

Nov. 18, 1941.

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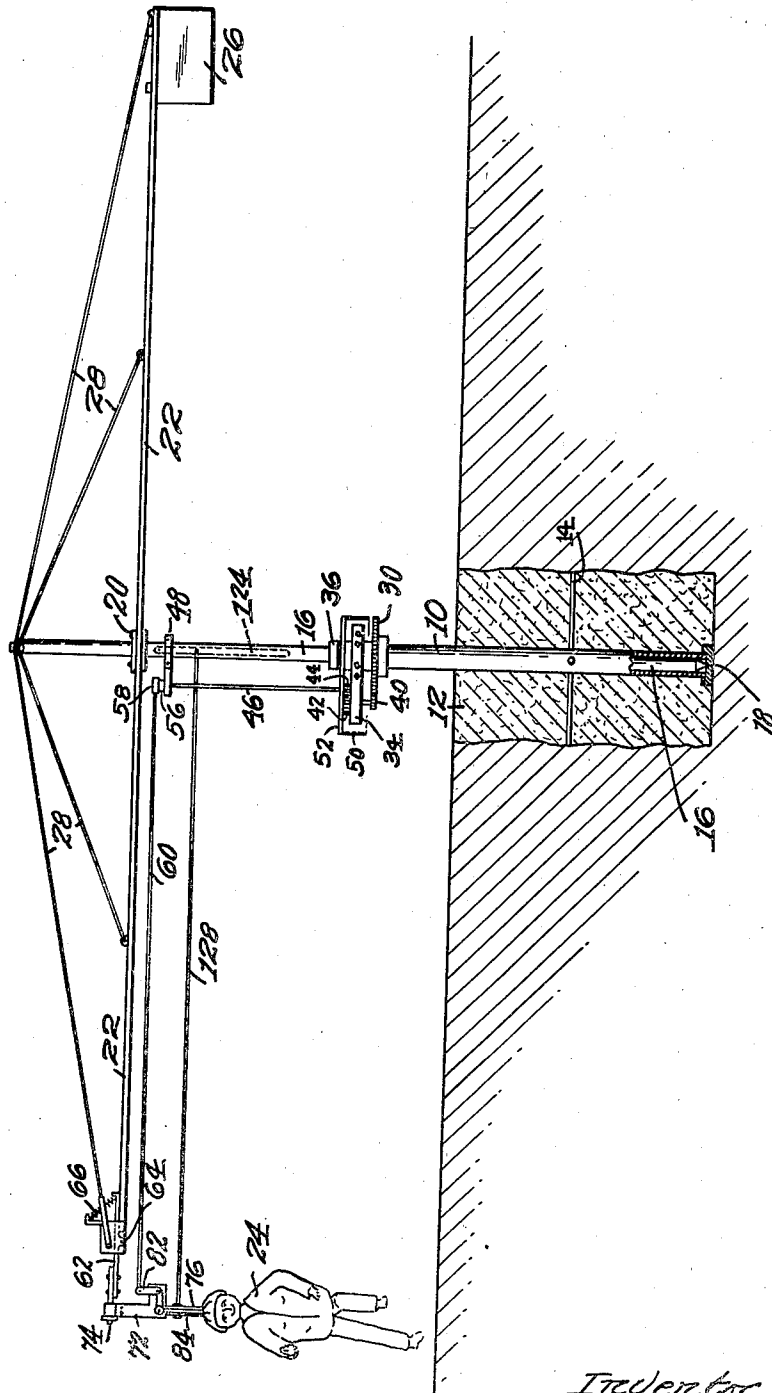
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MECHANICAL FOOTBALL DUMMY

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Fig. 1.



