Oct. 16, 1923. 1,470,872

E. A. OVENSHIRE

EDUCATIONAL GAME APPLIANCE

Filed Feb. 21, 1922

Fig. 1.

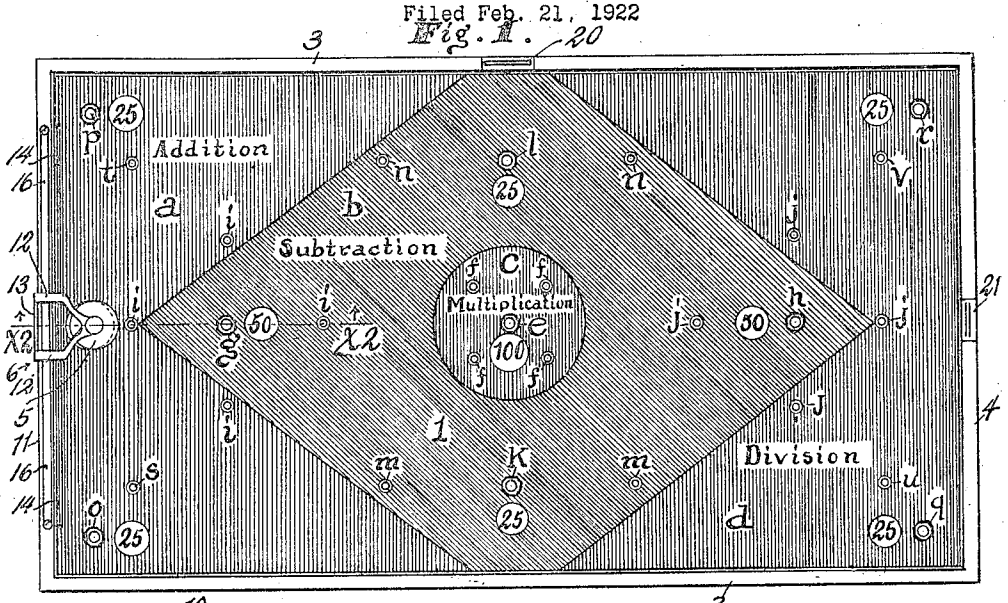


Fig. 2.

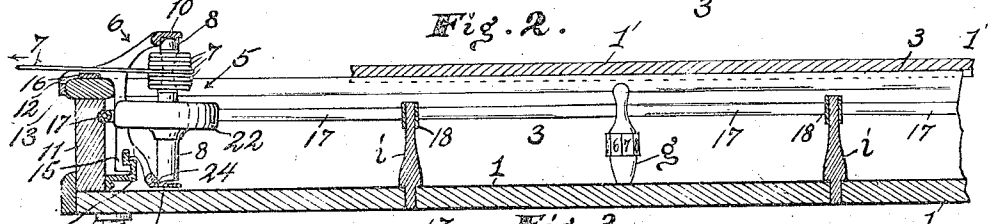


Fig. 3.

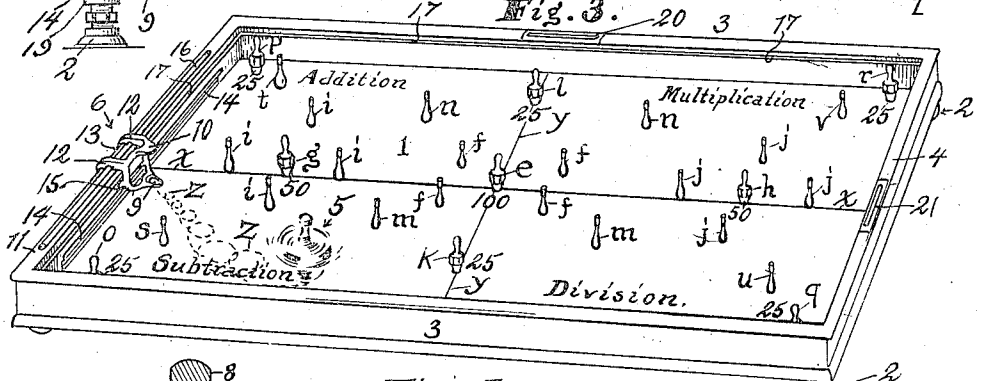


Fig. 5.

