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FOLDABLE BURNER ENCLOSURE**FIELD OF THE INVENTION**

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The present invention relates to a foldable burner enclosure and relates particularly, though not exclusively, to a foldable, portable burner enclosure for burning incense paper.

BACKGROUND TO THE INVENTION

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In societies where Chinese culture has a significant influence on public life, such as in Singapore, Malaysia, Hong Kong, Taiwan and the Peoples Republic of China, the burning of incense paper in public places as well as private locations during Chinese festivals is common. Town councils and other estate managers typically provide incense paper burners for residents during major Chinese festivals or upon request by residents. The current burners used are: oil drum burners; permanent built-in burners; netting-formed burners; and, a special cylindrical burner. The oil drum burner is made from a converted 44-gallon oil drum having a series of ventilation holes punched around its circumference and short legs welded to the base of the drum to lift it off the ground. The built-in burner typically consists of a permanent brick or concrete structure having a fire grill mounted within the enclosure not unlike a built-in barbecue. The netting-formed burner consists of an enclosure, typically of hexagonal shape, made from steel mesh and provided with legs on the base to lift it above ground level. All three of the oil drum burner, built-in burner and netting-formed burner have open tops.

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The special cylindrical burner is a more sophisticated unit that looks like an incinerator and is fully enclosed. It has a steel cylindrical outer wall and has an upper burning compartment in which the paper is incinerated, and a lower ash collection compartment. Access to both compartments is provided by means of respective slidable trapdoors. A series of ventilation holes are provided around the circumference of the lower compartment to allow the flow of air up into the burning compartment. A vented cover is provided on top of the upper compartment, to allow the flow through of air and the escape

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of smoke and incense as the paper burns.

The most commonly used incense paper burner is the oil drum burner as it is cheap to manufacture and relatively easy to transport compared to the other types of burner.

5 However, town councils and property owners face a number of problems with oil drum burners, including the following disadvantages:

- (i) complaints are frequently received during the lunar seventh month of fire hazards and flying ashes from oil drum burners;
- 10 (ii) there is a storage problem as the oil drums take up much space;
- (iii) people use the oil drum as a dustbin when the burners are not stored away;
- (iv) in wet weather, water accumulates in the bottom of the drum and it becomes a potential breeding ground for mosquitoes; and,
- (v) the transportation of oil drum burners and emptying of ashes are both tedious and
- 15 time-consuming for council workers and estate managers.

SUMMARY OF THE INVENTION

The present invention was developed with a view to providing a foldable, portable burner enclosure that can be collapsed in a folded condition for easy handling and storage.

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Throughout this specification the term "comprising" is used inclusively, in the sense that there may be other features and/or steps included in the invention not expressly defined or comprehended in the features or steps subsequently defined or described. What such other features and/or steps may include will be apparent from the specification read as a whole.

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According to the present invention there is provided a foldable, portable enclosure for burning incense paper, the enclosure comprising:

30 a plurality of rectangular side walls made of rigid, fire-resistant material, each wall having a top edge, a bottom edge and two side edges, and wherein each wall is pivotally joined on at least one side edge to an adjacent wall by a hinge connection,

wherein the side walls can be folded from a collapsed position in which the side walls lie substantially flat against each other to an erected position;

5 a fire grill pivotally joined to one of said side walls at a point intermediate said top and bottom edges, wherein when the side walls are in an erected position the fire grill can be pivoted to a horizontal position for supporting incense paper within the enclosure; and,

wherein, when the enclosure is not in use, it can be collapsed to a substantially flat condition for ease of transport and storage.

10 Preferably the enclosure comprises four rectangular side walls and a rectangular fire grill.

Preferably the enclosure further comprises a rectangular top cover pivotally joined to the top edge of one of said side walls and adapted to engage with the top edges of the other three side walls in the erected position so as to cover the enclosure. Preferably each side
15 wall has substantially the same height and width dimensions and both the fire grill and top cover are of square shape.

Advantageously each side wall is provided with three wall portions, a bottom open portion, a top ventilated portion and an intermediate closed portion, which form an open
20 section, a ventilated section, and a closed section respectively of the enclosure in the erected position. Advantageously said ventilated wall portion is formed from steel mesh and said closed portion is formed from sheet metal. Typically a removable ash bin is provided in said open section of the enclosure for catching ash that falls through the fire grill in use.

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Preferably said ventilated wall portion of at least one of said side walls is provided with an access aperture for providing access to the interior of the enclosure in the erected position. Preferably said top cover is also provided with a ventilated portion.

