W. E. BLACKBURN.

GAME APPARATUS.

APPLICATION FILED JULY 10, 1918.

1,298,161.

Patented Mar. 25, 1919.

2 SHEETS—SHEET 1.

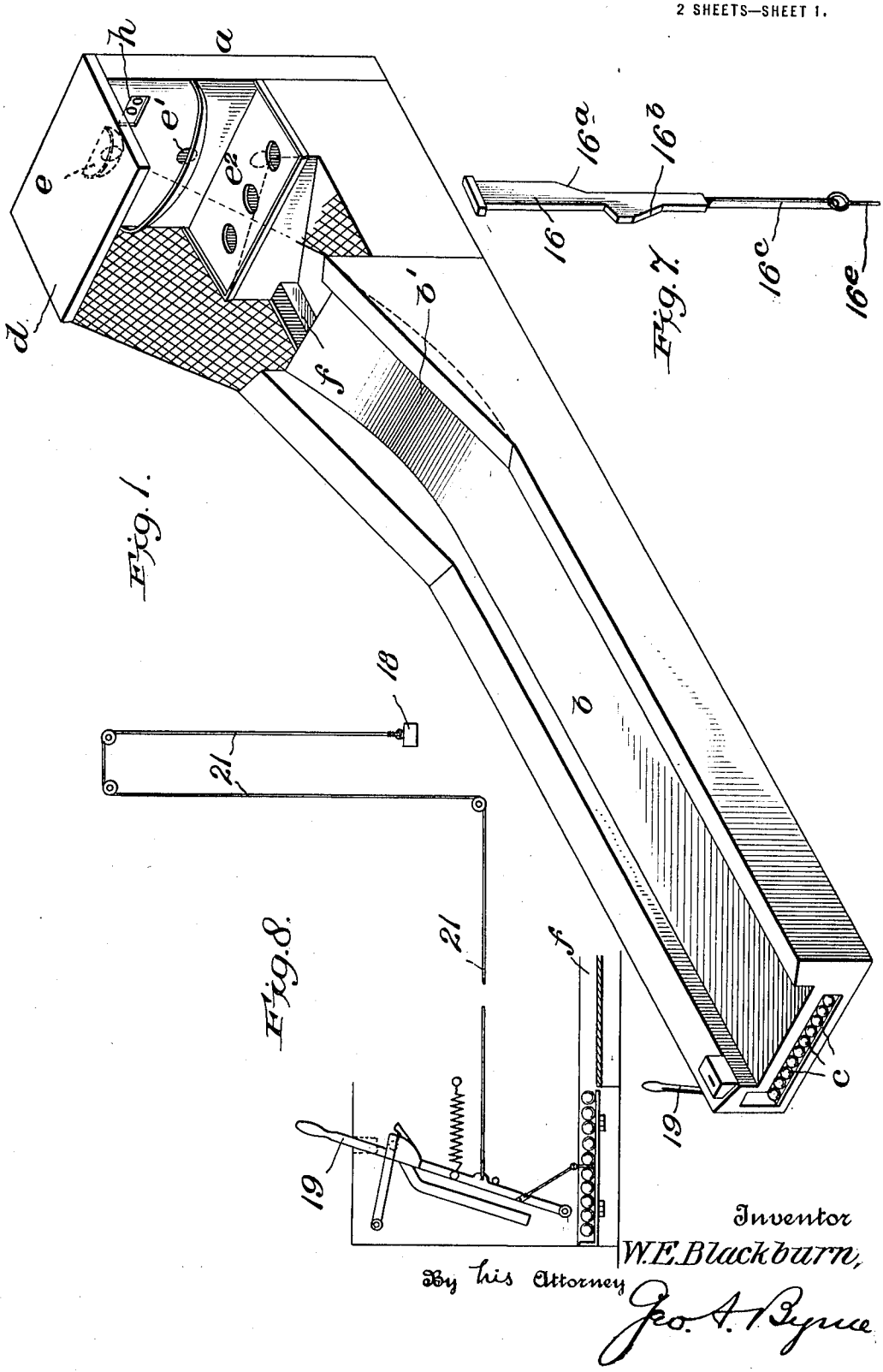

Fig. 1.

Fig. 7.

Fig. 8.

