(12) UK Patent Application (19) GB (11) 2 168 399 A

(43) Application published 18 Jun 1986

(21) Application No 8426632

(22) Date of filing 22 Oct 1984

(51) INT CL[4]
E01C 5/06

(52) Domestic classification (Edition H):
E1D 1074 172 2132 406 503 541 CG2 LEQW2
U1S 1743 E1D

(56) Documents cited
GB 1548604 US 4128357

(58) Field of search
E1D
E1B
Selected US specifications from IPC sub-classes E04C
E01C

(71) Applicant
Edenhall Concrete Products Limited (United Kingdom),
Barbary Plains, Edenhall, Penrith, Cumbria CA11 8SP

(72) Inventor
Alan Geoffrey Matthews

(74) Agent and/or Address for Service
Marks & Clerk, 57/60 Lincoln's Inn Fields,
London WC2A 3LS

(54) Paving blocks

(57) An auxiliary paving block has a square stem 7 and an integral head 8 shaped as an octagon of long and short sides but omitting that minor portion defined by continuing the line of the side of the stem across the octagon, thereby possessing long face 9. It is used for edging or termination of an area paved with complete octagonal/square blocks. If placed long-side down it defines a gentle height-change feature for gulleys or "sleeping policeman". It can also be used for curbs when standing on end.

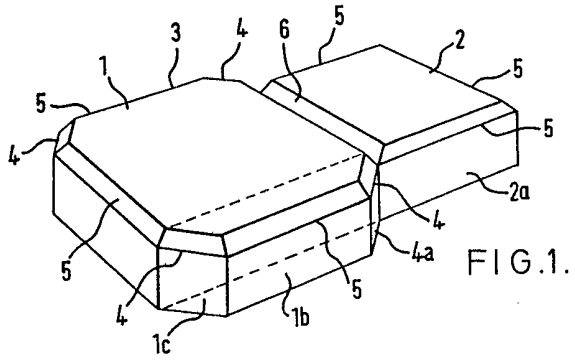


FIG.1.

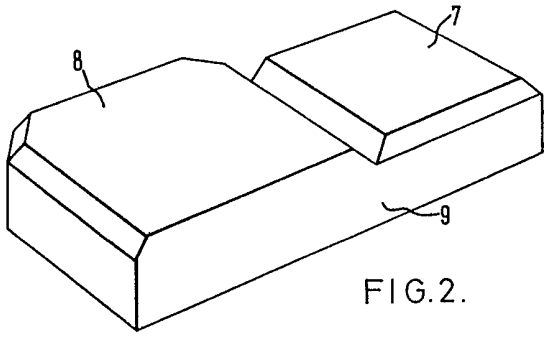


FIG.2.

GB 2 168 399 A

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

2168399

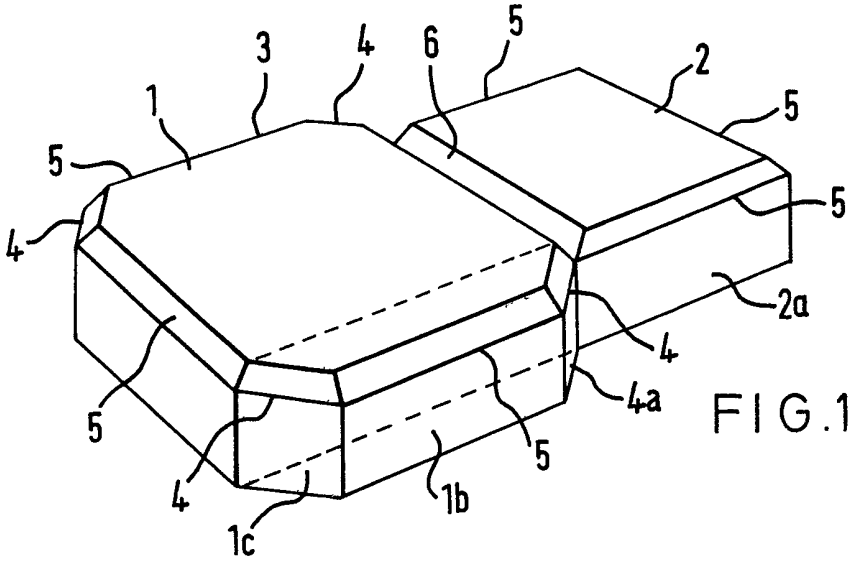


FIG.1.

