

A Spectacle Frame Sidepiece

The invention relates to a
spectacle sidepiece according to the opening
statement of the main Claim. Such sidepiece ends are
known from Fed. German Publ. Spec. No. 3,237,501 which
5 was published on the 12th April 1984. The problem
exists in securing the very soft material of the
sheath to the tang, namely not only for the duration
of a novelty fair or the duration of . . . trying on
at the optician's premises or other short periods under
10 favourable conditions. Rather the connection must
hold even when a thin film of perspiration penetrates
into the sidepiece end, which regarded absolutely
cannot be prevented if the sidepiece end is worn in
an atmosphere with very low or very high temperatures,
15 if the sidepiece end is bent frequently during the
life of the spectacle frame, or even if the sidepiece
end is brought by oversight to very high temperatures
for the purpose of bending, although this was

necessary only in the old technique and is no longer necessary with the soft sheaths.

In the case of the sidepiece end according to Fed. German Publ. Sp. 3,237,501 the danger exists that in the course of time the longer part of the sheath may twist more or less around the tang. These sheaths have oval cross-section, and then that surface which per se ought to be directed upwards or downwards rests on the head of the wearer. Furthermore even a very low quality demand of spectacle frames requires that the longer part of the sheath should remain connected with the tang and not move in the manner of a stocking for example.

It is an object of the invention to provide a sidepiece end which avoids the above designated disadvantages and produces a practical connection between the very soft synthetic plastics material and the metallic tang. It is intended as before to profit from the softness of the material and it should also be possible for the spectacle frame sidepiece end to be bent just as easily as before. The sidepiece end must lose nothing of its aesthetics. The construction must be subordinated to aesthetics. It is also intended to avoid the necessity of giving up the usual tang philosophy and having recourse to special constructions. The sidepiece end should be capable of mass production and it is to be possible as before to start from rectilinearly extended tangs in assembly.

According to the invention there is provided a spectacle frame sidepiece as claimed in Claim 1 comprising a spectacle frame sidepiece, having a metallic homogeneous tang with a flat profile, having a synthetic plastics sleeve of synthetic plastics material which has a blind hole receiving the flat profile, having a plate integrally continuing from the synthetic plastics sleeve, which plate has a flat profile and at least one transverse aperture, and having a sheath of injected synthetic plastics material of silicone rubber of a Shore-D hardness of 10-30 according to DIN 53505, which surrounds the synthetic plastics sleeve, the plate and the tang and has an end face remote from the plate at its one end, characterized by the following features:-

- a) The synthetic plastics sleeve extends integrally as far as the end face of the sheath,
- b) Through-passing holes are provided with spacing from one another in the mutually opposite wider side walls of the synthetic plastics sleeve,
- c) The material of the injection-moulded sheath engages in these holes.

Due to the features of Claim 2 the through-passing
5 holes can not only be used for the securing of the
soft silicone material but also in the operation of
injection-moulding the synthetic plastics sleeve. The
through-passing holes are the negative forms of
push member pins in the injection mould. This configura-
10 tion contributes to the possibility of making the
synthetic plastics sleeve on the one hand very thin
while being absolutely certain that the wall thickness
of this synthetic plastics sleeve is also maintained
and does not become very slight or even drop to zero.
15 In this case then the silicone rubber would meet
directly with the tang.

By the features of Claim 3 the object is achieved
that firstly sufficient possibilities of anchorage for
the silicone rubber, nextly sufficient points of action
20 for the positioning pins of the injection-moulding tool
and thirdly not too many weakening through-passing
holes are provided. In fact these holes lie in the
neutral flexure zone of the sidepiece end, but neverthe-
less too many holes would weaken the synthetic plastics
25 sleeve too much. The holes moreover also contribute
to sufficiently easy flexibility of the sidepiece end.

By the features of Claim 4 one obtains an especially
favourable shape-secure anchorage in that region where
according to experience the sidepiece end is mostly bent.

Furthermore this larger blind hole can be used for a fixing according to Figure 4, which guarantees that the synthetic plastics sleeve has the form intended by the designer even after injection-moulding, thus the sheath remains in the customary position.

