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***E04F 13/14*** (2006.01)

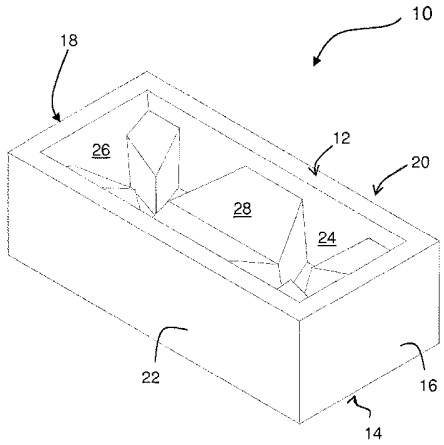
(56) Documents Cited:
**GB 2393742 A** **GB 1574935 A**
**GB 0438274 A** **GB 0149484 A**
**FR 000928401 A** **US 5575119 A**

(58) Field of Search:
INT CL **E04B, E04C, E04F**
Other: **Online: WPI and EPODOC**

(54) Title of the Invention: **Brick**
Abstract Title: **Brick with multiple frog formations for aiding in forming brick slips or return slips.**

(57) The brick 10 comprises a number of recessed formations (frog formations) 24, 26 within the brick. The frog formations are on each side of a transverse axis which bisects the stretcher faces 22, 20. The frog formations each may generally form a clover shape within the brick and be symmetrical relative to each other about the transverse axis. The frog formations within the brick allow the brick to be cut into various shapes to form a brick slip or return slip more easily and from the same material as the brick when used in building.

Figure 1

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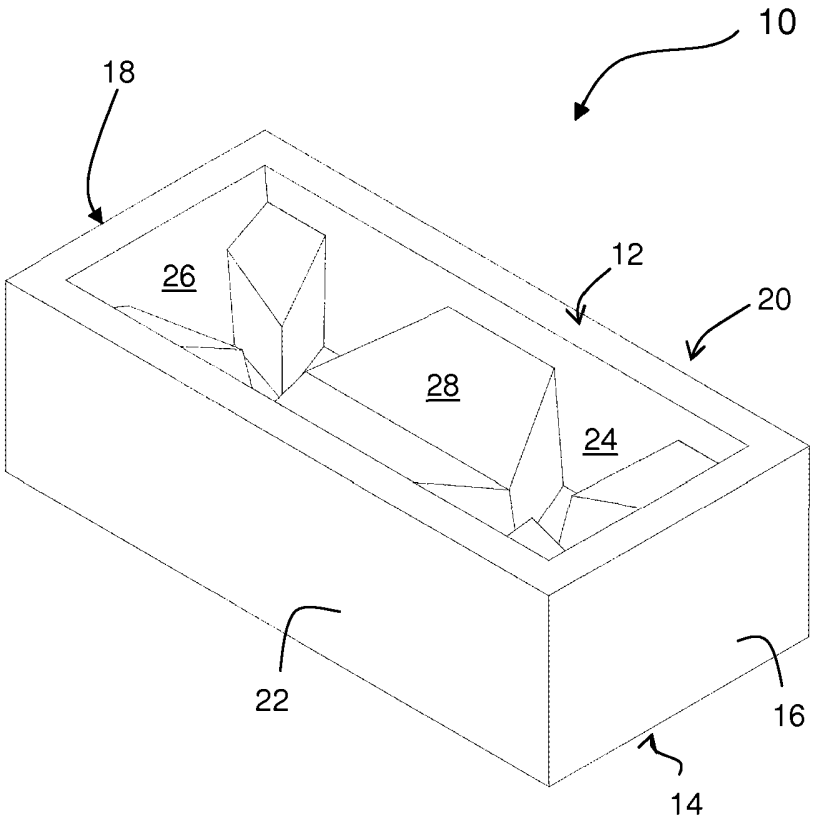


