United States Patent

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[15] **3,696,441**

[45] **Oct. 10, 1972**

[54] RACING HELMET

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[22] Filed: **March 11, 1971**

[21] Appl. No.: **123,219**

[52] **U.S. Cl.** ..... **2/3 A**

[51] **Int. Cl.** **A42b 3/00**

[58] **Field of Search** .....2/3 R, 3 A, 3 B, 3 C, 5, 6, 2/9, 10

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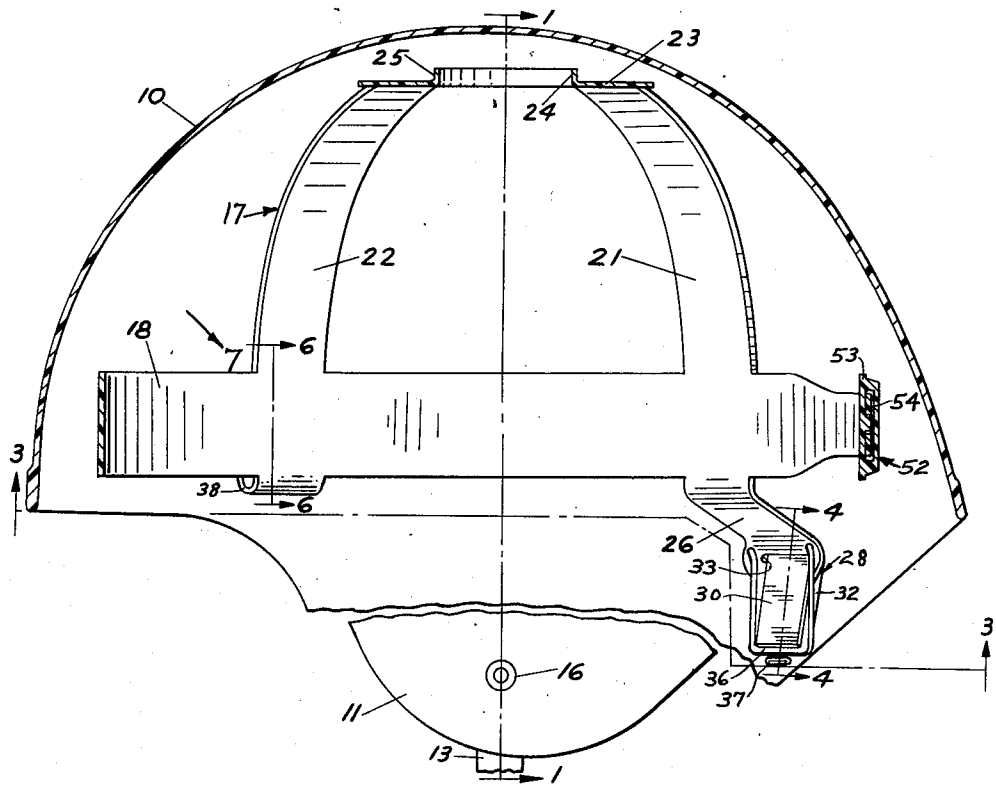
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[57] **ABSTRACT**

A liner for a child's racing helmet, and the like, and wherein the helmet is a one-piece, molded plastic composition having a crown portion with integral ear protector side extensions. The liner includes an annular head band having a head size adjustment means, and a plurality of head straps integrally attached to the head band at circumferentially spaced apart positions, and with the head straps being integrally attached to a head engaging pad. The head band, head straps and the head engaging pad are integrally formed from a pliable, flexible material so that the head band and the head straps will conform to the head shape of a user. A pair of rear suspension straps are integrally attached to the head band. A rear attachment means secures the rear suspension straps to the ear protector extensions. A pair of U-shaped front suspension straps are integrally connected to the front end of the head band. A front attachment means is provided for attaching each of the front suspension straps to said crown portion.

