United States Patent [19]

Massicotte

[11] **3,784,197**

[45] **Jan. 8, 1974**

[54] **REACTION GAME WITH SCRAMBLING OF INDICIA**

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[52] **U.S. Cl.** ..... **273/1 E,** 35/35 G, 273/1 R, 273/143 R

[51] **Int. Cl.** **A61b 5/16**

[58] **Field of Search** ..... 273/1 R, 1 E, 1 M, 273/143; 35/35 G, 22 R

[56] **References Cited**

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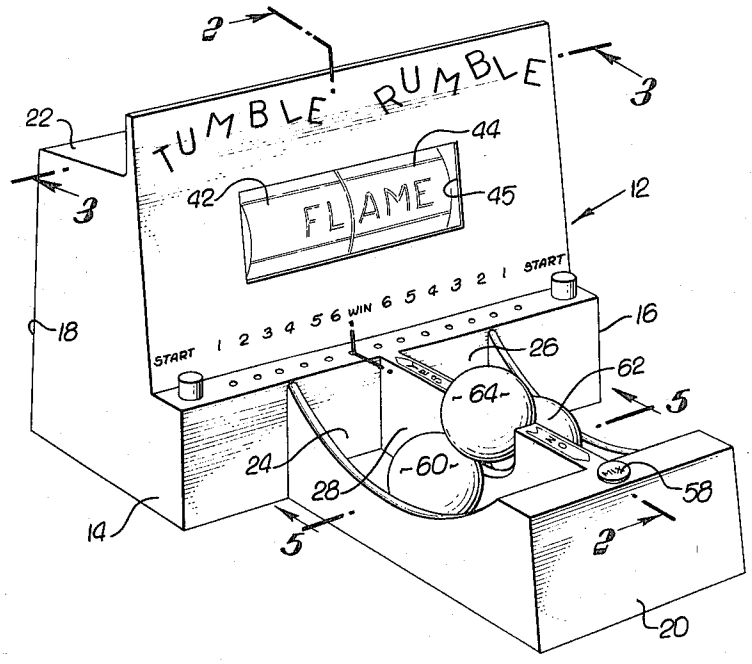
Primary Examiner—Richard C. Pinkham
Assistant Examiner—Paul E. Shapiro
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[57] **ABSTRACT**

A mechanical device that, when actuated, will randomly rotate hoops loosely carried by an axle so as to scramble indicia carried on the exterior of the hoops relative to each other.

An indicating apparatus, which can be used with the indicia scrambler, includes a movable indicator member supported by two changeable-position reaction members, either of which, when moved, can cause the indicator member to move to associate with it.

10 Claims, 11 Drawing Figures



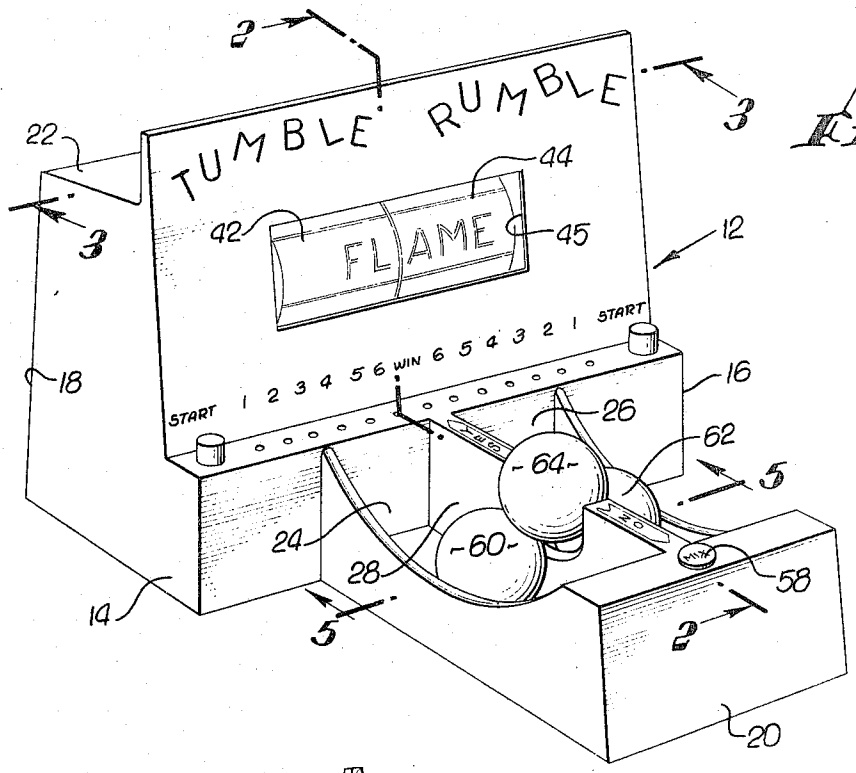


FIG. 1.

