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N. J. SCHMUCK

3,011,786

FOOTBALL TRAINING APPARATUS

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2 Sheets-Sheet 2

Fig. 3.

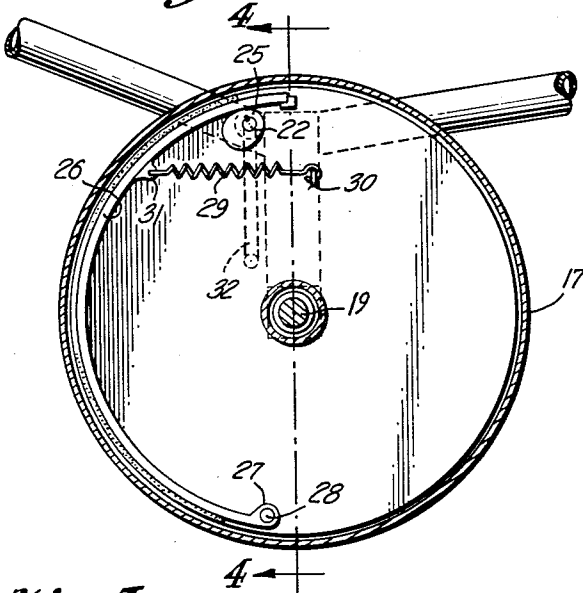


Fig. 4.

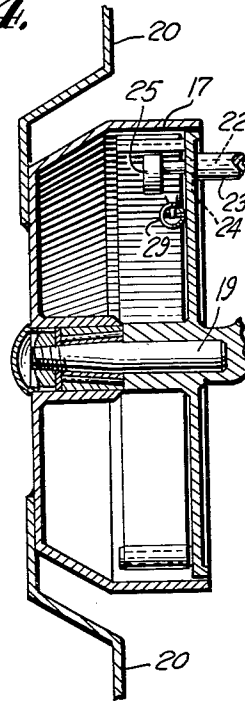


Fig. 5.

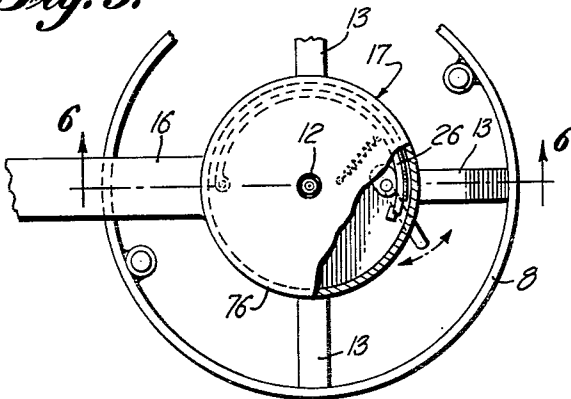
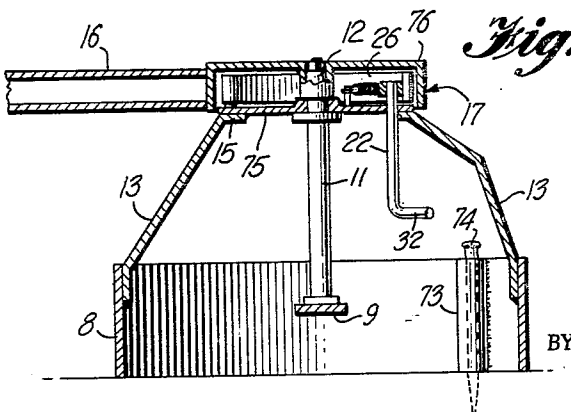


Fig. 6.



INVENTOR

Norman J. Schmuck

BY

Mason, Fenwick & Lawrence
ATTORNEYS

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FOOTBALL TRAINING APPARATUS
Norman J. Schmuck, 5730 Camp Robinson Road,
North Little Rock, Ark.
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This invention relates to improvements in football practice apparatus for use in teaching, training, and developing football players.

The principal object of the invention is to provide training equipment that reflects as nearly as possible conditions which may occur in a football game so that, under those conditions, the coach has an opportunity to correct mistakes made by the players.

Another object is to provide control structure so that the player must assume certain positions and follow certain practices in order to use the apparatus.

Another object is to provide structure for increasing or decreasing the resistance in the movable portion of the apparatus so that the player, in making his offensive and defensive charges, will be subjected to varying resisting conditions controlled by the coach.

