March 31, 1964 A. G. BUNTING 3,127,302

SEPARABLE ARTICLE-CONTAINING ASSEMBLY AND ORNAMENTAL STRUCTURE MADE THEREFROM

Filed June 19, 1961 2 Sheets-Sheet 1

Fig. 1

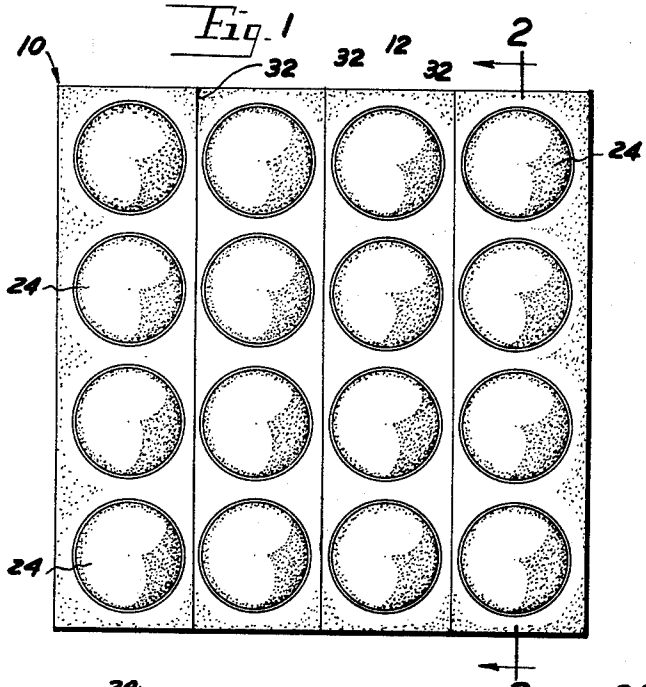
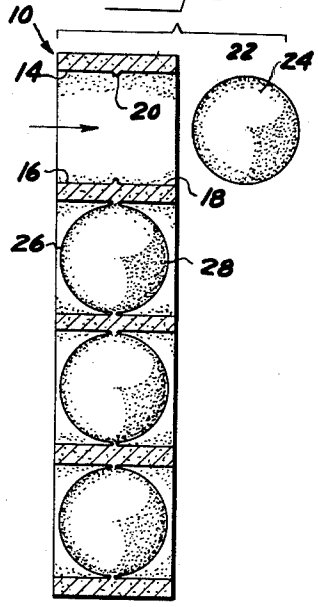