Figure 1

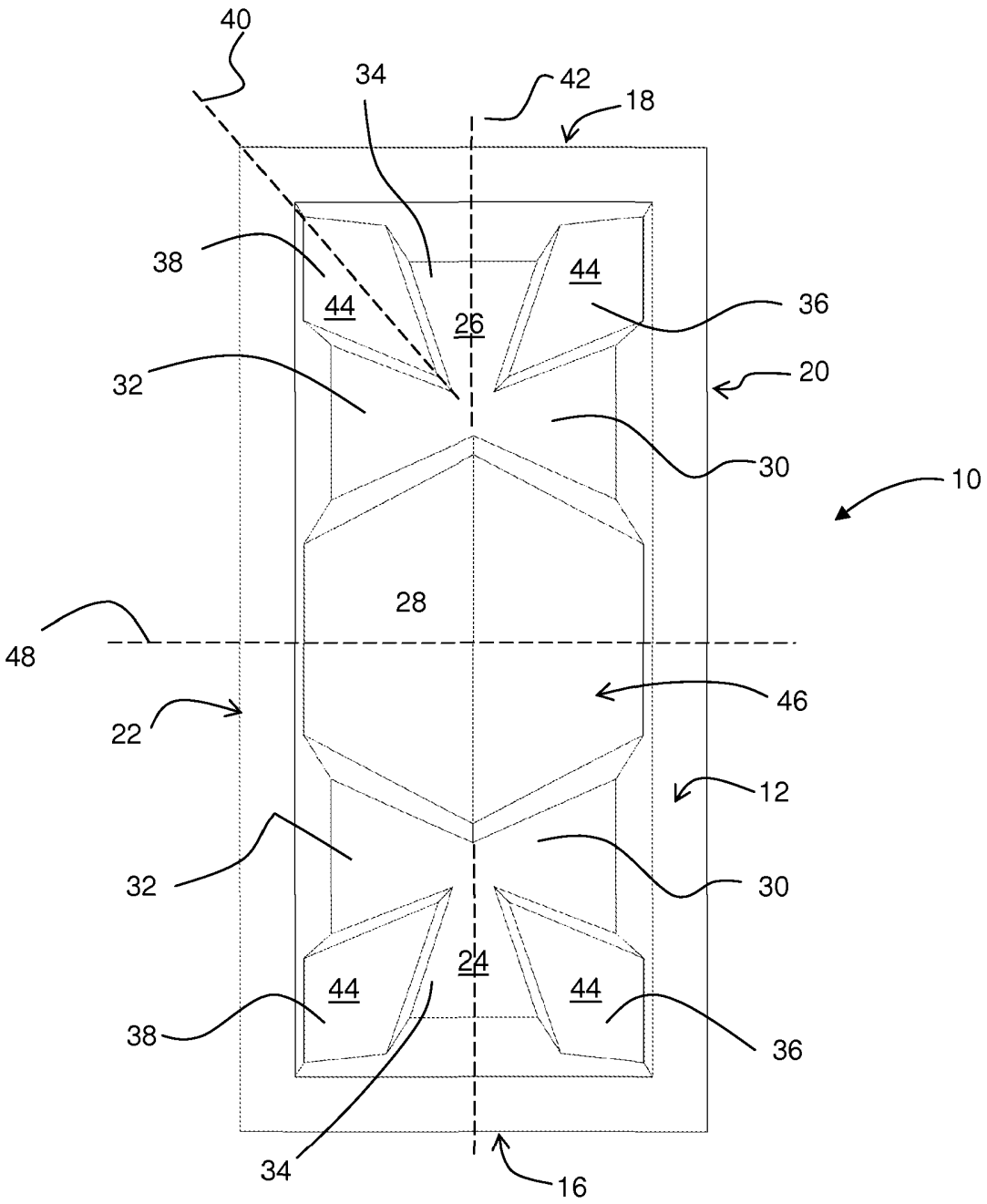
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Figure 2

