

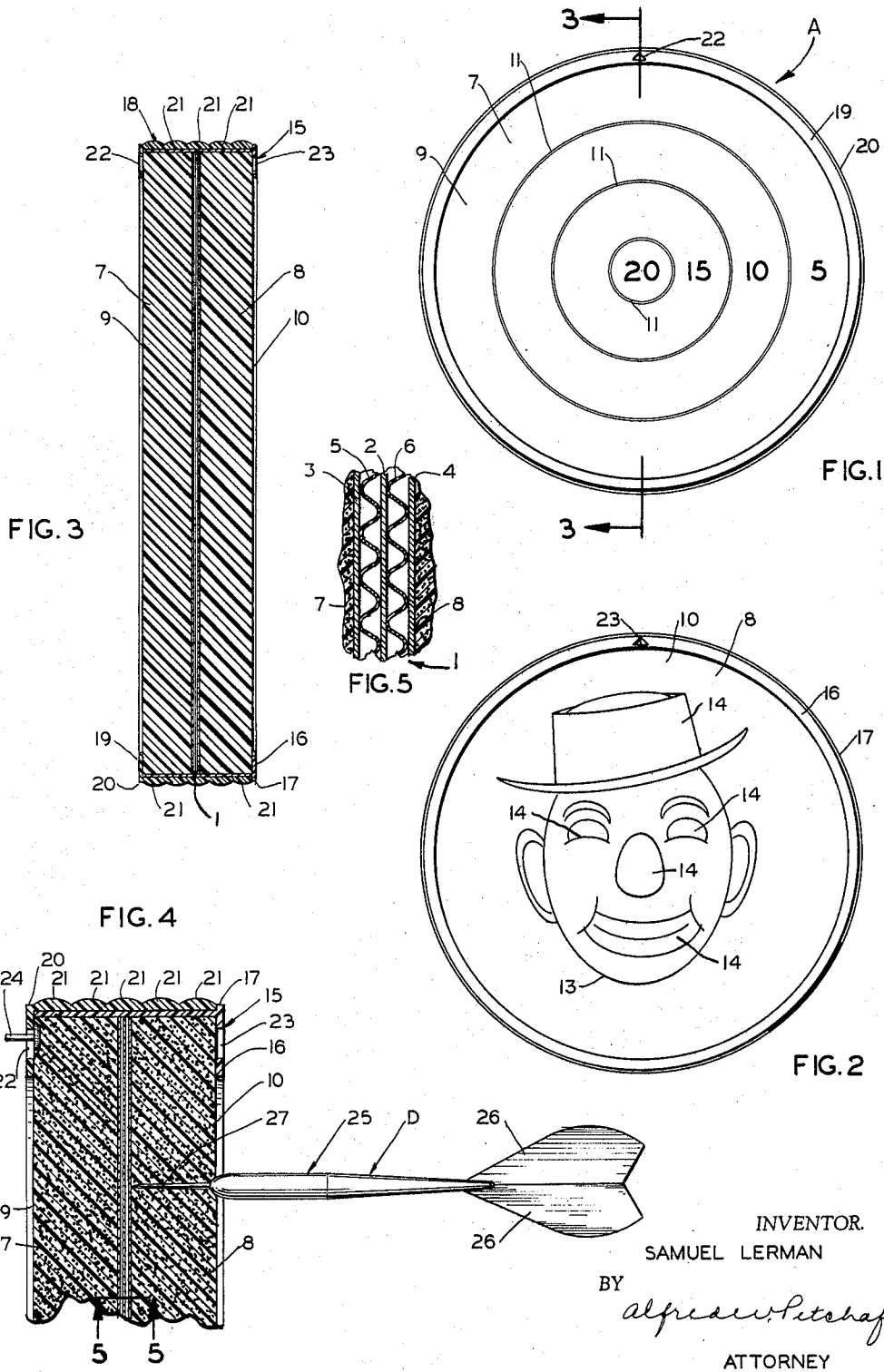
April 5, 1966

S. LERMAN

3,244,419

LAMINATED DART BOARD HAVING IMPACT SOUND OF CORK BOARD

Filed Feb. 25, 1963



1

3,244,419

## LAMINATED DART BOARD HAVING IMPACT SOUND OF CORK BOARD

Samuel Lerman, Clayton, Mo., assignor to Milbern Foam Products Co., East St. Louis, Ill., a corporation of Missouri

Filed Feb. 25, 1963, Ser. No. 260,544  
5 Claims. (Cl. 273—102)

This invention relates, in general, to certain new and useful improvements in target boards and, more particularly, to an improved type of dart board.

