

SPECIFICATION

Pad for spectacles

- 5 The invention relates to a pad to be placed in use on the area of the root of the nose of persons wearing spectacles provided with frames, which pad is made of the silicon resin SYLGARD (registered trade mark) No. 186 of DOW CORNING (according to
- 10 Patent Application P 27 39 905.9).

If the pads are not joined directly to the rim of the glasses but are fastened to pad levers, the connection between the metal pad lever and the silicone rubber pad presents difficulties. The pad

15 levers can in the long run pierce the very soft silicone rubber, even if their front surface has been carefully rounded.

The prevention of rotary movements of the pad relative to the pad lever is even more difficult than is

20 the prevention of axial movements thereof. So far, there does not exist any adhesive which in the long run fulfils the requirements to be met, although adhesive technology is very far advanced.

The object of the invention is to indicate a

25 possibility by which the end area of the pad lever can be reliably used industrially in a cheap manner and one that allows mass production in conjunction with SYLGARD No. 186 (Registered Trade Mark) of Dow Corning, without noticeably detracting from the

30 wearing characteristics of the pad proper.

According to the invention there is provided a pad to be fastened to the end areas of metallic pad levers affixed to eyeglass frames and placed on the area of the root of the nose of persons wearing said

35 eyeglass frames, which pad is made of the silicone resin, comprising a sleeve in the pad which is thin relative to the pad and has a flexibility lying between the pad and the pad lever, and which is composed of an injection-moulded polyamide material of natural

40 colour and has approximately the length of the end area of the pad lever and a blind hole with its opening at the upper edge of the pad and which has a shape allowing the flush insertion therein of the end area of the pad lever; said sleeve having a

45 substantially smaller volume than the pad; said sleeve extending approximately in the center line of the pad; and said sleeve being provided with pad retaining elements on the outside thereof, said retaining elements comprising thin vanes on either

50 side of said sleeve having means on said vanes for securing the pad to said vanes.

A suitable polyamide is 11 or 12 and have been found to be highly successful.

The polyamide preferably is Rilsan (Registered

55 trade mark) ATO CHIMIE of the BMPO 20 type and provides excellent characteristics. The flexibility of the sleeve material lies between the pad and the lever in that it is sufficiently flexible so that the retaining elements can follow the movements of the

60 silicone resin but, on the other hand, it is so firm that the pad lever has to be glued to the sleeve purely for reasons of precaution. This type is fast to light and does not become discoloured even at high

temperatures, e.g. during welding. This is important

65 in that there must not be formed after a few years a

yellowish or brown dendrite within the natural-coloured silicone resin.

Rilsan is a registered trade mark for polyamide 11. Polyamide 11 is a condensation product of

70 11-amino-undecylenic acid and castor oil; density 1.04, (Chemie Lexikon" under "Rilsan" by Prof. Dr. Hermann Römpp published by Franck'sche Verlagshandlung Stuttgart 1 and Kennedy, J.G. in Food Manufact. 1963. S. 415-417). Polyamide 12 is a

75 similar material using 12-amino-undecylenic acid.

Conveniently the length of the sleeve is about two thirds that of the pad to ensure that approximately the lower thirds that of the pad to ensure that approximately the lower third of the pad is capable

80 of freely adapting itself in an area which individually has to adjust most severely to different radii.

The silicone resin may be "Sylgard" which is a registered trade mark of Dow Corning Corporation of U.S.A. for high strength silicone rubber described in

85 their Bulletin 61-114-01 of June 1977. It has specific gravity 1.12, elongation about 420 per cent, hardness about 32 Shore A Durometer (properties as cured 1 hour at 150°C).

Preferably the pad is of flat kidney shape to cause

90 the pad to remain homogeneous to a depth that is considerable. In this case the retaining elements extend in the larger centre plane of the pad so as not to leave impressions on the outside and furthermore to have the greatest possibility of expanding in this

95 centre plane without disturbing the wearability of the pad.

Suitably the retaining elements are thin vanes to ensure that the "roots" of the pad passing through the openings are enclosed on all sides and there is

100 accordingly no possibility of them escaping in any direction.

Conveniently the front surface of the vane located in the direction of the open end of the sleeve is at a considerable distance from this end. This ensures

105 that the front surface cannot be pressed through even when axial relative movements occur between the pad and the sleeve.

The front surface preferably has a negative sweep so as to cause this front surface to be additionally

110 used as a retaining element.

The invention will now be described with reference to a preferred exemplified embodiment.