10 11 11

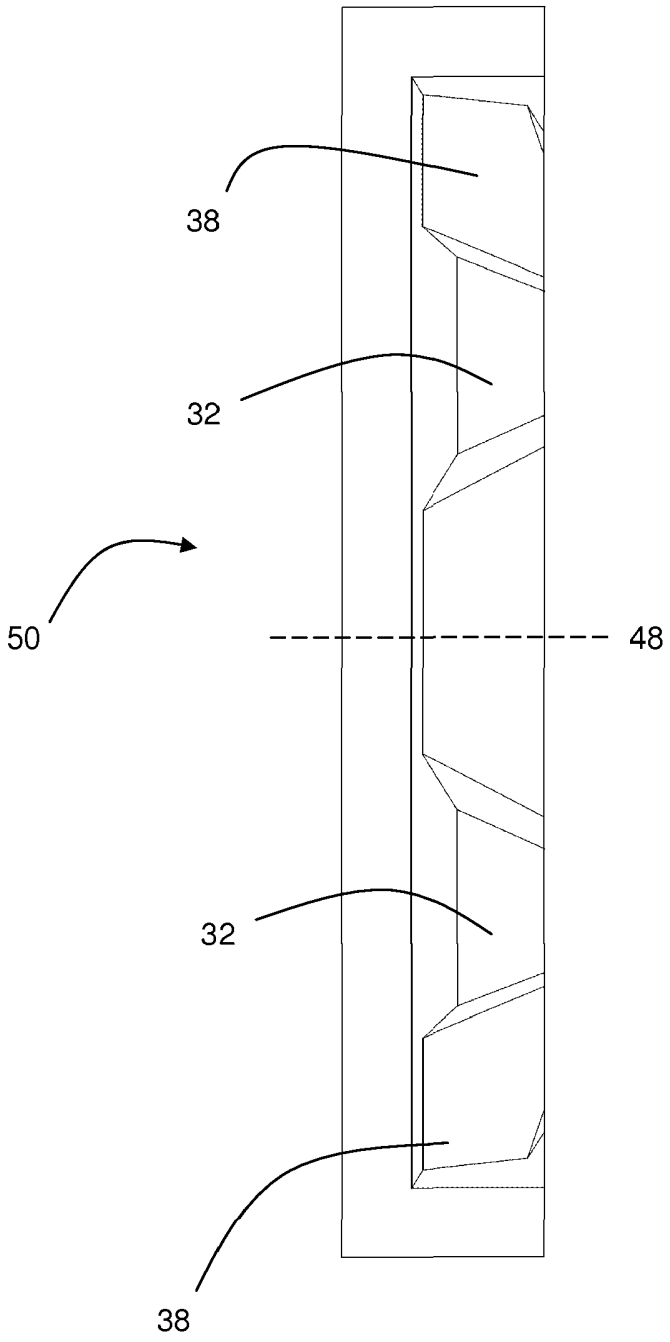



Figure 3