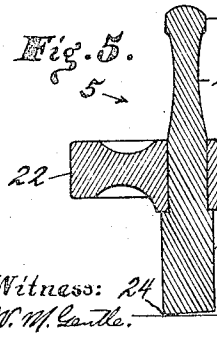


Fig. 4.

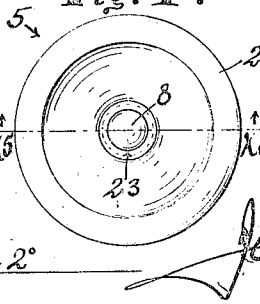
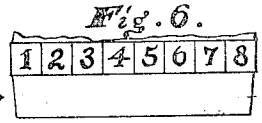


Fig. 6.



Witness: 24
W. M. Castle.

Inventor.
Elijah A. Ovenshire.
by James P. Townsend
his atty.

Patented Oct. 16, 1923. 1,470,872

UNITED STATES PATENT OFFICE.

ELIJAH A. OVENSHIRE, OF LOS ANGELES, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO ORSON A. LOVEJOY, OF LOS ANGELES, CALIFORNIA.

EDUCATIONAL GAME APPLIANCE.

Application filed February 21, 1922. Serial No. 538,155.

To all whom it may concern:

Be it known that I, ELIJAH A. OVENSHIRE, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Educational Game Appliance, of which the following is a specification.

An object of this invention is to provide a game appliance of cheap and durable construction that is effective in amusing and entertaining a large number of players and which also will be instrumental in educating the participants in the respect that it inculcates alertness and quickness in their mathematical calculations. To that end an appliance is provided with an enclosed base having fields thereon in which are arranged a number of movable pins; and the fields and also the movable pins are provided with numerals that are factors in the mathematical calculations involved in the game.

The movable pins have a number of flat faces preferably eight on which are printed the respective numerals from 1 to 8; and a traveling top is provided for moving in unknown courses over the fields and upsetting an unknown number of pins and both the number of pins upset and the position in which they fall are factors of calculation in a game as will be hereinafter explained.

Another object of invention is to provide a game employing a traveling top that will move in unknown courses over the field to knock down an indeterminate number of pins; and means connected with the top by which it will continuously travel during its entire spinning action; and in this respect the invention is broadly new, basic and pioneer.

An object of invention is to provide an instructive, and beneficial game of skill in which any number of players can participate and also which will be of great interest to the bystanders or spectators; and which will be interesting to both children and adults and lead them to become adept in mathematical calculation in keeping a score of the game.

An object of invention is to provide an instructive game that will be interesting for a child to play alone.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims.

The accompanying drawing illustrates the invention.

Figure 1 is a plan view of the appliance showing one arrangement and coloring of the fields over which the traveling top moves.

Fig. 2 is an enlarged fragmental section on line x^2, Fig. 1.

Fig. 3 is a perspective view of the appliance showing another arrangement of the fields, omitting the colors therefrom.

Fig. 4 is a plan view of the traveling top about two thirds actual size.

Fig. 5 is a section on line x^5, Fig. 4.

Fig. 6 is a developed view of movable pins e with the upper portion thereof broken away, showing the arrangement of the numerals from 1 to 8 thereon which arrangements of numbers is the same on all of the pins.

