TOY

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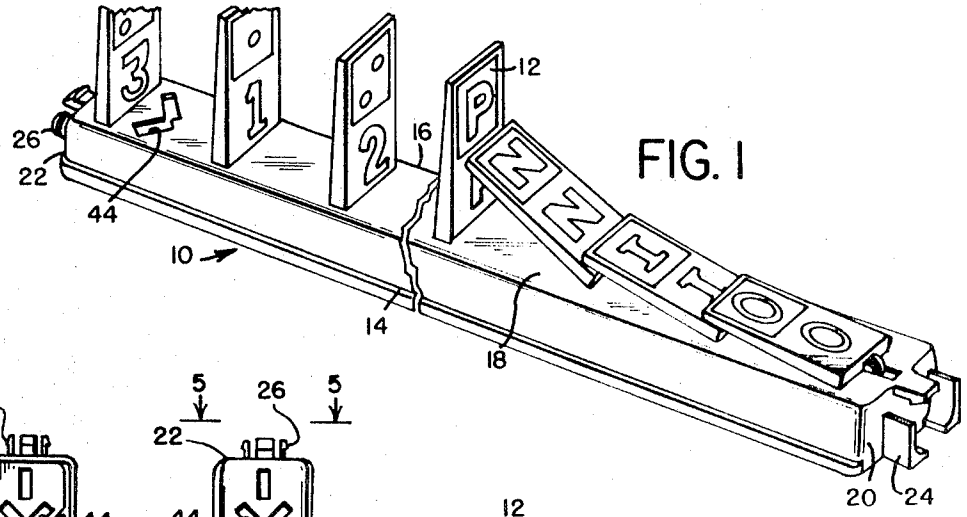


FIG. 1

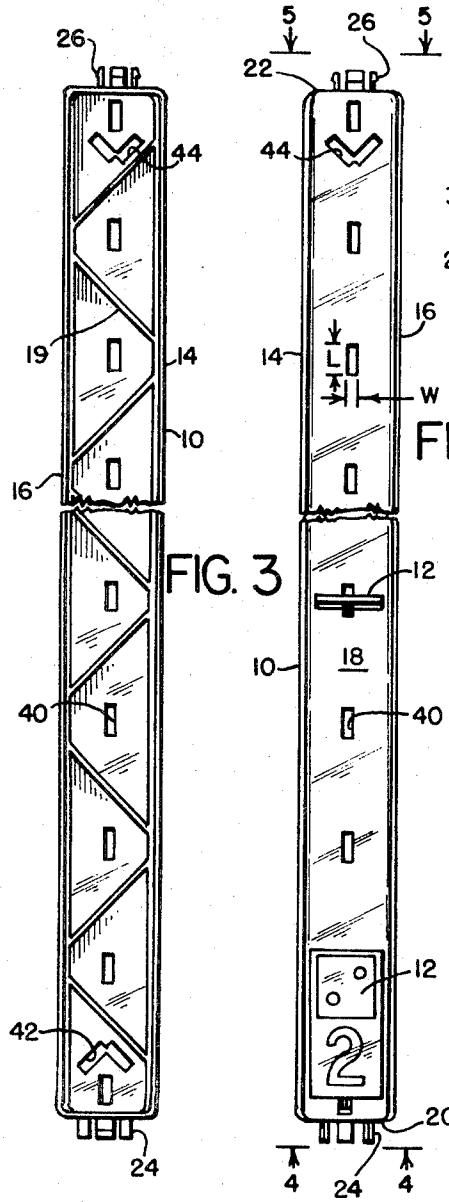


FIG. 3

FIG. 2

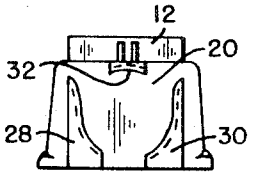


FIG. 4

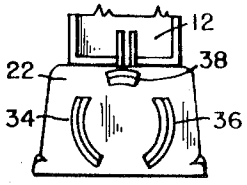


FIG. 5

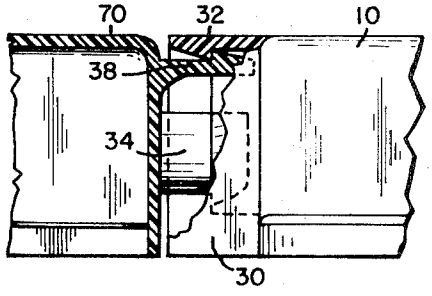


FIG. 6

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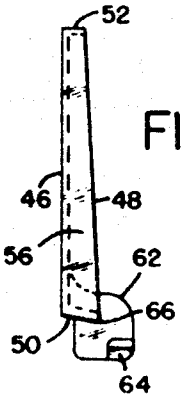


