

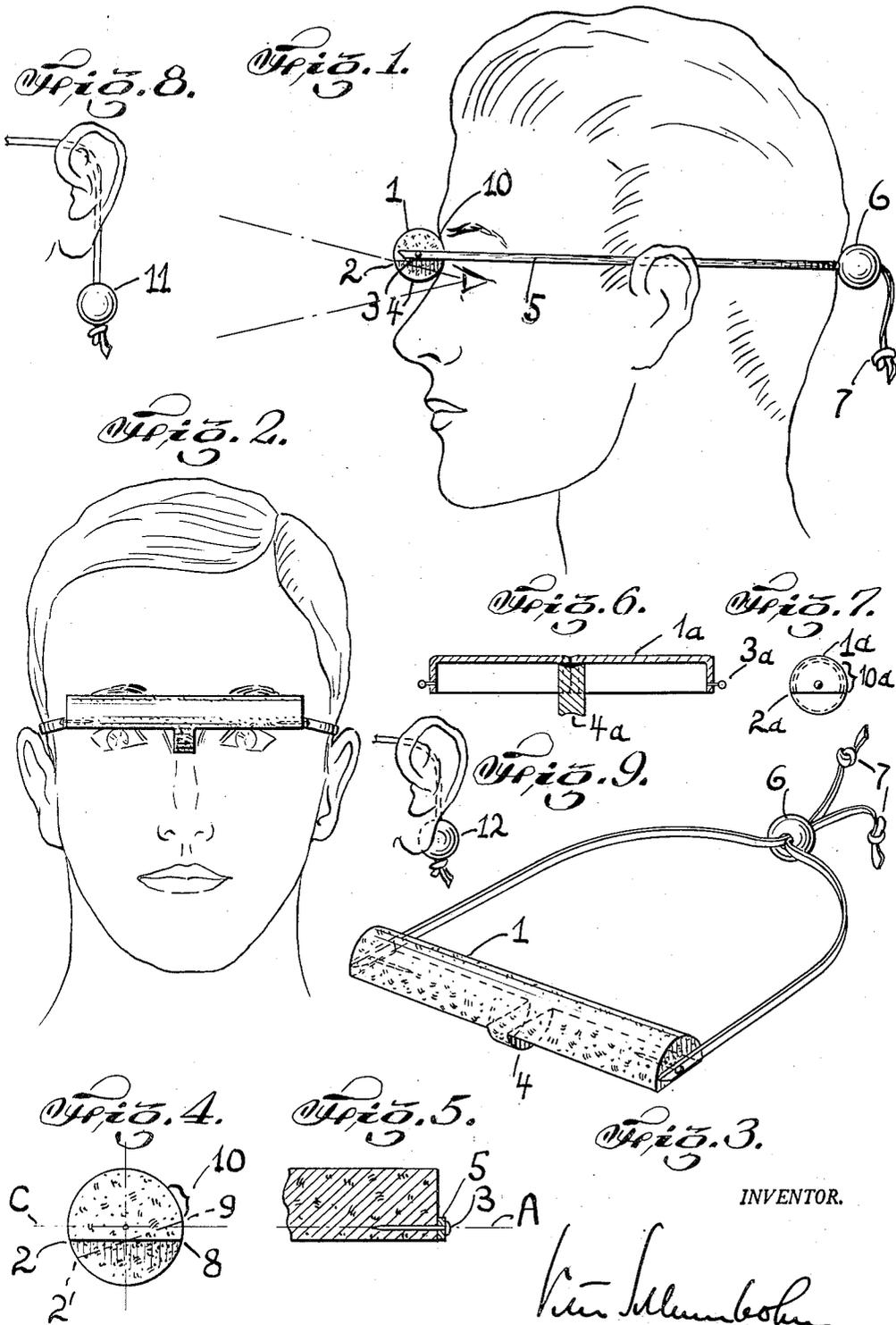
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EYE SHADE

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EYESHADE

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1

The invention relates to an optical eye-shield and a field-stop to protect the eye against intake of too much light from the source of light and against intake of light from the surroundings of the field actually viewed.