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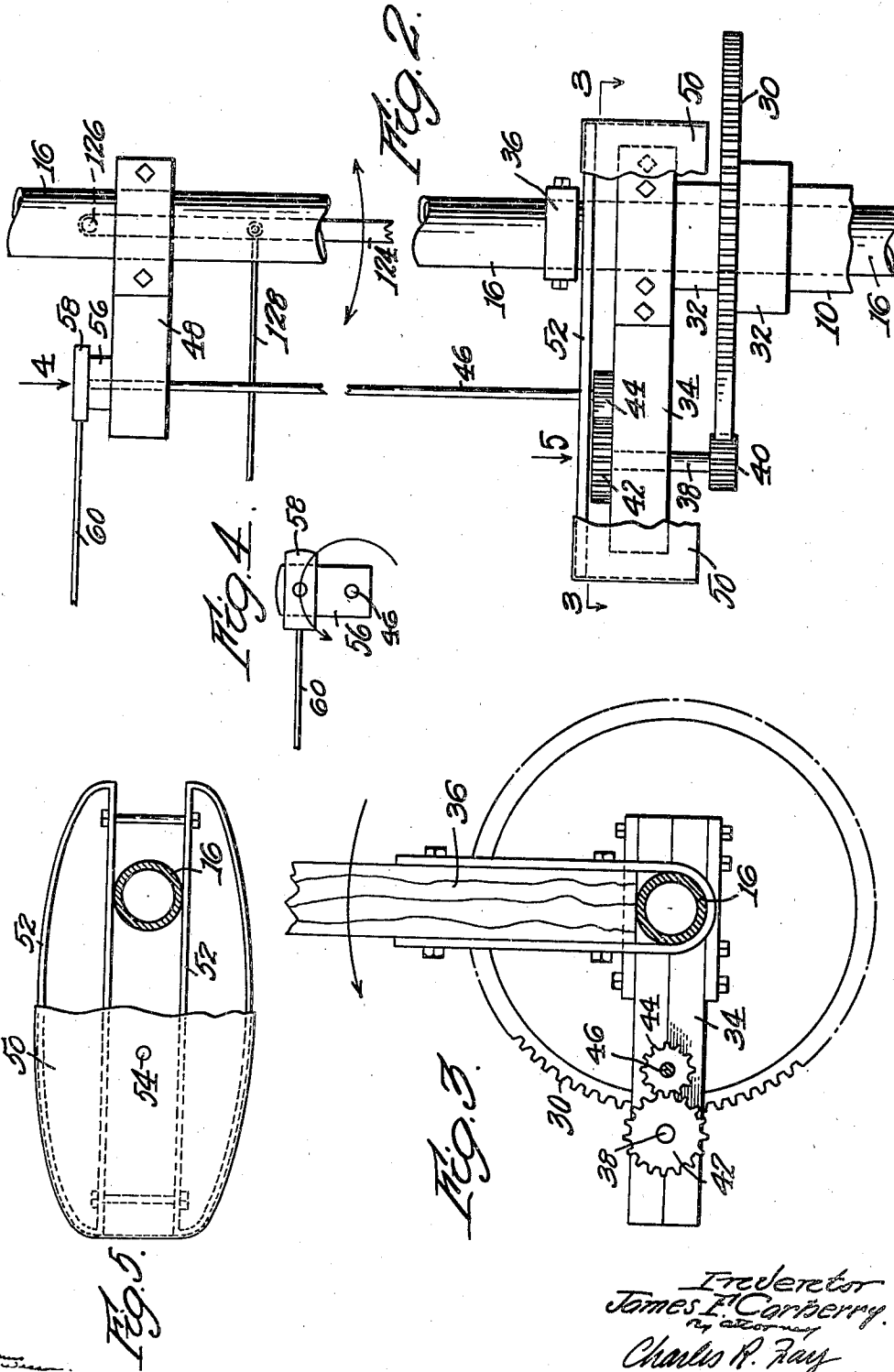
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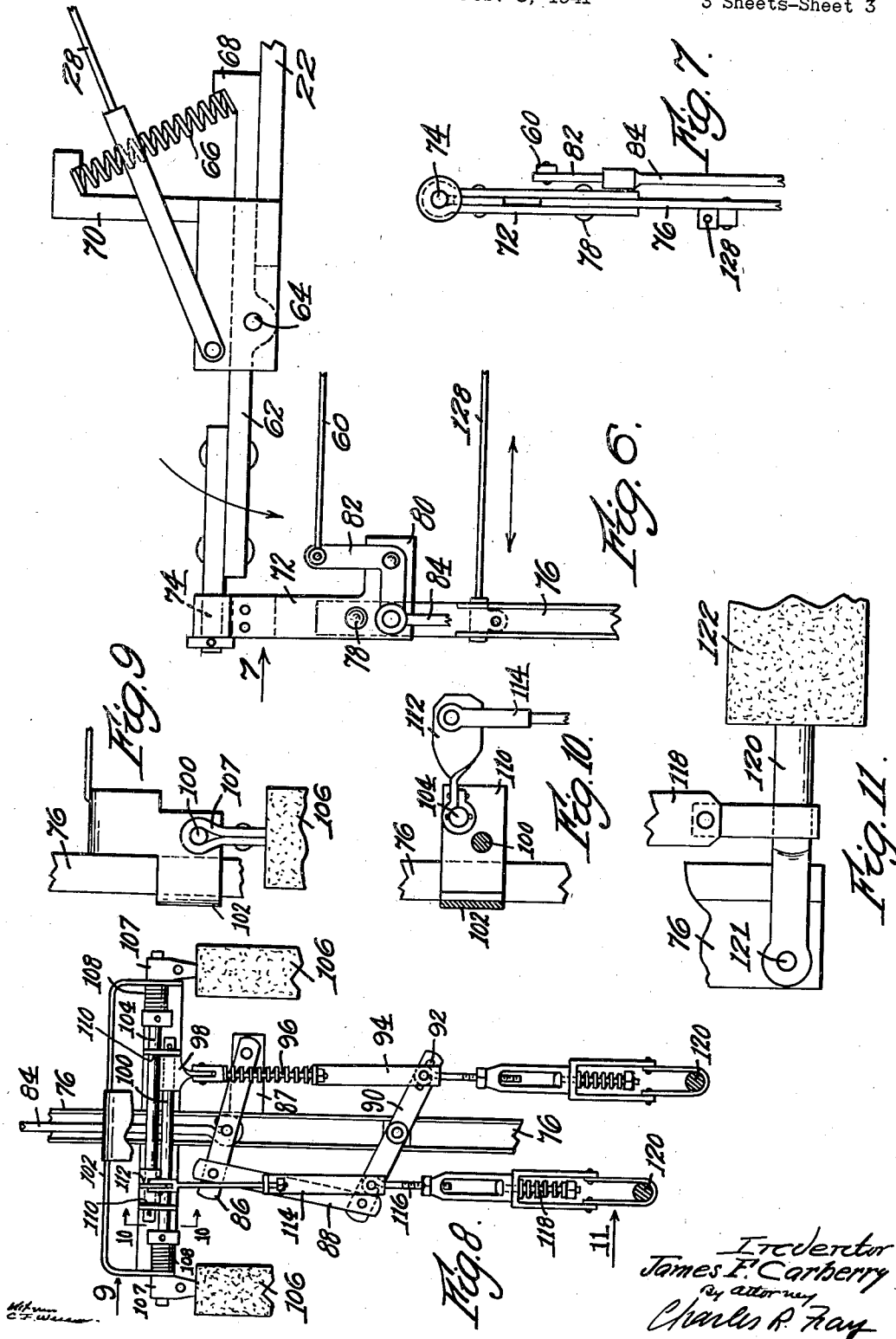
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## UNITED STATES PATENT OFFICE