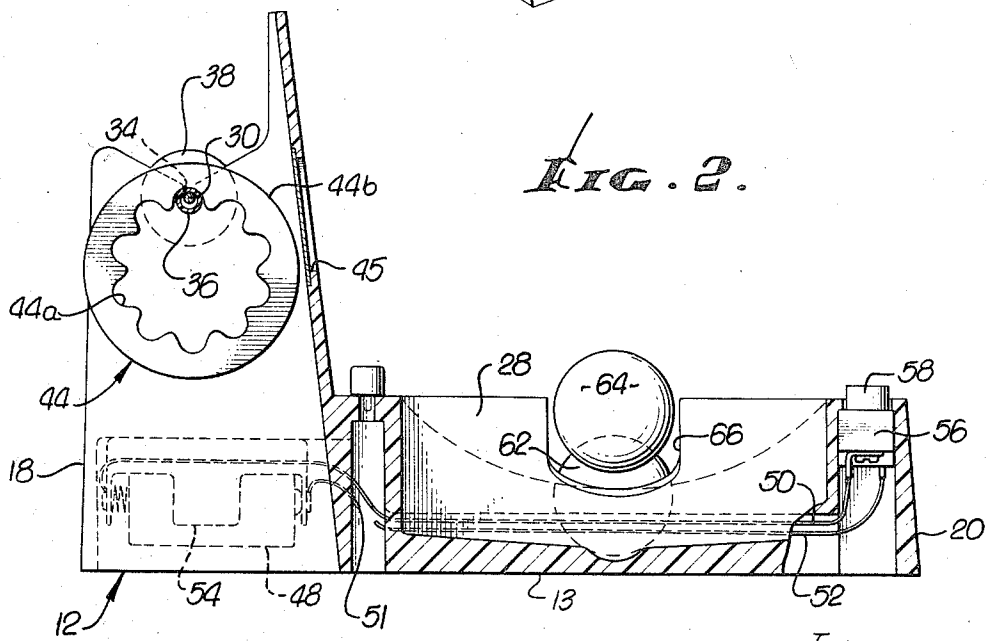


FIG. 2.

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FIG. 3.

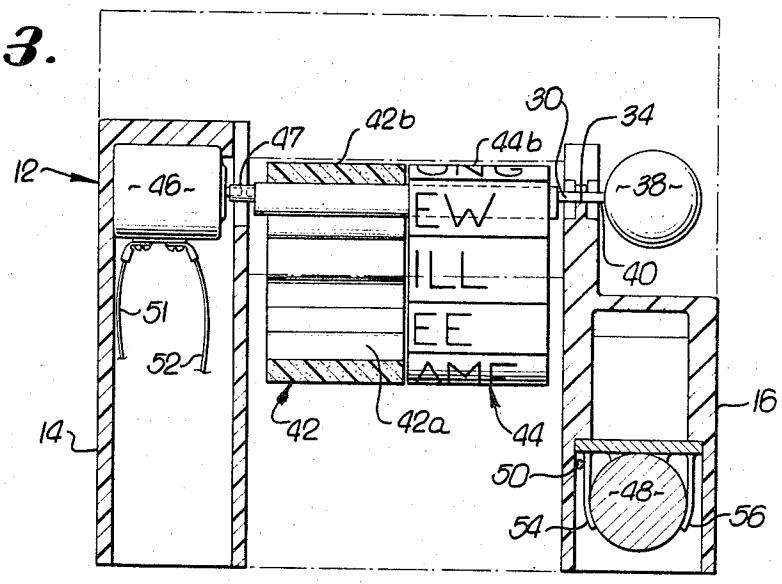


FIG. 5.

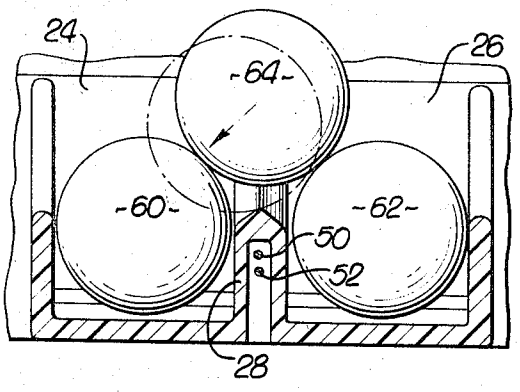


FIG. 6.

