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(71) Applicant and
(72) Inventor: **KOHUT, Kenneth, Martin, George** [GB/GB];
2 Bailbrook Court, Bailbrook Lane, Bath BA1 7AB (GB).

(74) Agents: **BARDO, Julian, Eason** et al.; Abel & Imray, 20
Red Lion Street, London WC1R 4PQ (GB).

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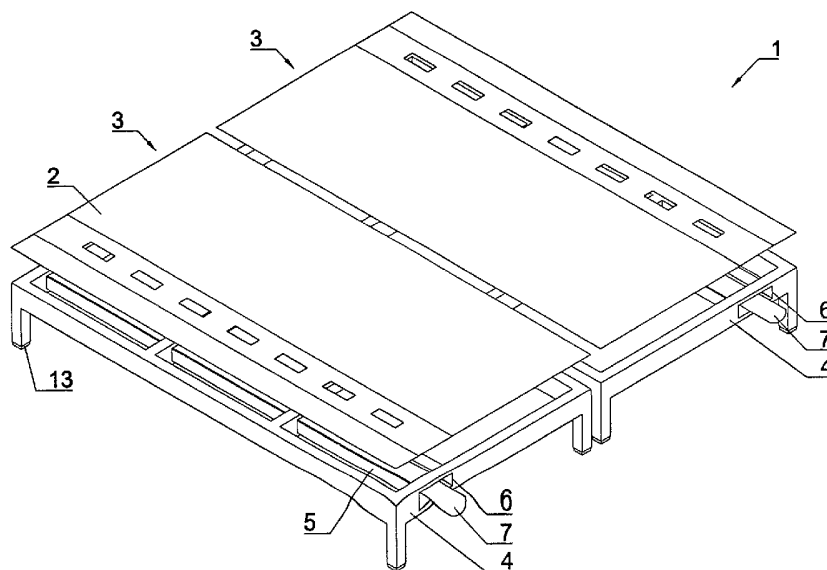
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(54) Title: WASH PLATFORM



(57) Abstract: A wash platform (1) for collection of wastewater and a method of constructing a wash platform for collection of wastewater. The wash platform including at least one drainage module (3), having a frame (4), a wash surface (2) and a drainage channel (5). The wash surface (2) is supported by the frame (4) at an incline relative to the horizontal and arranged such that any wastewater that falls on the wash surface (2) is collected in the drainage channel (5).

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Wash Platform

The present invention relates to a wash platforms and methods of constructing wash platforms.

An object of the present invention is to provide an improved wash platform.

Accordingly, the present invention provides a wash platform for collecting wastewater comprising at least one drainage module, the drainage module comprising a frame, a wash surface and a drainage channel, the wash surface being supported by the frame at an incline relative to the horizontal and arranged such that any wastewater that falls on the wash surface is collected in the drainage channel.

Where reference is made herein to a wash platform it should be understood that such a platform is suitable for washing vehicles and that other goods may also be washed instead of or as well as vehicles. It is also within the scope of the invention in a broadest aspect for the platform to be specifically designed for non-vehicular use. The wash platform may, for example, be used to form part of a cleaning or decontamination station for nuclear, chemical or biological defence.

The wash surface acts to support any object placed on the wash platform. The frame supports the wash surface such that the wash surface is inclined relative to the horizontal. The drainage channel will usually be supported substantially horizontally by the frame. Arranging the wash surface at an incline to the drainage channel assists the flow of wastewater from the wash surface to the drainage channel.

Preferably substantially all of the wash surface is inclined relative to the horizontal. Use of gravity avoids the need for additional pumping means, thus reducing the cost of wastewater disposal.

The drainage channel is advantageously arranged such that at least a substantial part of the drainage channel lies beneath the wash surface. Preferably the drainage channel is of a generally elongate shape. The elongate channel is preferably arranged such that wastewater flows along an elongate axis of the drainage channel. The drainage channel may be of generally half pipe form, for example, U-shaped cross section. Preferably the drainage channel comprises a substantially rigid pre-formed half-pipe. Most advantageously the half-pipe is formed from a metal, for example, steel. The drainage channel may, however, be formed from a suitable plastics material. The drainage channel is preferably located substantially beneath the wash surface, most preferably, the drainage channel is located substantially at one edge of the drainage module, thereby allowing easy access for maintenance.

Preferably the drainage channel is supported by the frame. The drainage channel may be permanently fixed to the frame. Alternatively, the drainage channel may be removably supported by the frame.

The wash platform may advantageously comprise at least two drainage modules. Constructing the wash platform from a set of drainage modules allows a large degree of flexibility regarding the overall size and shape of the completed drainage structure. The modular nature of the drainage structure allows both large and small drainage structures to be built using the same component parts, that is to say, drainage modules. It is therefore possible to match the size and shape of the drainage structure to a specific use in a particular location as required. The use of suitably sized drainage modules allows the wash platform to be dismantled and transported. The use of drainage modules allows for the construction of a temporary, mobile, wash platform. The

drainage modules may, for example, be sized to fit in a standard freight container.

Preferably at least a major part of the wash surface comprises a solid plate. Use of a solid plate allows water to flow substantially unimpeded across the surface of the solid plate toward the drainage channel. The solid plate may take the form, for example, of a rigid steel sheet.

Preferably a portion of the wash surface comprises a grating. Use of a grating allows water to pass through the wash surface and freely flow into the drainage channel. The grating may, for example, take the form of a solid plate comprising cut out portions. Provision of a grating is particularly advantageous when at least a substantial part of the drainage channel lies beneath the wash surface.

The wash platform may further comprise a washing device. The washing device may, for example, comprise a hose including a nozzle to spray an object located on the wash surface of the wash platform.

The wash platform preferably further comprises a gutter assembly that, in use, redirects the collected wastewater. Preferably, the gutter assembly redirects the collected wastewater from all of the drainage modules. The wastewater collected in each of the individual drainage modules may be brought together to form a larger collection of wastewater. As a result, it is possible to dispose of the combined wastewater collection rather than to dispose of the wastewater collected in each drainage channel on an individual basis. Combining the collected wastewater allows for more efficient and more flexible wastewater disposal.

The gutter assembly may be located at one edge of the wash platform, thereby allowing easy access for maintenance. Alternatively, the gutter assembly may be located substantially beneath the wash platform. The gutter assembly

may be of generally half-pipe form, for example, guttering or other similar channelling.

The collected wastewater may be redirected by the gutter assembly into a drain or into a tank. The tank may, for example, be a filtration or separation tank. The tank may include a gravel trap for trapping debris present in the collected wastewater. The collected wastewater may be discharged from the tank. Discharge of the wastewater may involve use of pumping means to remove collected wastewater from the tank.

The wash platform may comprise one or more further tanks. The tanks may, for example, be further filtration or separation tanks for separation of fuel, oil or debris from the wastewater. The tanks may, for example, include a wastewater collection tank from which the wastewater may be discharged. Discharge of the wastewater may involve use of pumping means. Furthermore, the wash platform may comprise means for transferring the wastewater from the first tank to a further tank. Wastewater may be transferred from the first tank to another tank under the influence of gravity. The means for transferring the wastewater from the first tank to a further tank may comprise a pump.

The washing device may use at least part of the wastewater collected in a tank. Arranging the wash platform such that the washing device may use at least part of the waste water collected in a tank allows for an efficient use of water.

The wash platform advantageously further comprises a recycle unit that, in use, cleans water such that it is suitable for re-use by the washing device. The recycle unit may be arranged such that at least part of the wastewater collected in a tank passes through the recycle unit.

The washing device may re-use at least part of the wastewater that passes through the recycle unit.

The wash platform may further comprise a screen. Advantageously, the wash platform is substantially entirely enclosed by a screen. The screen is preferably waterproof and may, for example, take the form of waterproof sheeting supported by a metal frame. The screen is preferably arranged such that any wastewater that falls onto the screen may flow onto a wash surface, and from the wash surface to a drainage channel. Arranging the screen in this way allows for more efficient waste water collection.

