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(71) Applicant: **NAGOYA OILCHEMICAL CO., LTD.**
213-5 Honowari Minamishibata-cho
Tokai-shi Aichi(JP)

(72) Inventor: **Horiki, Seinosuke, c/o NAGOYA OILCHEMICAL CO., LTD**
213-5 Honowari, Minamishibata-cho
Tokai-shi, Aichi(JP)
Inventor: **Makino, Reiji, c/o NAGOYA OILCHEMICAL CO., LTD**
213-5 Honowari, Minamishibata-cho
Tokai-shi, Aichi(JP)

(74) Representative: **Senior, Alan Murray et al**
J.A. KEMP & CO 14 South Square Gray's Inn
London WC1R 5EU(GB)

(54) Masking member.

(57) A masking member (110) produced by the molding of a sheet (111) having a shape corresponding with a part (211) of a surface of an article (210) to be protected from a surface treatment, wherein said masking member has (a) projection(s) (111A) which is(are) inserted into (a) hole(s) (212A) on (an) indention(s) of said part, is provided in the present invention. Said masking member is attached to said part of said surface by inserting said projection(s) of said masking member into said hole(s) or indention-(s) of said part to protect said part from a surface treatment such as coating, plating, and the like.

Fig. 1

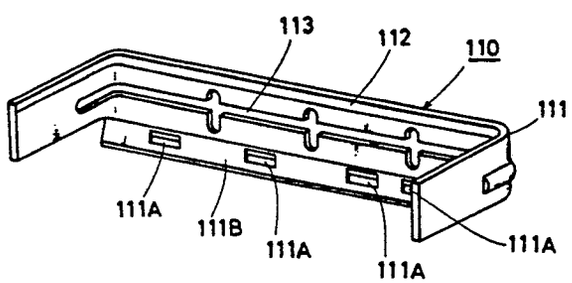
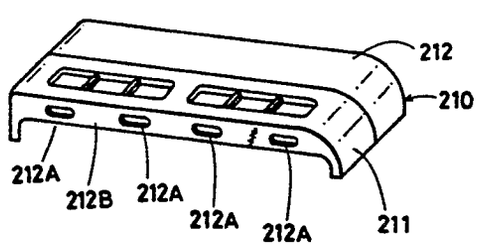


Fig. 2



EP 0 384 619 A1

MASKING MEMBER

BACKGROUND OF THE INVENTION

The present invention relates to a masking member which protects a part of a surface of an article from a surface treatment such as coating, plating, vacuum evaporation, phosphatizing, and the like. More particularly, the present invention relates to a masking member produced by the molding of a sheet having a shape corresponding with a part of a surface of an article to be protected from a surface treatment wherein said masking member has (a) projection(s) which is(are) inserted into (a) hole(s) or (an) indention(s) of said part. When a surface treatment is effected on the surface of an article, and if said surface of said article has (a) part(s) on which said surface treatment should not be effected , for instance if another surface treatment is effected on said part(s) after said surface treatment or said surface treatment spoils the appearance of said article and so on, said part(s) of said surface of said article may be covered and protected with said masking member.

DESCRIPTION OF THE PRIOR ART

Hitherto, adhesive tape has been used as a masking member to protect a part of a surface of an article such as a bumper of an automobile and the like. Namely, the adhesive tape is attached to said part of said surface to protect said surface from said surface treatment and after said surface treatment, said adhesive tape is removed from said surface. Said surface will not be affected by said surface treatment since said part of said surface was covered with said adhesive tape during said surface treatment.

Nevertheless, adhesive tape as a masking member has faults in that attaching and removing of the adhesive tape to/from said part of said surface takes time and have a high labor cost, and further, the adhesive tape attached to said part of said surface can be buried In the layer of said surface treatment and it is very difficult to find the end of said buried adhesive tape to remove said adhesive tape. Said faults of adhesive tape may seriously obstruct a mass-production line such as a coating line for automobiles.

SUMMARY OF THE INVENTION

Accordingly, an object of the present invention is to save trouble when the masking member is attached/removed to/from a part to be protected.

