plurality of the wiper frames are machined in the jig for heat treating a wiper frame according to the present invention. In the jig 200 for heat treating a wiper frame, if the number of the wiper frame workpieces 220 to be simultaneously formed is increased, it is preferred that the auxiliary jigs 230 having a curvature corresponding to the first and second working surfaces 213 and 217 be disposed between the wiper frame workpieces 220.

[0038] As described above, since the auxiliary jigs 230 are disposed between the wiper frame workpieces 220, it is possible to reduce a curvature error occurring when the plurality of wiper frame workpieces 220 are simultaneously formed.

[0039] In addition, a method for manufacturing the wiper frame of the wiper blade 50 is as follows.

[0040] The wiper frame 70 of the wiper blade 50 is made of a steel material. The structure and strength of the wiper frame can be varied depending on conditions of heat treatment of the steel material, so that the formed configuration of the wiper frame can be maintained continuously.

[0041] Fig. 11 is a flow chart illustrating a method for manufacturing the wiper frame 70 of the wiper blade 50.

[0042] As shown in Fig. 11, the method for manufacturing the wiper frame 70 of the wiper blade 50 comprises a heat treating step S11 including a heating and cooling step, a blanking step S 14, a piercing step S 15, a bending step S16, and a heat treating and forming step S 17.

[0043] The heat treating step S11, which is the step of heat treating a workpiece made of steel, comprises a heating step S12 of heating the workpiece to a transformation temperature or more and a cooling step S 13 of rapidly cooling the workpiece heated in the heating step S12. If the workpiece is subjected to such steps, the structure of the workpiece is transformed into martensite.

[0044] The martensite obtained in the above process

is a rigid structure which is formed when the transformation from austenite stable at high temperature to a structure composed of cementite and α -iron stable at room temperature is partially interrupted. Next, the blanking step S14 is to blank the workpiece, which has been heat treated in the heat treating step, according to a shape of the article. The blanked workpiece is machined into a wiper frame workpiece.

[0045] Once the wiper frame workpiece is prepared as described above, the wiper frame workpiece is subjected to the piercing step. At this time, unnecessary portions are removed from the wiper frame workpiece through the piercing step S 15, thereby forming the coupling slits and the coupling aperture.

[0046] Next, the bending step S16 is to bend the wiper frame workpiece to have a predetermined curvature. In the step, the wiper frame workpiece is preformed by being bent through a separate tool to have an approximately bent shape.

[0047] Meanwhile, in the heat treating and forming step S 17, the wiper frame workpiece is mounted to the jig for heat treating a wiper frame as described above. At this time, the wiper frame workpiece is mounted between the first and second jigs. The pressing means is operated to press the wiper frame workpiece, and at the same time, the heat treatment jig is fed into the heating furnace to anneal the wiper frame workpiece.

[0048] As described above, after being preformed in the bending step S16, the wiper frame workpiece is pressed by means of the first and second jigs and simultaneously annealed in the heat treating and forming step S 17. Thus, the wiper frame workpiece is completely formed to have a desired curvature. At this time, when the wiper frame workpiece is subjected to the anneal process, the internal stress of the wiper frame workpiece increased in the bending step S16 is relieved and the internal structure becomes uniform, thereby completing the finished product.

[0049] Although the present invention is described with respect to certain preferred embodiment, it will be apparent in the art can make that various modifications, variations and changes may be made thereto within the scope of the invention defined by the claims. Therefore, the above descriptions and appended drawings are not intended to limit the technical spirit of the present, invention but should be analyzed as the exemplifications of the present invention.

Claims

1. A wiper blade (50) coupled to a wiper arm (15) of a vehicle (10) to wipe a windshield (12), comprising:

a wiper strip (160) in contact with the windshield, a wiper frame (70) curved along its lengthwise direction and having elasticity to bring the wiper strip into contact with the windshield;

a connector (80) provided at one side of the wiper frame (70) to be coupled with the wiper arm (15), wherein

the wiper frame (70) is arranged to be inclined at a predetermined angle, the connector (80) being formed to be inclined in the direction opposite to the inclination direction of the wiper frame (70),

and the wiper strip (160) is formed to be inclined with respect to the wiper frame (70), so that the wiper strip (160) is adapted to be brought into perpendicular contact with the windshield (12), when the wiper blade (50) is coupled to the wiper arm (15) to wipe the windshield (12), the wiper strip (160) comprising a body portion (162), and a strip portion (168) which is formed in a lower end portion of the body portion (162) and which is adapted to be brought into contact with the windshield, **characterized in that** the wiper strip has rail grooves (165) formed on both sides thereof and wherein the wiper blade further comprises

a coupling slit (75) formed in the wiper frame, the rail grooves of the wiper strip being slidably fitted to the coupling slit;

a coupling aperture (74) formed in one end of the coupling slit (75) and allowing the wiper strip (160) to be inserted therein; and wherein the rail grooves (165) are formed in an upper end portion of the body portion (162) to be opened to both sides, and the body portion (162) is formed in an inclined wedge shape.

2. The wiper blade according to claim 1, wherein the wiper frame (70) has at least one coupling slit (75) and the wiper strip (160) is formed corresponding to the coupling slit.
3. The wiper blade according to claim 2, wherein any one of a through-hole and a protrusion is formed between the coupling slits, and the other one of the through-hole and the protrusion is formed in an upper end of the wiper strip (160) to be inserted therein.
4. The wiper blade according to any one of claims 1 to 3, wherein the wiper frame comprises an auxiliary slit (78) connected to the coupling aperture (74), the auxiliary slit being formed collinearly with the coupling slit (75).
5. The wiper blade according to any one of claims 1 to 4, wherein a portion of the coupling aperture that is connected to the coupling slit is formed to be inclined in the fitting direction of the wiper strip.
6. The wiper blade according to any one of claims 1 to 5, wherein the wiper frame (70) is formed with a seating portion (72) for guiding a connecting position of

the connector.

