MECHANICAL FOOTBALL CENTER TRAINING DEVICE

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This invention is related to improvements in football training mechanisms. Particularly, it relates to a training device to be used by quarterbacks in practicing reception of the ball at the start of a play.

The primary object of this invention is to provide a novel, simple, spring operated movable device for delivering a football into the hands of the player in an action simulating the motion of the player at the center position of a football team at the snap of the ball which starts a football play.

The further object is to provide a device of this character which is easily set in starting position, which can be released by a motion comparable to that exercised by a quarterback in signaling a center to "snap" the ball, and which enables a movement of parts of the device incident to the delivery of the ball to the quarterback in a manner which simulates the charging movement of a player at center position occurring simultaneously with the delivery of the ball.

The further object is to provide a device of this character which enables a quarterback to assume any position or maneuver in ball handling which he desires; such as those maneuvers known as roll-outs, sprint-outs, spin-outs, reverse-pivots, drop-backs and split-T techniques.

Other objects will be apparent from the following specification:

In the drawings:

FIG. 1 is a perspective view of the device in its "cocked" position.

FIG. 2 is a perspective view of the device in its ball delivering position.

FIG. 3 is a view of a modified construction of the device in its "cocked" position in side elevation, with parts broken away.

FIG. 4 is a view of the device in side elevation and in ball-releasing position, with parts broken away.

FIG. 5 is a fragmentary detail sectional view taken on line 5—5 of FIG. 5.

FIG. 6 is a detailed sectional view taken on line 6—6 of FIG. 5.

FIG. 7 is a perspective view of an attachment usable with the device.

Referencing the drawings which illustrate the preferred embodiment of the device, the numeral 10 designates a pair of generally arch-shaped rigid frame members preferably formed of metal tube stock, bent to provide a forward downturned end portion 12 and a rear downturned end portion 14 mounted on a ground-engaging plate 14. The frame members 10 are preferably similar and are fixedly interconnected by a crossbar 16, a front upper transverse pivot member 18, and a rear upper transverse pivot member 20. A wheel 22 is rotatable on an axle 24 interconnecting the lower parts of frame parts 12. The rear portions of frame members 10 which mount the plates 14 preferably diverge downwardly and rearwardly so that a firm or stable support is provided by the rear plates 14 and the wheel 22.

A pair of rigid horizontal bars 24 are fixedly secured to the front of the frame at or adjacent the transverse frame member 16 and project rearwardly divergently therefrom. Bars 24 are preferably secured to the rear portions of the frame members 10 and project therebetween to terminate at points spaced above the respective plates, 14. A transverse member 26 is secured to and extends between the bars 24 intermediate the length thereof and adjacent to and below the transverse member 20.

A pair of lower leg-simulating members 30 are provided in the device respectively pivotally mounted at 32 at the rear ends of the bars 24, and extend downwardly therefrom. A guide bar or link 34 is pivotally connected to the lower end of each bar 30, being preferably of substantially L-shape to pass outwardly around the lower end of the adjacent part 10 and forwardly therefrom for pivotal connection to a pivoted lever 36 having a pivotal connection at 38 intermediate its ends with the adjacent part of part 10.

Two upper leg-simulating members 40 are pivoted to frame members 24 at 32 at their lower ends, and are interconnected by a crossbar 42 at their upper ends. A tubular member 44 is pivoted to the crossbar 42 and extends forwardly therefrom for pivotal connection at its forward end to a lever unit 46, here shown as consisting of a pair of spaced substantially parallel interconnected members between which the member 44 extends. Lever unit 46 is pivoted intermediate its length at 48 upon the rear pivot member 28. Spring means, here shown as one or more coil springs 50 connected to the upper end of the lever unit 46 and to a frame member or members 10 forwardly of the pivot member 20, serve normally to urge the lever unit 46 to the position illustrated in FIG. 4.

A latch bar 52 is pivoted at one end to the transverse member 26 to extend forwardly therefrom. The latch bar 52 is provided with a notch in its upper surface providing a latching shoulder 54. A link 56 is pivoted to the forward free end of the latch bar 52, and in turn is pivotally connected at its opposite end to a trip-rod 58 which is slideable within the tubular member 44 and projects therefrom at both ends. The rear end of the trip-rod 58 preferably mounts a handle or crossbar 60. If desired, a cushioning member 62 as seen in FIG. 7 can be mounted upon the handle 60.

