DESTRUCTIVELY DISASSEMBLED DEVICE

ABSTRACT: An amusement device to be destructively disassembled in the same manner as an item is broken by a karate blow, including two substantially identical elongated blocks having mating surfaces on one end thereof which fit together and are aligned by at least one interlocking element to form a bridge-type structure with the free ends of blocks resting on a support surface, and an elastic tension element passing through each of the blocks adjacent their free ends and thence about the blocks between the uppermost and lowermost contact points of the mating surfaces to thereby tie the blocks together in a toggle-type joint at the center of the bridge. The structure is stable in the described bridge-type configuration but when a force, such as a karate blow, is applied to the top surfaces of the blocks adjacent the mating surfaces and this force depresses the uppermost contact point of the mating surfaces below the tension element, the blocks become unstable and essentially fly apart.
DESTRUCTIVELY DISASSEMBLED DEVICE

BACKGROUND OF THE INVENTION

The present invention relates to an amusement device which can be assembled and destructively disassembled. More specifically, the present invention relates to an amusement device which can be assembled to form a bridge-type structure under horizontal tension and which can be destructively disassembled by the application of vertical pressure to the top of the bridge structure.

SUMMARY OF THE INVENTION

In any event, however, it is an object of the present invention to provide an amusement device which is at least partially disassembled by the application of a karate-type blow. Another object of the present invention is to provide a bridge-type structure held together in horizontal tension and which is destructively disassembled by the application of vertical pressure to the top of the bridge. A further object of the present invention is to provide a means of damaging the character indicated which may be used as an amusement device. Another object of the present invention is to provide a device for the character indicated which may be used as a training device.

The present invention provides a device utilizable by karate advocates either as an amusement device or a training device. The structure of the present invention may also provide a novelty item or pair of novelty items, one of which may be destroyed by a simple blow while the other cannot be thus destroyed but which look superficially alike. The device can also have utility as a novelty device to indicate overweight or the like.

Briefly, the present invention comprises a pair of similar, elongated block elements having one end of each such block forming a mating surface with one end of the other block in a manner to form a bridge-type structure when the mating surfaces are fitted together and a horizontal-tension means attached to and coupling said blocks together in horizontal tension, to form a toggle-type joint, when the surfaces are mated but permitting depression of the toggle junction below the horizontal tension member to thereby destroy the stability of the structure and cause the joint to separate.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be better understood by reference to the accompanying drawings wherein:

- FIG. 1 is a side view of one embodiment of the present invention in its assembled form;
- FIG. 2 is a top view of the structure of FIG. 1;
- FIG. 3 is another embodiment of the structure of FIG. 1 showing the forces on the structure;
- FIG. 4 is a side view of the structure of FIG. 3;
- FIG. 5 is a view of the structure of FIGS. 1 and 2 partially disassembled;
- FIG. 6 is a side view of another embodiment of the invention, and
- FIG. 7 is a top view of the structure of FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In accordance with FIGS. 1 and 2, the device is made up of two substantially identical, elongated block elements 10. Blocks 10 have two of their ends forming mating surfaces 12 which fit together when the blocks are assembled to form the generally symmetrical, bridge-type or inverted V-structure with the blocks resting on the surface of a table or the like on footings 14 adjacent the free ends of the blocks. One of the blocks has formed on its mating surface 12 an interlocking element 16 which fits into a slot or depression 18 in the other block. Interlocking element 16 and slot 18 assure alignment and proper assembly of blocks 10 to form the bridge. Blocks 10 may be formed of any suitable material, preferably wood or plastic. Intermediate the top and bottom surfaces of blocks 10 and near the free ends of the blocks transverse apertures or holes 20 are formed. A stretchable or elastic tension means 22 is passed through apertures 20 and about blocks 10 to hold the blocks together in the assembled, bridge-type configuration shown in FIG. 1 when mating surfaces 12 are fitted together. Tension means 22 is preferably a nylon rope or the like having some elasticity but the elasticity should not be too great for reasons which will be pointed out hereinafter. In any event, tension means 22 encircles the blocks 10 at a point intermediate uppermost point of contact 24 of mating surfaces 12 and lowermost point of contact 26 of mating surfaces 12. Blocks 10 also have upper pressure or striking surfaces 28 and base surfaces 30. As will appear hereinafter, when the blocks 10 are assembled as shown in FIG. 1, the blocks and tension means 22 form a toggle-type joint at mating surfaces 12. The corners at contact point 24 are exaggerated for illustrative purposes and should be small to prevent pinching of the hand.

Assembly of blocks 10 in the form shown in FIG. 1 is accomplished simply by rotating the left-hand block clockwise and the right-hand block counterclockwise until the surfaces 12 are butted together thereby placing tension means 22 under slight tension. Assembly is aided by the chamfered or rounded surfaces below points 26 on the blocks. The tension on tension means 22 can be adjusted by simply changing the tension of the knot 32 formed in the tension member 22. Bridge assembly formed by blocks 10 and as shown in FIG. 1, is strong and stable so long as the surfaces 12 are butted together and tension member 22 passes around the blocks between points 24 and 26.

