

Feb. 24, 1953

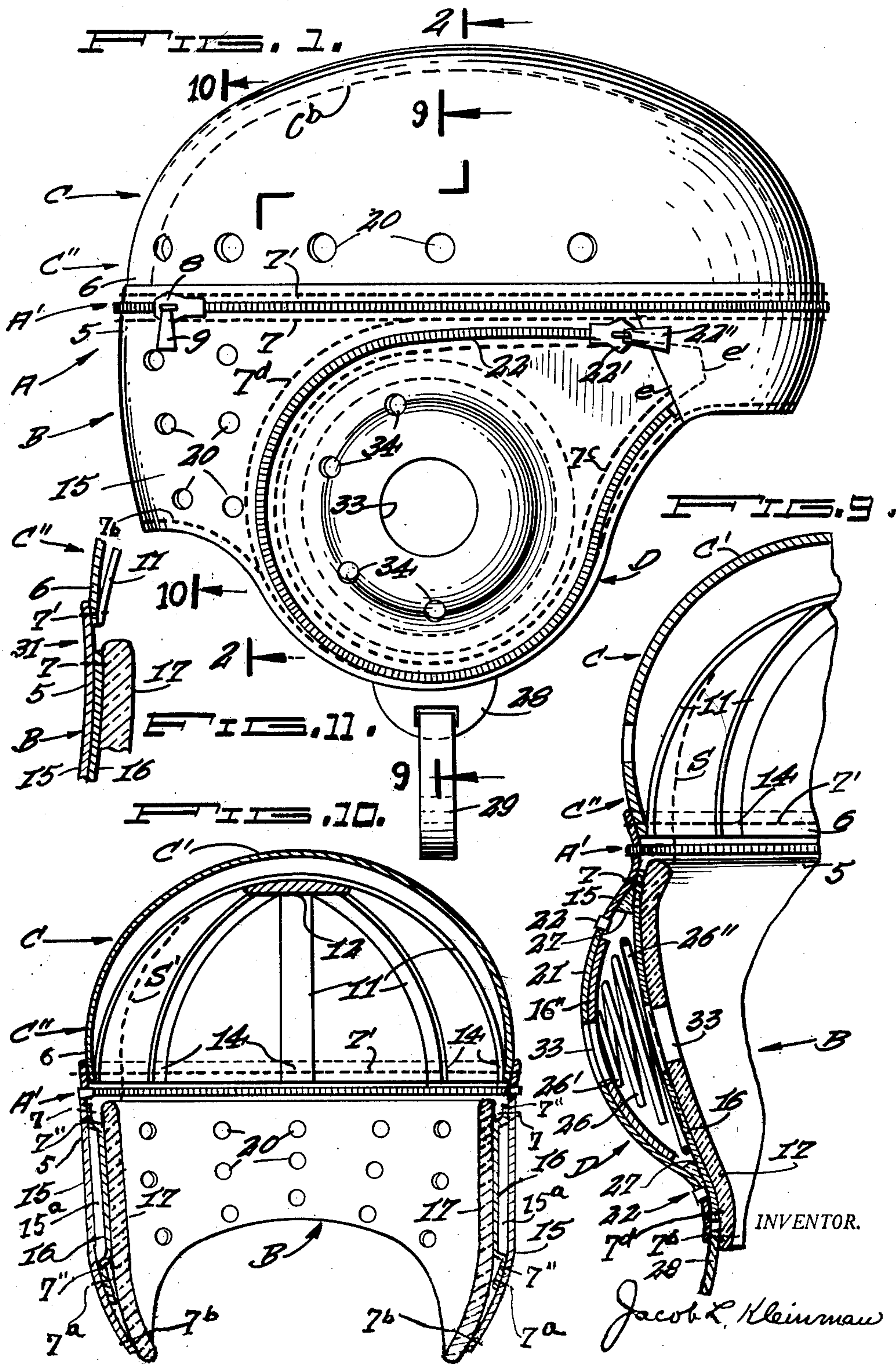
J. L. KLEINMAN

2,629,095

HELMET

Filed Jan. 2, 1948

2 SHEETS—SHEET 1



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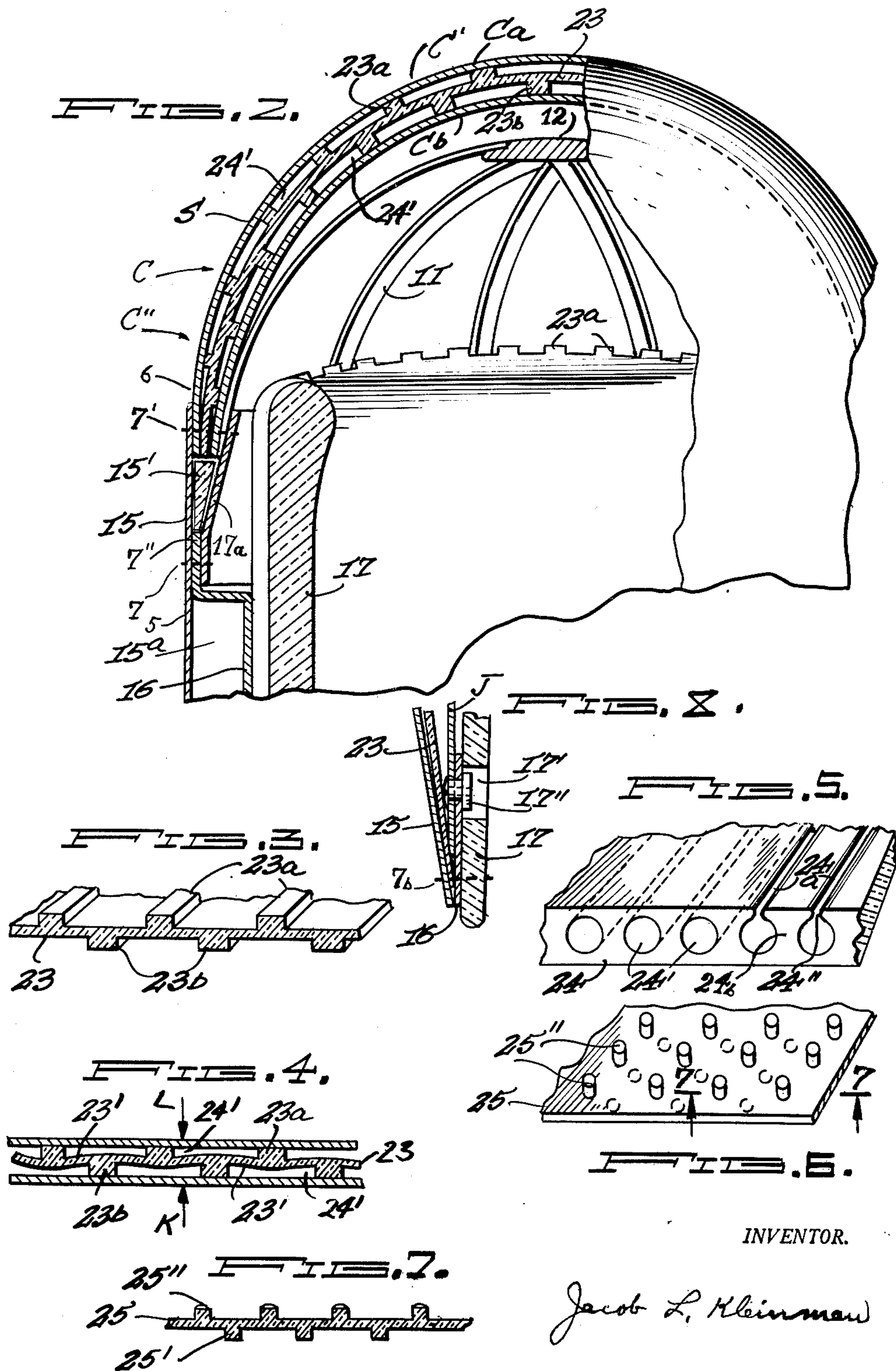
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2 SHEETS—SHEET 2





## UNITED STATES PATENT OFFICE

2,629,095

HELMET

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This invention relates to the construction of helmets in general, and more particularly to a type known as football helmets, and is constructed in a manner wherein the crown section thereof is removably mounted upon the base-unit of the helmet and is provided with means adapted to check the effect of shock caused by a blow upon the helmet, thus minimizing injuries to the wearer.

My novel construction is capable of being utilized in connection with various types of helmets, for example: army helmets, navy helmets, marine helmets, aviation helmets, football helmets, workmen's helmets, miners' helmets and helmets for various other purposes.

In accordance with my invention, I produce a helmet comprising an individual base-unit and an individual crown-unit, or crown-section and wherein such units are each provided with interlocking means adapted to be interlocked with each other thus uniting said units into a completed unitary structure, and wherein such interlocking means is adapted to be unlocked, thereby separating such units from each other, and wherein such units are provided with rebounding and absorbing means adapted to check or disrupt the flow, motion or movement of shock produced by blows received by such units while in use.