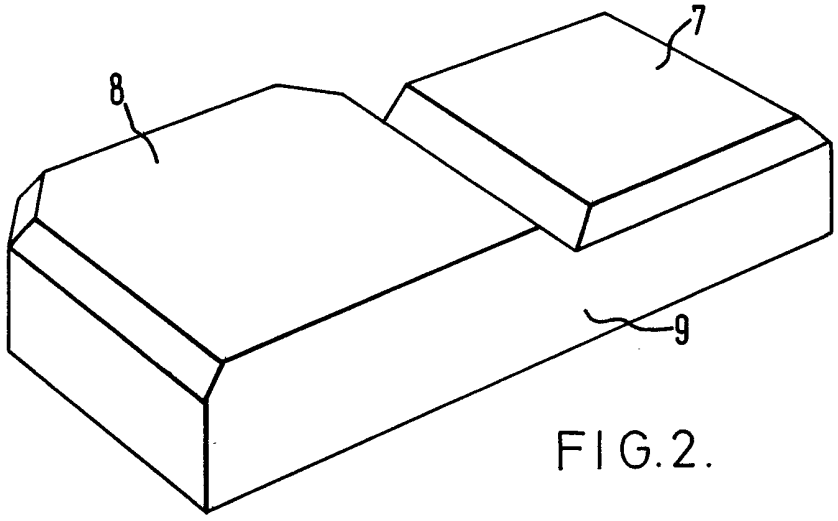


FIG.2.

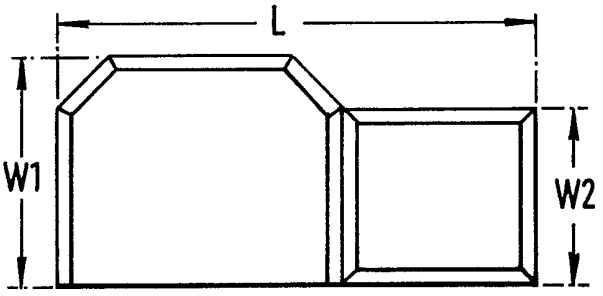


FIG.3.

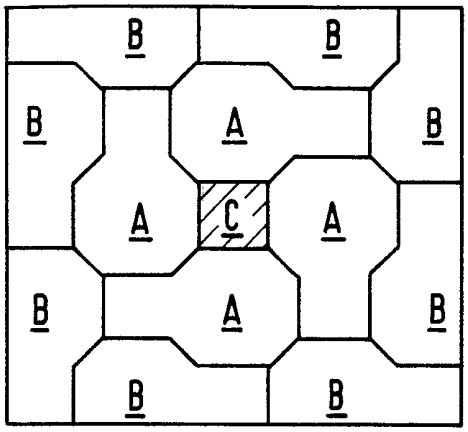


FIG.4a.

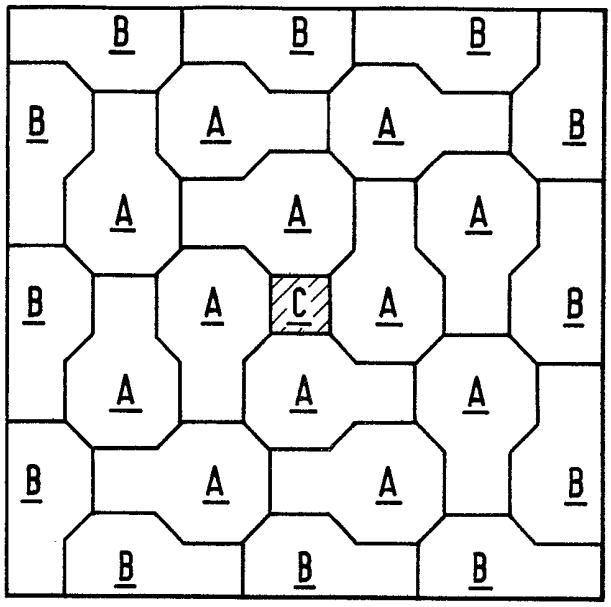


FIG.4b.

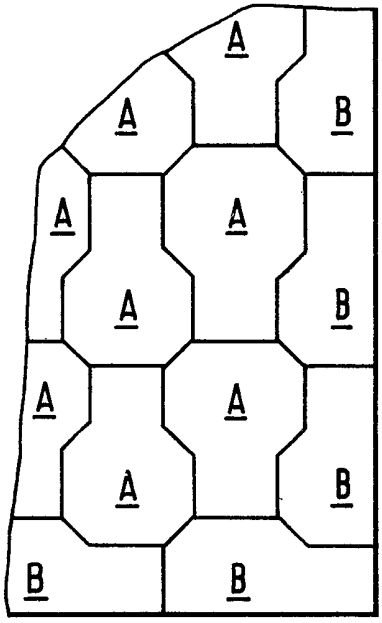


FIG.4c.