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By his Attorney

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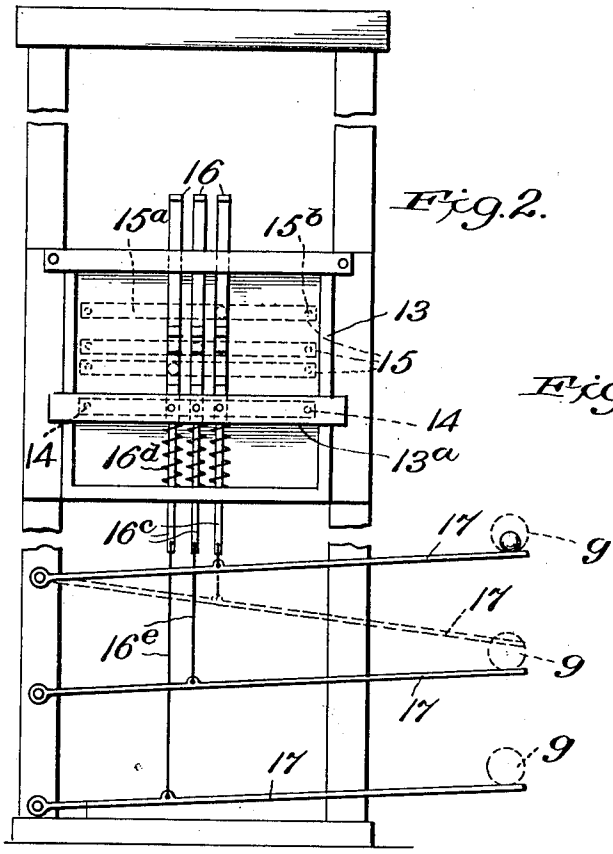

Fig. 2.

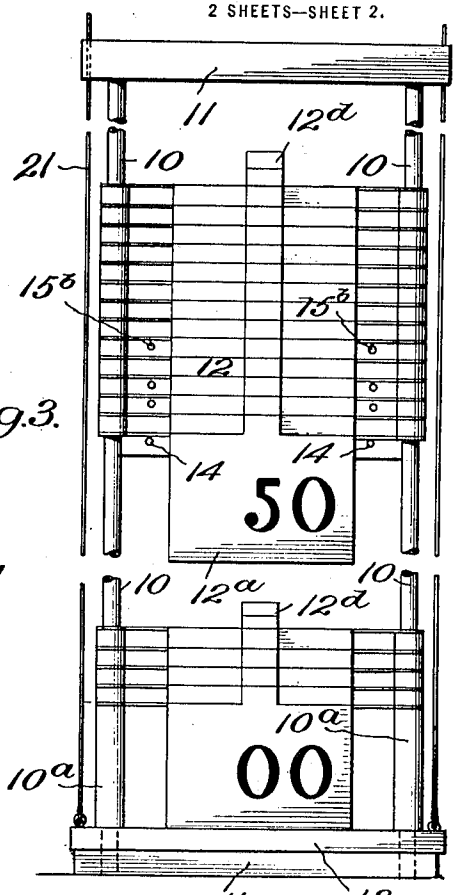

Fig. 3.

Fig. 5.

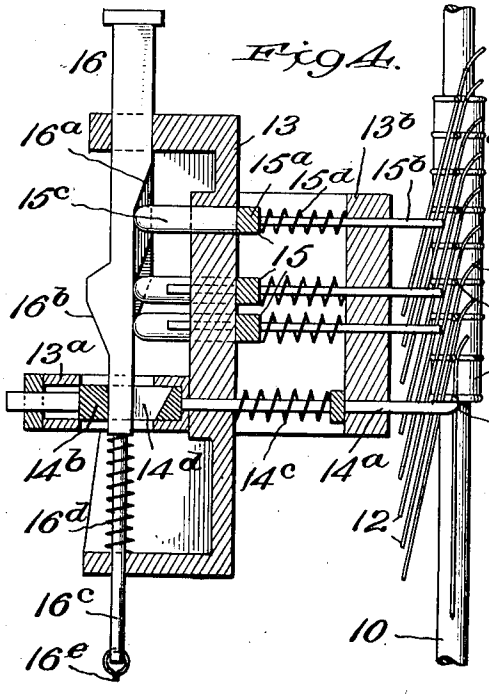

Fig. 4.