A further object is to provide training equipment having a broad circular supporting base at one end of the apparatus with an arm carrying the training equipment pivotally supported by the base so that the player occupying the offensive position, upon charging the blocking station, will have the sensation of an opponent trying to elude him. In addition, the coach, from a position adjacent the pivotal point of the apparatus, can increase or decrease the resistance of the pivotal arm on which the charging stations are mounted, depending upon conditions existing between the offensive and defensive linemen using the equipment. This arrangement has the additional advantage of remaining in substantially the same area so that other team players can observe and hear the instruction given by the coach without having to follow the training device down the field, in which case some of the instructions may be lost to the other team players.

Still another object is to provide a visual signal in the form of a light which can be seen by the defensive lineman. A contact switch is placed so that the offensive lineman, when assuming his offensive position, will close the circuit by pressure from his hand. As he charges forward, his hand will be removed from the switch, thus breaking the circuit and the light will go out. The defensive lineman, who is concentrating on the light, will immediately charge against the defensive station as he would in the game. This feature of the training equipment is extremely important, since, under game conditions, the defensive lineman is trained to concentrate either on the ball to be passed by the center, or on the hands of the offensive lineman. The defensive lineman is always at a disadvantage because the offensive line is starting on a signal, whereas, the defensive line must start on the ball. Some coaches have attempted to overcome this handicap by instructing their defensive lineman to watch the center's hand and as the center contracts his fingers immediately prior to passing the ball, charge on this slight muscular movement, thus gaining a fraction of a second on the offensive line. Others instruct the defensive lineman to watch the hand of the offensive lineman that is on the ground and charge as he moves the same from the ground. In any case, it is highly desirable that the defensive lineman be trained to concentrate on an object and it has been found that the signal light serves a very useful purpose in this phase of training.

Another object is to provide an auxiliary charging station at an angle to the main offensive charging station

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so that, under conditions requiring two offensive players to be pitted against one defensive player, this training can be provided.

It is also contemplated that the pivotal radius arm may be designed to telescope so that adjustment as to length may be made. Upon lengthening the arm, additional charging stations may be added, or upon shortening the arm, the circumference of the training equipment may be reduced, thus providing a more compact unit.

Various other objects and advantages of the invention will hereafter become more fully apparent from the following description of the drawings, illustrating a presently preferred embodiment thereof, and wherein:

FIGURE 1 is a perspective view of the device;

FIGURE 2 is a perspective view as seen from the opposite direction of FIGURE 1, and with the padding removed;

FIGURE 3 is a vertical sectional detailed view of the braking elements taken along lines 3—3 of FIGURE 1;

FIGURE 4 is a vertical sectional view taken along lines 4—4 of FIGURE 3;

FIGURE 5 is a fragmentary plan view of a modified form of the braking elements;

FIGURE 6 is a vertical sectional view taken along the lines 6—6 of FIGURE 5.

Referring more specifically to the drawings in which like numerals designate similar parts, the numeral 7 designates generally a football training apparatus having a base member 8 substantially circular in contour. The bottom of the base member 8 is preferably open to save weight and material, but has a cross member 9 connected to the inner side 10. A housing 11 is supported by cross member 9 and has mounted therein a freely rotatable shaft 12. Struts 13 extend forwardly from the inner edge 14 of the base member 8 to support the upper end 15 of the housing 11. A radius arm 16 is pivotally mounted on and supported by the upper end 15 of the housing 11, and secured in position by the shaft 12. On the opposite end of the radius arm 16 is mounted a brake drum 17 as shown in FIGURE 1 and, more particularly, in FIGURE 3. A wheel 18 having a stub shaft 19 is mounted on conjunction with the brake drum 17, said wheel having spokes 20 to space the rim 21 of the wheel 18 from the brake drum 17.

Supported by the radius arm 16 is a rod 22 freely rotatable in tubing 23. The tubing 23 connects with an opening 24 in the brake drum 17 so that the rod 22 may enter the brake drum 17 and operate a cam 25 secured to the end of the rod 22. The cam 25 rotates against a brake band 26 which is pivotally connected at 27 to a stud 28, within the brake drum 17. A spring 29 is secured at one end to a lug 30 forming a part of the brake drum 17, and at its other end to the brake band 26 at 31 so that the brake band 26 is normally under tension away from contact with the wheel 18. The cam 25, when rotated by a handle 32 will force the brake band 26 into engagement with the drum 17 and thus give resistance to the movement of the device. Rotation of the handle 32 in the opposite direction will rotate the cam 25 away from the brake band 26 so that spring 29 will lessen the braking action.

