US 20080240857A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2008/0240857 A1**

(43) **Pub. Date: Oct. 2, 2008**

**Ciccarello**

(54) **IRREGULARLY SHAPED HEXAGONAL PAVING STONE WITH INTEGRAL MATING SPACERS**

(76) Inventor: **Joseph Ciccarello**, Brossard (CA)

Correspondence Address:
**OGILVY RENAULT LLP**
**1981 MCGILL COLLEGE AVENUE, SUITE 1600**
**MONTREAL, QC H3A2Y3 (CA)**

(21) Appl. No.: **11/692,418**

(22) Filed: **Mar. 28, 2007**

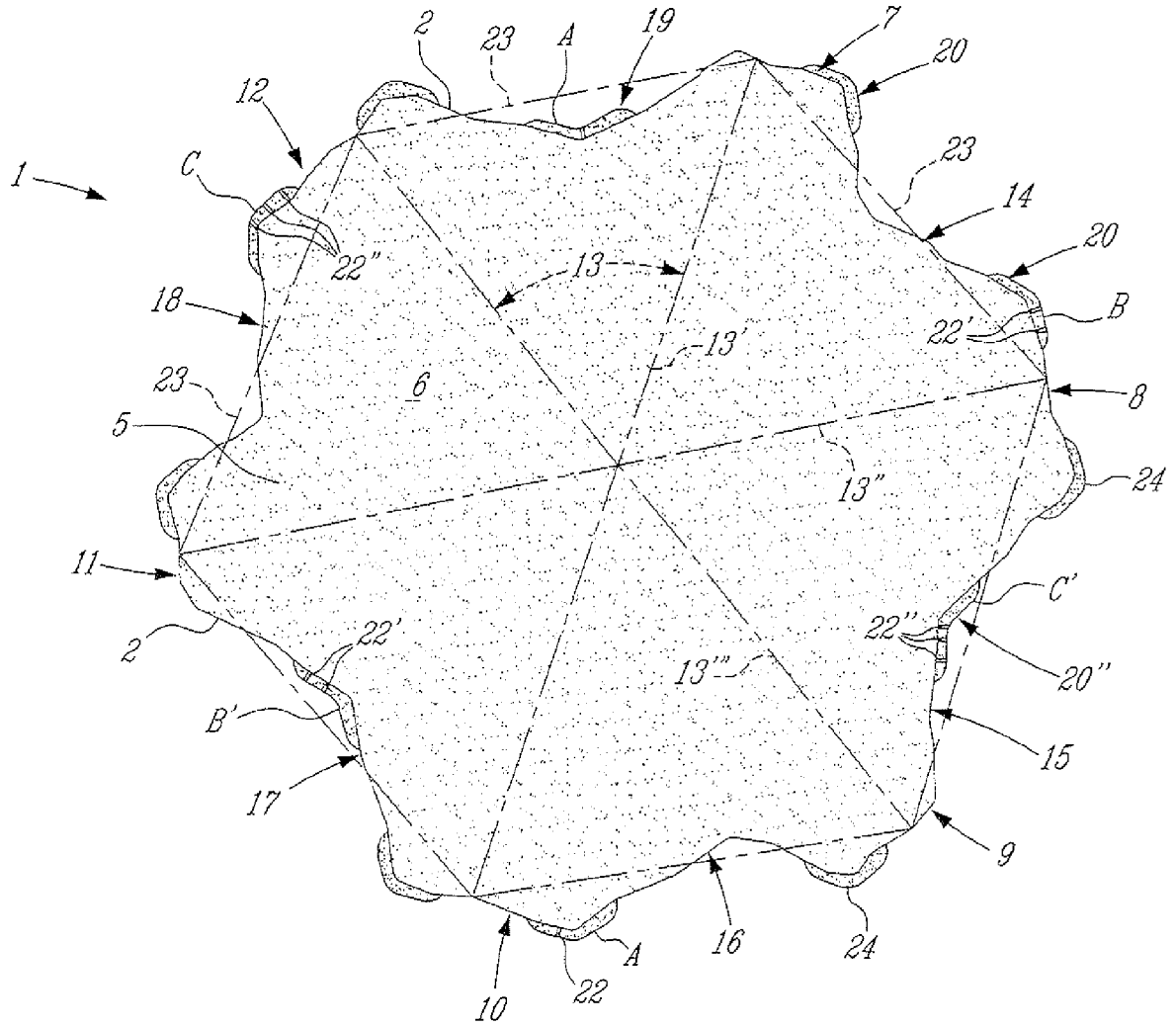
**Publication Classification**

(51) **Int. Cl.**
***E01C 5/00*** (2006.01)

(52) **U.S. Cl.** ..... **404/41**

(57) **ABSTRACT**

A concrete paving stone is cast with an irregularly shaped hexagonal contour and defines six distinct irregularly shaped projections and six irregularly curved concave formations. The projections and concave formations are all of unlike shape. Spacer members are cast in the sidewall of the stone and have a top slopped surface containing thereon an indicia mark to facilitate laying these stones in side-by-side meshing relationship to form a paved surface area having the appearance of having been made by a plurality of unlike stones having no repeat pattern.