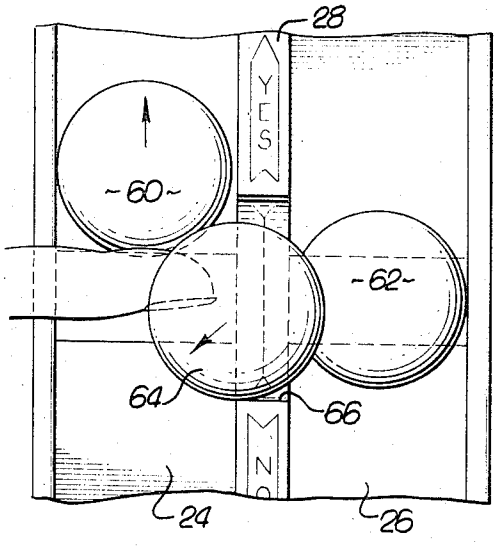
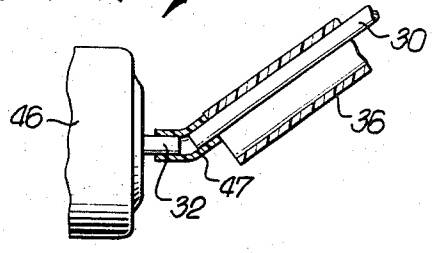


FIG. 7.



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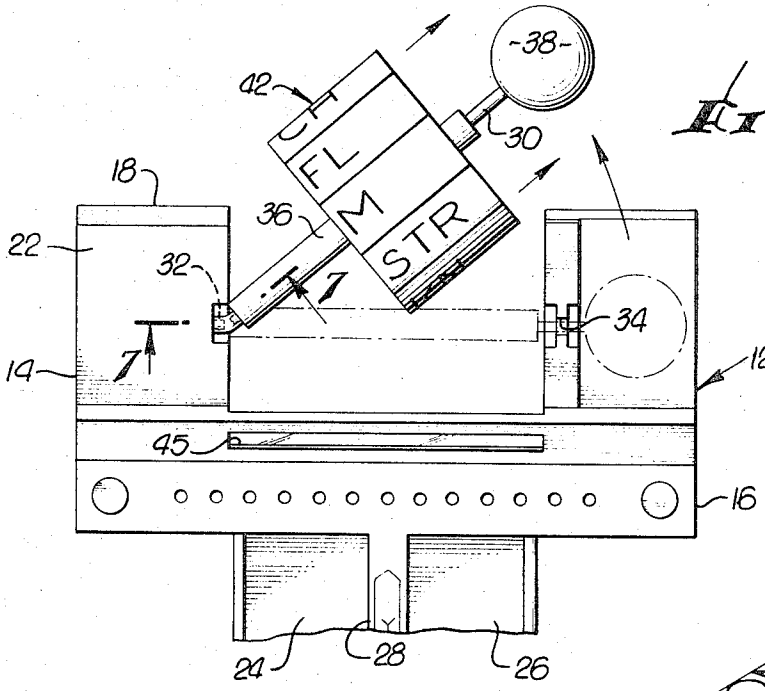


FIG. 4.

FIG. 8.

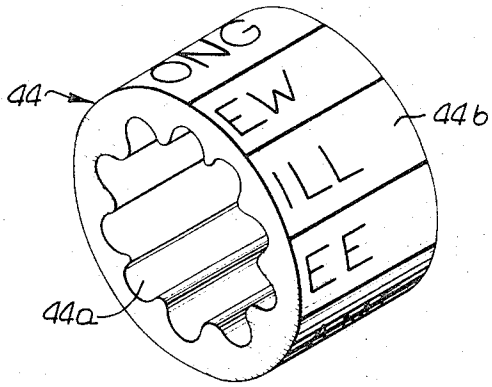


FIG. 9.

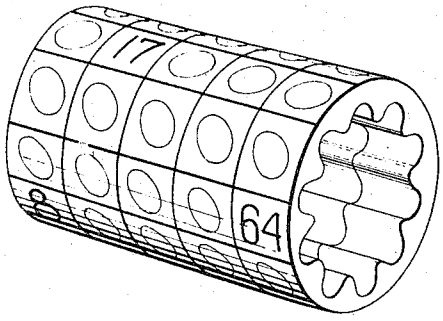


FIG. 11.

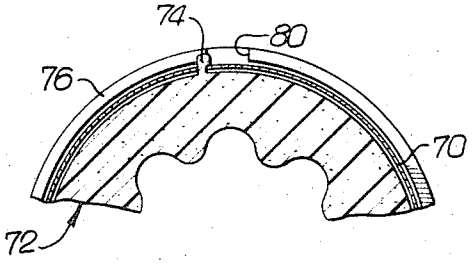
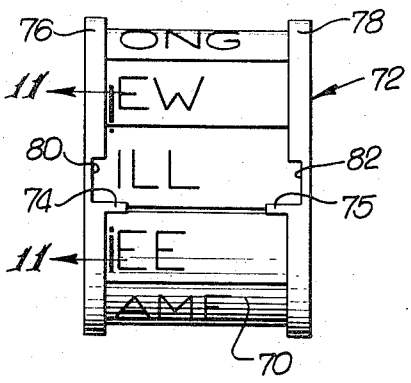


FIG. 10.