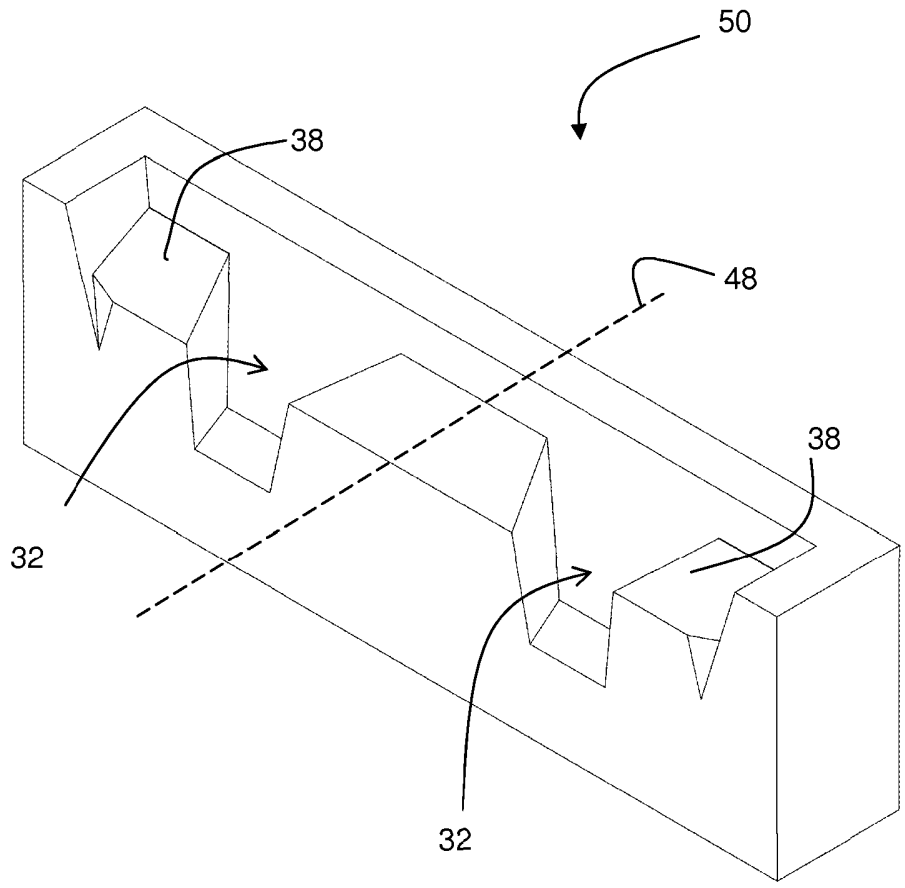
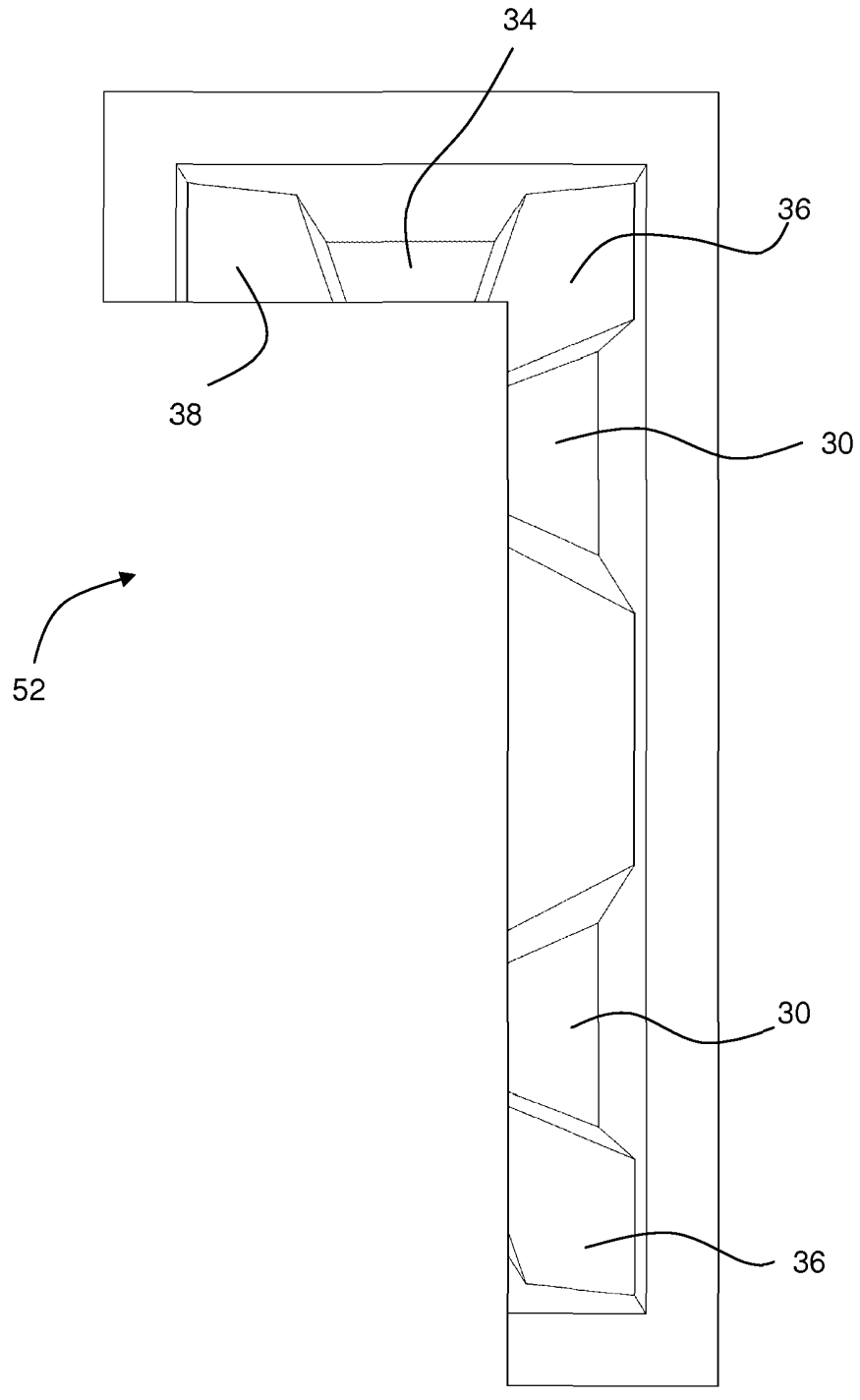