The lever unit 46 fixedly mounts thereon adjacent its lower end and spaced from the pivot 48 an elongated rearwardly extending delivery arm 64 upon the free end of which is secured a ball holder 66. Suitable brace means 68 secure the delivery arm 64 in desired angular relation to the lever unit 46 which supports it.

At the lower end of the lever unit 46 is mounted a crossbar or latching assembly or unit preferably including a front crossbar 70 and a rear crossbar 72 fixedly secured to the front crossbar and to a brace 68. A latch member 74, here shown as an inverted channel-shaped member, is carried by part 72 and is adapted to seat in the notch of the handle bar and to engage the latching shoulder 54 thereof in the cocked position of the device illustrated in FIGS. 1, 3 and 6. Link members 76 are carried by the rear crossbar 72 and are pivotally connected to the upper ends of the pivoted levers 36.

One or more guide members 80 are pivotally mounted upon the front transverse pivot member 18 and slidably guide therein elongated rods 82 whose rear ends are secured to the latching assembly, as at the front crossbar 70. The rods 82 project forwardly from the guide members 80 and are provided with stops 84 at their free ends. An abutment member 86 is slideable upon each rod 82 and a coil spring 88 encircles each rod 82 between the abutment member 86 and the guide member 80.

In use the device is readily moved between storage and usage locations. Thus, the rear end of the device can be grasped at the rear portions of the frame members 10 or at the members 30 or 40 and the device will bepivotally moved backwardly, the device to effect clearance of the plates 14 above the ground. The device can then be trundled like a wheelbarrow with the major portion of the weight thereof supported upon the
The major parts of the device, such as parts 10, 16, 18, 20, 24, 26, 30, 36, 40, 44, 46 and 64 may be formed of metal tubing to hold the weight of the device at a minimum and yet provide adequate strength.

FIGS. 1 and 3 illustrate the cocked or operative position of the parts of the device and FIGS. 2 and 4 illustrate the release or ball-delivering position of the device. The device is moved from its released to its cocked position by swinging the delivery arm 64 downwardly to cause the same and the lever unit 46 to swing about the rear transverse pivot member 20. This action produces rearward movement of the tubular member 44 and swinging of the upper leg-simulating members 40 in a clockwise direction; namely, (1) the delivery arm leg-simulating bars in counterclockwise direction. When the delivery arm 64 reaches operative position in which the ball holder 66 is adjacent ground level, the latch member 74 will be adjacent to the latching bar 52 and the latching shoulder 54 thereof. An outward pull upon the handle 60 and trip rod 58 will effect engagement of latch member 74 with the latch shoulder 54 as illustrated in FIG. 6, thereby holding the parts in the operating position illustrated in FIG. 3. It will be understood that the movement of the parts to the cocked or operative position will be resisted by the spring 59 and that said spring will maintain the degree of tension which will make possible variations of the speed at which the device operates. Also, it will be seen that in the movement of the members 40 and 30 forwardly from the stance taken by the quarterback will enable him to move freely in performing various maneuvers without danger of injury due to contact with the device after he receives the ball.

A slight modification of the device is illustrated in FIG. 3. In this construction, the ball delivery arm 64 is tubular and is formed of two sections 64 and 64', one of which mounts a reduced part 63 having a telescopic slide fit in the other part. A link 92 is pivoted to the frame spaced from arm pivot 48, as at 26, and is pivoted to the free end of delivery arm section 64' at 94. By this arrangement, the delivery arm is longitudinally extensible and contractible, being extended by link 92 when the device is in cocked or starting position and being contracted in the delivery position. This produces a movement of the ball between starting and delivery positions in a curved path different from that produced in a device having a single solid delivery arm, and facilitating delivery of the ball near part 42.

While the preferred embodiment of the invention has been illustrated and described, it will be understood that changes in the construction may be made within the scope of the appended claims without departing from the spirit of the invention.

I claim:

1. A football training mechanism comprising:
   a rigid frame,
   a lever pivotod intermediate its ends to said frame on a transverse horizontal axis and swinging between an operative position and a ball delivery position,
   a ball delivery arm carried by said lever and swinging in a longitudinal vertical plane,
   leg-simulating means pivoted to said lever and to said frame at the rear portion of said frame and including a part swinging forwardly and upwardly, and a spring means for urging said lever and connected parts to said ball delivery position,
   latch means including interengaging latching parts for releasably holding said lever in said operative position,
   said latch means including trip mechanism shiftable on said frame and having a member guided by and projecting from the forwardly upwardly swinging part of said leg-simulating means,
   said lever simultaneously swinging said arm to ball delivery position and swinging said leg-simulating parts forwardly and upwardly, and
   resilient compressible material, such as sponge rubber or foam plastic, may be mounted upon the member 64 to engage the cross-bar 42 and thereby cushion the stopping of member 46 by the crossbar 42.

