July 9, 1935. R. MALCOM 2,007,431

GOGGLE FASTENING MEANS

Filed May 31, 1934

Fig. 1.

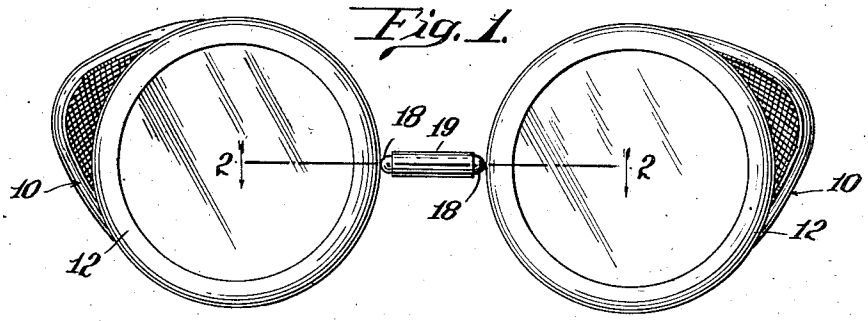


Fig. 2.

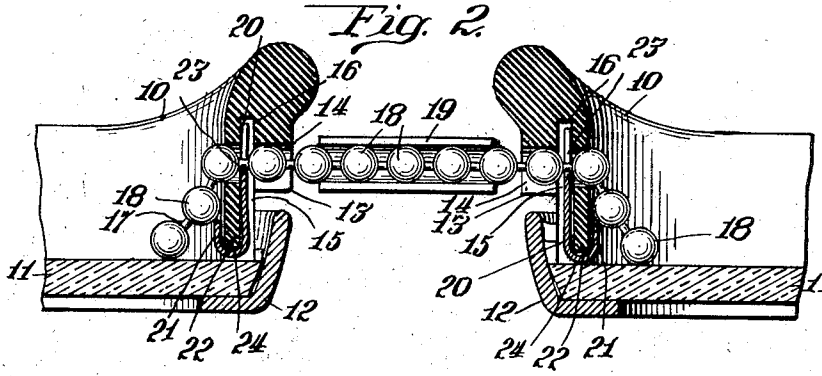


Fig. 3.

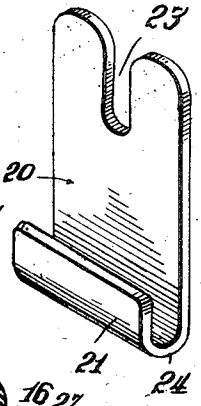


Fig 4.

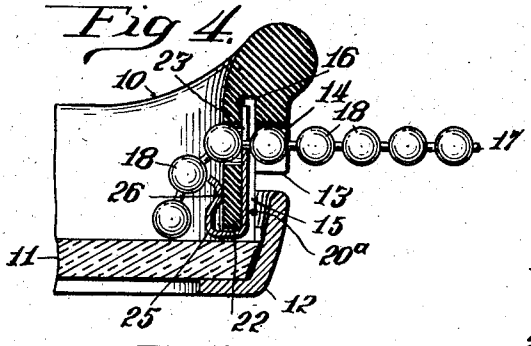


Fig. 6.

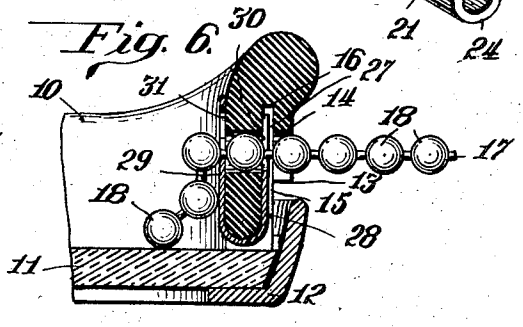


Fig. 5.

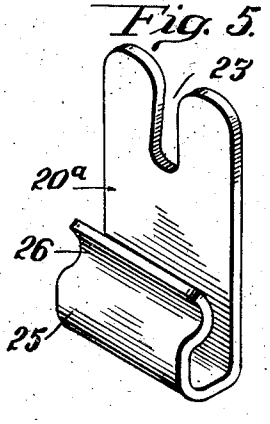
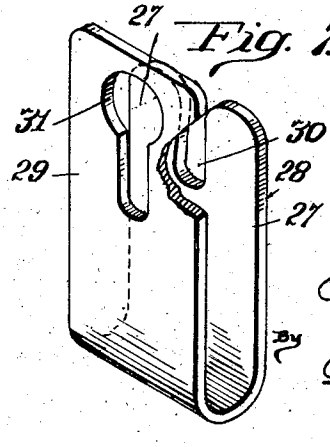


Fig. 7.



