

PATENT SPECIFICATION

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(54) NOSE PAD FOR SPECTACLES

(71) We, MARWITZ & HAUSER, a German Kommanditgesellschaft of Dornhaldenstrasse 5, 7000 Stuttgart, West Germany, do hereby declare the invention, for which we pray that a patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to a nose pad for spectacles.

One of the main problems with spectacles is that they have to be satisfactorily supported in every respect on the root or bridge of the nose. This problem can be difficult to overcome because the supporting surface of the pad must be kept small for technical or fashion reasons. The spectacles may have to be worn all day by the spectacle wearer; the spectacles may be heavy or uncomfortable, because the dioptré is high or the spectacle wearer has a difficult nose shape (e.g. a flat Asiatic nose root), or the wearer is inclined to perspire and may work in a humid environment. The wearer may have a sensitive skin or too little fatty tissue between the skin and nose bone. Nose pads frequently slip over the skin, which can occur e.g. under the effect and pressure of the wind. Sometimes the pad was previously a good fit, but the nose area of the wearer has in the meantime become thicker or thinner.

The problem confronting the inventor is to provide a pad with which the above mentioned difficulties are overcome or accommodated as far as possible, which can be cheaply made by mass production, which from the aesthetic viewpoint imposes just as few limitations on the designer as before, whose reliance on dirt absorption and dirt grooves is just as problem-free as previously known pads and which can be used in quantity with all types of spectacles, i.e. on which the customer himself no longer needs to take further steps later,

such as e.g. sticking foam material to the inner side of known pads.

According to the invention there is provided a nose pad for spectacles moulded from a homogeneous suitably age-resistant synthetic polymeric material to provide a transparent moulding having a closed, substantially smooth, lustrous surface which is gentle on the skin and wear-resistant when worn, the pad being capable of being permanently bonded to materials used for spectacle frames, and being characterised by a Shore D hardness of 7 to 30 measured according to DIN 53 505.

The Shore D hardness may be 10 to 30 or more preferably 10 to 20, e.g. $16 \pm 15\%$.

The preferred material for the pad consists of a form of polyvinyl chloride material as produced by Firma Huls, which material is sold under the Trade Mark VESTOLIT and has the specification "Soft granular material SSP 56". This material has a Shore D hardness of 15 - 17 measured according to DIN 53 505. When measured thus, acetate as previously used has a hardness of 72 to 75 and cellulose as previously used has a hardness of 68 to 72. It can therefore be seen from this that the hardness has been reduced by approximately three times.

The preferred material has the following further characteristics:—

- Density 1.19 g/cm^3
- Tensile Strength 130 kp/cm^2
- Extensibility 420 percent
- Water content according to DIN 53472 15mg.

Silicone rubber can also be used. It is preferably moulded. The resulting product is more costly than a PVC product. The silicone rubber may have a Shore D hardness of 7 to 11, preferably 9.

In general it should be ensured that the pad is sufficiently soft, but not so soft that it is excessively deflected, or that the

harder parts of the spectacles such as e.g. metallic inlays in the pads, retaining pins, or the rim of the spectacles are supported on the skin.

5 Embodiments of the invention are hereafter described with reference to the accompanying drawings, in which:—

Figure 1 is a front view approximately to scale of a very large nose pad;

10 Figure 2 shows the pad according to Fig. 1 mounted on a spectacle frame;

Figure 3 shows a pad according to the invention, attached to a pad supporting arm on a pair of metal-rimmed spectacles;

15 Figure 4 is a horizontal section through the pad of Fig. 3;

Figure 5 shows, on a larger scale, a side view of a pad whose base can be bonded to the edge of a pair of plastics-rimmed spectacles;

20 Figure 6 is a horizontal section through the pad shown in Fig. 5.

Figure 1 shows a one-piece pad 11 comprising two wings or arms 12, 13 which are joined by a cross piece 14. The pad 11 is made of injection-moulded soft PVC. The fronts of the wings 12, 13 shown in Fig. 1 comprise respectively outwardly open L-shaped grooves 16, 17 each adapted to receive a spectacle rim 18, 19 (Fig. 2) in alignment. The top of the L-shaped grooves 16, 17 extend into a recessed U-shaped groove 21 which runs through the bottom section of the cross piece 14. The web 22 connecting the spectacle rims 18, 19 is situated in the U-shaped groove 21. The cross piece 14 comprises in its top section a U-shaped groove 23 into which fits a web 24 connecting the rims 18, 19. As can be seen from Fig. 2, the connecting webs 22, 24 are joined by a vertical web 26 of I section with part of its length lying in a very flat vertical U-shaped groove 27.