According to the present invention, there is provided a masking member produced by the molding of a sheet having a shape corresponding with a part of a surface of an article to be protected from a surface treatment wherein said masking member has (a) projection(s) which is inserted into (a) hole(s) or (an) indention(s) of said part in use.

The invention will be better understood from the following description which is given by way of example only with reference to the accompanying drawings in which:-

FIG. 1 to FIG. 4 relate to an embodiment of the present invention.

FIG. 1 is a perspective view of the masking member.

FIG. 2 is a partial perspective view of the front part of an automobile.

FIG. 3 is a partial perspective view of the front part of the automobile after coating.

FIG. 4 is a cross sectional view of the lower half part of the bumper to which the masking member is attached.

FIG. 5 is a partial perspective view of the front part of the automobile after the masking member is removed from the bumper.

FIG. 6 and FIG. 7 relate to another embodiment of the present invention.

FIG. 6 is a perspective view of the masking member.

FIG. 7 is a cross sectional view showing that the masking member is attached to a part of a surface.

DETAILED DESCRIPTION

The masking member of the present invention is made of a sheet such as from plastics or rubber such as polystyrene, polyethylene, polypropylene, ethylene-propylene copolymer, polyvinylchloride, polyvinylidene chloride, polymethacrylate, styrene-butadiene copolymer, acrylonitrile-butadiene copolymer, polybutadine polyisoprene, polyisobutylene, polychloroprene, isoprene-isobutylene copolymer, natural rubber, polyurethane, melamine resin, urea resin, phenolresin, epoxyresin and the like; foams of said plastics; or said rubber; fiber sheet such as fabricrubber, knitting, non-woven fabric, paper, corrugated cardboard and the like; thermoplastic resin - impregnated fiber sheet; thermosetting resin -impregnated fiber sheet; wooden sheet such as wood board, hardboard, plywood and the like; metal sheet and the like; laminated sheet consisting of a plural number of sheets selected from the group of said

sheets. In cases where said masking member is made of a sheet from plastics or rubber, it is desirable to mix inorganic filler such as calcium carbonate, silica, talc, clay, bentonite, stone powder, blast furnace slag, flyash, and the like into said plastics or rubber since heat resistance, mechanical properties and the like of said masking member are improved by said inorganic filler and further, when a used masking member is burnt in a combustion furnace, a smaller combustion energy is produced so that said combustion furnace will stand long use. Usually, 10 to 500 weight parts, desirably 20 to 400 weight parts of said inorganic filler are mixed into said plastics. Further organic filler such as wood powder, organic, fiber powder, walnut powder, coconut powder, flour, chaff powder and the like may be mixed into said plastics or rubber. Still further, dyestuff, pigment, autioxidant, ultraviolet absorber plasticizer and the like may be mixed into said plastics or rubber. Polyolefin such as polyethylene, polypropylene and the like are desirable plastics for the material of the sheet of the masking member of the present invention since said polyoldfin has high solvent resistance and is inexpensive, and of course, polyolefin in which said inorganic filler is mixed is a desirable material for said masking member. Polystyrene foam is also a desirable material for said masking member since said polystyrene foam is light and inexpensive, nevertheless, since said polystyrene foam has a low solvent resistance and a low heat resistance, it is desirable to laminate a suitable plastic or rubber onto said polystyrene foam.

Vacuum forming, press molding, casting, extrusion, injection, molding, paper making and the like may be used to produce the masking member of the present invention.

The masking member of the present invention is easily attached to a part of a surface of an article to be protected by inserting (a) projection(s) of said masking member into said hole(s) or indention(s) of said part and said masking member is easily removed from said part by extracting said projection(s) of said masking member from said hole(s) or indention(s) of said part. Accordingly, said masking member of the present invention can be correctly, easily, and securely attached to a part of a surface by the guide of said hole(s) or indention(s) of said part and said projection(s) of said masking member.

