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(54) **Serving system and stacking serving system**

(57) A serving system (1) comprising a tray (2) which is provided around at least part of its perimeter with an upstanding rim (3), with the tray (2) provided with an opening (4), which serving system (1) includes an elongate element (6) which at least partly protrudes from the underside of the tray (2) in order to provide a hand grip, with the tray (2) provided with a raised inner rim (5) by the opening (4), and the elongate element (6) extends through the opening (4) in the tray (2), and is there slideably positioned between the specified position where it

at least partly protrudes from the underside of the tray (2), referred to as the working position, and a rest position in which the lower end is at the same height as or higher than the underside of the tray (2), and the elongate element (6) is provided with at least one stop (8), which stop (8) impinges upon the specified opening (4) in the tray (2) when the elongate element (6) is in the working position and so impedes the falling downwards of the elongate element (6) past the working position.

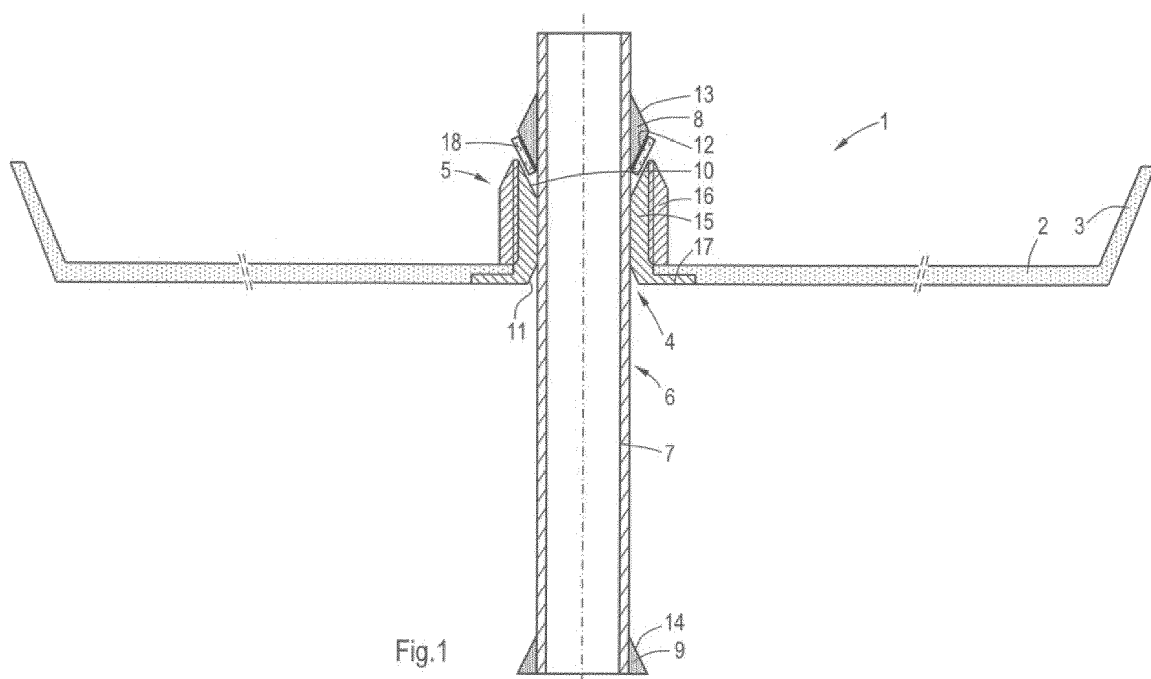


Fig.1

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Description

[0001] The present invention relates to a serving system consisting of a substantially planar tray having an upstanding rim around at least part of its circumference, where the tray is provided with an opening, which serving system includes an elongate element which at least partly protrudes from the underside of the tray in order to provide a hand grip.

[0002] Similar serving systems are known and are for example used as serving trays in the hotel, restaurant and catering industry in order to serve edible and potable refreshments to customers.

[0003] An example of a known serving tray of the specified type is published in international patent application WO 2010/151151 A1. Here is described a serving tray comprising a substantially planar tray having a top surface, and a bottom surface, and provided with a coupling consisting of an internal cavity accessible via an opening in the vicinity of the bottom surface of the tray and an elongate hand grip coupled to the coupling so that it extends from the bottom surface of the tray, whereby the internal cavity in the coupling is arranged to receive a counterpart engaging element of the hand grip and to retain it in a slideably releasable friction-fit hold, whereby this release is to take place in the longitudinal direction of the hand grip.

[0004] Serving systems of the specified known type are in effective use on a large scale, however they have the disadvantages that they are often difficult to hold in a position where the items placed on or in the serving system, in particular food and drink, do not fall off or tip over or leak liquid. As a consequence of this at least two negative effects occur: (1) they or the load they carry are allowed to fall while walking around with the serving system or during service itself, and/or (2) physical complaints are experienced.

[0005] The invention therefore has the objective of easing the work of a person serving in the hotel, restaurant and catering industry, in particular the manipulation of a serving system or serving tray of the specified type.

[0006] To this end the invention provides a serving system of the type specified in the introduction, with the characteristic properties in accordance with claim 1.