There is, therefore, thus produced, in accordance with my invention, a helmet comprising a base-unit having a removably mounted crown-section, constructed in a manner whereby such crown-section may be removed, replaced, and readjusted and wherein such helmet structure is provided with shock-absorbing and rebounding means adapted to check and absorb the shock of a blow or knock thereby minimizing injuries to the wearer.

To illustrate the ordinary commercial utility of my helmet in daily life, a helmet constructed in accordance with my invention, of whatever style or type it may be made, could be utilized to great advantage. For the purpose of explaining applicant's invention the following may be said; it is a well known fact, that the present type of helmets are of the one-piece type, that is, the base-portion and the crown-section are made integral with each other, they can not be separated from each other, so that if the crown-section of such helmet becomes dented or fractured then such helmet becomes entirely useless, and, even though the base-portion may yet be in a perfectly good condition, yet, such helmet can not be used any more and must be discarded. Such

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a matter became quite annoying to the average player, as it may happen that in the very first game or play, or when the helmet had just begun to be in use, that the crown-section may become defective or damaged, in which case the wearer hardly having had any use of his helmet, is compelled to buy a new helmet, thus undergoing unexpected expense and irritation. It can therefore be seen that it is quite a costly and annoying matter to the average party who wishes to partake in the game of sport where the use of a helmet is required, to go through such irritable experience.

This problem became very vexing indeed to the trade commercially, and thus of great concern to the helmet manufacturers. It reflected greatly upon the industry to an extent whereby many attempts have been made to overcome or correct such problem but without practical success.

Applicant's invention, as herein presented, solves such problem in a complete and satisfactory manner. The fact, that a helmet, constructed in accordance with my invention, is provided with means whereby the crown-section may be removed from the base-portion, replaced, or readjusted, eliminates completely all of the above-mentioned faults and defects. As a matter of fact, this novel helmet construction, wherein the base-portion is provided with means adapted to release the crown-section from its position, and become associated with a new crown-section, will reduce, greatly, the cost or expense to the average individual player, thereby increasing the participants in this branch of sports. Such novel helmet will therefore become an indispensable item with the individual player and thus valuable commercially.

The same is true with respect to the rebounding and shock-absorbing means hereinabove mentioned. It is a known fact that the present type of helmets consists of a skull made of a hard material, such as fiber, Bakelite, plastic or metal, and is provided with an integral base-portion wherein the inner face thereof is provided with a padding, such padding is adapted to fit snugly around the face and around the lower rear portion of the wearer's head, the strap which is positioned under the wearer's chin draws the side portions of such padded bottom portion snugly against the face of the wearer, the inner upper portion of the skull is provided with an element adapted to cushion the top portion of the wearer's head against blows which may be received by the upper portion of the skull. Such



helmet structure has been designed for the purpose of protecting the wearer's head against injuries, but, in reality such helmet structure does not fully accomplish its purpose, because, although the upper section of such helmet is kept away, by the said element, from direct contact with the upper portion of the wearer's head, yet, because the shock of the blow received by the skull of the helmet is transferred into the portions fitting snugly against the face and the lower rear portion of the wearer's head, such shock through such transfer affects the wearer's head to a great extent. So that while the extreme upper portion of the wearer's head may, to some extent, be protected against a direct hit or blow, yet the head as a whole is not at all protected against the effect of such a hit or blow, which may prove fatal to the wearer, or of serious injuries as a result thereof.

Applicant's structure completely eliminates such hazardous occurrences, the fact that the lower portion of applicant's crown-section is not in direct contact with the base-unit, but is secured thereto by pliable members causes the travel of shock, which may be caused by a blow upon the crown-section, to be checked or discontinued at the end portion of such section. Furthermore, the pliable members provide a sort of a spring-cushioning effect, so that when the crown-section, or the side portion of such crown-section, would receive a blow or knock, such crown section would vibrate for a few seconds thereby absorbing the shock of such blow; so that a shock from a blow received by any part of applicant's crown-section, will be checked by such pliable members at the end portion of such crown-section and be discontinued at such point, and thus not be transferred to the base-unit thereby not affecting the wearer's head.

Furthermore, the outer face of applicant's crown section is provided with a cushioning member and with a pliable element covering such cushioning member. Such structure is arranged in such a manner whereby air compartments are provided for the purpose of cushioning and rebounding the effect of a blow, so that when a blow is delivered against such pliable element, such air compartments would rebound and greatly weaken the effect of such blow and absorb the shock of same, thereby curtailing the effect of such shock before it could reach the base-unit of the helmet, thus actually eliminating possibilities of injuries to the wearer.