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REACTION GAME WITH SCRAMBLING OF INDICIA

BACKGROUND OF THE INVENTION

The scrambling of various indicia by rotating rings carrying the indicia has long been a popular basis for entertainment devices. However, prior to this invention the immediate alignment of indicia on adjacent rings has seldom been achieved without expensive and cumbersome mechanisms. Hence, precise, quick alignment of indicia which can form a basis for testing reaction time has not generally been feasible.

Further, devices that can economically, reliably, and accurately test reaction time which can be used with indicia scrambling devices have not been available. The result has been the absence of truly workable indicia scrambling devices which are combined with accurate reaction indicating devices that are economically feasible and reliable to use.

Hence, among the desirable objects attained by this invention are included simple and efficient means for successively displaying a changing variety of indicia without necessitating premeditation or forethought as to their order. The apparatus operates automatically throughout to repeatedly replace series of indicia varying in assortment and the variety included in each succeeding series is undeterminable, and consequently premeditation is not required to provide a continuously changeable series.

Moreover, the device has utility for education pruposes as it affords means for displaying indicia in practically endless variety and reduces the labor of selecting and displaying numbers, colors, pictures, or the like to students in testing their knowledge or instructing them.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of a device in accordance with invention showing a scrambled word part game.

FIG. 2 is a longitudinally sectioned view of the game as shown in FIG. 1 taken on the plane of lines 2 — 2.

FIG. 3 is a horizontally sectioned view of the game as shown in FIG. 1 taken on the plane of lines 3 — 3 therein.

FIG. 4 is a fragmented top plane view showing the axle lifted out of position to interchange the tumblers.

FIG. 5 is an enlarged detailed horizontally sectioned view taken through the plane of lines 5 — 5 in FIG. 1 showing the reaction and indicator balls.

FIG. 6 is a top plan view of the reaction and indicator balls similar to FIG. 5 but moved to a different position.

FIG. 7 is an enlarged, detailed, partially sectioned, view of the axle mounting to the drive shaft of the motor taken on line 7 — 7 in FIG. 4.

FIG. 8 is an isometric view of a typical tumbler used with this device similar to that shown in the previous Figures.

FIG. 9 is an isometric view of a modified set of tumblers which is illustrative of what can be interchanged and used to play bingo.

FIG. 10 is a front elevational view of another modification of the tumbler usable with this device which includes an interchangeable indicia strip.

FIG. 11 is a fragmented cross-sectional view taken through 11 — 11 in FIG. 10 showing the detailed attachment means for the interchangeable indicia strip.

DESCRIPTION OF THE INVENTION

Referring to the drawings, a preferred embodiment of this invention is illustrated which is enclosed in a hollow housing **12** formed with a generally flat base **13**, spaced parallel side walls **14** and **16**, and walls **18** and **20**, and a top portion joining the upper edges of said walls **14**, **16**, **18**, and **20** which includes an enlarged raised dome **22** forward of which are a pair of recessed pockets **24** and **26** separated by a raised divider segment **28**.

Mounted for substantially horizontal rotation within dome **22** is an axle **30** supported by bearings **32** (an extension of the motor drive means) and **34** formed as a teflon-lined slot in housing **12**. A peripheral tubular axle member **36** is attached offset on an internal side thereof to axle **30** so as to impart an eccentric arcuate motion thereto when the axle **30** is rotated. Other means for imparting eccentric motion to the axle, such as offsetting the axle on its means for rotation, if essentially consistent with the means for achieving the desired results, may be used in this invention.

In order to provide a quick release of the tumblers from the axle **30** it is pivotally mounted to the bearing support **32** and bearing support **34** is open at the top. A flywheel-type rotation continuance effect is created by attaching a weighted ball **38** on the free end **40** of axle **30**. The weighted ball **38** also functions to prevent the free end **40** of axle **30** from jumping out of its open bearing support **34** during rapid axle rotation.

Hoop-shpaed tumblers **42** and **44** are loosely carried by axle **30** so that a portion of each of their respective circumferential internal peripheral surfaces **42***a* and **44***a* bears against an adjacent portion of tubular axle member **36**. Each of the internal peripheral surfaces **42***a* and **44***a* is formed with a series of inclined recessed portions separated alternately by a raised portion so as to produce a convoluted form and a general corrugated effect. The diameter of the tubular axle member **36** is smaller than a recessed portion between the separated raised portions which define each of its edges. In the form shown in the drawings, the curved shape of each of the recesses loosely fits the circular exterior shape of the tubular axle member **36**. These corresponding relationships of size and shape help achieve the operative effect of this device described herein later. Generally, the central axis of each tumbler is substantially parallel with the axle. Also the axle diameter is sufficiently small to frictionally engage the recessed portions of the tumblers.