Figure 4




10 11 11

Figure 5

10 11 11

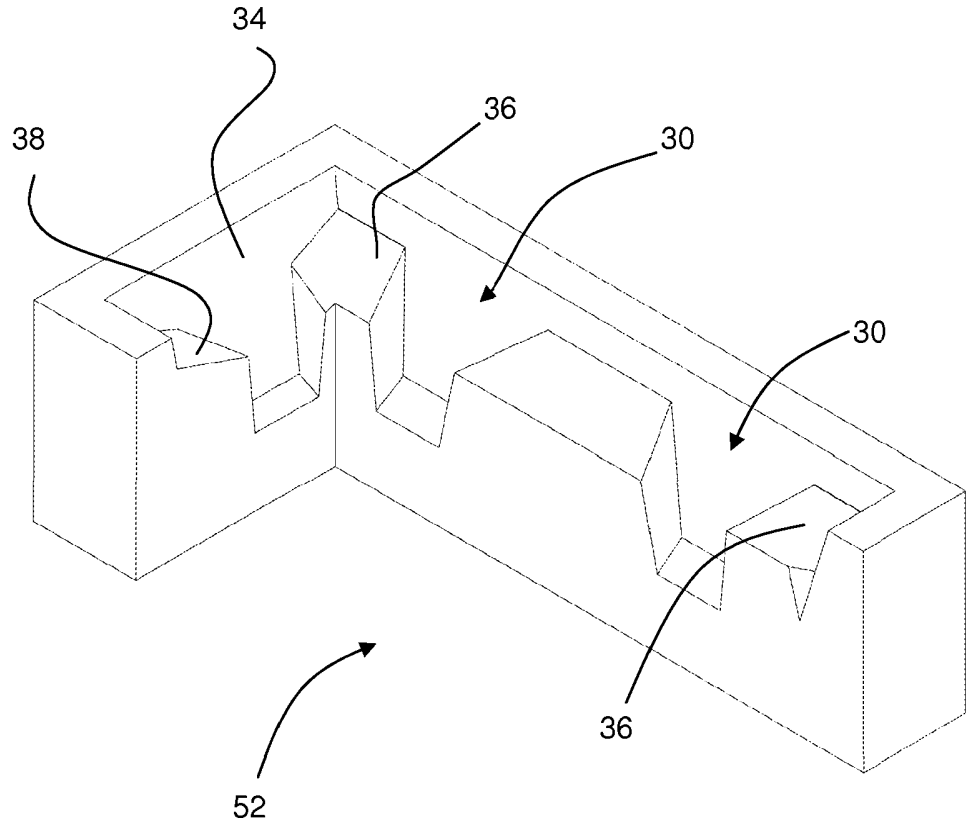



Figure 6

# Brick

The present invention relates to a brick, more particularly, but not exclusively, to a masonry brick made from clay material, as well as to a method of producing such a brick.

