E. W. GUILFORD, JR.

SCORE KEEPING APPARATUS.

APPLICATION FILED FEB. 17, 1915.

1,214,541. Patented Feb. 6, 1917.

FIG. 1.

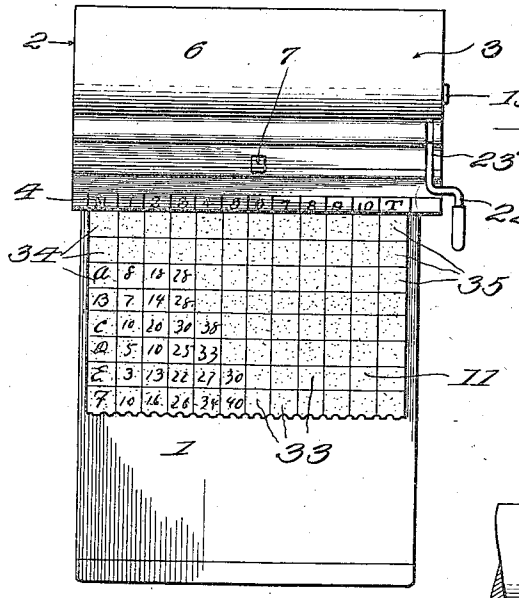


FIG. 2.

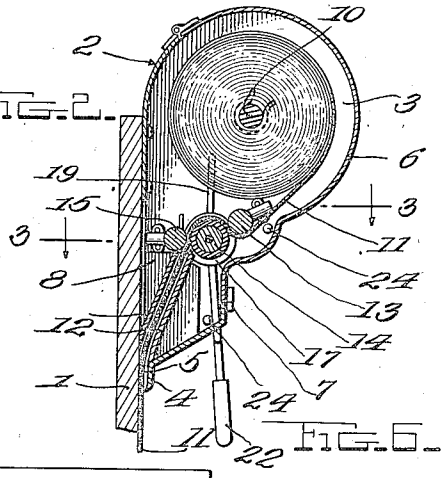


FIG. 6.

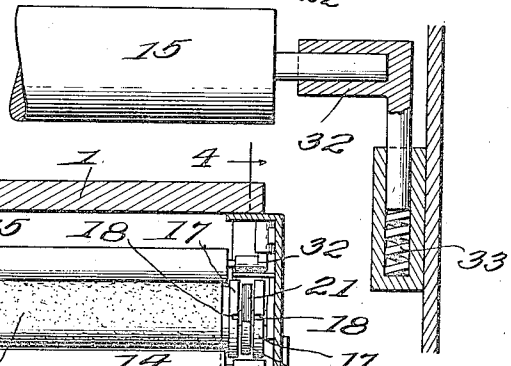


FIG. 7.

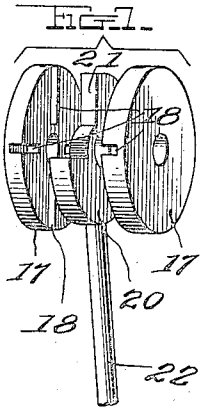


FIG. 3.

FIG. 4.

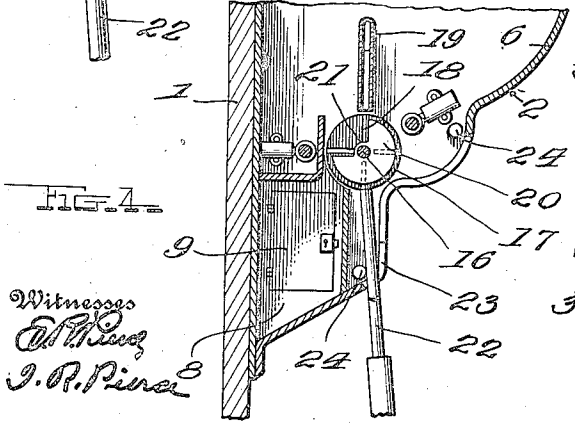
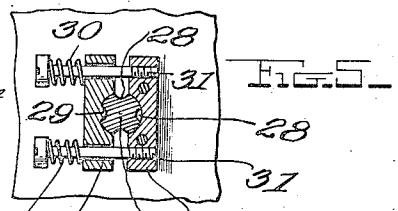


FIG. 5.