In the drawings:

Figure 1 shows a top view of a sleeve comprising a

115 vane, the pad contour being shown in dash-dotted lines,

Figure 2 shows a side view of the sleeve, with the pad contour indicated in dash-dotted lines,

Figure 3 shows a section through the centre of the

120 sleeve in the drawing plane of *Figure 2*,

Figure 4 shows a top view of the end area of a pad lever in a position in which it fits into the sleeve shown in *Figure 1*.

A sleeve 11 is injection-moulded and is shown to scale in a tenfold enlargement. When comparing

125 *Figure 1* with *Figures 2* and *3*, one discerns that the contour of the sleeve is approximately in the shape of a rectangular parallelepiped. It has a blind hole 12. Its upper front surface 13 is aligned with the upper

130 edge area 14 of a pad 16, so that the blind hole 12 is

freely accessible from the top. Both the cover 17 and the bottom 18 have opposite indentations 19, 21, 22, 23, 24, 26 in the shape of quadrangular pyramids, which indentations are very shallow so that the
 5 complementarily formed injection-moulding die can be pulled out, despite the undercuts thus formed, without having to divide the die. As can be seen in Figure 1, the points of the indentations are located in a centre plane 27, which also divides the blind hole
 10 12 into two equal halves.

The wall thickness of the sleeve 11 is 3/10 mm and is thus practically not bulky on an end area 28 of a pad lever 29 (Figure 4).

In the centre plane 31 which, according to Figure 1,
 15 lies in the drawing plane and which is also the centre plane of the pad 16, there are provided on either side of the sleeve 11 vanes 32, 33 which are of identical shape so that there is no need to take care of positional accuracy when the sleeve 11 is injected or
 20 cast into the pad 16. By the terms vanes, a thin rib structure is intended, which is thin relative to the pad 16 and the sleeve 11. The vanes 32, 33 are approximately 0.7mm thick and each have two openings 34, 36 37, 38 leaving thin webs 39, 41, 42,
 25 43 on the outside. The silicone resin flows through the openings 34 to 38 during the manufacturing process and is thus positively rooted to the vanes 32, 33 all round. However, the openings 34, 36, 37, 38 also leave the pad 16 its transparency in a practically
 30 undisturbed manner and, since the vanes 32, 33 are thin, they nevertheless participate in movements. The sleeve 11 is of natural colour, that is to say it is not conspicuous in the pad 16 because this latter is also of natural colour and the end area 28 only is
 35 seen.

The upper front surface 44, 46 of the vanes 32, 33 shown in Figure 1 has, according to Figure 1, a hook-shaped structure and consequently retention characteristics.

40 According to Figure 4, the pad lever 29 is of largely circular cross section. However, its end area 28 is deformed flat and shows on the upper side as well as on the underside flat pyramid-shaped elevations 47, 48, 49 in the form of quadrilateral pyramids.

45 Between each elevation 47, 48, 49 there is provided a valley 51, 52.

Such an end area 28 is pushed into the sleeve 11 during the assembly; if necessary, by applying adhesive. The configuration of the end area 28 is
 50 embossed, and since the embossing die keeps its shape, one always has the same geometry of the elevations 47, 48, 49. If the tool for forming the blind hole 12 is made so as to be identical with the end area 28, then one can be sure that a very high fit will
 55 be achieved in an inexpensive manner.

In order to improve the introduction of the end area 28, it may be rounded at the bottom.

CLAIMS

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1. A pad to be fastened to the end areas of metallic pad levers affixed to eyeglass frames and placed on the area of the root of the nose of persons wearing said eyeglass frames, which pad is made of
 65 silicone resin comprising a sleeve in the pad which is

thin relative to the pad and has a flexibility lying between the pad and the pad lever, and which is composed of an injection-moulded polyamide material of natural-colour and has approximately the
 70 length of the end area of the pad lever and a blind hole with its opening at the upper edge of the pad and which has a shape allowing the flush insertion therein of the end area of the pad lever; said sleeve having a substantially smaller volume than the pad;
 75 said sleeve extending approximately in the centre line of the pad; and said sleeve being provided with pad retaining elements on the outside thereof, said retaining elements comprising thin vanes on either side of said sleeve having means on said vanes for
 80 securing the pad to said vanes.

2. A pad as claimed in claim 1, in which the polyamide is a polyamide 11 or a polyamide 12.

3. A pad as claimed in claim 1, in which the polyamide is polyamide 11 a condensation product
 85 of undecylenic acid and castor oil, having a density of 1.04.

4. A pad as claimed in any preceding claim in which the length of the sleeve is about two thirds of the length of the pad.

90 5. A pad as claimed in any preceding claim in which the pad is of flat kidney shape and the retaining elements extend in the larger centre plane of the pad.