On the circumferential exterior peripheral surfaces **42***b* and **44***b* of each of the tumblers **42** and **44** are a series of indicia, which, in this case, are parts of words. Each of these indicia correspond to one of the recessed portions in the internal peripheral surfaces **42***a* and **44***a*, respectively, and is adjacent thereto. Hence, when the tumblers **42** and **44** are resting on axle member **36** in one of their recessed portions, the corresponding respective indicia are aligned between the tumblers **42** and **44**. Moreover, after the tumblers have been rotated and they are coming to rest, they are urged to become aligned in their respective recesses by their inclined shape.

Means to rotate axle **30** and impart eccentric rotational motion through axle member **36** to cause tumblers **42** and **44** to rotate is provided by a motor **46** mounted in housing **12**. The rotary driving means of

motor **46** is attached to axle **30** through the extended motor bearing **32** and flexible coupling **47** to provide said rotation. In the form illustrated, the motor **46** is of the electric direct current type and is powered by a dry cell battery **48** which is mounted in housing **12** in easy release holding spring arms **54** and **56** as shown in FIG. **3.** Included within the electrical circuitry is a normally-off circuit breaker switch **56** which is mounted in a forward section of housing **10** as shown in FIG. **2** and is operated by a spring-returned pushbutton **58** which protrudes through a mating opening in the housing. In this arrangement the motor **46,** dry cell **48,** and switch **56** each have **2** electrical terminals. One terminal of the dry cell **48** is electrically connected to one terminal of the switch **56** through wire **50.** The other terminal of the dry cell **48** is electrically connected to one terminal of the motor **46** through wire **51.** A third wire **52** completes the configuration by electrically connecting the remaining terminal of the motor **46** to the remaining terminal of the switch **56.**

Scrambling of the indicia is commenced by depressing pushbutton **58** to close the circuit through dry cell battery **48** and motor **46,** energizing motor **46** to cause the attached axle **30** to begin rotational movement. The eccentrically attached axle member **36** then begins eccentric rotational movement thereby causing an upward thrust force to be exerted upon the internal surfaces **42***a* and **44***a* through half of each complete rotation of axle **30.** This thrusts the respective tumblers **42** and **44** into an essentially upward trajectory which, when the rotational speed of axle member **36** is sufficient, causes the tumblers to lift out of the respective particular recesses within which they are resting so that the tumblers will free-float. In this state occasional contact of a bouncing nature will occur between the axle member **36** and the internal surfaces **42***a* and **44***a* thus imparting kinetic energy (of rapidly varying magnitude and direction) to the respective tumblers thereby causing each tumbler individually to undergo random motion consisting of rapidly varying rotational, vertical, and horizontal components of movement. The tumblers are preferably made of foam plastic or other light material.

Hence, since the tumblers will not bounce on the axle member **36** in exactly the same manner, the relative amount of rotation of the tumblers to each other will vary. When the rotation is stopped, they will rest in different recessed portions of internal peripheral surfaces **42***a* and **44***a* so that correspondingly different indicia will be aligned on external peripheral surfaces **42***b* and **44***b* which can be viewed through an opening **45** in the forward wall of dome **22.** That is, rotation of axle **30** at predetermined speeds will cause random scramble motion in the tumblers carried thereon so that when they come to rest when rotation is stopped, the indicia carried on the tumblers are, also, randomly scrambled relative to each other.

An analysis of the characteristics of the tumblers and axle member upon which they are carried so as to achieve the desired result of reliable alignment of the tumblers relative to each other after rotation when the axle stops indicates that the dynamics of the gravitational force and frictional movement are specially developed by the structure of this invention. That is, the hollow core tumblers' internal peripheral surfaces are convoluted so that a continuous series of slopes are formed which are steep enough that as the rate of axle rotation diminishes below a preselected point each tumbler will slide down into a chance-selected recess between converging slopes of the tumbler to seat the tumbler on the axle member **36.** Thus, each tumbler, through its own weight, is forced to come to rest in one of various predetermined orientations thereby providing a quick alignment of the tumblers relative to each other so that a positive indicia read-out can be made.

An important function of the weighted ball **38** is to reduce the gradient of deceleration of the rotational speed of the axle in order to insure that ample time will be provided for the tumblers to experience the aligning effects of a relatively slow rotating axle member **36** before the axle member comes to rest. Thus, were the gradient of deceleration of the rotational speed of the axle sufficiently steep, the axle could then at least occasionally come to a complete stop before the tumbler comes out of the free-floating state thereby permitting the tumbler to land upon the non-rotating axle member **36.** If when the tumbler lands upon the non-rotating axle member **36** the particular contact between the tumbler and the axle member is of such a nature as to prevent the tumbler from seating one of its recesses to the axle member, it will probably not be possible to make a positive indicia read-out.