In addition thereto, such air compartments will also serve to cushion the shock of an accidental hit or knock with such helmet against a party player during the course of play, thereby minimizing possible injuries to such party player.

The same is also true with respect to applicant's base-unit which is provided with an air cushioning compartment, the pliable member of such compartment will rebound and greatly weaken the effect of a blow or knock.

The same is likewise true with respect to applicant's removable spring-cushioning means of the ear-laps, such protective means will greatly minimize the possibilities of injuries to the wearer's ear drums, thereby protecting the wearer against possible deafness.

There is, therefore, thus produced, in accordance with my invention, a helmet that is fully shockproof and, therefore, reduces the possibilities of injuries to the wearer to a minimum, it is therefore believed that a helmet constructed in accordance with applicant's invention will pro-

vide satisfaction, safety and comfort to the user, and will become an indispensable item with the average player and thus prove valuable commercially.

The variety of possible application of my novel construction in connection with different types of helmets, as hereinabove indicated, is so prolific that for the purpose of illustrating the invention the specific embodiment of my invention in its application to a helmet exhibiting the greatest difficulties has been selected. Such a helmet is one which necessarily must conform most rigidly to the contours of the head and face of the wearer and one which has the field of greatest possible commercial use. For this purpose I have selected for illustration of my novel construction, a helmet of the type constituting a football helmet, so that the principles of construction may best be illustrated in a head protective structure known as helmets.

The objects of the present invention are attained by a novel construction which will be hereinafter described and illustrated in the drawing in connection with a specific embodiment of the invention.

In the accompanying drawing in which such specific embodiment of my invention is illustrated,

Fig. 1 is a side view of a helmet, constructed in accordance with my invention, showing the parts interlocked with each other in a manner forming a unitary structure.

Fig. 2 is a perspective cross-sectional view taken along the line 2—2 of Fig. 1 partly broken away, showing the base-unit and the skull of the crown-section, the pliable shock-absorbing members, the pliable cover and the air cushioning compartments therebetween.

Fig. 3 is a perspective view of a portion of the pliable shock absorbing member in its normal position.

Fig. 4 is a cross-sectional view of a portion of the crown structure, showing the position of the pliable shock absorbing member when receiving a blow and in readiness to rebound the effect of the same.

Fig. 5 is a perspective view of a portion of a modified pliable shock absorbing member, showing that such member may be provided with integrally formed air compartments.

Fig. 6 is a perspective view of a portion of a pliable shock-absorbing member, showing that such member may be provided with individually-yieldable projections for the purpose of rebounding the effect of a blow received by the pliable cover of the crown-section.

Fig. 7 is a cross-sectional view taken along the line 7—7 of Fig. 6 showing that both faces of such member may be provided with the yieldable projections.

Fig. 8 is a cross-sectional view showing the manner of securing the rebounding means to a Bakelite molded helmet or to a metal helmet.

Fig. 9 is a perspective view partly in cross-section taken along the line 9—9 of Fig. 1 showing the spring-cushioning structure of the helmet's ear laps.

Fig. 10 is a perspective cross-sectional view taken along the line 10—10 of Fig. 1 showing the fastening means connecting the crown-section to the base-portion of the helmet, and

Fig. 11 is a view showing modified connecting means between the crown-section and the base-portion.

Referring more particularly to the drawings,



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in which similar reference characters identify similar parts in the several views in my novel helmet:

Arrow A indicates a completely finished helmet, in assembled form, made in accordance with my invention. Such helmet may be made of any desirable material, and be shaped, pressed, molded or formed into any suitable style, in a manner as may be deemed advisable by those skilled in the art of making such helmets, or as may be required by the commercial demand of the industry.

Arrow B indicates the base-unit and arrow C indicates the crown-section.

The crown-section C comprises a pliant outer section Ca (see Fig. 2) and a rigid inner section or frame Cb.

Between the section Ca and the section Cb is positioned a cushioning element 23. Such element 23 comprises a body portion having two side faces and may be made of any suitable material, and in any desirable manner, but preferably of a molded rubber material, one face of the said two side faces provided with rib portions or extensions 23a, adapted to be positioned against the inner face of the member Ca, and the other face of the said two side faces is provided with rib portions or projections 23b adapted to be positioned against the outer face of the frame or skull Cb, thereby providing air compartments 24'.

