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GOGGLE SET

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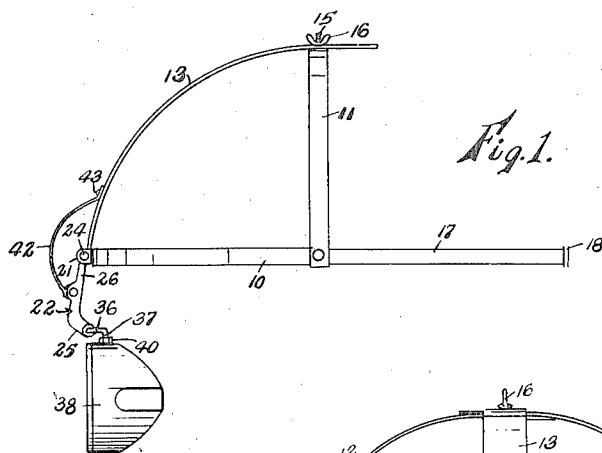


*Fig. 1.*

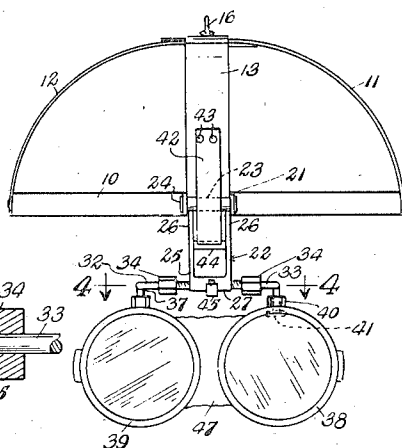


*Fig. 2.*

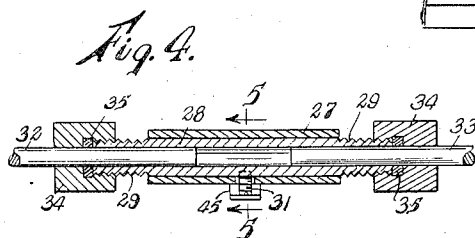


*Fig. 4.*

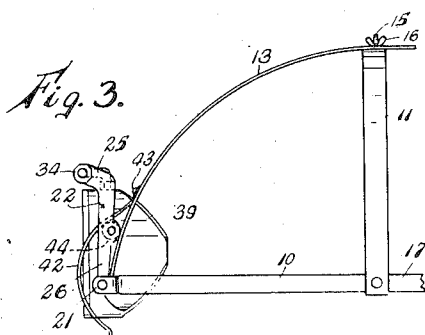


*Fig. 3.*

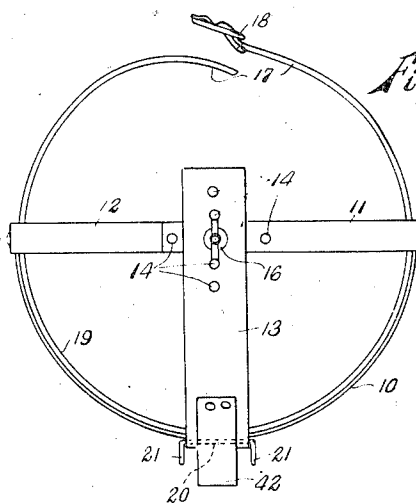


*Fig. 6.*

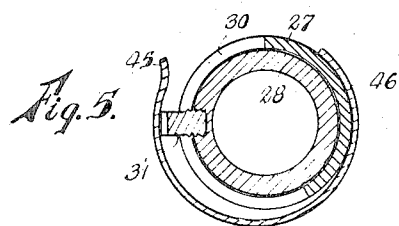


*Fig. 5.*

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## UNITED STATES PATENT OFFICE

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## GOGGLE SET

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7 Claims. (Cl. 2-14)

This invention relates to a goggle set and is particularly concerned with that type of eye protector used by welders and other craftsmen whose eyes, during work, are subjected to the danger of flying sparks, fragments of metal, glass, and the like.

An object of the invention is to provide a goggle set of this kind which is completely adjustable to fit both the eyes and the head of the individual user.

Another object is to provide such a device in which the eye pieces or goggles proper may be shifted with one hand from an operative to an inoperative position without in any way affecting the preadjusted condition of the goggles so that the latter, when they are returned to operative position, again assume their proper fitted relationship.

Another object is to provide a goggle set in which the eye pieces, in the inoperative position, project upwardly to a minimum extent and are disposed in close adjacency to the front portion of the user's head.