2,262,883

## MECHANICAL FOOTBALL DUMMY

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10 Claims. (Cl. 273—55)

This invention relates to an improved dummy for training, drilling, and practicing for football players. At present the dummies used for this purpose are not sufficiently life-like to afford the desired practice in blocking and tackling necessary to sufficiently ground the players in these fundamentals of football.

The principal objects of this invention include the provision of an exceedingly life-like football dummy which may be made to travel at a speed approximating that of a human being; the provision of a dummy having arm and leg movements corresponding to those of a running human; provision of means whereby the dummy, while stationary or in movement may be made to simulate the dodging movement of a ball carrier when about to be tackled; provision of a dummy which may be knocked to the ground by a football player in the manner resembling that of a human; provision of a dummy which approximates the usual movements of a football player and may be blocked or tackled; and the provision of a dummy having all of the foregoing attributes and made in a comparatively inexpensive, strong, and easily operable structure.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a side elevation of the entire apparatus with its ground support in section;

Fig. 2 is a detail view of the boom turning means;

Fig. 3 is a sectional view on line 3—3 of Fig. 2;

Fig. 4 is a plan view of a part of the turning means, looking in the direction of arrow 4 in Fig. 2;

Fig. 5 is a plan view looking along arrow 5 in Fig. 2;

Fig. 6 is an enlarged view of the left hand end of the boom as seen in Fig. 1;

Fig. 7 is an end view looking in the direction of arrow 7 in Fig. 6;

Fig. 8 is a front elevation of the dummy mechanism;

Fig. 9 is an enlarged detail view looking in the direction of arrow 9 in Fig. 8;

Fig. 10 is an enlarged section on line 10—10 of Fig. 8; and

Fig. 11 is an enlarged side view of the hip joint of the dummy, looking in the direction of arrow 11 in Fig. 8.