The inner section of the frame Cb is provided with a suitable net, made, for example, of strips 11. The end portions 14 of such net, or strips 11, are secured to the end portion of the frame Cb in a manner whereby the pad 12 of such net is located at a distance away from the top portion of such frame Cb.

The base-unit B comprises a rigid element 16 shaped in any desirable manner, but preferably in a channel-shaped style cross-sectionally thereof (see Figs. 2 and 10). Such channel-shaped element 16 is provided with flange portions 7''. A pliable cover 15 is secured to such flange portions 7'' by suitable means, for example, stitchings 7 and 7a, thereby providing an air compartment 15a between the cover 15 and the channel-shaped element 16. So that when a blow or hit will be launched against the base-portion, the pliable cover 15 will be cushioned by the air compartment 15a and absorb the shock of such blow and rebound the effect thereof.

A cushioning member 17, made of any suitable material, but preferably of soft rubber, is secured by suitable means, for example, glue, to the rear outer face of the element 16. The lower end portion of such member 17 is secured to the lower end portion of the cover 15, by means of stitching 7b, thereby providing the base-unit B with a finished bottom section.

The upper end portion 5 of the base-unit B, and the lower end portion 6 of the crown-section C, are each provided with interlocking means adapted to be interlocked with each other in a manner, for example, as indicated by arrow A', thereby securing the crown-section C to the base-unit B. The interlocking means herein shown are of the zipper type, which may be secured to the upper end portions of the base-unit and to the lower end portion 6 of the crown-section by stitchings 7 and 7', but, it is understood, that various other suitable means may be utilized for the purpose of securing the crown-section C to the base-unit B.

With respect to the ear-laps, arrow D, the following may be said: The ordinary type of ear

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laps, in the present type of helmets, are, structural, just a continuation of such helmet structure. Such ear laps are provided with cup-shaped sections adapted to cover the wearer's ears, and in such a manner to protect same while playing. But in reality, such ear laps do not provide adequate protection to the wearer; that is because, while a blow, or hit, against such ear laps does not directly contact the wearer's ear, yet, the shock of such hit or blow effects such ear to a great extent, in many instances, seriously injuring the ear drum, occasionally resulting in deafness. It can therefore be seen, that such ear laps, while they appear to offer protection to the wearer's ears, do not provide the necessary protection essential to the safety of the wearer, for this reason it has been found to be quite dangerous for a player to become entangled with other players during the course of play.

But applicant's ear laps eliminates completely the above-mentioned dangerous and therefore objectionable features. The structure of applicant's ear laps are of such a type that it provides complete protection to the wearer's ear during the course of play, so that the player may pay full attention to the game without the usual worry of being careful.

Applicant's ear laps are constructed in the following manner: The ear lap section, arrow D, comprises the rigid element 16 and the cushioning member 17 which are a part of the base-portion B, but the cover 15 is provided with a pliant auxiliary member 21. Such auxiliary member 21 is secured to the cover 15 by interlocking means 22, such interlocking means being secured to the auxiliary member 21 by stitching 7c and to the cover 15 by stitching 7d. (See Fig. 1.) Such auxiliary member 21 is provided with a rigid element 16''. A spring 26 is positioned between the element 16 and the element 16''. Such spring 26 may be secured to the rigid element 16'' at a point indicated by the numeral 26' and rest against the rigid element 16 as shown by the numeral 26'', thus securing such spring 26 in desired position.

The cushioning member 17 and the rigid element 16, as well as the rigid element 16'' and the auxiliary member 21, and the spring 26, are all provided with through openings 33, for the purpose of providing sound passage to the wearer's ears.

It will thus be seen, that when a blow or knock is received by the ear lap D, the spring 26 will cushion the auxiliary member 21, absorb the shock of such a blow and rebound the effect of same, thereby protecting the wearer's ears and eliminating the above-mentioned objectionable and dangerous features.

The lower end portions of the ear lap D, are provided with elements 28, adapted to support the locking means 29, for the purpose of securing the helmet A in desired position upon the wearer's head.

The auxiliary member 21 is provided with an extension e' adapted to be positioned within a pocket e of the base-unit B thereby minimizing wind resistance while playing. Such auxiliary member 21 may be removed or replaced by merely pulling the lever 22'' of the lock 22' in the desired direction. The same is true with respect to the crown-section. Such crown-section may be removed or replaced by pulling the lever 9 of the lock 8 in desired direction.

