

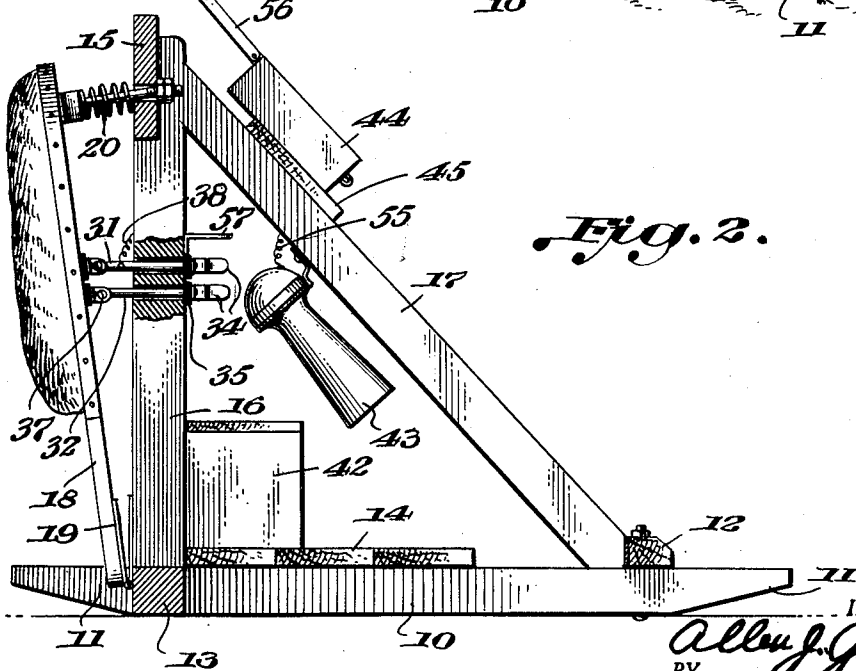
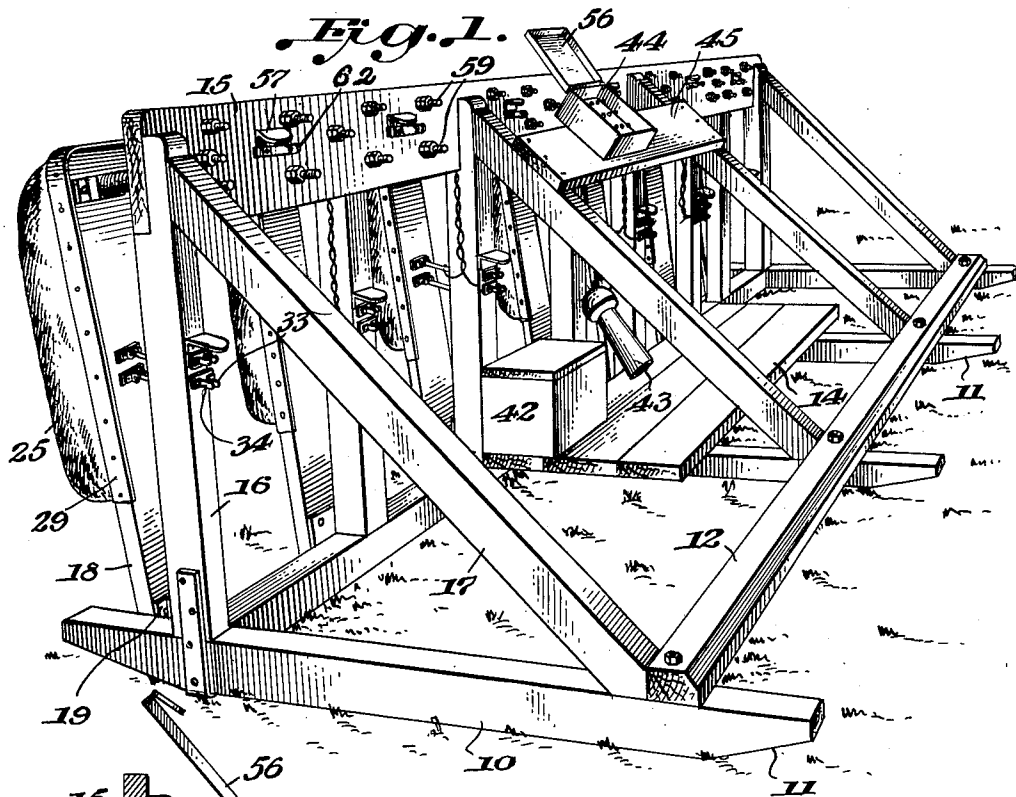
June 26, 1951

A. J. GARDENHOUR
FOOTBALL SLED WITH SIGNAL

2,558,081

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3 Sheets-Sheet 1



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Fig. 3.