7. The wiper blade according to any one of claims 1 to 6, wherein the wiper frame (70) is configured such that an area of one side of the wiper frame is increased as it goes to its center. 5
8. The wiper blade according to any one of claims 1 to 7, wherein a groove section (169) is formed in a portion of the body portion (162). 10
9. The wiper blade according to any one of claims 1 to 8, comprising:
 - a pair of coupling slits (75) successively formed in the wiper frame, in the lengthwise direction, the rail grooves of the wiper strip being slidably fitted to said coupling slits, a coupling aperture (74) being formed at one end of each coupling strip so that a portion of the upper end portion (64) of the wiper strip (60) can be disposed in the aperture in order to fit the rail grooves (65) of the wiper strip (60) to the coupling slit (75). 15 20

Patentansprüche

1. Wischblatt (50), das mit einem Wischerarm (15) eines Fahrzeugs (10) verbunden ist, um eine Windschutzscheibe (12) abzuwischen, umfassend: 30
 - einen Wischstreifen (160), der mit der Windschutzscheibe in Kontakt ist,
 - einen Wischerrahmen (70), der entlang seiner Längsrichtung gebogen ist und über Elastizität verfügt, um den Wischstreifen mit der Windschutzscheibe in Kontakt zu bringen,
 - einen Verbinder (80), der an einer Seite des Wischerrahmens (70) vorgesehen ist, die mit dem Wischerarm (15) verbunden werden soll, wobei der Wischerrahmen (70) angeordnet ist, um in einem vorgegebenen Winkel geneigt zu sein, wobei der Verbinder (80) ausgebildet ist, um in die Richtung geneigt zu sein, die der Neigungsrichtung des Wischerrahmens (70) entgegengesetzt ist, 45
 - und der Wischstreifen (160) ausgebildet ist, um in Bezug auf den Wischerrahmen (70) geneigt zu sein, so dass der Wischstreifen (160) angepasst ist, um senkrecht in Kontakt mit der Windschutzscheibe (12) gebracht zu werden, wenn das Wischblatt (50) mit dem Wischerarm (15) verbunden ist, um die Windschutzscheibe (12) zu wischen, wobei der Wischstreifen (160) einen Körperabschnitt (162) und einen Streifenabschnitt (168) umfasst, welcher in einem unteren Endabschnitt des Körperabschnitts ausgebildet ist und ausgelegt ist, mit der Windschutzscheibe 50

(12) in Kontakt gebracht zu werden,

dadurch gekennzeichnet, dass

das Wischblatt auf beiden Seiten ausgebildete Spurrillen (165) aufweist, und wobei das Wischblatt ferner umfasst:

einen Verbindungsschlitz (75), der in dem Wischerrahmen ausgebildet ist, wobei die Spurrillen des Wischstreifens verschiebbar an den Verbindungsschlitz angepasst sind, eine Verbindungsöffnung (74), die in einem Ende des Verbindungsschlitzes (75) ausgebildet ist und es dem Wischstreifen (160) erlaubt, in sie eingesetzt zu werden, und wobei die Spurrillen (165) in einem oberen Endabschnitt des Körperabschnitts (162), der nach beiden Seiten geöffnet sein soll, ausgebildet sind und der Körperabschnitt (162) in einer schrägen Keilform ausgebildet ist.

2. Wischblatt nach Anspruch 1, wobei der Wischerrahmen (70) wenigstens einen Verbindungsschlitz (75) aufweist und der Wischstreifen (160) passend zu dem Verbindungsschlitz ausgebildet ist. 25
3. Wischblatt nach Anspruch 2, wobei eines von einer Durchgangsöffnung und einem Vorsprung zwischen den Verbindungsschlitzten ausgebildet ist, und das andere von der Durchgangsöffnung und dem Vorsprung in einem oberen Ende des Wischstreifens (160) ausgebildet ist, um darin eingesetzt zu werden.
4. Wischblatt nach einem der Ansprüche 1 bis 3, wobei der Wischerrahmen einen zusätzlichen Schlitz (78) aufweist, der mit der Verbindungsöffnung (74) verbunden ist, wobei der zusätzliche Schlitz kollinear mit dem Verbindungsschlitz (75) ausgebildet ist.
5. Wischblatt nach einem der Ansprüche 1 bis 4, wobei ein Abschnitt der Verbindungsöffnung, der mit dem Verbindungsschlitz verbunden ist, ausgebildet ist, um in der Anbringungsrichtung des Wischstreifens geneigt zu sein. 45
6. Wischblatt nach einem der Ansprüche 1 bis 5, wobei der Wischerrahmen (70) mit einem Auflageabschnitt (72) zum Führen einer Verbindungsposition des Verbinders ausgebildet ist.
7. Wischblatt nach einem der Ansprüche 1 bis 6, wobei der Wischerrahmen (70) so ausgelegt ist, dass ein Bereich einer Seite des Wischerrahmens zu seiner Mitte hin vergrößert wird.
8. Wischblatt nach einem der Ansprüche 1 bis 7, wobei ein Rillenbereich (169) in einem Abschnitt des Körperabschnitts (162) ausgebildet ist. 55

9. Wischblatt nach einem der Ansprüche 1 bis 8, umfassend:

ein Paar Verbindungsschlitze (75), die in der Längsrichtung aufeinander folgend in dem Wischerrahmen ausgebildet sind, wobei die Spurrillen des Wischstreifens verschiebbar an den Verbindungsschlitzen angebracht sind, wobei eine Verbindungsöffnung (74) an einem Ende eines jeden Verbindungsschlitzes ausgebildet ist, so dass ein Abschnitt des oberen Endabschnitts (64) des Wischstreifens (60) in der Öffnung angeordnet werden kann, um die Spurrillen (65) des Wischersteifens (60) an dem Verbindungsschlitz (75) anzubringen.