From the above it will be evident, that when applicant's helmet A is placed upon the wearer's



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head, and the locking means placed under the wearer's chin, for the purpose of securing such helmet in desired position upon the wearer's head, then, such helmet A will, because of its novel form of structure, provide the maximum degree of protection possible to be obtained by a helmet. The cushioning means of the crown structure, and of the base-unit, and also of the ear lap structure, will absorb the shock of a blow or knock, in a manner as hereinabove explained, thus protecting the wearer's head and minimizing possibilities of fatal injuries to the wearer.

If desired the spring 26 and the rigid element 16'' may be eliminated and a suitable cushioning member may be substituted and placed between the rigid element 16 and the auxiliary member 21. Or, if so desired, the ear laps D may be constructed in the same manner as is the crown-section C, that is, a portion of the cushioning element 23 may be placed between the rigid element 16 and the cover 15, in a manner, for example, as indicated by the numeral 27. As a matter of fact, the entire base-unit, with or without the ear laps D, may be so constructed, that is, comprising a rigid element 16 and an outer pliant cover 15 and a cushioning element positioned therebetween, in a manner as taught by the crown structure in Fig. 2 or, if desired, the entire helmet may be made of a rigid material and be provided with an outer coverage in a manner as taught by the crown-structure in Fig. 2, for example, as shown in Fig. 8, wherein the rigid element 16 and the cushioning member 17 are fastened to each other by suitable means, for example glue, thereby forming a unitary structure. Such structure may be provided with openings 17', formed in a manner whereby a screw-threaded element 17'' may be positioned through such opening 17' and engage, or interlock, within a screw-threaded opening located at the lower end, or bottom portion, of a rigid helmet frame J, in a manner whereby the head section of such screw-threaded element 17'' may secure the rigid element 16 tightly to the end portion of the helmet J. The pliant cover 15 and the cushioning element 23 may then be placed over such rigid helmet frame J and the lower end portions of same may be secured to the lower end portions of the unitary structure by means of stitching 7b. Thus the entire helmet frame J may be provided with the cushioning means adapted to protect the wearer and also other participants in the game.

The cushioning element 23, comprises a flat-shaped body structure provided at each of its two side faces with spaced-apart rib portions, projections or extensions 23a and 23b, for example, as shown in Fig. 3. Such element 23, which may be made of any suitable material, is pliable, and when placed in desired position, is quite firm and resistable against outer pressure, so that when an element would strike a blow against the outer face S of the pliant cover, or section Ca, such cushioning element would assume a contracted, or compressed, position, for example, as shown in Fig. 4. The body 23 would become stretched and flexed, each of the rib portions 23a and 23b would push its rear wall into its respective air compartment 24' and force such wall portion to assume a curved position in a manner, for example, as shown at 23', bringing the depressed cover portion arrow L closer to the underlying rigid section arrow K. Such action would cause the cover 23a to cushion the

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blow and the air compartments to absorb and to curtail the shock of such blow. But such action of the body 23 would last only for a few seconds, such body 23 would then instantly straighten itself out, into normal position, thereby producing a spring-like effect and immediately rebound the effect of such shock.

If desired, the rib portions 23b and 23a of the element 23 may be eliminated, and such element may be made in a manner as shown in Fig. 5, wherein the body 24 is provided with integrally formed air compartments 24', for the purpose of cushioning and absorbing the shock of a blow. Furthermore, if desired, certain of the wall portions may be provided with slits 24'' and with lip sections 24a, thus facilitating the compression action and the expansion action of the wall portion 24b.

Various forms, or shapes, of structure may be resorted to for the purpose of obtaining the desired result. For example, the rib portions or extensions 23a and 23b, which are shown in Fig. 3 as being made in a bar-style, may be made in a form, or style, of small individual projections in a manner as shown in Figs. 6 and 7 wherein the body 25 is at its two side faces provided with a plurality of small individual teat-like projections 25' and 25''. Such structure will operate in the same manner and produce the same results as that of the structure shown in Fig. 3.

If desired, the locking means A' may be eliminated, and the pliable cover 15 may be extended upwardly and be secured, by the stitching 7', to the lower end portion 6 of the crown-section arrow C (see Fig. 11) in a manner whereby such lower end portion 6 will be spaced apart from the upper end portion 5 of the base-unit arrow B, thereby providing a pliant section adapted to hold the crown-section spaced away from the base-unit in a manner, for example, as indicated by arrow 31. So that, if a blow or hit will be launched against the crown-section C, such pliant section 31 will vibrate for a few seconds, causing the shock of such blow to be subdued upon reaching such vibrating motion of the section 31, thus such shock will be discontinued before reaching the base-unit B.