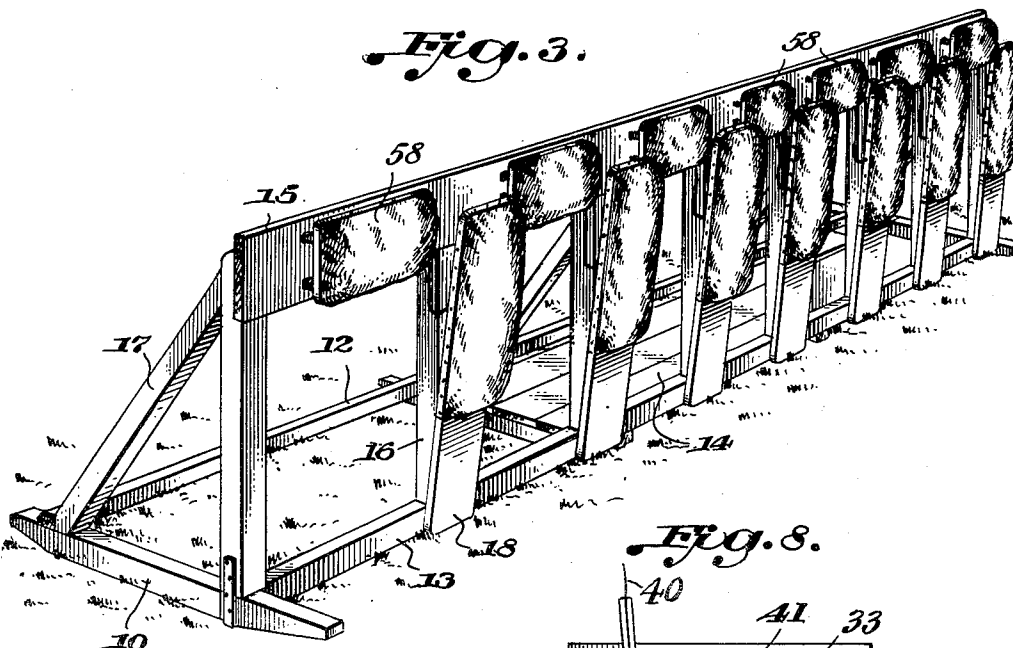


Fig. 8.

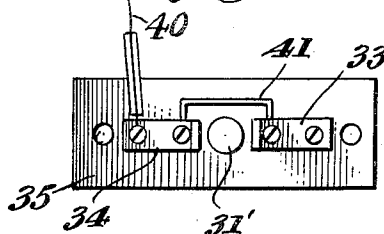
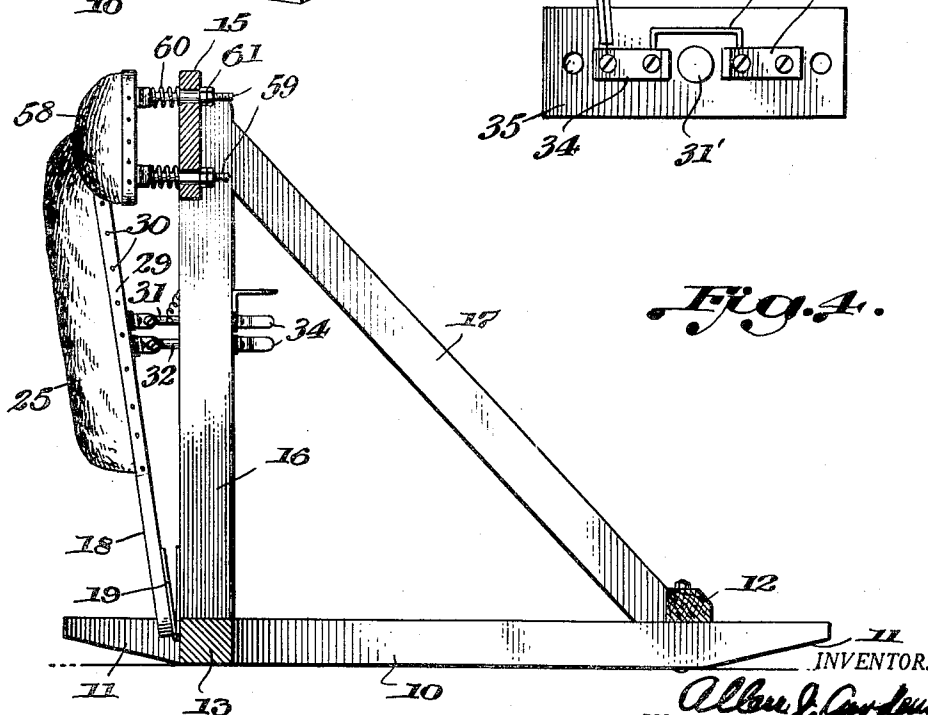