A skid member 33 is secured to a strut 34 which connects to the radius arm 16 at 35. Extending from the strut 34 at 36 is another strut 37 that passes under the radius arm 16 and connects to an angle member 38. The top portion 39 connects to the radius arm 16 at 40, the downward extending member 41 of the angle member 38 projecting below the connection with the strut 37 and connecting to a straddle board 42. Secured to the face of the downward extending leg 41 is a plate 43 of spring steel which is bent away from the leg 41 at top 44 and bottom 45. A spring steel hoop 46 is secured to the out-

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wardly bent top portion 44 of the plate 43 to limit the upward movement of the head of the offensive lineman. Padding 47 is placed around the plate 43 to form a charging station, or dummy 48, representing a defensive lineman. Positioned on the straddle board 42 is a light switch 49 having a cable 50 extending to a battery box 51 supported from the radius arm 16 at 52. An arm 53 extends from the strut 37 immediately below the battery box 51 to a point on the other side of the radius arm 16 having an electric light 54 on the end of the arm, the electric light being surrounded by a suitable cage or guard 55. A support 56 extends from the arm 53 to a rod 57 which is secured at one end of the radius arm 16 at 58 and has a convex metal plate 59 at the other end 60 of the rod 57. The convex face of the plate 59 has padding 61 to serve as a defensive blocking station 62, or dummy. A strut 63 extends from the rod 57 to the concave surface 64 of the plate 59. A strut 65 extends from the rod 57 to the radius arm 16 and another strut 66 extends from the rod 57 to the strut 37, both serving to reinforce and unite the parts as a unitary structure. A battery 67 is placed in the battery box 51 with a cable 68 extending from the battery inside the arm 53 to the electric light 54.

An auxiliary offensive charging station 69, or dummy, is positioned at an angle to, and to one side of, the main offensive charging station 48 by having spring steel angle iron 70 secured to the angle member 39, the face 71 of the angle iron 70 having padding 72. The auxiliary charging station, or dummy 69 is flexible and unsupported except for the spring steel angle iron 70.

The training apparatus 7 is readily movable and may be moved from spot to spot as the ground becomes disturbed from use. Sockets 73 positioned on the insides 10 of the base member 8 are adapted to receive pins 74 for anchoring the base member 8 in position.

FIGURES 5 and 6 show a modified form of the invention in which the brake drum 17 is removed from the wheel 18 and positioned around the shaft 12 so as to tension the movement of the radius arm 16 at that point, instead of in connection with the rotation of the wheel 18. A skid, not shown, similar to skid member 33, may be substituted for the wheel 18, but the tensioning device will operate the same irrespective of whether a wheel, or skid, is used.

In the modified form illustrated in FIGURES 5 and 6, the same brake drum illustrated as applied to a wheel in FIGURES 1 through 4, is utilized with the handle 32 rearranged to be rotated from the underside of the upper end 15 of the housing 11.

As actually applied, the stationary member 75 of the brake drum 17 is positioned on, and secured to, the upper end 15 of housing 11. The revolving portion 76 of the brake drum 17 is secured to, and rotates with, the freely rotatable shaft 12. The rotatable portion 76 of the brake drum 17 is secured to, and forms a part of, the radius arm 16 so that the radius arm rotates with the revolving portion 76 of the brake drum 17. The brake band 26 is arranged in the same manner as described and shown in FIGURES 1 through 4, with the same cam arrangement, except that the brake drum is in a horizontal, instead of a vertical plane. This necessitates the rod 22 and handle 32 being inserted from within the base member 8 and through the upper end 15 of the housing 11 where it connects with the cam 25 in the manner shown in FIGURES 1 through 4.

As actually used, the training apparatus is placed in position on the athletic field, and anchored in position by the pins 74. This permits the coaches and the linemen to gather around the training device without constantly having to move from one place to another as is customary with the usual sled or training apparatus which is propelled by the players.