The wash platform may include drainage channels lined, or partially lined, with a waterproof membrane. Each drainage channel may be lined, or partially lined, individually. Alternatively, a series of drainage channels may be lined with a single section of waterproof membrane. The waterproof membrane may comprise, for example, heavy duty rubber, PVC or other suitable flexible waterproof sheeting. Lining the drainage channels with waterproof membrane allows for more efficient wastewater collection. Preferably, the waterproof membrane comprises a substantially rigid pre-formed half pipe. The waterproof membrane may, for example, be formed from a substantially rigid plastics material. The drainage channel lining may be longer than the drainage channel it lines. The drainage channel lining may extend from a drainage channel towards the gutter assembly, and allow collected wastewater to fall into, and be redirected by the gutter assembly. Alternatively, the extended drainage channel lining may redirect collected wastewater directly to a tank system.

The frame and/or wash surface and/or drainage channel are preferably made of steel. Such a construction allows a drainage module as large as can be readily transported to be

fabricated with sufficient strength that it is self-supporting.

Each drainage module advantageously further comprises adjustable feet. The adjustable feet may be located on the frame of a drainage module. Advantageously, the length of the adjustable feet may be varied. Provision of adjustable feet allows the wash platform to be successfully constructed on uneven ground. The adjustable feet can compensate for height differences of the ground beneath the wash platform. The adjustable feet may enable the wash surface to be arranged at an incline relative to the horizontal.

Each drainage module advantageously further comprises corner castings. The corner castings are advantageously provided on the frame of the drainage module. The corner castings are advantageously provided at a centre to centre lateral spacing of approximately 6 metres. Inclusion of corner castings allows handling and transport of the drainage module to be greatly facilitated since the drainage module can be handled and transported by the same equipment as handles and transports standard freight containers.

The wash platform is preferably arranged such that the drainage modules are fastened to each other. The drainage modules may be fastened to each other by means of a series of bolts, for example. Fastening the drainage modules to each other increases the stability of the wash platform. The drainage modules are preferably arranged such that abutting edges of the wash surfaces of respective drainage modules form a substantially waterproof seal. The waterproof seal between abutting wash surfaces prevents wastewater escaping, and thereby not being collected in a drainage channel. The substantially waterproof seal may comprise a deformable, elastomeric member attached to an edge of a wash surface or

frame member. The elastomeric member may, for example, comprise a section of D-section rubber.

The invention further provides a drainage module for use in a wash platform according to any aspect of the invention as described herein. The drainage module may of course be provided separately from the wash platform.

The invention yet further provides a method of constructing a wash platform, the method comprising the steps of arranging at least one drainage module, the drainage module comprising a frame, a wash surface and a drainage channel, each drainage module being arranged such that the wash surface is supported by the frame at an incline relative to the horizontal, and such that any wastewater present on the wash surface is collected in the drainage channel.

The present invention yet further provides a vehicle wash platform for collecting wastewater comprising at least one drainage module, the drainage module comprising a frame, a wash surface and a drainage channel, the wash surface being supported by the frame at an incline relative to the drainage channel and arranged such that any wastewater that falls on the wash surface is collected in the drainage channel.

A further aspect of the present invention provides a wash platform for collecting wastewater comprising at least two drainage modules, each drainage module comprising a frame, a wash surface and a drainage channel, the wash surface being supported by the frame and arranged such that wastewater that falls on the wash surface is collected in the drainage channel, the drainage modules being arranged such that, in use, wastewater collected in the drainage channel of a drainage module may flow, substantially without leakage, into the drainage channel of an adjacent drainage module.

Constructing the wash platform from a set of drainage modules allows a large degree of flexibility regarding the

overall size and shape of the completed drainage structure. The modular nature of the drainage structure allows both large and small drainage structures to be built using the same component parts, that is to say, drainage modules. It is therefore possible to match the size and shape of the drainage structure to a specific use in a particular location as required. Arranging the drainage modules such that wastewater collected in the drainage channel of a drainage module may flow, substantially without leakage, into the drainage channel of an adjacent drainage module allows the wastewater collected in each of the individual drainage modules to be brought together to form a larger collection of wastewater. As a result, it is possible to dispose of the combined wastewater collection rather than to dispose of the wastewater collected in each drip tray on an individual basis. Combining the collected wastewater allows for more efficient and more flexible wastewater disposal.

The drainage channel is advantageously arranged such that at least a substantial part of the drainage channel lies beneath the wash surface. Preferably the drainage channel is of a generally elongate shape. The elongate channel is preferably arranged such that wastewater flows along an elongate axis of the drainage channel. The drainage channel may be of generally half pipe form, for example, U-shaped cross section. The drainage channel is preferably located substantially beneath the wash surface, most preferably, the drainage channel is located substantially beneath the middle of the wash surface. Alternatively, the drainage channel may be located at one edge of the drainage module, thereby allowing easy access for maintenance.

Preferably the drainage channel is supported by the frame. The drainage channel may be permanently fixed to the

frame. Alternatively, the drainage channel may be removably supported by the frame.

Preferably the waste water flows from one drainage channel into the drainage channel of an adjacent drainage module under the influence of gravity. Use of gravity avoids the need for additional pumping means, thus reducing the cost of wastewater disposal.

Preferably the frame supports the wash surface such that the wash surface is inclined relative to the elongate axis of drainage channel. Arranging the wash surface at an incline to the drainage channel assists the flow of wastewater from the wash surface to the drainage channel.

Preferably substantially all of the wash surface is inclined relative to the elongate axis of the drainage channel. It is possible to produce a single drainage module that may be used in any position within the drainage structure.

Preferably at least a major part of the wash surface comprises a grating. Use of a grating allows water to pass through the wash surface to flow into the drainage channel freely. This is particularly advantageous when at least a substantial part of the drainage channel lies beneath the wash surface.

Alternatively, at least a major part of the wash surface may comprise a solid plate. Use of a solid plate allows water to flow substantially unimpeded across the surface of the solid plate toward the drainage channel.

The wash platform may further comprise a washing device. The washing device may, for example, comprise a hose including a nozzle to spray an object located on the wash surface of the wash platform.

The wash platform preferably further comprises a gutter assembly that, in use, redirects the collected wastewater.

The gutter assembly may be located at one edge of the wash platform, thereby allowing easy access for maintenance. Alternatively, the gutter assembly may be located substantially beneath the wash platform. The gutter assembly may be of generally half-pipe form, for example, guttering or other similar channelling.

The collected wastewater may be redirected by the gutter assembly into a drain or into a tank. The tank may, for example, be a filtration or separation tank. The tank may include a gravel trap for trapping debris present in the collected wastewater. The collected wastewater may be discharged from the tank. Discharge of the wastewater may involve use of pumping means to remove collected wastewater from the tank.

The wash platform may comprise one or more further tanks. The tanks may, for example, be further filtration or separation tanks for separation of fuel, oil or debris from the wastewater. The tanks may, for example, include a wastewater collection tank from which the wastewater may be discharged. Discharge of the wastewater may involve use of pumping means. Furthermore, the wash platform may comprise means for transferring the wastewater from the first tank to a further tank. Wastewater may be transferred from the first tank to another tank under the influence of gravity. The means for transferring the wastewater from the first tank to a further tank may comprise a pump.

The washing device may use at least part of the wastewater collected in a tank. Arranging the wash platform such that the washing device may use at least part of the waste water collected in a tank allows for an efficient use of water.

The wash platform advantageously further comprises a recycle unit that, in use, cleans water such that it is

suitable for re-use by the washing device. The recycle unit may be arranged such that at least part of the wastewater collected in a tank passes through the recycle unit.

The washing device may re-use at least part of the wastewater that passes through the recycle unit.

The wash platform may further comprise a screen. Advantageously, the wash platform is substantially entirely enclosed by a screen. The screen is preferably waterproof and may, for example, take the form of waterproof sheeting supported by a metal frame. The screen is preferably arranged such that any wastewater that falls onto the screen may flow onto a wash surface, and from the wash surface to a drainage channel. Arranging the screen in this way allows for more efficient waste water collection.

The wash platform may include drainage channels lined with a waterproof membrane. Each drainage channel may be lined individually. Alternatively, a series of drainage channels may be lined with a single section of waterproof membrane. The waterproof membrane may comprise, for example, heavy duty rubber, PVC or other suitable flexible waterproof sheeting. Lining the drip trays with waterproof membrane allows for more efficient wastewater collection. Preferably, the waterproof membrane comprises a substantially rigid pre-formed half pipe. The drainage channel lining may be longer than the drainage channel it lines. The drainage channel lining may extend towards the gutter assembly, and allow collected wastewater to fall into, and be redirected by the gutter assembly. Alternatively, the extended drainage channel lining may redirect collected wastewater directly to a tank system.