Revendications

1. Balai d'essuie-glace (50) relié à un bras d'essuie-glace (15) d'un véhicule (10) pour essuyer un pare-brise (12), comportant :

une raclette d'essuie-glace (160) en contact avec le pare-brise,
un corps d'essuie-glace (70) courbé le long de sa direction longitudinale et ayant une élasticité pour amener la raclette d'essuie-glace en contact avec le pare-brise ;
un connecteur (80) prévu sur un côté du corps d'essuie-glace (70) pour être relié au bras d'essuie-glace (15), dans lequel le corps d'essuie-glace (70) est prévu pour être incliné suivant un angle prédéterminé, le connecteur (80) étant formé pour être incliné dans la direction opposée à la direction d'inclinaison du corps d'essuie-glace (70),
et la raclette d'essuie-glace (160) est formée pour être inclinée par rapport au corps d'essuie-glace (70), de telle sorte que la raclette d'essuie-glace (160) est prévue pour être amenée en contact perpendiculaire avec le pare-brise (12), quand le balai d'essuie-glace (50) est relié au bras d'essuie-glace (15) pour essuyer le pare-brise (12), la raclette d'essuie-glace (160) comportant une partie de corps (162), et une partie de raclette (168) qui est formée dans une partie inférieure de la partie de corps (162) et qui est prévue pour être amenée en contact avec le pare-brise, **caractérisé en ce que** la raclette d'essuie-glace a des rainures de rail (165) formées des deux côtés de celle-ci et dans lequel la raclette d'essuie-glace comporte en outre une fente de couplage (75) formée dans le corps d'essuie-glace, les rainures de rail de la raclette d'essuie-glace étant montées de façon coulissante dans la fente de couplage ;
une ouverture de couplage (74) formée dans

une extrémité de la fente de couplage (75) et permettant à la raclette d'essuie-glace (160) d'être insérée dedans ; et dans lequel les rainures de rail (165) sont formées dans une partie d'extrémité supérieure de la partie de corps (162) afin d'être ouvertes des deux côtés, et la partie de corps (162) est formée dans une forme de coin incliné.

2. Balai d'essuie-glace selon la revendication 1, dans lequel le corps d'essuie-glace (70) a au moins une fente de couplage (75) et la raclette d'essuie-glace (160) est formée d'une manière correspondant à la fente de couplage.
3. Balai d'essuie-glace selon la revendication 2, dans lequel l'un quelconque d'un trou débouchant et d'une saillie est formé entre les fentes de couplage, et l'autre du trou débouchant et de la saillie est formé dans une extrémité supérieure de la raclette d'essuie-glace (160) pour y être inséré.
4. Balai d'essuie-glace selon l'une quelconque des revendications 1 à 3, dans lequel le corps d'essuie-glace comporte une fente auxiliaire (78) reliée à l'ouverture de couplage (74), la fente auxiliaire étant formée d'une manière co-linéaire avec la fente de couplage (75).
5. Balai d'essuie-glace selon l'une quelconque des revendications 1 à 4, dans lequel une partie de l'ouverture de couplage qui est reliée à la fente de couplage est formée pour être inclinée dans la direction de montage de la raclette d'essuie-glace.
6. Balai d'essuie-glace selon l'une quelconque des revendications 1 à 5, dans lequel le corps d'essuie-glace (70) est formé avec une partie de montage (72) pour guider une position de raccordement du connecteur.
7. Balai d'essuie-glace selon l'une quelconque des revendications 1 à 6, dans lequel le corps d'essuie-glace (70) est configuré de telle sorte qu'une section d'un côté du corps d'essuie-glace est augmentée lorsque l'on va vers son centre.
8. Balai d'essuie-glace selon l'une quelconque des revendications 1 à 7, dans lequel une section de rainure (169) est formée dans une partie de la partie de corps (162).
9. Balai d'essuie-glace selon l'une quelconque des revendications 1 à 8, comportant :

une paire de fentes de couplage (75) formées de manière successive dans le corps d'essuie-glace, dans le sens de la longueur, les rainures

de rail de la raclette d'essuie-glace étant montées de façon coulissante dans lesdites fentes de couplage, une ouverture de couplage (74) étant formée à une extrémité de chaque raclette de couplage de telle sorte qu'une partie de la 5
partie d'extrémité supérieure (64) de la raclette d'essuie-glace (60) peut être disposée dans l'ouverture afin de monter les rainures de rail (65) de la raclette d'essuie-glace (60) dans la 10
fente de couplage (75).

