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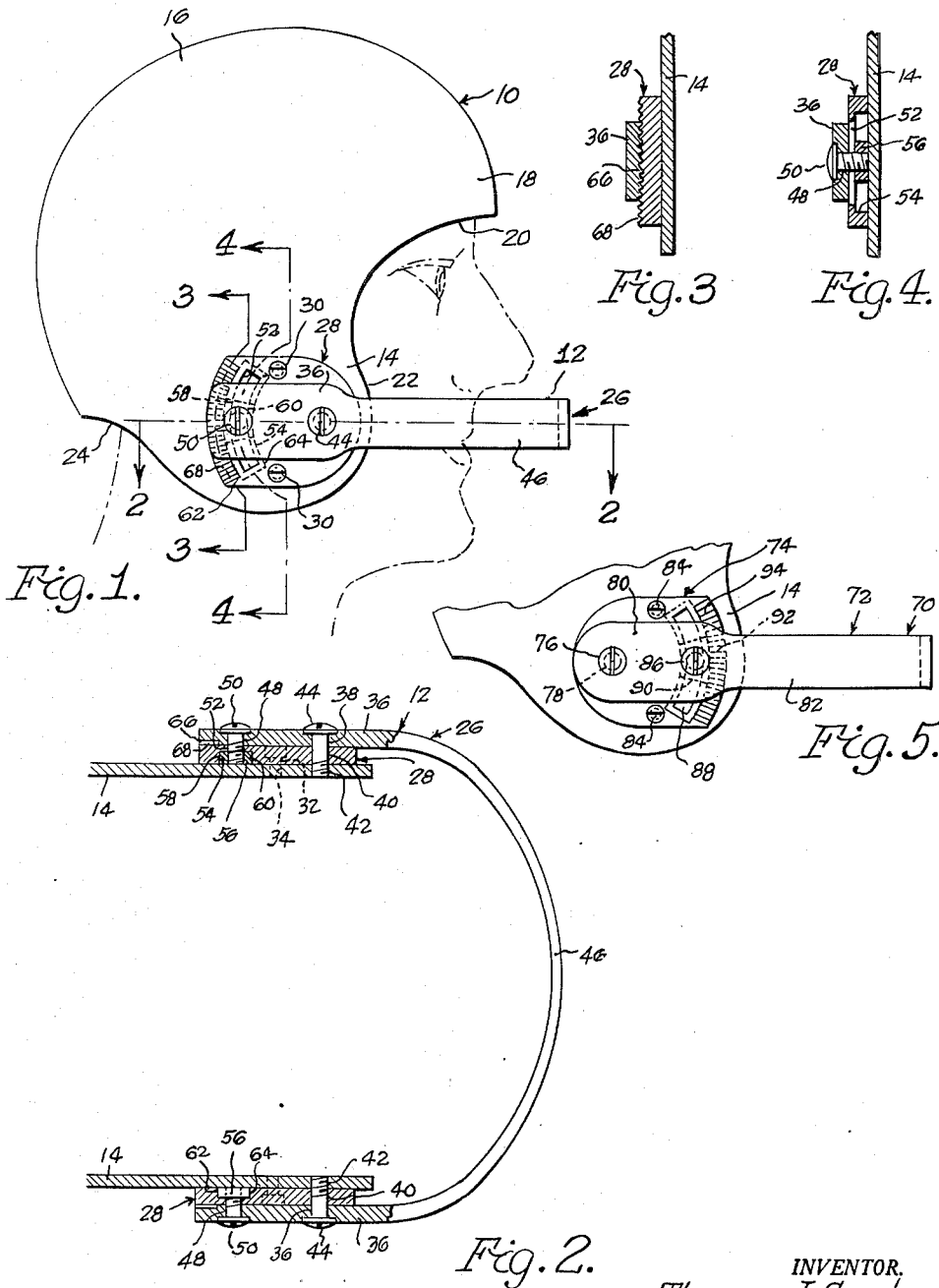
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ADJUSTABLE FACE GUARD BAR