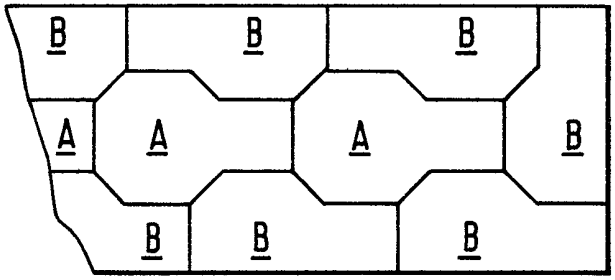


FIG.4d.

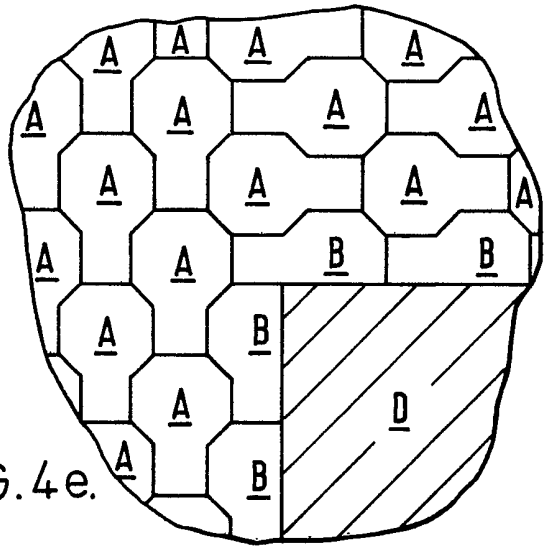
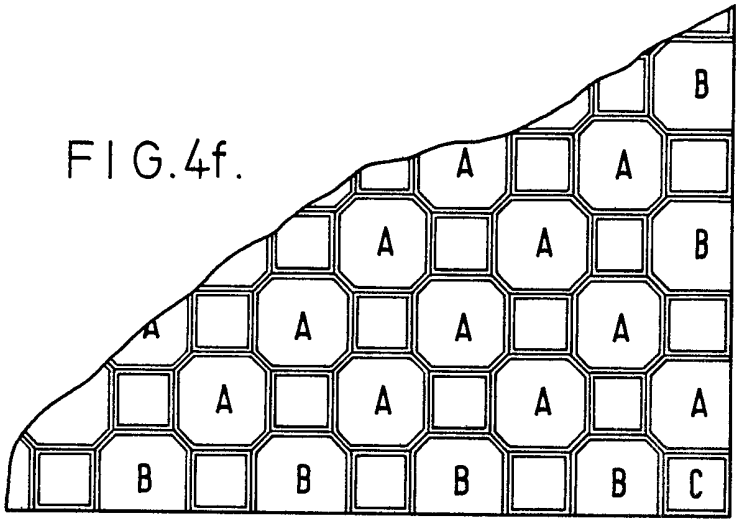


FIG.4e.

FIG.4f.



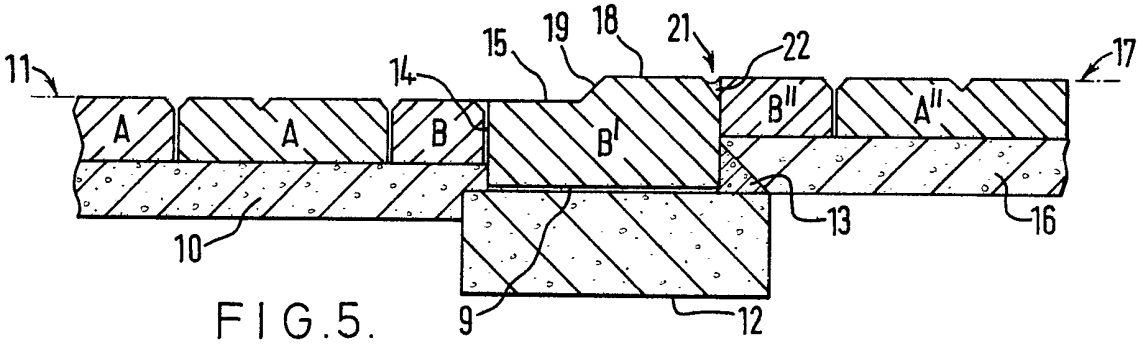


FIG.5.