15

20

25

30

35

40

45

50

55

Fig. 1

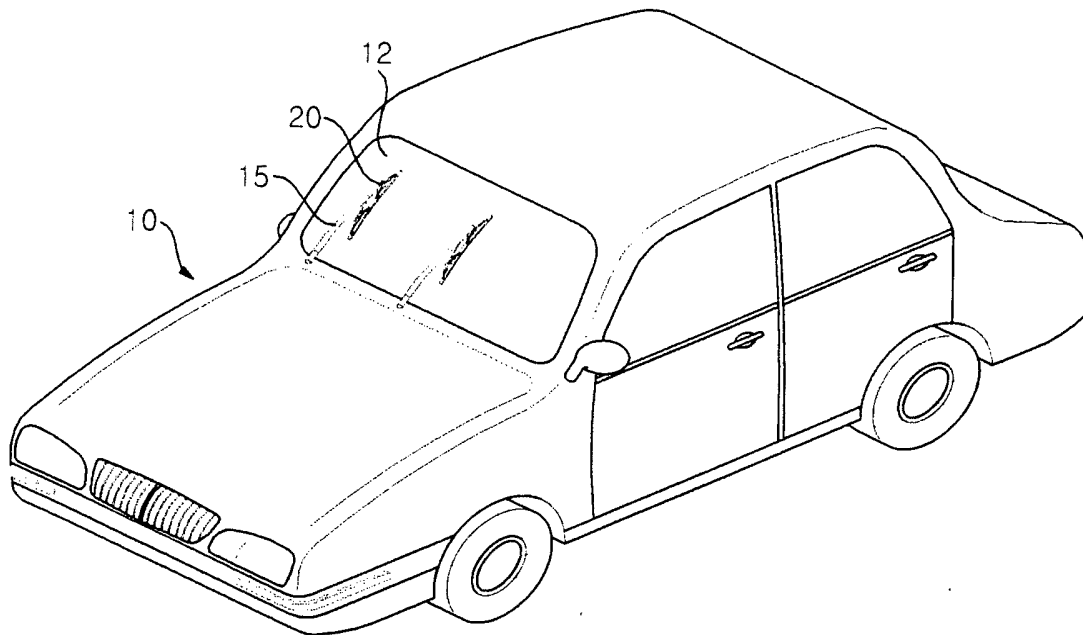


Fig. 2

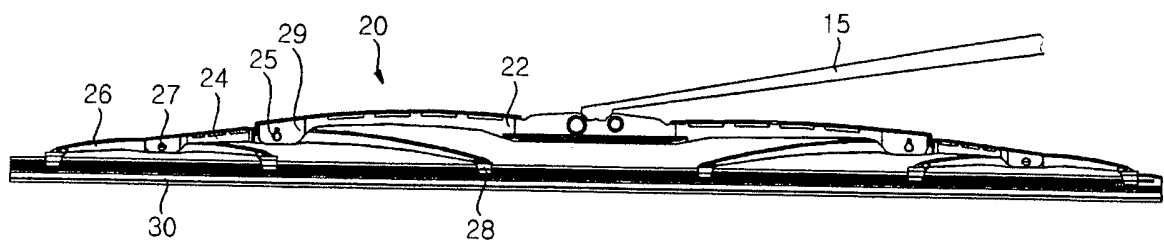


Fig. 3