The wash platform advantageously comprises adjustable feet. The adjustable feet may be located on the frame of a drainage module. Advantageously, the length of the adjustable

feet may be varied. Provision of adjustable feet allows the wash platform to be successfully constructed on uneven ground. The adjustable feet can compensate for height differences of the ground beneath the wash platform.

The wash platform is preferably arranged such that the drainage modules are fastened to each other. The drainage modules may be fastened to each other by means of a series of bolts, for example. Fastening the drainage modules to each other increases the stability of the wash platform. The drainage modules are preferably arranged such that abutting edges of the wash surfaces of respective drainage modules form a substantially waterproof seal. The waterproof seal between abutting wash surfaces prevents wastewater escaping, and thereby not being collected in a drainage channel. The substantially waterproof seal may comprise a deformable, elastomeric member attached to the edge of a wash surface or frame member. The elastomeric member may, for example, comprise a section of D-section rubber.

The invention further provides a drainage module for use in a wash platform according to any aspect of the invention as described herein. The drainage module may of course be provided separately from the wash platform.

The invention yet further provides a method of constructing a wash platform, the method comprising the steps of arranging at least two drainage modules, each drainage module comprising a frame, a wash surface and a drainage channel, such that, in use, wastewater collected in the drainage channel of a drainage module may flow, substantially without leakage, into the drainage channel of an adjacent drainage module each drainage module being arranged such that the wash surface is supported by the frame and wastewater that falls on the wash surface is collected in the drainage channel.

The present invention yet further provides a vehicle wash platform for collecting wastewater comprising at least two drainage modules, each drainage module comprising a frame and a drip tray, the drainage modules being arranged such that, in use, wastewater collected in the drip tray of a drainage module may flow, substantially without leakage, into the drip tray of an adjacent drainage module.

Constructing the vehicle wash platform from a set of drainage modules allows a large degree of flexibility regarding the overall size and shape of the completed drainage structure. The modular nature of the drainage structure allows both large and small drainage structures to be built using the same component parts, that is to say, drainage modules. It is therefore possible to match the size and shape of the drainage structure to a specific use in a particular location as required. Arranging the drainage modules such that wastewater collected in the drip tray of a drainage module may flow, substantially without leakage, into the drip tray of an adjacent drainage module allows the wastewater collected in each of the individual drainage modules to be brought together to form a larger collection of wastewater. As a result, it is possible to dispose of the combined wastewater collection rather than to dispose of the wastewater collected in each drip tray on an individual basis. Combining the collected wastewater allows for more efficient and more flexible wastewater disposal.

Preferably the waste water flows from one drip tray into the drip tray of an adjacent drainage module under the influence of gravity. Use of gravity avoids the need for additional pumping means, thus reducing the cost of wastewater disposal.

Preferably the position of at least one drip tray is adjustable. The position of a drip tray of a drainage module

with respect to the frame of the drainage module may be adjusted to allow the water to flow more easily into the drip tray of an adjacent drainage module. Provision of at least one drainage module with an adjustable drip tray allows for increased flexibility when constructing the drainage structure. Most preferably, the position of each drip tray is adjustable. Provision of an adjustable drip tray in each drainage module allows for simpler manufacture of the drainage module from which the drainage structure is constructed. As a result of the adjustable position of the drip tray, it is possible to produce a single drainage module that may be used in any position within the drainage structure.

Alternatively, a set of drainage modules may be prefabricated such that the position of the drip tray of a particular drainage module, in relation to the frame is such that when placed next to another drainage module of the set, wastewater may flow from one drip tray into the drip tray of the adjacent drainage module. It will be understood that the relative position of each drainage module in such a prefabricated set is predetermined by the position of the drip tray of any given drainage module.

The vehicle wash platform may further comprise a washing device. The washing device may, for example, comprise a hose including a nozzle to spray a vehicle on the vehicle wash platform.

The vehicle wash platform preferably further comprises a gutter assembly that, in use, redirects the collected wastewater. The gutter assembly may be located at one edge of the vehicle wash platform, thereby allowing easy access for maintenance. Alternatively, the gutter assembly may be located substantially beneath the vehicle wash platform. The gutter assembly may be of generally half-pipe form, for example, guttering or other similar channelling.

The collected wastewater may be redirected by the gutter assembly into a drain or into a tank. The tank may, for example, be a filtration or separation tank. The tank may include a gravel trap for trapping debris present in the collected wastewater. The collected wastewater may be discharged from the tank. Discharge of the wastewater may involve use of pumping means to remove collected wastewater from the tank.

The vehicle wash platform may comprise one or more further tanks. The tanks may, for example, be further filtration or separation tanks for separation of fuel, oil or debris from the wastewater. The tanks may, for example, include a wastewater collection tank from which the wastewater may be discharged. Discharge of the wastewater may involve use of pumping means. Furthermore, the wash platform may comprise means for transferring the wastewater from the first tank to a further tank. Wastewater may be transferred from the first tank to another tank under the influence of gravity. The means for transferring the wastewater from the first tank to a further tank may comprise a pump.

The washing device may use at least part of the wastewater collected in a tank. Arranging the vehicle wash platform such that the washing device may use at least part of the waste water collected in a tank allows for an efficient use of water.

The vehicle wash platform advantageously further comprises a recycle unit that, in use, cleans water such that it is suitable for re-use by the washing device. The recycle unit may be arranged such that at least part of the wastewater collected in a tank passes through the recycle unit.

The washing device may re-use at least part of the wastewater that passes through the recycle unit.

The vehicle wash platform may further comprise a screen. Advantageously, the vehicle wash platform is substantially entirely enclosed by a screen. The screen is preferably waterproof and may, for example, take the form of waterproof sheeting supported by a metal frame. The screen is preferably arranged such that any wastewater that falls onto the screen may flow into a drip tray. Arranging the screen in this way allows for more efficient waste water collection.

The vehicle wash platform may include drip trays lined with a waterproof membrane. Each drip tray may be lined individually. Alternatively, a series of drip trays may be lined with a single section of waterproof membrane. The waterproof membrane may comprise, for example, heavy duty rubber, PVC or other suitable flexible waterproof sheeting. Lining the drip trays with waterproof membrane allows for more efficient wastewater collection.

The vehicle wash platform advantageously comprises adjustable feet. The adjustable feet may be located on the frame of a drainage module. Advantageously, the length of the adjustable feet may be varied. Provision of adjustable feet allows the vehicle wash platform to be successfully constructed on uneven ground. The adjustable feet can compensate for height differences of the ground beneath the wash platform.

The vehicle wash platform may further comprise a grating, supported on an upper surface of the frame. The grating is preferably arranged such that wastewater may easily pass through it and into the drip trays.

The vehicle wash platform is preferably arranged such that the drainage modules are fastened to each other. The drainage modules may be fastened to each other by means of a series of bolts, for example. Fastening the drainage modules

to each other increases the stability of the vehicle wash platform.

The invention also provides a drainage module for use in a vehicle wash platform according to any aspect of the invention as described herein. The drainage module may of course be provided separately from the vehicle wash platform.

The invention yet further provides a method of constructing a vehicle wash platform, the method comprising the steps of arranging at least two drainage modules, each drainage module comprising a frame and a drip tray, such that, in use, wastewater collected in the drip tray of a drainage module may flow, substantially without leakage, into the drip tray of an adjacent drainage module.

In accordance with a broadened aspect, the present invention also provides a wash platform for collecting wastewater comprising at least two drainage modules, each drainage module comprising a frame and a drip tray, the draining modules being arranged such that, in use, wastewater collected in the drip tray of a drainage module may flow, substantially without leakage, into the drip tray of an adjacent drainage module.

It will be understood that any of the features described with reference to any one aspect of the present invention may be incorporated into other aspects of the invention.

By way of example, an embodiment of the invention will now be described with reference to the accompanying schematic drawings, of which:

- Fig. 1 is an exploded perspective view of a wash platform according to the present invention.
- Fig. 2 is an exploded perspective view of a first drainage module for use in the wash platform of Figure 1.