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UNITED STATES PATENT OFFICE.

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SCORE-KEEPING APPARATUS.

1,214,541. Specification of Letters Patent. Patented Feb. 6, 1917.

Application filed February 17, 1915. Serial No. 8,912.

To all whom it may concern:

Be it known that I, EDWIN WILLIAM GUILFORD, JR., a citizen of the United States, residing at the city of Washington, in the District of Columbia, have invented certain new and useful Improvements in Score-Keeping Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates broadly to improvements in score keeping apparatus and specifically to a combination of elements including a machine for vending a score sheet to be used for the keeping of scores in bowling alleys. Heretofore it has been the common practice to provide score sheets for this purpose, to allow the players to bowl the length of time which they may wish, to keep their scores on the score sheet, and for the proprietor of the alleys to then collect for the use of the alleys. It is also common practice for the loser in such games to stand all expenses for the use of the alleys. This often causes heated and lengthy discussions between the players before the bill is paid and the alleys are vacated to allow other persons to use the same, and needless to say, this causes a great deal of valuable time to be uselessly expended by the proprietor and prevents the alleys from being in continual use.

It is the object of my invention, therefore, to overcome these difficulties by providing a coin controlled apparatus for vending the score sheet, whereby it must be paid for before it is used, and therefore before the game is rolled.

With this end in view, the invention resides in the combination of parts hereinafter described and claimed.

In describing the invention, I shall refer to the accompanying drawings wherein like reference characters designate corresponding parts throughout the various views, and wherein:

Figure 1 is a front elevation of an apparatus constructed in accordance with my invention; Fig. 2 is a vertical transverse section thereof; Fig. 3 is a horizontal section as seen along the plane indicated by the line 3—3 of Fig. 2; Fig. 4 is a detail vertical transverse section taken on the line 4—4 of Fig. 3; Fig. 5 is a detail of the locking device to be described; Fig. 6 is a similar view of one of the spring pressed bearings with which the pressing rollers are provided; and Fig. 7 is a detail perspective view of the operating disks for rotating the feed roller upon insertion of a coin.

In these drawings, constituting a part of the application, the numeral 1 designates an upright rectangular board adapted to be supported in any preferred manner. To the upper end of this board, a casing 2 is secured by screws or other appropriate fastening devices, said casing having a substantially cylindrical upper portion 3 and having its lower portion reduced in size and provided with a horizontal knife 4. This knife is spaced a slight distance from the front face of the board 1, whereby to provide an outlet slot 5 lying in the same plane in which said front face of the board is disposed, this positioning of the slot being essential for a reason to become clear.

In addition to the features before described, the casing is equipped with a hinged front 6 normally held in closed position by a lock 7, and with a coin box 8 disposed at one end of said casing, and provided with a normally locked door 9 which may be opened to remove coins from said box.

Revolubly supported in the cylindrical portion 3 is a reel 10 upon which a score sheet 11 is wound, said sheet extending downwardly from the reel between a pair of guide plates 12 and having its lower end positioned in the slot 5. As clearly seen in Figs. 2 and 3, the depending portion of the sheet 11 is passed beneath a pressing roller 13 disposed near the front of the casing and then over a rubber covered feed roller 14 in rear of said roller 13. It will be noted that the sheet is held in contact with the feed roller 14, not only by the pressing roller 13, but by an additional pressing roller 15. Furthermore, the sheet is so carried around the feed roller 14 as to remove any curvature