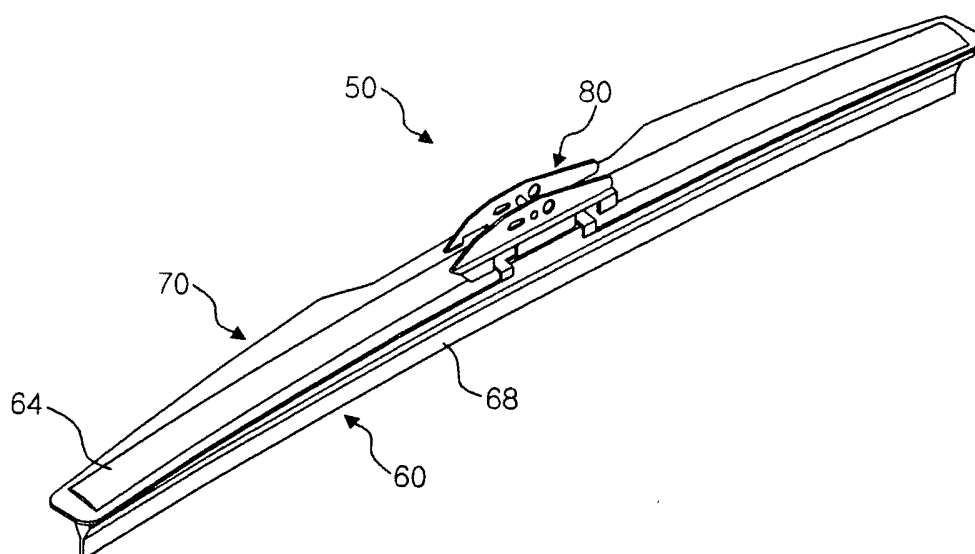


Fig. 4

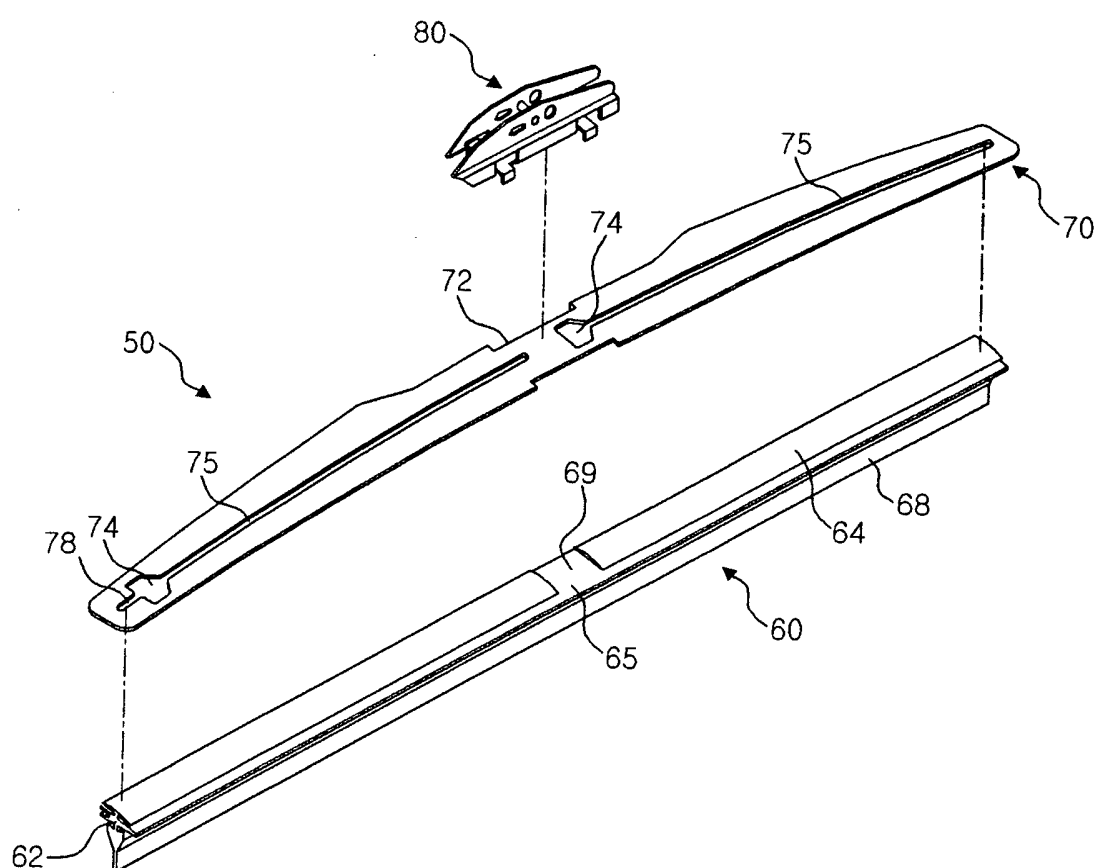


Fig. 5

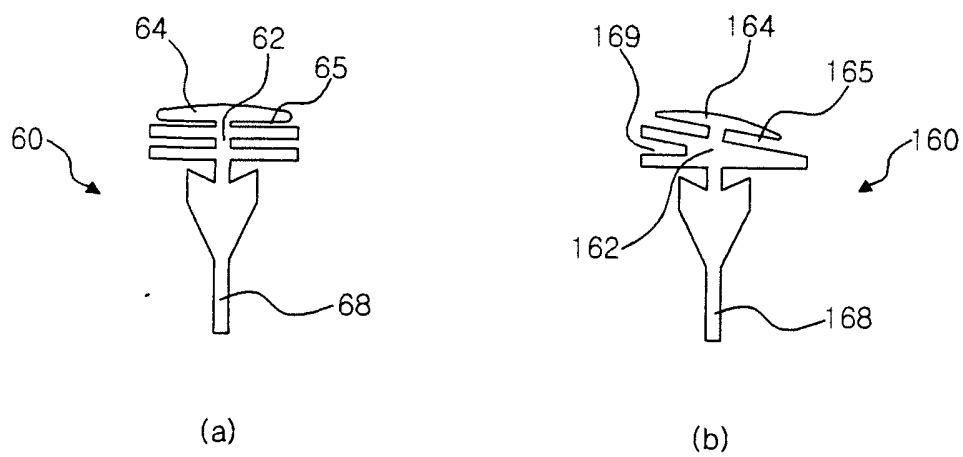


