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(71) Applicant: **Clenaware Systems Ltd.**
Farnham, Surrey GU9 9PQ (GB)

(72) Inventor: **Smith, Michael**
Farnham, Surrey GU9 9PQ (GB)

(74) Representative: **Haley, Stephen**
Gill Jennings & Every,
Broadgate House,
7 Eldon Street
London EC2M 7LH (GB)

(54) Dryer

(57) A dryer (1) comprising a base (2) and a perforate tray (4) positioned, in use, on top of the base (2) to define a cavity below the tray (4), and arranged to support, in use, a rack of items to be dried. A fan is arranged to drive, in use, air into the cavity and through the perforations of the tray to provide drying air to items placed thereon.

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Description

[0001] This invention relates to a dryer for drying glasses, crockery and other kitchenware.

[0002] Automated washers for cleaning glasses, etc are well known. They have become very popular, and, in commercial applications are seen as almost being essential to smooth operation of a catering enterprise. Such washers can operate at thruputs of up to 30 racks of items to be cleaned per hour, and can provide very efficient and economical cleaning. However, they tend to rely on residual heat of the items to dry those items. This can be sufficient for outside surfaces of the items, but inside surfaces can take some considerable time, perhaps up to 40 minutes. This is considered to be far too long in many applications, either resulting in re-use whilst still wet, or alternatively, requiring large storage areas where the drying items can be stored whilst drying. It can often be extremely difficult to provide such areas in confined kitchen and bar environments.

[0003] The present invention seeks to provide a drying device which overcome some of the above problems.

[0004] According to the present invention there is provided a dryer comprising:

a base;
a perforate tray positioned, in use, on top of the base to define a cavity below the tray, and arranged to support, in use, a rack of items to be dried; and
a fan arranged to drive, in use, air into the cavity and through the perforations of the tray to provide drying air to items placed thereon.

[0005] A filter, which may be a carbon filter, may be positioned between the fan and the cavity. The fan may also have a further filter associated therewith for filtering the air that it receives from the exterior of the dryer.

[0006] The fan and one or more of its associated filters and related components may be formed in a housing separate to the base.

[0007] The base is preferably of a similar size to the standard surface top of a standard commercial automated washer, so that it can be placed thereon in use.

[0008] The tray may be removable and may have ribs formed thereon in order to provide water draining channels thereon. In this case, the perforations in the tray may be positioned such that, in use, they are at the top of the ribs.

[0009] With the dryer of the present invention it is possible to provide a compact dryer which does not increase significantly the space taken up in a confined area by the cleaning and drying apparatus. It improves drying time and hence thruput of the overall washing process. In addition, it can be produced to be a low-cost product that requires minimal maintenance and which can be cleaned easily.

[0010] One example of the present invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of the dryer according to the present invention;
Figure 2 is a perspective view of the underside of the dryer of the present invention with its tray removed;
Figure 3 shows side and plan views of the tray of the dryer of the previous figures; and
Figure 4 is a perspective view of the dryer of the invention positioned on a commercial washing unit in use.

[0011] Referring to figure 1, a dryer 1 according to the present invention has a base 2 connected to a fan housing 3. Removably attached to the base 2 is a tray 4, which is held in position by clips 5.

[0012] The housing 3 has an inlet 7 (figure 2) on its base and houses a fan (not shown). An outlet from the housing 3 passes into the cavity defined by the base 2 and tray 4. The inlet 7 of the housing 3 may include a filter for the prevention of ingress of dirt and other contaminants into the fan housing and also into the cavity between the base 2 and tray 4. An additional filter (not shown) may also be positioned at the outlet of the housing 3, and one or both of these filters may be carbon filters in order to prevent air passing therethrough from driving odours and other airborne particulates through the dryer 1 and out into the environment surrounding the dryer 1.

[0013] Figure 3 shows plan side and end views of the tray 4. From this figure it can be seen that the tray 4, in a preferred embodiment, has a series of ribs 8 which define channels into which water can collect in use. Each of the ribs 8 has a series of holes 9 formed therein and these holes 9 are preferably positioned at the peak of each rib 8 so that they are kept to as great an extent as possible away from liquid which collects between the ribs 8, reducing the likelihood of water passing through the holes 9 and into the cavity between the base 2 and tray 4.