Referring to the drawings in detail, it is to be noted that a comparatively large sized pipe 10 is sunk and fixed about six feet deep into a bed of concrete 12, reinforced by rods 14. The pipe 10 may, if desired, be supported from a floor for indoor practice. Within this pipe, there is another smaller pipe or mast 16 mounted on an

end thrust bearing 18 for rotary motion relative to the pipe 10. Mounted on bracket 20, welded or otherwise secured to the pipe or mast 16, there is a rod or boom 22 having a dummy 24 mounted at one end and a counterweight 26 at the other end. The boom 22 is restrained from sagging at its end by means of guy-wires 28 secured at appropriate points to the boom and to the top of the mast.

Fixed to the top of pipe 10, there is a large fixed gear 30 extending therearound and mounted between collars 32. A bracket 34 is fixed to the mast 16 and a handle bar 36 is also fixed thereto at substantially a right angle, so that by pushing on the handle, in the direction of the arrow in Fig. 3, the bracket will move in the same direction. A shaft 38 is journaled near the free end of the bracket, and a small pinion 40 is fixed at its other end, while a larger pinion 42 is fixed at its other end. A third pinion 44 is located to mesh with pinion 42 and a shaft 46 fixed to pinion 44 rises vertically and is journaled adjacent its top in a bracket 48 on mast 16. A cover comprising a shield 50 fitted over a pair of bracket members 52, one at each side of mast 16, is provided to protect the gearing, and this shield has an aperture 54 to accommodate shaft 46.

At the top of shaft 46, there is an eccentric 56 to which is pivoted a crank element 58 secured to a long rod 60. When handle bar 36 is moved in the direction of the arrow in Fig. 3, the element 58 moves as shown by the arrow in Fig. 4, thus reciprocating rod 60.

At the left end of the boom as seen in Fig. 1, there is an extending bar 62 pivoted thereto at 64. A compression spring 66 located between an abutment 68 on bar 62 and a bracket 70 on the boom normally maintains the bar in horizontal position, but if the dummy is tackled and brought to the ground, the spring permits the bar to pivot down in the direction of the arrow in Fig. 6.

A strap 72 is mounted to swing on a pin 74 at the end of bar 62, and this strap pivotally supports an iron 76 at 78, the iron mounting the dummy. An extending elbow 80 on strap 74 pivotally mounts a bell-crank 82 to one arm of which the end of rod 60 is pivoted, while the other arm is pivoted to a rod 84. It will be seen that as the mast and attached boom are rotated, rod 84 will be vertically reciprocated, and the pivoting of bar 62, strap 72, and iron 76 will not materially interfere with this action, due to the construction and the length of rod 60.

The mechanism of the dummy is shown in Figs. 8 to 11, a metal frame protecting the parts, and a thick body covering over the whole having been omitted from these figures to better illustrate the structure. Rod 84 is pivoted at the center of a lever 86 which is pivoted at one end to a lateral

extension 87 of iron 76. A link 88 is pivoted at the other end of lever 76 and depends to pivotally connect with an end of a lever 90, pivotally mounted on the iron 76 at its center. The other end of lever 90 has a pin and slot connection 92 with a bar 94 at the upper end of which is a slidable rod and compression spring link 96 connected to a crank 98. The crank is secured to a shaft 100 journaled in a bracket 102 which also journals a shaft 104 parallel to shaft 100. Each shaft mounts an arm 106 which pivots on its shaft by means of a strap 107 but may be resiliently secured thereto by means of coil spring 108, so that oscillation of each shaft will swing its arm, but the arms may be hit by the tackler without injury. Brackets 110 help to support the shafts.

A crank 112 on shaft 104 transmits the motion of lever 90 to this shaft and the lever is pivoted to a bar and link element 114 connected thru an adjustable link 116 and a rod and spring connection 118 to a leg 120, the latter being pivoted as at 121 to iron 76 at one end spaced from the rod and spring connection to more closely approximate the human hip joint, as shown in Fig. 11. The other leg of the dummy is constructed just as described but depends from the bar 94 directly. The legs are covered with a padding 122 and may curve downwards to resemble a knee and boot, this not being shown here.