The appliance comprises a rectangular base 1 mounted on legs 2, and provided with sides 3 and ends 4, 11, that form a walled enclosure that can if desired be covered by a removable top 1′, as fragmentally shown in Fig. 2, and the appliance can be finished as a library or dining room table or as a game board; and within this enclosure are arranged the fields a, b, c, d, that are preferably colored as shown, that is the fields a, c, d, are red and the field b is green. However, it is understood that the arrangement of the colors can be varied and any combination used without affecting the game as the colors simply add a pleasing and artistic effect to the appliance. Also, if desired, the board can be divided into four plain uncolored rectangular fields that are separated by the intersecting lines x—x and y—y as shown in Fig. 3.

In the fields are systematically arranged stationary posts that are provided to guard movable pins. The center pin e is normally arranged at a point central of the enclosure and is guarded by four stationary posts f that are spaced equidistant apart and form a hollow square around the pin; and preferably there is an easy clearance between the posts f so that the traveling top can enter the hollow square to knock down

the pins; and the value of pin *e* when knocked down is 100 plus the numeral that is on top when it is thrown and at rest. That is when the pin is knocked down it will fall and rest on one of the eight faces numbered from 1 to 8 with the upper number counting. For example if the pin falls and rests on the face 1 the face 5 will be upward which when added to the base number 100 will make a total of 105 and if the pin rested on the face 4 the number 8 would add to 100.

The numerals 1 to 8 are arranged on each of the movable pins in the same order so that they are in opposite pairs as follows: 1 opposite 5; 2 opposite 6; 3 opposite 7; and 4 opposite 8, so that if a pin is knocked down and resting on any one of the numerals 1, 2, 3, 4 its corresponding number of 5, 6, 7 or 8 will be a counter and vice versa.

Spaced equidistant from the positionings point of center pin *e* and in longitudinal alinement are the positioning points for arrangement of the movable pins *g*, *h* that are respectively guarded by the stationary posts *i*, *j* arranged in hollow squares around their respective pins; and these pins when thrown over by the traveling top have the counting value of 50, plus the numeral on the upper face of the thrown pins.

At right angles to a longitudinal line through the positioning points of pins *e*, *g*, *h*, and equidistant from the positioning point of center pin *e* are arranged the positioning points of the movable pins *k*, *l* that are respectively provided with side guards *m*, *m*; and the counting value of these pins is 25 plus the numeral on the upper face of the thrown pins.

Near each corner of the enclosure are arranged the positioning points for the movable pins *o*, *p*, *q*, and *r*, each of which has its respective guard *s*, *t*, *u*, *v*; and the counting value of these pins is 25 plus the numeral on the upper face of the thrown pin. It is understood that the arrangement of pins and posts on the fields as described can be altered if desired, to suit various games; and the foregoing disposition of pins and posts is only one of the numerous arrangements that can be made of them.

A traveling top 5 is provided for moving over the respective fields *a*, *b*, *c*, and *d*, to knock down the respective pins *e*, *g*, *h*, *k*, *l*, *o*, *p*, *q*, and *r*; and the number of pins overturned depends considerably on the skill with which the top is operated and the effectiveness of the guarding posts which guard the pins in various directions from the top.

The traveling top may be variously constructed and is adapted to run about upon the surface on which it spins.

The top 5 is caused to continuously travel during its entire period of spinning action by means of a cylindrical stem having a bottom end inclined 2 degrees to the stem's axis; which causes the top when in action to rise on a semi-circular edge that is off center to the top's axis, and the rotary motion of the top imparted to this semi-circular edge causes the top to travel in circular courses as indicated by the dotted and continuously curving line *z*—*z*, shown in Fig. 3 as extending from the holder to spring top. While 2 degrees is specified as the inclination of the stem's base to its axis, it is understood that it can be more or less without altering the effect obtained by constructing the parts so that the top will spin on a semi-circular edge off center to the top's axis.