Fig. 1 to Fig. 5 relate to an embodiment of the present invention. Referring now to Fig. 1 to Fig. 5, a masking member (110) is produced by the molding of a sheet (111) and has a shape corresponding with the surface of the lower half (211) of a bumper (210) of an automobile (310) and a bending part (111B) is elongated from the lower edge of said masking member (110) and projections (111A) are formed on the surface of said bending part (111B). Further, a reinforcing rib (113) is formed in said masking member (110) and an adhesive layer (112) is formed on the upper edge of the inside of said masking member (110).

Said masking member (110) is correctly, easily, and securely attached on said lower half (211) of said bumper (210) by inserting said projections (111A) of said masking member (110) into said holes (212A) of the bending part (212B) which is elongated from the lower half (211) of said bumper (210) and adhering said adhesive layer (112) to the upper edge of said lower half (211) of said bumper (210), and then a paint (410) is coated on said bumper (210) as shown in Fig. 3. After said coating, said masking member (110) is easily removed from said bumper (210) and said paint (410) is not coated on said lower half (211) of said bumper (210) while said paint (410) is coated on the upper half (212) of said bumper (210) as shown in Fig. 5.

Fig. 6 and Fig. 7 relate to another embodiment of the present invention. Referring now to Fig. 6 and Fig. 7, a masking member (120) is produced by the molding of a sheet (121) and has a shape corresponding with a part (221) of the surface (220) of the underside of an automobile, and a pair of projections (121A), (121B) are formed in said masking member (120).

Said masking member (120) is attached on said part (221) of said surface (220) of said underside of said automobile by inserting said projections (121A), (121B) of said masking member (120) into said holes (221A), (221B) of said part (221) of said surface (220). In a case that the minimum diameters of said holes (221A), (221B) of said part (221) are respectively a little smaller than the maximum diameters of said projections (121A), (121B) of said masking member (120), said projections (121A), (121B) are tightly inserted into said holes (221A), (221B) and as the result, said masking member is securely attached to said part (221) without an adhesive layer. In this case, it is desirable that a laminated sheet consisting of a soft elastic sheet such as a soft-type polyvinylchloride foam sheet, soft-type polyurethane foam sheet, soft-type melamine resin foam sheet, foam rubber sheet, felt sheet and the like, and a rigid sheet such as a hard-type polyvinylchloride sheet, polystyrene sheet, polyethylene sheet, polypropylene sheet, resin-impregnated fiber sheet, hard-type paper, hard-type wooden sheet, metal sheet and the like is used as the material of said masking member (120). In said masking member (120), said soft elastic sheet is located outside said projections (121A), (121B) and said rigid sheet is located inside said projections (121A), (121B). Said surface (220) of said underside of said automobile is then coated with a paint. After said coating, said mask-

ing member (120) is removed from said part (221) of said surface (220).

Claims

1. A masking member produced by the molding of a sheet having a shape corresponding with a part of a surface of an article to be protected from a surface treatment wherein said masking member has (a) projection(s) which is(are) inserted into (a) hole(s) or (an) indention(s) of said part in use.

2. A masking member in accordance with Claim 1, wherein said sheet is a polyolefin sheet.

3. A masking member in accordance with Claim 2, wherein said sheet is a polyolefin sheet in which as inorganic filler is mixed.

4. A masking member in accordance with Claim 3, wherein 10 to 500 weight parts of said inorganic filler is mixed in said polyolefin sheet.

5. A masking member in accordance with Claim 1, wherein said sheet is a fiber sheet.

6. A masking member in accordance with Claim 1, wherein said sheet is a laminated sheet consisting of a soft elastic sheet and a rigid sheet.

7. A masking member in accordance with any preceding claim wherein said masking member is used to protect the lower half of a bumper of an automobile.

8. A masking member in accordance with any preceding claim wherein said masking member is used to protect a part of a surface of the underside of an automobile.

9. A method of masking a part of a surface of an article which is to have a surface treatment wherein said part has at least one hole or indentation by applying to the part a masking member according to any preceding claim.

10. A method of surface treating an article wherein prior to surface treatment part of the surface is masked by the method of claim 9 and subsequent to such treatment the masking member is removed.