Masonry bricks consist of blocks formed from a wet clay material by an extrusion process or a moulding/pressing process, which are then fired in a kiln to give each block the required performance characteristics.

Conventional masonry bricks have a generally rectangular shape, with upper and lower faces (referred to as 'beds'), first and second end faces (referred to as 'headers') and first and second side faces (referred to as 'stretchers').

Masonry bricks are often provided with a recessed formation in one or both of the beds, referred to as 'frogs', which reduces the amount of material required to form the brick. It is common for a frogged brick to be laid 'frog up', particularly in structural brickwork when maximum strength is required.

An object of the invention is to provide an improvement over conventional 'frogged' bricks.

According to one aspect of the present invention, there is provided a brick of moulded or pressed construction, the brick being of a generally rectangular shape, with first and second beds, first and second header faces, and first and second stretcher faces, and defining a body having a central longitudinal axis and a transverse axis, wherein the brick is formed with multiple recessed formations in one of said beds.

The provision of multiple recessed formations or 'frogs' in one of the beds improves the adaptability of the brick for use in the production of brick slips or return sections with multiple frog formations.

Exemplary embodiments of the invention may include at least one frog formation on either side of the transverse axis in one of said beds. The brick may be symmetrical about its central longitudinal axis when viewed in plan view, frog side up. The brick may also be symmetrical about its transverse axis when viewed in plan view, frog side up.

Such configurations are particularly advantageous in the production of brick slips or return slips having multiple frog formations.

Exemplary embodiments of the invention may be of solid construction, rather than of perforated, cellular or hollow construction.

Other aspects and preferred features of the invention will be apparent from the claims and the following description, which is made by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a schematic perspective view of a brick having a specific frogged configuration;

Figure 2 is a schematic plan view of the brick shown in Figure 1;

Figure 3 is a schematic plan view of a brick slip formed from the brick of Figure 1;

Figure 4 is a schematic perspective view of the brick slip shown in Figure 3;

Figure 5 is a schematic plan view of a return slip formed from the brick of Figure 1; and

Figure 6 is a schematic perspective view of the brick slip shown in Figure 5.

Referring firstly to Figures 1 and 2, there is shown a masonry brick 10 of generally rectangular shape. The brick 10 has upper and lower faces 12, 14 (referred to as

'beds'), opposing end faces 16, 18 (referred to as 'header' faces) and opposing side faces 20, 22 (referred to as 'stretcher' faces).

The brick 10 is of moulded construction (i.e. formed by a moulding technique, as opposed to a conventional extrusion technique). The brick is of solid construction.

The brick 10 is formed with multiple recessed formations (hereinafter referred to as 'frogs') in the upper bed 12, as can be seen from Figure 1. These frogs are described in more detail below.

Conventional solid masonry bricks are often 'frogged' to reduce the amount of material required to produce the brick. In the illustrated embodiment, the brick 10 includes three separate frogs: a first end frog 24 (adjacent header 16), a second end frog 26 (adjacent header 18), and a central frog 28 which separates the first and second frogs 24, 26.

As can be seen most clearly from Figure 2, the end frogs 24, 26 are generally clover shaped, in plan view. Each end frog 24, 26 includes three recessed portions 30, 32, 34, which are generally triangular in plan view. The adjacent triangular recessed portions 30, 34 and 32, 34 are separated by a region 36, 38 of upstanding brick material.

These triangular portions 30, 32, 34 are arranged with two of said portions 30, 32 in general opposition to one another, and the third portion 34 orthogonal to the other two portions 30, 32. The triangular portions 30, 32, 34 are each arranged with a base of the triangle generally parallel to an adjacent stretcher or header surface, i.e. with the recessed portion opening to the respective stretcher/header face. The central longitudinal axis of the brick 10 bisects the triangular portion 34.

