Nov. 17, 1964 M. N. ANDERSON 3,156,922

CRADLE ATTACHMENT FOR HEAD PROTECTIVE EQUIPMENT

Filed Dec. 7, 1961 2 Sheets-Sheet 1

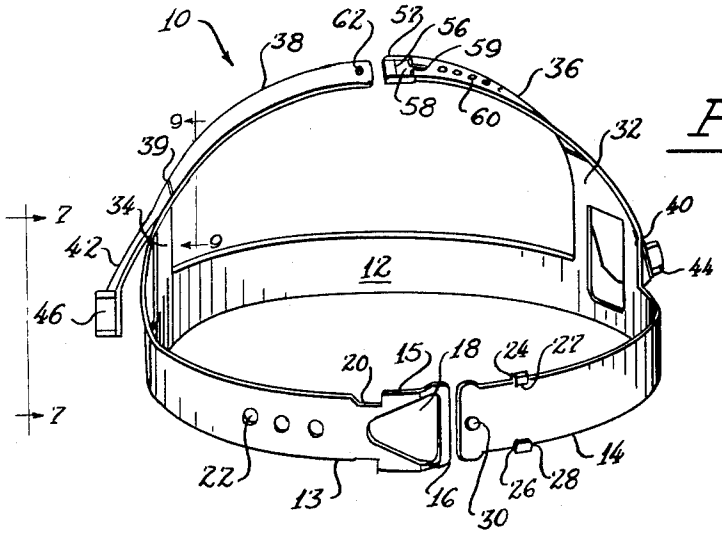

Fig 1

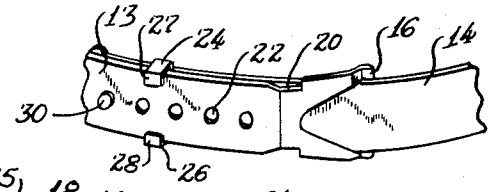

Fig 2

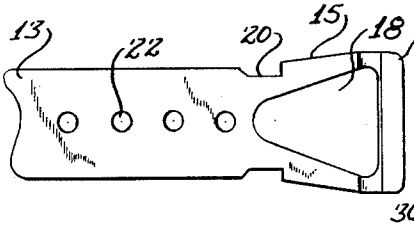

Fig 3

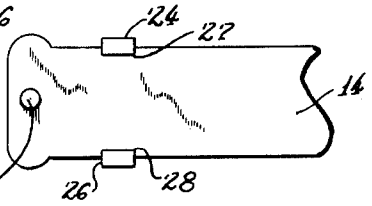

Fig 5

Fig 4

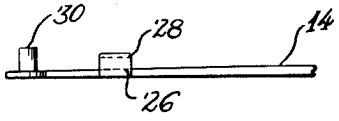

Fig 6

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Nov. 17, 1964 M. N. ANDERSON 3,156,922

CRADLE ATTACHMENT FOR HEAD PROTECTIVE EQUIPMENT

Filed Dec. 7, 1961 2 Sheets-Sheet 2

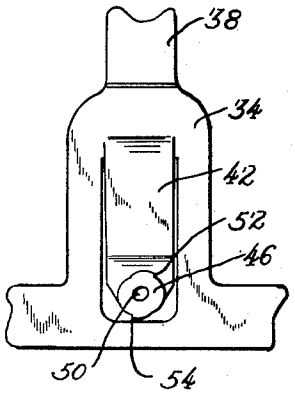

Fig 7

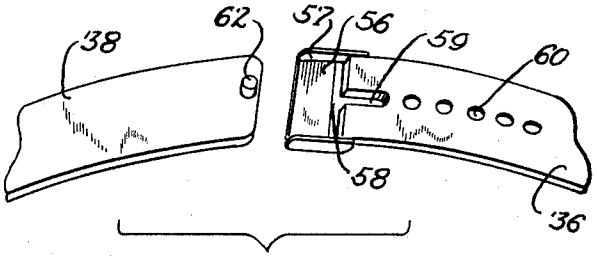

Fig 8

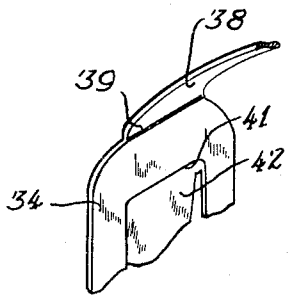

Fig 9

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CRADLE ATTACHMENT FOR HEAD PROTECTIVE EQUIPMENT

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4 Claims. (Cl. 2—3)

This invention relates to head protective equipment and more particularly to a cradle attachment for use with head protective equipment.