FIG. 10

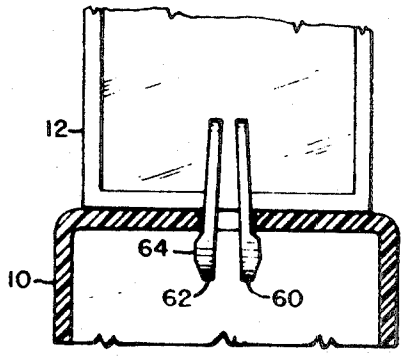


FIG. 11

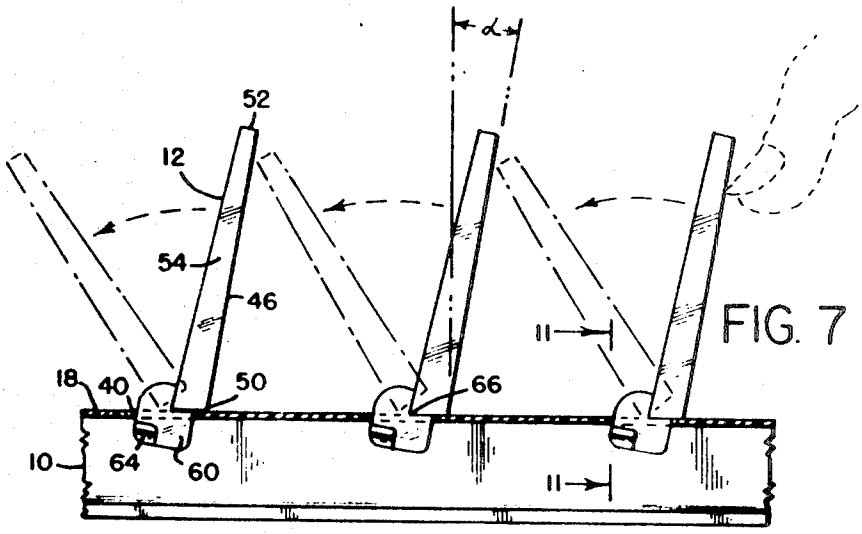


FIG. 7

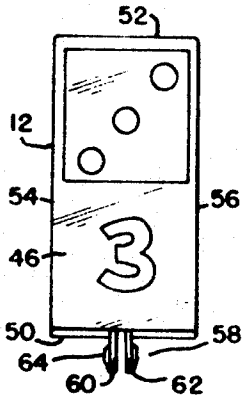


FIG. 9

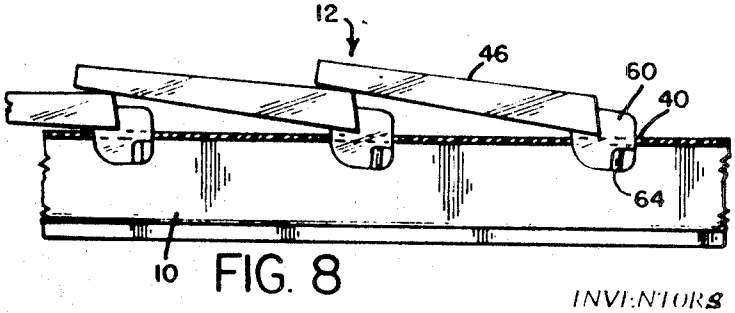


FIG. 8

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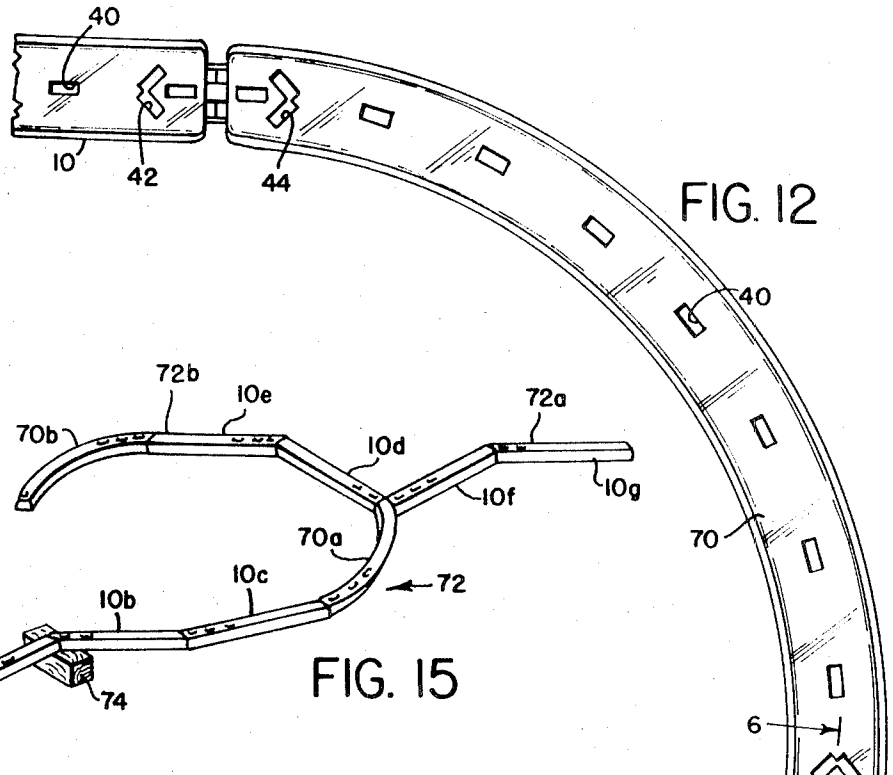


FIG. 12

FIG. 15

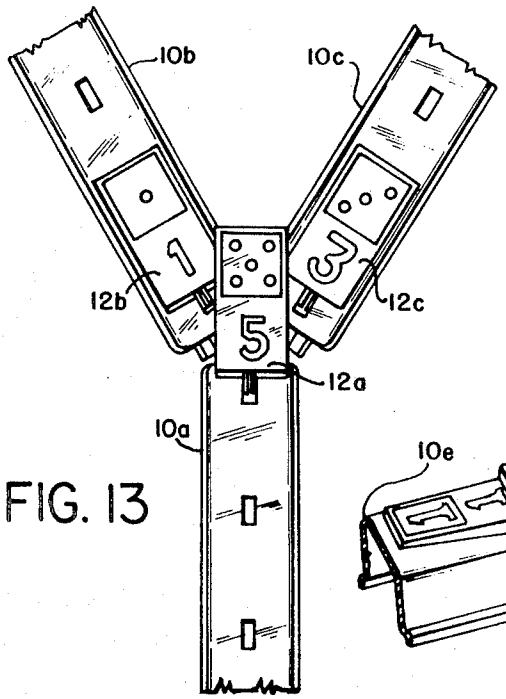


FIG. 13

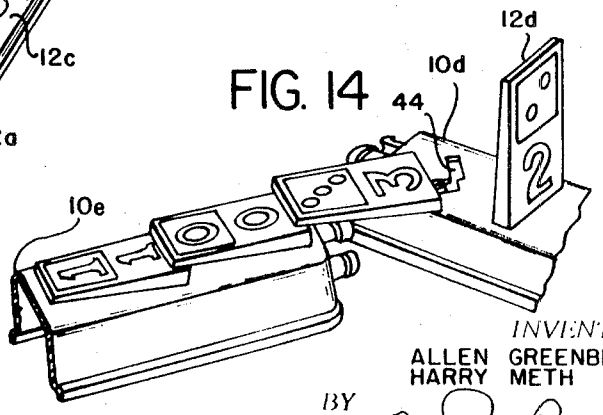


FIG. 14

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U.S. Cl. 46—1 R 12 Claims

ABSTRACT OF THE DISCLOSURE

A toy which includes an elongate base member and a plurality of flat plate members or chips pivotally attached to the top surface of the base. A plurality of spaced apart openings are provided in the top surface, and each chip is connected to the base so that it engages one of the openings. In assembled relationship, the chips are pivotable between inclined and upright positions, and they are separable from the base member with a minimum amount of effort.