- Fig. 3 is a cross-sectional view of adjacent drainage modules.
- Fig. 4 is an exploded perspective view of a wash platform according to a further aspect of the present invention.
- Fig. 5 is an exploded perspective view of a first drainage module for use in the wash platform of Figure 4.
- Figs. 6a-b are cross-sectional views of adjacent drainage modules according to Figure 5.
- Fig. 7 is a perspective view of a second drainage module for use in the wash platform of Fig. 4.
- Figs. 8a-c are cross-sectional views of adjacent drainage modules according to Fig. 7.
- Fig. 9 shows a perspective view of an arrangement of drip trays of a wash platform according to an embodiment of the present invention.
- Fig. 10 is a schematic representation of the flow of wastewater through a wash platform according to the present invention.

Figure 1 is a perspective view of a wash platform 1 according to the present invention. With reference to Figure 1, the wash platform comprises two drainage modules 3. Each drainage module comprises a frame 4, a wash surface 2 and a drainage channel 5. The wash surface is supported by the frame 4 at an incline relative to the drainage channel 5 such that wastewater that falls on the wash surface is collected in the drainage channel 5.

Each frame is formed from welded together lengths of tubular steel of rectangular cross section. Each drainage channel 5 takes the form of a generally U-shaped channel and

is supported by, and welded to, the frame 4. Cut out sections 6 are removed from the frame as shown in Figures 2 and 3. The drainage channel spans the frame between the cut-out sections 6.

The wash surface, shown in more detail in Figures 2 and 3, comprises two portions: a solid metal plate 2a, and a metal plate incorporating cut-out sections, that acts as a grating, 2b. The solid metal plate 2a is welded to the frame 4 at an incline relative to the longitudinal axis of the elongate drainage channel 5. The solid metal plate 2a is arranged such that it overlaps the edge of the drainage channel 5. The grating portion 2b is supported by the frame above the drainage channel 5.

A generally U-shaped plastic half-pipe 7 is placed through and supported by the cut-out sections 6 of the frame. The U-shaped plastic half-pipe 7 is supported within the drainage channel 5. In use, the object to be washed is located on the wash platform by means of ramps 11 (not shown). The object is washed whilst on the wash surface 2 of the wash platform 1. Wastewater falls from the object being washed onto the wash surface 2 of each of the drainage modules 3.

Wastewater that falls on the inclined metal plate 2a, flows down the inclined surfaces towards the grating 2b located over the drainage channel 5, falls through the grating 2b and into the drainage channel 5, lined with a U-shaped plastic half-pipe 7. One end of the U-shaped plastic half-pipe 7 is blanked off. Wastewater collected in the drainage channel flows away from the blanked off end of the plastic half-pipe and towards a gutter structure (not shown in Figure 1) arranged at the other end. The plastic half-pipe extends, unsupported, beyond the end of the drainage channel towards the gutter structure. The gutter structure redirects the collected wastewater to a tank system.

Figure 2 shows an exploded perspective view of a first drainage module for use in the wash platform of Figure 1. The drainage module frame includes legs of adjustable height 13. The adjustable legs allow each drainage module to be made stable on uneven ground. The wash platform comprising a number of drainage modules can therefore be successfully constructed on uneven surfaces.

Figure 3 is a cross-sectional view of adjacent drainage modules for use in the wash platform of Figure 1.

It should be understood that, whilst the wash platform shown in Figure 1 is formed from a 2 by 1 array of drainage modules 2, it is possible to construct a wash platform of another size by varying the arrangement of the array of drainage modules.

Adjacent drainage modules are fastened together by means of bolts that extend through holes in one frame and engage the frame of an adjacent drainage module.

Figure 4 is an exploded perspective view of a wash platform 101 according to the present invention. With reference to Figure 4, the wash platform 101 comprises a number of drainage modules 103. Each drainage module comprises a frame 104, a wash surface 102, and a drainage channel 105. Each drainage module is arranged such that wastewater that falls on the wash surface 102 is collected in the drainage channel 105. The drainage modules 103 are arranged such that wastewater collected in the drainage channel 105a of a given drainage module 103a flows, substantially without leakage, into the drainage channel 105b of an adjacent drainage module 103b.

Each frame 104 is formed from welded together lengths of tubular steel of square cross section. Each frame supports a wash surface 102. Each drainage channel 105 takes the form of a generally U-shaped channel, and is supported by, and welded

to, the frame 104. Cut out sections 106 are removed from the frame as shown in Figures 5 and 6. The drainage channel spans the frame between the cut-out sections 106.

The wash surface, shown in more detail in Figures 5 and 6, comprises 3 portions: two metal plates, 102a, 102b, and a grating portion 102c. The two metal plates 102a, 102b are welded to the frame at an incline relative to the longitudinal axis of the drainage channel 105.

The two metal plates 102a, 102b are arranged such that they overlap the edge of the drainage channel 105. The grating portion 102c is supported by the frame above the drainage channel 105.

A generally U-shaped plastic half pipe (not shown) is placed through the cut-out sections 106 of the series of adjacent drainage modules 103 forming the wash platform 101. The U-shaped half pipe is supported within the series of drainage channels 105 of the adjacent drainage modules.

In use, the object to be washed is located on the wash platform by means of ramps 111. The object is washed whilst on the wash platform 101. The object is supported by the wash surface 102. Wastewater falls from the object being washed onto the wash surface 102 of each of the drainage modules 103. Wastewater that falls on the inclined metal plates 102a, 102b, flows down the inclined surfaces towards the grating 102c located over the drainage channel 105, falls through the grating 102c and into the U-shaped plastic half pipe (not shown) supported by the drainage channel 105. One end of the U-shaped plastic half pipe is blanked off. Wastewater collected in the half pipe lining the drainage channels flows away from the blanked off end and toward a gutter structure (not shown in Figure 4) arranged at the other end of the half pipe. The half pipe extends, unsupported, beyond the end of the drainage channel towards the gutter structure. The gutter

structure redirects the collected wastewater to a tank system 110.

Figure 5 shows an exploded perspective view of a first drainage module for use in the wash platform of Figure 4. The drainage module frame 104 includes adjustable legs 113. The adjustable legs allow each drainage module to be made stable on uneven ground. The wash platform comprising a number of drainage modules can therefore be successfully constructed on uneven surfaces. The adjustable legs can be accessed for adjustment via holes 108 in the wash surface 102.

Figures 6a-b are cross-sectional views of adjacent drainage modules for use in the wash platform of Figure 4.

It should be understood that, whilst the wash platform shown in Figure 4 is formed from a 2 by 10 array of drainage modules 102, it is possible to construct a wash platform of another size by varying the size and arrangement of the array of drainage modules.

Figure 6a is a cross section taken along the line A-A of the wash platform 101 of Figure 4. With reference to Figure 6a, the wash platform comprises a number of drainage modules 103. The drainage modules are arranged adjacent to one another to form a wash platform of the desired size. Adjacent drainage modules 103 are fastened together by means of bolts that extend through holes in one frame and engage the frame of an adjacent drainage module.

When placed adjacent to each other in the manner shown in Figure 4 and Figure 6a, the drainage modules abut one another.

The small gap between adjacent drainage modules is sealed by use of a waterproof seal arrangement shown schematically in Figure 6a. The wash surface 102e of a first drainage module 103a protrudes over the wash surface 102f of a second drainage module 103b, in the region B of the abutting edges. An elastomeric rubber seal 109 is located on the frame 104a,

beneath the protruding wash surface 102a of the first drainage module 103a. When the drainage modules are bolted together such that they abut one another the elastomeric rubber seal 109 deforms to form a watertight join. The protruding wash surface together with the rubber seal 109 prevent wastewater falling through the upper surface of the wash platform in region B.

Figure 6b is a plan view of the arrangement of drainage modules shown in Figure 6a.

Figure 7 shows a perspective view of a second drainage module for use in the wash platform of Figure 4. The frame supports a wash surface 202, that takes the form of a grating. Each drainage channel 205 takes the form of a drip tray. Each drip tray takes the form of a substantially flat plate and includes a dip 206 each edge for retaining wastewater that falls onto the drip tray 205, and an overhang 207 that, in use, protrudes into an adjacent drip tray. Each drip tray 205 is formed from a folded sheet of aluminium.

