Sept. 16, 1952 J. O. JOHNSON 2,610,323

FACE PROTECTIVE DEVICE

Filed July 28, 1950

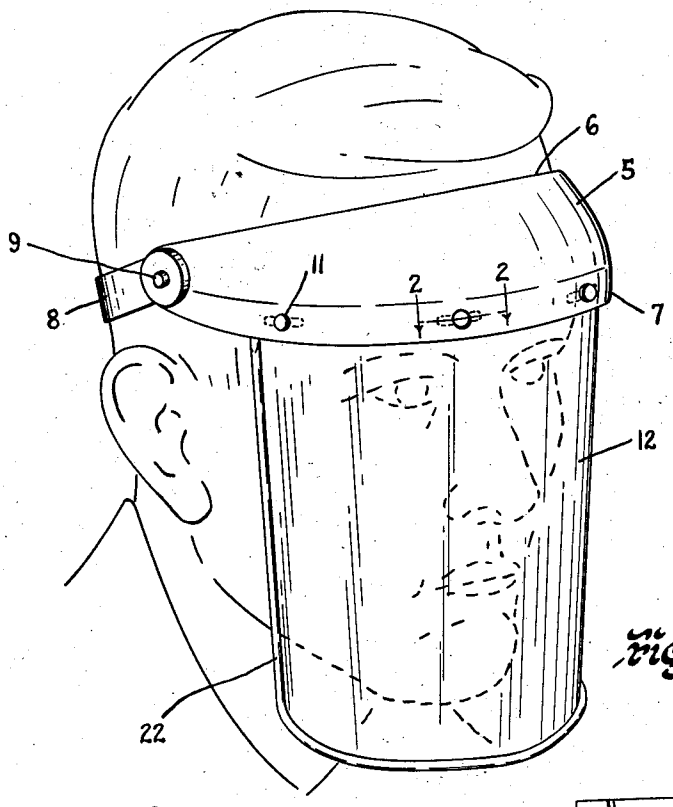


Fig. 1

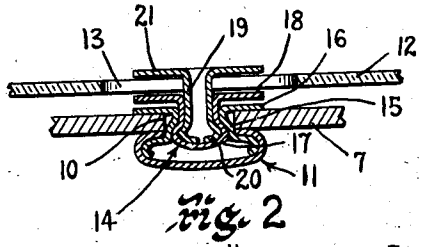


Fig. 2

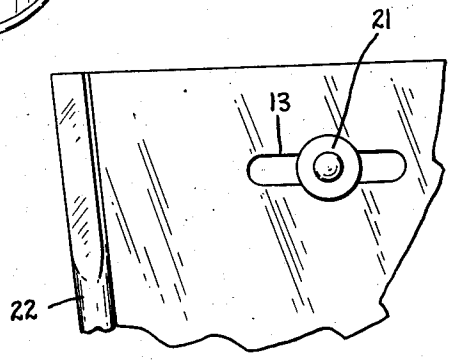


Fig. 3

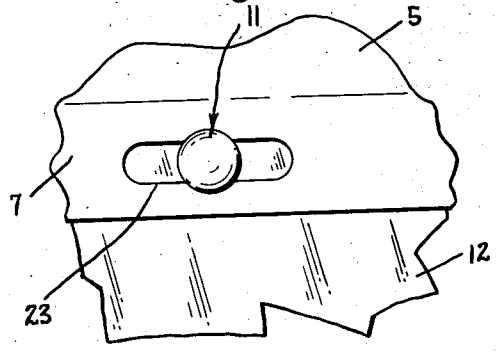


Fig. 4

INVENTOR
JOHN OLIVER JOHNSON
BY
Louis L. Gagnon
ATTORNEY

Patented Sept. 16, 1952 2,610,323

UNITED STATES PATENT OFFICE

2,610,323

FACE PROTECTIVE DEVICE

John Oliver Johnson, St. Louis, Mo., assignor to American Optical Company, Southbridge, Mass., a voluntary association of Massachusetts

Application July 28, 1950, Serial No. 176,417

5 Claims. (Cl. 2—8)

1

This invention relates to protective devices of the type embodying a headgear and a face shield carried by said headgear and has particular reference to novel means and method of making the same.

Devices of the character embodying the invention are, in most instances, formed with a headgear embodying a band to which a light weight, transparent plastic shield is attached and adapted to be supported in front of the face.

Such devices are for general utility as protective means for both the face and the eyes of the wearer when the said wearer is subjected to the hazards of flying sparks or particles such as in lathe or grinding operations, to heat in connection with general work around furnaces, or when subjected to the hazards of splashing chemicals or the like.

The device is such that it must not only be extremely light in weight and comfortable to wear but also must enable the interchanging of face shields when they become pitted or otherwise rendered impractical for use.

In most instances, the headgear embodying the headband to which the shield is attached is formed of a fiber material while the shield itself is formed of a transparent plastic or other resinous material attached to the headband by snap fasteners or similar attachment means whereby the shields may be readily detached from the headgear and replaced as desired.