There are on the market today various types of head protective equipment such as welders' masks, safety caps, skull guards and similar hard hats which have within them cradles for suspending the hat upon the head of the wearer. It is, of course, desirable that such protective headgear be light in weight to avoid causing discomfort to the wearer. Obviously, therefore, the cradle attachment employed with such protective headgear should also be light in weight as well as simple in construction and readily adjustable to fit various head sizes.

Thus, it is one of the objects of this invention to provide a cradle attachment for head protective equipment possessing the aforementioned desiderata.

Another object of the invention is to provide a cradle attachment for head protective equipment which does not involve a plurality of parts but which can be inexpensively produced in one piece by molding.

A still further object of the invention is to provide a cradle attachment for head protective equipment which permits rapid assembly of the cradle within the head protector and which may be readily adjusted with minimum effort so as to fit a variety of head sizes.

These objects, together with additional objects and advantages of the present invention will become apparent from the following detailed description and from the accompanying drawings in which:

FIGURE 1 is a perspective view of the cradle attachment of the present invention showing the cradle head band in separated unlocked position.

FIGURE 2 is a perspective view of a portion of the cradle head band showing the ends thereof in overlying locked position.

FIGURE 3 is an enlarged view of one end of the cradle head band having a slot and spaced apertures therein.

FIGURE 4 is a side view of the portion of the cradle head band shown in FIGURE 3.

FIGURE 5 is an enlarged view of the opposite end of the cradle head band having thereon a pair of flange members and an upstanding protuberance whereby attachment is made with the opposite end of said head band.

FIGURE 6 is a side view of the portion of the cradle head band shown in FIGURE 5.

FIGURE 7 is a side view in elevation taken on line 7—7 of FIGURE 1 of one of the members provided on each side of the novel cradle attachment of the invention by means of which it is attached to a head protector.

FIGURE 8 is an enlarged perspective view of the free ends of the side straps which together form the cradle head strap.

FIGURE 9 is a fragmentary perspective view taken on a line 9—9 of FIGURE 1.

Referring now to the drawings, the cradle attachment 10 of the present invention is formed of straps of relatively stiff, yet bendable material such as polyethylene or the like, and comprises a circumferentially extensible head band 12 of substantially rectangular configuration looped in circular fashion. The opposite ends 13 and 14 of head band 12 are adapted to lie in overlapping relationship. Preferably the thickness of head band 12 is varied with the end portions 13 and 14 thereof having a reduced

thickness as compared with the intermediate portion thereof so that when the ends are in overlapped position excess thickness is avoided without the sacrifice of desired strength. One end 13 of the head band 12 is provided with an enlarged terminal portion 15 having a straight edge, radially inwardly contoured tip 16 and a triangularly shaped slot 18 formed therein. The end 13 of head band 12 is formed with a neck portion 20 of reduced width adjacent the terminal portion 15. A plurality of centrally aligned spaced apertures 22 are provided also within end 13 of head band 12.

The other end 14 of head band 12 carries a pair of flanges 24 and 26 which extend upwardly from the surface of the head band 12 and have inwardly extending lip portions 27 and 28 respectively. A button or stud 30 carried on end 14 of head band 12 is adapted to reside in any one of the apertures 22 for adjustment purposes as shown in FIGURE 2.