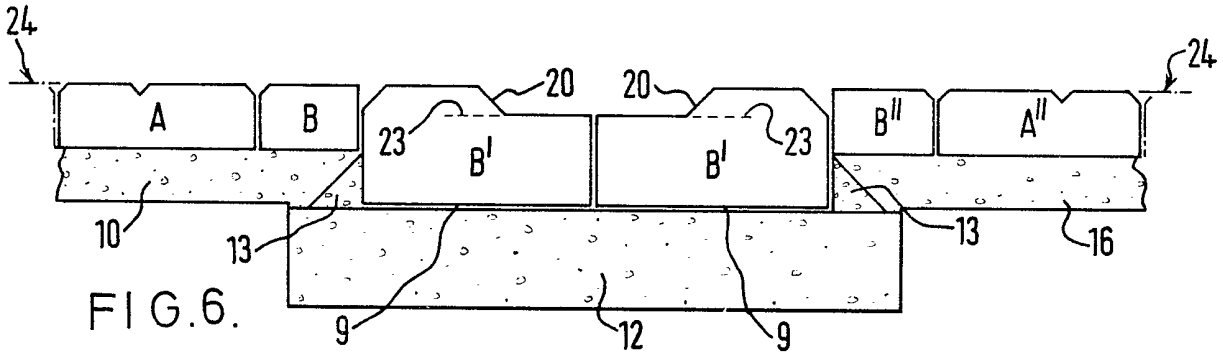


FIG.6.

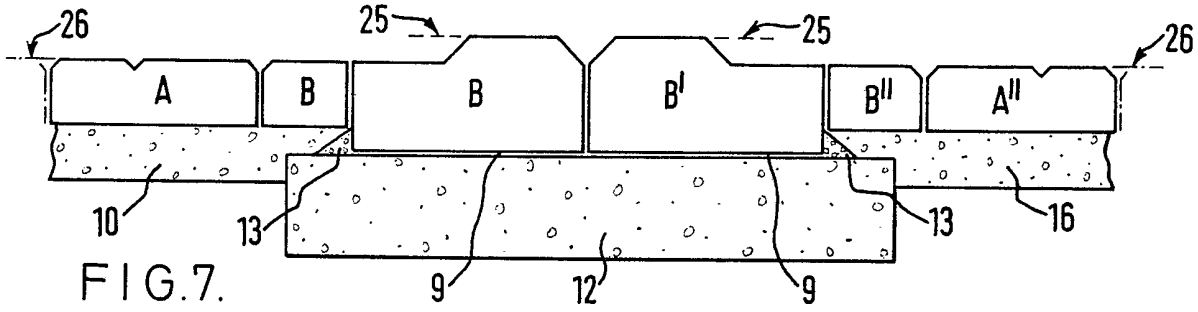


FIG.7.

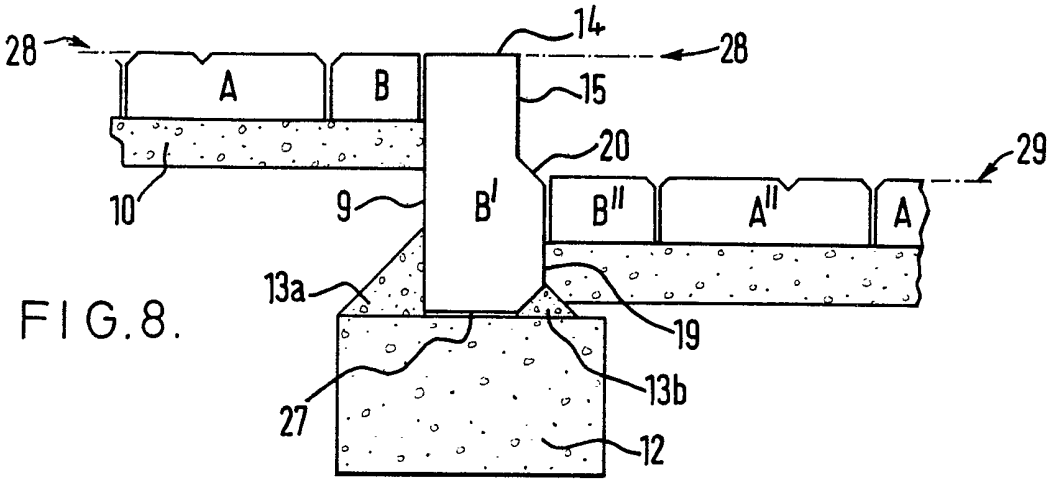


FIG.8.