Filed Jan. 27, 1958

2 Sheets-Sheet 1



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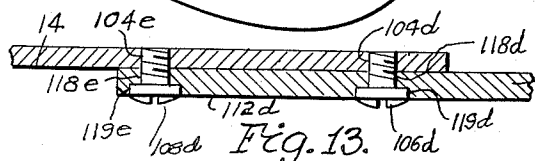
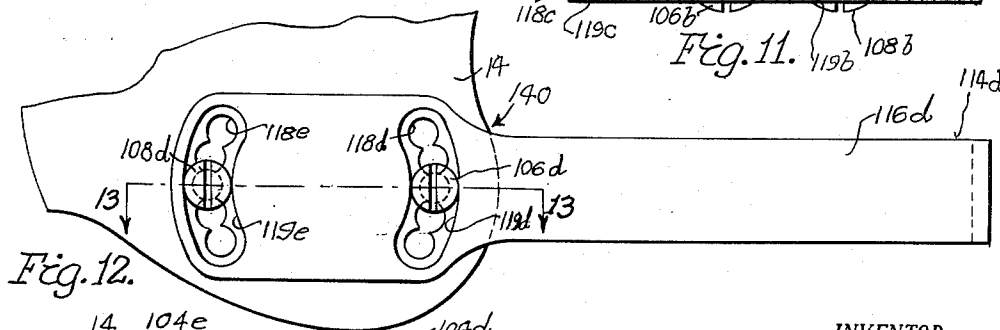
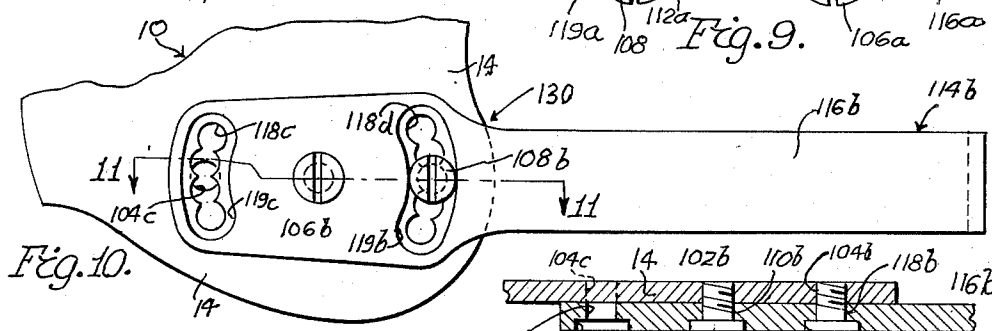
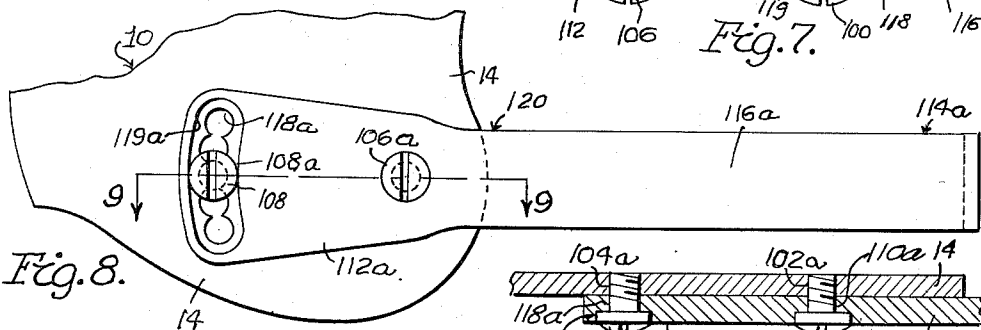
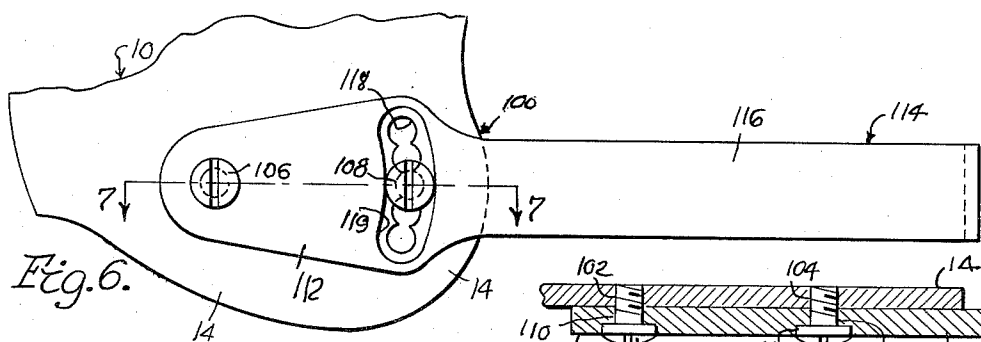
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2 Sheets-Sheet 2