Fig. 4.



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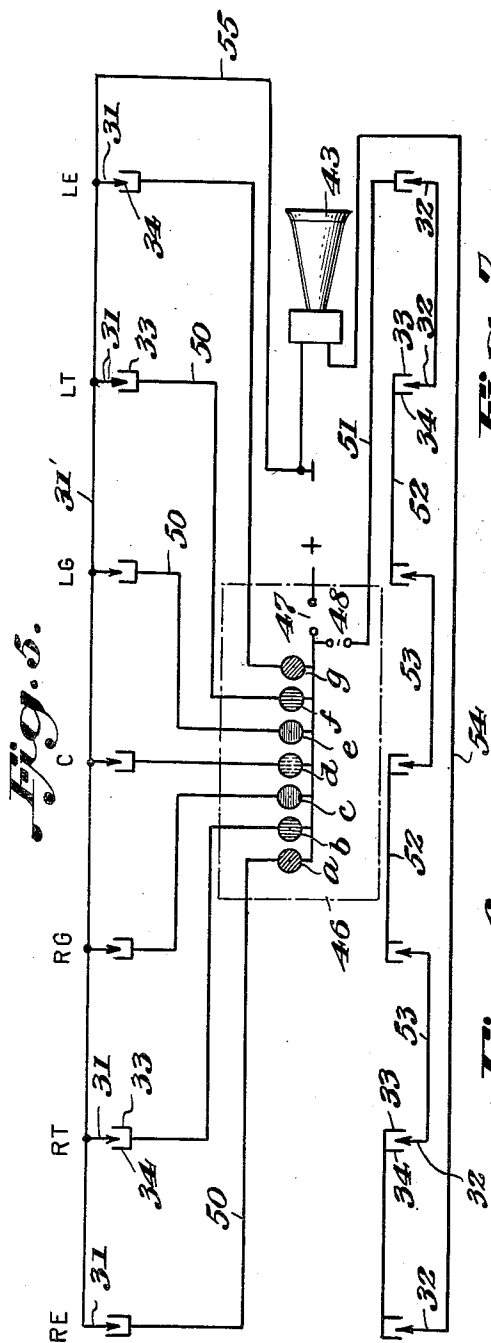


Fig. 7.

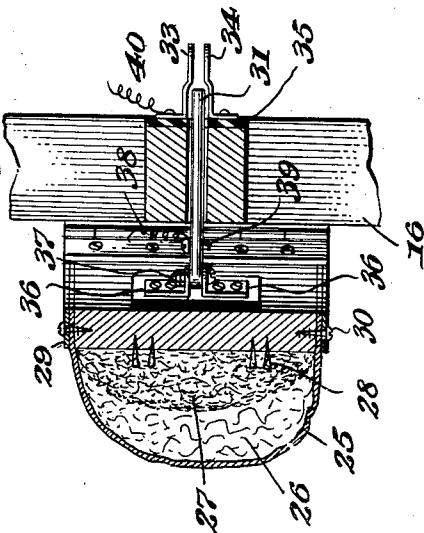
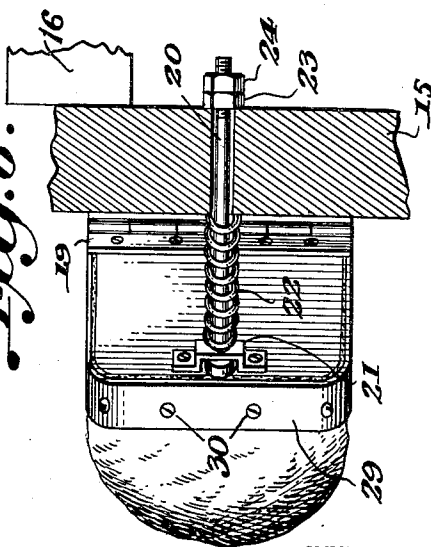


Fig. 6.