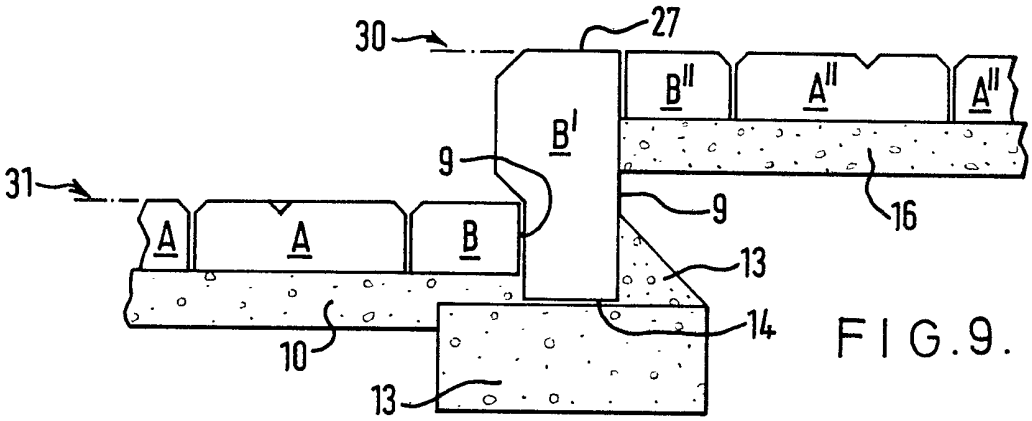


FIG.9.

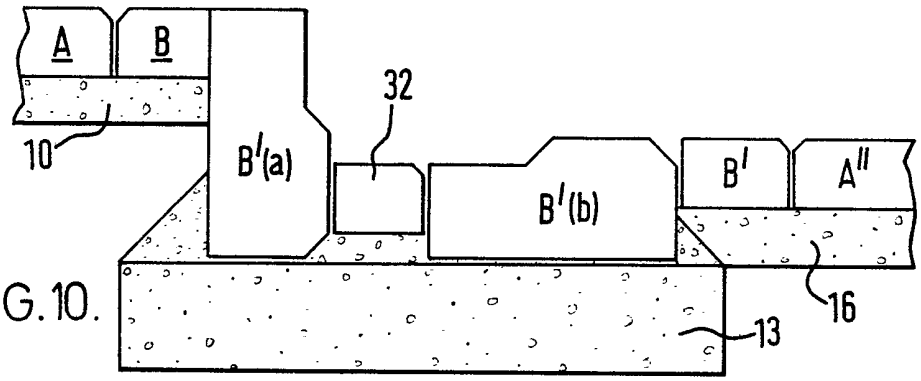


FIG.10.

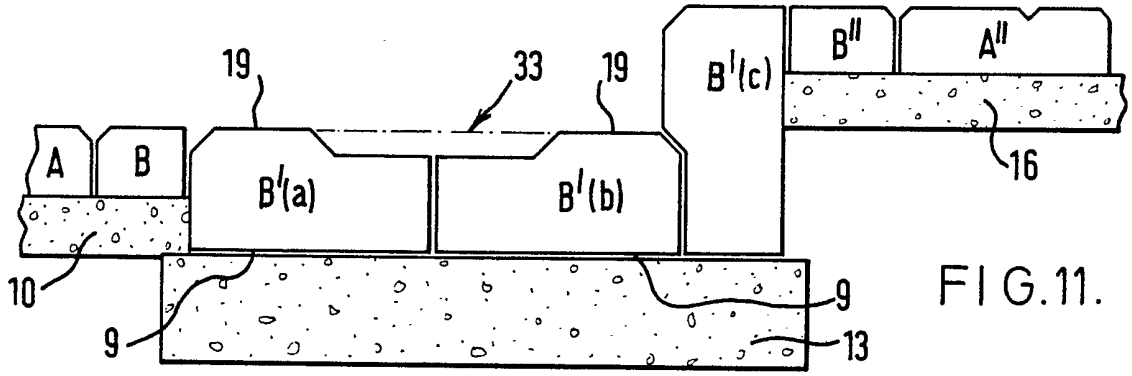


FIG.11.

SPECIFICATION

Paving blocks

This invention relates to paving blocks, and more especially to an auxiliary paving block useful for curbs and edging.

It is wellknown to lay as paving a mixture of octagonal and square slabs or blocks. For example, four regular octagons can be positioned with four mutually abutting pairs of edges, and this defines a central square, to constitute the nucleus of a pattern which can be indefinitely continued, and is known as "Roman tiling".

Often the octagons are not fully regular, but show an alternation of longer edges (each such being of the same length as the others) and shorter edges (again each of the same length as its others). Such octagons have two laying patterns either defining larger squares or smaller squares between four octagons.

British Patent 1 548 604 is directed inter alia towards the provision of paving slabs each of which has the shape of such an "alternating" octagon to which has been added a square shape erected on one edge, preferably a longer edge. Thus, an area can be paved using only this single type of compositely-shaped slab. Moreover as described therein, the compositely-shaped slabs can be laid in several different relative orientations and still completely cover the area, by virtue of the symmetry and edge-length properties of the shape.