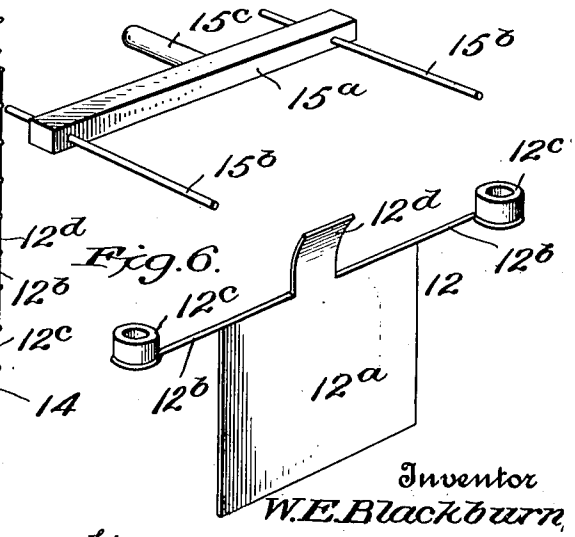

Fig. 6.

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UNITED STATES PATENT OFFICE.

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GAME APPARATUS.

1,298,161. Specification of Letters Patent. Patented Mar. 25, 1919.

Application filed July 10, 1918. Serial No. 244,257.

To all whom it may concern:

Be it known that I, WILMUTH E. BLACKBURN, a citizen of the United States, and resident of Summit, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Game Apparatus, of which the following is a specification.

This invention relates to improvements in indicating mechanisms, and more particularly to mechanisms of the accumulative type adapted for use in connection with game apparatus.

The general objects of the present invention are to provide an arrangement which is simple and efficient in operation, durable in construction, and which can be manufactured at a relatively low cost.

To these and other ends, the nature of which will be readily understood as the invention is hereinafter disclosed, said invention consists in the improved construction and combination of parts hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the accompanying drawings, in which similar reference characters indicate similar parts in each of the views—

Figure 1 is a perspective view of one form of game apparatus for which the present invention is adaptable, said view showing parts broken away for clearness; Fig. 2 is a rear elevational view of the control section of indicating mechanism which is adapted for use with the structure of Fig. 1; Fig. 3 is a front elevational view of the indicator section of the mechanism; Fig. 4 is a sectional view taken through both sections to indicate their operating relationship; Fig. 5 is a detail view of one of the control elements; Fig. 6 is a perspective view of one of the indicator elements; Fig. 7 is a perspective view of one of the actuating elements; and Fig. 8 is a diagrammatic view showing means for re-setting the mechanism.

The game apparatus disclosed herein is of the general type shown in my companion application filed August 21, 1917, Serial No. 187,327, and embodies a target *a* in rear of a ball runway *b*, the latter having its rear portion curved or inclined upwardly, as at *b'*, to cause a ball or missile *c* to be trajected upwardly into contact with a baffle *d*, when the ball or missile is caused to travel in the direction of length of the runway. The target is preferably provided with a plurality of pockets or goals into any of which the ball or missile may pass after contacting with and being deflected by the baffle.

As is usual in game apparatus of this type, the goals are located at such points as will provide greater or less chance of success, and are therefore given varying values, the latter increasing as the possibility of goal making decreases. For instance, goal *e*—which is the most difficult—may be given a value of fifty points, goal *e'* a value of thirty points, while each of the openings of goal e^2 may have a value of twenty points. If, therefore, a plurality of balls or missiles are successively trajected from the runway, and the total number of points scored corresponding to the particular goals made, the difference in total scores of two contestants will indicate the winner, each contestant completing his play before the succeeding contestant begins.

As the runways are comparatively long and it may be difficult to determine exactly which goal is made, it is advantageous to provide for automatic registration or counting of the successive goals and an indication of total at any time. This is provided by the indicating mechanism to be described, and it may be noted that this mechanism is made operative at a point in the travel of the ball or missile from either goal to a trough or race *f*, the latter being adapted to deliver the balls or missiles at the forward or playing end of the runway. This race is adapted to receive the balls from either of a plurality of pivoted levers forming part of the indicating mechanism, each goal having a chute or other form of conduit—indicated in Fig. 2 at *g*—adapted to deliver a ball or missile to one of the levers, the number of levers preferably corresponding to the number of goals of different value. *h* indicates an opening in the target through which the values or indications are shown.

The indicating mechanism practically embodies two sections which may be a unitary structure or two different structures properly positioned; the two sections may be designated as "indicating" and "control" sections.

The indication section is shown as comprising a pair of vertical bars 10 forming

guides, these bars being spaced apart and connected by braces 11. Mounted on bars 10 are a plurality of indicating elements 12, shown in detail in Fig. 6, each element comprising a plate-like member 12^a, carrying the indication, a pair of bars 12^b projecting outwardly therefrom, each bar carrying a spacing bushing 12^c, the guides 10 extending through the latter. Each member 12^a carries a tab 12^d, preferably more or less curved. Obviously, this particular structure and arrangement may be varied, the drawings indicating a simple form of such element.