which may have been imparted to it by the reel 10, thus preventing the sheet from curling when it is projected from the casing into contact with the front face of the board 1. For so projecting the sheet, I employ any preferred form of coin controlled mechanism which will allow the feed roller 14 to be rotated a predetermined amount upon the insertion of a coin (in the present case, a dime). As illustrative of one form of mechanism which may be employed, I have shown one end of the shaft 16 of the feed roller, as provided with a pair of spaced disks 17, whose inner faces are provided with radial grooves 18, four of such grooves being illustrated in each disk as spaced ninety degrees from each other. The two disks 17 are keyed upon the shaft and the grooves therein are adapted to receive coins dropped into an appropriate coin chute 19. Operating loosely on the shaft 16 and disposed between the two disks 17, is an operating disk 20 which is provided with a right angular notch 21 in its edge, this notch being normally disposed in position to receive a coin dropped into the chute 19 and received by the grooves 18. It will therefore be clear that rotation of the disk 20 a quarter of a revolution will, through the instrumentality of the coin, rotate the shaft 16 and the feed roller 14 this amount, thus discharging the proper amount of the score sheet for the use of one player, who, incidentally has paid in advance for the use of the alley. In the present case, the disk 20 is shown as equipped with an operating lever 22 which extends through a slot 23 in the front of the casing and whose movement is limited by a pair of stops 24. The provision of a comparatively long operating lever is essential, since by this means a spring pressed locking device, now to be described, may be released, thereby allowing the feed roller 14 to be rotated.

The aforesaid locking device, as disclosed in Figs. 3 and 5, is in the form of one section 26, of a two part bearing in which one end of the shaft 16 is revolubly mounted, the other section 27 of said bearing being secured to one end of the casing 2. As shown, the sections 26 and 27 are provided with semi-circular grooves in their facing edges, said grooves receiving the shaft 16, which, at this point is provided with four recesses 28 spaced ninety degrees from each other and adapted to receive a rounded projection 29 which extends into the groove of the section 26. This last-named section is forced toward the shaft to yieldably engage the projection 29 with the recesses 28, by a pair of stiff coil springs 30 which are disposed between said section and the heads of screws 31, the latter being passed loosely through openings in the section 26 and being threaded into the section 27.

By the construction just described, the feed roller is positively held against being rotated by pulling downwardly on the score sheet, but due to the provision of the lever 22, enough leverage may be exerted upon said roller to easily force the section 26 outwardly against the springs 30 when a coin is inserted in the machine. When, now, the lever is actuated to rotate the feed roller a quarter of a revolution, the projection 29 will be again forced into one of the recesses 28 to again lock said roller against rotation. Needless to say, the coins are discharged from the disks into the coin box 8 before described from which they may be removed from time to time.

In order to overcome any possibility of the score sheet slipping upon the feed roller 14, the pressing rollers 13 and 15 are both provided with bearings 32 pressed toward said feed roller by springs 33 as shown most clearly in Fig. 6. It will be understood, however, that any preferred means could be provided for accomplishing the same result.

The score sheet 11, before mentioned, is so printed as to provide a plurality of horizontal rows of squares 33, commonly known as "boxes", and with an additional space 34 at the left end of each row of such boxes, to receive the players' initials, still other spaces 35 being provided at the ends of the rows of boxes to receive the totals or the aggregate scores of the game. Heretofore, it has been the practice to provide the various spaces above described, upon individual rectangular score sheets and to print the numbers of the various boxes (one to ten) at the top of each sheet, the words "Name" and "Total" being likewise imprinted thereon. Rather than follow this practice, which by the nature of my invention would cause unnecessary printed matter on the score sheet, I print the word "Name" or "N" upon the knife 4 above the spaces 34, the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 above the boxes 33, and either "Total" or "T" above the spaces 35. By so doing, the result is equally as advantageous as is that attained by the present system.

From the foregoing description, taken in connection with the accompanying drawings, it will be evident that a very unique apparatus has been provided for carrying out the object of the invention, that the same may be very inexpensively manufactured and installed, and that a unique method of securing pecuniary compensation for the use of bowling alleys, has been provided.

I claim:—

A score keeping apparatus comprising a casing adapted to contain a bowling score

sheet having a plurality of transverse rows of boxes to contain the scores, a platen, and means for normally preventing said sheet from being pulled from the casing and for moving said sheet onto the platen to expose a row of boxes when said means is first operated, said means thereafter serving to advance said sheet along the platen one more row of boxes each time said means is operated, whereby sufficient rows may be exposed on the platen for recording the scores of any number of players.

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