

[72]	Inventor	Paul L. Kuzmick 30 Oval Road, Essex Fells, N.J. 07021
[21]	Appl. No.	714,559
[22]	Filed	Mar. 20, 1968
[45]	Patented	Oct. 26, 1971

Primary Examiner—Harold Ansher
Assistant Examiner—Henry F. Epstein
Attorney—James and Franklin

[54] ARTIFICIAL LAWN ELEMENT
5 Claims, 10 Drawing Figs.

[52]	U.S. Cl.....	161/21, 161/63
[51]	Int. Cl.....	A41g 1/00
[50]	Field of Search.....	161/21, 62, 63, 123, 149, 116, 119; 27/29, 30

[56]		References Cited
		UNITED STATES PATENTS
2,512,310	6/1950	Corson

ABSTRACT: An artificial outdoor lawn is formed by interconnecting a plurality of lawn elements, each lawn element including a pin which is adapted to be received within a mating opening provided in an adjacent lawn element, thereby to produce said interconnection. Projections are provided on the underside of each element to provide a clearance area beneath the lawn element when it is supported on a surface, thereby to permit drainage of water from said element. The appearance and density of natural grass is effectively simulated by providing a plurality of tufts of artificial grass blades in different arrangements over the upper portion of the lawn and by appropriately configuring the upper surface of the base from which said tufts extend.