As will be seen from Figs. 3 and 4, a number of elements 12 are mounted on bars 10, the end supports of adjacent elements being in contact, these supports being loosely mounted on bars 10 so as to permit free movement of each element. The indications on members 12^a preferably differ from each other so that in the production of what may be considered as a pack-formation, successive elements will carry indications in a progression increasing from the lower to the upper elements. For instance, the arrangement shown provides for a successive increase by "tens".

By this arrangement each indicating element is entirely free from connection with another element, being individual in form and bodily movable individually or as a part of a pack or pack section.

The control section comprises a frame 13 located opposite an intermediate portion of the frame of the indicating section—as indicated in Fig. 4—said frame carrying a latching support 14 which is normally active in connection with the indicating elements. Support 14 preferably comprises a pair of arms or rods 14^a projecting rearwardly from a block 14^b mounted in a housing 13^a of the frame, said arms or rods being mounted for longitudinal movement in suitable manner, as by openings in frame 13 and a frame member 13^b carried by the frame, a spring or springs 14^c normally maintaining the arms or rods in the rearmost position, a position in which the ends of these arms or rods extend into the path of travel of the rods 12^b of the indicating elements, as in Fig. 4.

Mounted in frame 13, above support 14, are a plurality of restraining elements 15, serving as selecting devices in the operation of the indicating mechanism. These elements shown in detail in Fig. 5, are in the form of a bar 15^a, carrying a pair of pins 15^b extending through frame 13^b, being normally positioned out of the path of travel of rods 12^b. Bar 15^a carries a pin or rod 15^c adapted to project through suitable openings in frame 13. Elements 15 are normally held in retracted position by springs 15^d. The number of elements 15 corresponds with the number of goals, three being shown in the drawings, but it will be understood that one or more may be employed, these being located at predetermined distances above the the plane of support 14.

Elements 15 are adapted to be projected individually by the movement of actuating devices 16—shown in detail in Fig. 7—extending in directions at right angles to the direction of movement of devices 15, as shown in Fig. 4. The number of devices 16 corresponds with the number of elements 15, said devices 16 being mounted in frame 13 and extending in substantial parallelism. Each actuating device includes a cam face 16^a adapted to coöperate with the complemental pin 15^c of element 15 to project the latter in opposition to its spring 15^d when the device is moved in one direction—downward in Fig. 4. As shown, in Fig. 4, the several devices 16 extend through housing 13^a and through a suitable slot or slots 14^d in block 14^b, the lower end of device 16 projecting through a flange of frame 13, thus insuring a true rectilinear movement for each device. 16^d indicates a spring adapted to normally maintain each device 16 in its upper position.

The projecting end 16^c of each device is connected through a connection 16^e to a pivoted lever 17, each device having an individual lever, the free ends of the latter being formed and positioned relative to the chutes *g* to receive a ball or missile which may be discharged from a chute. The parts are so arranged that the weight of a ball or missile, when the latter is located at the free end of a lever 17, will cause such lever to move downwardly and draw the corresponding device 16 downward. This results in causing cam face 16^a of the device to engage the proper pin or rod 15^c to project pins 15^b into the path of those rods 12^b immediately above the plane of the projected pins 15^b. Hence, if support 14 is then withdrawn, each of the elements 12 below that which will engage the projected pins 15^b, are free to move downward past the plane of support 14. By then reversing the positions of support 14 and the projected device, those elements 12 which were restrained from movement by the projecting pins 15^b will move downward until the lower element comes to rest on support 14.

The shifting movement of support 14 is provided by a cam face 16^b carried by device 16 and adapted to coöperate with a wall of slot 14^d, cam faces 16^a and 16^b being so positioned as to cause element 15 to be projected prior to the withdrawal of the support, as the device 16 is moved downwardly, the support moving to position in advance of the withdrawal movement of element 15 as device 16 returns to its normal position.

The cam faces 16^a are positioned in such

manner as to be operative with the complemental pin 15^c, while cam face 16^b is similarly positioned on each device. As a result, either of elements 15 in coöperating with support 14 constitutes an escapement mechanism with respect to the pack of elements 12 which may be located above the support, this escapement mechanism being adapted to release one or more elements 12—depending on the particular location of elements 15—and placing the remaining elements 12 of the pack formation in proper relation to the support ready for the succeeding operation.