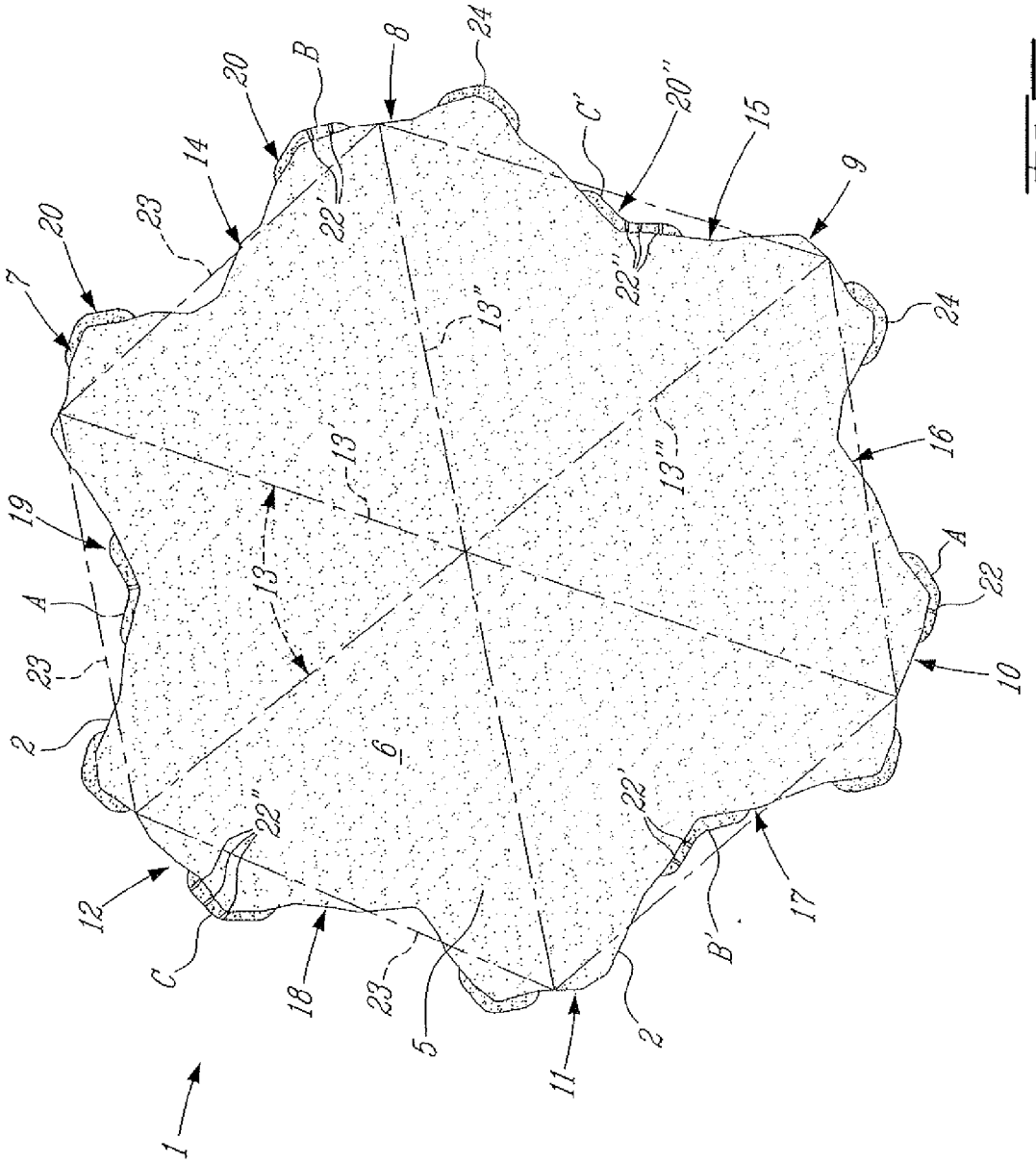

1
2
5
6
7
8
9
10
11
12
13
13'
13''
13'''
14
15
16
17
18
19
20
20''
22
22'
22''
23
24
A
B
B'
C
C'