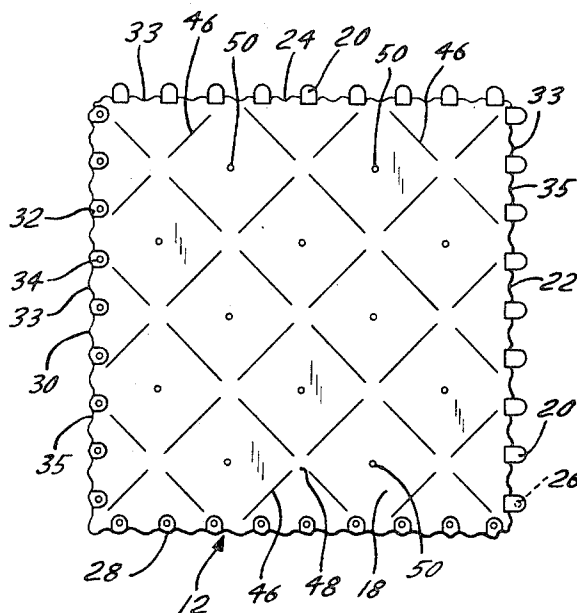


FIG. 1

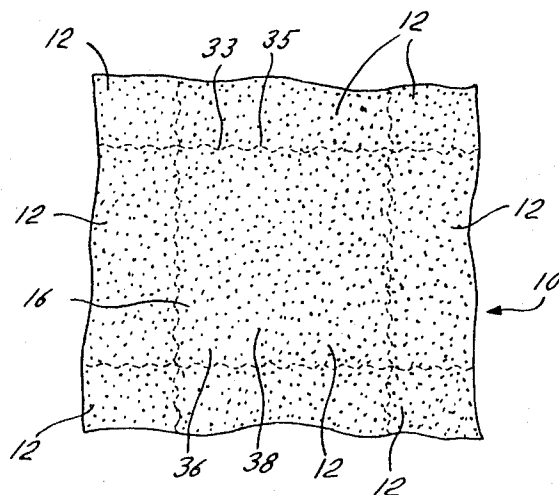


FIG. 2

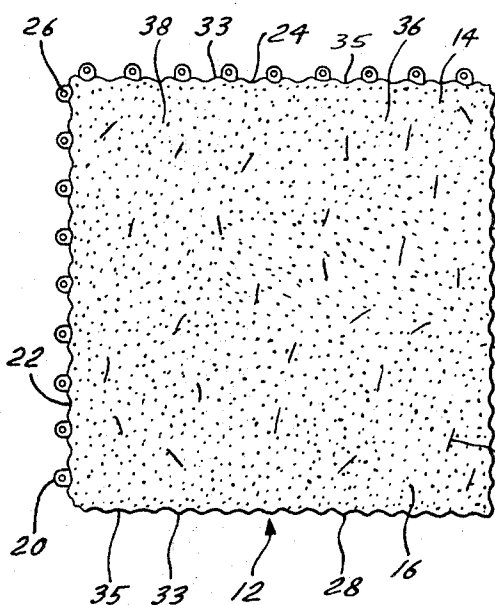


FIG. 3

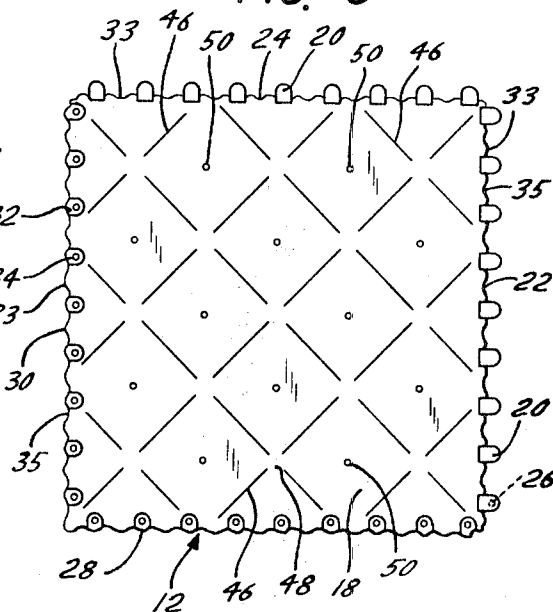
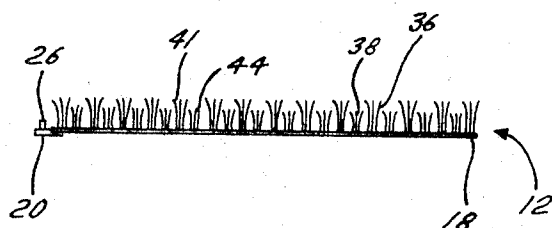