Such slabs usually have to be cut to shape at the edges of the paved area since it is unlikely that these area edges will coincide with the geometrical outline of the laid slabs. Moreover, it is often a requirement that curbs or like edge features, or shallow traversing gulleys or ridges or height changes, be incorporated into a paved area. This again necessitates cutting of slabs and the use of auxiliary members, not always of compatible appearance.

The present invention is concerned with the provision of a general-purpose auxiliary member, of fully compatible appearance, which can be used in a number of orientations in combination with the "octagonal+square" paving block of the shape described above to provide either same-level terminations or different level edging, curbing or other height-change features.

The invention consists in an auxiliary paving block of uniform thickness the shape of which comprises (a) an octagon having an alternation of four identical longer sides and four identical shorter sides plus (b) a square extending from and sharing a notional side with one longer side of the octagon less (c) that lesser portion of the octagon to one side of a notional line extending one side of the square across the octagon

The present invention, for reasons which will become apparent below, is concerned with a paving block rather than a paving slab. While the terms merge into one another, a "slab" is usually considered to be larger and thinner in proportion and to be positioned by one or two operatives often by tilting and sliding into place while a "block is smaller and thicker in proportion and can be handled by one man, possibly even with one hand, for vertical placement.

In the auxiliary block defined above, it is highly preferable that the greatest length i.e. that distance measured at right angles to the outer edge of notional square (b) should not be greater than 300 mm or less than 200 mm. It is also highly preferable if the longer octagon sides are not more than three times as long as the shorter sides. These preferred limitations on dimensions and proportions arise because the block is to be capable of numerous uses, including some on its various edges; if the block is too big or too small or two exaggerated in shape some of the "height-change" "height-change" features become correspondingly distorted, so that the multifunctional nature of the block is reduced.

The thickness of the block, on the other hand, is not critical. It is already known to make up such blocks in two thickness grades e.g. one for pedestrian areas, typical thicknesses being 607 - mm e.g. 65 mm and one for vehicular areas of thickness 80-90 mm e.g. 85 mm respectively but with unchanged surface appearance. Either such thickness can be used; even thinner blocks may be used although more laboriously, in some of the modes described below, while thicker blocks are possible but wasteful of material for their primary use as desribed below.

For blocks shaped as the prior art slabs (i.e. those possessing shape features (a) and (b) as defined above but not feature (c) it is customary to provide bevelled or chamfered peripheral edges, whereby the joining between each each block can be better exhibited as a decorative paving feature. It is also customary to provide a "dummy joint" as a groove V-shaped in cross-section along the notional line between (a) and (b). These features together with other decorative features such as differential surface appearance of (a) and (b) or such as differential appearance of margins around (a) and (b) can be present in the auxiliary block of the present invention. In one mode of use as described below they would preserve the same function for terminating blocks as they do for central blocks; in the others they will be largely hidden anyway. Usually, the defining extended line of (c) will be unbevelled, or not defined with a margin, but if necessary it could be.

In another aspect the invention consists in a method of paving an area in which paving blocks possessing shape features (a) and (b) but not (c), as defined above are laid as area-covering blocks in combination with like paving blocks but possessing features (a), (b) and (c) as height-change, termination and/or edging features.

More particularly, such auxiliary blocks may be laid with their thicknesses vertical and so that notional line (c) constitutes a same-level termination of the paved area.

Alternatively or additionally such blocks may be laid with their widths vertical resting on edge (c). In such a case either the then upper octagon edge may be located level with the paving (whereby a

small step-down height-change is achieved) or the then upper square edge may be located level with the paving (whereby a similar small step-up height-change is achieved). In practice, a line or row of such blocks will be laid face-to-face; a double line, contacting squares to squares, defines a shallow gulley and contacting octagons to octagons defines a "sleeping policeman".

Alternatively or additionally again such auxiliary blocks may be laid face-to-face in a row with their lengths vertical. The edges (c) can face inwards to or outwards from the remainder of the paving. Further paving may extend from the level of the then upper faces. Different levels of embedment, and different choice of orientation (i.e. square portion uppermost of lowermost) give a wide range of structures as decorative or functional edging e.g. to flowerbeds or paths or curbs and steps.

The invention further extends to areas paved by the methods as defined above.

The invention will be further described with reference to the accompanying drawings in which:

Figure 1 shows in perspective an "octagonal+square" paving block,

Figure 2 shows in similar perspective an auxiliary block in accordance with the invention, for use with the blocks of Figure 1,

Figure 3 shows a preferred block as in Figure 2, in plan view,

Figures 4a to *4f* show the block of Figure 2 used for edges and corners of a rectangular module of paving,

Figure 5 shows the use of the block of Figure 2 to provide a low rise curb,

Figure 6 shows the use of two blocks, in the same orientation as that of Figure 5 to form a shallow gulley,

Figure 7 shows the use of two blocks in the same orientation as that of Figure 5 to form a "sleeping policeman",

Figure 8 shows the use of the block of Figure 2 as an edge curb,

Figure 9 shows the block of Figure 2 as an "oversail" curb and

Figure 10 shows the formation of an edge channel using blocks as in Figure 2,

Figure 11 shows the formation of a further edge channel using blocks as in Figure 2.