[0014] The dryer 1 of the present invention is of a size and shape such that it can be placed on the top of a standard size commercial washer 6, as shown in figure 4. Of course, the dryer 1 does not have to be placed on top of a washer 6, but could be placed on another item, such as a tray rack or work surface.

[0015] In use, trays of items to be dried can be placed on top of the tray 4 on the dryer 1 and air is driven into the cavity between the base 2 and tray 4 and out through the holes 9 in the tray 4. This air is then passed up through the rack of items to be dried to improve their drying time.

[0016] It is beneficial to have a removable tray 4 so that it can be taken off to clean both itself and the cavity between the tray 4 and base 2. This can also facilitate the removal and replacement of any filter positioned be-

tween the housing 3 and that cavity.

[0017] The present invention provides a simple, compact dryer which is easy to maintain and operate and which can improve the overall efficiency of a washing and drying process in terms of the time taken and the space required to achieve that process satisfactorily.

Claims

1. A dryer comprising:

a base;
a perforate tray positioned, in use, on top of the base to define a cavity below the tray, and arranged to support, in use, a rack of items to be dried; and
a fan arranged to drive, in use, air into the cavity and through the perforations of the tray to provide drying air to items placed thereon.

2. The dryer of claim 1, further comprising a cavity filter positioned between the fan and the cavity.

3. The dryer of claim 1 or claim 2 further comprising an inlet filter for filtering the air received by the fan from the exterior of the dryer.

4. The dryer of claim 2 or claim 3, wherein at least one filter is a carbon filter.

5. The dryer of any preceding claim, wherein the fan is provided in a housing separate to the base.

6. The dryer of any preceding claim, wherein the tray is removable

7. The dryer of any preceding claim wherein the tray has ribs formed thereon and the perforations in the tray are positioned such that, in use, they are at the top of the ribs.