Each drip tray 205 is adjustably located and supported on a frame. Each frame includes a set of holes 208 in which generally T-shaped support pins 209 are placed. The drip tray 205 is then placed upon the tray support pins 209. The respective position of the tray support pins 209 in the set of holes 208 determines the angle of the drip tray with respect to the frame. A drainage module frame includes adjustable legs 213. The adjustable legs allow each drainage module to be made stable on uneven ground.

Each drainage module 203 also includes, welded to the frame 204 at either end of the upper surface, adjacent to the lift-off grating 202, tread plates 214. The welded tread plates 214 are angled such that, in use, any wastewater that falls on them flows towards the lift off grating 202 and into the drip tray 205 beneath. Beneath each welded tread plate

214, a water barrier plate (not shown) is welded such that it extends generally downwards. Inclusion of such a barrier plate prevents wastewater tracking along the frame past the drip tray arrangement and ensures that substantially all the wastewater is collected in a drip tray 205.

Figures 8a-c are cross-sectional views of adjacent drainage modules for use in the wash platform of Figure 4.

It should be understood that, whilst the wash platform shown in Figure 4 is formed from a 2 by 10 array of drainage modules 2, it is possible to construct a wash platform of another size by varying the size and arrangement of the array of drainage modules.

Figure 8a is a cross section taken along the line A-A of the wash platform 101 of Figure 4. With reference to Figure 8a, wash platform comprises a number of drainage modules 203. The drainage modules are arranged adjacent to one another to form a wash platform of the desired size. Adjacent drainage modules 203 are fastened together by means of bolts that extend through holes 215 in one frame and engage the frame of an adjacent drainage module.

When placed adjacent to each other in the manner shown in Figure 4 and Figure 8a, the drainage modules do not, as a result of the drip tray support pins 209, abut one another. As a result, a gap is formed between the tread plates 214 of the adjacent drainage modules. This gap is filled by a T-shaped insert 216. The insert drops into the gap formed between adjacent drainage modules and prevents wastewater falling through the upper surface of the wash platform in that region.

Figure 8b is a plan view of the arrangement of drainage modules shown in Figure 8a.

Figure 8c is a cross section of two adjacent drainage modules. With reference to Figure 5a, the arrangement of drip

trays 205 is such that water may flow from the drip tray 205a of one drainage module 203a into the drip tray 205b of an adjacent drainage module 203b.

Figure 9 shows a perspective view of an arrangement of drip trays for use in a wash platform according to the present invention.

The drip trays 205a, 205b, 205c are arranged such that the overhang 207a, 207b, 207c of each drip tray protrudes into an adjacent drip tray. Such an arrangement allows wastewater that falls into any given drip tray to flow into an adjacent drip tray. The arrangement of drip trays is lined with a lay-in rubber sheet (not shown). Wastewater is collected and flows from a final drip tray of the drainage structure into a gutter structure 17. The gutter structure 17 redirects the collected wastewater to a tank (not shown).

Figure 10 is a schematic representation of the flow of wastewater through a wash platform according to the present invention.

Water from a washing device 20 is used to wash an object on the wash platform 1. Wastewater flows from the wash surface 2 and into the drainage channels. Wastewater collected in the drainage channels flows toward a gutter structure 21. The gutter structure redirects the collected wastewater to a tank system 10, comprising a solid separator tank 22, a fuel/oil separator tank 23 and a wastewater tank 24. The wastewater collected in the gutter structure 21 flows, under the influence of gravity, into a solid separator tank 22 where solid debris is substantially removed from the collected wastewater. The wastewater is transferred from the solid separator tank 22 to a fuel separator tank 23 under the influence of gravity. The wastewater is then transferred by means of gravity to a wastewater collection tank 24, from which the wastewater may be discharged by means of a pump 25,

to mains sewage 26 as required. Wastewater may be transferred from the wastewater collection tank 24 to a recycle unit 27 where it is cleaned such that it is suitable for reuse by the washing device 20, together with a supply of freshwater 28. Whilst certain embodiments of the invention have been described, it should be understood that many modifications may be made to suit particular applications. By way of example, the drip tray or drainage channel of each drainage module could alternatively be formed of a similar suitable material, such as another substantially rigid weatherproof, waterproof sheet, for example, steel sheet. An elastomeric seal as described in relation to the drainage module shown in Fig. 6a may be included on the drainage module of Fig. 2. The drainage channel may be substantially unlined, with one end blanked off and a pipe flange attached to one end for redirection of wastewater. The frame may be formed of a material selected on the basis of the load the wash platform is required to bear. The tank system may comprise a lesser or greater number of tanks and may not include a recycle unit.

Claims

1. A wash platform for collecting wastewater comprising at least one drainage module, the drainage module comprising a frame, a wash surface and a drainage channel, the wash surface being supported by the frame at an incline relative to the horizontal and arranged such that any wastewater that falls on the wash surface is collected in the drainage channel.
2. A wash platform according to claim 1, comprising at least two drainage modules.
3. A wash platform according to claim 1 or claim 2, wherein at least a major part of the wash surface comprises a solid plate.
4. A wash platform according to any preceding claim, further comprising a washing device.
5. A wash platform according to any preceding claim, wherein a portion of the wash surface comprises a grating.
6. A wash platform according to any preceding claim, further comprising a gutter assembly that, in use, redirects the collected wastewater.
7. A wash platform according to claim 6, wherein the gutter assembly redirects the collected wastewater from all of the drainage modules.

8. A wash platform according to claim 6 or claim 7, wherein the collected wastewater is redirected by the gutter assembly into a drain.

9. A wash platform according to claim 6 or claim 7, wherein the collected wastewater is redirected by the gutter assembly into a tank.

10. A wash platform according to claim 9, wherein the tank is a filtration tank.

11. A wash platform according to claim 9 or claim 10, comprising a further tank.

12. A wash platform according to claim 11, further comprising means for transferring the wastewater from the first tank to the further tank.

13. A wash platform according to claim 12, wherein the means for transferring water from the first tank to the further tank comprises a pump.

14. A wash platform according to any preceding claim, wherein the drainage module further comprises adjustable feet.

15. A wash platform according to any preceding claim, wherein the drainage module further comprises corner castings.

16. A wash platform according to any preceding claim, wherein the drainage modules are fastened to each other.

17. A wash platform according to any preceding claim, wherein the drainage channel comprises a substantially rigid pre-formed half pipe.

18. A wash platform according to any preceding claim wherein the drainage channel is lined with a waterproof membrane.

19. A drainage module for use in a wash platform according to any of claims 1 to 18.

20. A method of constructing a wash platform, the method comprising the steps of arranging at least one drainage module, the drainage module comprising a frame, a wash surface and a drainage channel, each drainage module being arranged such that the wash surface is supported by the frame at an incline relative to the horizontal, and such that any wastewater present on the wash surface is collected in the drainage channel.