6. A pad as claimed in any one of claims 1 to 5, in
 95 which said retaining elements are thin vanes, which vanes have openings therein.

7. A pad as claimed in claim 6, in which the front surface of the vane located in the direction of the open end of the sleeve is at a considerable distance
 100 from this end.

8. A pad as claimed in claim 7, in which the front surface has a negative sweep.

9. A pad substantially as hereinbefore described with reference to Figures 1 to 3.

105 10. A pad as claimed in any preceding claim fastened to a pad lever.

11. A pair of spectacles incorporating a pad as claimed in claim 10.

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freely accessible from the top. Both the cover 17 and the bottom 18 have opposite indentations 19, 21, 22, 23, 24, 26 in the shape of quadrangular pyramids, which indentations are very shallow so that the complementarily formed injection-moulding die can be pulled out, despite the undercuts thus formed, without having to divide the die. As can be seen in Figure 1, the points of the indentations are located in a centre plane 27, which also divides the blind hole 12 into two equal halves.

The wall thickness of the sleeve 11 is 3/10 mm and is thus practically not bulky on an end area 28 of a pad lever 29 (Figure 4).

In the centre plane 31 which, according to Figure 1, lies in the drawing plane and which is also the centre plane of the pad 16, there are provided on either side of the sleeve 11 vanes 32, 33 which are of identical shape so that there is no need to take care of positional accuracy when the sleeve 11 is injected or cast into the pad 16. By the terms vanes, a thin rib structure is intended, which is thin relative to the pad 16 and the sleeve 11. The vanes 32, 33 are approximately 0.7mm thick and each have two openings 34, 36 37, 38 leaving thin webs 39, 41, 42, 43 on the outside. The silicone resin flows through the openings 34 to 38 during the manufacturing process and is thus positively rooted to the vanes 32, 33 all round. However, the openings 34, 36, 37, 38 also leave the pad 16 its transparency in a practically undisturbed manner and, since the vanes 32, 33 are thin, they nevertheless participate in movements. The sleeve 11 is of natural colour, that is to say it is not conspicuous in the pad 16 because this latter is also of natural colour and the end area 28 only is seen.

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According to Figure 4, the pad lever 29 is of largely circular cross section. However, its end area 28 is deformed flat and shows on the upper side as well as on the underside flat pyramid-shaped elevations 47, 48, 49 in the form of quadrilateral pyramids. Between each elevation 47, 48, 49 there is provided a valley 51, 52.

Such an end area 28 is pushed into the sleeve 11 during the assembly; if necessary, by applying adhesive. The configuration of the end area 28 is embossed, and since the embossing die keeps its shape, one always has the same geometry of the elevations 47, 48, 49. If the tool for forming the blind hole 12 is made so as to be identical with the end area 28, then one can be sure that a very high fit will be achieved in an inexpensive manner.

In order to improve the introduction of the end area 28, it may be rounded at the bottom.

CLAIMS

1. A pad to be fastened to the end areas of metallic pad levers affixed to eyeglass frames and placed on the area of the root of the nose of persons wearing said eyeglass frames, which pad is made of silicone resin comprising a sleeve in the pad which is

thin relative to the pad and has a flexibility lying between the pad and the pad lever, and which is composed of an injection-moulded polyamide material of natural-colour and has approximately the length of the end area of the pad lever and a blind hole with its opening at the upper edge of the pad and which has a shape allowing the flush insertion therein of the end area of the pad lever; said sleeve having a substantially smaller volume than the pad; said sleeve extending approximately in the centre line of the pad; and said sleeve being provided with pad retaining elements on the outside thereof, said retaining elements comprising thin vanes on either side of said sleeve having means on said vanes for securing the pad to said vanes.

2. A pad as claimed in claim 1, in which the polyamide is a polyamide 11 or a polyamide 12.

3. A pad as claimed in claim 1, in which the polyamide is polyamide 11 a condensation product of undecylenic acid and castor oil, having a density of 1.04.

4. A pad as claimed in any preceding claim in which the length of the sleeve is about two thirds of the length of the pad.

5. A pad as claimed in any preceding claim in which the pad is of flat kidney shape and the retaining elements extend in the larger centre plane of the pad.

6. A pad as claimed in any one of claims 1 to 5, in which said retaining elements are thin vanes, which vanes have openings therein.

7. A pad as claimed in claim 6, in which the front surface of the vane located in the direction of the open end of the sleeve is at a considerable distance from this end.

8. A pad as claimed in claim 7, in which the front surface has a negative sweep.

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