Fig. 1

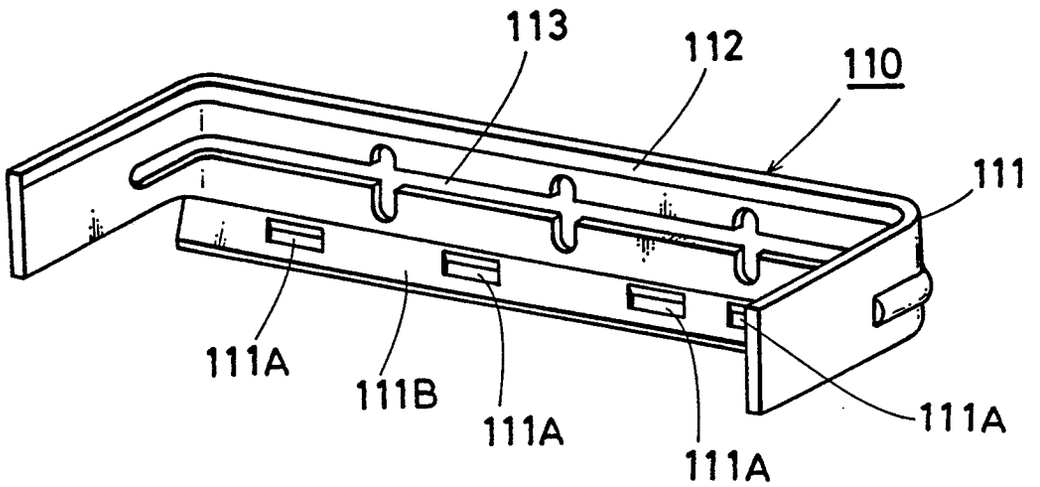

113
112
110
111
111A
111B
111A
111A
111A

Fig. 2

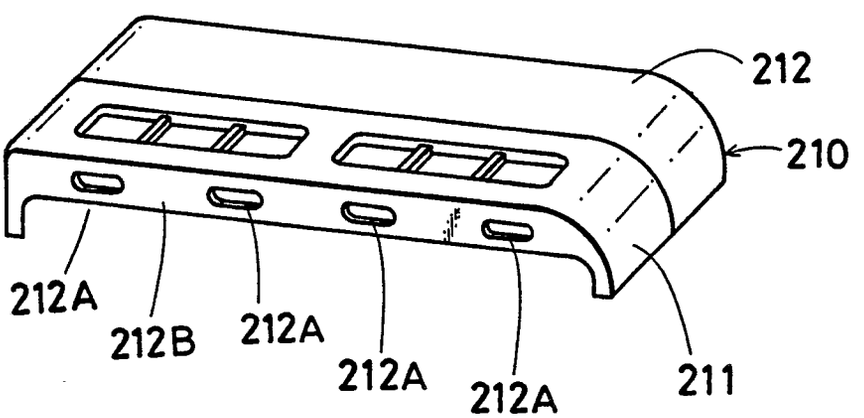

212
210
212A
212B
212A
212A
212A
211

Fig. 3

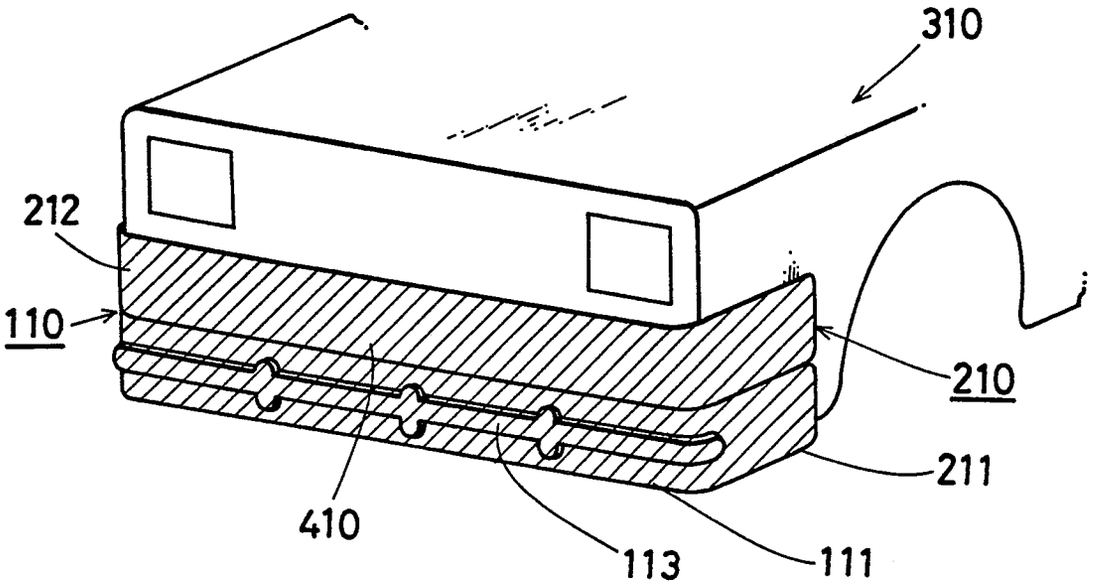

310
212
110
210
211
410
113
111

Fig. 4

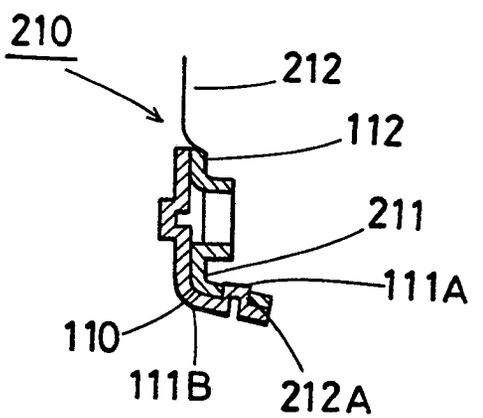

210
212
112
211
111A
110
111B
212A

Fig. 5

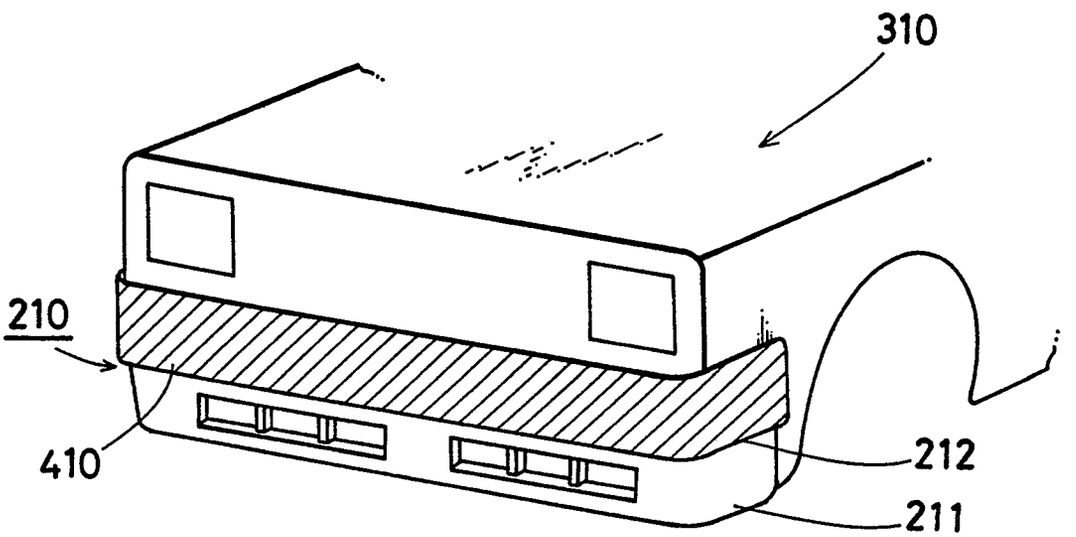


Fig. 6

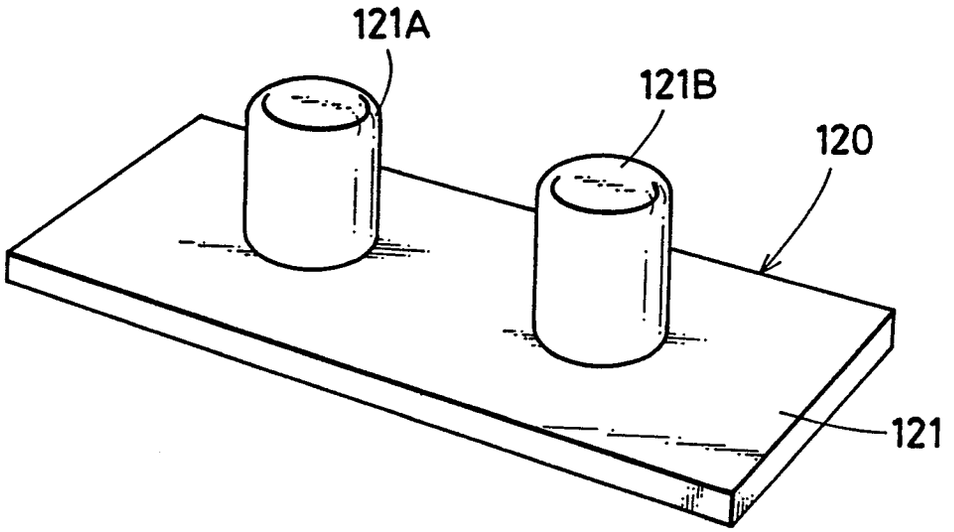
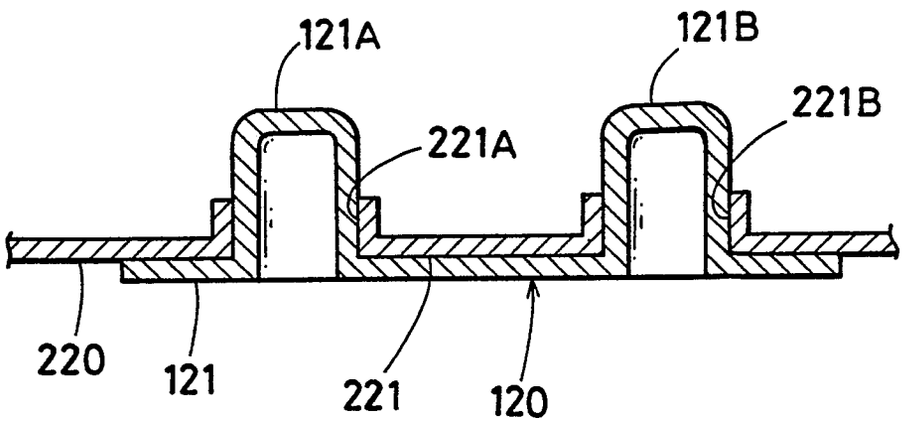


Fig. 7



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EUROPEAN SEARCH REPORT

Application Number

EP 90 30 1375

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	PATENT ABSTRACTS OF JAPAN, vol. 7, no. 232 (C-190)[1377], 14th October 1983; & JP-A-58 123 897 (SUWA SEIKOSHA K.K.) 23-07-1983	1,9,10	C 25 D 5/02 B 05 D 1/32 B 05 C 21/00
X	PATENT ABSTRACTS OF JAPAN, vol. 10, no. 23 (C-325)[2080], 29th January 1986; & JP-A-60 174 894 (CITIZEN TOKEI K.K.) 09-09-1985	1,9,10	
A	US-A-4 358 482 (JUBELT) * Column 3, line 60 *		
A	GB-A-2 158 368 (HONDA)		
A	PATENT ABSTRACTS OF JAPAN, vol. 12, no. 148 (C-493)[2995], 7th May 1988; & JP-A-62 263 992 (HITACHI CABLE LTD) 16-11-1987		
A	EP-A-0 256 782 (NAGOYA OILCHEMICAL CO.)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

C 25 D
C 23 C
C 25 F
B 05 D
B 60 R
B 05 C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	17-05-1990	NGUYEN THE NGHIEP

CATEGORY OF CITED DOCUMENTS

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