The present invention relates to a toy, and more particularly to an amusement and educational toy having a plurality of individual, movable members which cooperate with each other to move sequentially in a prescribed manner.

Toys and games of numerous types and varieties have been devised throughout the years for amusement or educational purposes. Since a large number of toys and games are designed primarily for children, it has been found to be advantageous if the toy or game can provide both amusement, as well as educational benefits. One toy which has been played throughout the years by both children and adults, involves the use of flat, oblong pieces marked with one or more pips, on at least one surface; this game is well known as the game of dominoes. As known to those familar with this game, a common diversion from the usual game involves standing a number of the dominoes on one of their respective ends and positioning them in a prescribed alignment with respect to each other. By then hitting or striking one of the upstanding dominoes at one end of the alignment, the entire series of upstanding dominoes can be caused to sequentially fall onto one of its surfaces; while so falling of course, each falling domino strikes an adjacent domino and causes it to fall in a like manner. The dominoes must then be individually set up if the operation is to be performed again. The setting up step can be quite tedious, especially if a large number of dominoes are employed.

Accordingly, one object of the present invention is to provide a new and improved toy or game.

Another object is to provide a new toy or game having both amusement and educational features, and one which can be enjoyed by both children and adults.

A further object is to provide a new toy or game having a number of movable pieces or elements which can be transferred between upstanding and inclined positions quickly and with a minimum amount of effort.

A still further object is to provide a new toy or game having a number of movable elements pivotally attached to a base member in such a manner that they can be separated therefrom with a minimum amount of effort.

Another object is to provide a new and improved amusement toy or game which is simple and durable in construction, and inexpensive to manufacture.

Other objects and advantages of the invention will become apparent from a consideration of the following specification and drawings. Before proceeding with a detailed description of the invention however, a brief description of it will be presented.

In general, the invention includes an elongate base member or track having a prescribed length and a prescribed shape or configuration. The base member is provided with a top surface having a plurality of spaced apart openings therein, aligned along the longitudinal axis of the base member. A plurality of flat, oblong plate members or chips are connected to the openings in the surface of the base member in such a manner that they can readily be pivoted between a vertical or upright position, and a horizontal or inclined position, and in such a manner that they can readily be separated from the base member with a minimum amount of effort. The chips are caused to pivot or fall in a sequential manner by striking one of the end chips.

The invention will best be understood by reference to the following drawings wherein:

FIG. 1 is a partial perspective view illustrating a number of plate members or chips pivotally attached to a base member, some of the chips being in an upright position and some of the chips being in an inclined position;

FIG. 2 is a top plan view of a base member with a single upstanding chip and a single inclined chip attached to its top surface;

FIG. 3 is a bottom view of the base member shown in FIG. 2;

FIG. 4 is an end view taken along line 4—4 of FIG. 2;

FIG. 5 is a partial end view taken along line 5—5 of FIG. 2;

FIG. 6 is an enlarged partial sectional view taken along line 6—6 of FIG. 12 showing two base members connected together;

FIG. 7 is an enlarged partial sectional view illustrating the base member, and a number of chips in an upstanding or substantially vertical position;

FIG. 8 is a view similar to FIG. 7 but illustrating the chips in an inclined or substantially horizontal position with respect to the base member;

FIG. 9 is an enlarged front elevational view depicting the front or top surface of one of the chips;

FIG. 10 is a side elevational view of the chip shown in FIG. 9;

FIG. 11 is an enlarged partial sectional view taken along line 11—11 of FIG. 7;

FIG. 12 is a top view illustrating a curved base member connected to a straight base member at each of its ends;

FIG. 13 illustrates another arrangement whereby three straight base members are positioned with respect to each other so as to form a Y;

FIG. 14 is a partial perspective view illustrating another arrangement of the base members; and

FIG. 15 illustrates a number of base members arranged with respect to each other to form a track.