FIG. 4



INVENTOR
PAUL L. KUZMICK
BY *James and Franklin*
ATTORNEYS

FIG. 5

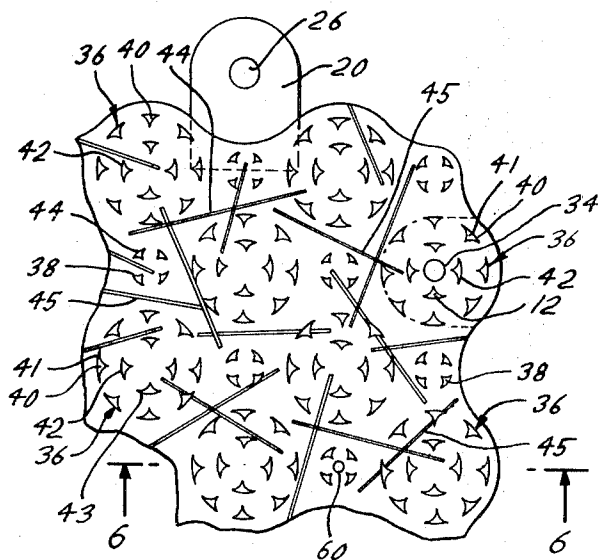


FIG. 6

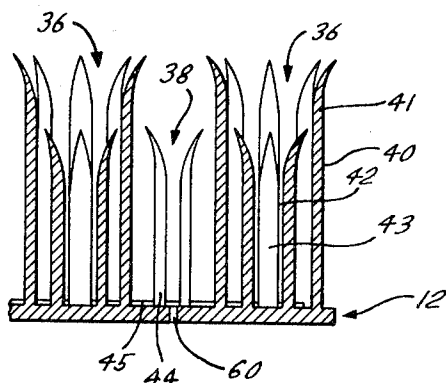