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FOOTBALL SLED WITH SIGNALS

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14 Claims. (Cl. 273—55)

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My invention relates to a device for use in football practice, commonly referred to as a charging sled, though capable of embodiment otherwise than in a sled, and it is an object of the same to provide such a device with means for synchronizing the actions of the squad using the device.

Another object is to provide means useful in speeding up the plays.

Another object is to provide means correlated with the actions of the individual players for indicating that all players are acting in synchronism and, if they are not doing so, to indicate which ones are lagging and how much they are lagging with relation to other players.

Still another object is to provide visual means for indicating the operations of individual players, coupled with an audible signal for indicating the time when all players are conjointly doing their part in blocking or charging.

A further object of the invention is to provide the charging sled with a plurality of dummy pads which will yield and resist the charging line, permitting the players to charge and block with all the force necessary in a regular game and without danger of injury to the players.

Another object is to provide a charging sled with means for synchronizing in the shortest possible time a complete line of players from the time of charging until they contact the dummy pads and start the sled into forward motion.

Another object is to provide a charging sled adapted to provide means whereby a coach can readily teach the proper positions for the head, shoulders, legs, arms and body of the players and can drill them accordingly, and can develop effectively arm charges on the defense and leg exercises for offense.

Another object is to provide a charging sled in the use of which all seven men of the football line can charge simultaneously and so force the sled ahead, though it is to be understood that my device can be usefully employed to train either one player, or any number up to the limit of capacity of a particular device.

Other objects and advantages of the invention will appear from the following specification and from the drawings which are made a part of the application and in which similar reference characters indicate similar parts. In the drawings:

Fig. 1 is a rear perspective of the device of my invention,

Fig. 2, a transverse section of the same, approximately at one of the bumper boards hereinafter described,

Fig. 3, a front perspective,

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Fig. 4, another transverse section, approximately at one of the defense bumpers hereinafter described,

Fig. 5, a wiring diagram,

Fig. 6, a partial top plan, showing a bumper board as seen from above,

Fig. 7, a horizontal section of a bumper board and its support, and

Fig. 8, a detail of a circuit closer.

In the drawings, reference characters 10, 10, indicate the runners or skids of the sled, which have their under faces inclined at each end at 41, 41, as usual. These runners and the other main parts of the structure are preferably made of wood, though metal may be used if desired. The runners are connected by cross members 12, 13, and also by a platform 14 for the coach. A plank 15 at the upper part of the sled is supported by uprights 16, 16, mounted on the cross-bar 13, said plank 15 being further supported by diagonal braces 17, 17, here shown as bearing against the bar 12 at their lower ends, and being suitably affixed to members 11, 12 and 16, as may be desired.

Dummy bumper boards 18, 18, are attached to the respective uprights 16, or to the bar 13 at suitable points by means of heavy hinges 19, 19, and the bumper boards are guided for swinging movement toward and from the body of the device by means of bolts 20, 20 (Figs. 2 and 6), each bolt being pivotally connected at one end to a bumper board by means of a U-shaped bracket 21 fixed at its ends to the bumper board 18 and having a central hole to receive the bolt the hole being large enough to permit the bolt to tilt. At its other end the bolt passes through a hole in the plank 15, preferably either at one side of a post 16 or above the upper end of the post. A coil spring 22 surrounding the bolt bears at one end against the plank 15 and at the other against the bumper and forces the bumper back so far as permitted by a nut 23 and a locknut 24.

In order to cushion the bumper it is provided with cushioning means in the shape of a bumper pad or dummy here shown as consisting of a covering 25 of canvas or leather or other flexible and durable material, inside which there is a padding 26 of cotton or felt, and an inner padding 27 of Florida moss, curled hair or other springy fibrous material. The cushioning materials, or at least the padding 27, may be connected to the bumper by staples such as shown at 28 to prevent the same from sagging and working downward to the bottom of the cushion. The outer covering is secured to the bumper as by means of metallic or

other strap material 29 and screws 30 or other suitable fastening means.