Another object is to provide goggles of this kind which are positively, but resiliently, held in both their operative and inoperative positions, means being likewise provided for precluding loose movement of the eye pieces at any time.

Another object is to provide goggles which may be worn comfortably over and without interference with regular eye glasses or spectacles.

Another object is to provide a goggle set of the kind described which is simple and efficient both in manufacture and in use.

These and other objects are attained by the means described herein and illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevational view of the goggle set of this invention, with eye pieces disposed in operative position.

Fig. 2 is a front elevational view of the device as seen in Fig. 1.

Fig. 3 is a view similar to Fig. 1, but with the eye pieces disposed in their inoperative position, parts being omitted and parts broken away.

Fig. 4 is an enlarged cross-sectional view on line 4-4 of Fig. 2, with parts broken away.

Fig. 5 is an enlarged cross-sectional view on the line 5-5 of Fig. 4.

Fig. 6 is a top plan view of the head frame forming part of the present invention, the eye pieces and the structural details immediately associated therewith being omitted.

With reference to the drawing, the goggles of this invention are adapted to be mounted on a

frame which is placed upon and adjusted to the head of the user. According to the present invention, this frame comprises an arcuate bottom strip 10, preferably formed of light metal and adapted to embrace the forehead and to extend along the front sides of the wearer's head. The ends of the strip 10 extend to about the middle of the head, and have attached at their ends a pair of arcuate arms 11 and 12 which project towards one another and which are adapted to be connected, adjacent their ends, with an arcuate front strip 13, the lower end of which is connected with the mid-portion of the bottom strip 10. The upper ends of all of the three members 11, 12, and 13 are provided with a series of perforations 14, and a suitable threaded bolt 15 is adapted to be inserted through three superimposed perforations of the three members 11, 12, and 13 after the head frame has been properly adjusted to the individual user's head. Thereafter a wing nut 16 is tightened upon the bolt 15 for holding the frame in adjusted position. The ends of the bottom strip 10 have likewise connected therewith strap means 17, the outer ends of which may be adjustably connected by a buckle 18, or the like, in accordance with the needs of the user.

It will be seen in Fig. 6 that the strap means 17 may be continued around the inner face of the bottom strip 10, as at 19, for contacting the head of the wearer.

The goggles of this invention are adapted to be mounted upon the front strip 13 of the head frame. For this purpose, the front of the bottom strip 10 has connected therewith a bearing strip 20 formed with a pair of forwardly projecting lugs 21. As seen in Figs. 1 and 6, the strip 20 may be secured, between the bottom strip 10 and the front strip 13 of the head frame, all three parts being secured together by identical fastening means, such as rivets or by spot welding.

A bracket 22, formed with a pair of spaced arms 23, is pivotally mounted between the lugs 21. For this purpose, the upper ends of the bracket may be provided with a cross-piece 24 formed with a longitudinal bore. A shaft 25 extends through this bore and likewise through the lugs 21 for hingedly mounting the bracket.

The arms 23 of the bracket 22 are formed at their outer ends to provide the angularly disposed portions 26 for a purpose to be described. The extreme ends of said portions 26 are connected by a bearing 27 in which the goggles are pivotally mounted.

Through the bearing 27, a rotatable tubular member 28 extends, the ends of the tubular member extending beyond the ends of the bearing, as indicated at 29, these projecting portions being exteriorly threaded. The tubular member 28 is retained in position within the bearing 27 by the means illustrated most clearly in Figs. 4 and 5. The said bearing is formed with a transverse slot 30 at the mid-portion of the front of the bearing. This slot may extend from substantially the top of the bearing to a distance slightly beyond the mid-point of the bottom side thereof. A set screw 31 projects through the slot 30 and is threadably received in the tubular member 28, said screw extending outwardly beyond the surface of the bearing 30, whereby lateral displacement of the tubular member 28 is precluded and rotational movement thereof limited.

A pair of shafts 32 and 33 extends into the opposite ends of the tubular member 28, as seen in Fig. 4. These shafts are rotatable within the tubular member but are normally precluded from movement therein by virtue of a pair of packing nuts 34 embracing the shafts 32 and 33 and threadably advanced upon the threaded ends of the tubular member 28 until the packing 35 in said nuts precludes rotational movement of the shafts within the tubular member.

The outer end portions of the shafts 32 and 33 are formed to extend rearwardly, as at 36, and downwardly, as at 37, the latter sections providing supports for the eye pieces 38 and 39. The vertical sections 37 are threaded and project through the tops of the eye pieces 38 and 39, a pair of nuts 40 and 41 being disposed on said sections 37 on opposite surfaces of the eye pieces and being tightened thereagainst for holding the goggles in the selected adjustment on their vertical axes.