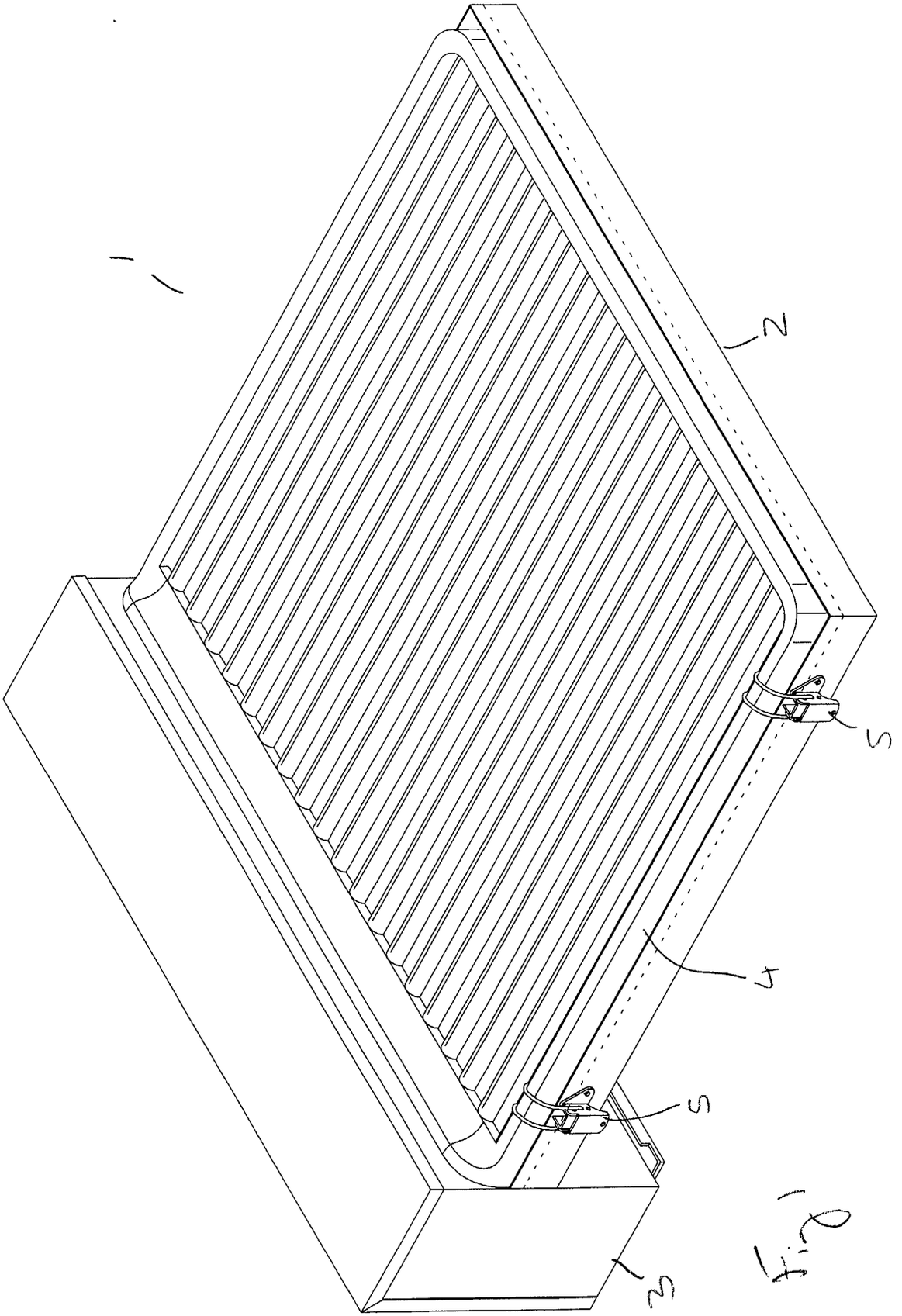


Fig 1