On the other hand, the flywheel-type rotation continuance effect created by the weighted ball **38** will cause the gradient of deceleration of the rotational speed of the axle to be sufficiently mild such that after the motor is de-energized, the axle member **36** will continue for a while to force the free-floating scrambling condition of the tumblers. When the axle member slows to a point that is insufficient to sustain the tumblers in a free-floating condition, the tumblers will land upon the rotating axle member. If the tumbler lands on the axle member in such a manner as to tend to resist the seating of the tumbler to the axle member which is an unfavorable position, rotation of the axle member will supplement the alignment efforts of said continuous series of slopes by rolling the tumbler out of the unfavorable position and into a recess. The axle member will then continue to rotate very slowly for a short while as the last of the axle's rotational energy is dissipated. Even though the axle member **36** will continue to rotate for a short duration following the alignment of the tumblers, the slowly rotating axle member **36** will not roll the tumblers out of the aligned status because of the steepness of said slopes in combination with an adequately low coefficient of friction between the axle member **36** and the interior peripheral surfaces of the tumblers.

A reaction indicator device sued in this invention includes a changeable-position first reaction ball **60** carried in pocket **24,** a changeable-position second reaction ball **62** carried in pocket **26** and a mobile indicator ball **64** mounted in a loosely conforming slot **66** formed in the divider segment **28** which acts as a barrier means separating the pockets **24** and **26.** Each of the floors of pockets **24** and **26** slope downwardly from both ends on a plane perpendicular to divider segment **28** toward central grooves which are disposed on opposite sides of slot **66** on a line perpendicular to divider segment **28.** Hence, normally as shown in FIGS. **1** and **5,** indicator ball **64** will be supported in slot **66** by reaction balls **60** and **62** on each side since the force of gravity will urge balls **60** and **62** to roll into a resting position in the cen-

tral grooves which serve as retention means and are the respective lowest positions in pockets **24** and **26.**

Support is removed from the indicator ball **64** when the position of at least one of the reaction balls **60** or **62** is sufficiently changed to achieve this result. That is, if either one of the reaction balls **60** or **62** is moved forward or backward in its respective pocket, indicator ball **64** will lose its support on that side because of the directing means of this structure and reaction balls and drop out of the slot **66** and into the pocket corresponding to that reaction ball which was first to be moved. In order to eliminate the possibility that the indicator ball **64** will occasionally come to rest on the floor of the slot **66** and to insure that the indicator ball **64** will invariably fall into a pocket, slot **66** has a floor that is formed by two inclined planes that slope downwardly from a plane that is parallel to and midway between the faces of the divider segment. The reaction balls **60** and **62** are substantially equal in size so as to provide balanced reaction time. Also, preferably, indicator ball **64** is substantially equal in size with the reaction balls. Players of this game can deflect and move their respective reaction ball by pushing it with a finger in the form shown. Other deflection means (not shown) could be to use mechanical, electrical, etc. means to deflect the reaction balls.

In order to use this device as a game adapted for two persons to play, the objective is to determine which player first recognizes and evaluates relative information on the indicia of the tumblers **42** and **44** as they come to rest after scrambled rotation is caused by pushing and releasing button **58.** As an indicator of the first player to react, each player will have one of the reaction balls **60** or **62** to move when he knows the answer to the problem on the tumblers. The first player to move his reaction ball will cause the indicator ball **64** to drop into his pockets as illustrated by the movement in FIG. **6.** To determine whether the answer is correct to a yes-no type question, the front part of each pocket is designated "no" and the rear part is designated "yes." Thus, the reaction ball is moved into the part of the pocket which is thought to represent the correct answer. A suggested scoring is 1 point for a player's correct reaction and a 2 point penalty for a player's incorrect reaction. The pegs with marked holes for each player as shown in FIG. **1** represent a convenient manner for keeping score.

In order to interchange tumblers to provide different indicia, the axle **30** can be pivoted out and the tumblers quickly changed as shown in FIG. **4.** More than two tumblers can be used, depending on the requirements of the game problem, as illustrated by the five tumblers shown in FIG. **9.**

In addition, a tumbler can be made so that the indicia are contained on a strip which can be made of paper, plastic, or other flexible material which can be attached to the exterior peripheral surface of the tumbler as shown in FIG. **10** and **11.** In this form the strip of paper **70** is substantially the length of the circumference of the tumbler **72** to which it is to be attached. The tumbler **72** is provided near each side edge with small protruding aligned transverse stops **74** and **75** which have slightly enlarged outer ends and inwardly sloping faces nearest the outer circumferential peripheral surface of the tumbler to form transverse grooves on one side of the stops. Extending circumferentially on both edges around the tumbler **72** are inwardly turned lips **76** and **78** which provide a groove on each edge around the tumbler opening only adjacent to the transverse stops **74** and **75.** Thus, the strips of various indicia can be easily interchanged and held in place on the side edges by the grooves formed under the lips **76** and **78** and the first-to-enter edge held in place by the grooves formed under lips **76** and **78** and the last-to-enter edge held in place by sliding under the transverse grooves formed by stops **74** and **75.** The size of indicia strip **70** is closely conformed to the dimensions of the outer peripheral surface of tumbler **72** so that it will be held in place by the grooves thereon. It is interchanged by sliding one end through openings **80** and **82** in the respective lips **76** and **78** until removed or snapped completely in place. The function of the transverse grooves formed in stops **74** and **75** is to provide a holding means for the last-to-enter edge of strip **70** which can be a single transverse groove or plurality of grooves.