The device belongs to the class of "lenseless optics" and relies on mechanical shielding. The device forms a sort of extended brow. In this respect it is superior to known shields which are called "visor" and which aim at the effect of a hand held above the eyes. The device also functions like an eye lid, which with its screening cant can be lowered below the optical axis of the eye if so desired.

The invention is illustrated, by way of examples, in Fig. 1-Fig. 9 of the accompanying drawings.

Fig. 1 is a side view of a person equipped with the device.

Fig. 2 is a front view of the person shown in Fig. 1.

Fig. 3 is a perspective view of the device itself.

Fig. 4 is a side view of the shielding bar.

Fig. 5 is a vertical section through the bar.

Fig. 6 shows a modification of the invention, partly in view, partly in vertical section.

Fig. 7 is a side view of the device shown in Fig. 6.

Fig. 8 and Fig. 9 each show a different modification of the holding means.

As can be seen in Fig. 1 and Fig. 2 the device comprises a cylindrical element 1 which forms the eye-shield itself. In the modification shown in Fig. 1-Fig. 5 this element 1 is a cork rod of 1" diameter and 5" length. A $\frac{1}{2}$ " section in the middle part of the rod is left circumferentially intact as full cross section cylinder. This section forms the nose-rest 4 of the device. On each side of section 4 segments of the cylindrical cork rod have been removed by sawcuts guided parallel to the long axis of the cylinder. It is a step of the invention to make this cut below the center line C. As shown in Fig. 4, which is drawn to scale, the cutting plane is $\frac{5}{8}$ " below the top surface of the 1" rod, $\frac{1}{8}$ " below the center. As shown in Fig. 5 a pin 3 then can be placed right in the center and along the axis A of the cork cylinder to serve as a bearing and pivot for the temple bar 5.

Inasmuch as this pivot is arranged concentrically with the nose-rest 4, it allows a turning of the rod 1 around its long axis from one position into another one without interfering with the existent adjustment between the nose-rest 4 and the pull of the temple bars 5.

2

Fig. 4 illustrates how a turning of the rod 1 will lower the optically effective cant 2 to a lower level 2'. Reading Fig. 4 with reference to Fig. 1, it can be seen that lowering cant 2 to level 2' will have that eye-lid effect of further restricting the viewing angle. Fig. 4 read with reference to Fig. 1 shows further that a surface zone 10 is cooperating to retain an optical seal above the eyes when the cant 2 is lowered into position 2' and correspondingly the back-cant 8 is lifted into position 9. Position 2' is not a limit. Against a low, setting sun or a welding are a full 90° turn of the cylinder element may be applied. This will bring cant 2 down to the center of the pupil. The human pupil normally having 4 mm. diameter, this would cut off the upper 2 mm. zone, and—like the Eskimo's 2 mm. slit shield—would reduce the objective amount of light that can enter into the eye.

I found that cork is an ideal material for making this cylindrical element, 1. It is light; its friction coefficient not only holds the nose-rest 4 in place but also firmly anchors the pins 3. Its light-absorption coefficient practically avoids all secondary glare from reflection from its walls. For wear at the beach it is safe against corrosion; it even floats in water and cannot get lost by sinking.

Following the invention, the elasticity of the cork rod is used to fixate the device to the head of the wearer and thus the usual special elastic means like rubber bands are not required. In the arrangement as shown in Figs. 1, 2, 3, 8 and 9 the cork rod 1 forms an elastic arc to cooperate by spring action with the non-elastic holding means.

The invention avoids stiff temple bars, which would require the production of various sizes for various head sizes. The invention also avoids non-rigid holding means like bands, which would be not suitable for holding the rod 1 well balanced in a horizontal position.

Following the invention, semi-rigid temple bars are chosen to hold the cylindrical element 1. Rawhide, for instance $\frac{3}{8}$ " wide and about $\frac{3}{2}$ " thick, of rectangular cross section as illustrated in Fig. 3, provides excellent means to hold the cylinder element 3 well balanced horizontally and to allow adjustment of length. This adjustment required additional invention. I found that a rigid piece, for instance a wood ball 6, with a center bore dimensioned to just allow sliding of the two rawhides, arranged large surface to large surface, through said bored channel, produces a surprising blocking effect when the two rawhides are arranged in a 180° angle

(approx.) at the entrance of that channel. This is the case when the rawhides are arranged around the head, as indicated in Figs. 1, 2 and 3. Knots 7 at the ends of the rawhides provide a stop against loosing the ball. The ball 6 will at any chosen position retain the circumferential length of the rawhides in contact with the head.