Fig. 6

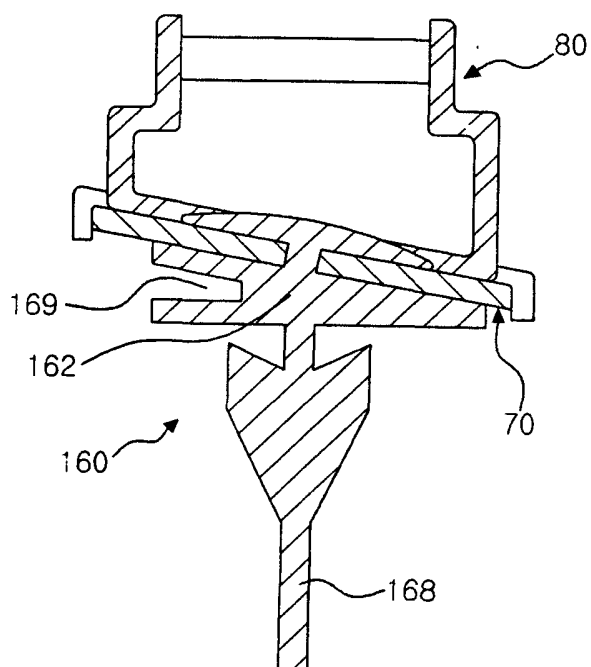


Fig. 7

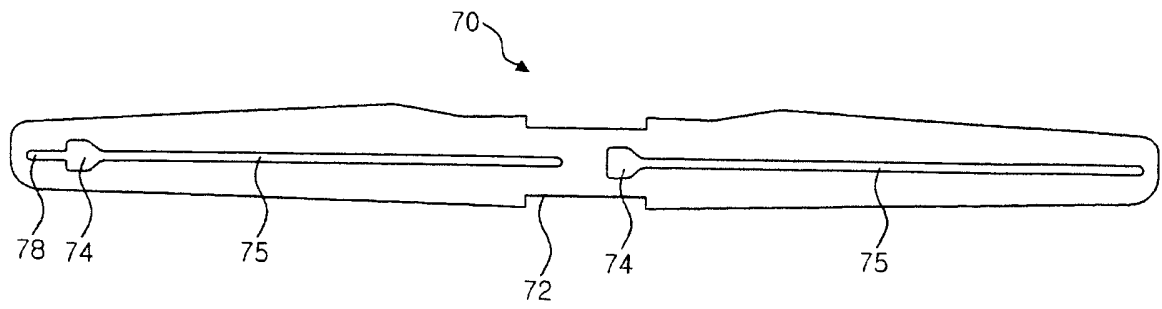


Fig. 8

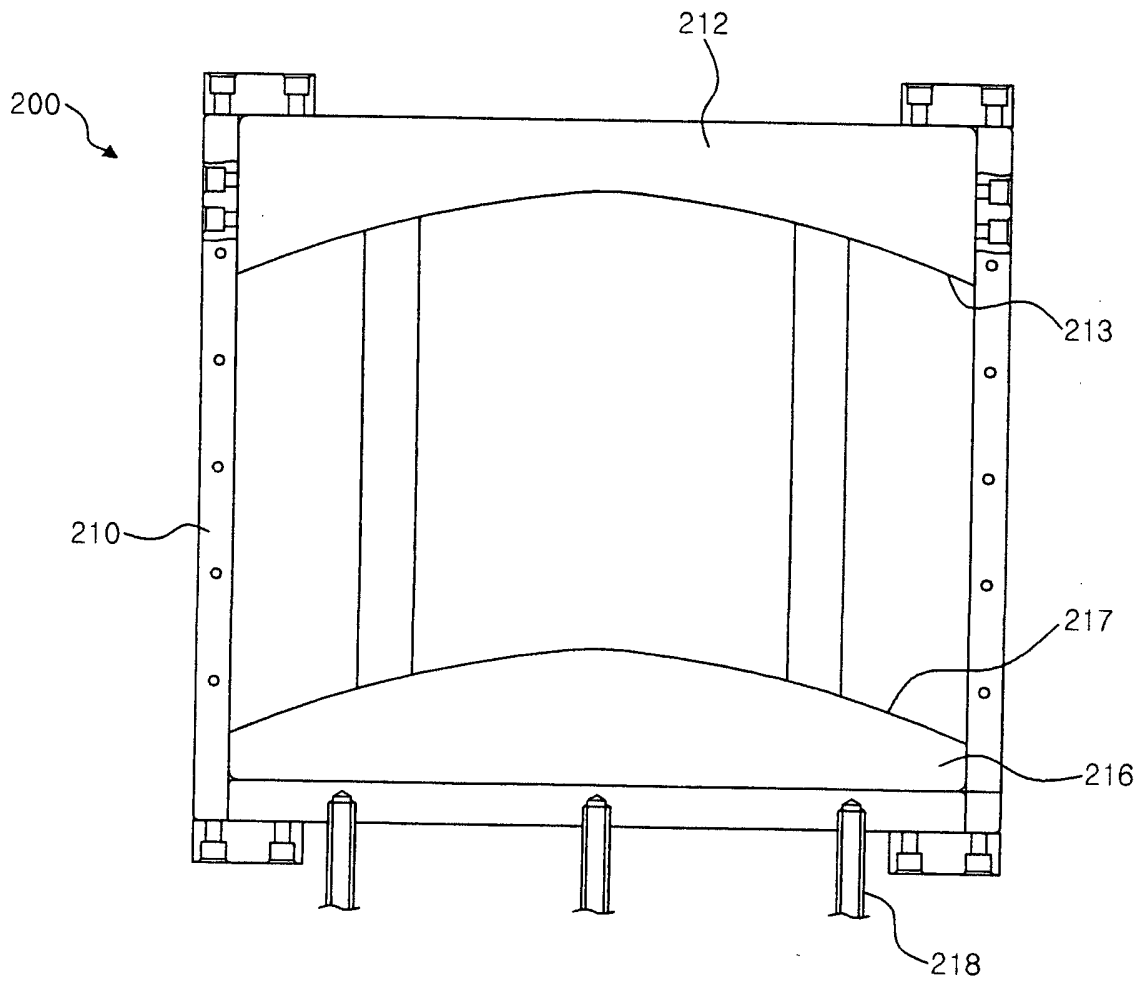