4 Claims, 7 Drawing Figures



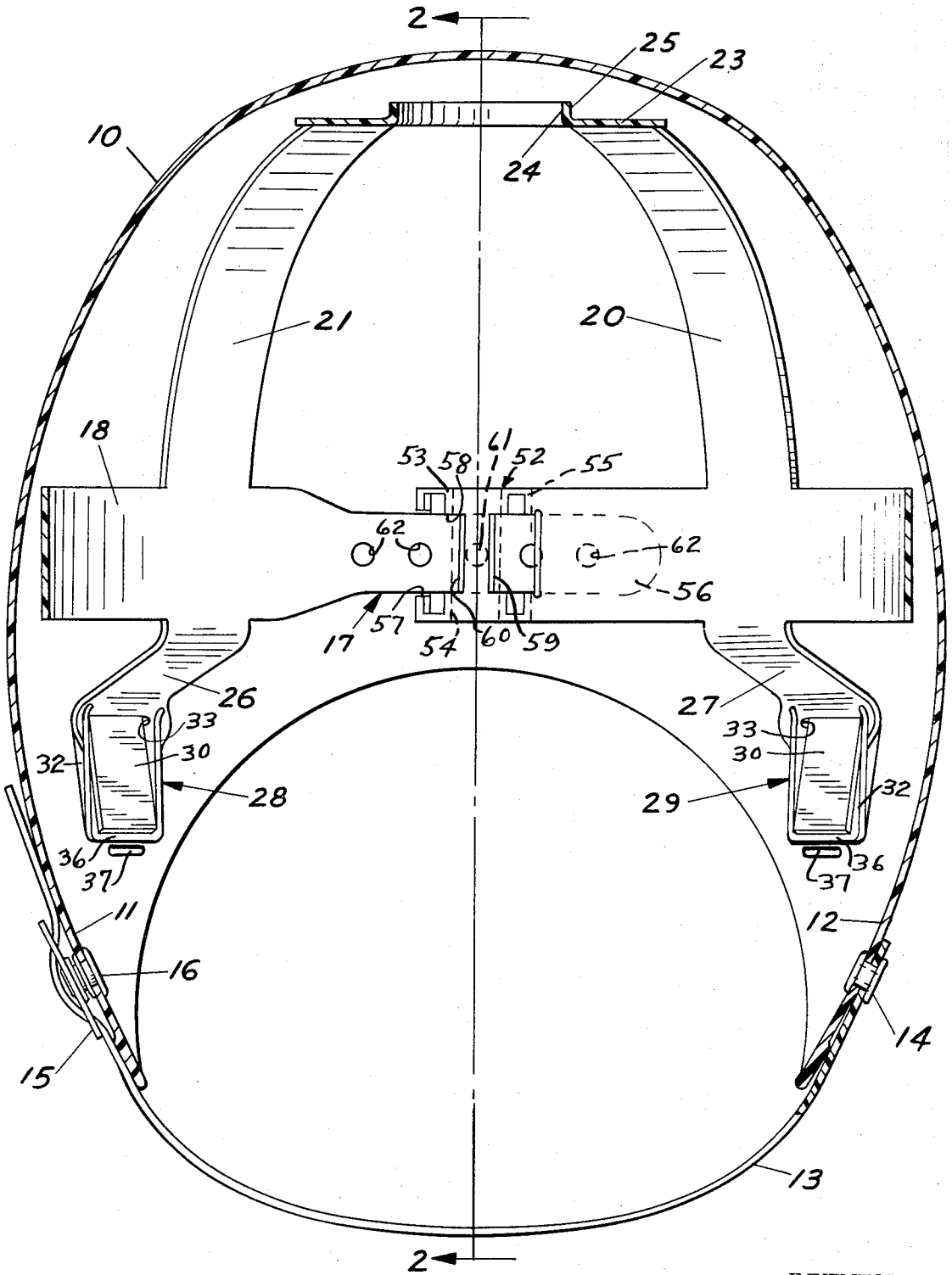