FIGS. 1–3 illustrate the invention as having an elongate, substantially hollow base member or track designated by numeral 10, and a plurality of flat, oblong plate members or chips 12 pivotally connected to the base member 10. The base member 10 is shown as having side walls 14 and 16, a top surface 18, and ends 20 and 22. As shown in FIGS. 1–3, the top surface 18 is rectangular in shape, and its longitudinal axis extends along a straight line. In this regard, it should be realized that the top surface might have some other configuration as well; FIG. 12 for example, illustrates an elongate base member having a curved shape or configuration. The length of the base member 10 is not critical, as it can vary from a length of several inches, to one or more feet. It has been found that if the base 10 is too long, it might have a tendency to warp or twist; for this reason, a plurality of diagonal braces or struts 19 are provided on the back side of the base for support purposes. In this regard, note FIG. 3.

The ends **20** and **22** are provided with connector means for operatively connecting two or more base members together to form a continuous track. A male connector **24** is attached to the end **20**, and a female connector **26** is attached to the end **22**. In this regard, note FIGS. 4–6 as well. FIG. 6 illustrates the manner in which the connectors fit together. As illustrated in these figures, the connector **24** includes a pair of side gripping members **28** and **30**, and a top gripping member **32**; whereas the connector **26** includes three gripping members **34**, **36** and **38** which generally define a circle. In assembled relationship, the male connector **24** fits around and grips the female connector **26**. By pushing two base members **10** toward each other, the connectors **24** and **26** snap together and lock the base members to each other. They can readily be separated by merely pulling them apart.

The top surface **18** of the base member **10** is provided with a plurality of spaced apart openings or slots **40**. Each slot has a generally rectangular shape, having a length designated by the letter L, and a width designated by the letter W. As illustrated in FIG. 2, the slots **40** are aligned along a straight line which corresponds to the longitudinal axis of the base member **10**, and the longer dimension L of the slot extends along the longitudinal axis as well. In addition to the slots **40**, a pair of pointed openings **42** and **44** are provided proximate the ends **20** and **22**, respectively. As noted, each of the openings **42** and **44** is formed of two parts and each part has substantially the same length and width as the slots or openings **40**.

All of the plate members or chips **12** have substantially the same shape or configuration. As shown in FIGS. 9 and 10, each chip has an oblong, rectangular shape, although it should be recognized that other shapes might be used if preferred. The chip **12** has a front or top surface **46**, a back or bottom surface **48**, a pair of ends or edges **50** and **52**, and side edges **54** and **56**. As illustrated in FIG. 10, the thickness of the chips decreases from the end **50** to the end **52**. The front surface **46** is provided with a desired symbol or marking thereon, such as a numeral and one or more pips which corresponds in number to the numeral shown, a desired alphabetical letter, or the like. As shown in FIG. 10, the edge **50** is not perpendicular to the surface **46**, and it defines a small angle with respect to an axis perpendicular to the surface **46**.

A counterweight and snap lock assembly **58** is attached to the end **50** of each chip **12**. The snap lock assembly **58** is provided for a number of reasons: it attaches the chip **12** to the base **10** in such a manner that the chip can be readily pivoted between inclined or horizontal, and upright or vertical positions, without separating the chip from the base member; it aids in maintaining the chip in an upright position; and it permits the chip to be easily separated from the base when desired. The snap lock **58** includes a pair of spaced apart members **60** and **62**, each member including a cam surface **64** on it.

Each chip **12** is attached to the base member by inserting the snap lock **58**, and more specifically, the members **60** and **62** into one of the slots **40**. The members **60** and **62** are spaced apart so that the cams **64** engage or grip the side edges of the slots **40** and deflect the members **60** and **62** together slightly, as the snap lock is inserted in the slot. As the members **60** and **62** are forced into the slots **40**, the cams **64** pass by the top surface **18** of the base **10** and effectively lock the chip in place so as to maintain the chip and the base in coupled relationship. In this regard, note FIGS. 7, 8 and 11. Since the edge **50** is not perpendicular to the surface **46**, the chip **12** is caused to tilt forward a few degrees with respect to an axis normal to the top surface **18** of the base **10**, when the chip is in an upright position. Note the angle α in FIG. 7. By tilting the chip forward a few degrees, e.g. 5 degrees, its stability is increased and it will be more likely to remain in an upright position and not pivot prematurely. The edge **66** of each chip forms a pivot line or pivot axis, about which the chip is pivotable when it is attached to the base **10**.