Fig. 9

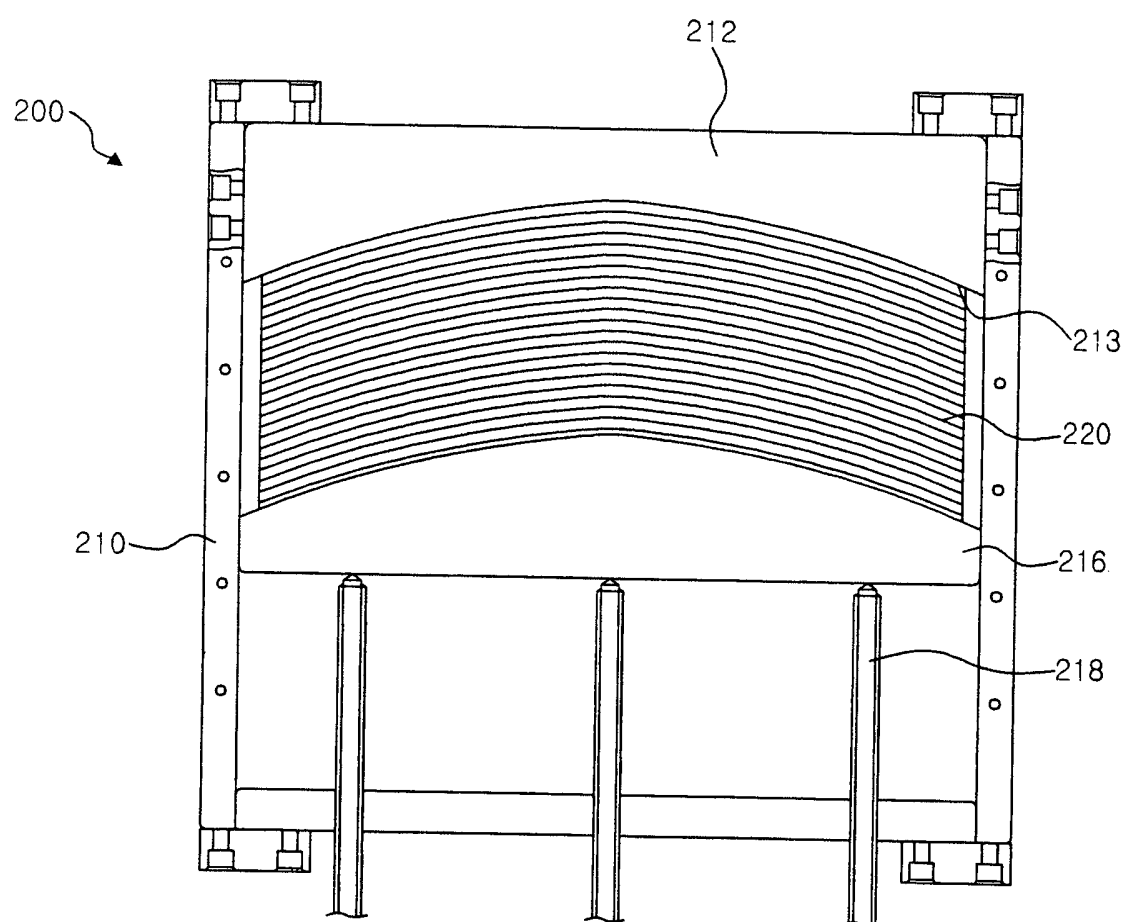


Fig. 10

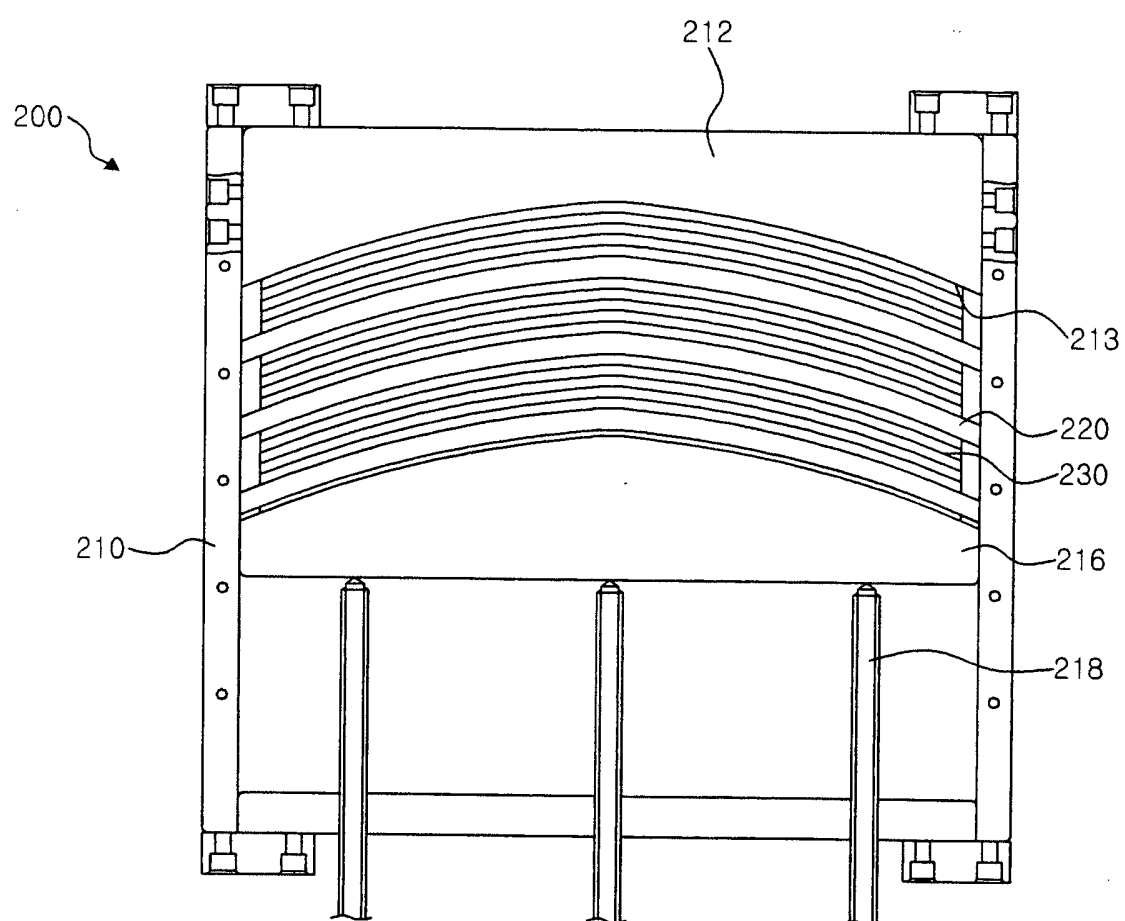
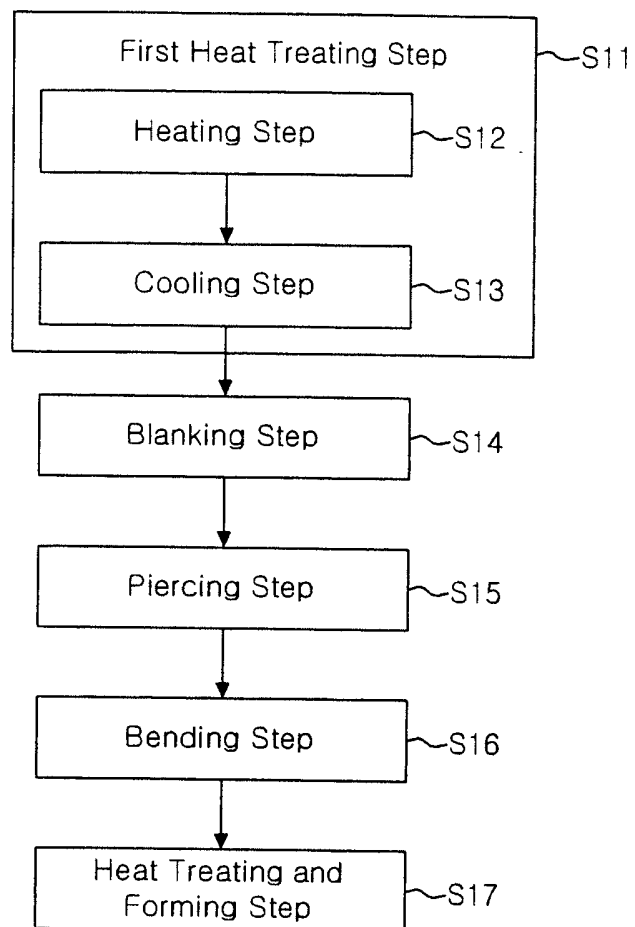