Figure 1

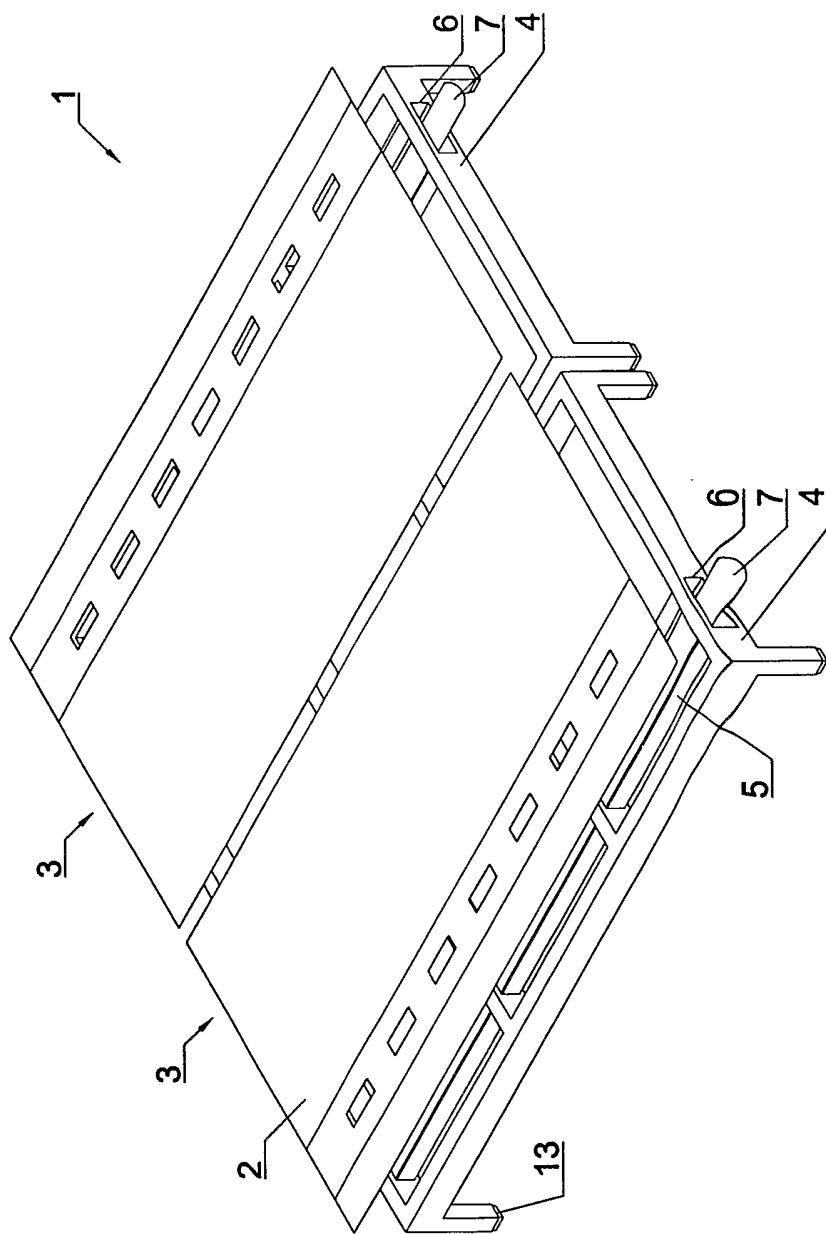


Figure 2

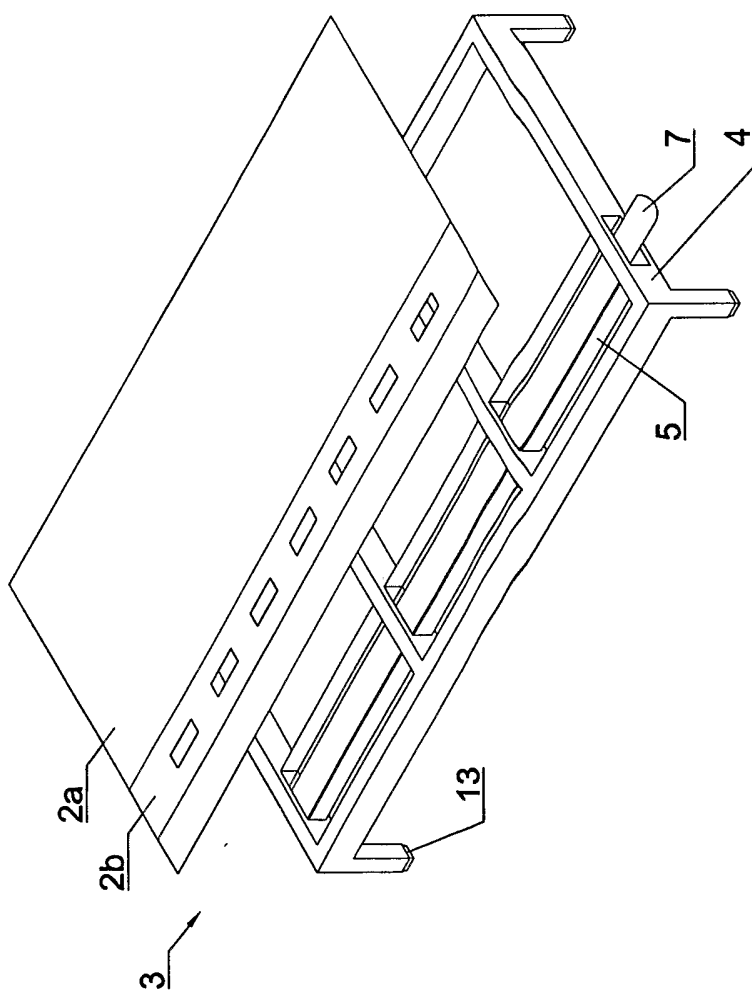
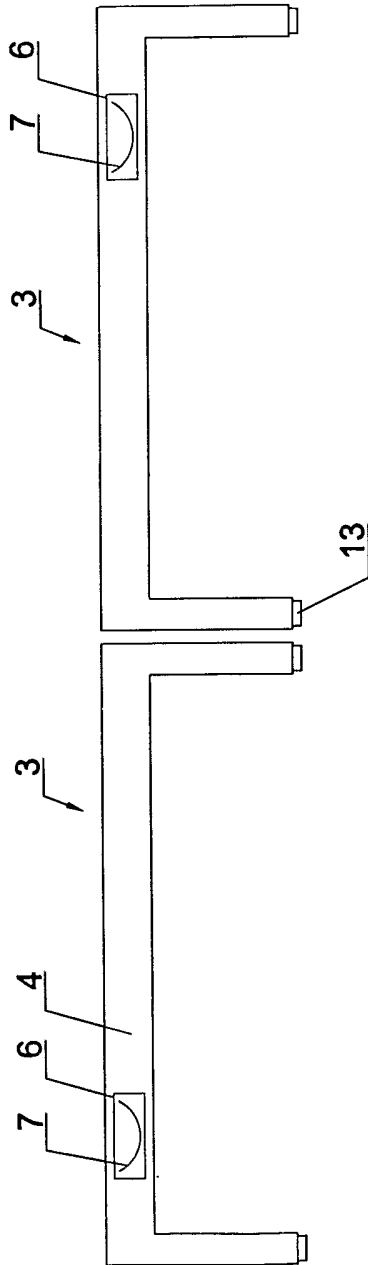