The distance and direction in which the top will travel over the fields depends on the skill with which it is manipulated; and afterwards on the various effects caused by the top contacting with the enclosure walls, the fixed posts and movable pins. That is, when the top contacts with the enclosure walls, stationary posts or movable pins it is deflected in another direction by its rotary impact; so that it moves in unknown courses over the fields caroming from one object to another until its rotary movement is expended; and during this travel over unknown courses the spinning top can enter the enclosures guarded by the stationary posts and knock down an indeterminate number of the movable pins; and it is possible for the top to knock down all of them.

A holder 6 is provided for retaining the top 5 in a predetermined position while rotary motion is imparted to it by means of a string 7 extending over the top of the side wall 3 and that is wound around the upper portion of the top's stem 8 which extends above said side wall and that is unwound therefrom by a sudden pull that imparts rotary motion to the top.

The holder 6 has upper and lower retaining seats 9, 10 in which the upper and lower ends of stem 8 are placed when rotary motion is to be imparted to the top by unwinding string 7 as described, and the seats 9, 10 are open toward the center of the board so that the top can jump out of the holder 6 and begin its travel over the fields as soon as the unwinding action of the string 7 is completed.

The holder 6 is movable along a major portion of the end wall 11 so that a selective means is provided for positioning the top relative to releasing it. That is, a player may elect to release the top from the right, center or left of the end wall, or from any of the intermediate points; with the object of directing the top over an open course or toward a stationary post or wall so that it will carom off to accomplish the purpose of knocking down all or a large number of the movable pins. As hereinbefore stated the distance and course of travel of the top depend greatly on the skill with which it is

manipulated; such as the rotary speed imparted to the top and the delicate caroming effect of a finger touch as the top leaves the holder.

The holder 6 is provided with the overhanging arms 12 that are connected by a plate 13 that contacts with the outside of wall 11; and on the inside of the wall is the retaining plate 14 on which are slidably mounted the extensions 15 of holder 6. A wearing plate 16 is interposed between the overhanging arms 12 and the upper surface of the wall 11. It is understood that any holder can be used or any top employed except that in the top construction the spinning point must be off center to the top's axis or otherwise the top would not travel, preferably this spinning point is as stated, a semi-circular edge; however good results can be obtained by various forms of off center contacts but for the sake of brevity only one form of contact of spinning point is shown.

If desired means are provided for increasing the caroming effect of the top when it contacts with side walls or stationary posts; the walls can be provided with a resilient contact preferably a rubber strip 17 that is rounded in cross section and which extends entirely around the inner wall at a height to contact with the body of the top; and the posts are provided with resilient removable contacts preferably rubber sleeves 18 that are slipped over the upper end of the posts in position to contact with the top body. However, it is optional with the players whether the removable resilient sleeves are employed or not.

To facilitate the leveling of the board it is provided with adjustable legs 2 that screw in or out of sockets 19 secured to the bottom of the base 1, see Fig. 2; and an end and side wall are provided with spirit levels 20, 21. to indicate when the legs are adjusted to the right position to hold the board level.

The top 5 is constructed with a body portion 22 that can be formed of any material and in any desired shape; and connected to this body is a stem 8 having a reduced portion 23 on which the string 7 is wound; and as previously stated stem 8 has a bottom end inclining at about a 2 degree angle to the stem's axis for the purpose of forming a semi-circular spinning edge 24 that will cause the top to travel when placed in rotary motion.

Quite a number of games can be played but for the sake of brevity only a few plays will be described in detail.

Assuming that a game is to be played involving only addition and that a player has actuated the top and that it has knocked down all the pins. The total play irrespective of the numerals on the faces of the pins is 350, which amount is obtained by adding the positioning points of the pins or the field numbers together and these numbers comprise six points with each a value of 25; two points with each a value of 50 and one point with a value of 100. Now assuming that the nine pins have fallen so that the numeral 8 appears upward on all of them which added together amounts to 72 which, combined with the field amount of 350 would make a possible play totaling 422. This play is possible but it is understood that it would rarely be made.

Now assuming that a play was made and only one of the pins of 25 value was knocked down; and that the numeral 1 was upward on the pin the total play would be only 26.