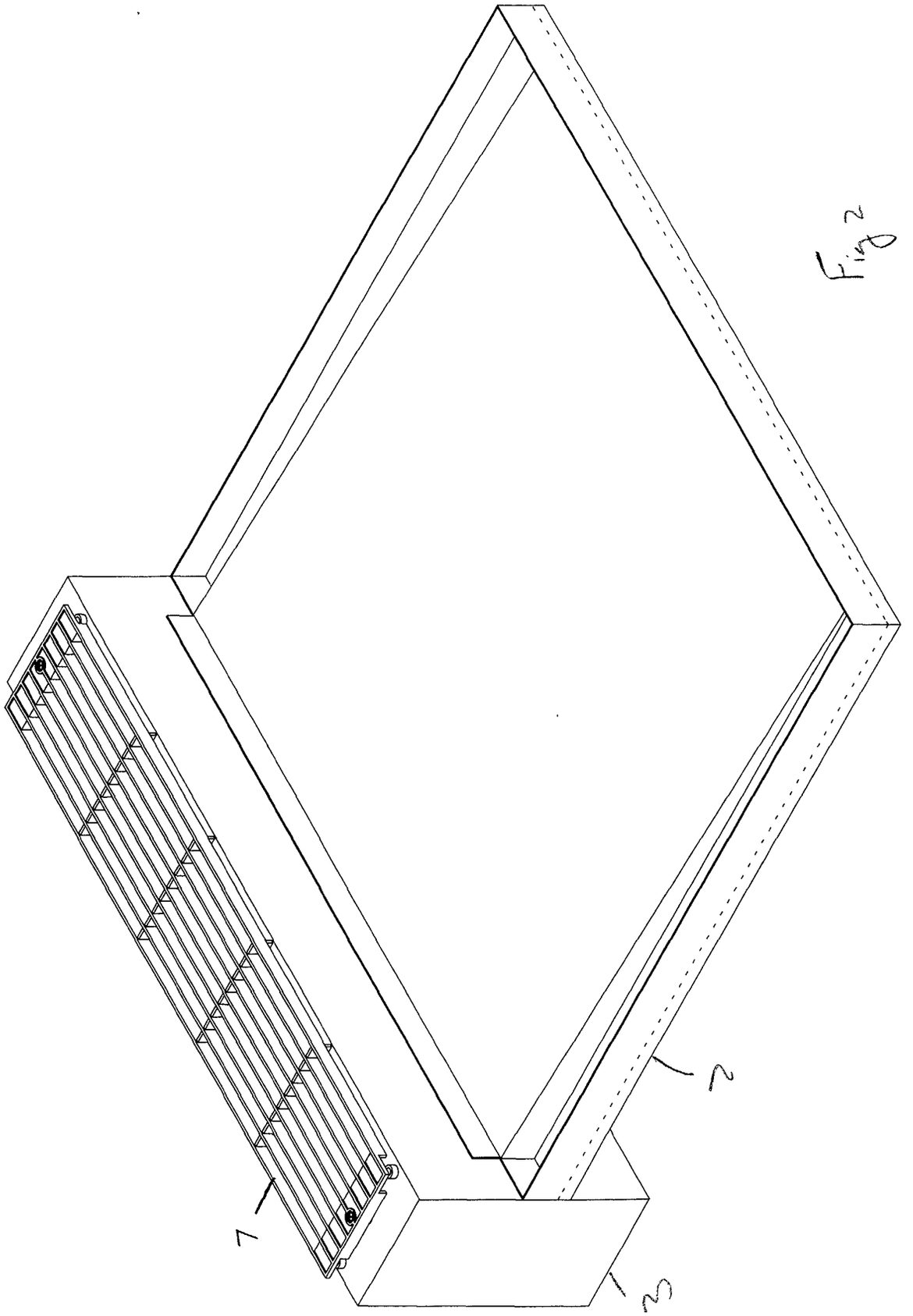
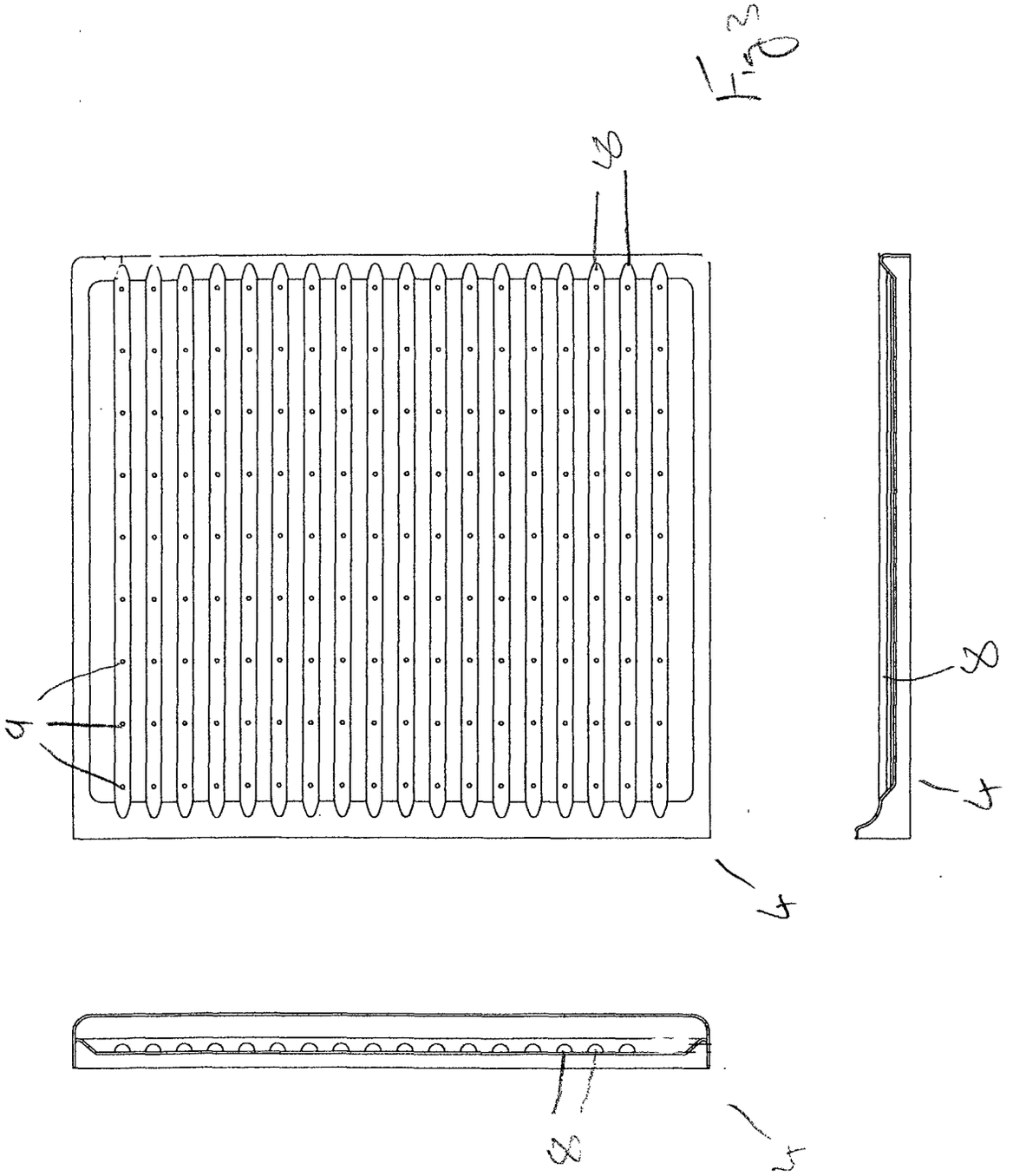


