Jan. 9, 1940. R. W. MILLER 2,186,465

GAME APPARATUS

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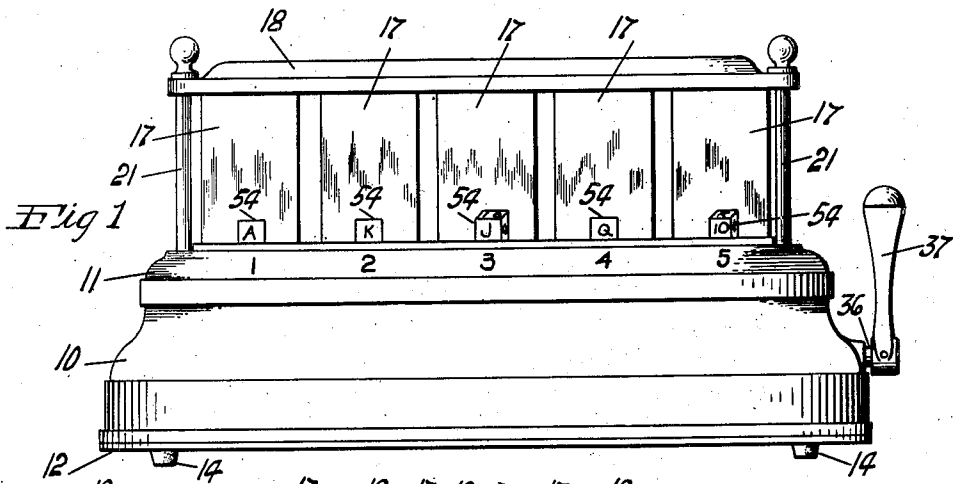


Fig. 1

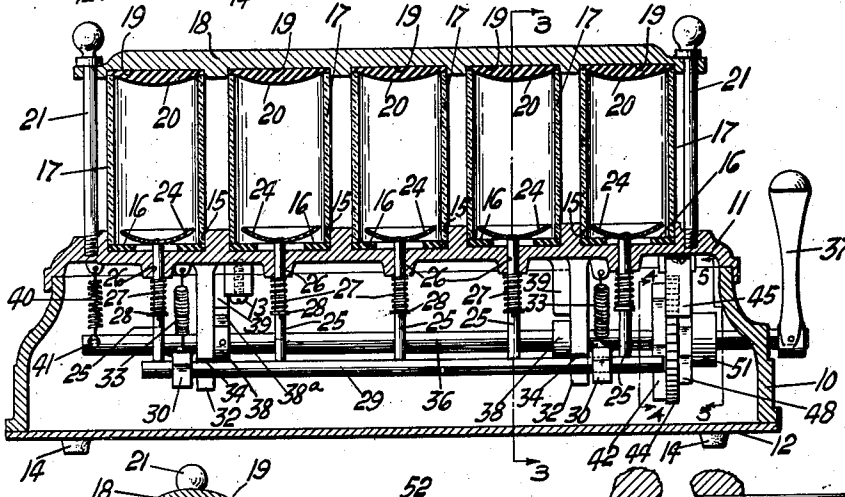


Fig. 2

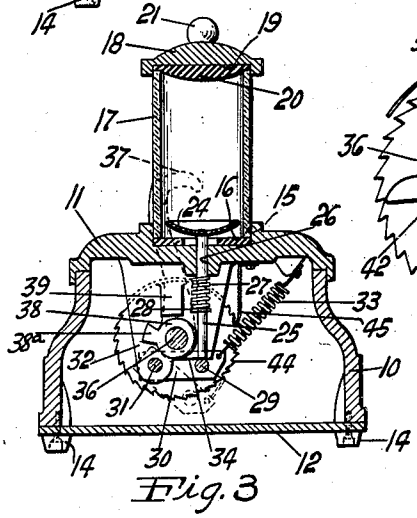


Fig. 3

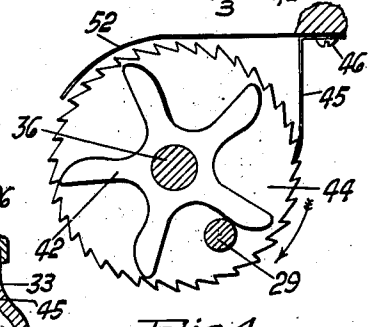


Fig. 4

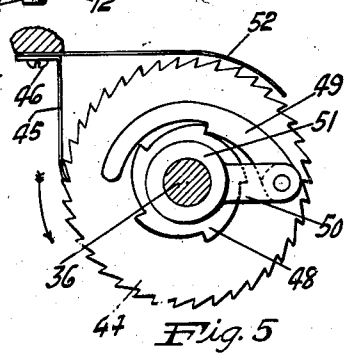


Fig. 5

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GAME APPARATUS

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6 Claims. (Cl. 273—145)

