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H. ARENSON

2,818,259

DART AND TARGET BOARD THEREFOR

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Fig. 1.

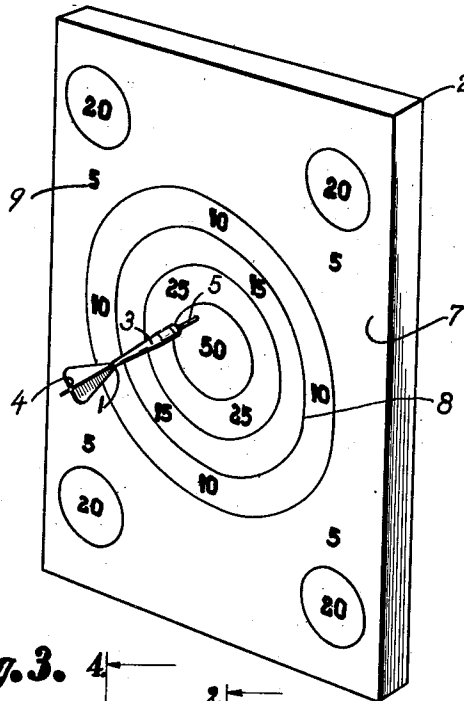


Fig. 2.

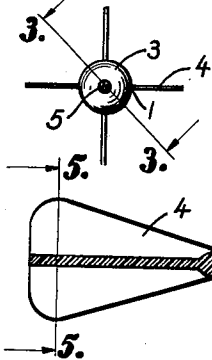


Fig. 3.

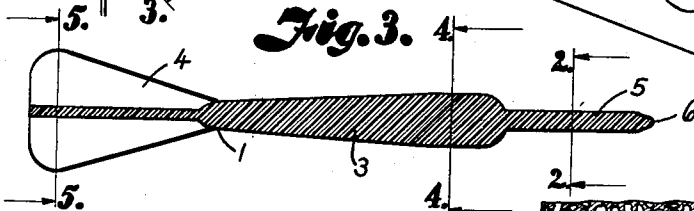


Fig. 4.

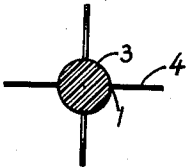


Fig. 5.

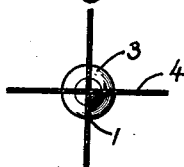
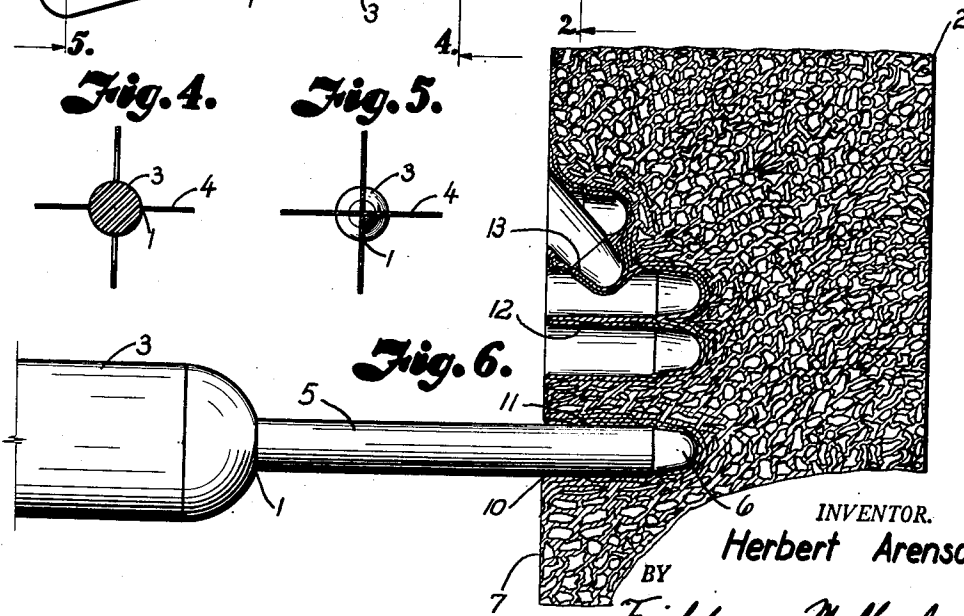


Fig. 6.



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DART AND TARGET BOARD THEREFOR

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3 Claims. (Cl. 273—102)

This invention relates to a novel game apparatus in the form of a missile such as a dart and a target board therefor, and more particularly to such a missile that is relatively harmless to people, furniture and the like, and a target board of such character that the missile point of some flexibility will enter the board and be held thereby.