An offensive lineman is selected who will take a charging position in front of the charging station 48. He

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places his feet on opposite sides of the straddle board 42 with one hand contacting the light switch 49. Pressure upon the light switch 49 causes the light 54 to come on. Experience has proven that the offensive charge should be made with short, choppy steps, the feet forming a wide base. It has also been demonstrated that the head must be kept low with the buttocks down and the eyes up. Many coaches teach what is referred to as a "dip charge" which consists in the lowering of the body with the initial step so as to escape the defensive player's hands and thus get to the body of the defensive lineman. In any case, the buttocks of the player must be low so as to provide a low center of gravity and the charge made with short, choppy steps and a wide base. Since the offensive player has the straddle board between his feet, the board will serve to force him to take the type of steps required as he charges against the padded surface of charging station 48. The hoop 46 is so positioned on the charging station 48 that the offensive player must keep his head down, otherwise, he would strike the same. As he charges forward, his hand will be removed from the switch 49 which breaks the circuit and extinguishes the light 54. If no defensive lineman is in front of the defensive blocking station 62, the light will not be utilized.

The travel of the training apparatus in a circular direction is of particular value in that this movement imparts to the offensive charging lineman, the sensation that the dummy 47 is rolling away from the charging player. This is very similar to game conditions in which the defensive player will often attempt to spin or roll away from the offensive blocker. As a result of the rotary movement, the offensive blocker must be able to vary his charge and, at all times, keep close shoulder contact with the dummy.

A defensive line may be positioned in front of the defensive blocking station 62, keeping his eyes on the electric light 54. When it lights up through pressure of the hand on the part of the lineman, he knows that the ball is about to be put in play. This could well correspond to the team lining up on the ball which, under the rules of the game, requires 7 offensive men to be on the line of scrimmage. Upon the light going off, the defensive lineman charges, striking the defensive dummy 62 with his hands, forearms, or shoulders as the exercise requires. The offensive lineman can vary the starting signal corresponding to slow or fast counts, by either quickly removing his hand from the switch 49, or keeping the light on for a longer period of time. This means that the defensive lineman must concentrate on the light and start only on its signal regardless of the time interval. This corresponds to the movement of the ball by the offensive center, which often is passed on a slow or fast count, or in other cases on a starting signal.

On some plays, an individual block is required, whereas, in others two offensive men double-team a single defensive player. In order to practice such a charge and block, an auxiliary charging station 69 is provided at an angle to the main offensive charging station 48. This permits a second offensive player to charge in at an angle toward an imaginary defensive lineman. The auxiliary charging station, or dummy 69 is mounted on spring steel so that there is considerable give without any securing means at its base, which requires the charging lineman to follow through and keep in close touch with the dummy, or he will lose contact.

Under game conditions the player charging at an angle against the defensive player must follow these principles, having his weight well under him so that he can shift positions quickly and retain contact with the defensive player. The resiliency of the auxiliary charging station results in the simulation of various maneuvers of the defensive lineman in trying to get away from the other offensive lineman.

The wheel 18 secured to the radius arm 16, rotates by way of the shaft 12 in the housing, describing an arc and will revolve in one direction or the other, depending upon

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the forces exerted by the offensive and defensive linemen. The skid member 33 which is slightly above the ground, acts primarily to prevent the training apparatus from turning over and absorbs initial shock.

As shown in FIGURES 1 through 4, the braking mechanism is mounted in connection with the wheel 18 controlled by rotation of the rod 22 by way of the handle 32. The coach, or one of his assistants, will rotate the handle 32 in one direction or the other, increasing or decreasing the brakeage on the wheel 18, thus varying the conditions under which the offensive and defensive men on opposite sides of the training apparatus will charge.

The resistance may be changed after contact has been made by the offensive and defensive linemen with the respective dummies and may continue to be changed as long as the players are in contact with the dummies. These same varying conditions may be imposed when either the offensive or defensive charging stations are used separately.

In the modified form of the invention, as illustrated in FIGURES 5 and 6, the braking mechanism has been removed from operation on the wheel 18 to the rotating shaft 12. The structure and operation is substantially the same except that the brake drum 17 is arranged in a horizontal plane instead of a vertical plane.

The removal of the brake drum from the wheel to the pivotal point of the training apparatus, permits the substitution of a skid member for the wheel if that is desired.

In order to move the training apparatus to smooth points on the field when the turf becomes torn up, or for other reasons, it is only necessary to remove the pins 74 and relocate the apparatus. By having the training apparatus rotating around a stationary base, the players can remain grouped next to the apparatus, observing the players and receiving instructions, which is difficult when, as is the case in other training devices, the machine is propelled up and down the field.