Figure 1 shows a prior art block. It is an integral moulded concrete structure possessing an octagonal head 1 and a square stem 2. The octagonal head 1 has alternate longer and shorter sides 3 and 4 respectively, and stem 2 has its sides of the same length as sides 3. All round the top surface of the block there is a 45° chamfered edge 5, whereby a distinct joint is visible at the top surface when two such blocks are abutted. Across the top surface, between the head 1 and stem 2 there is a groove with 45° sides constituting a "dummy" joint 6. To a casual inspection, a floor paved with such blocks therefore exhibits both square tiles and octagonal tiles, by virtue of the "dummy joint" 6. It is also known to enhance this visual effect by providing contrasting shades or textures on the head and the stem, or by providing a contrasting margin around each.

Paving slabs of the general nature as shown above are also described in British Patent 1 548 604.

Figures 2 and 3 show a paving block in accordance with the present invention. It possesses a six-sided head 7 and a stem 8. To save laborious description it can most easily be described as being the same shape as the block shown in Figure 1, except that part of that prior art block, in alignment with face 2a of stem 2, has been removed as shown by the path of the dotted lines in Figure 1. Thus, the block according to the invention has one long flat edge face, 9, in place of the various edge faces 2a, 1a, 1b and 1c of Figure 1.

The chamfered edge to the block and the dummy joint are largely retained. The chamfered edge may or may not be present along more or all of the top edge of face 9: in the example shown, there is such an edge on stem 7 and 8 not on head 8, but this choice could be reversed, or no part need be chamfered, or both parts could be chamfered. As will become apparent from the description below of the use of the novel block, the edge in question is often completely or partly hidden, or it is least not located to be visually prominent.

The exact dimensions and proportions of the block are not critical. However, it is envisaged to be an auxiliary block, for use with a primary block as shown in Figure 1 as the major area-covering unit, and so will generally match the dimensions of such a primary block. In practice this means that L is usually 230mm, W1 is 115mm, and W2 is 90mm. Depth of chamfer is optional, being usually about 8 or 10mm. The block is normally available on two thickness grades, 65mm and 85m.

Figures 4a to 4e show various edge and corner configurations which can be laid using the seven-sided block A of Figures 2 and 3 as an auxiliary to the tensiled block B of the prior art. For clarity, chamfer lines and dummy joints have been omitted from these drawings, but it will be appreciated that these conventional features disguise any irregularities in laying of the blocks e.g. as in Figure 4e.

Figure 4a shows how a square module with straight edges can be built up from a central square C (formed, e.g. by breaking a conventional (Figure 1) block across its dummy joint). Figure 4b shows hows such a square can be extended. Figure 4c shows an edge and corner formation for a configuration of blocks A as commonly encountered. Figure 4d shows a strip formation, which can be readily broadened to contain any odd number of rows of blocks A. Figure 4e shows an internal corner, e.g. around a flower bed or lawn, etc D.

Figure 4f shows a corner starting from a square block C, in this case with chamfers and dummy joints indicated, using edge blocks B and internal blocks A.

In addition to the "area edge" function shown above in Figures 4a to 4f the blocks of the present invention has other functions.

Figure 5 shows in cross-section an expanse of blocks A edged with blocks B e.g. as shown in Figures 4a or 4b, the exact configuration being imma-

terial as long as a straight outer edge is presented. These various blocks are bedded in a lean concrete mix 10 to provide a surface level 11. Adjacent this expanse in a line of blocks B^1 (the same shape as blocks B), set on edge 9 upon a concrete base 12 and against a concrete ridge 13 as a locating stop. The end edges 14 of blocks B^1 abut blocks B, with side edge 15 also at level 11. Finally, a second expanse of blocks A^{11} and B^{11} are laid on concrete 16 to a top level 17, coplanar with edge 18 of block B^1. Thus, the block B^1 forms a height-changing expedient, with sloping edge face 19 facilitating wheel transportation over the change of level from 11 to 17. The joints and dummy joints between the block appear as in the prior art, except the rather larger gap 21 which can be partly filled at 22 with a grout if desired.

Figure 5 has been shown as a section, e.g. with the top surfaces recessed where necessary. For ease of illustration, the block positioning in subsequent Figures will be shown as diagrams only, and not as true sections.