Referring now to Fig. 1 with its arrangement of fields and playing a game involving the four principal factors of mathematics, it is assumed that a play is made in which all of the pins are knocked down in each of the fields and that the numeral 8 is upwards on the thrown pins; the calculations of addition, subtraction, multiplication and division are all accomplished before a final total is made by addition. In the field of addition *a* there are two pins with a value of 25 each which added to their counter numerals of 8 would make a total of 66. In the field of subtraction *b* there are two pins with a counter value of 50 each and two pins with a counter value of 25 each making a sum of 150 from which is subtracted the counter numerals 8 of each pin or 32 which would leave a total of 118.

In the multiplication field *c* there is one pin with a value of 100 which multiplied by the counter numeral 8 of the pin would produce a total of 800.

In the field of division there are two pins with a counter value of 25 each making a sum of 50 which divided by the sum of the counter numerals 8 of each pin or 16 would give a total of $3\frac{1}{8}$; making a grand total, when the sums of each field are all added together, of $987\frac{1}{8}$.

One of the rules of the game can be that a pin knocked from one field into another will count in the field in which it lies when the play is made.

Now assuming that a play has been made under this rule, with all pins knocked down with numerals 8 up and the four mathematical factors are employed as before; except that in this play the moving top has knocked the pin *e* from the multiplication field *c* over into the division field *d*. Then the count would be as follows: addition and subtraction would be the same with the respective amounts of 66 and 118. With no counter in the field of multiplication it would be eliminated and pin *e* counted in the division field with its value of 100 added

to the value of the other two pins of 25 each making a total sum of 150 to be divided by 24 or which would be 6¼ which when added to the amounts of the other fields would give a total of 180¼.

Now referring to Fig. 3 in which the board is subdivided into four rectangular fields with a common corner on which is centered the pin *e* that has the greatest counter value, and this pin is positioned so that it must fall into one of the four fields of addition, subtraction, multiplication or division, or across a division line between the fields in which instance it will not count; insuring an uncertainty as to what the value of this counter pin will be when it is knocked over. In other words if the pin *e* with a field value of 100 falls and lies fully within the field of addition with the greatest counter numeral 8 upward on the pin the total counting value is 100 plus 8 or 108. If pin *e* falls in the field of subtraction its total counting value is 100—8 or 92; and if it falls in the field of multiplication the value is 100×8 or 800; and if it falls in the field of division its value is 100 divided by 8 or 16½; if the pin falls so that it touches or lies on the intersecting lines *x*—*x* or *y*—*y* the pin has no counting value.

The invention comprises a travelling top with which considerable skill can be developed to so operate it as to cause it to move in directions best calculated to throw down the largest number of pins. This skill is developed in the manipulation of the means for spinning the travelling top, the choice of position for releasing it and also the delicate finger-touch imparted to the top as it moves from the holder. In other words an operator can develop a touch that is imparted at the moment of releasing the spinning top that is effective in causing it to move off in a predetermined direction of travel similar to the touch imparted to a ball manipulated by a ball player.

From the foregoing it can readily be understood that a very wide range of mathematical calculations is possible with this game; with also the factor that the participants will unconsciously acquire alertness, skill and accuracy, without tedious study or arduous labor.

For the sake of brevity the various unimportant rules for playing the game are omitted.

I claim:—

1. In an educational game appliance comprising a level field, and a wall enclosing said field; movable pins adapted to be arranged on said field, and adapted to have a counting value when knocked down; and posts arranged adjacent said pins for guarding them; a traveling top having a stem the lower end of which is inclined, said top being adapted to spin on said stem and off center to its vertical axis so that it will travel over said field to knock down said pins.

2. In an educational game appliance comprising a base on which are arranged a number of fields and a wall enclosing said fields; movable pins arranged in the fields of said base, said pins having a varied counting value when knocked over; posts for guarding said movable pins; and a traveling top for moving over the fields of said base to knock down said pins; said top being provided with a stem on which said top is adapted to spin, said stem having a bottom end that is inclined angularly to the longitudinal axis of said stem.