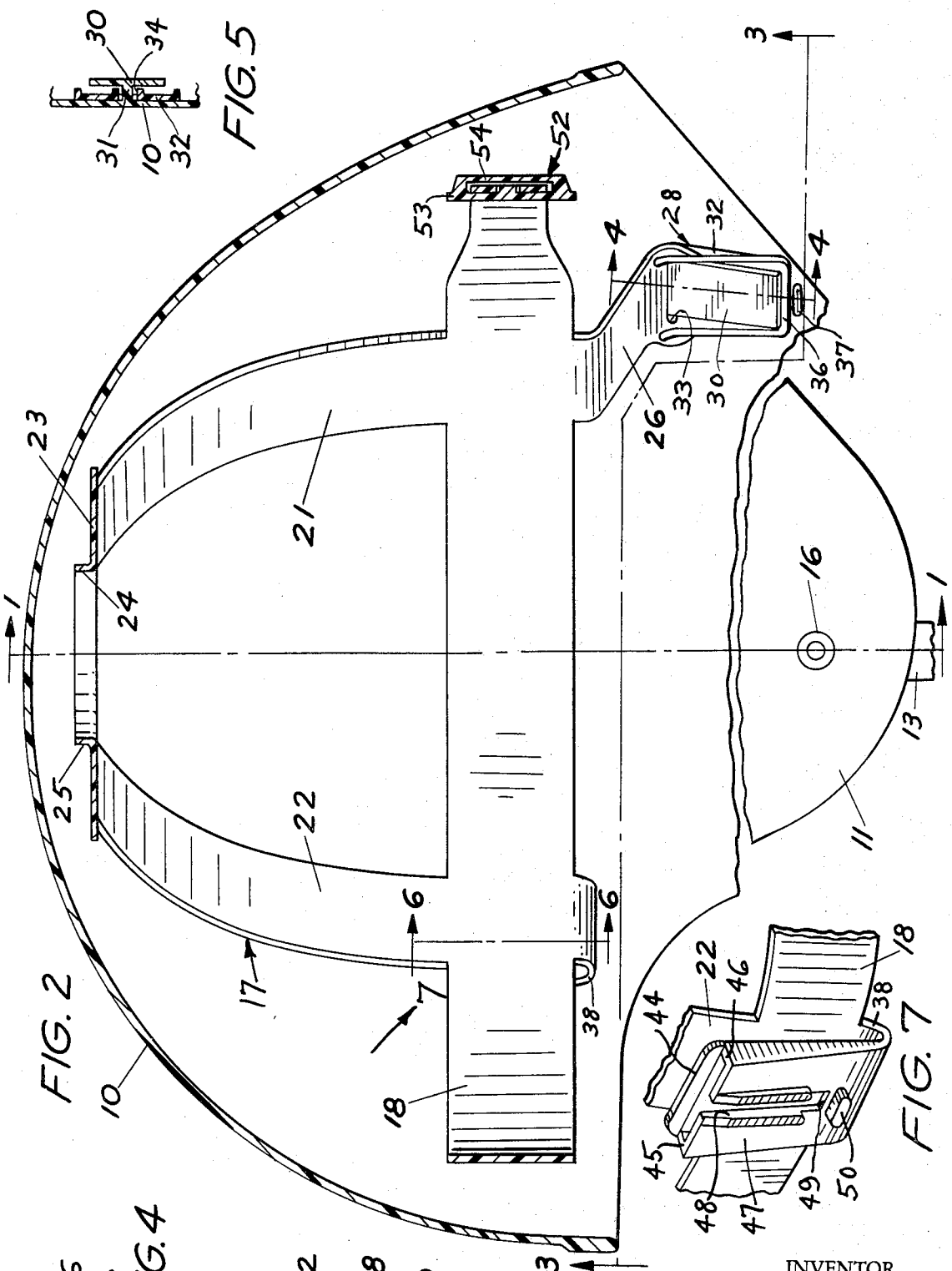


