Oct. 30, 1928. 1,689,865

H. F. DAVIS ET AL

GAME INDICATOR

Filed Jan. 28, 1927

Fig. 1.

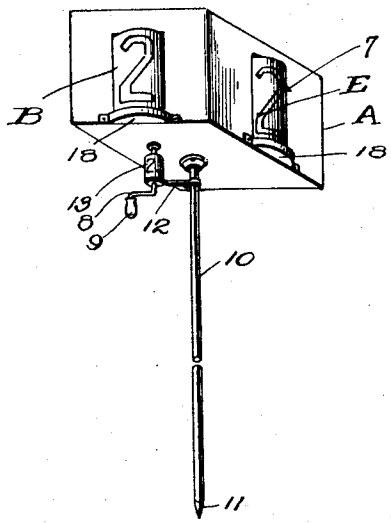


Fig. 2.

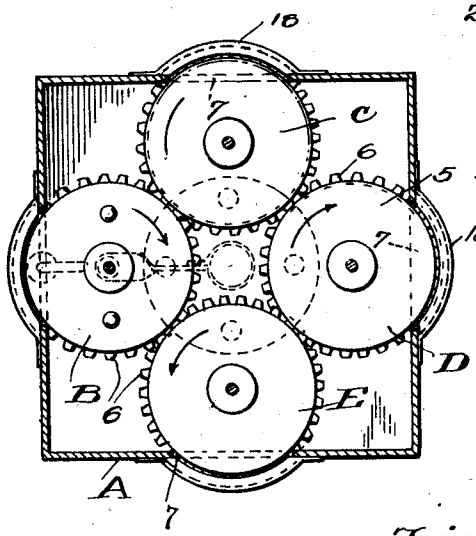


Fig. 3.

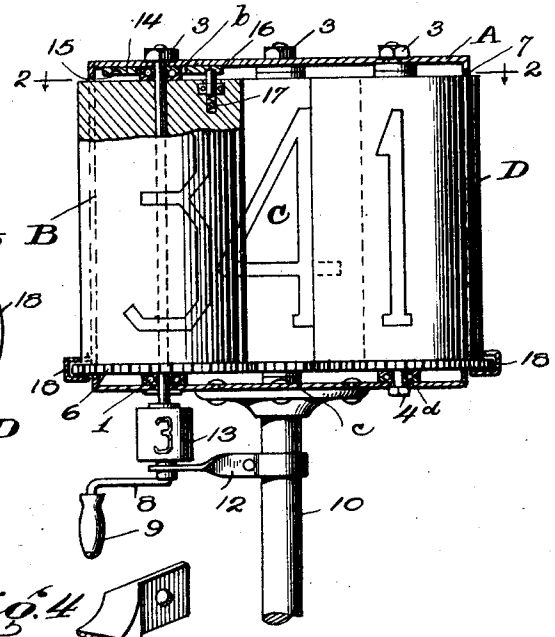
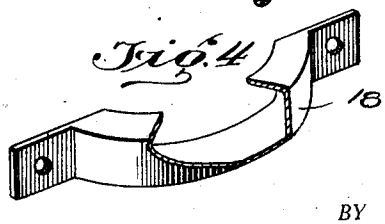


Fig. 4.



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GAME INDICATOR.

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This invention relates to indicating devices, and more specifically to indicators adapted for use at football games.

As is commonly known, in playing the game of football of the present day, the team carrying the ball is allotted four plays in which to advance the ball ten yards. The playing field is marked with transversely extending lines spaced at ten yard intervals. The termination of each play is called a "down," and linesmen are utilized for the purpose of more or less accurately determining and indicating the yardage gained on each play or "down." If the necessary total of ten yards is not gained in the four downs the ball passes to the opposing team. If the ten yards is gained however, the team carrying the ball retains possession thereof, and is allowed four more downs in which to gain another ten yards.

It is the duty of the referee to keep count of the number of downs, while the linesmen are measuring the aggregate yardage and, during very exciting games, disputes often arise as to the number of the down just played, the umpire, the referee and the linesmen deciding the point between them, thereby materially delaying the game.

Many thousands of spectators customarily view the football games of the present day, and a very large majority of them are vitally interested in the number of the down last played or to be played. After each down the linesmen place a staff along the edge of the field in line with the position of the ball, and the spectators are thereby advised as to the necessary yardage to be made without sacrifice of the ball, but have no means of being positively informed as to the number of the down.

The object of the present invention is the provision of means whereby to indicate to the officials of the game, and to the spectators in all parts of the field, the number of the down last played or to be played.

Other objects of the invention will be made apparent in the following specifications when taken in connection with the accompanying drawings forming a part thereof.