Intermediate the end portions 13 and 14, head band 12 is provided with two enlarged side portions 32 and 34 from which extend generally vertical straps 36 and 38. The score and crease lines 39 which are provided at the junctures of each of the vertical straps 36 and 38 and the enlarged side portions 32 and 34 enable the head strap to hingedly conform to the wearer's head. The vertical straps 36 and 38 have their free ends adapted for movement relative to each other and to lie in overlapping relationship when in locked position. Struck-out from each of the side portions 32 and 34 but firmly attached thereto are protuberances or ears 40 and 42. The ears 40 and 42 extend at an inclined angle from the side portions 32 and 34 so that the free ends thereof are offset outwardly from head band 12. As shown in FIGURES 7 and 9, a recessed portion 41 is provided on the inner or head side of each of the side portions 32 and 34 with the marginal portions of protuberances 40 and 42 extending beyond and joining the side portions above the portion 41 to provide maximum strength at this juncture. The free end of each of the ears 40 and 42 is provided with a substantially circular disk 44 or 46, which is formed with an aperture 50 to receive plastic or metal fittings when the cradle attachment is attached to the head protective equipment. A pair of lugs 52 and 54 spaced apart approximately 180° are provided on the outer periphery of each disk 44 or 46 to limit pivoting of the head protective equipment relative to the cradle attachment therefor.

The free end of vertical strap 36, see FIGURE 8, is provided with a generally rectangular lip 56 having sides 57 through which the lip is attached. The lip 56 lying in a plane below and being outwardly offset from the end of strap 36 forms therewith a slot 58 through which the free end of strap 38 is threaded when assembling the head strap. A longitudinally extending generally rectangular slot 59 and a plurality of spaced aligned apertures 60 are also provided on the strap 36. The free end of strap 38 carries a button or stud 62 which is adapted to reside in any one of the apertures 60 to lock the vertical straps together in overlying relationship thereby forming a unitary head strap which rests on the top of the wearer's head.

Adjustment of the cradle to the head size of the wearer is accomplished by threading the end 14 of head band 12 over the contoured lip 16 and through slot 18 within the enlarged terminal portion 15 of head band 12. To facilitate entry into slot 18 the end portion 14 can be introduced therein while the ends 13 and 14 of head band 12 are angularly disposed relative to each other. The flange members 24 and 26 are then engaged with the reduced neck portion 20 with the inwardly projecting lips 27 and 28 on the flanges forming a channel in which the free end 13 of head band 12 is slidably received. The end portions 13 and 14 of head band 12 are then moved relative to

each other so that the head band comfortably fits the head of the wearer. The head band 12 is locked in the proper position by the insertion of button 30 carried by end 14 into the correspondingly aligned apertures 22 within end 13 of head band 12.

Likewise, the cradle head strap is adjusted so that it rests comfortably on the head of the wearer by sliding the free end of vertical strap 38 over the lip 56 provided on vertical strap 36 and through the slot 58 therein, the upstanding button 62 being received within the longitudinal slot 59. By depressing the button 62 so as to free it from slot 59 the straps 36 and 38 can be moved relative to each other to achieve a desired adjustment of the head strap. The head strap can then be locked in the proper position by the insertion of the button 62 as a positioning anchor into a correspondingly aligned aperture 60.

It will be noted from the above description of the present invention that a novel cradle attachment is provided for head protectors normally used in hazardous occupations. The novel cradle attachment is light in weight, simple in construction and is produced in one piece by molding.

This application is a continuation-in-part of my prior application, Serial Number 139,975, filed September 22, 1961, now abandoned.

Those modifications and equivalents which fall within the spirit of the invention and the scope of the appended claims are to be considered part of the invention.

I claim:

1. In head protective equipment a detachable cradle comprising a circumferentially extensible head band having the ends thereof adapted for lying in overlapped relationship, one end of said head band having a neck portion of reduced width adjacent to an enlarged terminal portion having a slot therein through which the distal end of said head band can be threaded, said end of the head band being provided also with a plurality of spaced aligned apertures, the distal end of said head band carrying a pair upwardly and inwardly extending flange members adapted to form a channel for reception of one end of said head band and an upstanding protuberance thereon adapted to reside within the spaced apertures located on said head band, said head band having two enlarged side portions thereon spaced apart approximately 180°, each of said enlarged side portions having integrally connected thereto an outwardly and angularly extending protuberance, the free end of said protuberance benig spaced laterally from said band and being provided with a rounded disk member having an aperture therein for receiving fastening means for attachment to the head protective equipment, said disk member having a pair of spaced apart lugs on the periphery thereof to limit the pivotal movement of the cradle attachment with respect to the head protective equipment, a head strap adapted to rest on the head of the wearer comprising a pair of substantially vertically extending straps connecting with the enlarged side portions on said head band and having the free ends thereof adapted for lying in overlapped relationship, the free end of one of the said vertically extending straps being provided at its terminal end with a generally rectangular lip lying in a plane below and projecting outwardly therefrom so as to define a transverse slot between said lip and the end of said vertical strap and being provided also with a longitudinally extending slot and a plurality of spaced aligned apertures, the other vertically extending strap being provided with an upstanding protuberance adapted to reside within the spaced apertures provided within the first mentioned vertically extending strap.

