Dec. 12, 1939. R. A. NOOR 2,183,465

FOOTBALL CHARGING MACHINE

Filed Sept. 16, 1937

Fig. 1.

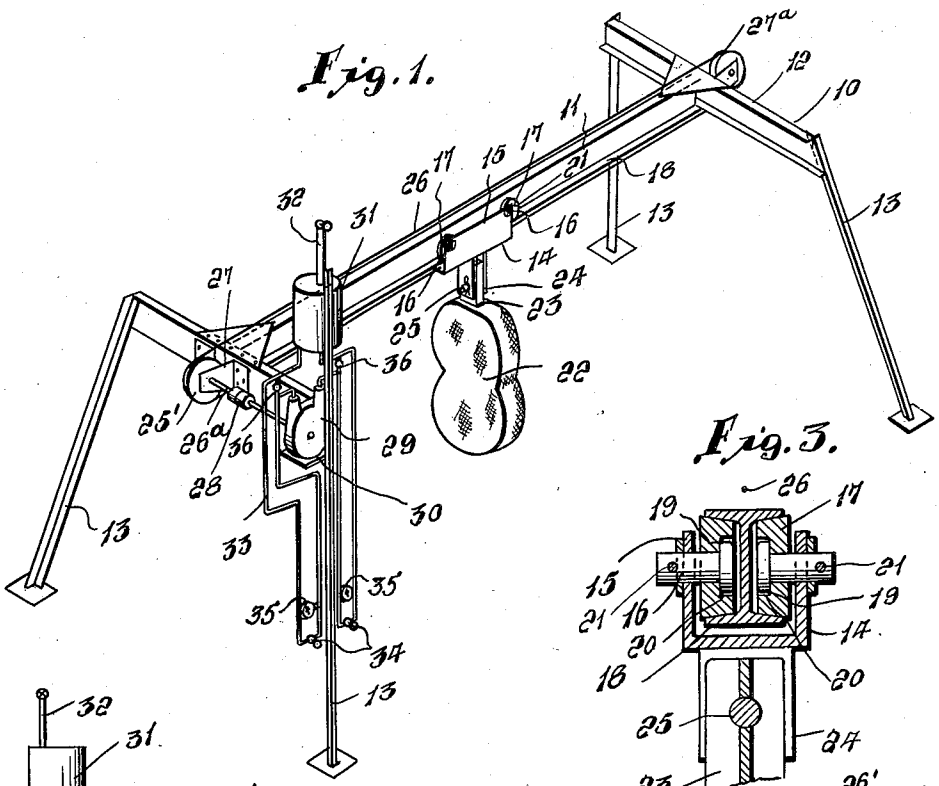


Fig. 3.

Fig. 2.

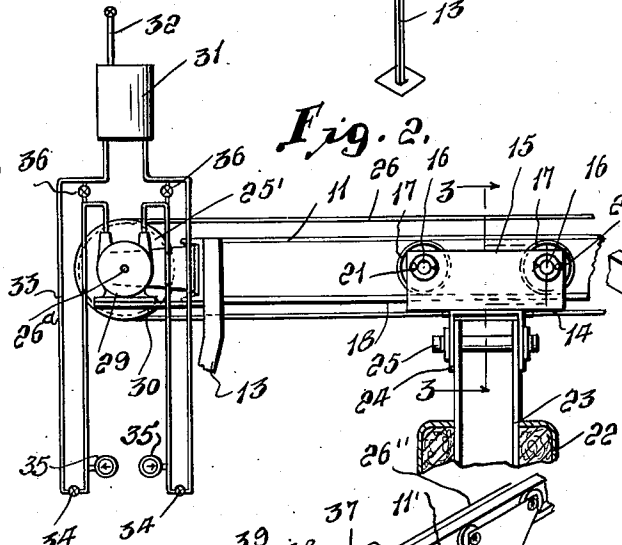


Fig. 4.