Such pliant section arrow 31 may be provided, if so desired, with a facing auxiliary member 17a (Fig. 2), such member 17a is secured to the inner side faces of the base-unit and of the crown-section by suitable means, for example, cement, or by the stitchings 7 and 7', in a manner covering the upper end portion of the base-unit B and the lower end portion of the crown-section C holding same separated from each other thus forming an air chamber therebetween, for the purpose of rebounding the effect of shock.

A resilient cushioning member 15' may be placed within such chamber for the purpose of providing a spring-like action to rebound, or move back, the crown-section into its normal position, when the latter is forced downwardly while colliding with an object, or a party player, during the course of play.

The rear portion of the cushioning member 17 may, if so desired, be provided with the extensions 23a, or with those extensions shown in the Figs. 6 and 7, thus providing air cushioning pockets for the purpose of softening the touch of such member when bringing same close to the face and head of the wearer.

It will be seen from the above, that when applicant's helmet D is placed upon the wearer's



head, and secured thereto into desired position by the means 29, the pad 12 will then rest against the top portion of the wearer's head, in a manner preventing direct contact between such head portion and the top portion C' of the crown-section C. The cushioning member 17 will then fit around the face and the rear head portion of the wearer, but in a manner preventing direct contact between the lower end portion arrow C'' of the crown-section C and the wearer's head, as indicated by the dotted lines S' (see Fig. 10), so that a blow against the crown-section will cause the pliant section 31, or 15 and 17a, to vibrate but yet hold such crown-section C in an upright normal position, that is, spaced away from direct contact with the base unit and also from direct contact with the wearer's head, thereby checking the shock of such blow. The air compartments and the pliant helmet cover will rebound the effect of such shock, thereby preventing injuries to the wearer. The openings 28 and 34 will naturally provide air circulation for the comfort of the user during the course of play.

From the above it will be seen that I have invented and perfected a helmet structure of a new and unique design, containing features which are novel, useful and practical, and provide a maximum degree of safety to the user and therefore of commercial value, and although I have shown certain preferred forms or illustrations in order to explain and describe the novelty of my invention, yet, by showing such structure, I do not, by any means, limit myself to these structures, nor to the terms used in describing same, as they are for illustrative purposes only. Various suggestions and changes of structure may be resorted to, and I desire it to be understood that I have same in mind when showing and describing this invention, and seek protection by Letters Patent. And, although I have mentioned in describing this invention of what material certain parts may be made, how they may be formed, shaped or styled and how they may be assembled, yet I desire it to be understood that this structure, or parts thereof, may be made of any suitable material, and shaped, formed, styled or arranged in any desirable manner, and assembled in any convenient way so that the parts may be easily taken apart, removed, cleaned, replaced and reassembled, and that various changes in detail may be resorted to without departing from the spirit of this invention.

I claim:

1. A helmet adapted to be positioned upon the wearer's head, said helmet comprising a base-unit and a separate crown-section, said base-unit provided with an upper end portion and the said crown-section provided with a lower end portion, the said upper and lower end portions situated in a plane horizontally with respect to the height of the helmet, inner and outer pliable side wall members secured to the inner and outer side faces of the said base-unit and of the said crown-section at a point close to the said end portions and in a plane parallel with such end portions, said pliable side wall members substantially circling the helmet and holding the said end portions spaced away from each other thereby forming a tubular section between the said end portions and the said side walls, said tubular section adapted to cushion the said crown-section, and means for holding the said helmet in desired position upon the said wearer's head.

2. A helmet adapted to be positioned upon the wearer's head, said helmet comprising a base-

unit and a separate crown-section, said base-unit provided with an upper end portion and the said crown-section provided with a lower end portion, inner and outer pliable side wall members circling the said helmet and secured to the inner and outer side wall faces of the said base-unit and of the said crown-section along horizontal lines with respect to the height of the helmet, said members holding the said end portions separated from each other thereby forming a tubular section between the said side wall members and the said end portions, the said tubular section situated parallel with the said end portions and adapted to cushion the said crown-section, and means for holding the said helmet in desired position upon the said wearer's head.