2. In head protective equipment a detachable cradle comprising a circumferentially extensible head band having the ends thereof of reduced thickness as compared with the intermediate portion of the head band and adapted for lying in overlapping relationship, one end of said head band having a neck portion of reduced width and being provided with a plurality of spaced aligned apertures and an enlarged terminal portion having a slot therein through wihch the distal end of said head band can be threaded, the distal end of said head band carrying a pair of upwardly and inwardly extending flange members adapted to form a channel for reception of one end of said head band and an upstanding protuberance thereon adapted to reside within the spaced apertures located on said head band, said head band having two enlarged side portions thereon spaced apart approximately 180°, each of said enlarged side portions having integrally connected thereto an outwardly and angularly extending protuberance, the free end of said protuberance being spaced laterally from said band and being provided with an aperture for receiving fastening means for attachment to the head protective equipment, a head strap adapted to rest on the head of the wearer comprising a pair of substantially vertically extending straps integrally connected with the enlarged side portions on said headband and having the free ends thereof adapted for lying in overlapped relationship, a portion of the said vertical strap forming the connection with the headband having a reduced cross section comparing with the main body of the vertical strap so as to facilitate bending between the vertical strap and the enlarged portion of the headband, the free end of one of the said vertically extending straps being provided at its terminal end with a generally rectangular lip lying in a plane below and outwardly offset therefrom so as to define a transverse slot between said lip and the end of said vertical strap and being provided also with a longitudinally extending slot and a plurality of spaced aligned apertures, the other vertically extending strap being provided with an upstanding protuberance adapted to reside within the spaced apertures provided within the first mentioned vertically extending strap.

3. In head protective equipment, a molded one piece cradle comprising a circumferentially extensible head encircling band having end portions adapted to interlock with one another to form a substantially continuous band, one end portion having a neck of reduced width and being provided with an enlarged slotted segment, and a plurality of longitudinally spaced apertures, the second end portion being insertable through said one end portion slotted segment and being provided with a first protuberance for selective disposition within one of said longitudinally spaced apertures and a pair of second relatively spaced protuberances between which a section of said one end portion is positionable, said pair of second protuberances being spaced a greater distance from the end limit of said second end portion than said first protuberance; a pair of relatively spaced strap-like sections extending transversely from said head-encircling band, said strap-like sections having the free ends thereof adapted to interlock with one another to form a substantially continuous head-overlying strap, the free end portion of one strap-like section being slotted and provided with a plurality of longitudinally spaced openings, the free end portion of the second strap-like section being insertable through said slotted segment of said one strap-like section and provided with a protuberance for selective disposition with one of said longitudinally spaced openings; each strap-like section being provided with a foldable segment adjacent the head encircling band to effect flexure of said strap-like section to conform substantially to the head shape of the wearer.

4. The cradle recited in claim 3 wherein the free end portion of the strap-like section which is slotted is provided with a lip which is disposed in a plane offset from the surface of the section adjacent the head of the wearer, said lip being substantially the same width as the remainder of said section end portion and cooperating therewith to form a transverse slot through which the other strap-like section end portion is adapted to be inserted, the remainder of said section end portion delimiting said transverse slot being provided with an elongated longitudinally extending notch which communicates at one end with said transverse slot, said notch being adapted to accom-

modate the protuberance of said other section end portion when the latter is being inserted through said transverse slot.

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