FIG. 1

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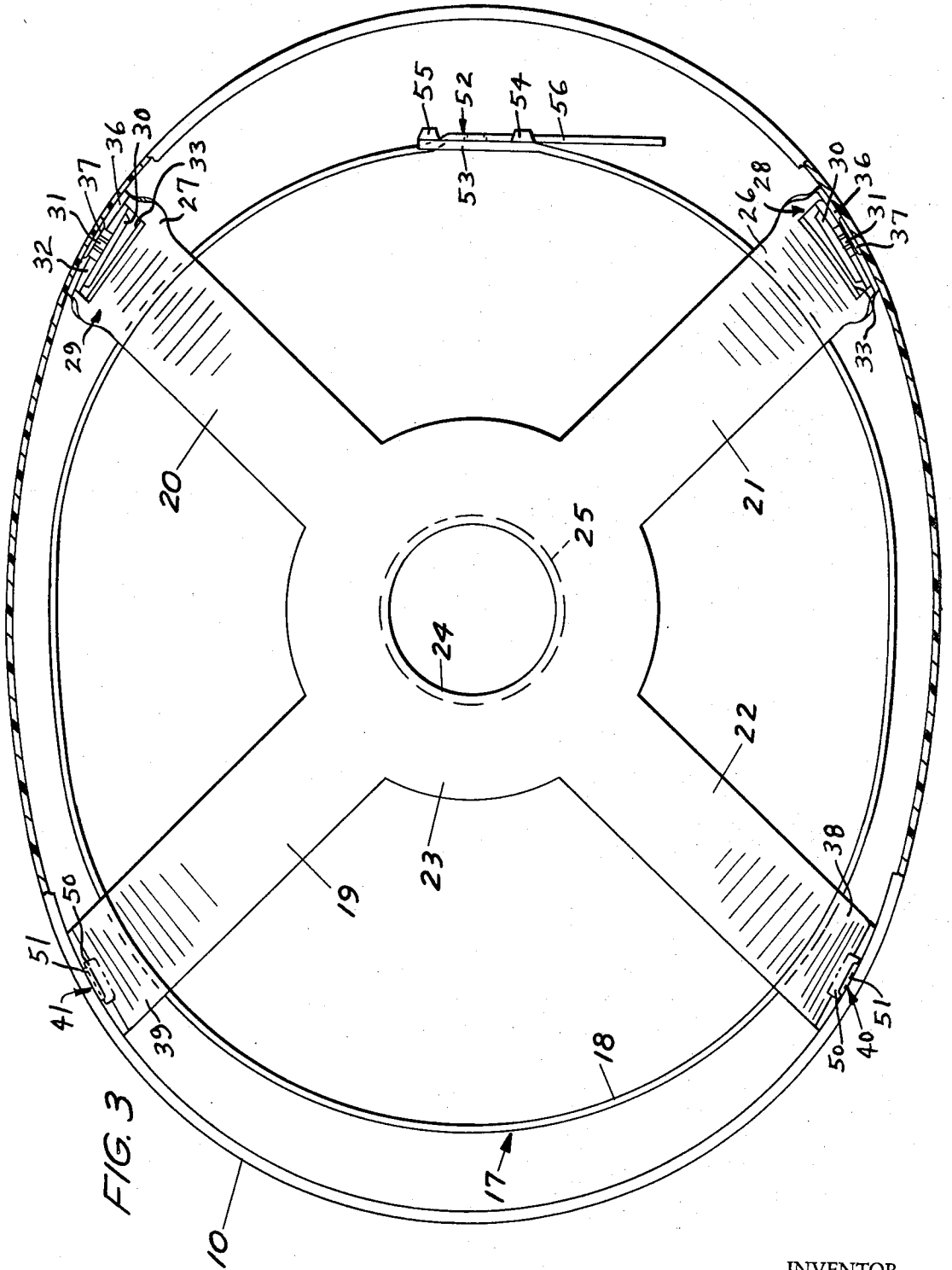


FIG. 3

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RACING HELMET

SUMMARY OF THE INVENTION

This invention relates generally to liners for children's play helmets, and more particularly, to a novel and improved liner for a child's play racing helmet.