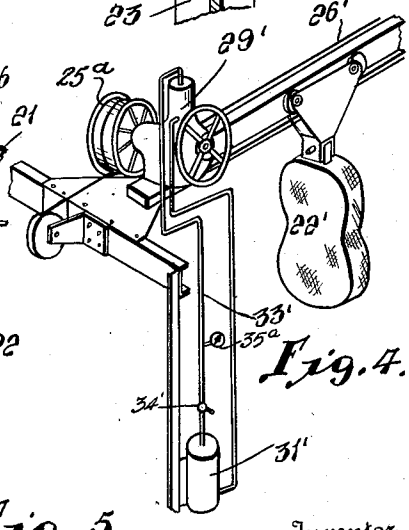
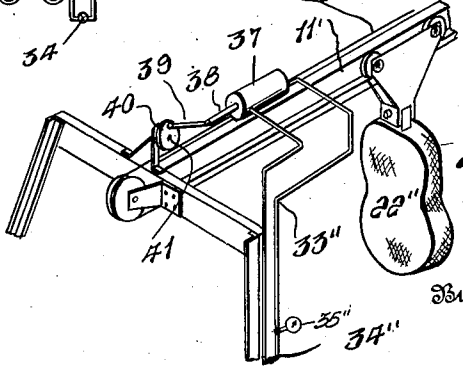


Fig. 5.



Inventor

R. A. Noor

By A. F. Randolph

Attorney

Patented Dec. 12, 1939 2,183,465

UNITED STATES PATENT OFFICE

2,183,465

FOOTBALL CHARGING MACHINE

Robert A. Noor, Tuscumbia, Ala.

Application September 16, 1937, Serial No. 164,250

6 Claims. (Cl. 265—20)

This invention relates to an apparatus or machine designed primarily for use in developing the leg drive of football linemen, being especially adapted to younger players who have not been able to keep their feet while charging or carrying out an opposing lineman. The structure also functions as an aid to the coach in determining how much one or two players are able to move and to judge the improvement over a given period of time. With such an apparatus, the fundamentals of shoulder blocking, body blocking and charging can be mastered in a short time, with a saving of time and injuries to "dummy" players.

It is essentially aimed to provide such an apparatus or machine wherein a resisting means or unit is employed to counteract the movement of the dummy after the charge of the player, such resisting means preferably being hydraulic, pneumatic or any equivalent.

It is further aimed to provide such a structure wherein the dummy is movably mounted so as to permit the coach to judge uneven pushing by players.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawing illustrating an operative embodiment.

In said drawing:

Figure 1 is a view in perspective of one form of the apparatus;

Figure 2 is a fragmentary side elevation of the apparatus of Figure 1;

Figure 3 is a vertical sectional view taken on the plane of line 3-3 of Figure 2;

Figure 4 is a fragmentary perspective view of a modified form wherein the oil or liquid container is mounted below the pump, and

Figure 5 is a fragmentary perspective view of another modified form of the invention.

Referring specifically to the drawing wherein like reference characters designate like or similar parts, a suitable supporting structure is provided as at 10. Such structure includes a track or beam 11 which may advantageously be a metallic I beam. Cross bars or beams 12 are connected to the end of the beam 11 and from the ends of the cross bars 12, posts or legs 13 depend, being anchored in the ground or otherwise fastened to a suitable support.

A trolley or carriage 14 is adapted to travel longitudinally of the beam 11. Said carriage or trolley 14 is preferably of U-shape as shown in Figure 3 with its upstanding arms 15 detachably mounting pins 16, on which rollers 17 are journaled and which travel on the inner surfaces of the lower flanges 18 of said beam 11.

Said rollers 17 are held in place by heads 19 which are countersunk into recesses 20 of the rollers. Cotters 21 may be passed through the pins 16, to prevent accidental detachment thereof.

A dummy 22 of any desired construction has a shank 23 rising therefrom which is disposed within a depending U-shaped bracket 24 on the trolley or carriage 14 and which is detachably and pivotally connected by means of a bolt 25 passing through the shank 23 and bracket 24.

The opposite ends of a cable or equivalent flexible element 26 are fastened to the opposite ends of the trolley or carriage 14. Said cable 26 is trained over a guide pulley or sheave 27^a, suitably mounted on one of the cross bars 12 and also a pulley or sheave 25' carried by a shaft 26^a journaled in suitable brackets 27 fastened to the other cross bar 12. Said shaft 26^a includes a flexible coupling 28 and the shaft is adapted to drive the rotor or impeller of a conventional centrifugal liquid pump 29 which is supported in any suitable manner as by means of a bracket 30 connected to the adjacent cross beam 12.