Inventor
Robert Malcom,
By Geo. Heidemann
Attorney

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2,007,431

GOGGLE FASTENING MEANS

Robert Malcom, Chicago, Ill.

Application May 31, 1934, Serial No. 728,356

9 Claims. (Cl. 2—14)

My invention relates to means whereby the eye-cups of goggles are adjustably secured together thereby adapting the goggles to the different facial contours and the variations in eye-positions of different individuals.

The invention has for its object the provision of a construction that is simple in design and which may be easily adjusted by the user without need of tools or special skill; a construction which will maintain its adjusted positions; a considerable latitude or range of adjustments being possible.

The objects and advantages of my invention will be readily comprehended from the following detailed description of the exemplifications of my invention disclosed in the accompanying drawing, wherein—

Figure 1 is a front elevation of a goggle with my improved fastening means; the head straps being omitted.

Figure 2 is a sectional view of the inner or nose sides of the eye-cups and of my improved fastening means, taken on the line 2—2 of Figure 1.

Figure 3 is a detail perspective view of the type of nose piece or flexible element holding and locking element shown in Figure 2.

Figure 4 is a sectional view of the inner or nose side of an eye-cup with a portion of the flexible connecting element, showing a modification of the locking element.

Figure 5 is a detail perspective view of the locking element shown in Figure 4.

Figure 6 is a sectional view of the inner nose side of an eye-cup and a portion of the flexible connecting element, showing another modification of the locking element.

Figure 7 is a detail perspective view of the locking element shown in Figure 6.

My invention relates more especially to goggles intended for commercial purposes, namely in industries where the eyes of workmen require protection from flying particles or from the action of certain light rays and the invention exists in the means whereby the eye-cups of the goggle are adjustably fastened together by a flexible nose-bridge.

As the facial contours and positions of eyes of different users vary at times to a considerable degree, it is essential to provide eye-cup fastening means which may be readily adjusted to hold the two eye-cups in proper position without, however, placing them under a contracting tension which would subject the wearer to an uncomfortable pressure and injurious strains.

In the particular exemplifications of the invention, the eye-cups 10, 10 of the goggle are made of a rigid material, such as bakelite, and preferably shaped to completely enclose the eye-socket; the inner perimeters of the eye-cups being formed to fit the contour of the face about the eyes. The walls of the eye-cups are preferably comparatively thick as shown to withstand more or less rough usage by workmen.

In goggles of this character the lenses 11, 11 are generally removably held in place by the lens-rings 12 which are threaded onto the cup walls or have lug and groove interlocking relation; the eye-cup walls being enlarged beyond the applied position of the lens holding rings so as to provide a shoulder below the ring as at 13. The lens 11 is intended to rest on the annular perimeter of the eye-cup where it is held by the flange of the lens ring 12 in the usual manner.

The inner or nose side of each eye-cup, at a point just beneath the plane of the shoulder 13, is provided with an opening 14 extending entirely through the wall; and the eye-cup wall at a point coincident with opening 14 is provided with a slot 15 extending in a direction transversely of the wall from the lens seating perimeter to a point preferably slightly beyond the opening 14 as shown at 16.

The inner end 16 of the slot 15 is intermediate of the inner and outer surfaces of the eye-cup; that is to say, this end of the slot is surrounded on both sides by the eye-cup wall; while the upper or outer end of the slot will be exposed when the lense holding ring 12 is removed.

The openings 14 in the side walls of the eye-cups are of size sufficient to permit passage of the well known type of ball-chain, consisting of a suitable flexible cord or wire 17 on which the small balls 18 are threaded and arranged in comparatively close relation, with the end balls firmly secured to the wire or cord 17 in the usual well known manner. The flexible ball-chain is of the conventional type found in the open market.

This ball-chain forms a flexible nose piece for yieldingly connecting the two eye-cups together, and in order to prevent injury to the nose of the wearer the chain is preferably provided with a soft yieldable covering or small rubber tubing 19 of length corresponding to the minimum spacing of the eye-cups but of sufficient length to cover the portion which passes over the bridge of the nose.

The slot 15, in the side wall of each eye-cup, is shown provided with a small locking member 20 which is slidably mounted in place and is adapted

to provide locking or holding engagement with the ball-chain.

The locking member employed in Figure 2 is shown in perspective in Figure 3 and consists of a thin, preferably metal, strip having one end bent back as shown at 21 so as to receive the reduced outer end portion 22 of the wall of the eye-cup between the finger engaging end 21 and the main portion of member 20, as shown in Figure 2.

The other end of slide piece or member 20 is provided with a passage 23 which in this specific embodiment is in the nature of a notch or slot of width less than the diameters of the spherical portions or balls 18 of the chain. It will be understood that the member 20 consists of a thin metal piece which will readily fit between two adjacent balls 18 as shown in Figure 2.