It is the primary object of the present invention to provide a dart board which will not be destroyed by the penetration of the dart points after continued use.

It is also an object of the present invention to provide a dart board which is relatively economical to manufacture but, nevertheless, is very durable and has the impact sound of an expensive dart board made of a heavy thick piece of dense cork.

It is another object of the present invention to provide a dart board of the type stated having a target face which will not become marred after continued penetration by dart points.

It is a further object of the present invention to provide a dart board of the type stated which has a high degree of play value.

It is an additional object of the present invention to provide a dart board of the type stated which is fairly sturdy in its construction, and economical to manufacture.

With the above and other objects in view, my invention resides in the novel features of form, construction, arrangement, and combination of parts presently described and pointed out in the claims.

In the accompanying drawing (one sheet):

FIG. 1 is a front elevational view of a dart board constructed in accordance with and embodying the present invention;

FIG. 2 is a rear elevational view of a dart board constructed in accordance with and embodying the present invention;

FIG. 3 is a vertical sectional view taken along line 3—3 of FIG. 1;

FIG. 4 is an enlarged fragmentary sectional view partly broken away similar to the view of FIG. 3 and showing a dart point penetrating the dart board; and

FIG. 5 is an enlarged fragmentary sectional view taken along line 5—5 of FIG. 4.

Referring now in more detail and by reference characters to the drawing which illustrates a preferred embodiment of the present invention, A designates a dart board, preferably of circular perimetral shape, and comprising a cardboard backing plate 1 consisting of a center ply 2 and a pair of outer plies 3, 4, which are held in equidistantly spaced parallel relationship to the center ply 2 by corrugated sheets 5, 6. The outer plies 3, 4 thus extend across the hollow spaces between the corrugations of the corrugated sheets 5, 6, respectively, in a tympan-forming fashion. The cardboard used in the construction of the backing plate 1 should be of a fairly heavy gauge such as that used for shipping containers and is strong enough to withstand substantial pressure.

Adhesively secured to the exterior surfaces of each of the outer plies 3, 4, are relatively thick dart receiving sections 7, 8, having outer faces 9, 10, respectively. The

2

dart receiving sections 7, 8, are preferably formed of foamed polyurethane or similar resilient synthetic resin. By reference to FIGS. 1 and 2, it can be seen that the dart receiving sections 7, 8, are circular and have the same perimetral shape as the backing plate 1.

Screened or otherwise imprinted on the outer face 9 is a series of concentric circles 11 which together form a suitable target, each of the concentric circles 11 being provided with score-numbers. Similarly screened or otherwise imprinted on the outer face 10 is another type of target face 13, which is conventionally provided with a series of score areas 14. It should, of course, be understood in this connection that the outer faces 9, 10, can be suitably provided with any type of imprinted indicia, as desired.

Adhesively or otherwise suitably secured to the annular surface of the dart receiving sections 7, 8, is an annular band 15, preferably formed of a rigid plastic or synthetic resin material, such as polyvinyl chloride, and which has a transverse dimension equal to the transverse dimension of the dart board A. The annular band 15 integrally is formed with a relatively short inwardly extending annular flange 16 which engages the exterior surface 10 and is adhesively secured thereto. The annular flange 16 integrally merges into an inwardly extending annular shoulder 17 which rises above the exterior surface of the annular band 15 in the manner as shown in FIGS. 3 and 4. Adhesively secured to the exterior surface of the annular band 15 is an annular cover strip 18 also formed of a plastic similar to the plastic used in the construction of the annular band 15, and which has a transverse dimension equal to the transverse dimension of the dart board A. The cover strip 18 is integrally formed with an inwardly extending annular flange 19 which engages the exterior surface 9 and is adhesively secured thereto. Moreover, the cover strip 18 is integrally formed with a shoulder portion 20 adjacent the flange 19 and is provided on its exterior surface with a series of spaced abutting circumferential beads 21. Thus, it can be seen that the annular band 15 and the cover strip 18 provide a sufficient rigidity to the entire dart board A. Moreover, the shoulder 20 and the shoulder 17 form a symmetrical appearance.