FIG. 1

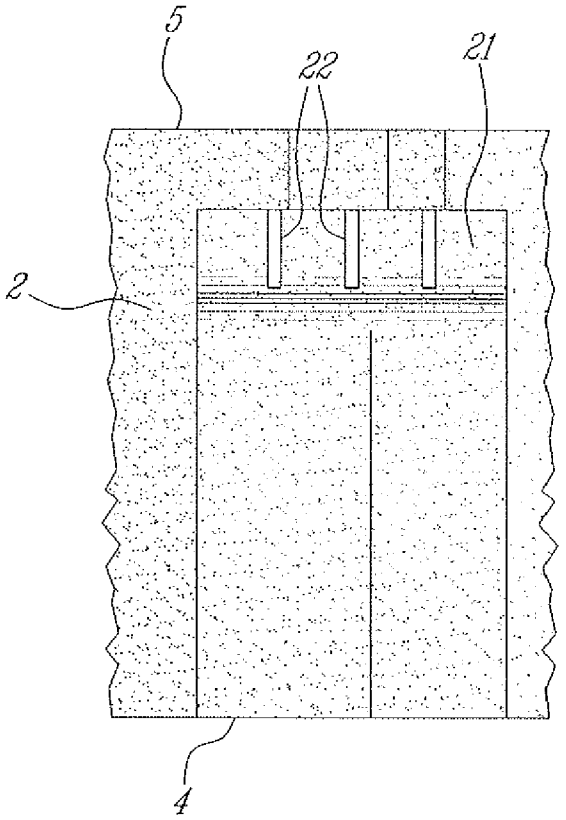



FIG. 2A

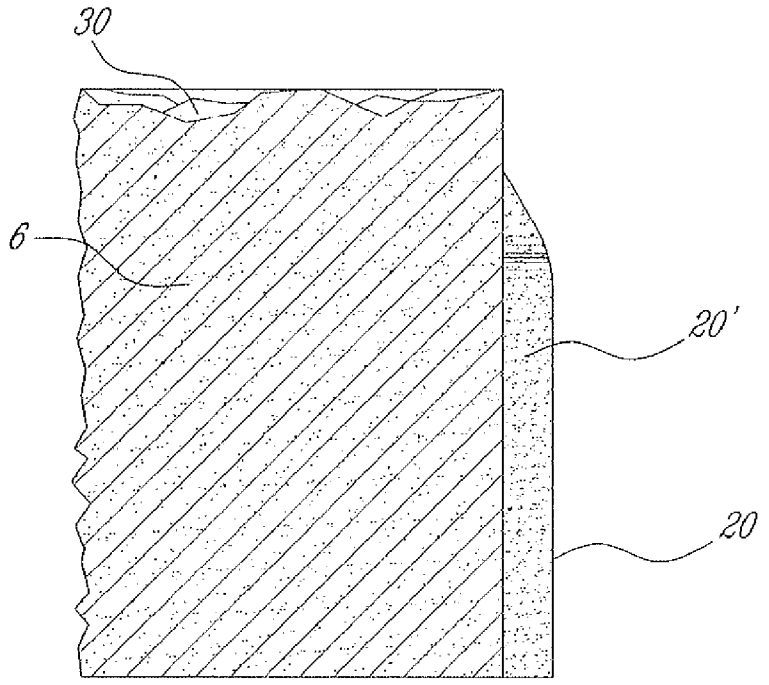



FIG. 2B

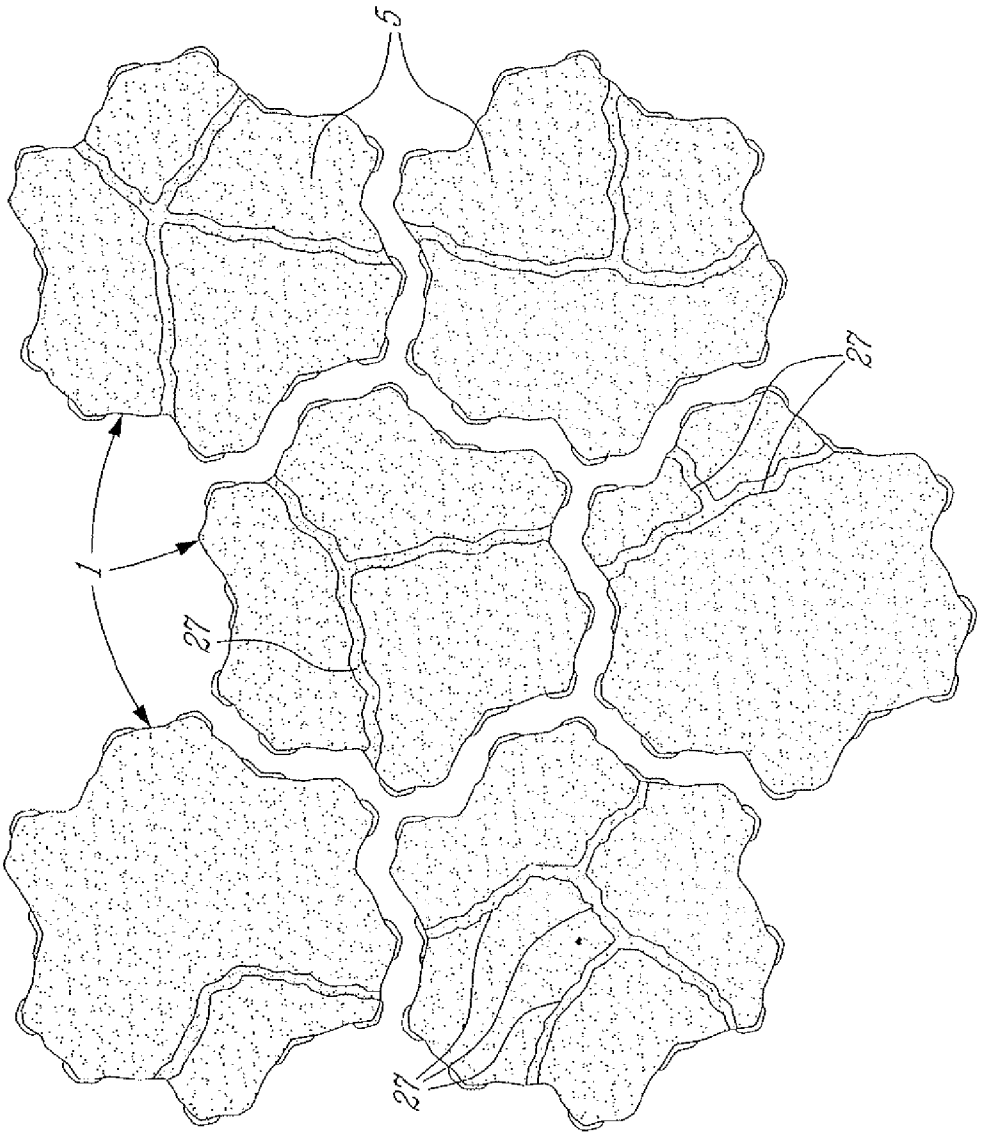



FIG. 5

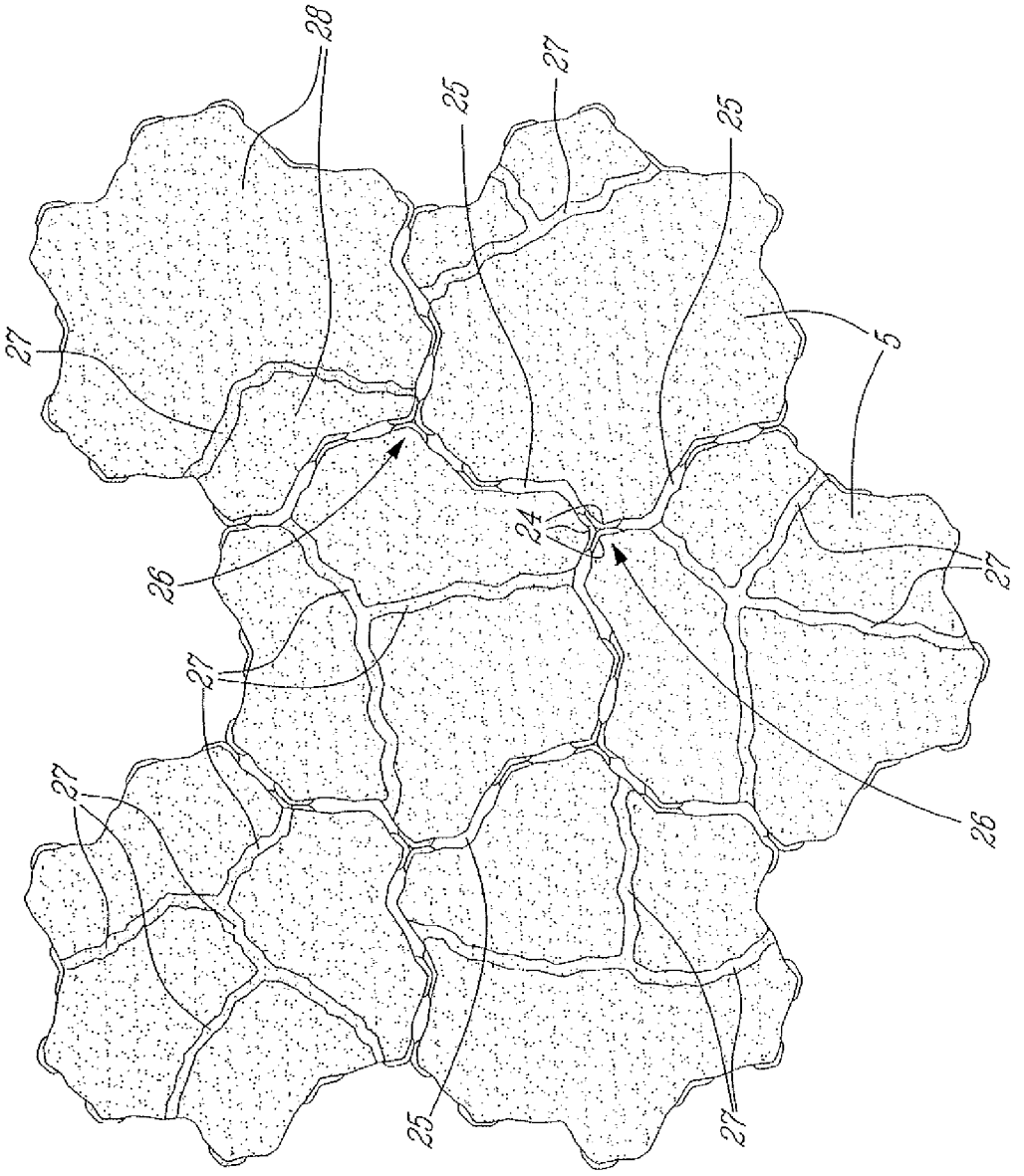



FIG. 4

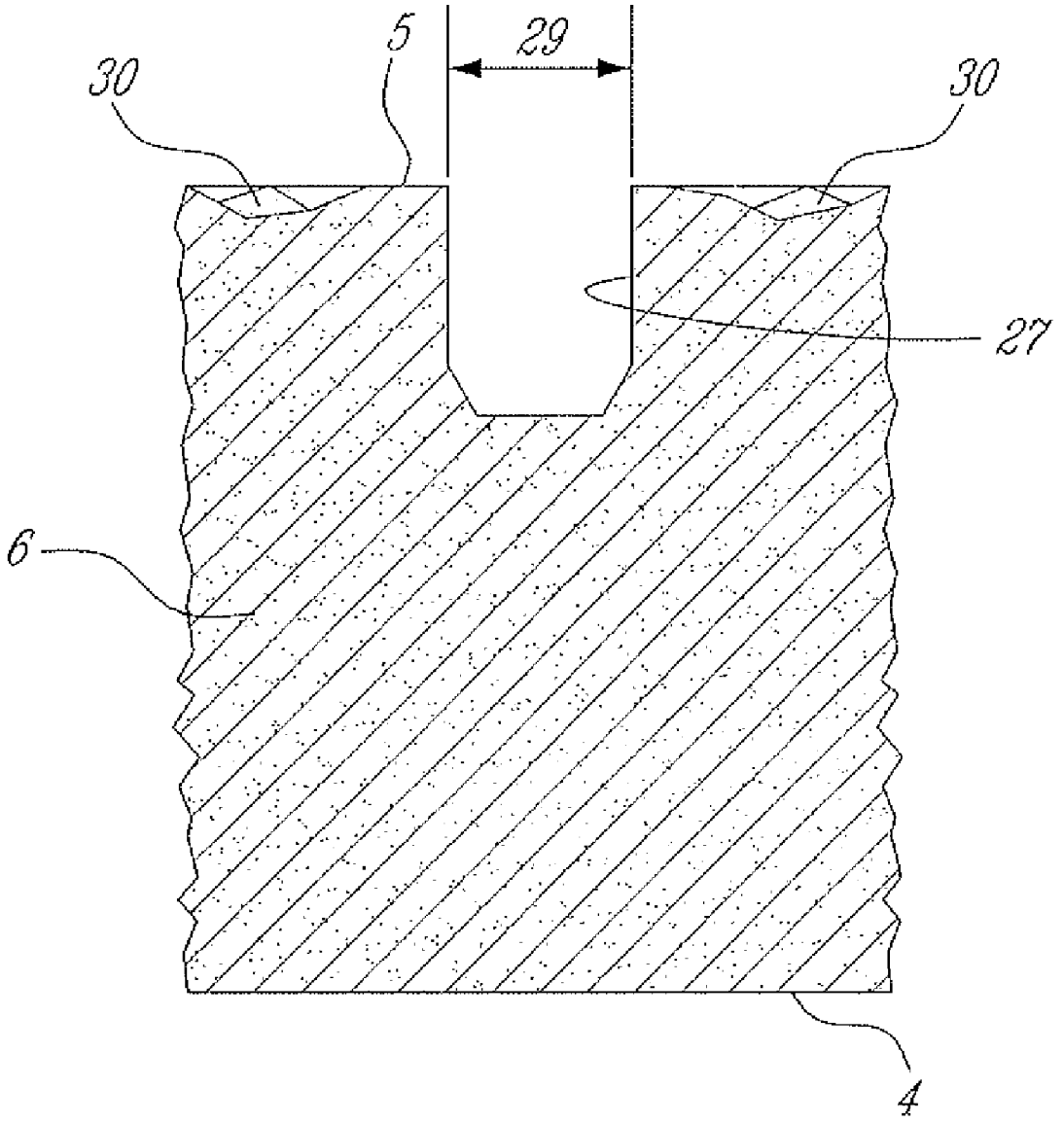



FIG. 5

# IRREGULARLY SHAPED HEXAGONAL PAVING STONE WITH INTEGRAL MATING SPACERS

## TECHNICAL FIELD

**[0001]** The present invention relates to cast concrete paving stones and more particularly to a large paving stone having a generally hexagonal contour of irregular shape and wherein the stone has indicia cast therein to facilitate laying of the stones in abutting relationship.

## BACKGROUND ART

**[0002]** Cast concrete paving stones having irregular contours and adapted to be positioned adjacent one another on a ground surface are known. The irregular contour is usually formed by straight side wall section disposed at varying angles and usually in a pattern form whereby to facilitate the laying thereof in a discrete pattern. U.S. Pat. No. 4,354,773 illustrates such cast stone and wherein discrete small stones are cast on the top surface thereof. The purpose of such stones is to produce a paved surface with the appearance that it is formed by a plurality of irregularly shaped stones and the repeat of the stone is camouflaged by the irregular disposition of the small stones. It is to be noted that when