It is an important object of the present invention to provide a novel and improved liner for a child's play racing helmet, which is made as a one-piece molded rigid plastic composition helmet having a crown portion and integral downwardly extended ear protector side extensions. The liner includes an annular head band having a head size adjustment means and a plurality of head straps integrally attached at their lower ends to the annular head band at circumferentially spaced apart positions. A head engaging pad is integrally attached to the upper ends of the plurality of head straps. The annular head band, the plurality of head straps and the head engaging pad are integrally formed from a pliable, flexible, plastic material, so that the head band and the head straps will conform to the head shape of the user. A pair of downwardly extended rear suspension straps are integrally attached at their upper ends to the lower edge of the rear end of the head band. A rear attachment means is provided for attaching each of the lower ends of the rear suspension straps to the downwardly extended ear protector extensions to suspend the rear end of the liner in the helmet. A pair of U-shaped front suspension straps are integrally connected at their inner ends to the lower edge of the front end of the head band, and they extend outwardly and upwardly from the lower edge of the head band. A front attachment means is provided for attaching each of the outer ends of the U-shaped front suspension straps to the crown portion of the helmet to suspend the front end of the liner.

It is another object of the present invention to provide a novel and improved liner for a chil's play racing helmet which is simple and compact in construction, economical to manufacture and efficient in use.

Other objects, features and advantages of this invention will be apparent from the following detailed description, appended claims, and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a transverse, elevational section view of a child's play racing helmet, taken along the line 1—1 of FIG. 2, and looking in the direction of the arrows.

FIG. 2 is a longitudinal, elevational section view of the racing helmet of FIG. 1, taken along the line 2—2 thereof, and looking in the direction of the arrows.

FIG. 3 is a bottom plan view of the racing helmet illustrated in FIG. 2, taken along the line 3—3 thereof, and looking in the direction of the arrows.

FIG. 4 is a fragmentary, elevational section view of the structure illustrated in FIG. 2, taken along the line 4—4 thereof, and looking in the direction of the arrows.

FIG. 5 is a fragmentary, horizontal section view of the structure illustrated in FIG. 4, taken along the line 5—5 thereof, and looking in the direction of the arrows.

FIG. 6 is a fragmentary, elevational section view of the structure illustrated in FIG. 2, taken along the line 6—6 thereof, and looking in the direction of the arrows.

FIG. 7 is a broken, perspective view of a helmet liner strap attachment member, taken in the direction of the arrow marked "7" in FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings and in particular to FIGS. 1, 2 and 3, the numeral 10 generally designates the crown portion of the child's racing helmet of the present invention. The numerals 11 and 12 designate the downwardly extended integral ear protector extensions which are formed on the lower side edges of the crown portion 10. The numeral 13 designates a conventional chin strap which is made from a suitable, pliable plastic such as polyethylene or the like. As shown in FIG. 1, the chin strap 13 is fixedly secured at one end thereof to the ear protector extension 12 by a suitable rivet 14. The other end of the chin strap 13 is adapted to be releasably attached to the other ear protector extension 11 by any suitable means, as by a snap means female member 15 which is adjustably mounted on the chin strap 13 and a male snap member 16 fixed on the crown portion 10. The snap members 15 and 16 are of a suitable conventional type.

As shown in FIGS. 1, 2 and 3, the numeral 17 generally designates the helmet liner of the present invention. The liner 17 includes an annular liner head band 18 which supports a plurality of liner head straps 19, 20, 21 and 22. The straps 19 through 22 are circumferentially spaced around the head bank 18 in positions 90° apart. A circular head engaging pad or member 23 is integrally attached at its outer periphery to the upper ends of the head straps 19 through 22. The head engaging pad 23 is disposed substantially parallel with the head bank 18 and it is provided with a central circular opening 24 that is bounded by an integral, upward extended, short flange 25.