For best results, it has been found that the weight of the mass on one side of the pivot line, e.g., the counterweight and snap lock assembly **58**, should approximate the weight of the mass on the opposite side of the pivot line. Such a near balancing of the weight on each side of the pivot line aids in causing the chips to pivot properly from an upright to an inclined position, as well as to add sufficient momentum to the chip while it is falling, thus causing a pivoting chip to knock over an adjacent chip when it strikes the adjacent chip. The distance between the slots **40** in the base **10** must be less than the total length of the chip, so that each chip will strike an adjacent chip, preferably proximate its upper portion, as it pivots about its respective pivot line **66**.

By attaching the chips **12** to the base member as described above, a very entertaining and amusing, as well as educational toy, results. When the chips are in an inclined or down position, they can readily be pivoted to an upright position by merely grasping the base member **10** and raising the end **22** (as shown in FIG. 1) so that the chips pivot to the upright position. Since each chip has a snap lock assembly **58**, it will not separate from the base. By carefully placing the base on a horizontal surface, the chips will remain in the upright position, especially if they are made to lean forward slightly as described above. By striking the chip **12** proximate the end **20**, each chip will pivot about its respective pivot line and fall to an inclined or down position, each chip (except the chip proximate the end **22**) striking an adjacent upstanding chip as it pivots, and causing the upstanding chip to likewise pivot, so that a sequential motion of falling chips is attained. Thus, the chips **12** can be knocked down and set up again rapidly and with a minimum amount of effort. At this point, it might be well to mention that the chips **12** can be made to pivot to the left as shown in FIG. 1, or to the right by merely removing the chip and turning it 180 degrees with respect to the base member. Preferably, the chips should be mounted on the base **10** so that they all pivot in the same direction.

Since each chip has a prescribed number, letter, or other marking on its surface, the chips can be readily removed from a particular slot and rearranged with respect to the base member so as to spell specific words, depict the sum of two or more numbers, or the like. Furthermore, if letters are shown on the chip, both capital letters and small case letters can be shown on the same chip. If numbers are shown, a corresponding number of pips can also be shown so as to present a correlation between a specific numeral and the number of items which the numeral represents.

If desired, a number of base members can be joined together, or positioned with respect to each other to form one or more tracks. FIGS. 12–15 illustrate a number of variations. In FIG. 12, a curved base member **70** is shown connected to a pair of base members **10**, at each of its ends. By inserting chips (not shown in FIG. 12) into each of the slots **40**, a long continuous track can be formed.

In some instances it might be preferred or necessary, not to lock adjacent base members together. As an example, a first base member might be placed adjacent to a second base member in end to end relationship, so that an angle is formed between the two members, in this regard note FIGS. 13 and 14. When arrangements of this type are used, it might be preferred to insert a chip **12** within openings **42** and **44**, so that the end chip is placed on the base member in such a manner that it forms an angle with respect to the longitudinal axis of the base and with respect to the slots **40**. When mounted in this manner, the chip pivots in a slightly different direction than the other chips in the slots **40**.

Positioning of the chip in one or more of the slots **42** or **44** aids in assuring that the chips on the second base member will be knocked over.

In FIG. 13, three straight base members **10***a*, **10***b*, and **10***c*, are shown positioned together to form a Y. The base members **10***b* and **10***c* are positioned adjacent to the end of base **10***a* so that the chip **12***a* on base **10***a* strikes both the chips **12***b* and **12***c* on the base members **10***b* and **10***c*, respectively, as it pivots about its pivot line. In such an arrangement, the end chip on the single base **10***a* causes chips on the two base members **10***b* and **10***c* to pivot in a sequential motion.

In FIG. 14, the end chip **12***d* on base member **10***d* is mounted within the opening **44** so that it is out of alignment with respect to the other chips on that base member. Since the base **10***e* forms an angle with respect to the base **10***d*, mounting of the chip **12***d* in this manner aids in assuring that proper contact will be made by the chip **12***d* with the chip **12***e* on base member **10***e*.