It has been found that the shields, due to the material from which they are fabricated, have a tendency to shrink primarily due to aging when stored and also have a tendency to become warped or distorted when subjected to heat and thereafter allowed to cool.

The above characteristics are such as to cause considerable difficulty in the past. It, therefore, is one of the primary objects of this invention to overcome the above difficulties through the provision of means for aiding in preventing or compensating for this so-called warping or distortion of the shields and method of making the same.

Another object is to provide novel means and method of attaching the shield to the headgear or headband whereby said shield and headband are free to shift relative to each other to compensate for variations in expansion and contraction of the materials in said shield and headband in order to avoid distortion or warping of the shield during use.

Another object is to provide novel means and method of attaching the shield to the headband

2

or headgear whereby the said shield and headgear are free to shift relative to each other and whereby the shield is further enabled to be readily detached for replacement as desired.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawings, and it is to be understood that many changes may be made in the details of construction, arrangement of parts, and methods shown and described without departing from the spirit of the invention as expressed in the accompanying claims. The invention, therefore, is not limited to the exact details of construction, arrangement of parts, and methods shown and described as the preferred form only is given by way of illustration.

Referring to the drawings:

Fig. 1 is a front perspective view of the device showing it in position of use on the head of the wearer;

Fig. 2 is an enlarged fragmentary sectional view taken along line 2—2 in Fig. 1 of one of the connecting means and associated parts;

Fig. 3 is an enlarged fragmentary rear view of a portion of the shield showing one of the connection means; and

Fig. 4 is an enlarged fragmentary front view of a modified form of the invention.

Referring more particularly to the drawings wherein like characters of reference designate like parts throughout the several views, the device embodying the invention comprises a main visor-like portion 5 having an inner edge 6 shaped substantially to the curvature of the forehead and further having on its outer edge a depending lip 7. A headband 8 is pivotally connected to the visor-like portion 5, as illustrated at 9, whereby the said visor-like portion may be secured in position of use on the head of the wearer.

The depending lip 7 has a plurality of spaced openings 10 therein adapted to receive the female portions 11 of snap fastener means by which a transparent shield 12 may be secured in overlying relation with the face of the wearer. The said transparent shield 12 has a plurality of spaced slots 13 therein and in which are loosely supported the male members 14 of the snap fastener means.

It is particularly pointed out that each female member 11 of the snap fastener means is of a size larger than the respective opening 10 in the lip 7 and embodies a reduced portion 15 which extends through the opening 10 and which flares outwardly, as illustrated at 16, so as to overlie the

rear surface of said lip 7. The said flared portion 16 permanently secures the female member 11 to the lip in such a manner as to enable the enlarged head portion 17 of the male member 14 to be detachably positioned within the female member, the said reduced portion 15 being of a resilient nature and so dimensioned as to permit the head portion 17 to be forced therethrough and to thereafter retain a binding relation with the said head portion. The head portion 17 is provided with a rearwardly flared portion 18 shaped to overlie the front surface of the transparent shield 12. The said male member 14 further embodies a portion 19 which extends through a respective slot 13 in said transparent shield and which has a flared forward end 20 internally of the head portion 17 whereby said forwardly extending portion 19 is retained within said head portion 17. The said portion 19 is provided with a flange-like flared portion 21 adapted to overlie the rear surface of the shield 12. The said flared portions 21 and 18 straddle the said slot 13 and are spaced relative to each other an amount slightly greater than the thickness of the shield 12 so as to enable the said male member 14 to be free to move longitudinally of the respective slot 13.

It is particularly pointed out that the slots 13 extend in a direction longitudinally of the lip 7 and, due to the fact that the male members 14 of the snap fastener means are free to move longitudinally of said slots, slight variations due to expansion or contraction of either the shield or visor-like portion will be compensated for and the shield, therefore, prevented from becoming warped or distorted.

The visor-like portion 5 and headband 8 are preferably formed of pressed fiber or other suitable relatively hard, shape-retaining material while the face shield 12 is preferably formed of a transparent, artificial, resinous or plastic material.

The shield 12 is provided with a suitable edge framing 22 throughout the bottom and sides thereof and may or may not be initially fabricated to the curvature of the face as desired. It is preferable, however, that the shield be initially curved to the curvature of the face and that the framing 22 be of such as to aid in retaining said shape and yet permit the shield to have free movement on the connection means when the said shield expands or contracts either due to aging or to subjection to heat and subsequent cooling.

While it has been stated that the shield 12 may be provided with a plurality of slots 13, it is to be understood that the lip 7 of the visor-like portion 5 may be provided with slots 23 (Fig. 4) similar to the slots 13 in which instance, however, the female portion 11 would be connected to the lip 7 so as to be free to move longitudinally of the slots 23 and the male portion 14 would be fixedly attached to the shield 12 instead of having the slots 13 therein.

From the foregoing description, it will be seen that simple, efficient and economical means have been provided for accomplishing all of the objects and advantages of the invention.