A liquid container 31 having a vent 32, is associated with the said pump 29 and separate conduits 33 lead from the pump to the container. Each conduit 33 has a regulating valve 34 therein, a pressure gauge 35 therein constituting an indicator and a check valve 36 therein. Since the container 31 is above the pump 29, it renders the pump self-priming.

The dummy 22 may be charged by a player from either direction, which will correspondingly move the trolley or carriage 14, imparting movement to the cable 26, causing the latter to drive pulley 25', shaft 26^a and operate the pump 29. One check valve 36 operates when the charge is from one direction and the other check valve operates when the charge is from the opposite direction.

The check valve operation will open when the respective pump inlet is on suction, thus by-passing the needle valve. The check valve closes when the respective pump outlet is on discharge. It is to be understood that the pump 29 is reversible so that the players may push the dummy 22 from either side. Due to the fact that the dummy 22 is pivoted as at 25 the coach may judge uneven pushing by players, as it will throw the dummy out of the central location.

A modified form is suggested in Figure 4. The

pump, equivalent to that at 29 is shown at 29' and its impeller or rotor is operated by a pulley or sheave 25a around the periphery of which a cable 26' equivalent to that at 26 passes. This form will operate in one direction of pushing of the dummy 22' since it has but one conduit 33', equivalent to that at 33. Conduit 33' includes a pressure gauge 35a. A valve 34' is provided in conduit 33. It will be noted that the container in such conduit, as at 31' is below the pump rather than above it as in Figure 1. Otherwise the structure conforms to that previously described.

Another modified form is disclosed in Figure 5. In this form, the difference consists primarily in providing a pneumatic cylinder 37 which is suitably mounted on the beam 11', equivalent to that at 11. The pump has a piston, to the rod 38 of which a pitman 39 is pivoted and driven by an eccentric 40 suitably journaled at 41 on the beam 11'. The cable here designated 26'' contacts the periphery of the eccentric 40 so as to rotate the same upon impact against the dummy 22'' through the rotation of which the cylinder 37 is operated. Such cylinder has a conduit communicating at opposite ends therewith on opposite sides of its piston, the conduit being designated 33'' and including as in the other form, a pressure gauge at 35'' and a regulating valve at 34''.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

1. Apparatus of the class described including a support, a dummy, a carriage for the dummy, said carriage and dummy being bodily movably mounted on the support, fluid means to resist the movement of the carriage and dummy caused by the impact of the player with said dummy, indicating means operable by the fluid means and means operable to vary the resistance offered by said fluid means.

2. A football practice apparatus comprising supporting means, a dummy, said dummy being movably mounted on the supporting means, hydraulic means for resisting movement of the dummy caused by impact of the player with said dummy, said hydraulic means including a pump, an operating shaft for the pump, cable means operable by the dummy to drive the pump, a container for fluid to the pump, separate conduits from the container to the pump, said conduits having check valves operable by movement of fluid in opposite directions, pressure gauges in the conduits, and regulating valves in the conduits.

3. A football practice apparatus comprising supporting means, a dummy, said dummy being movably mounted on the supporting means, means for resisting movement of the dummy caused by impact of the player with said dummy, said last means comprising a hydraulic system including a pump, a cable operable by the dummy and in operative relation to the pump, a container for fluids, and a pressure gauge.

4. A football practice apparatus comprising supporting means, a dummy, said dummy being movably mounted on the supporting means, means for resisting movement of the dummy caused by impact of the player with said dummy, said last means including a cylinder and piston operable therein, a conduit in communication with the cylinder on opposite sides of the piston, a pressure gauge in the conduit, an eccentric operable through the movement of the dummy, and means to operate the piston through movement of the eccentric.

5. A football practice apparatus comprising supporting means, a dummy, a carriage for the dummy, said carriage and dummy being bodily movably mounted on the supporting means, means for resisting movement of the carriage and dummy caused by impact of the player with said dummy including an impact indicator, and means pivotally mounting the dummy constraining pivotal movement of the latter to a path at an angle to its path of bodily movement.

6. A football practice apparatus comprising supporting means, a dummy, said dummy being movably mounted on the supporting means, hydraulic means for resisting movement of the dummy caused by impact of the player with said dummy, said hydraulic means including a pump driven by the movement of the dummy and carriage, a container for fluid to the pump, separate conduits from the container to the pump, said conduits having check valves operable by movement of fluid in opposite directions, and pressure gauges in the conduits.

ROBERT A. NOOR.