The two upstanding regions 36, 38 are arranged between the triangular portions, with one in each corner at the respective end of the brick 10, as can be seen most clearly in Figure 2. These two 'corner' regions 36, 38 define a body having a longitudinal axis (indicated by dotted line at 40 in Figure 2), which is arranged at generally 45 degrees

from the central longitudinal axis of the brick (indicated by dotted line at 42 in Figure 2). The upper surface 44 of each corner region 36, 38 is below the level of the upper bed 12 and slopes downwardly from a radially outer region to a radially inner region.

The central frog 28 has an upper surface 46 which is below the level of the upper bed 12 and is generally hexagonal in plan view, wherein opposing sides of the plan shape (as defined by the longitudinal axis 42 of the brick 10) slope downwards from a radially outer region to a radially inner region.

As can be seen, the shape defined by the frog formations 24, 26, 28 means that the brick is symmetrical about its longitudinal axis 42 (i.e. along a line bisecting the two headers 16, 18) and its transverse axis (i.e. along a line bisecting the two stretchers 20, 22), indicated by dotted line at 48 in Figure 2.

The configuration of brick shown in Figures 1 and 2 is advantageous in the production of brick slips or return sections with multiple frog formations.

An example is shown in Figures 3 and 4, wherein the brick 10 has been cut along a line parallel but offset from the central longitudinal axis 42 of the brick, to form a brick slip 50 having a width which is less than 50% of the width of the brick 10. The brick slip 50 includes a major proportion of two of the upstanding corner regions 38 and the adjacent triangular formations 32. The result is a slip 50 which is symmetrical about its transverse axis 48, and has multiple frog formations, one on either side of the transverse axis.

A further example is shown in Figures 5 and 6, wherein the brick 10 has been cut to form a return slip 52 similar to the slip 50 in Figures 3 and 4, but retaining one header face and so including a significant proportion of both corner regions 36, 38 and the triangular formation 34 at one end of the slip 52. This means that the return slip 52 has multiple frog formations, one on either side of the transverse axis.

The invention provides a convenient and effective basis for the provision of brick slips and return slips with multiple frog formations.

## Claims

1. A brick of moulded or pressed construction, the brick being of generally rectangular shape, with first and second beds, first and second header faces, and first and second stretcher faces, and defining a body having a central longitudinal axis which bisects the header faces and a transverse axis which bisects the stretcher faces, wherein one of said beds includes multiple frog formations, with a first frog formation on one side of the transverse axis and a second frog formation on the other side of the transverse axis.

2. A brick according to claim 1 wherein the first frog formation is separate from the second frog formation.

3. A brick according to claim 2 wherein the first frog formation is identical in configuration to the second frog formation.

4. A brick according to any of claims 1 to 3 wherein the first and second frog formations are separated by a third frog formation.

5. A brick according to claim 4 wherein the third frog formation is of different configuration to said first and second frog formations.

6. A brick according to claim 4 or claim 5 wherein the third frog formation extends from one side of the transverse axis to the other side of the transverse axis, along the longitudinal axis of the brick.

7. A brick according to any of claims 1 to 6 wherein brick is symmetrical about its central longitudinal axis.

8. A brick according to any of claims 1 to 7 wherein the brick is symmetrical about its transverse axis.

9. A brick according to any preceding claim wherein the first and second frog formations are generally clover shaped in plan view.

10. A brick according to any preceding claim wherein the first and second frog formations each include three recessed portions.

11. A brick according to claim 10 wherein the recessed portions are separated by two regions upstanding brick material.

12. A brick according to claim 10 or claim 11 wherein the recessed portions are generally triangular in plan view.

13. A brick according to claim 12 wherein the triangular portions are arranged with two of said portions in general opposition to one another, and the third portion orthogonal to the other two portions.

14. A brick according to claim 12 or claim 13 wherein the triangular portions are arranged with a base of the triangle generally parallel to an adjacent stretcher or header surface.

15. A brick according to any of claims 12 to 14 wherein the triangular portions are arranged with the recessed portion opening to the respective stretcher/header face.

16. A brick according to any of claims 12 to 15 wherein the triangular portions are each arranged with a base of the triangle generally parallel to an adjacent stretcher or header surface.