several stones are cast in the top surface of a large stone it becomes even more difficult to match the large stone in a predetermined pattern due to the visual confusion that it creates by its many stone shapes.

**[0003]** However, when the contour of such stones have an irregular shape formed by straight sections of various size and angular disposition or curved sidewall sections, it become mind boggling and time consuming to install these in a meshing side-by-side relationship, even to an expert person. Examples of such stones are described and illustrated in U.S. Pat. Nos. 4,217,740 and 5,884,445. When laying these types of stones it is often necessary to dismantle sections of laid stones for the reason that stones no longer fit together due to a stone being incorrectly meshed with other laid stones and creating an opened area where a like stone cannot fit when positioned at any angle. Because some of these stones are large, often eighteen inches in diameter, it is time consuming to dismantle sections, prepare the bed surface and relay the stones in an attempt to prevent such problems, instruction documentation is provided with illustrations to show how these stones are to be laid to intermesh with one another. This results in a time consuming project for the unaccustomed person as reference needs to be made to the drawings each time a stone is laid down against the other stones.

**[0004]** There is therefore a need to resolve the above problems and to provide a cast concrete paving stone having a totally irregular contour and which can be laid in side-by-side relationship with other like stones and without the need to have to refer to drawings. There is also a need to provide such a stone with a means to prevent improper positioning of the stones in a pattern and wherein a paved surface can be constructed quickly without error. The stone of the present invention has an irregular hexagonal shape with unlike irregular projecting formations and concave formation making it difficult to intermesh, much like a puzzle. The present invention solves that problem making the intermeshing of stones an easy task requiring no special skills.

**[0005]** There is also a need to provide such a large stone with smaller stones cast in a top surface thereof with a spaced joint therebetween and wherein such large stones can be laid adjacent one another with a spaced joint of substantially constant width formed therebetween to form large paved surfaces having an irregular stone pattern.

## SUMMARY OF INVENTION

**[0006]** It is a feature of the invention to provide a cast concrete paving stone which satisfies the above needs.

**[0007]** Another feature of the invention is to provide a cast concrete paving stone having a generally hexagonal contour formed of irregularly shaped formations and resembling a real stone.

**[0008]** Another feature of the invention is to provide a cast concrete paving stone having an irregular contour and which is provided with an indicia means to permit laying of the stones on a bed surface and in an abutting relationship in a predetermined array and perfectly spaced from one another.

**[0009]** According to these features the invention provides a concrete paving stone formed from a cast concrete body of substantially constant thickness and having a generally hexagonal contour. The body has a flat bottom surface and a top surface. The body further has a straight circumferential side wall thereabout and extending normal to the bottom and top surface. The bottom and top surfaces delineate thereabout six distinct irregularly shaped projecting formations of unlike shape and lying in opposed pairs on common diametrical axes. Irregularly curved concave formations, also of unlike shape are formed between the irregularly shaped projecting formations. At least two spacer members are formed integral with the body and extend outwardly of the side wall at predetermined locations. Indicia means are associated with each of the spacer members to permit a plurality of the stones to be laid on a surface in a predetermined meshing relationship to form a paved surface area.