3. A helmet adapted to be positioned upon the wearer's head, said helmet comprising a base-unit and a crown-section, said crown-section comprising a rigid skull having a pliant cover, the interior of the said helmet provided with means adapted to prevent direct contact between the said crown-section and the wearer's head, cushioning means located between the said skull and the said pliant cover, said cushioning means comprising a body portion having two side faces, one of said side faces provided with projections adapted to be positioned against the said skull, the other of said side faces provided with extensions adapted to be positioned against the said pliant cover in a manner whereby the spaces between the said projections and the spaces between the said extensions form air compartments, said projections being opposite the air spaces formed between the said extensions, the said cushioning means adapted to cushion the shock of a blow received by the said pliant cover, and means for securing the said helmet in desired position.

4. A helmet adapted to be positioned upon the wearer's head, said helmet comprising a base-unit and a rigid crown-section, said crown-section provided with a flexible exterior adapted to cushion the shock of a blow, said exterior comprising a pliant cover and cushioning means underlying the said cover, the said cushioning means comprising a pliant body portion having two side faces, one of said side faces provided with spaced apart extensions and the other of said side faces provided with spaced apart projections, the said extensions located in a position opposite the spaces between the said projections and the said projections located in a position opposite the spaces between the said extensions, the said projections adapted to be positioned against the said rigid crown-section and the said extensions adapted to support the said pliant cover, portions of the said pliant body adapted to flex and yield into the said spaces when the said pliant cover is pressed against the said rigid crown-section thereby cushioning the shock of a blow received by such pliant cover, and means for holding the said helmet in desired position.

5. A helmet adapted to be positioned upon the wearer's head, said helmet comprising a frame structure provided with ear laps, each of the said ear laps comprising a rigid side section and a pliant cover, resilient means positioned between the said rigid side section and the said pliant cover in a manner adapted to cushion the shock of a blow against the said pliant cover, and means for holding the said helmet in desired position.

6. A helmet adapted to be positioned upon the wearer's head, said helmet comprising a base-unit and a separate crown-section, pliable means



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secured to the inner and outer faces of said base-unit and said crown-section holding said crown-section spaced away from the said base-unit, forming a tubular joint circling around the said helmet along a horizontal line with respect to the height of the helmet, resilient means located within said tubular joint for holding said crown-section in desired upright position with respect to the said base-portion, and means for holding the said helmet in desired position upon the wearer's head.

7. In a helmet structure, a base unit having a separate crown-section secured thereto by pliable means, said base unit provided with an upper end portion and the said crown-section provided with a lower end portion, said pliable means forming inner and outer side wall members secured to the inner and outer side wall faces of the said base-unit and of the said crown-section along horizontal lines circling around and covering the length of the said end portions thereby forming a unitary structure of the said crown-section and of the said base-portion, said unitary structure adapted to be positioned upon the wearer's head, the said side wall members adapted to hold the said end portions spaced apart from each other thereby providing a tubular chamber between the said pliable side walls and the said end portions, the said tubular chamber situated along a horizontal line extending around the said helmet, the said pliable side walls providing cushioning means for the said crown-section, and means for securing the said structure in desired position upon the said wearer's head.

8. A helmet adapted to be positioned upon the wearer's head, said helmet comprising a base-unit and a separate crown-section, said base-unit provided with an upper end portion and the said crown-section provided with a lower end portion, inner and outer pliable side wall members securing the said crown-section to the said base-portion, the said pliable side wall members secured to the inner and outer side wall faces of the said base-unit and of the said crown-section by means of lines of stitching positioned along the length of the said end portions in a manner circling the said helmet at a horizontal plane with respect to the height of such helmet, said pliable side walls holding such end portions spaced apart from each other thereby providing a tubular chamber between the said pliable side walls and the said end portions, the said pliable side walls forming rebounding means for the said

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crown-section, said tubular chamber circling the said helmet along the said horizontal plane in a manner adapted to facilitate the rebounding movement of the said pliable side walls, and means for holding the said helmet in desired position upon the wearer's head.

9. A helmet adapted to be positioned upon the wearer's head, said helmet comprising a base-unit having an upper end portion and a crown-section having a lower end portion, said end portions being disposed horizontally with respect to the height of the helmet, a pliable member secured to the outer faces of said crown-section and of said base-unit along the said horizontal line extending around the said helmet in a manner holding said crown-section spaced away from said base-unit, an inner pliable element covering the inner faces of the end portions of said crown-section and said base-unit along the same horizontal line as that of said pliable member, said pliable member and pliable element adapted to yield to facilitate the movements of said crown-section for cushioning the shock of a blow and to rebound the effect of such blow, said inner element preventing direct contact between the said end portions and the wearer's head during said movement of said crown-section, and means for securing said helmet in desired position upon the wearer's head.

JACOB L. KLEINMAN.

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