Fig. 8 shows a modification of the holding means. On each side of the head one rawhide is hung over one ear and is weighted at its free end with a mass, for instance a ball 11, which may have the decorative design of ear jewelry.

This invention may be generally applied to holding optical means like glasses by means of temple bars.

The same holds good for the third modification of holding means, shown in Fig. 9.

Again, there is a ball 12 with a center bore, a rawhide needled through said bore and a knot at the free end of the rawhide as a stop. But this time the length of the rawhide is carefully adjusted so that the knot brings the ball 12 into a position exactly behind the lobe of the ear. It is surprising how firmly a ball of about 3/4" or 7/8" diameter will be held by the lobe of an adult's ear, without any other support whatsoever.

While Fig. 8 and Fig. 9 show modifications of the holding means only, Fig. 6 and Fig. 7 illustrate a modification of the cylindrical element only.

Designed for production in plastics, the cylindrical element avoids large thicknesses and is more of a tubular structure. It retains thereby the shielding cant 2a and the optically sealing surface 10a. Headed pins 3a are moulded into the plastic material, centered in analogy to Figs. 4 and 5. The nose rest 4a is practically made as a separate piece of moulding, with a step to assemble the two side parts on it by glue or by spring action. The spring action locking is feasible due the fact that the walls of the two side parts go beyond 180°, the pins 3a being center. The nose-rest 4a, unless made from frictional material like cork, may have a circumferential groove to fit a nose. This groove may interlock with the edges of the two side parts for assembling the three parts, cooperating with the spring action mentioned above. The nose-rest 4a may be itself a ring, again to reduce wall thickness for better moulding.

The cork rod used for making the device illustrated in Fig. 1-Fig. 5 is made from so-called "composition cork," a mass of cork particles and a binding glue baked together under pressure.

The shielding element will be effective also without the specific holding means described above, and it may be hooked on to spectacles which the person wears for optical correction of the eye.

On the other hand, the novel holding means shown and described in this specification and the drawings present invention by themselves and may improve the wearing of spectacles. Finally, the combined equipment as shown and described here for the purpose of shielding the eyes by the means embodied in these structures may become part of a new combination with glasses for optical eyesight correction, the glasses being mounted or pivoted in the cork rod 1, extending down-

ward from said rod to have their optically correct position coaxially with the eye-ball. This will be the object of a separate patent application.

Having now described the nature of my invention and given examples of the manner in which it may be performed,

What I claim as my invention is:

1. Optical eye-shield and field-stop, comprising a cylindrical element of sufficient length to reach from the outer end of one eye brow to the outer end of the other eye brow when held horizontally in contact with the eye brows, said cylindrical element having a center section and two side sections, one on each side of said center section; the cross section of said center section being that of a full round rod and said center section serving as a nose rest for the cylindrical element; said side sections having the cross section of substantially a half-round rod and the material of said element being in those two side sections bordered by one plane surface and one cylindrical surface in addition to the plane surface of the ends of said cylindrical element; and further comprising holding means attached to pivots anchored in said cylindrical element, said pivots being arranged coaxially with the long axis of said cylindrical element.

2. Optical eye-shield and field-stop, comprising a rod-shaped element of light material, like cork, balsa wood, magnesium or the like; said rod having a center section of a cross section of a full-round rod and side sections on each side of said center section, said side sections having a cross-section of substantially a half round-rod.

3. Optical eye-shield and field-stop, comprising a cylinder-like element having a center section serving as a nose rest, said nose rest having a cross section of a full round cylinder, and further having side sections, one on each side of said center section, said side sections each having a cross section substantially like that of a longitudinally split cylinder; said cylinder-like element being adapted to be held with its long axis horizontally arranged in the zone of the eye brows.

4. Optical eye-shield and field-stop, characterized by a rod of about one inch diameter adapted to rest on the nose of a person and to extend over the entire length of the eye brows, said rod having cut-outs in those of its sections which otherwise would be in front of the pupils.

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