This invention relates to game apparatus, and more especially it relates to game apparatus of the type wherein small playing pieces each having a plurality of faces with different indicia thereon, such as dice, are agitated or impelled within a limited space and then allowed to come to rest in chance arrangement, with the probability that the uppermost faces of the several playing pieces will present different combinations of indicia than was present before the pieces were agitated or impelled. The invention also contemplates that the relative positions or succession of the indicia on the playing pieces may be a factor in determining the value of each throw or agitation of the pieces, and for this reason the apparatus provides individual, transparent cages or receptacles for the several playing pieces, which receptacles are arranged in a file or row.

The chief object of the invention is to provide improved apparatus by means of which a plurality of playing pieces arranged in a row may be concurrently and individually agitated or impelled. Another object is to provide cushioning means against which the impelled playing pieces will strike before returning to stationary position. Other objects will be manifest as the specification proceeds.

Of the accompanying drawing:

Figure 1 is a side elevation of the invention, in its preferred form;

Figure 2 is a vertical longitudinal section thereof;

Figure 3 is a section on the line 3—3 of Fig. 2;

Figure 4 is a section, on a larger scale, on the line 4—4 of Fig. 2; and

Figure 5 is a section, on a larger scale, on the line 5—5 of Fig. 2.

Referring to the drawing it will be seen that the apparatus comprises a hollow base member 10 that is provided with a top cover 11 and a bottom closure 12. The top cover 11 is secured to the base member by means of a plurality of screws, such as the screw 13, (Fig. 2) disposed interiorly of the base member, and the bottom cover is secured to the latter by means of screws that are associated with rubber pads 14 that constitute supports for the apparatus. The top face of the top cover 11 is formed with a plurality of circular recesses 15, 15, herein shown as five in number, which recesses are in lateral alignment longitudinally of the cover. In the bottom of each recess 15 is an annular washer 16 of resilient rubber composition, and resting with its lower edge upon said washer is a tubular cage 17 of transparent material, such as glass, the perimeter of the cage fitting snugly against the wall of the recess. The upper ends of the cages 17 support a cap plate 18 that constitutes a closure for the several cages, the under side of said cap plate being formed with a plurality of circular recesses 19, 19 in which the cages snugly fit. Between the top of each cage 17 and the bottom of each recess 19 is a pad 20 of resilient material such as rubber, which pads serve to compensate for irregularity in the height of the cages 17 or depth of the recesses 19, and also serve as abutments against which playing pieces may impinge during operation of the apparatus. The cap plate 18 is retained in place by means of headed posts 21, 21 that extend through said plate, at opposite ends thereof, and are threaded into the base-cover 11.

In the bottom of each cage 17 is a dished or concave piston or platform 24 that is carried upon the upper end of an impact member consisting of vertical rod or stem 25, the latter being slidably received in a bore 26 that extends through base-cover 11. Below the cover 11, interiorly of the base, each piston-stem 25 carries a compression spring 27 that bears against the under side of cover 11 and against a washer 28 mounted upon the stem, the arrangement being such as normally to urge the stem downwardly. The resilient washers 16 in the bottom of recesses 15 limit the downward movement of the stems 25 under the impetus of springs 27 by engagement with the pistons 24 on the upper ends of said stems. The lower end of each stem 25 normally bears against a striking bar 29 that extends longitudinally of the apparatus, and is supported, adjacent its ends, by a pair of arms 30, 30 that are mounted upon a rock-shaft 31 (Fig. 3) that is journaled at its ends in a pair of brackets 32, 32. The latter are formed on the under side of cover 11, and extend downwardly therefrom, a short distance from the respective ends thereof. Respective tension springs 33, 33 connected to the free ends of arms 30 and to fixed points on the under side of cover 11 normally urge the striking bar 29, carried by said arms, upwardly against the ends of the several stems 25, the uppermost position of the striking bar being determined by an undercut abutment 34 on each bracket 32, which abutments project into the path of said striking bar. When the striking bar is against abutments 34, the stems 25 resting on said bar support the pistons 24 a little above the resilient washers 16 in the bottom of the cages 17, as shown in Figs. 2 and 3.