The operation of the control section will be readily understood. Assuming the goal values and indications to be as above, the lower element 15 in Fig. 4 will be operative with the goal e^2, the upper element 15 with goal e and the intermediate element with goal e'. At the beginning of the game each of elements 12 will be located above support 14, thus exposing the "00" indication exposed through opening h. If the first ball or missile enters goal e, the ball will pass on to the upper lever 17, depress the latter and project the upper element 15. In the arrangement shown, this would release the lower five elements 12, these passing beyond the plane of the support, so that when the latter is again returned to position, the restrained pack will be released from element 15 and drop to position on the support, locating the indication "50" in exposed position relative to opening h. If the succeeding ball or missile should enter goal e^2, the lower element 15 would be projected by the ball from that goal, releasing the two lower elements of the pack—the elements carrying indications "50" and "60", so that when the restrained pack portion again moves to position on the support, the exposed indication will be "70". Each goaled ball or missile adds the value of the goal to the previous indicated score, so that when the total balls or missiles have been delivered, the indicator will disclose the accumulation of the individual goals made.

At the completion of the game or before commencement of the succeeding game, the shifted elements 12 can be returned above support 14 in any preferred manner, the end of support 14 being so arranged as to permit return travel of the elements without difficulty. A simple arrangement is indicated in Fig. 8, in which 18 indicates a bar, which may be carried on guides 10—Fig. 3—and which is operatively connected with a lever 19 through suitable connections such as cords 21, lever 19 being shown as connected with a mechanism for controlling the release of the balls or missiles from the race f. When this form of operating means is employed, rods 10 may carry spacing blocks 10^a on which the lower element 12 comes to rest when released, these blocks being raised with the upward movement of bar 18. The lever 19 herein shown forms part of a coin-controlled mechanism, which forms the subject matter of a companion application.

As will be understood, the pack arrangement of the indicating elements not only permits the elements to be wholly individual in type and operation but that the operating elements are simple in character, efficient and durable in construction, and that the mechanism can be manufactured and installed at a relatively low cost.

While I have herein shown and described a preferred arrangement of parts, it will be readily understood that changes and modifications therein may be found desirable or essential in meeting the exigencies of use, and I desire to be understood as reserving the right to make any and all such changes or modifications as may be found desirable or essential, in so far as the same may fall within the spirit and scope of the invention as expressed in the accompanying claims when broadly construed.

Having thus described my invention, what I claim as new is:

1. In game apparatus wherein a succession of balls or missiles may be projected toward a target having goal values, means for visually indicating the values of goals made, said means including a plurality of indicating elements bodily shiftable from a normal position relative to an exposure opening and to each other, said exposure opening being common to the path of movement of the several elements whereby exposure is limited to a single element, said shifting movements being controlled by the movements of the goaled balls or missiles.

2. In game apparatus wherein a succession of balls or missiles may be projected toward a target having goal values, means for visually indicating the values of goals made, said means including a plurality of indicating elements bodily shiftable from a normal position relative to an exposure opening and to each other, said exposure opening being common to the path of movement of the several elements whereby exposure is limited to a single element, said shifting movements being controlled by the movements of the goaled balls or missiles, and means for concurrently restoring the shifted elements to normal position.

3. In game apparatus wherein a succession of balls or missiles may be projected toward a target having goal values, means for visually indicating the values of goals made, said means including a plurality of indicating elements bodily shiftable from a normal position relative to an exposure opening and to each other, said exposure opening being common to the path of movement of the sev-

eral elements whereby exposure is limited to a single element, said shifting movements being by gravitation and controlled by the movements of the goaled balls or missiles.

4. In game apparatus wherein a successions of balls or missiles may be projected toward a target having goal values, means for visually indicating the values of goals made, said means including a plurality of indicating elements bodily shiftable from a normal position relative to an exposure opening and to each other, said exposure opening being common to the path of movement of the several elements whereby exposure is limited to a single element, and escapement mechanism operative to control the shifting movements of the elements in one direction.

5. In game apparatus wherein a succession of balls or missiles may be projected toward a target having goal values, means for visually indicating the values of goals made, said means including a plurality of indicating elements bodily shiftable from a normal position relative to an exposure opening and to each other, and escapement mechanism operative to control the shifting movements of the elements in one direction, said mechanism being operative to provide shifting of variable number of elements at a single operation.