The lens seating perimeter of the eye-cup, coincident with the slot 15, is preferably notched or recessed to receive the curled or bent portion 24 of the locking member 20 and permit said portion to be flush with the lens-seat.

The notched or slotted end of the member 20 is shown preferably slightly rounded to ensure the easy passage of the member 20 across the chain.

Before the lenses 11 and the lens holding rings are put into place, the length of the chain or nose piece is regulated to maintain the two eye-cups in proper position and spaced relation in keeping with the eye spacing of the wearer.

This adjustment is accomplished by inserting the ends of the chain, preferably to equal distances, through the holes 14, 14 in the eye-cup walls and then sliding the locking members or pieces 20 into the slot 15 so the end provided with the slot or passage 23 intersects the chain and passes into the closed end 16 of the slot 15; while the bent end 21 laps the inner portion 22 of the eye-cup wall. The lenses 11 are then placed onto the perimeter or seat of the eye-cup and the lens rings 12 put into place. It is apparent from the construction shown and described, the inner or notched end of the locking member will be disposed within the eye-cup wall, while the outer or bent end will have the portion 22 of the eye-cup wall on one side of the main portion of member 20 and the lens holding ring 12 on the opposite side and as a result the lock member 20 will be completely enclosed or "walled in", making it impossible to distort or bend the member 20 although it is made of a very thin piece of metal. At the same time it will be seen that when the lens and the lens holding ring are in place, the locking member 20 must be in locking position and be held there against any possible movement. As a result, a secure fastening for the eye-cups is provided and the goggle maintained in its adjusted position, which, however, may be readily altered by simply removing a lens and lens holding ring and then sliding the lock member in the direction of the lens-seat until the notched end of member 20 clears the chain, permitting the latter to be moved farther into or out of the eye-cup.

In Figures 4 and 5 I illustrate a modification of the locking member 20^a which is identical with member 20 except that the bent portion 25 is somewhat longer than the portion 21 of member 20, and this portion 25 is curled toward the main portion of member 20^a as shown at 26 to provide greater frictional engagement with the cup wall portion 22. Furthermore, by curling or bending the short end 25 as shown at 26, a better finger grasping portion is provided; the locking member being of a quite thin piece of metal, with preferably a sufficient amount of resiliency to effect the binding or gripping relation with the cup wall portion 22.

In Figures 6 and 7, a further modification of the locking member is shown; the construction of the eye-cups for receiving the locking member being the same as that heretofore described; being provided with the chain receiving passage or hole 14 and the wall at a point coincident with the hole having the transverse slot 15 for receiving one leg or side 27 of locking member 28, while the other leg 29 extends snugly against the side wall and within the eye-cup, with the cup wall portion 22 disposed between the two legs 27 and 29.

The locking member 28 is shown with the end of leg 27 notched or slotted at 30 in a manner similar to that shown in Figure 3; the notch or slot being of less width than the diameters of the enlarged or spherical portions of the nose-piece.

The other side or leg 29 is shown provided with a key-hole type of passage 31; with the narrow or lower portion of the passage in alignment with the lower or closed end of the notch or slot 30; while the large end of the passage 31 is in a plane slightly above the open end of slot 30. In order that this may be accomplished, the leg or side 29 is made longer than the side or leg 27. The upper or large end of the passage 31 is made large enough to permit passage of the spherical portions or balls 18 of the chain therethrough, while the lower narrower end of the passage, like that of the passage 30, is of less width than the diameters of the balls of the chain and will merely receive the cord portion 17. As a result, a double locking engagement with the nose piece or chain is provided.

Like in the previously described constructions, the lock member 28, in order to permit adjustment of the nose-piece, must be moved from its normal or the operative position shown in Figure 6 by sliding member 28 outwardly in the direction of the lens after the lens holding ring 12 and the lens 11 have been removed; the member 28 being slid outwardly a distance sufficient to position the large end of passage 31 in alignment with the hole or passage 14 in the side wall of the eye-cup. Such positioning will also place the open end of the slot or notch 30 in proper position to permit free movement of the chain.

It is apparent from the various embodiments of the invention that the locking members will be held against movement as soon as the lenses and the lens holding rings have been put into place; and that these lock members may be of very thin sheet metal as flexing or bending of the members, while in use, will be impossible because the main legs or sides ride into the closed ends 16 of the transverse slots within the walls of the eye-cups and hence are not only reenforced by the eye-cup walls but are also "backed up" or reenforced by the lens holding rings.

With the main portion of the locking member arranged within the side wall of the eye-cup, interference with easy access to the inner surface of the lens is obviated; the construction permitting the entire inner surface of the lens to be properly cleaned or wiped.