3. An educational game appliance comprising a base on which are arranged a number of fields and a wall enclosing the fields of said base; movable pins arranged in the fields of said base, and a traveling top for moving over the fields of said base to knock down said pins and being provided with a stem on which said top is adapted to spin, said stem having a bottom end that is inclined off two degrees more or less from a line perpendicular to the axis of said stem.

4. In an educational game appliance the combination with a base on which are arranged a number of fields and a wall enclosing the fields of said base; movable pins arranged in the fields of said base, said pins having a varied counting value when knocked over; posts for guarding said movable pins; of a traveling top for moving over the fields of said base to knock down said pins, said top having a stem with a semi-circular edge on which the top is adapted to spin, said semi-circular edge being off center to a vertical axis through the top.

5. In an educational game appliance the combination with a base on which are arranged a number of fields; a wall enclosing the fields of said base; movable pins arranged in the fields of said base, said pins having a varied counting value when knocked over; posts for guarding said movable pins; of a traveling top for moving over the fields of said base to knock down said pins, said top having a stem with a semi-circular edge on which the top is adapted to spin, said semi-circular edge being off center to a vertical axis through the top; and means for spinning said top so that it will move over the fields of said base.

6. A top adapted for use with a game board, said top comprising a body portion and a stem connected to said body portion, said stem having a bottom end that is inclined angularly to the longitudinal axis of said stem.

7. An educational game appliance comprising a base divided into a number of fields; a wall enclosing the fields of said base; movable pins arranged on said fields,

said pins having a varied counting value when upset; posts arranged to respectively guard said pins in various directions from said top; a traveling top for moving over said fields and knocking down said pins; a holder for maintaining said top against lateral movement while rotary motion is imparted to the top; means for moving said holder along the end of said wall; and means adapted to extend over said wall for spinning said top.

8. An educational game appliance comprising a level base; fields of varied counting value arranged on said base; a wall enclosing said fields; movable pins arranged on said fields, said pins having a varied counting value of from 1 to 8 when knocked down, and also said pins when knocked down and into a field impart a varied counting value to such knocked down pin; a traveling top for moving over said field for knocking down said pins; posts for respectively guarding said pins in various directions from said top; means connected to said top whereby it will travel when spun; selective means for positioning said top for spinning; and means for spinning said top within said wall.

9. An educational game appliance comprising a level base; fields arranged on said base; a wall enclosing said fields; movable pins arranged systematically on said fields; a traveling top for moving over said fields to knock down said pins; posts arranged systematically for guarding said pins in various directions from said top; means connected to said top whereby it will travel when spun; a holder; selective means for positioning said holder for spinning said top; and means extending over said wall for spinning said top.

10. An educational game appliance comprising a level base; colored fields arranged on said base; a wall enclosing said colored fields; movable pins arranged systematically on said fields; posts arranged systematically for guarding said pine; a traveling top for moving over said fields to knock down said pins; means connected to said top whereby it will travel when spun; a holder; selective means for positioning said holder for spinning said top; means for spinning said top; and resilient means connected with said posts and wall for deflecting said top when it contacts with either the posts or wall.

11. An educational appliance comprising a level base; colored fields arranged on said base; a wall enclosing said colored fields; movable pins arranged systematically on said fields; posts arranged systematically for guarding said pins; a traveling top for moving over said fields to knock down said pins; means connected to said top whereby it will travel when spun; a holder; selective means for positioning said holder for spinning said top; means for spinning said top; and a rubber band on said wall and rubber sleeves on said posts for deflecting said top when it contacts with either the sleeves or rubber band.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 14th day of February, 1922.

ELIJAH A. OVENSHIRE.

Witness:
WM. M. GEUTTE.