FIG. 9

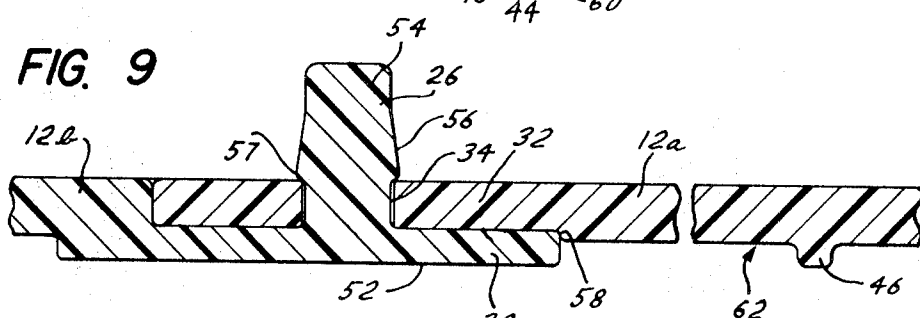
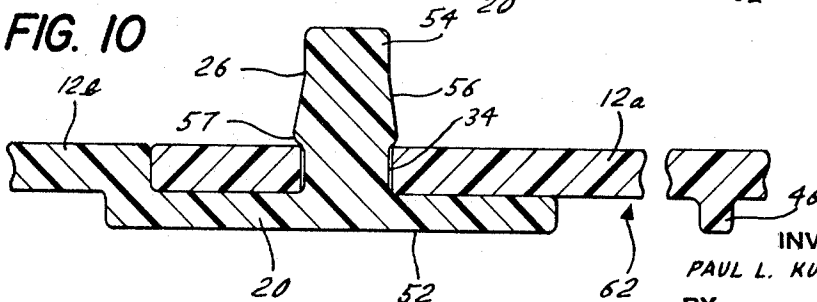
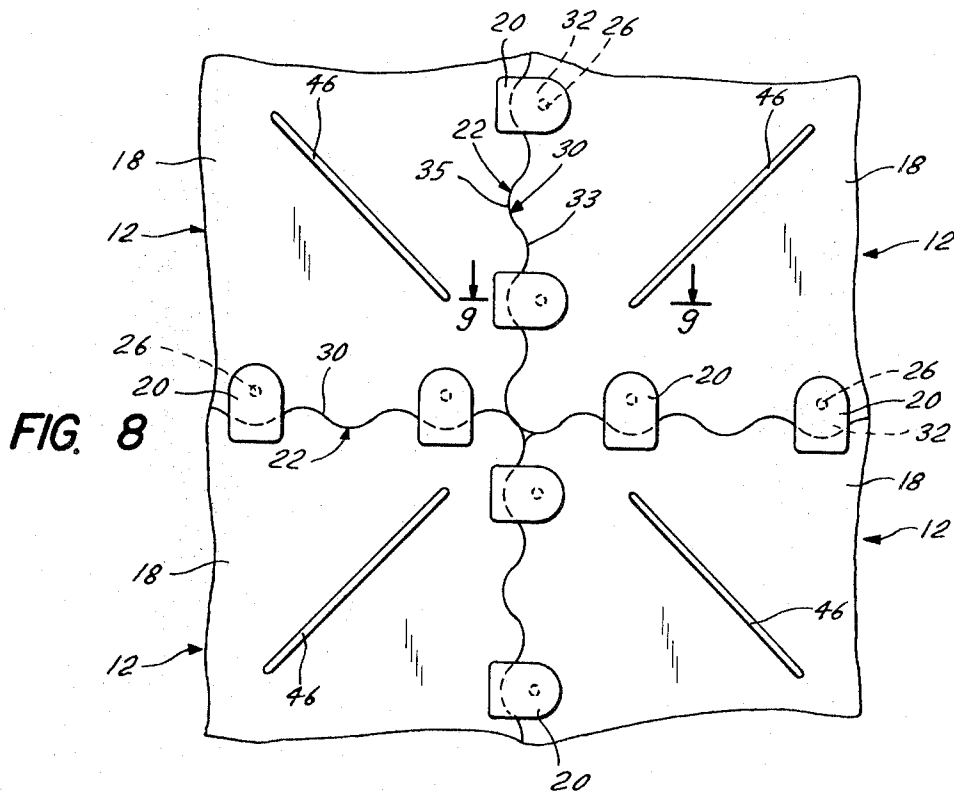
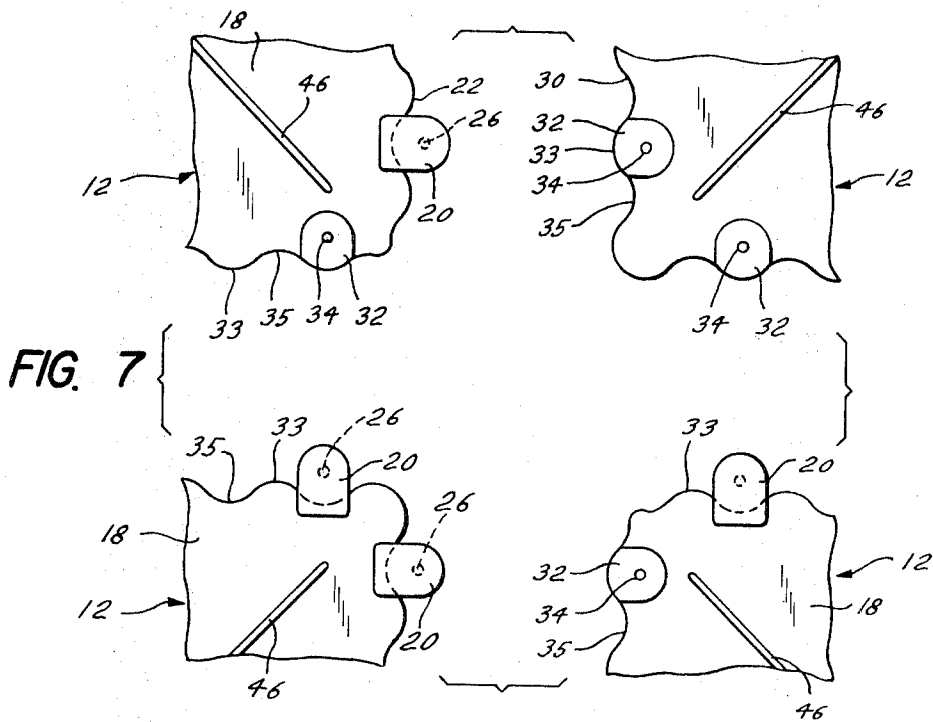