Further details of the manipulation and adjustment of the goggles will be set forth below, but it will be obvious thus far that the bracket 22 may be swung down to the operative position seen in Fig. 1 and upwardly to the inoperative position seen in Fig. 3, and that the goggles, by virtue of their pivotal connection with the bearing 27, are adapted to be disposed in depending relationship in both positions. For holding the bracket and goggles in their given position, the present invention provides for the use of an arcuate spring 42, the upper end of which is secured, as at 43, to the face of the front strip 13 above the bracket 22 and its mounting. The spring 42 extends downwardly over said bracket and bears resiliently against a cross-bar provided intermediate of the ends of the bracket and preferably taking the form of a roller 44.

A smaller arcuate spring 45 (Fig. 5) may be fixed, as at 46, to the rear part of the bearing 27, the spring extending about the major portion of the slot 30 in spaced relation therewith. This spring exerts resilient pressure against the outer end of the set screw 31 and precludes loose swinging movement of the goggles when the latter are disposed in their upper or inoperative position.

The use and operation of the invention may be further detailed as follows: The first step is, of course, to adjust the head frame to the size of the user's head so that the frame fits fairly snugly. After the frame has been placed on the head and the buckle 18 secured, the goggles are swung to their downwardly extending position, as seen in Figs. 1 and 2. If the eye pieces 38 and 39 are too far apart or too close together for the individual's needs, the packing nuts 34 are loosened until the

shafts 32 and 33 can be pushed in or pulled out, as the case may require, and furthermore, the exact pivotal adjustment of the goggles on their horizontal axes may be effected. For example, if the goggles, in their lowered position, do not bear evenly, all around, against the wearer's face, adjacent the eyes, the shafts 32 and 33 are rotated until the proper adjustment and "feeling" of the goggles has been attained. It may be pointed out here that in the operative position of the goggles, the set screw 31 contacts the upper extremity of the slot 30 of the bearing 27 for limiting further pivotal movement of the goggles in this direction. The horizontal pivotal adjustment of the eye pieces 38 and 39 described above is made with the set screw in the contacting position mentioned. It may be that the eye pieces require a still further adjustment if it should happen that either one of them, or both, should project slightly below or above their most convenient or comfortable positions. If such is the case, the nuts, at 40 and 41 on the vertical sections 37 of the shafts 32 and 33, are loosened and either advanced or retracted for respectively raising or lowering the eye pieces. In addition, at this time, the exact pivotal adjustment of the eye pieces on their vertical axes may be effected. After such additional adjustments, the nuts 40 and 41 are again tightened against the top portions of the eye pieces and the latter are now in proper condition for comfortable and efficient use. As will be noted in Fig. 2, a suitable, flexible shield extends between the eye pieces 39 so as to limit the entry of light under the eye pieces at the inner edges thereof.

When it is desired to raise the goggles from the eyes, the unit comprising the eye pieces and the bracket 22 is simply swung arcuately upward until the bracket lies against the front strip 10. The eye pieces themselves, during such action, are not turned but rather are shifted as a whole, the bearing 27 rotating about the tubular member 28. At this time, also, the roller 44 on the bracket 22 rides upwardly against the inner face of the arcuate spring 42 and is resiliently pressed by said spring against the front strip 13 of the head frame. The smaller arcuate spring 45, bearing against the outer end of the set screw 31, precludes loose swinging movement of the goggles in their raised position so that they do not hinge forwardly when the user bends his head, whereby inconvenience to the user and possible injury to the goggles are obviated.

The angular disposition of the outer end portions 25 of the bracket 22 is peculiarly effective for achieving a proper operative relationship of the goggles with the eyes of the user, and likewise, with the bracket assembly, resulting in a compactly disposed unit in the raised inoperative position of the device, as seen in Fig. 3.

As already suggested, the goggles may be raised from operative position, or returned thereto, with one hand of the wearer. This is a marked advantage since such manipulation of the goggles is frequently necessary while a workman is holding a tool, such as a welding device, in one hand. Moreover, the manipulation of the goggles does not in any way modify the preadjusted relationships of the various parts as already described, since the movement is simply a hinging or rotation of the tubular member 28 within the bearing 27. The manipulation of the goggles, it may be observed, is most conveniently done by grasping one or the other of the eye pieces and simply pushing it up, the goggles being held in sub-

stantially a vertical position during such movement.