30 **BRIEF DESCRIPTION OF THE DRAWINGS**

In order to facilitate a better understanding of the nature of the invention a preferred

embodiment of the foldable burner enclosure will now be described in detail, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is an internal perspective view of a preferred embodiment of the foldable burner enclosure in accordance with the present invention shown in a partly collapsed condition;

Figure 2 is an external perspective view of the burner enclosure of Figure 1 shown in a partly collapsed condition;

Figures 3, 4, 5 and 6 are enlarged perspective views of various connections provided in the burner enclosure of Figures 1 and 2;

Figure 7 is a perspective view of an ash bin employed in the burner enclosure of Figures 1 and 2; and,

Figure 8 is a perspective view of the burner enclosure of Figures 1 and 2 in a fully erected condition.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

A preferred embodiment of a foldable, portable enclosure 10 for burning incense is illustrated in Figures 1, 2 and 8. The enclosure comprises four rectangular side walls 12a, 12b, 12c and 12d made from steel components, each wall having a top edge 14, a bottom edge 16 and two side edges 18. In the illustrated embodiment, each side wall 12 comprises 20mm diameter galvanised steel hollow section (SHS) welded together to form a frame with outer dimensions of approximately 600mm x 1200mm. Each of the side walls 12 is pivotally joined on at least one side edge 18 to an adjacent wall by a hinge connection. In the illustrated embodiment, the hinge connection takes the form of two hinges 20 provided adjacent the top and bottom edges 14, 16 of the side walls 12. Each hinge 20 consists of two short lengths of circular steel hollow section having an inside diameter slightly larger than the outside diameter of the 20mm SHS used to form the frames. A hinge 20 can be seen more clearly in the enlarged view of Figure 6. These

hinges are provided so that the side walls can be folded from a collapsed position, in which the side walls 12 lie substantially flat against each other, to an erected position as shown in Figure 8.

- 5 The first side wall 12a and fourth side wall 12d are only joined to an adjacent side wall along one of their side edges 18. A first side edge 18a of the first side wall 12a is provided with releasable connecting means for releasably connecting the side edge 18a with a second side edge 18b of the fourth side wall 12d. In the illustrated embodiment, the releasable connecting means takes the form of a pair of hooks 22 pivotally connected to
- 10 the side edge 18a and adapted to releasably latch onto respective pins 24 provided on the second side edge 18b of the fourth side wall 12d. The hooks 22 hold the side walls 12a and 12d together in the erected position. One of the hooks 22 can be seen more clearly in the enlarged view provided in Figure 5. The hooks 22 can be released by pivoting away from the latch pins 24 so that when the enclosure 10 is not in use, it can be collapsed to a
- 15 substantially flat condition for easy transport and storage. In its collapsed condition, the enclosure is of a size and weight that can be easily handled by a single person.

- The enclosure 10 further comprises a rectangular metal fire grill 26 pivotally joined to the first side wall 12a at a point intermediate the top and bottom edges 14, 16. Releasable
- 20 attaching means are provided on another edge of the fire grill 26 so that when the side walls 12 are in an erected position the fire grill can be pivoted to a horizontal position and releasably attached to the opposite side wall 12c for supporting incense paper within the enclosure. In the illustrated embodiment, the releasable attaching means comprises a pair of hooks 28 that releasably engage with apertures 30 provided in the side wall 12c. The
- 25 fire grill 26 is made from 10mm diameter galvanised SHS welded on flat billets, that form an outer rectangular frame, at 75mm spacings. In this embodiment, the fire grill 26 is pivotally joined to the first side wall 12a by a pair of standard hinges 32 welded to the grill 26 and the side wall 12a respectively.

- 30 The enclosure 10 preferably further comprises a rectangular top cover 34 pivotally joined to the top edge 14 of one of the side walls 12d. In the illustrated embodiment, the top cover 34 is made from a piece of 600mm x 600mm x 1.5mm thick zinc sheet metal with a

200mm x 200mm ventilation opening 36 provided in the centre thereof. A piece of steel mesh is welded to the cover 34 over the opening 36. The top cover 34 is pivotally joined to the side wall 12d by means of a pair of standard hinges 38 welded to the top edge 14 of the side wall 12d and one edge of the top cover 34 respectively. One of the hinges 38 can
5 be seen more clearly in the enlarged view of Figure 4. A pair of hooks 40 are welded to the opposite edge of the top cover 34 and are adapted to engage with the top edge 14 of the opposite side wall 12b in the erected position. One of the hooks 40 can be seen more clearly in the enlarged view of Figure 3. In this embodiment, each of the side walls 12 has substantially the same height and width dimensions, and therefore both the fire grill 26 and
10 the top cover 34 are of substantially square shape.

In this embodiment, each side wall 12 is provided with three wall portions, as can be seen most clearly in Figure 2, namely, a bottom open portion 42, a top ventilated portion 44 and an intermediate closed portion 46, that form an open section, a ventilated section and a
15 closed section respectively of the enclosure 10 in the erected position. The top ventilated wall portion 44 is formed by sturdy galvanised steel mesh (Ornamesh) welded to the outer SHS frame. The intermediate closed portion 46 is formed from a 400mm x 600mm x 1.5mm thick zinc metal sheet also welded to the SHS frame. Preferably two of the side walls 12b, 12c are provided with access apertures 48 in the top ventilated portions 44 to
20 provide access to the interior of the enclosure in the erected position. Both access apertures 48 are formed by cutting a 150mm x 400mm rectangular opening in the steel mesh framed by 20mm diameter SHS. In use, with the enclosure in its erected position, incense paper can be inserted in the enclosure on the fire grill 26 through access apertures 48 and ignited. As the paper burns, smoke and fragrance from the incense escapes through
25 the ventilated wall portions 44 in the side walls 12 and through the ventilation opening 36 in the top cover 34.