FIG. 10



INVENTOR
PAUL L. KUZMICK
BY *James and Franklin*
ATTORNEYS



INVENTOR
PAUL L. KUZMICK
BY *James and Franklin*
ATTORNEYS

ARTIFICIAL LAWN ELEMENT

The present invention relates to an artificial ground surface, and particularly to an artificial surface which simulates the appearance of a grassy lawn.

The exodus of residents from the urban areas to the suburban and rural areas of this country has produced a sharp increase in the number of people owning and living in their own homes. In an attempt to enhance the pleasures derived from such home ownership, outdoor gardens, patios, swimming pools, and the like are installed in the areas around the house. The appearance of these additions to suburban residences is often improved by providing a grassy lawn area of a desired pattern and size in their vicinity. However, the growing and care of lawn areas is often a burdensome and expensive procedure, requiring repeated purchases of fertilizer and seeds, and frequent watering, weeding, and trimming of the lawn.

To avoid the problems inherent in the maintaining of a natural grassy lawn, a great number of home owners have resorted to the use of artificial lawns in some areas where such a lawn would be desirable. Artificial lawns comprise a base from which artificial grass blades "sprout." They are generally made of a plastic material, such as polyethylene, to which a suitable green color is applied.

Artificial lawns are also popular for use indoors in homes and apartments for decorative purposes or to give a desired floor texture, and in displays or showroom areas.

Artificial lawns have the advantage over natural lawns that they do not require soil or light, remains constantly green throughout the year, require little or no care to maintain their appearance, and may be used indoors as well as out. As such, artificial lawns of the type described are finding over increasing popularity among home owners, apartment dwellers, and industrial and commercial concerns.

There are, however, several difficulties which have been encountered in the use of the known artificial lawns. For example, liquid, coming from rain, cleaning or spilling, tends to collect in pools between the artificial blades, and not having a true earth in which to be absorbed, remains there, and deteriorates the plastic material.

It also happens that water may get between the lawn elements and their supporting surface. With artificial lawns of the prior art, such water tends to accumulate in pools, deteriorating both the lawn elements and their support, as well as constituting an unsanitary condition.

Since artificial lawns are molded, since their size and shape will vary from installation to installation, and since they often must cover very large areas, it is as a practical matter inescapable that they must be made up of a plurality of individual elements. Those elements must be held in position securely, and with no visible gaps between them. To individually cement the elements in place, like a tile floor, is very expensive, difficult and time-consuming, and can only be done where the supporting surface permits. It is, therefore, highly desirable that the elements be interconnectable in a manner which is secure, simple to effect, and inconspicuous.

It is also desirable, in artificial lawns, for the overall appearance of the lawn to approximate or simulate the appearance of a well-tended natural lawn as perfectly as possible. This includes the provision of an accurate simulation of the color, density and texture of both the grass and the background of a natural lawn. Furthermore, known artificial lawns are generally formed on a plastic base which is normally smooth-surfaced and hence highly reflective, so that glare results at certain angles of incident light.

It is therefore a prime object of the present invention to provide an artificial lawn which substantially eliminates all of the above disadvantages of the presently known artificial lawns, and which produces an improved simulation of appearance to more nearly approximate the appearance of a natural lawn.

It is a more specific object of the present invention to provide an artificial lawn formed from a plurality of individual lawn elements wherein the means for interconnecting adjacent elements of the lawn is secure, easy to effect, and inconspicuous in the completed artificial lawn.

It is further object of the present invention to provide an artificial lawn in which proper drainage is insured of the rain or other liquid tending to collect on the upper surface of the lawn or to be caught between the lawn elements and their supporting surface.

It is another object of the present invention to provide an artificial lawn in which a more accurate simulation of grass texture and density is achieved.

It is yet a further object of the present invention to provide an artificial lawn in which glare from the base surface is substantially reduced, and in which a more accurate approximation of background texture is achieved.

To these ends, the present invention provides an artificial lawn which is formed from a plurality of individual lawn elements adapted to be interconnected with one another. The individual lawn elements are provided with pin means and mating openings adjacent their joined edges, the pin means of one element being received securely through the opening of an adjacent element, thereby to provide the interconnection between the adjacent lawn elements, with the pin means being camouflaged from view so as not to mar the visual impact of the assembly of elements.

In a further aspect of the present invention, element-supporting projections provided on the underside of the base of each lawn element produce a clearance between the base and the outdoor surface on which the artificial lawn is placed during its use. Drain holes are provided in the base in communication with the clearance to provide a drainage of any rain or other water which may tend to collect on the upper surface of the lawn. The element-supporting projections are so designed that the water-receiving clearance areas facilitate water drainage therefrom, so that water may drain away and not accumulate in pools.