It is apparent that this training device may be utilized indoors as well as outdoors, it being particularly desirable to use it indoors during inclement weather and in off-season periods when players desire to keep in condition.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed as various modifications and changes are contemplated and may obviously be resorted to, without departing from the spirit and scope of the invention hereinafter defined by the appended claims.

I claim as my invention:

1. In a football training apparatus, a radius arm, pivotal means supporting one end of said radius arm, ground engaging means at the opposite end of said radius arm for supporting said arm, a dummy secured on one side of said radius arm means carried by the radius arm to apply resistance to turning the radius arm about the pivotal support means, and means to adjust the resistance applying means to vary the resistance applied to the radius arm.

2. In a football training apparatus, a radius arm, a stationary base, pivotal means mounted on said base and supporting one end of said radius arm, a rotating member supporting the opposite end of said radius arm, a dummy secured on one side of said radius arm means carried by the radius arm to apply resistance to turning the radius arm about the pivotal support means, and means to adjust the resistance applying means to vary the resistance applied to the radius arm.

3. In a football training apparatus, a radius arm, a stationary base, pivotal means mounted on said base and supporting one end of said radius arm, ground engaging means at the opposite end of said radius arm for supporting said arm, a dummy secured on one side of said radius arm, braking means for controlling the arcuate movement of said radius arm, and means for operat-

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ing the braking means for increasing or decreasing the resistance to the movement of said radius arm.

4. In a football training apparatus, a frame, ground supported means at each end of said frame for spacing the frame from the ground, a charging station supported by said frame, a straddle board in line with said charging station and secured to the bottom thereof, said straddle board being in angular relation to the vertical plane of the charging station, the free end of the straddle board extending outwardly from said charging station adjacent to the ground and so positioned that a player striking the charging station must straddle the board with his feet in order to make contact with the charging station, said board of sufficient width to cause the legs of the player to be spread in making contact with the charging station.

5. In a football training apparatus, a frame, ground supported means at each end of said frame for spacing the frame from the ground, a charging station supported by said frame, a straddle board in line with said charging station and secured to the bottom thereof, said straddle board being in angular relation to the vertical plane of the charging station, the free end of the straddle board extending outwardly from said charging station toward a player positioned to contact the charging station; a signal device mounted on the outer end of said straddle board and operable by the player positioned in front of the charging station.

6. In a football training apparatus, a frame, ground supported means at each end of said frame for spacing the frame from the ground, a charging station supported by said frame, a straddle board in line with said charging station and secured to the bottom thereof, said straddle board being in angular relation to the vertical plane of the charging station, the free end of the straddle board extending outwardly from said charging station so positioned that a player striking the charging station must straddle the board with his feet in order to make contact with the charging station, said board of sufficient width to cause the legs of the player to be spread in making contact with the charging station, and a head restrictor connected to the upper portion of said charging station directly above the straddle board the head restrictor extending outwardly from the upper portion of the said charging station in substantially parallel relationship to the straddle board, the head restrictor and straddle board spaced apart and adapted to receive between them the body of the player in making contact with the charging station, the head restrictor serving to keep the head of the player low and the straddle board of sufficient width to cause the legs of the player to be spread and provide a firm base for the player at the time the player makes contact with the charging station.

7. In a football training apparatus, a frame, ground supported means at each end of said frame for spacing the frame from the ground, a charging station supported by said frame, a straddle board in line with said charging station and secured to the bottom thereof, said straddle board being in angular relation to the vertical plane of the charging station the free end of the straddle board extending outwardly from said charging station and so located that a player contacting the charging station must straddle the board with his feet in order to make contact with the charging station, said board of sufficient width to cause the legs of the player to be spread, thus providing a broad base for the player when said player makes contact with the charging station, a head restrictor connected to the upper portion of the charging station directly above the straddle board, the head restrictor extending outwardly from the upper portion of the charging station in substantially parallel relationship to the straddle board, the head restrictor and straddle board spaced apart and adapted to receive between them the body of the player in making contact with the charging station, the head restrictor adapted to keep the head of the player low and the straddle board of sufficient width

to cause the legs of the player to be spread and provide a firm base for the player during the player's charge and at contact with the charging station.