Finally, FIG. 15 shows a number of base members joined together, or positioned adjacent to each other, in such a manner as to form a long continuous track **72** which separates into two branches **72***a* and **72***b*. For purposes of simplification, most of the slots **40**, as well as the chips **12** have been omitted. It has been found that the chips **12** will pivot from an upright to an inclined position even if the base member is not positioned on a level or horizontal plane. As depicted in FIG. 15, the base members **10***a* and **10***b* are inclined by placing one of their ends on a small block **74**. The chips on base **10***a* will pivot in the proper manner even though they must pivot against the incline, provided however, that the angle of inclination is not too great; angles of at least 10 degrees for example, have been found to work properly. Positioning of the counterweight and snap lock assembly **58** as described above with respect to the pivot line **62** aids in causing the chip to pivot properly even if the base member is inclined as shown. By striking the chip (not shown in FIG. 15) proximate the end **20***a* of base **10***a*, all the chips connected to the base members will pivot or fall in a sequential manner. All the chips can then be readily placed in an upright position again, merely by lifting the base members as described hereinbefore.

In the above description and attached drawings, a disclosure of the principles of this invention is presented together with some of the embodiments by which the invention may be carried out.

Now, therefore, we claim:

1. In combination a toy, comprising, an elongate base member and a plurality of plate members pivotally connected to said base member, said base member having a top surface with a plurality of spaced apart openings aligned along its longitudinal axis, and means forming a part of each plate member for engaging a single opening in the base member thereby operatively connecting each plate member to the base member, each plate member when connected to the base member being readily pivotable between inclined and upright positions without separating from the base member, said plate member being pivotable from an upright to an inclined position in only a single direction, and each plate member being readily separable and interchangeable from said base member by merely removing it from said single opening.

2. The combination of claim **1** wherein said means includes a pair of spaced apart members secured to the bottom edge of said plate member which are adapted to grip the edges of a single opening in the base member so as to maintain the plate members in coupled relationship with said base member.

3. The combination of claim **1** wherein one edge of the plate member comprises a pivot line about which said plate member pivots, said one edge being in contact with the top surface of the base member during pivotal movement of the plate member.

4. The combination of claim **1** wherein the top surface of the base member extends along a straight line and the longitudinal axis of said base member extends along said straight line.

5. The combination of claim **1** wherein the top surface of the base member has a curved shape, and the longitudinal axis of said base member extends along a curved line.

6. The combination of claim **1** wherein the openings in the base member are rectangular in shape, at least one of said openings being offset and out of alignment with respect to the rest of the openings so that it forms an angle with said other openings, said opening being positioned proximate one of the ends of the base member.

7. In combination a toy, comprising, an elongate base member and a plurality of plate members pivotally connected to said base member, said base member having a top surface with a plurality of spaced apart openings aligned along its longitudinal axis, and means forming a part of each plate member for engaging one of the openings in the base member thereby operatively connecting each plate member to the base member, each plate member when connected to the base member being readily pivotable between inclined and upright positions without separating from the base member, one edge of the plate member comprising a pivot line about which said plate member pivots, said one edge being in contact with the top surface of the base member during pivotal movement of the plate member, said means including a counterweight assembly secured to said plate member proximate said one edge for aiding in maintaining the plate in an upright position, the major portion of the weight of said counterweight being on one side of the pivot line, and the weight of said plate being on the opposite side of the pivot line, and each plate member being readily separable from said base member.

8. The combination of claim **7** wherein said counterweight includes a pair of spaced apart members, each member including a cam surface which maintains the plate and the base member in coupled relationship.

9. The combination of claim **7** wherein each plate member is provided with a prescribed symbol on its surface.

10. The combination of claim **7** wherein each plate member when in an upright position is caused to tilt forward so that its longitudinal axis forms a small angle with respect to an axis normal to the top surface of the base member, said plate member being caused to move backward during pivotal movement.

11. The combination of claim **7** wherein the distance between adjacent openings in the base member is less than the length of each plate member.

12. The combination of claim **7** wherein at least one end of the base member is provided with means for operatively connecting said base member to a second base member.

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