In yet another aspect of the present invention, an improved simulation of natural grass is achieved by providing two groups of tufts extending from the upper surface of the base, the tufts each comprising a plurality of artificial grass blades arranged in different forms, and, if desired, varying heights, in a manner as to simulate the nonuniform density of growth of natural grass. Preferably, the pin means associated with the interconnection of adjacent lawn elements is inserted into the center of one of the tufts, thereby to be effectively camouflaged or shielded from view in the completed artificial lawn. The interconnection between adjacent lawn elements is made even more inconspicuous by providing the joining edges of adjacent lawn elements with mating lateral hills and valleys.

To the accomplishment of the above, and to such other objects as may hereinafter appear, the present invention relates to an artificial lawn and elements therefor, as defined in the appended claims, and as described in this specification, taken together with the accompanying drawings in which:

FIG. 1 is a top plan view of a segment of an artificial lawn formed according to the present invention;

FIG. 2 is a top plan view of an individual lawn element used in forming the artificial lawn of FIG. 1;

FIG. 3 is a bottom plan view of the lawn element of FIG. 2;

FIG. 4 is a side elevation of the lawn element of FIG. 2;

FIG. 5 is an enlarged detailed view of a corner section of the lawn element of FIG. 2;

FIG. 6 is a cross-sectional view taken along the lines 6-6 of FIG. 5;

FIG. 7 is a fragmentary bottom plan view showing portions of adjacent lawn elements prior to their interconnection;

FIG. 8 is a fragmentary bottom plan view illustrating the manner in which the four adjacent lawn elements of FIG. 7 are interconnected in the formation of the completed artificial lawn as in FIG. 1;

FIG. 9 is an enlarged cross-sectional view taken across lines 9-9 of FIG. 8 illustrating the manner in which the ends of adjacent lawn elements are engaged to form the completed artificial lawn of FIG. 1; and

FIG. 10 is a view similar to FIG. 9, illustrating another embodiment of means for interconnecting adjacent lawn elements.

FIG. 1 illustrates an artificial lawn designated generally as 10, which is formed by the interconnection of a plurality of individual lawn elements 12, several of which are shown in FIG. 1. In a typical embodiment of this invention, each lawn element 12 may be 12 inches square. The lawn elements may be interconnected to form any desired configuration of the completed lawn 10, compatible with the dimension of the individual lawn element 12.

The individual lawn element 12 comprises a base 14 having an upper surface 16 (FIG. 2) and a lower surface 18 (FIG. 3). A plurality of substantially equally spaced tabs 20 project transversely outwardly from two adjacent edges 22 and 24 of the lawn elements 12. Projecting upwardly from each of the tab elements is an upstanding securing pin 26. The other edges 28 and 30 of lawn element 12 are provided with recessed fastening area 32 formed on the underside 18 of base 14, the fastening areas 32 being also substantially equally spaced at intervals corresponding to the spacing between the tabs 20. Each fastening area 32 is provided with an opening 34 extending through the entire thickness of base 12. A plurality of mating scallops or lateral hills and valleys 33 and 35, here shown as, but not necessarily, curved, are formed on each edge of the lawn element, the scallops on edges 22 and 24, respectively, being adapted to mate with the scallops on edges 28 and 30 in the manner shown in FIGS. 1 and 8.

To simulate the appearance of natural grass, a plurality of tufts, each comprising a plurality of artificial thin and flexible grass blades, extends upwardly from the upper surface of base 14. Preferably, the base 14, tabs 20, pins 26 and the simulated grass blades are integrally formed in a one-piece molded plastic construction. Polyethylene is a suitable plastic material which may be used. As is best seen in FIGS. 5 and 6, the tufts of blades of grass are divided into two different pluralities of tufts designated generally as 36 and 38. The first plurality of tufts 36 comprises two concentric rings of blades 40 and 42, the outer ring 40 shown as comprising a total of eight upstanding blades 41 and the inner ring 42 shown as comprising a total of four upstanding blades 43. The blades may be of the same or different heights, as desired. As here specifically disclosed, the height of the blades 41 in the outer concentric circle 40 is approximately one-third greater than the height of the blades 43 within the inner concentric circle 42. The second plurality of tufts 38 comprises a single ring of four blades 44, the height of which may be as desired. As here specifically disclosed, their height is substantially the same as the height of blades 43 (see FIG. 6). The tufts 36 and 38 are alternately and uniformly distributed over the entire upper surface 16 of the base 14; that is, each tuft of one type is directly adjacent and surrounded by tufts of the other type. The alternating distribution of the two different types of blade tufts provides a nonuniform density of grass blades, corresponding to the overall density and texture of a natural grassy lawn. This heightens the feeling of verisimilitude of the artificial lawn of the present invention.