Fig. 2



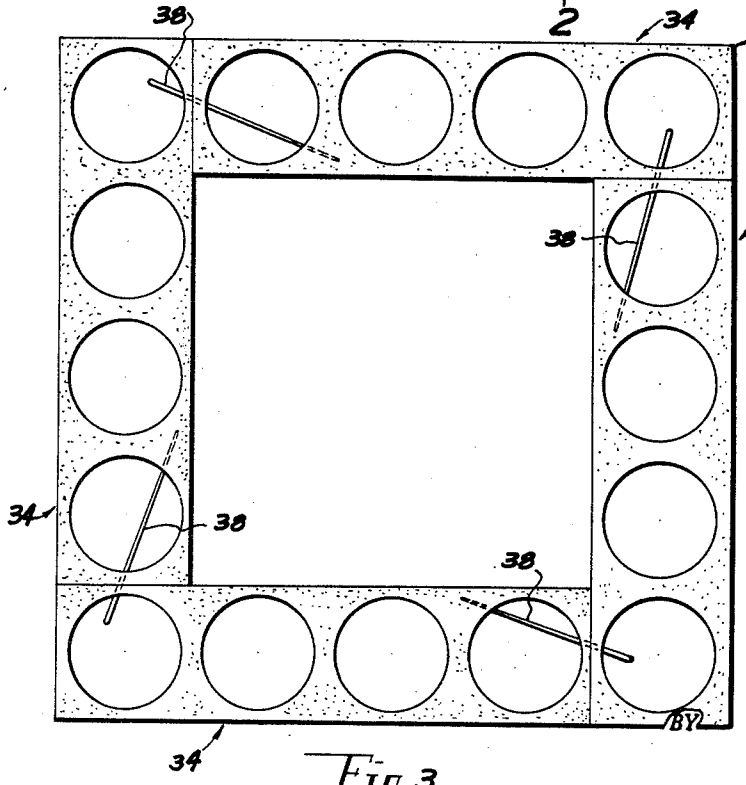


Fig. 3

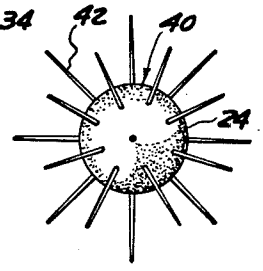


Fig. 4

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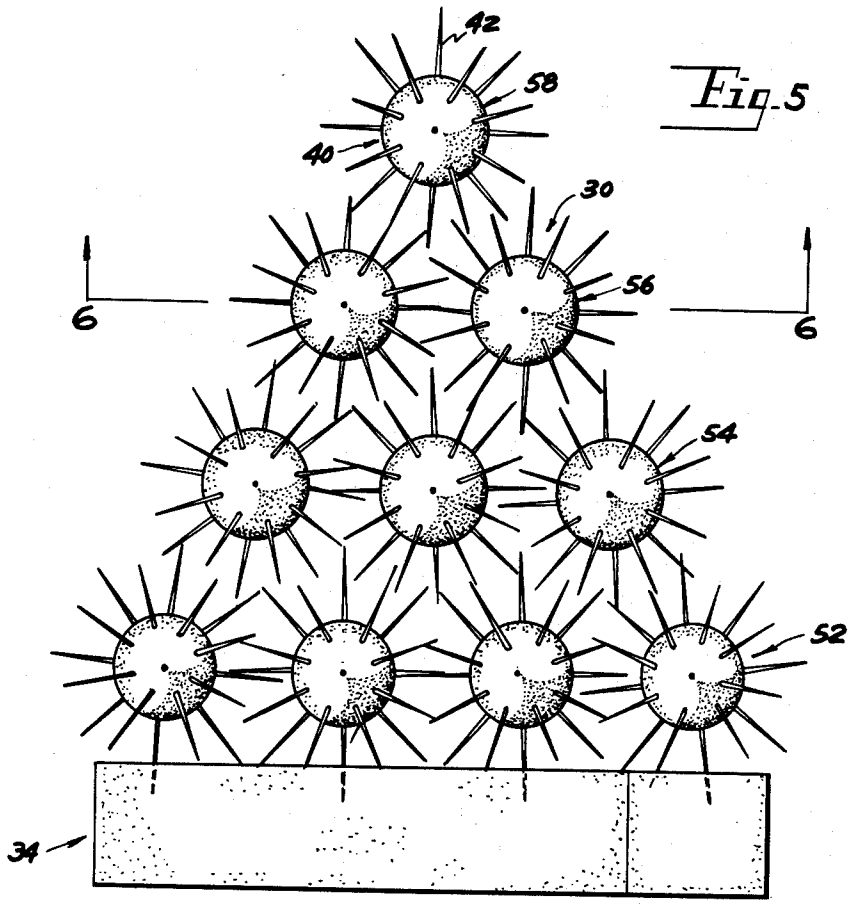


Fig. 5

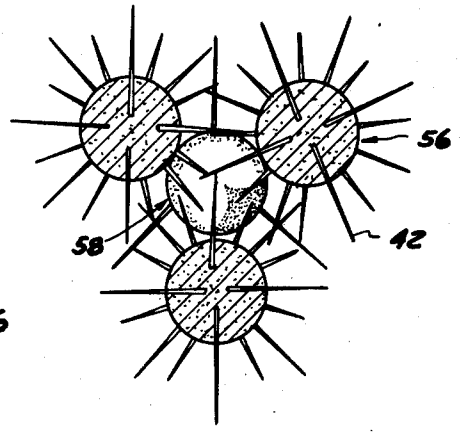


Fig. 6

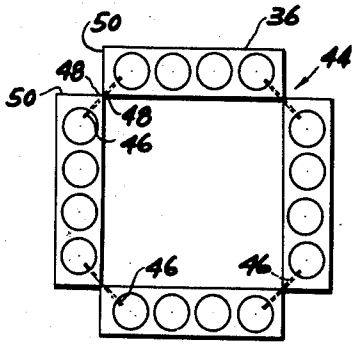


Fig. 7

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SEPARABLE ARTICLE-CONTAINING ASSEMBLY AND ORNAMENTAL STRUCTURE MADE THEREFROM

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6 Claims. (Cl. 161—16)

This invention relates to artificial ornamental objects and, in particular, to ornamental objects made up of balls interconnected by rods.

One object of this invention is to provide a semi-finished blank for making an artificial ornamental article, the blank consisting of a block of synthetic plastic material or the like having a multiplicity of balls formed in holes in the block with a portion of each ball remaining integral with the block so as to be easily fractured by pressure applied to the ball to push it out of the hole.

Another object is to provide a semi-finished blank of the foregoing character wherein the block is adapted to be separated into a plurality of bars which are then secured to one another end-to-side or end-to-end to form an open-centered base for the ornamental article.

Another object is to provide an artificial ornamental article made up of balls of synthetic plastic material secured to one another by quills such as toothpicks, the balls being preformed in holes in blocks of plastic material and adapted to be pushed out of the holes in order to assemble them in the ornamental object.