**[0010]** The invention further provides a paved surface area formed by a plurality of the concrete paving stones of the invention herein described and illustrated.

**[0011]** The invention also encompasses any obvious modifications thereof to a man skilled in the art provided such modifications are reasonably inferred from the present specification including the claims and the drawings.

## BRIEF DESCRIPTION OF DRAWINGS

**[0012]** In order that the invention may be more clearly understood, reference will now be made to the accompanying drawings which illustrate a particular preferred embodiment of the invention by way of example, and in which:

**[0013]** FIG. **1** is a top view of the concrete paving stone of the present invention showing the irregular substantially hexagonal contour thereof;

**[0014]** FIG. **2** is a fragmented side view showing the shape of the spacer members and the indicia cast markings;

**[0015]** FIG. **3** is a top view showing a plurality of concrete paving stones of the invention having six distinct stone patterns cast in the top surface thereof and laid side-by-side but spaced apart to show their relationship in a paved surface;

**[0016]** FIG. **4** is a top view similar to FIG. **3**, but showing the stones in a side-by-side relationship with the spacer members in abutment; and

**[0017]** FIG. **5** is a fragmented section view showing the relationship between the thickness of the cast paving stone and the width of the joints between the stone patterns cast in the top surface of the stone.

## DESCRIPTION OF PREFERRED EMBODIMENTS

**[0018]** FIGS. **1** and **2** illustrate the shape of the cast concrete paving stone **1** of the invention. The contour side wall **2** is a straight vertical side wall extending normal to a flat bottom wall **4** and top wall **5**. As shown, the top wall is roughened by suitable roughing means well known in the art to give it the appearance of real stone. The stone body **6** has a width of about 416 mm and a thickness of about 70 mm. Accordingly, this stone is fairly large and heavy but capable of being handled quite easily by hand without the use of lifting equipment.

**[0019]** As shown in FIG. **1**, the contour side wall **2** has a generally hexagonal shape and when viewed from the top, the stone **1** delineates six distinct irregularly shaped projections **7**, **8**, **9**, **10**, **11**, and **12**. Each of these projections are of unlike shape and have jiggered shapes. They are also of differing widths to simulate a real uncut stone. The projections **7** to **12** also lie in opposed pairs on common diametrical axes **13**. As shown projections **7** and **10** lie on diametrical axis **13'**, projections **8** and **11** lie on diametrical axis **13"** and projections **9** and **12** lie on diametrical axis **13'"**.

**[0020]** Between these projections **7** to **12** there is provided irregularly shaped curved concave formations **14**, **15**, **16**, **17**, **18** and **19**, are formed between the projecting formations. They are also of unlike shape and jaggered.

**[0021]** Spacer members **20** are cast in the side wall **2** of the stone **1**. There are spacer members all about the stone and these are cast as vertical abutment ribs (see FIG. **2**) some ribs **20'** having generally convex surfaces and some ribs **20"** having generally concave surfaces. These spacer ribs **20** also have a downwardly slopped top surface **21** to provide sufficient surface area to contain indicia markings **22** cast therein. As herein shown, the cast indicia marking are in the form of slits.

**[0022]** Predetermined pairs of the spacer members **20** have like cast markings and disposed substantially diametrically opposed. The pairs containing like markings **22**, herein one, two or three slits, are identified by reference letters A-A', B-B' and C-C' and are diametrically opposed. When laying the stones in matting relationship, the spacer member A is laid against the pacer A' of another stone and so on for the other spacers of surrounding stones as illustrated in FIGS. **3** and **4**. The spacer members of the three pairs of spacers A-A', B-B' and C-C', are each associated with a sidewall section **23** of the hexagonal shape about the cast body **6**, as shown in FIG. **1**.

**[0023]** As shown in FIG. **1**, three of the spacer members A, B and C are associated, or partly associated, with a respective one of three projecting formations **10**, **8** and **12** respectively and the spacer members A', B' and C' are associated with respective ones of three concave formations **19**, **17** and **15**. As shown, the indicia slits **22** are provided on every alternate one of the six projecting formations and every alternate one of the irregularly curved concave formations. As shown, spacers A-A' have one slit **22**, spacers B-B' have two slits **22'**, and spacers C-C' have three slits **22"**.

**[0024]** Intermediate spacer members **24** are provide between the spacer members provided with the indicia slits. These intermediate spacer members **24** abut with one another at the juncture of these stones **1** when laid down in side-by-side relationship, as shown in FIG. **4**. They assure that a constant width joint **25** is maintained between the stones by preventing the stones from moving as the intermediate spacer members **24** are of v-shape and project within each other in groups of three, as shown at **26** in FIG. **4**.