To further heighten this illusion of reality, a plurality of randomly arranged intersecting ridges 45 are formed on the upper surface 16 of each lawn element 12. It has been found that the provision of ridges 45 over the entire upper surface arranged in the random, crisscross manner shown in FIG. 5, provides a textural, visual sensation similar to that of the earth or ground in a natural lawn, the ridges simulating broken blades of grass which have fallen to ground level. Furthermore, the ridges 45 serve to decrease the amount of glare from the plastic upper surface 16 as compared to a plastic surface in which such ridges are not provided.

The bottom surface 18 of lawn element 12 comprises a plurality of diagonally oriented integral ribs 46 which, as here specifically disclosed, extend along both major diagonals of the square base element 12, and along diagonal lines parallel to each of the major diagonals. It is to be noted that the ribs 46 are not continuous, thereby defining a plurality of gaps such as gap 48, in the spaces between the ends of adjacent ribs 46. Also provided integrally with the bottom surface 18 are a plurality of cylindrical bosses 50, located substantially at the

center of each square defined by the diagonal ribs 46. Bosses 50 and ribs 46 define support parts which project downwardly from the lower surface 18 of base 12 by substantially the same distance, which preferably corresponds to the general level of the lower surfaces 52 of tabs 20 (see FIG. 9). Thus, when the individual lawn elements 12 are interconnected in a manner to be described to form the complete artificial lawn 10, the lawn 10 will rest upon its supporting surface on only the ribs 46, the bosses 50, and the lower surfaces 52 of the tabs 20.

FIG. 7 illustrates four adjacent lawn elements 12 immediately prior to their interconnection, and FIG. 8 shows them after they have been interconnected.

The lawn elements 12 are brought together such that the edges 22 and 24 of a given element 12, from which the tabs 20 and pins 26 extend, oppose the edges 28 and 30 of the adjacent element 12a, in which the openings 34 are provided. As shown in FIG. 9, the openings 34 of lawn element 12a are placed directly above the respective pins 26 of lawn element 12b and in registry therewith. Pin 26 comprises a reduced radius portion 54 at its upper and lower ends, and an enlarged downwardly and outwardly sloping portion 56 terminating at an annular shoulder 57. Lawn element 12a is then pressed downwardly, the sloping pin portion 56 acting in a wedge-like fashion on the inner walls of the opening 34 to permit the righthand lawn element 12 to snap past shoulder 57. The shoulder 57 prevents upward movement of the lawn element 12a with respect to the pin 26 of lawn element 12b. The embodiment shown in FIG. 8 is similar to that of FIG. 7, with the exception that the lawn element 12 is of uniform thickness, the fastening portion 32 being unrecressed.

It will be noted that, as shown in FIG. 5, the openings 34 are provided centrally in each of the tufts 36, located on 34 are provided centrally in each of the tufts 36, located along the edges 28 and 30. The remaining ones of tufts 36, located on the other edges, i.e., edges 22 and 24, of the lawn element 12 and those tufts located within the interior of the lawn element 12, may not be provided with such central openings. As a result, when pins 26 extend through the openings 34 to form the interconnection between adjacent lawn elements, the upper surfaces of the pins 26 are received within the inner concentric circles 34 surrounding by blades of grass 41 and 43 and are accordingly hidden from view upon the interconnection of the adjacent lawn elements.