As shown in FIGS. 1 and 3, the head band 18 is suspended in the helmet crown portion 10 at the rear end thereof by a pair of integrally connected suspension straps 26 and 27 which are detachably secured to the inner surface of the crown portion 10 by a pair of rear attachment means generally indicated by the numerals 28 and 29, respectively.

The rear attachment means 28 is shown in detail in FIGS. 2, 4, and 5. The details of the rear attachment means 29 are identical and they have been marked with the same reference numerals.

As shown in FIGS. 4 and 5, the rear attachment means 28 comprises a T-shaped male attachment member which is integrally formed on the inner surface of the helmet crown portion 10, and which includes the head portion 30 and the leg portion 31. As seen in FIG. 4, the last mentioned head portion 30 is integrally connected at its upper end to the crown portion 10 and it extends inwardly and then downwardly in a spaced apart position from the crown portion. The leg portion 31 holds the head portion 30 in spaced apart position. The rear attachment means 28 further includes an integral rear attachment female member 32 which is provided with a transverse slot 33 along its upper edge as indicated by the number 33 at the junction line with the lower end of the rear suspension strap 26. The female attachment member 32 is further provided with a longitudinal slot 34 which extends downwardly from transverse slot 33 to a point indicated as 35 in FIG. 4. The

lower end of the female attachment member 32 is indicated by the number 36. As shown in FIGS. 2 and 4, it will be seen that the female attachment member 32 is mounted on the T-shaped male member by moving the female member upwardly until the male leg 31 engages the lower end 35 of the slot 34. The female member 32 is then pressed inwardly so as to be seated above an integrally formed and inwardly extended retainer member 37 on the inner face of the crown portion 10.

As shown in FIG. 3, the head band 18 is suspended in the helmet crown portion 10 at the front end thereof by a pair of suspension straps 38 and 39 which are detachably secured to the inner surface of the crown portion 10 by a pair of front attachment means generally indicated by the numerals 40 and 41, respectively.

The front attachment means 40 is shown in detail in FIGS. 6 and 7. The details of the front attachment means 41 are identical and they have been marked with the same reference numbers.

As shown in FIG. 6, the front attachment means 40 comprises a T-shaped male attachment member which is integrally formed on the inner surface of the helmet crown portion 10 and which includes the head portion 42 and the leg portion 43. The helmet crown portion 10 and the integral protector extensions 11 and 12 are made from a suitable one-piece, molded, rigid plastic composition, such as "BAKELITE" or fiber glass bonded with polyester resin. The last mentioned head portion 42 is integrally connected at its upper end to the crown portion 10 and it extends inwardly and then downwardly in a spaced apart position from the crown portion. The leg portion 43 holds the head portion 42 in said spaced apart position.

The front attachment means 40 further includes a front attachment female member which comprises a socket for receiving the male head portion 42 that is formed by a rear wall 44, a pair of integral side walls 45 and 46 and a front integral wall 47. The walls 44 through 47 are joined at the lower ends thereof in an integral manner with the U-shaped suspension strap 38. The suspension strap 39 is also U-shaped. The side walls 45 and 46 are triangularly shaped. The socket formed by the walls 44 through 47 is open at the upper end thereof and closed at the lower end thereof. The front wall 47 is provided with a longitudinally extended slot 48 which is open at the upper end thereof and terminates at the lower end thereof in the end wall 49. An outwardly projecting integral stop member 50 is formed on the outer face of the wall 47 in a position below the lower end 49 of the slot 48.

The female member is assembled onto the T-shaped male attachment member by sliding the female member upwardly so that the male head portion 42 slips into the socket in the female member and the male leg portion 43 is slid into the slot 48 until the lower end 49 engages the lower end of the male leg portion 43. The stop member 50 is then seated upon the upper side of the inwardly extended retainer member 51 which is integrally formed on the inner face of the crown portion 10.