It is an important advantage of the present invention that the goggles may be worn comfortably over regular eye glasses or spectacles. Heretofore it has been necessary for welders, grinders, and similar craftsmen obliged to wear glasses, to have two pairs of them, one pair for use at work and one for ordinary use. The ones used at work usually must be replaced rather frequently, sometimes at the end of every few months, due to injury to the lenses by flying sparks, et cetera. The present invention obviates this additional trouble and expense. The goggles readily fit over the glasses and the outward arcuate movement of the goggles, when they are pushed up from the eyes, precludes displacement and injury to the glasses.

What is claimed is:

1. A goggle set comprising a frame adapted to be positioned on a user's head, a bracket having one end attached centrally of the front of the head frame for pivotal movement in a vertical plane, a pair of goggles mounted on the free end of said bracket and adapted to be swung down through an arc of greater than 90° into operative position over the eyes of the user and to be returned upwardly through an arc of greater than 90° into inoperative position adjacent the front of the head frame, and resilient means bearing against said bracket and urging it toward the user's eyes when the bracket is swung down and toward the head frame when the bracket is swung up.

2. A goggle set comprising a frame adapted to be positioned on a user's head, a bracket having one end attached centrally of the front of the head frame for pivotal movement in a vertical plane, a pair of goggles pivotally mounted on the free end of said bracket and adapted to be swung down through an arc of greater than 90° into operative position over the eyes of the user and to be returned upwardly through an arc of greater than 90° into inoperative position adjacent the front of the head frame, resilient means bearing against said bracket and urging it toward the user's eyes when the bracket is swung down and toward the head frame when the bracket is swung up, the goggles in both said positions being adapted by virtue of their pivotal mounting to be disposed in depending relation with the bracket, and means precluding loose pivotal movement of the goggles in their given positions.

3. A goggle set comprising a frame adapted to be positioned on a user's head, a bracket having one end attached centrally of the front of the head frame for pivotal movement in a vertical plane, a transverse bearing on the bracket, a shaft in each end of the bearing and projecting exteriorly thereof, a goggle pivotally connected with each shaft in substantially right angular relation therewith, said bracket being adapted to be swung down for disposing the goggles over the eyes of a user and to be swung up into inoperative position with the bracket and goggles

disposed adjacent the front of the head frame, means for releasably holding the bracket in its given positions, said shafts being adapted to be moved inwardly and outwardly relative to said bearing and likewise to be turned on a longitudinal axis to achieve proper adjustment of the goggles to the user's eyes, and the goggles by virtue of their said pivotal connections being further adapted for pivotal adjustment on a vertical axis, and means for holding the goggles in their adjusted positions.

4. A goggle set comprising a frame adapted to be positioned on a user's head, a bearing connected with the front of the frame and extending transversely relative thereto, a tubular member extending rotatably through the bearing, a pair of shafts extending rotatably into said tubular member at opposite ends thereof, a pair of goggles attached one each to one of the shafts and adapted to be swung down toward the user's eyes into operative position and to be swung up toward the head frame into inoperative position, means for releasably holding the bracket and goggles in their given positions, and means for holding said shafts in selected inwardly, outwardly and rotatably adjusted relations with said tubular member whereby the goggles may be swung to operative and inoperative positions without affecting said adjusted relations, and means for limiting rotation of the tubular member upon movement of the goggles into operative position.

5. A goggle set comprising a frame adapted to be positioned on a user's head, a horizontal bearing supported by the frame, a pair of goggles held by the bearing and adapted to be disposed in front of a user's eyes, and means for shifting the goggles longitudinally of the bearing to different longitudinally adjusted positions and for maintaining them in the adjusted positions.

6. A goggle set comprising a frame for positioning on a user's head and providing a section adapted to be disposed adjacent the forehead, a bracket having one end pivotally connected with said section, a bearing rotatably attached to the other end of said bracket and extending transversely thereof, a pair of goggles mounted on opposite ends of said bearing and adapted, by virtue of said rotatable bearing and hinged bracket, to be swung arcuately down to the user's eyes and up to the head frame without turning of the goggles proper, and means for holding the goggles in their raised and lowered positions.

7. A goggle set comprising a frame adapted to be positioned on a user's head, a bracket mounted on the frame for hinged vertical movement, a pair of goggles mounted on the bracket and adapted to be positioned before the user's eyes in depending relation with the head frame, rearwardly-projecting members on the goggles adapted to contact the user's face for holding the goggles in spaced relation with the eyes, and means yieldably urging the goggles toward the user's face.

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