About midway of the length of the bumpers there are attached to them pairs of plungers 31 and 32, each serving as the movable member of a circuit closer including stationary contact members 33, 34 for each of said plungers, said stationary contact members being resilient and being positioned to be forced apart as the plunger enters the space between a pair of them. The members 33, 34 are mounted on a block 35 of insulating material which is secured to a post 16 by screws or the like, while each plunger is mounted pivotally on a pair of L-shaped brackets 36, 36 having forwardly extending arms through which a bolt 37 passes (Figs. 2 and 7) on which bolt a plunger is pivoted by means of an eye at the rear end of the plunger, the plunger passing through holes in the post 16 and the insulating block 35, as shown in Fig. 7, and at 31' in Fig. 8. A conductor 38 is attached to each plunger by means of a screw 39 passing through the plunger, as shown in Fig. 7, and another conductor 40 is attached to one of the stationary contact members 33, 34, as also shown in Figs. 7 and 8. A conducting link 41 connects members 33, 34 (Fig. 8).

At convenient points other cooperating parts are located. Thus a battery box 42 is located on the platform 14, an audible signal member 43, here shown as a horn of the type commonly used on automobiles is located on one of the braces 17, said horn having a lead 55 connecting it in the circuit later described, and an electric control box 44 is mounted on a plank 45 carried by a pair of said braces, said box including a control panel 46 (Fig. 5) which panel carries colored lights positioned so as to be readily visible to the coach. The box 44 also contains a main power switch 47 and a horn switch 48, indicated in Fig. 5.

The wiring diagram of Fig. 5 shows in diagrammatic form a plunger 31 for each line position of right and left ends, tackles, guards and for the center, with diagrammatic illustrations of the coacting stationary contact members 33 and 34 for each plunger, the series of plungers being connected by a conductor 31'. Each stationary contact member, comprising coacting members 33, 34, is connected by a conductor 50 to one of the set of lights *a, b, c, d, e, f, and g*, which lights are indicated as arranged to correspond in position to the corresponding player at the back of the sled. These lights may consist of colored electric bulbs, if desired, but their nature is immaterial so long as they indicate the respective players and serve in any way to show whether or not the related player has hit the sled in synchronism with the remaining players, and how much out of time any player is with respect to others.

A horn 43 is provided for giving an audible indication when all the plungers 32 of the lower set of circuit closers have been moved into engagement with their coacting stationary contact members 33, 34. For this purpose the said stationary contact members at one end of the set are connected to the horn switch 48 by a conductor 51, and the remaining stationary contact members are connected to one another by conductors 52, while the movable plungers are connected in pairs by conductors 53. A conductor 54 leads from the right-hand plunger in Fig. 5 to the horn and another conductor 55 connects the horn to the wire 31', thus completing the circuit when all plungers have been moved sufficiently by the corresponding players, and supplementing by

an audible signal the visible indications afforded by the illumination of all the bulbs *a to g*.

A lid 56 is provided for closing the control box, and locking means may be provided if desired. A guard 57 is shown as arranged above the fixed circuit closing members 33, 34 for protection of such elements from weather and accidental blows.

It is sometimes thought desirable to provide a set of defense bumpers for defense practice, as for high blocking practice and for teaching the correct positions of parts of the body in the more elevated positions. For these purposes, there may be used intermediate bumpers 58 mounted directly on the plank 15. The bumpers may be like those on levers 18 in construction, but are mounted for horizontal sliding movement by means of bolts 59 sliding in holes in plank 15 and being forced to the rear by coil springs 60, the movement of the bumpers being limited by nuts 61 as in the case of those first described. Circuit closing means may be located on the plank 15, as indicated at 62 in Fig. 1, and the wiring may be similar to what is shown in Fig. 5 for connecting the defense bumpers to visible and audible signaling means.

It will be obvious to those skilled in the art that many changes may be made in the devices herein shown and described, all without departing from the spirit of the invention; and, therefore, I do not limit myself to what is shown in the drawings and described in the specification, but only as indicated in the appended claims.

Having thus fully described my invention, what I claim is:

1. A football training device for speeding up the action of a plurality of players, comprising a rigid frame, pads yieldably supported on the frame for individual movement by the players, signaling means, and means for operating the signaling means when all of the pads have been moved to a given extent against the action of their yieldable supporting means.

2. A device for speeding up and synchronizing the action of a football squad, comprising a rigid frame, pads carried by the frame, yieldable means for holding the pads in an idle position, individual signals related to the respective pads, a common signal, connections for operating the individual signals as the corresponding pads are moved against the action of said yieldable means, and connections for operating the common signal only when all the pads have been moved to a predetermined extent against such action.