FIG. 3 of the drawings shows a block similar to that of FIGS. 1 and 2, with the forces acting thereon when the blocks are assembled as in FIG. 1 and a flap, strut or foot 28 is struck on surface 28 as a karate blow with the side of the hand. The striking force on surface 28 is—F., while the opposing force at foot 14 is F.. The tensile force in tension element 22 and the opposing force is —F. at the mating surfaces 12 and for the most part, at point 24. When force —F. is applied, the blocks rotate downwardly about point 24. This downward movement of the blocks is resisted by restoring moments acting on both blocks having a magnitude equal to F.Y, where Y is the distance between tension element 22 and point 24. As the force —F. exceeds F.Y and the blocks are flattened toward the surface on which they rest, F. increases but Y decreases. As point 24 passes below tension element 22, Y decreases toward zero and the restoring moment disappears. Consequently, the block becomes unstable and actually fly apart. In this instance, the tension element 22 actually pulls the mating surfaces 12 apart by pulling the apertures 20 toward one another.

FIG. 5 shows a slightly exaggerated illustration of the position of the blocks 10 of FIG. 1 just before they fly apart. In this instance, it is to be seen that point 24 is below the tension element 22. Thus, as will appear obvious, if the contact point 24 passes below tension element 22 before lower surfaces 30 rest on the support table, then the blocks will become unstable and fly apart and thereby accomplish the end result as an amusement device or the like.

FIGS. 3 and 4 show a variation of the device shown in FIGS. 1, 2 and 5 in which tension element 22 is internally disposed so that it is not readily observed from the outside. By having two blocks, one in which the points 24 do not go below tension element 22 before the surfaces 30 contact the supporting structure and the other in which the contact points 24 do pass below tension element 22, a pair can be provided which are superficially alike but do not react the same to a blow. Thus, casual observation of the two blocks will not show the difference between the two blocks which will fly apart when struck and the one which will not. The internal disposition of tension means 22 can be accomplished by providing both blocks with a slot 34 in which the tension element rides. A knot 36 on the end of tension means 22 rests in one of a plurality of convex depressions 38. The convex depressions 38 are joined by trenches or slots 40. Thus, the tension on tension element 22 may be adjusted by placing the knot 36 in any one of the convex depressions 38.
A further embodiment of the present invention is illustrated in FIGS. 6 and 7 of the drawings. The blocks of FIGS. 6 and 7 differ slightly in form from those of the previous Figures, but contain the same basic features. Blocks 42 are mated at mating surfaces 44, upper contact points 46 and lower contact points 48. When the blocks are assembled into a bridge configuration, they rest on footings 50, which are more centrally located than the footings of the previous embodiments. Interlocking means 52 is formed in two half-sections so that each block is a duplicate of the other. Accordingly, the blocks may be formed in a single molding operation. The blocks are provided adjacent their free ends with apertures 54. A tension means 56 passes through apertures 54 and about the two blocks to hold them together, in the manner shown, when mating surfaces 44 are butted together. Blocks 42 also have upper striking surfaces 58, and lower base surfaces 60. Tension means 56 passes about blocks 42 in substantially the same manner as the tension element of the previous Figures with one exception and that is that the tension element has a loop 62 which may be adjusted by moving it from one of slots or channels 64 to another.

There are numerous other modifications of the structure disclosed above that can be made. For example, in the structure of FIGS. 6 and 7, more than two slots may be provided for adjustment of the tension means. In like manner, similar slots or channels may be provided in the configuration shown in FIGS. 1 and 2. The interlocking elements of any of the embodiments may be formed as an integral part of one or both of the blocks or may be formed separately and glued to or otherwise attached to the block. It is also possible to mate the devices by having a separate peg which passes through the apertures in the mating surfaces of the block or an appropriate wedge which similarly fits into corresponding slots in the mating surfaces of the blocks.

I claim:

1. A structure which can be destructively disassembled; comprising a pair of similarly shaped, elongated blocks, each of said blocks having an end face defining a mating surface with alignment means on one end thereof adapted to mate with the corresponding mating surface and alignment means of the other block, said blocks forming a generally bridge-type structure when said mating surfaces are butted together and said alignment means are mated and aligned; and a longitudinally disposed tension means connected to each of said blocks and passing across the plane of said abutted mating surfaces between the uppermost and lowermost points of contact of said mating surfaces, to hold said blocks together in an essentially stable bridge-type configuration on the opposite ends of said blocks, said tension means being free of said blocks adjacent said abutted mating surfaces to permit said uppermost point of contact of said mating surfaces to pass below said tension means and cause said blocks to fly apart when a substantially vertical predetermined force is applied to the top of said bridge structure.

2. A device in accordance with claim 1 wherein the alignment means of at least one of the blocks includes a protruding alignment element on its mating surface which meshes with a depression in the mating surface of the other block, thereby align the two blocks when assembled to form the bridge-type structure.

3. A device in accordance with claim 1 wherein the tension means is an elastic cord means.

4. A device in accordance with claim 1 wherein the tension means is adjustable to apply different stability maintaining forces to the bridge-type structure.

5. A device in accordance with claim 1 wherein a portion of the upper surface of the blocks adjacent the mating surfaces is generally horizontal when the blocks are assembled as a bridge-type structure.