8. In a football training apparatus, a frame, ground supported means at each end of said frame for spacing the frame from the ground, a charging station supported by said frame, a straddle board in line with said charging station and secured to the bottom thereof, said straddle board being in angular relation to the vertical plane of the charging station the straddle board having a free end extending outwardly from said charging station toward a player positioned to contact the charging station, a signal device mounted on the outer end of said straddle board said signal device so located that the hand of the charging lineman can operate the signal device upon the player's initial movement against the charging station, the straddle board of sufficient width to cause the legs of the player to be spread during the initial charge and a defensive charging station mounted on the opposite side of said frame and in line with said charging station.

9. In a football training apparatus, a frame, ground supported means at each end of said frame for spacing the frame from the ground, a charging station supported by said frame, a straddle board in line with said charging station and secured to the bottom thereof, said straddle board being in angular relation to the vertical plane of the charging station the straddle board having a free end extending outwardly from said charging station toward a player positioned to contact the charging station; a defensive charging station mounted on the opposite side of said frame, a visual signal carried by said frame and visible from a position in front of the defensive charging station, and hand operated means on said straddle board for operating said visual signal said hand operated means so located that the hand of the charging lineman can operate the visual signal upon the player's initial movement against the charging station and so that a defensive lineman positioned opposite to the defensive charging station may charge on the operation of the visual signal.

10. In a football training apparatus, a radius arm, a stationary base supporting one end of said radius arm, pivotal means mounted in said base and supporting said one end of said radius arm, movable supporting means secured to the other end of said arm, an offensive charging station on one side of said radius arm and supported thereby, a straddle board in line with said charging station and secured to the bottom thereof, said straddle board being in angular relation to the vertical plane of the charging station, a defensive charging station carried by the opposite side of said radius arm from the side on which the offensive charging station is positioned, a visual signal supported by said radius arm and visible from a position in front of the defensive charging station, and hand operated means on said straddle board for operating said visual signal.

11. In a football training apparatus, a radius arm, a stationary base supporting one end of said radius arm, pivotal means mounted in said base and supporting said one end of said radius arm, movable supporting means secured to the other end of said arm, operable means for controlling the arcuate movement of said radius arm, an offensive charging station on one side of said radius arm and supported thereby, a straddle board in line with said charging station and secured to the bottom thereof, said

straddle board being in angular relation to the vertical plane of the charging station, a defensive charging station carried by the opposite side of said radius arm from the side on which the offensive charging station is positioned, a visual signal supported by said radius arm and visible from a position in front of the defensive charging station, and hand operated means on said straddle board for operating said visual signal.

12. In a football training apparatus, a radius arm, a stationary base supporting one end of said radius arm, pivotal means mounted in said base and supporting said one end of said radius arm, movable supporting means secured to the other end of said arm, braking means for controlling the arcuate movement of said radius arm, operable means adjacent the pivotal supporting means for increasing or decreasing the resistance to the movement of said radius arm, an offensive charging station on one side of said radius arm and supported thereby, a straddle board in line with said charging station and secured to the bottom thereof, said straddle board being in angular relation to the vertical plane of the charging station, a defensive charging station carried by the opposite side of said radius arm from the side on which the offensive charging station is positioned, a visual signal supported by said radius arm and visible from a position in front of the defensive charging station, and hand operated means on said straddle board for operating said visual signal.

13. In a football training apparatus, a radius arm, a stationary base supporting one end of said radius arm, pivotal means mounted in said base and supporting said one end of said radius arm, ground engaging supporting means secured to the other end of said arm, a dummy secured on one side of said radius arm, an auxiliary dummy on the same side of the radius arm as the first mentioned dummy and secured thereto in angular relationship to said first mentioned dummy.

14. In a football training apparatus, a radius arm, a stationary base supporting one end of said radius arm, pivotal means mounted in said base and supporting said one end of said radius arm, ground engaging supporting means secured to the other end of said arm, a dummy secured on one side of said radius arm, an auxiliary dummy on the same side of the radius arm as the first mentioned dummy, and resilient supporting means for securing said auxiliary dummy to the radius arm in angular relationship to said first mentioned dummy.

15. In a football training apparatus, a radius arm, pivotal means supporting one end of said radius arm, wheel means at the opposite end of said radius arm for supporting said arm, a dummy secured on one side of said radius arm and extending above said arm, a skid member mounted on the opposite side of said arm from said dummy, means connected to said arm and extending rearwardly therefrom for supporting said skid member, said skid member being positioned substantially opposite said dummy to absorb shocks against said dummy and to prevent said training apparatus from turning over.

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