In dart game structures commonly used the dart or missile usually has a wood body with a plurality of feathers or flights at the trailing end and a sharpened metal pin at the forward end whereby when the missile is thrown against a wood, cork or like target board the sharp metal point penetrates therein and remains in place until removed by the player after counting of the score. Due to the use of such darts the interesting sport of throwing darts has always been extremely dangerous because the sharp metal point can enter a person's flesh and cause severe injury and also will scratch or otherwise mar walls, furniture, and the like struck by the dart missile. There have been attempts to reduce the danger of dart games by the use of rubber suction cups, bristles and other resilient members on the forward ends of the darts, however, such attempts have not resulted in a satisfactory game apparatus because of the high percentage of misses due to the dart rebounding from the target and not remaining thereon.

The objects of the present invention are to provide a game apparatus for use in the playing of darts and the like wherein safe darts are used with a target board of a character that there are substantially no misses due to the dart failing to stick into the board or otherwise falling therefrom; to provide a missile structure in the form of a dart, and a cellular target therefor, wherein the dart has a pointed forward end of such flexibility that it will deflect from a person's skin, will not scratch or mar furniture and yet will have sufficient rigidity to enter the cellular structure of the target board; to provide a missile in the form of a dart for use with a target board of cellular material wherein the missile is molded of a single material characterized by being extremely flexible in thin sections and relatively rigid in thick sections whereby it is substantially indestructible from impacts or crushing, is safe in use, with good flight characteristics and the ability for the point to enter the cellular target board; to provide a dart and target board wherein said board is of cellular structure that is not friable and in which the walls are of little flexibility, but with such ductility and resiliency that when the target is struck by the point of the safe dart said dart does not bounce from the board but on the contrary the point enters the board and is held therein by the engagement of the cellular structure with the point of the dart; and to provide a missile in the form of a dart and a cellular target therefor that can be economically manufactured in an apparatus that gives great accuracy and yet is safe for use either indoors or outdoors with little likelihood of injury to persons or articles.

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In accomplishing these and other objects of the present invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of the target board and a missile extending therein.

Fig. 2 is a transverse section through the point of the dart on the line 2—2, Fig. 3.

Fig. 3 is a longitudinal sectional view through the dart on the line 3—3, Fig. 2.

Fig. 4 is a transverse section through the body of the dart on the line 4—4, Fig. 3.

Fig. 5 is a transverse section through the flights at the trailing end of the dart on the line 5—5, Fig. 3.

Fig. 6 is an enlarged detail section through a portion of the cellular target board with the point of a missile extending therein.

Referring more in detail to the drawings:

1 designates a missile in the form of a dart for projection at a cellular target board 2. The dart 1 consists of a rearwardly tapered body member 3 with a plurality of vanes or flights 4 mounted at the rear thereof to serve as a balancing device to aid in holding the missile in a straight line during flight. A pin 5 extends forwardly substantially coaxially of the body and terminates in a rounded point 6.

In the illustrated structure the darts 1 are manufactured as by molding a material which in thin sections is very flexible with no tendency to break down after repeated bending or other fatigue tests and in thick sections is relatively rigid. It is preferable that the entire dart including the body, flights and point be formed of an integral structure of suitable flexible materials, such as polyethylene and other flexible synthetic resins, rubber and the like, as such a dart is practically indestructible except from heat. It cannot scratch or mar furniture. It can be bent or crushed as by stepping thereon and yet will return to shape for throwing at the target board. The varying flexibility of the dart due to the difference in thickness of the sections thereof provides the rigidity necessary in the body, desired flexibility in the flights or vanes and such flexibility in the point as to make the dart safe and yet provide sufficient rigidity in the point to penetrate the cellular target 2. While the entire dart is shown to be formed of a single molded piece it obviously can be made in sections which can be cemented or otherwise suitably secured together. Also the body 3 and flights 4 may be formed of other suitable materials and the point 5 molded of polyethylene and like materials and then secured to the body of the missile.