Journaled in brackets 32, parallel to rock-shaft

31 and somewhat above the latter, is an operating shaft 36 that extends through the base member 10, at one end thereof, and exteriorly of said base is provided with an operating lever or handle 37. The shaft 36 is oscillated by means of the handle 37, but angular movement of the shaft is limited to 72 degrees. To this end collars 38, 38 are mounted upon the shaft, beside the respective brackets 32, in such a manner as to prevent longitudinal movement of the shaft, each of said collars being formed with a radial projection 38a. Each bracket 32 is formed with a laterally projecting abutment 39 that extends into the path of the projection 38a of a collar 38, the latter being so angularly positioned on the shaft that one abutment 39 limits the angular movement of the shaft 36 in one direction and the other abutment limits its angular movement in the other direction. The shaft 36 is yieldingly urged to the normal, inoperative position shown in the drawing by means of a tension spring 40 that is connected at one end to a fixed point on the cover 11 and at its other end is connected to the free end of a stud 41 that projects radially from said shaft.

Angular movement of the shaft 36, in clockwise direction as shown in Figs. 3 and 4, against the tension of spring 40, causes the striking bar 29 to be depressed, against the tension of springs 33, as indicated in broken lines in Fig. 3. To this end a star wheel 42 is journaled upon shaft 36, said star wheel consisting of five arms, the leading margins of which constitute slightly arcuate cams, the trailing margins of the arms being radial with relation to the shaft. One end of the striking bar 29 projects into the path of the arms of the star wheel 42, with the result that during rotary movement of the star wheel, in the direction indicated by the arrow in Fig. 4, the leading edge of one of its arms will force the striking arm downwardly, against the tension of springs 33, until the end of the arm passes the bar, the latter then being quickly restored to its upper normal position by said springs. The star wheel is advanced the distance of one arm, or 72 degrees, each time the shaft 36 is turned angularly by movement of the handle 37 from the position shown in Fig. 3 to a position to the right thereof. To prevent reverse movement of the star wheel when the handle is returned to the position illustrated, and to prevent over-run of the star wheel whenever it is rotated, a ratchet 44 that is concentric with the shaft 36 is mounted upon one side of the star wheel so as to rotate therewith, said ratchet being engaged by a stop pawl 45 consisting of a leaf spring that bears frictionally against the ratchet teeth, said pawl being attached to the cover 11 by a screw 46 or the like.

For turning the star wheel 42 angularly whenever the shaft 36 is turned in clockwise direction as viewed in Fig. 4, a five-tooth ratchet 48 is provided, which ratchet is integral with said star wheel and ratchet 44. The ratchet 48 is engaged by a weighted feed pawl 49 that rests by gravity thereon, in engagement with one of the teeth thereof. The feed pawl 49 is pivotally connected to the free end of a short arm 50 that projects radially and horizontally from a collar 51 that is fixed upon shaft 36, beside ratchet 48. The arrangement is such that rotation of shaft 36 in counter-clockwise direction as indicated by the arrow in Fig. 5, will cause feed pawl 49 to rotate ratchet 48 and with it the star wheel 42 and ratchet 44 that are united therewith. A guard plate 52 is mounted over the feed pawl 49, by means of the screw 46 aforementioned, for the purpose of preventing the pawl 49 being thrown to an inoperative position, as by the tilting of the apparatus.

As shown in Fig. 1, a playing piece 54 is mounted in each of the cages 17 and normally rests upon the piston 24 therein. Preferably the playing pieces are cubical in form and have different indicia on several faces thereof; for example, the indicia may be the same as found on certain playing cards. The cages may be consecutively numbered, as shown in Fig. 1, so that the order in which the various indicia appear on the playing piece may be a factor in determining the value of the throw of the pieces, if desired.