As shown in FIGS. 1, 2 and 3, the liner head band 18 is provided with a head size adjustment means generally indicated by the numeral 52. The head band 18 is provided with one terminal end 53 which carries on its outer face, a pair of vertical and laterally spaced apart flanges 54 and 55. As shown in FIGS. 2 and 3, the flanges 54 and 55 extend radially outward from the head band 18 to provide a slot for the reception of the neck portion 56 of the other terminal end of the head band 18. The neck portion 56 is reduced in width to permit it to be slid through the opening 57 in the terminal end 53 of the head band 18. As shown in FIG. 1, the reduced neck portion 56 is then slid through the opening 58 and under the first flange 54 and then over the outer surface of the terminal end 53, and thence inwardly through the opening 59 behind the flange 55 and against the outer face of the head band 18, as shown by the broken line in FIG. 1. The opening 58 extends to the line 60. The head band terminal portion 53 carries on its outer face a radially outward extended button or cylindrical stud 61. The button or stud 61 is adapted to be received in one of a plurality of circular holes 62 which are formed through the neck band portion 56. It will be seen that the head size of the liner head band 18 may be adjusted by moving the neck portion 56 longitudinally relative to the terminal end 53 and disposing the button or stud 61 in the desired opening 62.

The liner 17 is made as an integral unit, as described hereinbefore, and it is made from a suitable, pliable and non-conducting plastic such as polyethylene or the like. The liner band 18 thus, because it is soft and flexible, is comfortable to the wearer and it conforms to the shape of the head of the wearer. The flexible plastic is also relatively resistant to soiling. The T-shaped male attachment members are made from the same material as the crown portion.

While it will be apparent that the preferred embodiment of the invention herein disclosed is well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modification, variation and change.

What is claimed is:

1. In a one-piece molded rigid plastic composition helmet having a crown portion and integral, downwardly extended ear protector side extensions on the crown portion, a head engaging liner comprising:

a. an annular head band having a head size adjustment means;

b. a plurality of head straps having their lower ends integrally attached to the annular head band at circumferentially spaced apart positions;

c. a head engaging pad integrally attached to the upper ends of the plurality of head straps;

d. said annular head band, plurality of head straps and head engaging pad being integrally formed from a pliable, flexible material so that the head band and the head straps will conform to the head shape of a user;

e. a pair of downwardly extended rear suspension straps having their upper ends integrally attached to the lower edge of the rear end of the head band;

f. a rear attachment means for attaching the lower end of each of the rear suspension straps to the downwardly extended ear protector side extensions to suspend the rear end of the liner in the helmet;

g. a pair of U-shaped front suspension straps having the inner end integrally connected to the lower

edge of the front end of the head band and extending outwardly and upwardly therefrom; and,

h. a front attachment means for attaching the outer end of each of the U-shaped front suspension straps to the crown portion of the helmet to suspend the front end of the liner in he crown portion.

2. A helmet liner as defined in claim 1, wherein each of the front and rear attachment means comprises:

a. a downwardly disposed T-shaped male attachment member on the helmet;

b. a female attachment member integrally connected to one of the suspension straps and operative to be detachably mounted on said T-shaped male attachment member; and,

c. retainer means on the helmet for retaining the female attachment member on the male attachment member.

3. A helmet liner as defined in claim 2, wherein:

a. each of the front female attachment members is integrally connected to one of said U-shaped suspension straps and includes a socket member having an open upper end and a longitudinal slot along its outer side for the reception of a T-shaped male attachment member on the helmet.

4. A helmet liner as defined in claim 2, wherein:

a. each of the rear female attachment members is integrally connected at its upper end to the lower end of one of said rear suspension straps and each includes a transverse slot at its upper end and a longitudinal slot extended downwardly from the transverse slot for the reception of a T-shaped male attachment member on the helmet.

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