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ADJUSTABLE FACE GUARD BAR

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12 Claims. (Cl. 2—9)

This invention relates to athletic head gear and, in particular, to face guards mounted on athletic helmets.

Hitherto, athletic helmets have been provided with horizontal U-shaped face guard bars secured at their opposite ends to the opposite sides of the helmet and extending horizontally forward of the athlete's nose and mouth in an arcuate horizontal path. The purpose of such guard bars has been to protect the nose, mouth and teeth of the athlete and, to some extent, his jaw and cheek bones. Such prior "helmet-attached" face guard bars, however, have been inadequate by reason of the fact that the face guard or bar, when once attached, was suitable only for a particular player or for players of the same vertical facial dimensions, and unsuitable for players of other facial dimensions since the guard bar in such cases would be either too high or too low to give proper protection to the face of the other player. The drilling of additional holes in the sides of the helmet to relocate the guard bar has been unsatisfactory because of the fact that the later-drilled holes sometimes must be so close to the previously-drilled holes as to overlap them when the guard is properly positioned for the new player after having been previously positioned for a previous player. This defect is particularly serious in athletic teams of small institutions or those of limited financial resources.

The present invention provides a helmet-attached horizontal U-shaped face guard bar device which is pivotally secured to the sides of the helmet and which has locking means adapted to lock the end portions of the guard bar against the sides of the helmet in any of a wide range of positions upward or downward. In this manner, the same helmet, with its guard bar attached, is quickly and easily fitted to any one of a number of players of different facial measurements yet will still give proper protection to each athlete, regardless of his facial measurement.

Accordingly, one object of this invention is to provide a helmet-attached horizontal U-shaped face guard bar device which is provided with means for adjusting it upward or downward to fit faces of different measurements and is also provided with means for firmly yet releasably locking the guard bar in its adjusted position so as to enable it to be quickly and easily adapted to athletes of different facial measurements.

Another object is to provide a helmet-attached horizontal U-shaped face guard bar device of the foregoing character wherein the opposite end portions of the guard bar are pivotally mounted on pivot fasteners attached to the opposite sides of the helmet and locked in their adjusted positions by locking fasteners spaced away from the pivot fasteners.

Another object is to provide a helmet-attached horizontal U-shaped face guard bar device of the foregoing character wherein an intermediate plate is secured as by fasteners to each of the opposite sides of the helmet and carries a portion of the locking means, so as to require

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no modification of the helmet and to adapt the invention to helmets of different manufacturers.

Another object is to provide a helmet-attached horizontal U-shaped face guard bar device of the foregoing character wherein the pivot fasteners for the guard bar are mounted either forwardly of the locking fasteners or vice versa, as desired.

Another object is to provide a helmet-attached horizontal U-shaped face guard bar device, the end portions of which are pivotally mounted on pivot fasteners attached to opposite sides of the helmet and locked in their adjusted positions by locking fasteners which are spaced away from the pivot fasteners in such arcuate relationship as permits adjustment of the face guard bar device into a wide variety of positions without requiring further drilling or modification of either the helmet or the face guard.