17. A brick according to any preceding claim wherein the first and second frog formations each include three triangular recessed portions separated by two regions upstanding material, wherein the upstanding regions are arranged with one in each corner at a respective end of the brick.

18. A brick according to claim 17 wherein the upstanding regions define a body having a longitudinal axis, which is arranged at generally 45 degrees from the central longitudinal axis of the brick.

19. A brick according to any one of claims 11, 17 or 18 wherein the upper most surface of each upstanding region is below the level of the upper bed.

20. A brick according to any one of claims 11, 17, 18 or 19 wherein the upper surface of each upstanding region slopes downwardly from a radially outer region to a radially inner region.

21. A brick according to claim 4 or claim 5 wherein the third frog formation is arranged centrally on the brick.

22. A brick according to claim 21 wherein the third frog formation has an upper surface which is below the level of the upper bed.

23. A brick according to claim 21 or claim 22 wherein the third frog formation is generally hexagonal in plan view

24. A brick according to claim 23 opposing sides of the plan shape of the third frog formation slope downwards from a radially outer region to a radially inner region.

25. A brick slip made from a brick in accordance with any of claims 1 to 24.

26. A return slip made from a brick in accordance with any of claims 1 to 24.

28. A method of producing a brick slip or a return slip, comprising the steps of moulding or pressing a brick of generally rectangular shape, with first and second beds, first and second header faces, and first and second stretcher faces, and defining a body having a central longitudinal axis which bisects the header faces and a transverse axis which bisects the stretcher faces, wherein one of said

beds is formed with multiple frog formations, including a first frog formation on one side of the transverse axis and a second frog formation on the other side of the transverse axis, and then cutting said brick to form a brick slip or a return slip, wherein the brick slip has a transverse axis and includes a part of said first frog formation on one side of its transverse axis and a part of said second frog formation on the other side of its transverse axis.

29. A method of producing a brick comprising the steps of moulding or pressing a brick of generally rectangular shape, with first and second beds, first and second header faces, and first and second stretcher faces, and defining a body having a central longitudinal axis which bisects the header faces and a transverse axis which bisects the stretcher faces, wherein one of said beds is formed with multiple frog formations, including a first frog formation on one side of the transverse axis and a second frog formation on the other side of the transverse axis.

30. A brick substantially as herein described and illustrated with reference to Figure 1 or Figure 2.

31. A brick slip substantially as herein described and illustrated with reference to Figure 3 or Figure 4.

32. A return slip substantially as herein described and illustrated with reference to Figure 5 or Figure 6.

**Application No:** GB1019348.0 **Examiner:** Mr Kunal Saujani

**Claims searched:** 1-32 **Date of search:** 25 February 2011

# Patents Act 1977: Search Report under Section 17

**Documents considered to be relevant:**

| Category | Relevant to claims | Identity of document and passage or figure of particular relevance |
|---|---|---|
| X | 1-11, 29 | GB 1574935 A (LONDON BRICK CO) - See in particular Figure 1 |
| X | 1-9, 29 | GB 2393742 A (GILES) - See in particular Figure 7 |
| X | 1-5, 8, 29, | GB 438274 A (REUBEN) - See whole document |
| X | 1, 2, 3, 8, 29 | GB 149484 A (GOLDWELL) - See whole document |
| A | - | FR 928401 A (GILSON) - See abstract and Figures |
| A | - | US 5575119 A (WOLFOWITZ) - See in particular Figures 1 and 2 |

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| & | Member of the same patent family | E | Patent document published on or after, but with priority date earlier than, the filing date of this application. |

## Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC$^{X}$ :

Worldwide search of patent documents classified in the following areas of the IPC

E04B; E04C; E04F

The following online and other databases have been used in the preparation of this search report

WPI and EPODOC

**International Classification:**

| Subclass | Subgroup | Valid From |
|---|---|---|
| E04B | 0002/20 | 01/01/2006 |
| E04C | 0001/00 | 01/01/2006 |
| E04F | 0013/14 | 01/01/2006 |