Fig. 11



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- DE 202004012132 U1 [0005]
- DE 10107021 [0005]

ABLAKTÖRLŐ LAPÁT

SZABADALMI IGÉNYPONTOK

1. Ablaktörő lapát (50), amely szélvédő (12) letörlése céljából egy jármű (10) törökarához (15) van csatlakoztatva, amely ablaktörő lapát tartalmaz:
a szélvédővel érintkező törögumit (160);
törőváz (70), amely hosszanti irányban ívelt kialakítású és elaszticitással bír a törögumi szélvédővel való érintkezésbe hozásához;
a törőváz (70) egyik oldalán felszerelt csatlakoztató elemet (80) a törökarral (15) való csatlakozás céljából, ahol
a törőváz (70) egy előre meghatározott szöget bezáróan van elrendezve, a csatlakoztató elem (80) a törőváz (70) dőlési szögével ellentétes irányban dőlően van kialakítva,
a törögumi (160) a törővázhoz (70) képest ferdén van kialakítva oly módon, hogy a törögumi (160) a szélvédővel (12) merőlegesen érintkezésbe hozható, amikor a szélvédő letörlése céljából az ablaktörő lapát (50) a törökarhoz (15) van csatlakoztatva, ahol a törögumi (160) egy testszakaszt (162) és annak alsó vég részében kiképzett és a szélvédővel érintkezésbe hozható lemezszakaszt (168) tartalmaz,
azzal jellemezve, hogy a töröguminak, annak mindkét oldalán kiképzett vezetőhornyai (165) vannak, ahol az ablaktörő lapát tartalmaz még:
a törővázban kiképzett olyan összekötő részt (75), amellyel a törögumi vezetőhornyai elcsúsztathatóan illeszkednek;
az összekötő rész (75) egyik végében kiképzett olyan összekötő nyílást (74), amely lehetővé teszi, hogy a törögumi (160) belé helyezhető legyen; és ahol a vezetőhornyok (165) a testszakasz (162) felső végében vannak kiképezve úgy, hogy mindkét oldalon nyitottak legyenek, továbbá a testszakasz (162) ferde ékelekben van kiképezve.
2. Az 1. igénypont szerinti ablaktörő lapát, amelyben a törőváz (70) legalább egy összekötő része (75) van és a törögumi (160) az összekötő résznek megfelelően van kialakítva.
3. A 2. igénypont szerinti ablaktörő lapát, amelyben vagy egy átmenőfurat, vagy egy kiszögellés van kiképezve az összekötő részek között, és a másik átmenőfurat vagy kiszögellés a törögumi (160) felső végében van kiképezve az oda behelyezés céljából.
4. Az 1-3. igénypontok bármelyike szerinti ablaktörő lapát, amelyben a törőváz egy, az összekötő nyíláshoz (74) kapcsolt olyan segédrejt (78) tartalmaz, amely egy vonalba esik az összekötő réssel (75).
5. Az 1-4. igénypontok bármelyike szerinti ablaktörő lapát, amelyben az összekötő nyílásnak azon része, amelyik az összekötő részhez van kötve a törögumi illesztési irányába dőlően van kialakítva.
6. Az 1-5. igénypontok bármelyike szerinti ablaktörő lapát, amelyben a csatlakoztató elem csatlakoztató helyzetének megvezetése céljából a törőváz (70) egy fészekszakasszal (72) van kialakítva.
7. Az 1-6. igénypontok bármelyike szerinti ablaktörő lapát, amelyben a törőváz (70) oly módon van kialakítva, hogy a törőváz egyik oldalának egy bizonyos területe növekszik ahogy a középpontja felé halad.
8. Az 1-7. igénypontok bármelyike szerinti ablaktörő lapát, amelyben a testszakasz (162) egy részében egy

horonyszakasz (169) van kiképezve.

9. Az 1-8. igénypontok bármelyike szerinti ablaktörő lapát, amely tartalmaz a törővázban a hosszanti irányban egymás után kiképzett összekötő rés-párt (75), a törőgumi vezetőhornyai elcsúsztathatóan vannak az összekötő résekhez illesztve, és összekötő nyílás (74) van mindegyik összekötő résznek egyik végén kialakítva oly módon, hogy a törőgumi (60) felső részének egy része a nyílásba helyezhető legyen annak érdekében, hogy a törőgumi (60) vezetőhornyai (65) az összekötő rés-sel (75) illeszkedjenek.