Other objects and advantages of the invention will become apparent during the course of the following description of the accompanying drawings, wherein:

Figure 1 is a side elevation of an athletic helmet equipped with a horizontal U-shaped guard bar device according to one form of the invention, with the athlete's head indicated in dotted lines;

Figure 2 is a horizontal section through the central plane and pivot and locking fasteners of the guard bar device and helmet, taken along the line 2—2 in Figure 1;

Figure 3 is a fragmentary approximately vertical cross-section taken along the arcuate line 3—3 in Figure 2, showing the interfitting locking teeth of the guard bar and intermediate locking or mounting plate;

Figure 4 is a fragmentary approximately vertical section taken along the arcuate line 4—4 in Figure 3, showing the locking fastener and the adjusting slot;

Figure 5 is a fragmentary side elevation, similar to Figure 1, but showing a slightly modified adjustable helmet-attached U-shaped face guard bar device;

Figure 6 is a side elevation of the lower side portion of an athletic helmet equipped with a further modified adjustable helmet-attached U-shaped face guard bar device with arcuately-arranged fastener holes disposed forwardly of each pivot fastener hole;

Figure 7 is a horizontal section taken along the line 7—7 in Figure 6;

Figure 8 is a side elevation of the lower side portion of an athletic helmet equipped with a still further modified adjustable helmet-attached U-shaped face guard bar device with arcuately-arranged adjustment fastener holes disposed rearwardly of each pivot fastener hole;

Figure 9 is a horizontal section taken along the line 9—9 in Figure 8;

Figure 10 is a side elevation of the lower side portion of an athletic helmet equipped with an additionally modified adjustable helmet-attached U-shaped face guard bar device with arcuately-arranged adjustment fastener holes disposed forwardly and rearwardly of each pivot fastener hole;

Figure 11 is a horizontal section taken along the line 11—11 in Figure 10;

Figure 12 is a side elevation of the lower side portion of an athletic helmet equipped with another modified adjustable helmet-attached U-shaped face guard bar device with arcuately-arranged adjustment fastener holes and arcuately-arranged pivot fastener holes; and

Figure 13 is a horizontal section taken along the line 13—13 in Figure 12.

Referring to the drawings in detail, Figure 1 shows a helmet, generally designated 10, for athletes or other sportsmen, equipped with a vertically-adjustable horizontal U-shaped face guard bar device, generally designated 12, attached to the opposite lower sides 14 which extend downward from the upper or cranial portion 16 of the

helmet 10. The latter has the usual frontal portion 18 with a front lower edge 20 extending downwardly to and around the peripheral edges 22 of the side portions 14 which at their rearward ends join the lower rear edge 24 of the cranial portion 16. Thus, the opposite side portions 14 extend downwardly and forwardly from the cranial portion 16 and are ordinarily integral therewith.

In order to adapt the guard bar device 12 to previously-manufactured or conventional helmets 10, it is preferred to form the device 12 in three principal components, namely a guard bar, generally designated 26, and a pair of mounting plates or members, generally designated 28. The mounting plates 28 are secured directly to the depending sides 14 of the helmet 10 by vertically-spaced fasteners 30, such as screws, threaded through countersunk holes 32 (Figure 2) into threaded holes 34 in the helmet sides 14. The mounting plates 28, the opposite end members 36 of the guard element 26 and the opposite sides 14 of the helmet 10 are provided with aligned holes 38, 40 and 42 respectively, the latter being threaded for reception of threaded pivot fasteners 44 upon which the guard element or U-shaped bar 26 is pivotally mounted for upward or downward swinging relatively to the mounting plates 28.

The guard bar 26, as previously mentioned, is of approximately U-shaped form, preferably of transparent plastic material, with the slightly widened opposite end members 36 interconnected by a slightly narrower integral arcuate intermediate or bridge portion 46. The rearward ends of the end members 36 are provided with locking fastener holes 48 spaced rearwardly away from the pivot holes 38 and adapted to receive threaded locking fasteners 50 which pass through arcuate undercut slots 52 centered at their respective pivot fastener holes 40 and having undercut broadened arcuate portions 54 receiving correspondingly-shaped clamping nuts 56 into which the threaded ends of the locking fasteners 50 are threaded. The clamping nuts 56 preferably have arcuate convex or concave opposite edges 58 and 60 slidably fitting the opposite arcuate convex and concave edges 62 and 64 of the undercut portion 54 of the slot 52.