A hand lever 124 is pivoted to the mast 16 at 126 and has a long rod 128 connected thereto and to iron 76 as described in my co-pending application Serial No. 289,669, filed August 11, 1939, of which this application is a continuation-in-part.

It will be seen that as the mast is rotated by handle bar 36, rod 60 will reciprocate and thus oscillate the arms and legs of the dummy, which therefore moves forwardly and appears to run and swing its arms and legs. At the same time, the dummy can be dodged transversely to its path of movement and may be brought to the ground without injury to the tackler or to the mechanism.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. In a football training apparatus, a fixed support, a mast rotatably thereon, a boom on the mast, a tackling dummy having movable limbs and suspended from the boom, means adapted to move said limbs in a predetermined sequence, and cooperating means on the support and mast effective to actuate said limb moving means upon rotation of said mast.

2. In a football training apparatus, the combination of a fixed support, a mast rotatable thereon, a boom on said mast, a dummy having movable limbs suspended from one end of the boom, and means in said dummy adapted to move said limbs; with means on said support and said mast effective to actuate said limb moving means when said mast is rotated, said second named means comprising a rod mounted for reciprocation, a connection between said limbs and said rod, and means to reciprocate said rod.

3. In a football training apparatus, a fixed support, a mast rotatably mounted on said support, a boom on said mast, a dummy on said boom, movable limbs on said dummy, mechanism in said dummy adapted to move said limbs, a shaft mounted on said mast for revolution thereabout and rotatable on its own axis, means on said support adapted to rotate said shaft upon

rotation of the mast, and means connected between said shaft and said mechanism adapted to actuate the latter upon rotation of said shaft.

4. In a football training apparatus, a fixed support, a mast rotatably mounted on said support, a boom on said mast, a dummy on said boom, movable limbs on said dummy, mechanism in said dummy adapted to move said limbs, an element fixed to said support, a shaft mounted on said mast, means associated with said shaft adapted to rotate it by contact with said element upon rotation of said mast, and means connected between said shaft and said mechanism adapted to actuate the latter upon rotation of said shaft.

5. In a football training apparatus, a fixed support, a mast rotatably mounted on said support, a boom on said mast, a dummy on said boom, movable limbs on said dummy, mechanism in said dummy adapted to move said limbs, a gear fixed to said support, a bracket fixed to said mast and mounting a gear meshing with said first named gear, a shaft connected with said second-named gear and mounted on said mast, a crank on said shaft, a rod connected to said crank to be reciprocated thereby, and a connection between said rod and said mechanism whereby the latter is actuated by said rod when the mast is rotated.

6. A football training apparatus, as recited in claim 5 wherein said connection comprises a bell-crank, said rod being connected to one arm thereof, and a link connected to the other arm, said link being pivoted to a lever, said lever comprising a part of said mechanism.

7. A football training apparatus comprising a fixed support, a mast rotatable thereon, a boom on said mast, a pivot, a member in extension of said boom mounted on said pivot, a strap pivoted on said extension, an element pivoted to said strap on an axis at right angles to said pivot, a dummy on said element, and means to rotate said mast.

8. A football training apparatus as recited in claim 7 in which said dummy is provided with movable limbs, and cooperating means on said fixed support and said mast to actuate said limbs, said means deriving motion from the relative rotation of said mast and support.

9. A football training apparatus comprising a fixed support, a mast rotatably mounted thereon, a shaft mounted on said mast for rotation therewith and for rotation on its own axis, means on said support adapted to rotate said shaft as said mast is rotated, a rod, means on said shaft to reciprocate said rod, a boom on said mast, an element depending from said boom and supporting a dummy, a lever pivoted at one end to said element in said dummy, a connection between said rod and the center of said lever to oscillate the latter, a second lever pivoted at its center to said element, a limb connected to one end of said second lever, a shaft in said dummy, a connection between said limb and said shaft to oscillate the latter, and a second limb connected to said shaft to be oscillated thereby.

10. In a football training apparatus, a fixed base, a support on said base, means to travel said support, a tackling dummy having movable limbs mounted on said support to travel therewith, means adapted to move said limbs in a desired sequence, and cooperating means on said base and support effective to actuate said limb moving means upon relative movement of said support and said base.

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