As examples of several games which may be played with this device, the following is intended to show how it may be used with illustrative instructions for the games:

PREPARATION

There are many Tumble Rumble programs, covering subjects of every sort. However, no matter what program is on, the playing rules stay the same. In this high-speed game of reflex two players are matched against one another, each trying to be the first to score seven polints for a WIN. Included with each program is the program question. The question can always be answered with simply "yes" or "no." Choose the program you want to play and loop these tumblers over the Tumble Rumble shaft. The two players sit in front of Tumble Rumble, one to the left and one to the right. Read the program question and make sure you have it well in mind. This same question is used throughout the entire game. It is used anytime that this program is on.

MIXING

The player at the left begins the game by pressing the "MIX" button, causing the electric motor to turn the Tumble Rumble shaft and bat the tumblers into chance motion. The player then releases the button. This causes the Tumble Rumble shaft to come to a stop and to make the tumblers line up. Pay attention only to what you see in the window, between the bars. Except for the first mix of the game, the MIX button is to be operated by the player who did not score on the previous mix.

CLAIMING

Each of the two players must try to decide as fast as possible whether the answer to the question is "yes" or "no." He must then immediately claim this stand by flicking his ball (the red ball that rests in his claim alley) in the direction of the "YES" arrow, if his answer is "yes," or in the direction of the "NO" arrow, if his answer is "no."

SCORING

In Tumble Rumble you are rewarded for observing quickly and accurately, for analyzing quickly and accurately, and for acting quickly and accurately. Basically, the game will be won by the person who is better at getting the right answer fast. For each mix both players have the opportunity to score; however, only one of the

players will score. One point is earned for being first to claim an answer, by capturing the black ball; however, if the opponent can prove that the answer was wrong, no point is allowed for being first and the opponent gets two points for carefulness. A proof list is provided with every program in which one is practical. Either player may look at the proof list at any time during the game, even when trying to decide which answer to claim.

PROGRAM 101

QUESTION

In the real world is the thing pictured on the left larger than the thing pictured on the right?

PROOF LIST

Here are the names of all 20 things that are seen in this program. The first thing on the list is the smallest. The second thing is larger than the first, but smaller than all the other things. The farther we look down the list the larger are the things. The last thing on the list is the largest of all.

ladybug
housefly
ring
key
pocket watch
pear
drinking glass
football
loaf of bread
rabbit
chair
horse
car
bus
house
church
stadium
mountain
moon
Sun

PROGRAM 102

QUESTION

Is this group of letters a word?

SPECIAL INSTRUCTIONS

Any words of general usage in the United States are "words" for the purpose of this game except those capitalized, abbreviations, and words requiring apostrophes or hyphens.

PROOF LIST

Here are all of the words that can appear in the window. To make them easy to find they are listed in alphabetical order. So that you might become more familiar with these words one meaning is given to you with each of the words. For most of the words the pronunciation is obvious. With two of these words, however, the correct prounnunciation is shown in parentheses to give help, if necessary.

chew: to crush with the teeth.
chick: a young chicken.
chill: a bodily coldness.
chip: a small piece of wood broken off.
chough: (chuf) any of several crowlike, Old World birds.
drew: past of "draw."
drill: a tool for making holes.
drip: to fall in drops.
flame: the burning gas of fire, appearing as a tongue of light.
flee: to go swiftly, as from danger.
flew: past of "fly."
flick: to strike with a light, quick stroke.
flip: to toss with a quick jerk.
flong: material used for making printing molds.
flower: blossom.
knee: the joint between the thigh and the lower leg.
knew: past of "know."
knower: one who knows.
lame: crippled.
land: the solid part of the earth's surface.
lee: shelter.
lick: to pass the tongue over.
lip: either of the two fleshy folds forming the edges of the mouth.
long: measuring much in space or time.
lower: to let down.
mew: (mu) a cage, as for hawks.
mill: a building with machinery for grinding grain into flour.
mower: a machine for cutting grass.
rand: in shoemaking, a strip of leather set in a shoe at the heel before the lifts are attached.
rick: a stack of hay.
rill: a little brook.
rip: to tear apart roughly.
rough: uneven.
rower: one who propels a boat by using oars.
shame: dishonor.
shill: One who poses a customer in order to attract others into participating in a gambling game.
ship: any large vessel navigating deep water.
shower: a brief fall of rain.
strand: any of the threads that are twisted together to form a string.
strew: to scatter.
strick: any of the pieces cut from a layer of carded and combed silk.
strip: a long, narrow piece.
strong: physically powerful.
three: one more than two.
threw: past of "throw."
thrill: to cause emotional excitement.
throng: a crowd.
through: in one side and out the other side of.
thrower: one who sends something through the air by a rapid motion of the arm.