Rearwardly of the locking or clamping fasteners 50, the ends of the end members 36 of the guard bar 26 are provided on their inner surfaces with an arcuate row of teeth or serrations 66 which mesh with corresponding teeth 68 on the rearward end portions of the mounting plates 28 so as to effectively prevent swinging of the guard bar 26 relatively to the mounting plates 28 when the clamping fasteners 50 have been tightened, as explained below in connection with the operation of the invention.

The modified guard bar device, generally designated 70, shown in Figure 5 is of similar but reversed construction in comparison with the device 12 of Figure 1. As before, the guard bar, generally designated 72, is mounted on mounting plates or members, generally designated 74, by means of pivot fasteners 76 similar to the pivot fasteners 44 but threaded through holes 78 near the rearward ends of the end members 80 of the guard bar 72 which, as before, has a narrower intermediate or bridge portion 82 interconnecting the opposite end members 80. The pivot fasteners 76, as before, are threaded through the pivot holes 78 and aligned holes (not shown) similar to the holes 40 of Figure 2 into threaded aligned holes in the helmet side portions 14 into the threaded aligned holes 42 of Figure 2.

The mounting plates 74, as before, are drilled at vertically-spaced locations to receive mounting fasteners 84 which are threaded therethrough into aligned holes (not shown) in the helmet sides 14 similar to the holes 34 of Figure 2. The forward ends of the end members 80 are drilled for the reception of threaded locking or clamping fasteners 86 in arcuate undercut slots 88 similar to the arcuate undercut slots 52 and similarly centered on the pivot fastener holes 78. The locking or clamping fasteners 86

are similarly threaded into arcuate-sided clamping nuts 90 similar to the clamping nuts 56 of Figure 2 and similarly slidably engaging the undercut portion of the arcuate slot 88. The end members 80 of the guard bar 72 adjacent their junction with the intermediate or bridge portion 82 are provided on their under or inner surfaces with teeth or serrations 92 disposed in an arcuate path and meshing with similar teeth 94 also arranged in an arcuate path on the outer surface of each mounting plate 74.

In the operation of either the guard bar device 12 or the modified guard bar device 70, the forward portion 46 or 82 of the bar 26 or 72 is swung upward or downward to adjust it to the differing facial characteristics of different wearers by loosening the clamping fasteners 50 or 86 relatively to their respective clamping nuts 56 or 90, until the interlocking teeth 66 or 68 of Figure 2 or 92 and 94 of Figure 5 can be disengaged. With these teeth thus disengaged, the guard bar 26 of Figure 2 or 72 of Figure 5 can be swung upward or downward relatively to its respective mounting plates 28 or 74 to the desired position most effective to give facial protection to the particular wearer to whose facial characteristics it is being adjusted. The operator then tightens the clamping fasteners 50 or 86, as the case may be, causing the arcuate-arranged teeth 66, 68 of Figure 2 or 92, 94, of Figure 5 to re-engage in meshing relationship with one another, thereby effectively locking the guard bar 26 of Figure 1 or 72 of Figure 5 firmly in its adjusted position. Readjustment is accomplished by a reversal of the foregoing procedure, thereby enabling a single helmet and face guard to be used by many different players regardless of varying facial dimensions or characteristics.

It will be understood that in a factory-manufactured combination of helmet and guard bar, the separate mounting plates 28 or 74 may be dispensed with and made integral with the side portions 14, either raised therefrom or flush therewith, with their respective teeth formed in corresponding locations to the locations shown in Figures 1 and 5.