In said drawings:

Fig. 1 is a perspective view of the indicating device forming the subject matter of this application.

Fig. 2 is a transverse section taken laterally through the device.

Fig. 3 is a side plan view, with one side of the casing and the proximate indicating cylinder removed, and,

Fig. 4 is a perspective view of a guard used to cover a portion of the gear-teeth carried by the indicating cylinders.

Now referring specifically to the drawings, in which like reference characters indicate like parts throughout the several views, A is a housing, preferably of rectangular formation and formed of sheet metal, and B, C, D and E are tubular cylinders axially rotatable within the housing A, it being noted that each cylinder is mounted on a shaft extending therethrough, the shafts being indicated by *b*, *c*, *d* and *e*. Each of the shafts preferably extends through bearing plates 1 and 2 provided with a track for anti-friction rollers, as best shown in Fig. 3, nuts 3 and 4 being provided at the protruding ends of the shafts, as illustrated.

Each of the cylinders B, C, D and E is provided on its lower surface with a spur gear 5, preferably cut from a hard fiber disk, the teeth 6 of the gears 5 extending laterally beyond the body of the cylinder and intermeshing with the teeth on the gear 5 of the adjacent cylinders, whereby rotation of one cylinder will cause an oppositely directed rotation of the adjacent cylinder, as will be understood.

Each side face of the casing A is provided with an opening or cut-away portion 7, about 5½ inches wide, through which the rounded wall of the cylinders may project, as illustrated, and each cylinder sequentially carries on its quarter faces, the numbers 1, 2, 3 and 4. It is to be understood however that, if cylinders B and D are rotating in one direction, the cylinders C and E are rotating in the opposite direction, and consequently, since it is desired that the same numbers simultaneously appear through the openings 7 on all sides of the housing A, the numbers on the cylinders B and D will run from 1 to 4, while on the cylinders C and E will run reversely, or from 4 to 1.

As here shown, cylinder B is the master cylinder, the shaft *b* thereof being fixed to the gear 5, and extending downwardly through the floor of the housing A, and terminating in an offset portion 8, carrying an operating handle 9. The housing A is centrally provided on its bottom surface with a staff 10 carrying a pointed metallic lower

end 11, adapted for insertion into the ground. The staff 10 is of a length such that, when the lower end 11 rests upon or in the ground, the housing A is above the head of the ordinary linesman who carries the device. A bracket 12 extends laterally from the staff 10, the outer end of said bracket forming a bearing for the shaft *b* of the cylinder B. Directly above the outer end of the bracket 12 and supported thereby, is a smaller indicator 13 fixed upon the shaft *b*. The indicator 13 is preferably of cylindrical configuration and carries on its outer surface the numbers 1, 2, 3 and 4, arranged in the order of the numerals carried by the master cylinder B. Since the indicator 13 is rotatable with the shaft *b*, which, in turn rotates with the cylinder B, it follows that, with the numbers arranged as above set forth, when the number 2, for instance, is exposed through the opening 7 on the cylinder B, the same number will be facing in the same direction on the indicator 13.

In operation, the linesman carries the device along the side margin of the playing field, and in line with the point where the ball is at rest after a play or down, grasping the staff 10 just below the bracket 12. After each play, and while the end 11 is at rest on the ground, he manipulates the handle 9 to rotate the shaft *b* one quarter revolution. A glance at the small indicator 13 directly in front of him, advises him as to which numeral on the cylinder B is exposed through the opening 7, the same numeral on all the other cylinders being similarly exposed, but facing in different directions. If the exposed numeral on the cylinder B is 2, the spectators and officials are apprised of the fact that the next play will be the second down, or that the preceding play was the second down, according to whatever method of indication may be adopted. It is understood however, that the officials in the playing field, and the spectators, obtain their information from the large numerals on the cylinders B, C, D and E becoming exposed as the shaft *b* is rotated, and that the same numeral is exposed on all four cylinders at the same time, all facing in different directions, and one at least being visible from any part of the field or seats. It is to be noted that, since the cylinders actually project through the openings 7, the numerals are visible at more points in the field than would be the case if the numbers were flush with the face of the housing A. The linesman is below the housing A, and depends for accuracy upon an inspection of the small indicator 13.