When the synthetic plastics sleeve is produced it has a specific length. However its length shrinks, whether in ageing, whether due to heat or other influences. It cannot be said in advance which region of the synthetic plastics sleeve remains firmly connected with the tang.

However by securing the synthetic plastics sleeve on only a quite specific region of the tang, shrinkage actions are prevented from acting substantially upon the securing region and withdrawing from the latter a part of its retaining power by way of an incorrectly directed initial stress.

By the features of Claim 7 it is possible for the press fit to be realised without additional constructional parts and one remains with a three-part component comprising only tang, synthetic plastics sleeve and sheath.

The invention will now be described with reference to a preferred example of embodiment. In the drawing:-
FIGURE 1 shows a broken-away sidepiece end on the scale 1:1,

FIGURE 2 shows the side view of the synthetic plastics sleeve, enlarged 3.5 times,

FIGURE 3 shows the plan view of Figure 2,

FIGURE 4 shows a section along the line 4-4 in Figure 2, enlarged ten times, but for the condition of the injection-moulding of the synthetic plastics sleeve,

5 FIGURE 5 shows an illustration similar to Figure 4, but through the finished sidepiece end, likewise on the scale 10:1,

FIGURE 6 shows the right-hand side of Figure 2, but enlarged seven times compared with Figure 1.

10 A tang 11 consists of metal and has a flat profile, also called I-profile. The tang has an approximately rectangular cross-section. On the tang 11 there is seated a synthetic plastics sleeve 12 of RILSAN^(RTM) P 20. This again is surrounded by a sheath 13 of a silicone
15 rubber having a Shore-D hardness of 10 - 30 according to DIN 53505. A synthetic plastics primer may be applied to the synthetic plastics sleeve 12.

The synthetic plastics sleeve 12 has on the left a small plate 14 having two apertures 16. The synthetic
20 plastics sleeve 12 extends along a geometrical longitudinal axis 17. In total such a synthetic plastics sleeve 12 is 60 mm. in length. It has a linear blind hole 18 extending along the longitudinal axis 17. Its first region 19 is substantially longer according to
25 Figure 2 than its second region 21. Seen in width according to Figure 3, the side walls of the blind hole 18 are in alignment. In the lateral view according to Figure 2 however it is seen that on the right the first region 19 passes by way of two symmetrical sloping
30 flanks 22, 23 into the second region 21, which is wider

in this view.

Since the wall thickness of the synthetic plastics sleeve 12 is around 0.4 mm. everywhere, the outline of the synthetic plastics sleeve 12 widens in the second region 21 according to Figure 2.

A group of four pairs of holes 27, 28, 29 and 31 is provided at approximately equal intervals in the side walls 24, 26, the holes being aligned in pairs in the view in Figure 2. They are situated with their centre point on the geometrical longitudinal axis 17. The holes 27, 28, 31 are substantially smaller in diameter than the hole 29, which reaches with its periphery nearly to the upper wall 32 and the lower wall 33. The small plate 14 is somewhat widened and thus internally slightly imitates the droplet form of the sheath 13.

The tang 11 lies with its region 34 in the first region 19. While in fact it has no substantial mechanical play there, it can shift however somewhat in relation to the side wall 24, 26, the upper wall 32 and the lower wall 33, as is necessary in the bending down of the side piece end and as can be necessitated by heat shrinkages of the synthetic plastics sleeve 12.

The region 36 adjoins the region 34 by way of the sloping flanks 22, 23.

In the second region 21 the synthetic plastics sleeve 12 according to Figures 2 and 6 is less high than would be necessitated by the dimensioning of the region 36, measured there in height. Therefore the

second region 21 of the synthetic plastics sleeve 12, which has a Shore-D hardness of 64, is seated with shrunk fit on the region 36. The sloping flanks 22, 23 are not in contact with the funnel surfaces 37, 38 of the synthetic plastics sleeve 12, or merely touch them.