From the description of Fiugre 5 therefore it should be immediately apparent how in Figure 6 block B^1 can be relatively located to form a shallow rainwater gully of effective level 22, below that of the surrounding levels 24 of expanses A, B and A^{11}, B^{11}.

Likewise, Figure 7 shows a "sleeping policeman", i.e. a ramp to reduce vehicle speeds, with blocks B^1 giving an effective upper level 25 above expanses A, B and A^{11}, B^{11} which lie at level 25.

Figure 8, while similarly diagrammatic gives a first example of how blocks of shape B can be utilised to produce kerbs or edges.

A succession of blocks B^1 are laid on edge 27 (i.e. with edge 14 uppermost to define an upper level 28) upon a deep concrete base 12 with two substantial positioning ridges 13a, 13b located one to either side. Thereafter a first expanse of blocks A, B can be laid to level 28, on its bed of concrete 10 and a second such expanse of blocks A^{11}, B^{11} laid at whatever level 20 is required to provide a roadway, separated by face 15 as a kerb face, from the sidewalk at level 27.

Figure 9 should be largely self explanatory. Blocks B^1 are laid at face 14 on concrete base 12 to define at edge 27 an upper level 30 to meet an expanse of blocks A^{11}, B^{11} constituting a sidewalk. The roadway is defined at level 31 by expanse of blocks A, B. In this instance, the defined kerb is an "oversale" kerb i.e. projects outwardly at the top due to faces 19, 20 and 21, and the straight edge defined by edges 9 of the blocks B fits beneath this "oversail".

Figure 10 shows a combined kerb and gulley, formed by blocks B^1 laid in two parallel lines, one forming a kerb at B^1(a) and the other a shallow height-change B^1(b), being laid on concrete base 13 on respective faces 14 and 9. A small spacer block is shown at 32 to provide a wider gulley: the use of auxiliary blocks, while generally minimised by the present invention, is not excluded.

Figure 11 shows a combined kerb and gulley, formed

(a) by blocks B(a) and (b) each laid on base 13 on edge 9 and abutting to form a gulley as in Figure 6; faces 19 then define a road level 33, continued by blocks, A, B as before, and

(b) by blocks B^1(c) laid on edge 14 as an oversail kerb, defining at face 27 a level 34 for sidewalk level continued by blocks A^{11}, B^{11}.

The construction will be generally strengthened because faces 21 of blocks B^1(b) fit under faces 20 of blocks B^1(c).

CLAIMS

1. An auxiliary paving block of uniform thickness the shape of which comprises (a) an octagon having an alternation of four identical longer sides and four identical shorter sides plus (b) a square extending from and sharing a notional side with one longer side of the octagon less (c) that lesser portion of the octagon to one side of a notional line extending one side of the square across the octagon.

2. An auxiliary paving block as claimed in claim 1 the length of which, measured at right angles to notional square (b) is between 200 and 300 mm.

3. An auxiliary paving block as claimed in claim 1 or 2 in which the longer octagon sides are not more than three times as long as the shorter sides.

4. An auxiliary paving block as claimed in claim 1, 2 or 3 having a bevelled or chamfered edge configuration on at least some of its straight edges.

5. An auxiliary paving block as claimed in claim 4 having a "dummy joint" groove, V-shaped in cross-section and resulting two abutting chamfered edges, along the notional line between (a) and (b).

6. An auxiliary paving block as claimed in claim 1 and substantially as herein described with reference to the accompanying drawings.

7. A method of paving an area in which paving blocks possessing shape features as defined at (a) and (b) in any one preceding claim are laid as area-covering blocks, in combination with compatible auxiliary paving blocks as claimed in any of claims 1 to 7 and possessing shape features as defined at (a) and (c) therein as height-change, terminating or edging.

8. A method as claimed in claim 7 in which at least some of the auxiliary blocks are laid with their thicknesses vertical so that a plurality of notional lines (c) constitutes together a termination line of the paved area.

9. A method as claimed in claim 7 in which at least some of the auxiliary blocks are laid resting on edge (c) to provide a step-down or step-up change of level relative to the main block level.

10. A method as claimed in claim 9 in which the said auxiliary blocks are laid to form a shallow channel or "sleeping policeman" ridge by virtue of the level change.

11. A method as claimed in claim 7 in which at least some of the auxiliary blocks are laid face-to-face in a row with their lengths vertical as a step or curb feature.

12. A method as claimed in any of claims 7 to 11 substantially as herein described with reference

to Figures 4 to 11 of the accompanying drawings.

13. An area paved by the method as claimed in any one of claims 7 to 12.

Printed in the UK for HMSO, D8818935, 4/86, 7102.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.