The further modified adjustable helmet-attached U-shaped face guard bar device 100 shown in Figures 6 and 7, provides aligned threaded fastener holes 102 in the opposite lower sides 14 of the helmet 10 and also aligned threaded locking fastener holes 104 spaced forwardly of the pivot fastener holes 102 (Figure 7), these holes 102 and 104 receiving pivot fasteners 106 and locking fasteners 108 respectively. The pivot fasteners 106 pass through counterbored unthreaded holes 110 aligned with the threaded fastener holes 102 and formed in the opposite end members 112 of an approximately U-shaped face guard bar, generally designated 114, the forward portion 116 of which is arcuate and serves as a bridge portion integral with and interconnecting the end members 112. The locking fasteners 108, on the other hand, pass through an arcuate-arranged series of interconnecting unthreaded holes 118, the centers of which lie upon a circular arc concentric with the pivot fastener holes 110 and possess an arcuate recess or counterbore 119 for the head of each locking fastener screw 108.

In the operation of the device 100, the face guard bar 114 may be swung upward or downward relatively to the helmet 10 by removing the locking screws 108 from their holes 104 and 118, then swinging the bridge portion 116 upward or downward around the pivot fasteners 106 until the desired position is reached, at which one of the interconnected holes 118 is in alignment with the locking fastener hole 104 in each lower side portion 14 of the helmet 10. The operator then reinserts the locking fasteners or screws 108 in the new holes 118 and again threads them into the threaded holes 104, tightening the heads of the screws 108 against the bottoms of the arcuate counterbores or recesses 120 in

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order to firmly clamp the guard bar 114 in its newly adjusted position.

The still further modified adjustable helmet-attached U-shaped face guard bar device, generally designated 120, shown in Figures 8 and 9 is generally similar to the device 100 shown in Figures 6 and 7, except that the positions of the pivot fasteners and locking fasteners are reversed. Accordingly, the same reference numerals, followed by the suffix "a" have been applied to corresponding parts. The operation of the still further modified device 120 is substantially the same as that of the further modified device 100, with the exception of the reversed locations of the pivot fasteners and locking fasteners, hence requires no repetition.

The additionally modified adjustable helmet-attached U-shaped face guard bar device, generally designated 130, shown in Figures 10 and 11, is generally similar to the devices 100 and 120 and is in effect a combination of the devices 100 and 120. Accordingly, the same reference numerals, followed by the suffix "b" have been applied to corresponding parts, with the exception of the fact that reference numerals followed by the suffix "c" have been applied to the additional rearward arcuate group of unthreaded locking fastener holes, which are out of alignment with their respective threaded locking fastener holes when the forward unthreaded locking fastener holes are in alignment with their respective threaded fastener holes. Thus, each pivot fastener and set of pivot fastener holes are located between the pair of arcuate groups of unthreaded locking fastener holes.

In the operation of the additionally modified device 130, to adjust the guard bar 114b relatively to the helmet 10, the operator, as before, removes the locking fastener screws 108b and swings the guard bar 114b upward or downward until it is located in the desired position, whereupon the operator reinserts the locking fasteners 108b in whichever of the unthreaded locking fastener holes 118b and 119c that happen to be most nearly in alignment with their respective threaded locking fastener holes.

The other modified adjustable helmet-attached U-shaped face guard bar device, generally designated 140, shown in Figures 12 and 13 is generally similar to the device 130 of Figures 10 and 11, except that the pivot fastener screws are placed in one of the arcuate groups of holes and the locking fastener screws in the other group thereof. Accordingly, the same reference numerals, followed by the prefix "d" have been applied to corresponding parts, with the exception of the fact that reference numerals followed by the suffix "e" have been applied to the additional rearward arcuate group of unthreaded locking fastener holes. It will be obvious from Figures 12 and 13 that either the forward or rearward threaded hole may serve as a pivot fastener hole or as a locking fastener hole, according to the preference of the operator and the amount of adjustment required. If, for example, the forward screws are used as pivot fastener screws and therefore designated 106d, the rearward screws become locking fastener screws and are therefore designated 108d.

In the operation of the other modified face guard bar device 140, the operator removes either the pair of screws 106d of the pair of screws 108d, but not both, causing the pair of screws remaining in their threaded holes in the lower helmet portion 14 to act as pivot fastener screws, the other pair of screws being reinserted when the desired adjusted position of the guard bar 114d has been reached. It will be seen from a consideration of the principles of levers that when the rearward screws 108d are used as pivot screws, the front of the guard bar 114d cannot be swung upward to as great an angle as when the forward screws 106d are used as the pivot screws, and still be able to insert the locking screws through one of the holes in its respective arcuate group of holes.