3. A football practice device comprising a frame, a horizontal series of bumpers along one side only of said frame, means for supporting said bumpers including devices guiding individual bumpers for linear movement transversely of said frame, and yieldable means normally holding the bumpers at the limit of their movement away from said frame.

4. A football practice device comprising a frame, a series of bumpers thereon, means for supporting said bumpers including devices for guiding individual bumpers for linear movement transversely of the frame, yieldable means normally holding the bumpers at one limit of their movement a control box, electric lamps arranged therein, and connections from the individual lamps to individual bumpers for energizing said lamps as the respective bumpers are moved to predetermined position by a player against the resistance of said yieldable means.

5. A football practice device comprising a frame, a series of bumpers, means for supporting

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said bumpers including devices guiding individual bumpers for movement toward and from said frame, yieldable means normally holding the bumpers at one limit of their movement, an audible signal, and; connections from the bumpers to the signal for operating the same only when all the bumpers have assumed positions at a predetermined distance from their normal position.

6. A football practice device comprising a frame, a series of bumpers, means for supporting said bumpers including devices guiding individual bumpers for movement toward and from said frame, yieldable means normally holding the bumpers at one limit of their movement and individual signaling means operable by movement of said bumpers as each one reaches a predetermined position, and another signaling means operable by said bumpers when all the bumpers of a set have reached a predetermined position.

7. A football charging sled having a row of upstanding levers at its rear side, yieldable means for normally holding said levers in a normal idle position, bumpers on said levers, means at the front of the sled for supporting an observer, signals for the respective bumpers located adjacent the observer's support, and operating connections from said bumpers to said signaling means for actuating each signal as its bumper reaches a predetermined position.

8. A football training device comprising a frame, a bumper yieldably mounted thereon at a height for contact by a charging football player, a signaling device, and means for closing an electric circuit to said signal upon movement of the bumper to a predetermined extent.

9. In a device for training football players to act in synchronism, the combination of a sled, bumpers movably mounted upon the sled, an individual signal for each one of a set of bumpers, connections from each individual bumper to a signal for operating that signal when the corresponding player has moved his bumper to a predetermined extent, a signal common to all of the bumpers of the set, and connections from the bumpers to the common signal for operating the common signal only when all of the players have moved their bumpers to a predetermined extent.

10. In a device for training football players to act in unison, a sled, bumpers movably mounted thereon, a signaling means on the sled, and connections from the bumpers to the signaling means for giving a signal only when all the bumpers of a group have been moved to a predetermined extent.

11. In a device for training football players to act in unison, a sled, bumpers movably mounted on the sled, signaling means on the sled, an electric circuit in which said signaling means is connected, and switches in said circuit for each individual bumper, each of said switches being operable by movement of its bumper, whereby a signal will be given when all the bumpers have been moved sufficiently to close their switches.

12. In a device for training football players, a

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sled, audible signaling means on the sled, an electrical circuit in which said signaling means is connected, an independent bumper on said sled for each of a group of players, a separate circuit closer in said circuit for each of said bumpers, each bumper having means carried thereby for operating its individual circuit closer as the player completes a charging or blocking operation, whereby said signal is operated only when all of the bumpers are actuated.

13. In a football practice device, the combination of a rigid frame, a series of levers along a side of the same and pivoted at their lower ends to swing toward and away from the frame, means tending to swing the levers away from the frame, means limiting such movement, means for guiding the levers in such movement, a bumper on the upper end portion of each lever, a circuit including a circuit closer for each lever, said circuit closers each comprising a plunger on the lever movable through a hole in the frame and a fixed element at the opposite side of the frame in position to be engaged by the corresponding plunger upon movement of the lever to a predetermined extent, whereby the signal is operated only when all the levers have been so moved.

14. In a football practice device, the combination of a rigid frame, a lever pivoted thereon adjacent the lower part of said frame, a bumper on the lever approximately at the shoulder height of a charging football player, a guide rod extending from the upper end of the lever into a hole in an adjacent portion of the rigid frame, yieldable means forcing the upper end of the lever away from the rigid frame, a fixed circuit closing member on the frame, a circuit closing member at an intermediate position on the lever and movable therewith toward the frame and into circuit closing relation with the fixed circuit closing member for closing a circuit upon movement of the lever toward the frame, and a signal operated upon closing of the circuit.

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