Other objects and advantages of the invention will become apparent during the course of the following description of the accompanying drawings, wherein:

FIGURE 1 is a top plan view of a semi-finished blank for an ornamental article, according to one form of the invention;

FIGURE 2 is a vertical section taken along the line 2—2 in FIGURE 1, showing one of the balls ejected from its hole prior to assembly of the ornamental article;

FIGURE 3 is a top plan view of an ornamental article base assembled from components made up from the perforated block from which the balls have been expelled;

FIGURE 4 is a front elevation of one of the quilled balls with the connecting quills, such as toothpicks, inserted therein;

FIGURE 5 is a front elevation of a completed ornamental article, such as a tree, made up of the quilled balls of FIGURE 4 and the base shown in FIGURE 3;

FIGURE 6 is a horizontal section through the ornamental article of FIGURE 5, looking upward along the line 6—6 therein; and

FIGURE 7 is a top plan view upon a reduced scale, of a modification of the base shown in FIGURE 3.

Referring to the drawings in detail, FIGURES 1 and 2 show a semi-finished blank, generally designated 10, according to one form of the invention as consisting of a block 12 of synthetic plastic material or other suitable material, such as the foam plastic known as expanded polystyrene plastic sold under various trade names, such as "Styrofoam." The block 12 is provided with a series of laterally-spaced holes 14 disposed in spaced parallel rows, each hole 14 each composed of bores 16 and 18 (FIGURE 2) penetrating the block 12 from opposite sides but not quite meeting one another so as to be separated from one another by a diametrical junction layer the margin of which forms a zonular connecting portion 20 extending radially inward to the equatorial portion or zone 22 of a ball 24 having slightly less than hemispherical opposite surfaces 26 and 28 terminating at the zonular connecting portion 20. The latter is disposed substantially in the middle plane of the block 12. The almost hemispherical surfaces 26 and 28 are formed

simultaneously with their respective bores 16 and 18 as by the use of hemispherical concave cutters (not shown). In the blank 10 shown by way of illustration but not limitation, sixteen holes 14 have been formed together with sixteen unseparated balls 24, each ball 24 being connected to the side walls of its respective hole 14 by an integral zonular connecting portion. The zonular portion 20 is sufficiently thin to be easily fracturable by the pressure of a thumb placed upon it, yet sufficiently thick to prevent accidental fracture during transportation or handling. In this manner, the balls 24 and the block 12 form an integral yet separable unit which is easily packaged and sold yet which can be rapidly transformed by simple operations into the ornamental article, generally designated 30, shown in FIGURES 5 and 6, by a procedure described below in connection with the operation of the invention.

The block 12 is optionally provided with weakening lines, slits or grooves 32 (FIGURE 1) by which the block 12 may be separated into elongated base bars, generally designated 34, which in turn may be assembled end-to-side into a base structure, generally designated 36 (FIGURE 3), as also described below. The base bars 34 may be conveniently connected at their corners to one another by the use of quills 38 (FIGURE 3), such as toothpicks.

The plain balls 24, after expulsion from their holes 14 in the block 12 according to the procedure described below, are formed into quilled balls, generally designated 40 (FIGURE 4), by pushing toothpicks or other quills 42 into the plain balls 24 in radial directions. Toothpicks have been found suitable for use as quills because they are sufficiently pointed to easily penetrate the plastic foam material of which the balls 24 are composed.

The modified open-centered base structure, generally designated 44, shown in FIGURE 7, is similarly composed of the perforated bars 34 but these are mounted end-to-end with only their corners touching and with quills 46, such as toothpicks, obliquely cross-connecting the inner corners 48 of the block bar ends 50.

In the operation of the invention, to assemble the ornamental article 30, such as a Christmas tree, the operator places his thumb upon each of the unseparated balls 24 within one end of each hole 14 in the block 12 and by pressure of his thumb, while holding the block 12 in his hands, expels each ball 24 from its hole 14 by the application of a sufficient pressure to fracture the zonular connecting portion 20. When all of the balls 24 have been expelled from their holes 14, the operator converts each plain ball 24 into a quilled ball 40 by inserting the toothpicks or other quills 42 in the balls 24 radially, as explained above and as shown in FIGURE 4. He then makes up a series of tiers 52, 54, 56 and 58 of quilled balls 24 (FIGURE 5), each tier 52, 54, 56 or 58 containing a smaller number of balls than the tier immediately below it. The first or lowest tier 52, for example, may contain seven quilled balls 40, the second tier 54 five balls, the next tier 56 three balls and the topmost tier 58 one ball. Each tier 52, 54, or 56 is made up by pressing the requisite number of quilled balls 40 toward one another until the tips of their quills 42 penetrate one another so as to interconnect the balls 40.