I claim:

1. A device of the character described comprising a shield member shaped to overlie the face of a wearer, a supporting member therefor adapted to be held in position on the head of said wearer, one of said members having spaced axially aligned elongated slots extending in a direction transversely thereof, and spaced connection means by which the shield member may be detachably connected with the supporting member therefor, said connection means each embodying a first part affixed to one of said members at a location in substantial alignment with one of said slots, and a second part having a stud portion extending through the slot provided in the other member with which said first part is substantially aligned, said elongated slots being of a length greater than the diameter of said respective stud portions, and said stud portions further having plate-like portions disposed to overlie the opposed surfaces of the slotted member and being spaced apart a distance slightly greater than the thickness of the slotted member whereby the shield member and supporting member therefor are free to shift relative to each other to avoid distortion of the shield member when in said connected relation with the supporting member.

2. A device of the character described comprising a flexible shield member shaped to overlie the face of a wearer and having spaced axially aligned slots adjacent the top edge thereof, a supporting member therefor adapted to be held in position on the head of said wearer, and spaced connection means by which the shield member may be detachably connected with the supporting member therefor, said connection means each embodying a first part affixed to said supporting member at a location in substantial alignment with a respective one of said slots in the top edge of the shield member, and a second part having a stud portion extending through a respective one of said elongated slots provided in the shield member, said elongated slots being of a length several times the diameter of said respective stud portions, and said stud portions further having plate-like portions disposed to overlie the opposed surfaces of the shield member about the respective slots and being spaced apart a distance slightly greater than the thickness of the shield member whereby the shield member and supporting member therefor are free to shift relative to each other to avoid distortion of the shield member when in said connected relation with the supporting member.

3. A device of the character described comprising a shield member shaped to overlie the face of a wearer, a supporting member therefor adapted to be held in position on the head of said wearer and having a portion arranged to overlap the top edge of the shield, said overlapping portion of the supporting member having spaced axially aligned elongated slots disposed in a direction substantially parallel with the top edge of the shield member, and spaced connection means by which the shield member may be detachably connected with the supporting member therefor, said connection means each embodying a first part affixed to the overlapped portion of the shield member at a location substantially aligned with a respective one of said slots, and a second part having a stud portion extending through a respective one of said elongated slots provided in the overlapping portion of the supporting member, said elongated slots being of a length several times the diameter of said respective stud portions, and said stud portions further having plate-like portions disposed to overlie the opposed surfaces of the slotted portion of the supporting mem-

ber and being spaced apart a distance slightly greater than the thickness of said slotted overlapping portion whereby the shield member and supporting member therefor are free to shift relative to each other to avoid distortion of the shield member when in said connected relation with the supporting member.

4. A device of the character described comprising a shield member shaped to overlie the face of a wearer, a supporting member therefor adapted to be held in position on the head of said wearer, the front portion of the supporting member and top edge portion of the shield member being arranged in overlapping relation, with one of said overlapping portions having spaced elongated slots provided therein and extending in a direction approximately parallel with the top edge portion of the shield, and spaced connection means by which the shield member may be detachably connected with the supporting member therefor, said connection means each embodying a first part affixed to the overlapping portion of one of said members at a location substantially aligned with a respective one of said slots provided in the overlapping portion of the other member, and a second part having a stud portion extending through a respective one of said elongated slots provided in the other member, said elongated slots being of a length several times the diameter of said respective stud portions, and said stud portion further having plate-like portions disposed to overlie the opposed surfaces of the slotted member, said plate-like portions being spaced apart a distance slightly greater than the thickness of the slotted member whereby the shield member and supporting member therefor are free to shift relative to each other to avoid distortion of the shield member when in said connected relation with the supporting member.

5. A device of the character described comprising a shield member shaped to overlie the face of a wearer, a supporting member therefor adapted to be held in position on the head of said wearer, the front portion of the supporting member and top edge portion of the shield member being arranged in overlapping relation, with one of said overlapping portions having spaced elongated slots provided therein and extending in a direction approximately parallel with the top edge portion of the shield, and spaced snap fastener means by which the shield member may be detachably connected with the supporting member therefor, said snap fastener means each embodying a female part affixed to the overlapping portion of one of said members at a location substantially aligned with a respective one of said slots provided in the overlapping portion of the other member, and a male part secured to the other member by a stud portion extending through a respective one of said elongated slots provided in said other member and having plate-like portions disposed to overlie the opposed surfaces of the slotted member, said plate-like portions being spaced apart a distance slightly greater than the thickness of the slotted member, and said elongated slots being of a length greater than the diameter of said respective stud portions whereby the shield member and supporting member therefor are free to shift relative to each other to avoid distortion of the shield member when in said connected relation with the supporting member.

JOHN OLIVER JOHNSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,194,492	Bowers	Mar. 26, 1940
2,406,598	Flood	Aug. 27, 1946
2,447,083	Moeller	Aug. 17, 1948