The target board 2 preferably has a substantially flat forward face 7 on which a bull's eye and other suitable target indicia 8 is applied by painting, silk screening or other suitable process, preferably with indicia 9 to indicate the scoring values of the various areas defined on the target board face 7. Also if desired target indicia may be arranged on the rear face whereby the target board is reversible. The target board is preferably cut to a desired shape from a foamed, multicellular material composed of interconnecting or non-interconnecting minute cell systems in which the walls defining the cells are very thin with some rigidity, whereby when the cellular structure is struck by an object such as the point 6 of the dart 1, said point will penetrate into the cellular structure forcing the cell walls aside forming a hole as the point enters the target board, the cellular walls having slight elasticity whereby they will press inwardly from the sides of the hole formed to frictionally engage the point of the dart and prevent said dart from being displaced by gravity or jars due to other darts striking the target board. The cellular structure of the target board

is such that the synthetic resin point of the dart will penetrate same and the elasticity of the cellular walls is such that there is substantially no tendency for the dart or missile to rebound from the target board, except when the missile strikes the board at extreme oblique angles.

The target board is preferably formed of a cellular synthetic resin or the like such as is sold by The Dow Chemical Company of Midland, Michigan, under the trade name of "Styrofoam" or other similar material having similar characteristics such as the ability to withstand great abuse arising from the attack of the entering dart pins and yet retain the firm hold on the dart pins even after repeated entrances into the same perforation or immediate adjacent perforations. This ability is apparently due to the minute cellular structure in which the cellular walls tend to shift from side to side as objects enter the target and also the exposed edges of the target and the perforations created by the entering objects are non-friable.

Due to these characteristics of the target board together with the strength and ductility of the cell structure, darts having flexible synthetic resin points which are relatively large in cross section as compared to the size of the cells, enter the board as illustrated at 10, Fig. 6 in which the structure is shown as greatly enlarged, compressing the cell structures as at 11, and when the dart is pulled from the board recesses 12 remain in said board. However, the entering of the point of another dart in the same hole or closely adjacent thereto merely provides further shifting of the cell walls as at 13 whereby substantially all of the darts thrown at the board in such a manner that the point of the dart strikes the board will stick therein until the score of the player is counted.

Due to the characteristics of the dart and target board of my invention and the novel combination of same, I have provided a game apparatus that is economical to manufacture, provides the highest degree of safety in a sport which has heretofore been extremely dangerous, and which apparatus will continue to perform over a long period of time even when subject to unusual abuse.

What I claim and desire to secure by Letters Patent is:

1. In game apparatus of the character described, the combination of a target board of cellular structure having a face with scoring indicia thereon, said target board being of a foamed multicellular material of small elasticity and characterized by its ability to allow separation of the cell walls for entrance of objects thrown therein and yet engage and hold such objects in the board, and a missile having an elongated body member, and an elongated pointed flexible pin member extending from the forward end of the body in axial alignment therewith, said pin member being substantially larger in cross section than the size of the cells in the target board and of a material characterized by being capable of penetrating the cellular target board when projected thereagainst and having such flexibility that it will not penetrate a person's skin, mar furniture or the like.

2. In game apparatus of the character described, the combination of a target board of cellular structure having a face with scoring indicia thereon, said target board being of a foamed multicellular material of small elasticity and characterized by its minute cells and its ability to allow separation of the cell walls for entrance of objects thrown therein and yet engage and hold such objects in the board, the edges of the perforations formed by objects being substantially non-friable, and a missile having an elongated body member, guide vanes at the rear of said body member, and an elongated pointed flexible pin member extending from the forward end of the body in axial alignment therewith, said pin member being substantially larger in cross section than the size of the cells of the target board, said missile vanes and pin member all being of a material characterized by being very flexible in the thin sections and rigid in thick sections with the flexible pin member being capable of penetrating the cellular target board when projected thereagainst and having such flexibility that it will not penetrate a person's skin, mar furniture or the like.

3. In game apparatus of the character described, the combination of a target board of cellular structure having a face with scoring indicia thereon, said target board being of a foamed multicellular synthetic resin material having relatively small elasticity and thin cell walls and characterized by its ability to be repeatedly penetrated by objects thrown thereagainst and the ability of the cell walls to move laterally in response to such penetration, the edges of perforations formed in the target board being substantially non-friable, and a dart having an elongated body member with guide vanes at the rear of said body member and an elongated pointed flexible pin member extending from the forward end of the body in axial alignment therewith, the pin member being substantially uniform and larger in diameter throughout its length than the size of the cells in the target board and of a synthetic resin material characterized by being very flexible in the thin sections and rigid in thick sections, said pin member having such flexibility that it will not penetrate a person's skin or mar furniture or the like, said pin member being capable of penetrating the cellular target board when the dart member is thrown against the target board even at oblique angles and forming a perforation in which the cell walls are moved laterally yet grip the pin member and hold same in the board, the cell walls being such that they will withstand repeated lateral movement without complete fracture and breakdown.

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