It will be apparent that the device operates by movement of the parts in a manner simulating the movements of a center player both as to delivery of the ball into the outstretched hands of a quarterback at the position normally assumed by a quarterback, and with respect to the movements of the leg-simulating parts 30 and 40 which resemble the leg movements of a football player at center position while charging or blocking an opponent. This close simulation of the actions of a football player at center position minimizes the need for practice of a quarterback with a center, thus freeing the center during practice to engage in other activities. Another interesting characteristic of the device is that it may be used either indoors or outdoors with equal effect and enables the quarterback to practice a stance from which he can perform any of the plays which he is required to perform during a game, such as roll-outs, sprint-outs, spin-outs, reverse pivots or dropbacks.

It will be understood that suitable means (not shown) may be provided to vary the point of connection of the spring 50 with the upper end of the lever 46, and this adjustment will make possible variations of the speed at which the device operates.

The quarterback can take any stance he desires adjacent to the leg portions 30 and 40 of the device while holding his hands at or adjacent the level of the handle 60.

Thereupon a slight movement of a hand, comparable to that made by a quarterback in touching an upper leg of a center player during play to signal a snap of the ball, will contact and actuate the handle 60 as required to shift the trip-rod longitudinally in the tube 44 and swing the latch bar 53 to effect disengagement of the latching shoulder 54 thereof from the latching member 74. The release of the latching members permits the spring means 50 to come into the play, swinging the lever unit 46 counter-clockwise from the position of the FIG. 4. This movement produces three actions concurrently:
(1) the delivery arm 64 is swung upwardly to deliver the ball to the opposing team, (2) the lower leg-simulating members swing forwardly and, (3) the upper leg-simulating members swing forwardly and upwardly. The movement of the members 30 and 40 resembles the movement of the lower and upper parts of the legs of a football center as he charges forwardly to block players on the opposing team incident to and immediately following the delivery of the ball into the hands of the quarterback.

Suitable padding of the movable parts of the device incident to the delivery of the ball is provided by the coil springs 88 which are so arranged relative to parts 80, 84 and 86 that, as the movable parts of the device approach limit positions, the abutment member 86 engages the stop 84 and provides for compression of the spring 88 between the abutment member 86 and the end of the guide member 80. In other words, at some intermediate point in the stroke of the delivery member 64 the abutment member 86 is pushed into engagement with stop 84 so that subsequent movement of member 64 will entail compression of spring 88. If desired, an abutment member 90 forwardly compressible material, such as sponge rubber or foam plastic,
2. A football training mechanism as defined in claim 1, and means for slowing the movement of said ball delivery arm by said spring as it nears ball delivery position.

3. A football training mechanism as defined in claim 1, and lost motion mechanism connected with said lever and having an abutment, abutment means on said frame, and spring means interposed between said abutments and compressed thereby at a selected portion of the movement of said lever from operative position to ball delivery position.

4. A football training mechanism as defined in claim 1, wherein said lever is pivoted to said frame intermediate its ends and has pivotal connection at one end thereof with said upper part of said leg-simulating means and at its other end with said lower part of said leg-simulating means, whereby to simultaneously swing said parts in the same direction.

5. A football training mechanism as defined in claim 1, wherein said latch means includes a latch bar pivoted to said frame and shiftable by actuation of said trip mechanism and a latch member fixedly carried by said lever spaced from its pivot.

6. A football training mechanism as defined in claim 1, wherein a second leg-simulating part swinging forwardly relatively to said frame below said first named leg-simulating part and connected with said lever to be actuated thereby.

7. A football training mechanism as defined in claim 1, wherein said lever pivoted to said frame intermediate its ends and has pivotal connection at one end thereof with said upper part of said leg-simulating means and at its other end with said lower part of said leg-simulating means, whereby to simultaneously swing said parts in the same direction.

8. A football training mechanism as defined in claim 1, wherein said leg-simulating means includes upper and lower parts pivoted to swing forwardly of said frame, and

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