Figure 3



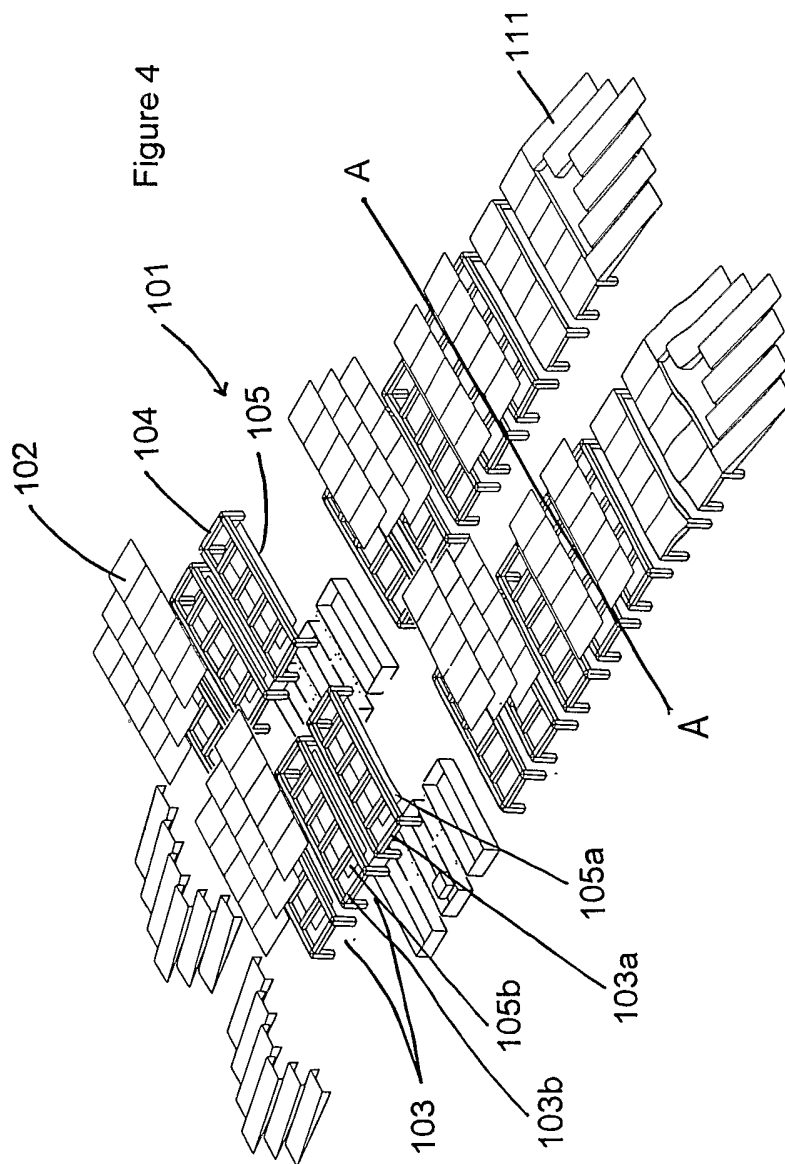


Figure 5

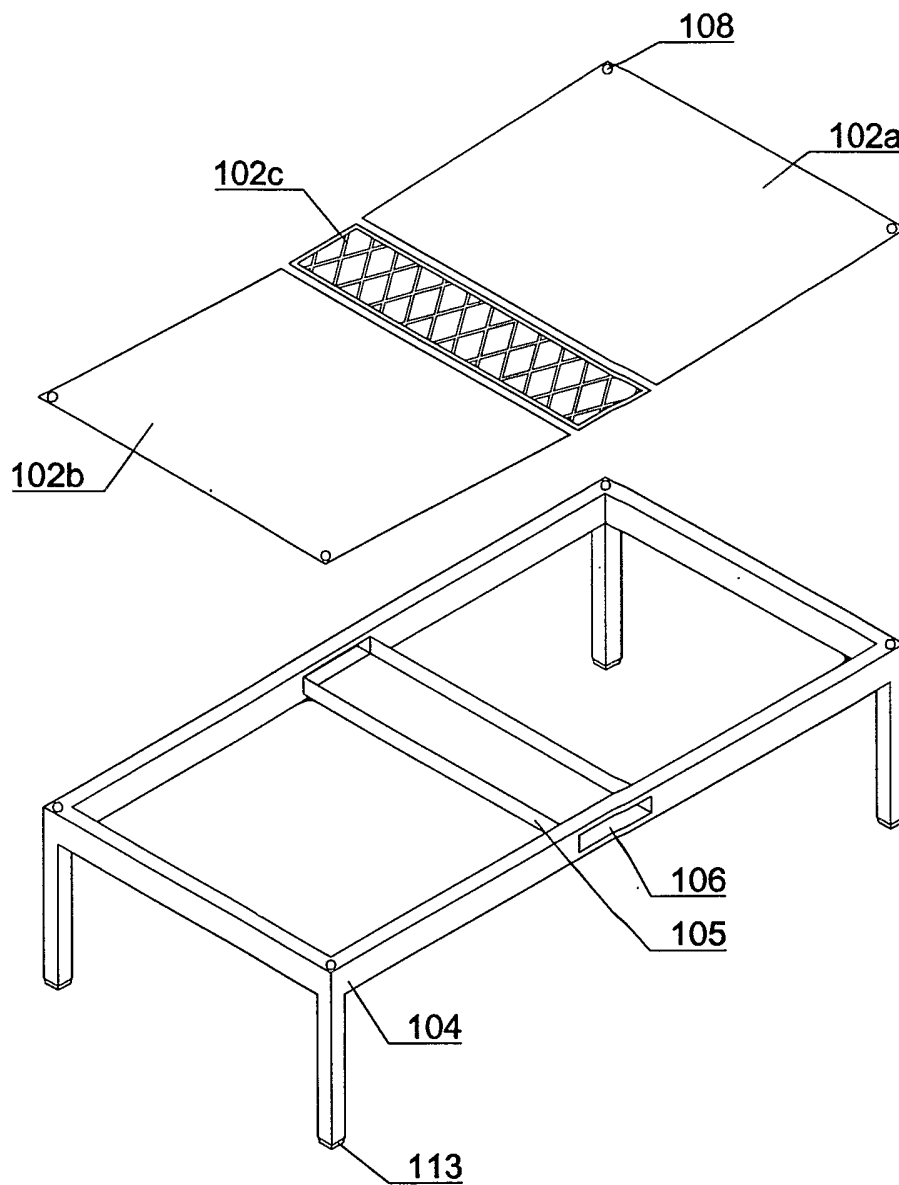


Figure 6a

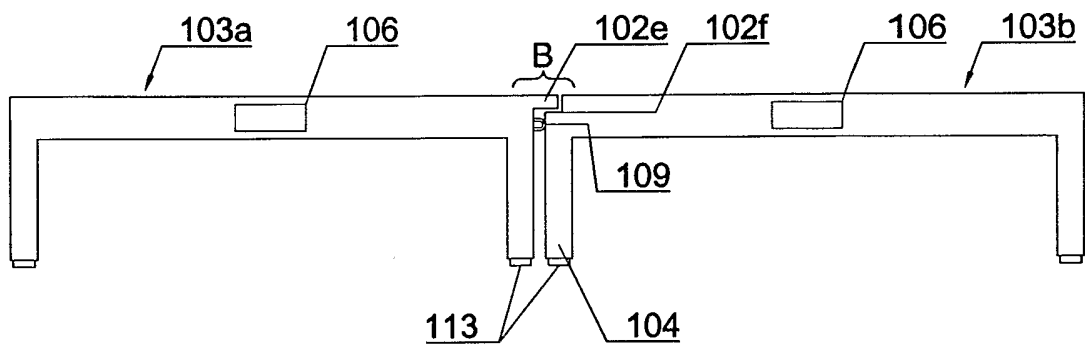


Figure 6b

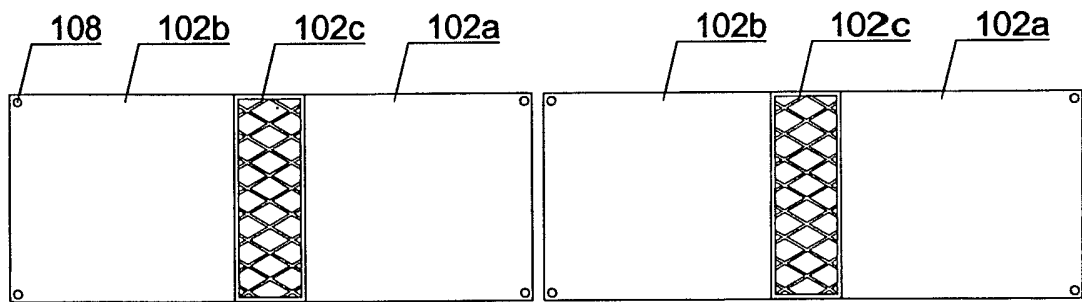


Figure 7

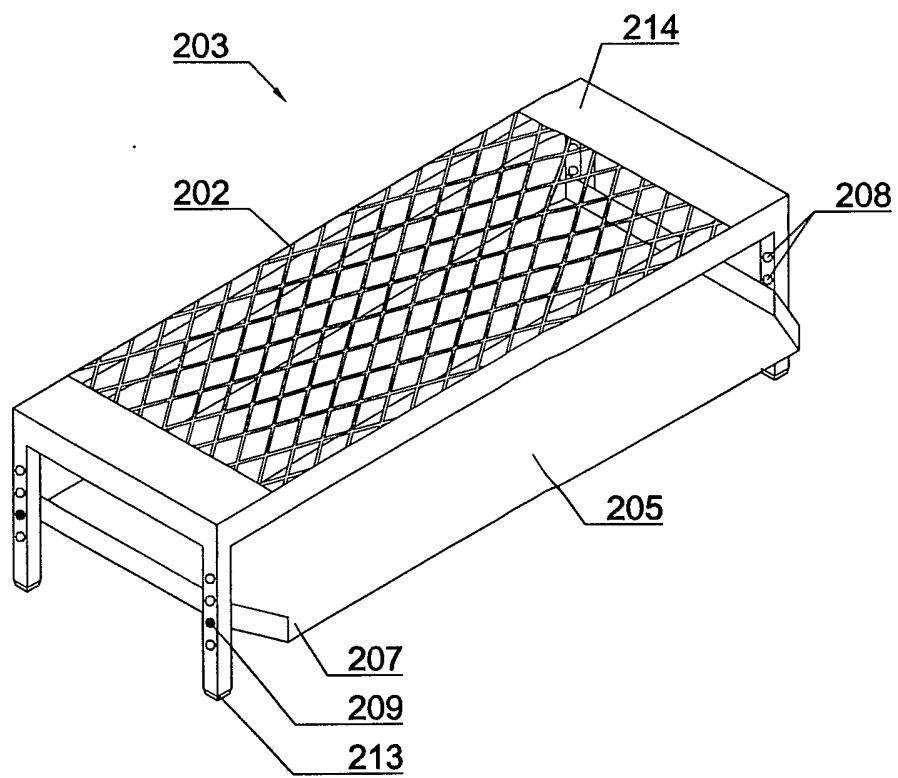


Figure 8a

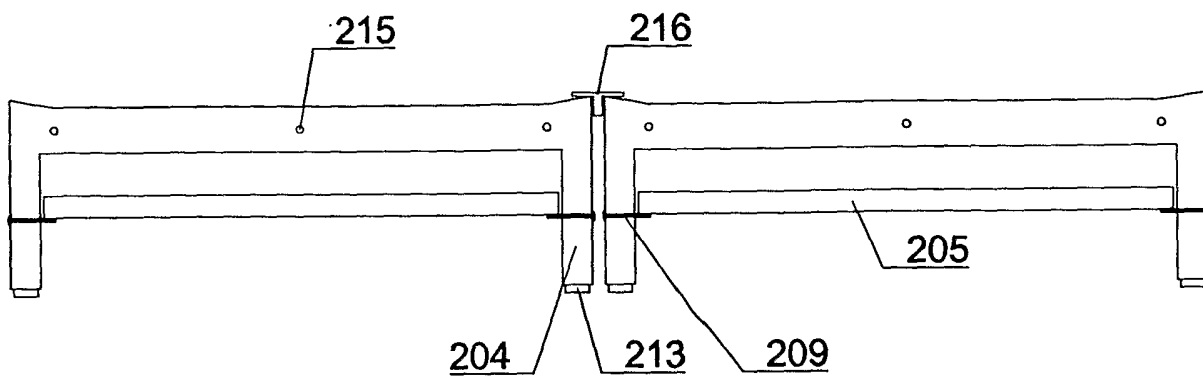


Figure 8b

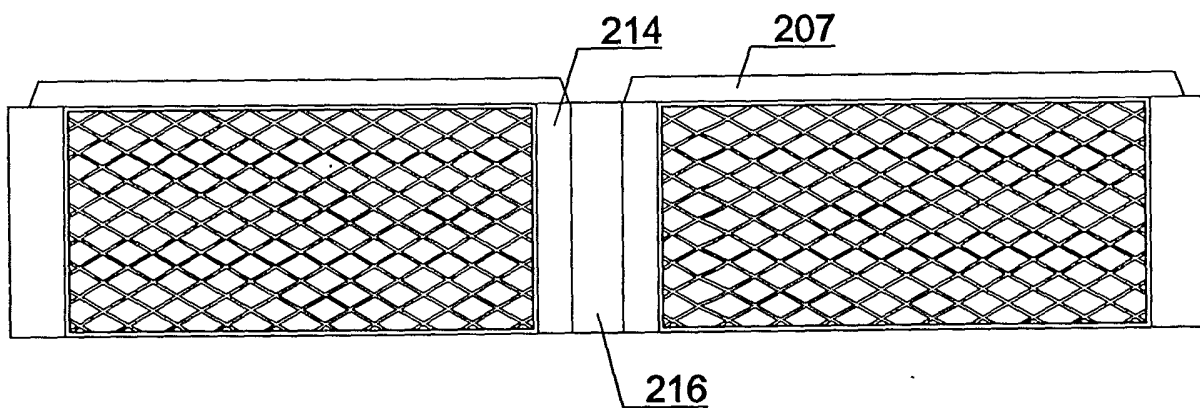


Figure 8c

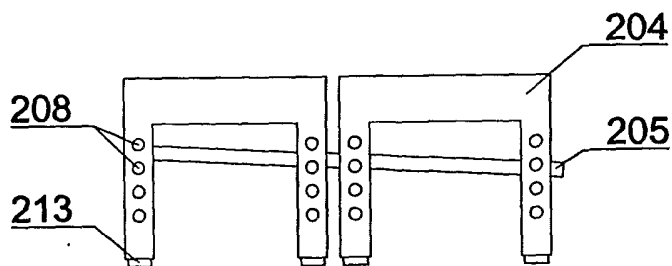
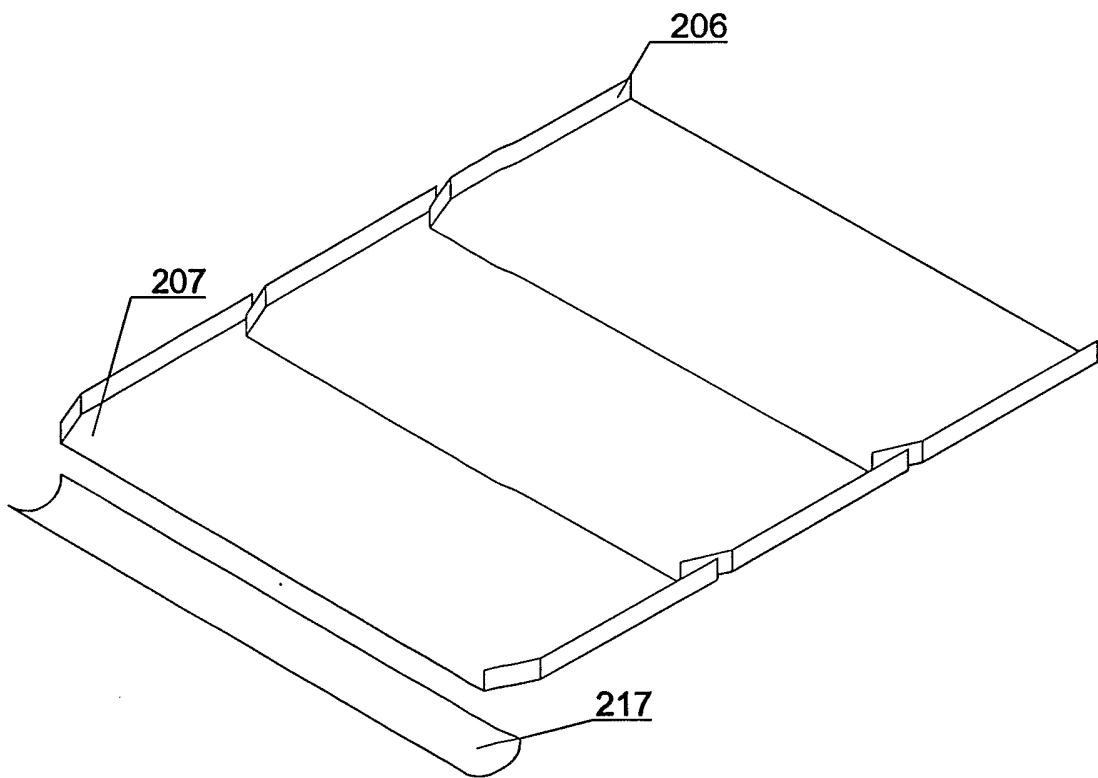


Figure 9



INTERNATIONAL SEARCH REPORT

PCT/GB2005/000098

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B60S3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 B60S C09F E04H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	-----	17,18
Y	US 6 301 848 B1 (WHITAKER IVAN A) 16 October 2001 (2001-10-16) figures 1,6 column 2, line 13 - line 58	17,18
X	US 5 033 489 A (FERRE ET AL) 23 July 1991 (1991-07-23) abstract; figures 1,2,11-13,24,25 column 19, line 48 - column 24, line 2 ----- -/--	1,3-13, 18-20

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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- * & * document member of the same patent family

Date of the actual completion of the international search

12 April 2005

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Westland, P

INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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