6. In game apparatus wherein a succession of balls or missiles may be projected toward a target having goal values, means for visually indicating the values of goals made, said means including a plurality of indicating elements bodily shiftable from a normal position relative to an exposure opening and to each other, and escapement mechanism operative to control the shifting movements of the elements in one direction, said mechanism being operative to provide shifting of variable number of elements at a single operation, the number of elements being controlled by the movement of the goaled ball or missile.

7. In indicating apparatus of the accumulative type adapted for use with game apparatus having an exposure point, a plurality of indicating elements individually and bodily shiftable relative to each other and to such point, said exposure point being located to limit exposure to a single element, said elements carrying indications representing values in a predetermined progression, the value of one element differing from that of another, a frame for supporting and on which said elements are shiftable, and means for controlling the shifting movements of the elements.

8. In indicating apparatus of the accumulative type adapted for use with game apparatus having an exposure point, a frame, a plurality of individual indicating elements supported by and bodily shiftable on said frame and carrying indications representing values in a predetermined progression with the elements located on said frame in the order of such progression, said elements normally extending in a superposed pack formation, mechanism for normally maintaining such pack formation, said mechanism being shiftable to release the pack, and means spaced from said mechanism and operative intermediate the ends of the pack for temporarily restraining element movements when said mechanism is in releasing position, whereby unrestrained elements are free to shift beyond the exposure point.

9. In indicating apparatus of the accumulative type adapted for use with game apparatus having an exposure point, a frame, a plurality of individual indicating elements supported by and bodily shiftable on said frame and carrying indications representing values in a predetermined progression with the elements located on said frame in the order of such progression, said elements normally extending in a superposed pack formation, mechanism for normally maintaining such pack formation, said mechanism being shiftable to release the pack, and means spaced from said mechanism and operative intermediate the ends of the pack for temporarily restraining element movements when said mechanism is in releasing position, whereby unrestrained elements are free to shift beyond the exposure point, said means being rendered inactive upon return of said mechanism to normal position, whereby the unshifted elements may move collectively to position the reduced pack relative to the mechanism.

10. In indicating apparatus of the accumulative type adapted for use with game apparatus having an exposure point, a frame, a plurality of individual indicating elements supported by and bodily shiftable on said frame and carrying indications representing values in a predetermined progression with the elements located on said frame in the order of such progression, said elements normally extending in a superposed pack formation, mechanism for normally maintaining such pack formation with the under element of the pack carrying the indication being exposed, said mechanism being shiftable to release the pack, and means spaced from said mechanism and operative intermediate the ends of the pack for temporarily restraining element movements when said mechanism is in releasing position, whereby unrestrained elements are free to shift beyond the exposure point.

11. In indicating apparatus of the accumulative type, and in combination, a frame having guides, a plurality of indicating elements shiftable individually and bodily longitudinally of the guides, and escapement mechanism operative to control

the shifting movements of the elements in one direction.

12. In indicating apparatus of the accumulative type, and in combination, a frame having guides, a plurality of indicating elements shiftable individually and bodily longitudinally of the guides, and escapement mechanism operative to control the shifting movements of the elements in one direction, said mechanism being operative to provide shifting of variable number of elements at a single operation.

13. In indicating apparatus of the accumulative type, and in combination, a frame having guides, a plurality of indicating elements shiftable individually and bodily longitudinally of the guides, and escapement mechanism operative to control the shifting movements of the elements in one direction, said mechanism being operative to provide shifting of variable number of elements at a single operation, and means for restoring the shifted elements concurrently.

14. In indicating apparatus of the accumulative type, and in combination, a frame having guides, a plurality of indicating elements shiftable individually and bodily longitudinally of the guides, and escapement mechanism operative to control the shifting movements of the elements in one direction, said mechanism including a shiftable support for the elements and a shiftable restraining element.

15. In indicating apparatus of the accumulative type, and in combination, a frame having guides, a plurality of indicating elements shiftable individually and bodily longitudinally of the guides, and escapement mechanism operative to control the shifting movements of the elements in one direction, said mechanism including a shiftable support for the elements, and a plurality of independent shiftable restraining elements.

16. In indicating apparatus of the accumulative type, and in combination, a frame having guides, a plurality of indicating elements shiftable individually and bodily longitudinally of the guides, and escapement mechanism operative to control the shifting movements of the elements in one direction, said mechanism including a shiftable support for the elements, a shiftable restraining element, and actuating means operative to shift said support and restraining element to segregate and release one or more indicating elements from supported relation.

Signed at New York in the county of New York and State of New York this 5th day of July A. D. 1918.

WILMUTH E. BLACKBURN.