In order to positively assure that the exposed numbers carried by cylinders B, C, D and E are accurately positioned in the center of the openings 7, an automatic stop device is provided for the cylinder B. Such device comprises a circular fiber disk 14, secured to the top of the housing A, surrounding and fixed to the shaft *b*, and concentric with the cylinder B. In each quadrant of the disk 14, is provided a rounded depression or socket 15. A small friction detent 16, controlled by a spring 17, is mounted adjacent the inner top periphery of the cylinder B, the detent 16 normally extending above the top edge of the cylinder, as shown in Fig. 3 in line with the sockets 15. The sockets 15 are so placed in the disk 14 that, when a numeral on the cylinder B is accurately centered in the opening 7, the detent 16 will enter the socket 15, and detachably lock the cylinder in that position. Further rotation of the shaft *b* will depress the weak spring 17 however and permit the socket 15 to ride over the end of the detent 16 under rotation of the disk, and into another socket 15, as will be understood.

A guard member 18 is fixed to the lower portion of each side of the housing A, directly below the opening 7, the function of this member being to house the exposed gearing on the cylinders B, C, D and E.

From the foregoing it will be obvious that we have provided an indicating device which not only displays, to all parts of the playing field and to the spectators, an indication of the number of the next down, but which simultaneously informs the operator as to the position of the cylinders in the housing A. The numerals on the cylinders B, C, D and E are very large, and preferably bold-face white on a black back-ground so as to be very clearly visible.

The cylinders and housing may be constructed of light wood, or of light sheet metal.

Various modifications of the structure hereinin described may be suggested to those skilled in the art, but our invention covers all embodiments falling fairly within the scope of the appended claims.

We claim:

1. A device of the character described comprising a casing having a plurality of openings all facing in different directions, a cylinder axialy rotatable in said casing adjacent each opening, said cylinder being parallel, and having their centers spaced to define a polygon, one of said cylinders being mounted on a shaft extending below the casing, a handle on said shaft whereby to rotate said cylinder, gearing connecting said cylinder with all the other cylinders whereby they will rotate in unison, and a series of indicating characters carried by each cylinder, substantially as and for the purpose set forth.

2. A device of the character described comprising a casing having a plurality of openings all facing in different directions, a cylinder exially rotatable in said casing adjacent each opening, said cylinders being parallel, and having their centers spaced to define a polygon, one of said cylinders being mounted on a shaft extending below the casing, a handle on said shaft whereby to rotate

said cylinder, gearing connecting said cylinder with all the other cylinders whereby they will rotate in unison and to a like degree, a series of indicating characters carried by each cylinder, and a device on said shaft, outside of said casing, adapted to visually indicate the position of all said cylinders.

3. A device of the character described comprising a casing having a plurality of openings all facing in different directions, a cylinder rotatively mounted in the casing adjacent each opening, said cylinders being parallel, and having their centers spaced to define a polygon, each cylinder being provided with a series of designating characters, a gear wheel carried by an end of each cylinder and in mesh with a similar gear carried by the adjacent cylinder, the gears having the same number of teeth whereby rotation of one cylinder will rotate all the cylinders in unison and to a like degree to display said characters through said openings, a shaft connected to one cylinder and extending outside of the casing, a separate indicator mounted upon said shaft outside of said casing and rotative therewith, said indicator carrying a series of characters similar to those carried by the cylinders, and means for rotating said shaft.

4. A device of the character described comprising a casing having a plurality of openings all facing in different directions, a cylinder rotatively mounted in the casing adjacent each opening, said cylinders being parallel, and having their centers spaced to define a polygon, each cylinder being provided with a series of designating characters, a gear wheel carried by an end of each cylinder and in mesh with a similar gear carried by the adjacent cylinder, the gears having the same number of teeth whereby rotation of one cylinder will rotate all the cylinders in unison and to a like degree to display said characters through said openings, a shaft connected to one cylinder and extending outside of the casing, a separate indicator mounted upon said shaft outside of said casing and rotative therewith, said indicator carrying a series of characters similar to those carried by the cylinders, means for rotating said shaft, and means for resiliently locking the cylinder on said operating shaft in any operative position.

5. A portable device of the character described comprising a casing mounted on a staff, a plurality of interconnected cylinders in said casing, an opening in the casing adjacent each cylinder for exposing the surface thereof, designating characters on the surface of each cylinder, adapted to be extended through said opening, an operating handle extending below the casing and adapted to rotate one of said cylinders, and a bracket secured to said staff and forming a bearing for said handle.

6. A portable device of the character described comprising a casing mounted on a staff, a plurality of interconnected cylinders in said casing, an opening in the casing adjacent each cylinder for exposing the surface thereof, designating characters on the surface of each cylinder, adapted to be extended through said opening, an operating handle extending below the casing and adapted to rotate one of said cylinders, a bracket secured to said staff and forming a bearing for said handle, and means for resiliently locking said cylinders in any operative position.

In testimony whereof we affix our signatures.

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JAMES DONALD REID.