The sheath 13 is injection-moulded on to the synthetic plastics sleeve 12 and protrudes somewhat beyond its edge on the right. This injection-moulding operation is carried out after the synthetic plastics sleeve 12 has been completed. In this case in the blind hole 18 there is situated a tongue which holds the synthetic plastics sleeve 12, does not expand the second region 21 but forms a bottom for the holes 27, 28, 29 and 31. If now the material of the sheath 13 is injection-moulded, it also passes through the apertures 16 and holds itself fast there by shape-engagement. However it also penetrates into the holes 27, 28, 29 and 31 and the knobs thus produced give further retention over the length. Furthermore a primer, which cannot be represented by reason of its slight layer thickness, gives further retention on the synthetic plastics sleeve 12 to the sheath 13. Two such knobs 39 are represented in Figure 5, as they lie in the hole 29. The same is valid in relation to the holes 27, 28 and 31.

In Figure 4 there is seen a push member 41 pertaining to an injection mould (not shown). When it is withdrawn after the injection-moulding, one has the

blind hole 18. The push member 41 has a through-passing bore 42 coaxially with the hole 29. According to Figure 4 a retaining finger 43 comes from above, having a circular-cylindrical cross-section and abutting with its annular surface 44, parallel to the longitudinal axis 17, on the upper side 46 of the push member 41. Within the annular surface 44 there is provided a circular-cylindrical projection 47 which lies in the through-passing bore 42, extending in to less than a half.

A second retaining finger 48 of like configuration comes from below according to Figure 4. When the retaining fingers 43, 48 are driven towards one another, they not only prevent the possibility of the push member 41 deviating upwards or downwards according to Figure 4, but rather with a relatively large area they prevent the push member 41 from being able to move there at all.

The holes 27, 28, 31 of smaller diameter are produced because only retaining fingers of the size of the projection 47 are provided there in the injection-moulding tool. This is also sufficient there. The upward and downward movement of the push member 41 is reliably prevented.



(19)

C l a i m s

1. A spectacle frame sidepiece, having a metallic homogeneous tang with a flat profile, having a ~~(thin)~~ synthetic plastics sleeve of ~~(hard)~~
- 5 synthetic plastics material which has a blind hole receiving the flat profile, having a ~~(small)~~ plate integrally continuing from the synthetic plastics sleeve, which plate has a flat profile and at least one transverse aperture, and having a sheath of injected
- 10 synthetic plastics material of silicone rubber of a Shore-D hardness of 10-30 according to DIN 53505, which surrounds the synthetic plastics sleeve, the ~~(small)~~ plate and the tang and has an end face remote from the ~~(small)~~ plate at its one end, characterised by the
- 15 following features:-
- a) The synthetic plastics sleeve extends integrally as far as the end face of the sheath,



b) Through-passing holes are provided with spacing from one another in the mutually opposite wider side walls of the synthetic plastics sleeve,

5 c) The material of the injection-moulded sheath engages in these holes.

2.) Sidepiece according to Claim 1, characterised in that the through-passing holes are in alignment.

10 3.) Sidepiece according to Claim 1, characterised in that two to five through-passing holes are provided, preferably four.

4.) Sidepiece according to Claim 1, characterised in that at least one of the through-
15 passing holes nearer to the ~~small~~ plate is larger than the others and occupies at least three quarters of the height of the blind hole.

5.) Sidepiece according to Claim 1, characterised in that a synthetic plastics primer is
20 applied to the synthetic plastics sleeve.

6.) Sidepiece according to Claim 1, characterised in that the synthetic plastics sleeve has a press fit configuration in its end region remote from the ~~small~~ plate with the region of the tang surrounded
25 there, but otherwise does not have a non-displaceable seating on the tang.

7.) Sidepiece according to Claim 6, characterised in that in the region of the press fit configuration the tang comprises after widening slide-up



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flank a wider region and the synthetic plastics sleeve also has a wider blind hole there, which however has an under-dimensioning causing the press fit.

8.) A spectacle frame sidepiece
5 as claimed in claim 1, substantially as described herein with reference to and as illustrated by the example shown in the accompanying drawings.