Preferably the foldable enclosure is also provided with a removable ash bin 50 such as that illustrated in Figure 7. The bin is made from zinc sheet metal and in this embodiment is
30 450mm high, tapered with a 435mm square base and a 535mm square top. Handles 52 in two of the side walls of the bin 50 allow for easy lifting and emptying of the bin. Drain holes 54 are provided adjacent the base of the ash bin 50 to prevent the accumulation of

water within the bin in wet conditions. In use, the ash bin 50 is placed within the open section of the enclosure below the fire grill 26 for catching ash that falls through the fire grill in use. When the ash bins 50 are not in use, they can be stored away by stacking one inside the other and therefore take up minimal space.

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Now that a preferred embodiment of the foldable, portable enclosure for burning incense has been described in detail, it will be apparent that it provides a number of advantages over the prior art burners, including the following:

- 10 (i) when collapsed to a substantially flat condition, the enclosure can be easily transported and stored;
- (ii) it is of light-weight construction and can easily be handled by a single person;
- (iii) it presents a minimal fire hazard, as flying ashes are substantially prevented from escaping by the wire mesh covering the ventilation openings;
- 15 (iv) it is of simple design and can be easily erected and collapsed with minimal instruction;
- (v) the design of the ash bin facilitates daily emptying of ashes; and,
- (vi) it is manufactured from relatively low cost materials and can be readily mass-produced making it suitable for large scale deployment by town councils.

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Numerous variations and modifications will suggest themselves to persons skilled in the manufacturing arts, in addition to those already described, without departing from the basic inventive concepts. For example, the enclosure can be made of other suitably
25 rigid, non-corrosive and fire resistant materials. It can also be made in different sizes to cater for larger or smaller scale uses, from industrial to personal use. The enclosure need not be of square shape, but may for example be of triangular shape formed by three rectangular side walls pivotally joined together. All such variations and modifications are to be considered within the scope of the present invention, the nature of which is to
30 be determined from the foregoing description and the appended claims.



THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A foldable, portable enclosure for burning incense paper, the enclosure
5 comprising:

a plurality of rectangular side walls made of rigid, fire-resistant material, each wall having a top edge, a bottom edge and two side edges, and wherein each wall is pivotally joined on at least one side edge to an adjacent wall by a hinge connection, wherein the side walls can be folded from a collapsed position in which the side walls lie
10 substantially flat against each other to an erected position;

a fire grill pivotally joined to one of said side walls at a point intermediate said top and bottom edges, wherein when the side walls are in an erected position the fire grill can be pivoted to a horizontal position for supporting incense paper within the enclosure; and,

15 wherein, when the enclosure is not in use, it can be collapsed to a substantially flat condition for ease of transport and storage.

2. A foldable, portable enclosure as defined in claim 1, wherein the enclosure comprises four rectangular side walls and a rectangular fire grill.
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3. A foldable, portable enclosure as defined in claim 1, wherein the enclosure further comprises a rectangular top cover pivotally joined to the top edge of one of said side walls and adapted to engage with the top edges of the other three side walls in the erected position so as to cover the enclosure.
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4. A foldable, portable enclosure as defined in claim 3, wherein each side wall has substantially the same height and width dimensions and both the fire grill and top cover are of square shape.

30 5. A foldable, portable enclosure as defined in claim 1, wherein each side wall is provided with three wall portions, a bottom open portion, a top ventilated portion and an intermediate closed portion, which form an open section, a ventilated section, and a closed



section respectively of the enclosure in the erected position.

6. A foldable, portable enclosure as defined in claim 5, wherein said ventilated wall portion is formed from steel mesh and said closed portion is formed from sheet metal.

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7. A foldable, portable enclosure as defined in claim 5, wherein a removable ash bin is provided in said open section of the enclosure for catching ash that falls through the fire grill in use.

10 8. A foldable, portable enclosure as defined in claim 5, wherein said ventilated wall portion of at least one of said side walls is provided with an access aperture for providing access to the interior of the enclosure in the erected position.

15 9. A foldable, portable enclosure as defined in claim 8, wherein said top cover is also provided with a ventilated portion.

10. A foldable, portable enclosure as defined in claim 1, wherein a first side wall and a fourth side wall are only joined to an adjacent side wall along one of their side edges.

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11. A foldable, portable enclosure as defined in claim 10, wherein a first side edge of the first side wall is provided with releasable connecting means for releasably connecting the first side edge with a second side edge of the fourth side wall.

25 12. A foldable, portable enclosure as defined in claim 11, wherein the releasable connecting means takes the form of a pair of hooks pivotally connected to the first side edge of the first side wall and adapted to releasably latch onto respective latch pins provided on the second side edge of the fourth side wall.