In the wings 12, 13 in the wall area of the L-shaped grooves 16, 17 which can be seen in Fig. 1, there are provided retention holes 28, 29 which are in the form of blind holes and in which fit pins 31, 32 which are soldered on to the rims 18, 19 at an obtuse angle so as to extend in a rearward direction as shown in Fig. 2. Also on the web 26 there can be provided such a pin which then engages in a retention hole in the bottom of the U-shaped groove 27. The wings 12, 13 extend rearwardly until a sufficiently large bearing surface is formed. In addition to the properties mentioned above a further feature of this pad 11 is that it can very simply be fitted on a pair of spectacles because, in contrast to a pad made of acetate or cellulose, it engages easily on the rims 18, 19 and connecting webs 22, 24. It does not need to be heated. As a result of its softness or resilience, the pad may therefore also be

cheaper to fit. This resilient or rubber-like property of the material also means that the heat conductivity of the pad is reduced. In the case of metal-rimmed spectacles, therefore, it is not necessary to fear what has sometimes occurred, namely, that in the event of very cold weather partial frost-bite of the nose may occur because the hard plastic material which was hitherto used for pads has too much heat conductivity.

Fig. 3 shows a spectacle rim 33 with a metal pad supporting arm 34 soldered in a known manner to the area of the rim directed towards the nose. The arm 34 is approximately rectangular in cross section and two retaining pins 36, 37 are soldered to its forward sloping face and to the left as shown in Fig. 3. The pad 38 provided on the arm 34 is of a known kidney-shape. As shown in Fig. 4 it comprises an L-shaped groove 39 in which the arm 34 is located, as well as retention holes 41 in which the pins 36, 37 are retained.

In the third embodiment shown in Figs. 5 and 6 the pad 42 is also kidney-shaped and clearly three-dimensionally curved. It comprises a face 43 perpendicular to the plane of the drawing in Fig. 5, i.e. straight in this direction. When viewed from the top downward, the face 43 is slightly curved. The pad 42 can therefore be easily bonded to the rims of plastic-rimmed spectacles. It is best for this pad 42 not to be bonded at an obtuse angle to the spectacle rim. On the contrary, it is preferable to mill an L-shaped or perhaps even a U-shaped groove in the rim thus creating a better adhesive fit for the pad 42.

WHAT WE CLAIM IS:—

1. A nose pad for spectacles moulded from a homogeneous suitably age-resistant synthetic polymeric material to provide a transparent moulding having a closed, substantially smooth, lustrous surface which is gentle on the skin and wear-resistant when worn, the pad being capable of being permanently bonded to materials used for spectacle frames, and being characterised by a Shore D hardness of 7 to 30 measured according to DIN 53 505.

2. A pad as claimed in claim 1 having a Shore D hardness of 10 to 30.

3. A pad as claimed in claim 1 having a Shore D hardness of 10 to 20.

4. A pad as claimed in claim 1 having a Shore D hardness of $16 \pm 15\%$.

5. A pad as claimed in claim 2 or claim 3, wherein the material is of polyvinyl chloride.

6. A pad as claimed in claim 5 wherein the material is that specified hereinbefore as the "preferred material".



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cheaper to fit. This resilient or rubber-like property of the material also means that the heat conductivity of the pad is reduced. In the case of metal-rimmed spectacles, therefore, it is not necessary to fear what has sometimes occurred, namely, that in the event of very cold weather partial frostbite of the nose may occur because the hard plastic material which was hitherto used for pads has too much heat conductivity.

Fig. 3 shows a spectacle rim 33 with a metal pad supporting arm 34 soldered in a known manner to the area of the rim directed towards the nose. The arm 34 is approximately rectangular in cross section and two retaining pins 36, 37 are soldered to its forward sloping face and to the left as shown in Fig. 3. The pad 38 provided on the arm 34 is of a known kidney-shape. As shown in Fig. 4 it comprises an L-shaped groove 39 in which the arm 34 is located, as well as retention holes 41 in which the pins 36, 37 are retained.

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3 7. A pad as claimed in claim 1 made of silicone rubber of Shore D hardness from 7 to 11.

5 8. A pad as claimed in any preceding claim comprising holes for receiving locking pins provided on the spectacle frame.

10 9. A pad as claimed in any preceding claim which is shaped to enable engagement on the spectacle frame, and comprises grooves in which the rims of the frame can lock.

15 10. A pad as claimed in any preceding claim which is shaped to fit at one side of the nose and is adapted to receive a pad supporting arm.

11. A nose pad for spectacles substan-

tially as described herein with reference to Figs. 1 and 2, or 3 and 4, or 5 and 6 of the accompanying drawings.

12. A pair of spectacles fitted with one 20 or more nose pads as claimed in any preceding claim.

13. A pair of spectacles as claimed in claim 9 in which the pad or pads are bonded to material on the rim of the 25 spectacles.

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