**[0025]** As shown in FIGS. **4** and **5**, the top wall **5** of the stones **1** may also be provided with irregular grooves **27** to delineate two or more stone shapes **28** therein. The grooves **27** have a width **29** which is substantially twice the thickness or the protruding distance **20'** of the spacer members **20**. Accordingly, these grooves **27** blend in with the joints **25** between the stones when laid side-by-side. FIG. **4** illustrates six different stone patterns in the top wall of six adjoining stones. These patterns can be mixed differently to provide for different surface designs and can be mixed in with stones having no stone patterns in their top surface. The end result is that no pattern is apparent to the human eye when a large or small paved surface is formed with the paving stone of the present invention.

**[0026]** As shown in FIGS. **2** and **5**, the top wall or surface **5** of the stones may be roughened, such as shown at **30**, to simulate real stone, and such is well known in the art.

**[0027]** One can appreciate that the invention, a preferred embodiment of which is above described, provides a cast concrete paving stone of irregular shape which is large but still capable of being transported and laid down by hand in a meshing relationship with other like stones and matted perfectly due to the provisions of indicia means. The stones **1** are also perfectly spaced apart to form joints which are of constant width. The unique hexagonal shape of the stone with its irregular shaped projections and concave formations, all of unlike shape, lends itself to the production of a paved surface area resembling an array of a multitude of irregularly shaped stones.

I claim:

**1**. A concrete paving stone comprising a cast concrete body of substantially constant thickness and having a generally hexagonal contour, said body having a flat bottom surface and a top surface, said body further having a straight circumferential side wall thereabout and extending normal to said bottom and top surface, said bottom and top surfaces delineating thereabout six distinct irregularly shaped projecting formations of unlike shape and lying in opposed pairs on common diametrical axes, irregularly curved concave formations also of unlike shape between said irregularly shaped projecting formation, at least two spacer members formed integral with said body and extending outwardly of said side wall at predetermined locations, and indicia means associated with each said spacer members permitting a plurality of said stones to be laid on a surface in a predetermined meshing relationship to form a paved surface area.

**2**. A concrete paving stone as claimed in claim **1** wherein said indicia means are formed in said spacer member.

**3**. A concrete paving stone as claimed in claim **2** wherein said indicial means is constituted by cast markings, predetermined pairs of said spacer members having like cast markings.

**4**. A concrete paving stone as claimed in claim **3** wherein there are six of said spacer members each associated with a sidewall section of said hexagonal contour, there being six sidewall sections about said concrete body constituting three pairs of said spacer members.

**5**. A concrete paving stone as claimed in claim **4** wherein three of said spacer members are associated or partly associ-

ated with a respective one of three of said six projecting formations, and three other of said spacer members are associated with a respective one of three of said six irregularly curved concave formations, said indicia means permitting the positioning of said projecting formations adjacent associated ones of said curved concave formations with said associated ones of said spacer members in contact with one another and having like indicia means.

**6**. A concrete paving stone as claimed in claim **5** wherein said indicia means is provided on every alternate one of said six projecting formations and every alternate one of said irregularly curved concave formations.

**7**. A concrete paving stone as claimed in claim **6** wherein an intermediate spacer member is provided between said spacer members provided with said indicia means, said intermediate members abutting with one another when said paved surface area is formed.

**8**. A concrete paving stone as claimed in claim **1** wherein said top surface is provided with irregular grooves to delineate two or more stone configurations in said top surface.

**9**. A concrete paving stone as claimed in claim **8** wherein said top surface is provided with irregular grooves to delineate two or more stone shapes in said top surface.

**10**. A concrete paving stone as claimed in claim **9** wherein said irregular grooves have a width which is substantially twice the protruding distance of said spacer members.

**11**. A concrete paving stone as claimed in claim **2** wherein said spacer members are vertical abutment ribs cast with said concrete body, some of said ribs having generally convex surfaces and generally concave surfaces.

**12**. A concrete paving stone as claimed in claim **11** wherein said ribs have a downwardly slopped top surface in which said cast markings are disposed.

**13**. A paved surface area comprising a plurality of concrete paving stones as claimed in claim **5** and wherein said stones are meshed together in said predetermined meshing relationship by abutting said spacer members with like molded markings against one another.

**14**. A paved surface area as claimed in claim **13** wherein some of said stones are provided with irregular grooves to delineate at least two but not more than six stone configurations in said top surface.

**15**. A paved surface area as claimed in claim **14** wherein said top surface of all of said stones is a textured top surface resembling a real stone surface.

* * * * *