Meanwhile, the perforated block 12 has been separated into base bars 34 by fracturing the block along the weakened lines, lists or grooves 32 and these placed either end-to-side (FIGURE 3) or end-to-end (FIGURE 7) and tied together by the quills 38 or 46 respectively. The lowermost tier 52 is then mounted upon the base structure 36 or 44 and secured thereto by pressing the tips of its lowermost quills 42 into the base bars 34 of the base structure 36. The next succeeding tier 54 is then placed

upon the lowermost tier 52 and interconnected therewith by pressing the quills 42 of the balls 40 into interpenetrating engagement with one another. When this has been accomplished, the third tier 56 is mounted on and secured in a similar manner to the tier 54, and the single quilled ball 40 constituting the top tier 58 connected to the tier 56 below it by similar application of pressure to cause the quills 42 thereof to interpenetrate.

The procedure with respect to mounting the tiers 52, 54, 56 or 58 upon the modified base structure 44 of FIGURE 7 is similar to that just described for utilizing the base 36 of FIGURE 3 except that the base structure 44 encloses a larger open space in the center and is of greater lateral extent than the base structure 36, as well as possessing a somewhat different appearance because of the notched effect of the perpendicular ends 50 meeting at their inner corners 48 (FIGURE 7).

The artistic appearance of the ornamental article 30 may be enhanced by spraying it with artificial snow or otherwise applying the latter to the quilled balls 40 after assembly into the article 30.

The semi-finished blank 10 from which the ornamental article 30 is prepared in the manner described above, is easily and conveniently packaged and the requisite number of balls 24 is always present because of the temporary attachment of the balls 24 to the block 12 at the zonular connecting portions 20. This arrangement thus eliminates the necessity for counting the balls, or for separately packaging the balls after counting. The semi-finished blank 10 of FIGURE 1, by having the balls 24 contained and held in their respective holes 14 within the block 12, protects the balls 24 from damage during shipment or handling. In one form of the invention as actually constructed, the balls were slightly under two inches in diameter, in a base block 12 approximately eight inches square and two inches thick.

What I claim is:

1. A semi-finished blank for production of oppositely-convex articles and a base structure for mounting and supporting the same, said blank comprising a block of fracturable material having spaced opposite faces and a multiplicity of pairs of oppositely-directed recesses disposed in spaced parallel rows extending inwardly toward one another from said opposite faces into close proximity to one another at approximately the middle plane of said block with a relatively thin fracturable layer of material disposed substantially at said middle plane of said block between the bottom surfaces of each such pair of recesses, said bottom surfaces of each such pair of recesses being outwardly convex, each such pair of recesses collectively defining and bounding an article surrounded by the side walls of said recesses, said fracturable layers extending from their respective articles to the side walls of their respective recesses and integral with said articles and body.

2. A semi-finished blank, according to claim 1, wherein said convex surfaces are substantially hemispherical surfaces and wherein said layers of fracturable material extend from the margins of the diametrical junction layer between said hemispherical surfaces to said side walls of said recesses.

3. A semi-finished blank, according to claim 1, wherein said block has a plurality of spaced substantially rectilinear weakened severance grooves extending substantially from edge to edge thereof along an elongated path between each pair of said rows.

4. A separable article-containing assembly, according to claim 1, wherein said convex bottom surfaces of said recesses are geometrical surfaces of revolution.

5. A semi-finished blank for production of oppositely-convex articles and a base structure for mounting and supporting the same, said blank comprising

a block of fracturable material having spaced opposite faces and a multiplicity of pairs of oppositely-directed recesses disposed in spaced parallel rows and extending inwardly toward one another from said opposite faces into close proximity to one another with a relatively thin fracturable layer of material disposed between the bottom surfaces of each such pair of recesses,

said bottom surfaces of each such pair of recesses being outwardly convex,

each such pair of recesses collectively defining and bounding an article surrounded by the side walls of said recesses,

said fracturable layers extending from their respective articles to the side walls of their respective recesses and integral with said articles and body,

said block having a plurality of weakened severance grooves extending substantially from edge to edge thereof in laterally-spaced parallel relationship facilitating subdivision of said block into base bars constituting base structure components.

6. A semi-finished blank, according to claim 5, wherein said severance portions are disposed in spaced approximately parallel planes.

References Cited in the file of this patent

UNITED STATES PATENTS

1,153,185	Allen	Sept. 14, 1915
1,781,529	Shulman	Nov. 11, 1930
2,366,886	Van Tuyl	Jan. 9, 1945
2,587,003	Shina	Feb. 26, 1952
2,591,016	Shoenherr	Apr. 1, 1952
2,775,998	Osborn	Jan. 1, 1957
2,781,902	Smithers	Feb. 19, 1957
2,860,769	Waller	Nov. 18, 1958
2,877,893	Volckening et al.	Mar. 17, 1959
2,996,832	Rubin	Aug. 22, 1961

FOREIGN PATENTS

597,762	Great Britain	Feb. 3, 1948
833,140	Germany	Mar. 3, 1952