Fig 2



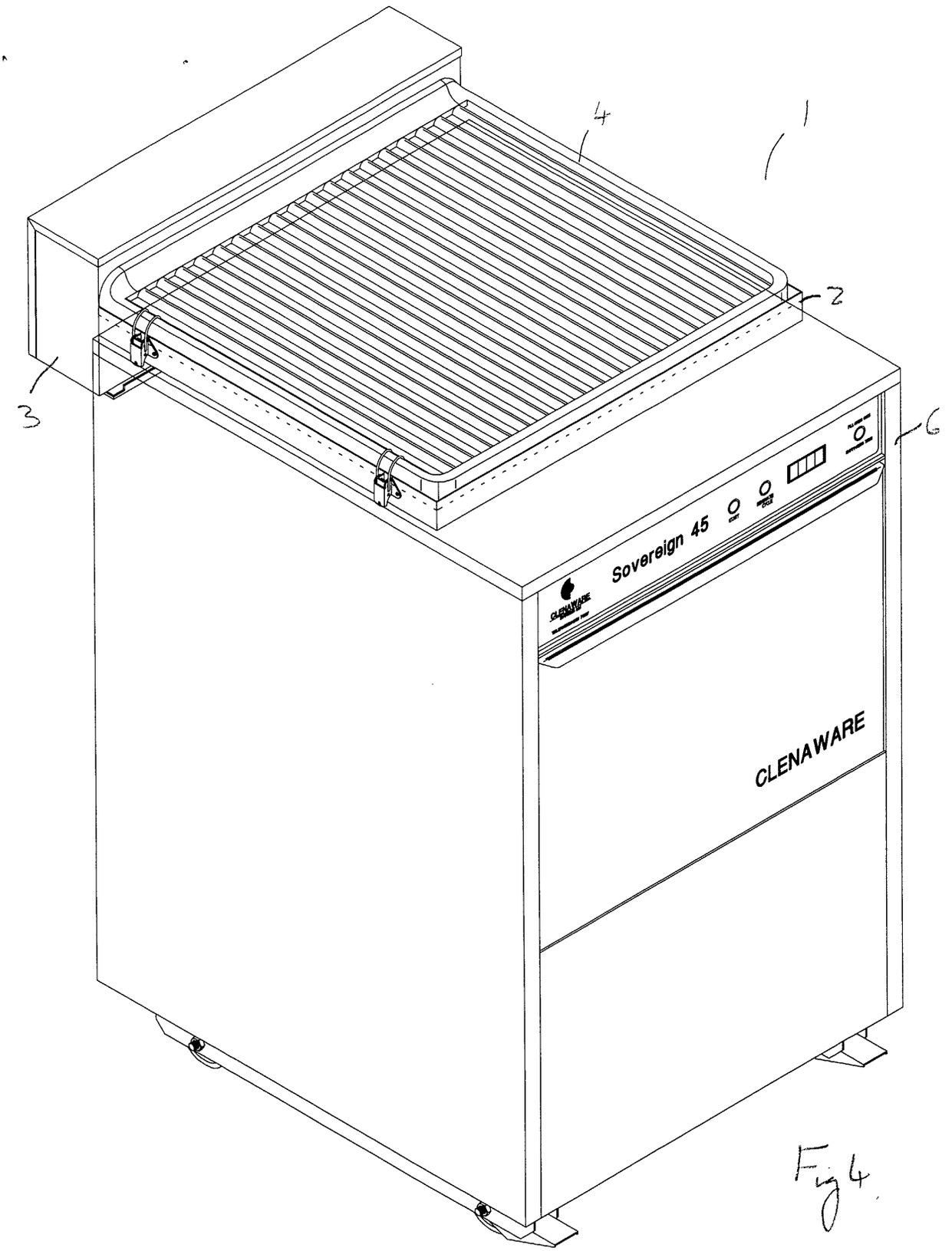


Fig 4.

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EUROPEAN SEARCH REPORT

Application Number
EP 02 25 7459

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	3 April 2003	Cabral Matos, A

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Application Number
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