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The modified forms of the invention designated as the guard devices 100, 120, 130 and 140 are less expensive to make than the devices 26 or 70 respectively of Figures 1 and 5. The threaded screw holes in the lower side portions 14 of the helmet 10 would preferably be pre-drilled and pre-threaded at the helmet factory and hence would be located in positions which would not give as wide a range or gradation of adjustment as in the case of the subsequently applied devices 26 and 70 of Figures 1 and 5 respectively.

What I claim is:

1. A combined helmet and adjustable face guard bar device, said helmet having depending opposite side walls, said device including a pair of laterally-spaced pivot elements connected respectively to the helmet side walls, an approximately U-shaped substantially horizontal guard bar having laterally-spaced opposite end members pivotally mounted on said pivot elements and having a forwardly-projecting intermediate portion interconnecting said end members, and a positive locking arrangement spaced away from said pivot elements and mounted on said end members and connected to said helmet side walls in relatively movable releasable locking engagement therewith, said locking arrangement including releasable positively interengaging locking means selectively and adjustably securing said face guard bar end members to said helmet side walls in a selected position of a multiplicity of positions of swinging adjustment of said face guard bar relatively to said helmet side portions.

2. An adjustable face guard bar device for a helmet having depending opposite side walls, said device comprising a pair of mounting members adapted to be secured respectively to the opposite helmet side walls, a pair of pivot elements connected respectively to said mounting members, an approximately U-shaped substantially horizontal guard bar having laterally-spaced opposite end members pivotally mounted on said pivot elements and having a forwardly-projecting intermediate portion interconnecting said end members, and a positive locking arrangement including positively interengaging locking means spaced away from said pivot elements and mounted on said mounting members and engaging said end members in relatively movable releasable locking engagement therewith.

3. An adjustable face guard bar device, according to claim 2, wherein said mounting members and said guide bar end members are disposed in mutually-engageable pairs thereof, wherein one member of each pair of said mounting members and guide bar end members has an elongated guideway therein and wherein the locking arrangement includes a locking fastener connecting each of said end members to its respective mounting member and slidably engaging its respective guideway.

4. An adjustable face guard bar device, according to claim 3, wherein one of said mounting members and its respective guard bar end member have releasable positively engageable interlocking recesses and projections.

5. An adjustable face guard bar device, according to claim 3, wherein the pivot elements are disposed nearer the intermediate guard bar portion than their respective locking fasteners.

6. An adjustable face guard bar device, according to claim 3, wherein the locking fasteners are disposed nearer the intermediate guard bar portion than their respective pivot elements.

7. An adjustable face guard bar device, according to claim 3, wherein the guideways comprise arcuate slots and wherein the locking fasteners include clamping nuts disposed in releasable clamping engagement with said slots and slidable relatively thereto.

8. A combined helmet and adjustable face guard bar device, according to claim 1, wherein said locking arrangement includes an arcuate slot in each side portion concentric with its respective pivot element and a locking fastener seated in each of said depending opposite helmet

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side walls and extending through its respective arcuate slot.

9. A combined helmet and adjustable face guard bar device, according to claim 8, wherein the arcuate slot is disposed forwardly of its respective pivot element.

10. A combined helmet and adjustable face guard bar device, according to claim 8, wherein the arcuate slot is disposed rearwardly of its respective pivot element.

11. A combined helmet and adjustable face guard bar device, according to claim 8, wherein said locking arrangement includes an additional arcuate slot in each side portion also concentric with its respective pivot element but disposed on the opposite side thereof from the first-mentioned arcuate slot, and also includes an additional locking fastener seated in the same depending

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helmet side wall and extending through its respective additional arcuate slot.

12. A combined helmet and adjustable face guard bar device, according to claim 8, wherein each side portion includes an additional arcuate slot aligned with its respective pivot element and wherein said respective pivot element passes through said additional arcuate slot.

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