PROGRAM 103

QUESTION

Is this a BINGO?

EXPLANATION

A BINGO occurs when all of the numbers in one straight line are covered with BINGO chips. Therefore, if one or more numbers are still uncovered, you do not have a BINGO.

Though certain preferred forms of this invention have been described and illustrated herein, this invention is not intended to be limited strictly thereto, but is to comprehend the scope of the following enclosed claims.

I claim:

1. An indicia scrambling machine comprising: a housing formed with a first bearing support horizontally spaced from a second bearing support; a horizon-

tal axle member mounted on said bearing supports to impart eccentric motion to elements rotated thereon; said axle member having a free end upon which is mounted a weighted element; at least one hoop-shaped tumbler loosely carried by said axle wherein said tumbler is formed with a series of inclined recessed portions within its internal circumferential periphery, each of which are separated by a raised portion to produce a convoluted form, and a series of indicia, each of which correspond to one of said recessed portions, positioned on the exterior circumferential periphery of said tumbler; means to rotate said tumbler; a reaction indicator device including a first pocket, a second pocket, a divider segment separating said first and second pockets, a first reaction ball carried in said first pocket, a second reaction ball carried in said second pocket, an indicator ball partly supported by said first reaction ball and said second reaction ball, wherein said first reaction ball and said second reaction ball can be moved by a player within their respective pockets to remove support from said indicator ball so that the first to be moved causes said indicator ball to drop into the associated pocket thereby indicating the quickest reaction to the stimulus of the indicia shown on said tumbler.

2. An indicia scrambling machine as defined in claim 1 wherein said first and second reaction balls are normally urged to a central position within said pockets when providing support for said indicator ball and each reaction ball can be moved to a forward or a backward position within its respective pocket to separately designate two different responses to the indicia stimulus.

3. An indicia scrambling machine as defined in claim 1 wherein the means to rotate said tumbler includes a motor mounted within said housing to rotate said axle member and means to selectively actuate said motor.

4. An indicia scrambling machine as defined in claim 1 wherein said axle member includes an offset attached tubular portion to impart eccentric motion thereto when rotated.

5. An indicia scrambling machine as defined in claim 1 wherein at least one end of siad axle member can be lifted free of its bearing support sufficiently to easily interchange tumblers carried thereon.

6. An indicia scrambling machine as defined in claim 1 wherein said housing is hollow and includes a raised dome within which said tumbler is carried and said dome includes an open portion through which specific indicia on the periphery of said tumbler can be seen.

7. An indicia scrambling machine as defined in claim 1 wherein the reaction balls are substantially the same size.

8. An indicia scrambling machine as defined in claim 1 wherein the reaction balls and indicator ball are substantially the same size.

9. An indicia scrambling machine comprising: a housing; an axle mounted within said housing; at least one hoop-shaped tumbler loosely carried on said axle so positioned that its central axis is substantially parallel with said axle, each of which tumblers carries a series of separate indicia markings on its circumferential periphery, said tumblers having formed on their internal periphery separate recessed portions corresponding to each of said indicia, wherein said tumblers are urged by gravity to rest on said axle in one of their internal recesses; means for rotating said tumblers randomly relative to each other to impart scramble motion to said tumblers so that, when at rest, randomly scrambled indicia are aligned relative to each other on the tumblers; and an indicating apparatus having a supporting structure; at least two changeable-position reaction members carried by said supporting structure; one mobile indicator member supported at least in part by said reaction members; a barrier means separating at least in part each of said reaction members; a directing means to force said indicating member to associate with one of said reaction members when the position of at least one of said reaction members is sufficiently changed to remove support from said indicating member; a retention means to confine said reaction members to separate home positions where said reaction members support said indicator member until one of said reaction members is forced to change position so as to cause said indicator member to move, at least in part, to that side of the barrier means corresponding to the reaction member that underwent change in position thereby indicating which reaction member was first to undergo a change in position.

10. An indicating apparatus comprising: A supporting structure; at least two changeable-position reaction members carried by said supporting structure; one mobile indicator member supported at least in part by said changeable-position reaction members; a barrier means separating at least in part each of said reaction members from the rest of said reaction members; a directing means to force said indicating member to associate with one of said reaction members when the position of at least one of said reaction members is sufficiently changed so as to lose support from said reaction member; a retention means to confine each of said reaction members to a home position which supports said indicator member until one of said reaction members is forced to change position so as to cause said indicator member to move, at least in part, to that side of said barrier means corresponding to the reaction member that underwent change in position thereby indicating which reaction member was first to undergo a change in position; in combination with an indicia scrambling means.

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