My invention provides a simple and very efficient adjustable fastening means for the flexible nose piece of the goggle and while I have

disclosed what are believed to be the best embodiments of the invention, other modifications are possible and may be made without, however, departing from the spirit of my invention which has been described in terms employed for purposes of description and not as terms of limitation.

What I claim is:

1. Goggle fastening means of the character described comprising, in combination with a pair of eye-cups whose nose opposing side walls are each provided with an opening therethrough; a slot in the wall of each eye-cup arranged in intersecting relation with said opening; a flexible bridge-piece provided with a plurality of flexibly connected enlargements adapted to pass through said openings; and a locking element slidable in said slot and across said opening and having a passage for the flexible portion of the bridge-piece but of width less than the diameters of the enlargements of the bridge-piece.

2. Goggle fastening means of the character described comprising, in combination with a pair of eye-cups, the nose opposing side walls of the eye-cups each having an opening therethrough; a slot in said wall disposed transversely of the eye-cup across the opening; a flexible bridge-piece adapted to pass through the wall-openings; and a locking element slidably mounted in said slot and adapted to form interlocking engagement with the bridge-piece.

3. Goggle fastening means comprising, in combination with a pair of eye-cups, the side wall of at least one having an opening therethrough and a slot disposed transversely across the opening with the open end of the slot terminating at the lens-seat of the eye-cup; a flexible bridge-piece adapted to pass through said opening; and a locking element slidably mounted in said slot, the inner end being adapted to form interlocking engagement with the bridge-piece while the outer end terminates at the lens-seat.

4. Goggle fastening means comprising, in combination with a pair of eye-cups, the side wall of at least one having an opening therethrough and a slot disposed transversely across the opening with the open end of the slot terminating at the lens-seat of the eye-cup; a removable lens holding ring whereby a lens is held on said seat, said ring constituting a closure for the open end of the slot; a flexible bridge-piece adapted to pass through said opening; and a locking element slidably mounted in said slot, the inner end being adapted to form interlocking engagement with the bridge-piece while the outer end is held against movement by said lens holding ring.

5. Goggle fastening means comprising, in combination with a pair of eye-cups, the side walls whereof on the nose opposing sides have openings therethrough and slots disposed transversely across the openings and terminating at the lens-seats; removable lens holding rings whereby the lenses are held on the seats, said rings constituting closures for the open ends of the slots; a flexible bridge-piece adapted to pass through the openings; and locking elements slidably mounted in the slots, the inner ends being adapted to form interlocking engagements with the bridge-piece while the outer ends straddle the eye-cup walls adjacent said lens-seats and are held against movement by the lens holding ring.

6. Goggle fastening means comprising, in combination with a pair of eye-cups provided with lens-seats and removable lens holding rings, while the side walls on the nose opposing sides have openings therethrough and slots disposed transversely across the openings and terminating at the lens-seats; a flexible bridge-piece consisting of a ball-chain adapted to pass through said openings; and locking strips slidable in said slots when the lens holding rings are removed, said strips being formed to provide interlocking engagements with the bridge piece and prevent movement of the latter through said openings.

7. Goggle fastening means comprising, in combination with a pair of eye-cups provided with openings through the nose opposing side walls and slots disposed transversely of the walls across said openings and terminating at the inner ends within said walls while the outer ends terminate at the lens-seats; a flexible bridge-piece insertable through said openings; and locking means slidable in the slots when the lenses are removed and adapted to form interlocking engagement with the bridge-piece when forced toward the inner ends of the slots.

8. Goggle fastening means comprising, in combination with a pair of eye-cups provided with removable lenses and at least one of the eye-cups provided with an opening through the side wall; a flexible bridge-piece for connecting the eye-cups together and being insertable through said opening; and means for adjustably locking the bridge-piece in said opening consisting of a metal strip bent to provide two yieldingly spaced apart side portions adapted to straddle the eye-cup wall at the lens receiving end of the eye-cup, one side being slotted to effect locking engagement with the bridge-piece while the other side constitutes a finger-grasp; said means being movable transversely of the eye-cup when the lens is removed.

9. Goggle fastening means comprising, in combination with a pair of eye-cups provided with removable lenses and with openings in the nose side walls and slots in said walls between the inner and outer surfaces thereof, said slots being arranged to intersect said openings; a flexible bridge-piece insertable through the openings; and locking means provided with two parallel portions and adapted to straddle the eye-cup walls at the lens-seating ends, one of the parallel portions of the means being provided with a slot and adapted to slide into said wall-slot and effect interlocking engagement with the bridge-piece while the other parallel portion is adapted to extend along the inner face of the eye-cup wall, said means being locked against movement of each lens.

ROBERT MALCOM.