The operation of the apparatus requires only that the handle 37 be moved to the right, from the position shown in Fig. 3 to the limit of its movability, and thereafter released, whereupon the handle automatically returns to point of starting. As the handle is moved to the right as aforementioned, the pawl 49 turns the ratchet 48 and with it the ratchet 44 and star wheel 42 through an angle of 72 degrees. As the star wheel rotates, the arm thereof that is in engagement with striking bar 29 moves the latter downwardly about rock-shaft 31 as an axis, with the result that the striking bar is withdrawn from engagement with the lower ends of piston stems 25, the springs 27 thereby being enabled to move said stems downwardly until the pistons 24 rest upon the rubber washers 16. The striking bar continues to move downwardly to a point well below the ends of the depressed stems 25 before the arm of the star wheel passes out of engagement therewith. As soon as the star wheel arm is out of engagement with the striking bar, springs 33 quickly move the latter back to normal position against the abutments 34 of brackets 32. Before striking the abutments 34 the striking bar strikes the lower ends of the depressed stems 25 and violently impels them upwardly, against the force of their springs 27, with the result that the pistons 24 are similarly impelled and thus toss the playing pieces 54 upwardly. The upward movement of the stems 25 is limited by the springs 27 thereon, when the latter are fully compressed. The upwardly moving playing pieces strike the resilient pads 20 in the top of the cages, and then return by gravity onto their pistons. The presence of the pads 20 makes for quietness of operation and results in less wear upon the playing pieces. The playing pieces fall in chance arrangement upon the pistons, and the value of the indicia exposed on the upper faces of the playing pieces, or the consecutive order of said indicia longitudinally of the apparatus, determine the value of the throw according to the rules of the game. The pistons are impelled upwardly substantially at the end of the operative throw of the handle 37, and the latter may then be released so as to return to inoperative position by reason of the tension of spring 40. Return of the handle 37 reverses the angular movement of the operating shaft 36, but the star wheel 42 and ratchets 44 and 48 remain stationary by reason of the engagement of stop pawl 45 with ratchet 44. Return of the shaft 36 also retracts feed pawl 49 so that it drops behind the succeeding tooth of ratchet 48. This completes a cycle of operation which may be repeated as desired.

The device is relatively simple in construction, it does not require the use of a coin to effect

operation, and it achieves the other objects set out in the foregoing statement of objects.

Modification may be resorted to without departing from the spirit of the invention, or the scope thereof as defined by the appended claims.

What is claimed is:

1. In a game apparatus, the combination of a plurality of pistons for supporting playing pieces, respective vertical stems upon the upper ends of which said pistons are mounted, seats for said pistons, yielding means on said stems normally urging said pistons against said seats, a striking bar common to the several stems engageable with the lower ends thereof, yielding means urging said striking bar against a positive stop in which position the pistons are elevated above their seats, and means for retracting said striking bar and then releasing it so that it strikes said stems and impels them upwardly.

2. In a game apparatus, the combination of a plurality of pistons for supporting playing pieces, respective vertical stems supporting said pistons upon their upper ends, a horizontal striking bar common to the several stems engageable with the lower ends thereof, yielding means normally urging said striking bar toward the stem-ends, a manually operable shaft parallel to said supporting bar, and a star wheel on said shaft engageable with said striking bar for retracting the latter against said yielding means, and then releasing it to enable it to strike said stem-ends when said shaft is turned angularly upon its axis.

3. In a game apparatus, the combination of a plurality of pistons for supporting playing pieces, respective vertical stems supporting said pistons upon their upper ends, a horizontal striking bar common to the several stems engageable with the lower ends thereof, yielding means normally urging said striking bar toward the stem-ends, a manually oscillatable shaft parallel to said supporting bar, a star wheel journaled upon said shaft engageable with said striking bar for retracting the latter against said yielding means and then releasing it to enable it to strike said stem-ends, and means operatively interposed between the star wheel and its shaft for driving the star wheel only when the shaft is oscillated in one direction.

4. A combination as defined in claim 3 in which the last mentioned means comprises a pawl fixed to the shaft and a ratchet fixed to the star wheel.

5. In a game apparatus, the combination of a piston for supporting playing pieces, a vertical stem upon which said piston is mounted, a seat for said piston, yielding means on said stem urging said piston onto said seat, a striking member engageable with the lower end of said stem, yielding means of greater strength than the first mentioned yielding means normally urging said striking member against a positive stop in which position it raises the said stem to lift the piston off its seat, a manually turnable shaft, and means engageable with said striking member and operated by the turning of said shaft for retracting said striking member from the stem-end and thereafter releasing it to permit its yielding means to impel it against the stem-end and thereby to agitate the playing pieces on the piston.

6. In a game apparatus, the combination of a piston for supporting playing pieces, a vertical stem upon the upper end of which said piston is mounted, a seat for said piston through which the stem slidingly extends, an impact member adapted to strike the lower end of the stem to impel it upwardly, and a compression spring mounted upon the stem below said seat adapted normally to urge the piston toward said seat, and to be compressed by upward movement of the stem so as to limit the extent of said upward movement.

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