As shown most clearly in FIG. 8, when the adjacent lawn elements are brought together as for interconnection, the mating scallops 33 and 35 formed on the adjacent interconnected edges of the elements mate in flush engagement. The resulting sinuous interface between the adjacent lawn elements improves the appearance of the completed lawn by eliminating the boxlike appearance obtained by joining conventional lawn elements having linear edges. The engagement of the mating scalloped edges also effective to provide uniform clearance between adjacent lawn elements and to render the interconnection between adjacent elements less obvious, and hence improves the natural appearance of the completed lawn. In the completed lawn, the outer perimeter of the lawn will be defined only by edges 28 and 30 so that the perimeter will be smooth and natural, and unmarred by the presence of extending securing elements such as the tabs 22.

Ribs 46 and bosses 50 on the lower surface 18 of the individual lawn elements 12, which support the lawn elements as they rest upon the floor or ground, produce a clearance 62 between the supporting surface and the underside 18 of the base. Each of the plurality of tufts 38, except for those arranged directly adjacent to the edges of the lawn element, is provided with a centrally located drain hole such as 60, which extends through the entire thickness of the lawn element 12.

Thus, when liquid (from rain, spilled coffee, or cleaning fluid, for example) falls upon the upper surface 16 of the lawn element 12, it will not tend to collect between the individual blades of grass. Instead, it will readily fall through drain holes 60 into the clearance 62, and from there it can flow through the gaps 48 provided between the ends of adjacent ribs 46, so

as to drain away. Thus, rain or other liquid will not collect on the upper surface or beneath the lower surface of the lawn elements.

Thus, the artificial lawn of the present invention is made up of a plurality of readily molded standard elements which may easily be secured together in an inconspicuous manner so as not to reveal its sectional nature, so as to approach a real lawn in appearance much more closely than has heretofore been possible, and so as to permit drainage of liquids which may fall on the lawn.

While only a limited number of embodiments of the present invention have been here specifically disclosed, it will be appreciated that many variations may be made therein without departing from the spirit and scope of this invention as defined in the appended claims.

I claim:

1. A lawn element adapted for use in the formation of an artificial lawn simulating the appearance of a natural lawn, said lawn element comprising a base, and grass simulating means extending upwardly from said base, said simulating means comprising a first plurality of tufts comprising a plurality of artificial grass blades arranged essentially in a plurality of pairs of concentric circles, the blades of the outer circle being of a substantially different length than the blades of the inner circle, and a second plurality of tufts comprising artificial grass blades arranged essentially in a single circle and tufts of said second plurality being located on said base between said tufts of said first plurality.

2. The lawn element of claim 1 further comprising a plurali-

ty of randomly arranged ridges formed on the upper surface of said base, thereby to more perfectly simulate the texture of a natural lawn.

3. An artificial lawn element adapted to be placed on a supporting surface in conjunction with other similar elements to simulate the appearance of a natural grass area, said lawn element comprising a base, a plurality of tufts in the form of blades of grass projecting upwardly from said base, a portion of said tufts being arranged in essentially two concentric circles, and a plurality of randomly oriented ridges formed on the upper surface of said base thereby to simulate the texture of a natural lawn.

4. An artificial lawn element adapted to be placed on a supporting surface in conjunction with other similar lawn elements to simulate the appearance of a natural grass area, said elements comprising a base, grass simulating means projecting upwardly from said base, and a plurality of randomly arranged ridges formed on the upper surface of said base, thereby to simulate the texture of a natural lawn.

5. A lawn element adapted for use in the formation of an artificial lawn simulating the appearance of a natural lawn, said lawn element comprising a base, and grass simulating means extending upwardly from said base, said simulating means comprising a plurality of tufts comprising a plurality of artificial grass blades arranged essentially in a plurality of pairs of concentric circles, the blades of the outer circle being of a substantially different length than the blades of the inner circle.

30

35

40

45

50

55

60

65

70

75