By reference to FIGS. 2 and 3, it can be seen that the face covering flanges 16, 19, are relatively short when compared to the diametral size of the outer faces 9, 10, respectively, and, therefore, do not interfere with the targets or the respective faces. Moreover, each of the face covering flanges 16, 19, are provided with triangular apertures 22, 23, at their upper ends for accommodating the heads of suitable fasteners 24, such as nails, in which manner the dart board A can be secured to any convenient support. In this case, the head of the fastener 24 fits within the triangular aperture and the shank of the fastener 24 is engaged by the upper apex of the triangular aperture 22 so that the dart board A is securely held in place. When it is desired to remove the dart board A from the fastener 24, the board can merely be lifted so that the head of the fastener can be slipped out of the aperture 22.

Provided for use with the dart board A is a dart D comprising a streamlined body portion 25 provided at its rear end with tail fins 26. Set into the forward end of the body portion 25 is a sharpened needle 27 adapted for penetration into the target faces 9, 10. By reference to FIG. 4, it can be seen that the dart receiving sections 7, 8, have a transverse thickness which is substantially equal

3

to, or slightly greater than, the outwardly projecting length of the needle 27.

In use, the dart board A is hung from a wall-peg or conventionally supported in some sort of easel with one or the other of the target faces 9, 10, presented toward the players who will then hurl a dart D at the dart board according to the usual rules. If, for purposes of illustration, it be assumed that the target face 9 is selected to play, then the needle 27 of the dart D will enter the polyurethane section 7 and the major portion of the momentum of the dart D will be absorbed by the sponginess or resiliency of the polyurethane, but the force will still be sufficient to permit the point of the needle 27 to strike against the tympan-like surface of the cardboard backing plate 1 and emit a distinctive impact sound of practically the same character and timbre as the sound emitted by a conventional cork dart board. Moreover, the resiliency of the polyurethane and its co-efficient of friction against steel is such that the needle 27 will not actually puncture the cardboard surface.

The preferred embodiment of the dart board A was constructed from sheets of foamed polyurethane having a thickness in the range of  $\frac{7}{8}$ " to 1" and a foam density such that the material weighs in the range of .5# to .6# per square foot. The darts D provided for tossing at such dart board A are preferably of the regulation one-half ounce weight. It has been found by actual experiment, that even when such darts D are thrown at such dart board A by a very strong adult from a distance closer than that permitted by the rules, the cardboard backing plate will, at the very most, be slightly pin-pricked and its strength in no way impaired. Therefore, it can be seen that the cardboard backing plate will not be injured by the point of the dart D.

Inasmuch as the dart receiving sections 7, 8, are formed of polyurethane, there will be no apparent holes remaining in the sections 7, 8, after the darts D are removed. Moreover, the needle 27 does not have a tendency to remove tufts of material from the sections 7, 8, as in the case of conventional dart boards. Therefore, it can be seen that the dart board A has a comparatively long life and will not be damaged when subjected to continued throwing of darts D.

Another interesting and wholly unexpected aspect of the present invention resides in the manner in which the polyurethane element holds a dart. With conventional dart boards made of cork and other similar materials, a dart which is lightly thrown may not possess sufficient momentum at the instant of impact to stick. On the other hand, when thrown with sufficient force in order to penetrate to any appreciable distance into the cork, the dart actually becomes rather tightly embedded and it is necessary to apply a substantial degree of effort to pull the dart out again. The polyurethane element, however, is sufficiently soft and resilient to accept penetration of even a very lightly thrown dart, and, regardless of the amount of force involved in the impact, will hold the dart firmly and securely and will not permit the dart to drop out accidentally. Notwithstanding this, however, the dart may be pulled out of the polyurethane element with the greatest of ease.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the dart boards may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A dart board comprising a plural ply corrugated cardboard support member, including at least one corrugated ply to which an outer cardboard ply is connected in such a manner that the outer ply extends across the hollow spaces between the corrugations of the corrugated ply so as to form a tympan-like dart-receiving surface which, when struck by the point of a dart, produces a

4

sound similar to that of a dart striking a cork dart board, and a resilient foamed polyurethane pad secured to said support member in facewise abutment with said outer ply whereby a dart must pass through said pad before striking said outer ply, said pad having a transverse width which is slightly greater than the length of the shank of the dart.

2. A dart board comprising a support member, said support member including a central cardboard ply and two outer cardboard plies, said outer plies being connected to the center ply by intermediate corrugated plies in such a manner that the outer cardboard plies extend across the hollow spaces between the corrugations of the corrugated plies so as to form tympan-like dart receiving surfaces which, when struck by the point of a dart, produce a sound similar to that of a dart striking a cork dart board, and at least one resilient foamed polyurethane pad secured to said support member in facewise abutment with at least one of said outer plies whereby a dart must pass through said pad before striking said outer ply covered thereby, said pad having a transverse thickness which is slightly greater than the length of the shank of the dart.

3. A dart board comprising a plural ply corrugated cardboard support member, including a central cardboard ply and two outer plies, said outer plies being connected to the central ply by intermediate corrugated plies in such a manner that the outer plies extend across the hollow spaces between the corrugations so as to form tympan-like dart receiving surfaces, and a pair of foamed synthetic resin pads secured to said support member in facewise abutment with said outer plies, said pads having a high degree of resiliency so as to revert to their original shape once a dart has been removed therefrom, said pads being capable of supporting a dart inserted therein, each of said pads being relatively thick in transverse dimension with respect to the transverse dimension of said support member, the transverse dimension of each pad being slightly greater than the length of the shank of a dart pin so as to allow the shank of a dart to pierce the pad and strike an outer ply thereby causing a sound similar to that of a dart striking a cork dart board.

4. A dart board comprising a support member, said support member including a central cardboard ply and two outer cardboard plies, said outer plies being connected to the center ply by intermediate corrugated plies in such a manner that the outer cardboard plies extend across the hollow spaces between the corrugations so as to form tympan-like dart-receiving surfaces which are adapted to engage the outermost portion of the shank of a dart pin, a pair of foamed polyurethane pads, each being secured to an opposite side of said support member in facewise abutment with an outer ply, said pads having a high degree of resiliency so as to revert to their original shape once a dart has been removed therefrom, said pads being capable of supporting a dart inserted therein, each of said pads being relatively thick in transverse dimension with respect to the transverse dimension of said support member, the transverse dimension of each pad being slightly greater than the length of the shank of a dart pin so as to allow the shank of a dart to pierce the pad and strike an outer ply thereby causing the support member to emit a sound similar to that of a dart striking a cork dart board, and a target imprinted on the outer face of each of said pads.

5. A dart board comprising a support member, said support member comprising a central cardboard ply and two outer cardboard plies, said outer plies being connected to the center ply by intermediate corrugated plies, a pair of foamed polyurethane pads, each being secured to an opposite side of said support member, said pads having a high degree of resiliency so as to revert to their original shape once a dart has been removed therefrom, said pads having a transverse thickness slightly greater than the length of the shank of a dart pin whereby to support a dart inserted therein, and a relatively rigid annular band secured to the annular face of said pads, said band having

5

inwardly extending annular facing strips which engage the exterior faces of said pads.

References Cited by the Examiner

UNITED STATES PATENTS

|           |         |         |         |
|-----------|---------|---------|---------|
| 2,818,258 | 12/1957 | Stern   | 273—102 |
| 2,818,259 | 12/1957 | Arenson | 273—102 |
| 3,088,738 | 5/1963  | Meyer   | 273—102 |

5

6

FOREIGN PATENTS

|         |        |                |
|---------|--------|----------------|
| 501,457 | 2/1940 | Great Britain. |
| 503,922 | 4/1939 | Great Britain. |
| 506,345 | 5/1939 | Great Britain. |
| 704,144 | 2/1954 | Great Britain. |
| 810,213 | 3/1959 | Great Britain. |

DELBERT B. LOWE, *Primary Examiner.*