[0007] Study of the physical posture when serving with a serving system, in particular a serving tray, has led to the realisation that a serving system is more easily held - with the tray horizontal - with a hand which is around an elongate vertically oriented hand grip than with a hand with a more or less flat palm in a horizontal orientation in order to support the underside of the tray. In the first-mentioned hand position the muscles of the relevant arm are less extended, which leads to better control of the serving system and fewer injuries, also if other actions with the hand are carried out with the other hand while carrying the serving system and while serving.

[0008] As well as the reduction in injuries the threshold for the use of the serving system is also lowered, so that

less experienced waiters will be almost immediately in a position to serve, using a serving system as described in accordance with the invention.

[0009] It further appears that the lifting and setting down of a serving tray in accordance with the invention is easier, leading to a reduction in the above-mentioned negative effects of falling serving trays and/or health complaints. That lifting is facilitated can be understood as follows. Where the serving tray in accordance with the technical state of the art as described in WO 2010/151151 A1 requires a hand grip to be fitted to it by inserting it under the tray, while the serving tray is held steady by one hand, the serving tray in accordance with the invention makes it possible to lift it with both hands and subsequently to take hold of the elongate element which slides of its own accord into the working position, subsequently to serve as a hand grip, if desired with continuing support of the serving system with both hands at the same time.

[0010] When setting down it is no longer necessary to remove the hand grip, here again with one hand, while the other hand holds the serving system steady, instead this slides upwards of its own accord to the rest position as soon as the serving system is placed on a table or similar surface. In this way the person serving can continue to use both hands for the serving system, or keep one hand free in order to do other things, such as opening a door or holding onto a stair handrail.

[0011] In an advantageous embodiment the raised periphery at the opening of the tray on the upper surface is provided with a downward-inclined element narrowing towards the bottom, while the engagement element of the elongate element is provided with a downward oriented narrowing, which sloping element and which narrowing combine when the elongated element is in its working position to prevent the aforementioned elongated element falling. In this way the elongate element is relatively easily retained in the opening without much play, which encourages the stable retention of the serving system. In the case of a rotationally symmetrical arrangement of the elongate element and the opening it is also possible to rotate the tray with respect to the elongate element, which can facilitate the service of the items on the tray in some circumstances.

[0012] In one embodiment the elevated wall is implemented as a separately demountable element of the serving system, whereby the opening in the tray can be provided with a screw thread. In this way for example a retro-fit implementation can be obtained, on the basis of an already existing serving system, by creating an opening in this and fitting the element.

[0013] In another embodiment the engagement element is provided with a shock-dampening provision, for example an elastic ring made of plastic. This may also have a sound-deadening effect when the elongate element drops down.

[0014] In a further embodiment the elongate element is removable by moving it upwards past the rest position.

[0015] In an embodiment the elongate element is provided with a bevel at its upper extremity, narrowing towards the top, and the opening in the tray is provided with a bevel at its lower extremity widening towards the bottom, into which the above-mentioned narrowing bevel fits. In this way the elongate element can be used by inserting it from below following the picking up of the serving system, as in the technical state of the art described above, which may be desired in certain situations and/or by experienced serving persons.

[0016] The invention also relates to a stacking serving system in accordance with claim 9. Such a system solves similar disadvantages of the technical state of the art and offers analogous advantages, with however the additional benefit that two or more serving systems can be linked together one above the other and carried at the same time, and thereby also several trays with items to be served can be placed and carried, while retaining the advantages of easy use and reduced burden on the serving person described in independent claim 1. Furthermore the linked serving systems are also useable separately, once the coupler has been removed. The elongate elements can also take the form of a tube while the coupler takes a cylindrical form with a diameter which fits to connect to the elongate elements and is provided at a distance from both extremities with a stop on the exterior, impeding the sliding past this stop of an elongate element as mentioned. In this way a rotationally symmetrical arrangement is achieved, which may also be simpler to assemble and disassemble.

[0017] The invention will now be described in further detail with reference to the figures below, where:

Figure 1 shows a transverse section of a serving system in accordance with an embodiment of the invention, and

Figure 2 shows a side view of a coupler which forms part of a stacking serving system in accordance with the invention.

[0018] Figure 1 includes a serving system 1 and a flat tray 2 which is provided over at least part of its circumference with an upstanding rim 3, whereby the tray is provided with an opening 4, with an upstanding rim 5, which serving system 1 includes an elongate element 6, here a hollow metal tube 7 including rings 8 and 9, which protrudes from the underside of the tray 2 to form a hand grip.

[0019] The elongate element 6 extends through the opening 4 in the tray 2 and is slideably positioned between the working position shown in the drawing, in which position it protrudes from the underside of the tray 2, and a rest position in which the lower extremity is at the same height as or higher than the underside of the tray.

[0020] The elongate element 6 is prevented from falling out of the opening 4 through the provision of a ring-shaped stop 8, which is pressed and clamped onto tube 7 and which lies up against a bevelled-off section 10 of

the raised rim 5.

[0021] Alternatively the elongate element 6 can be moved upwards in the opening 4, until the plastic protective ring 9 lies up against the bevelled rim 11 below the tray 2. In that position the elongate element 6 no longer protrudes beneath the lower surface of the tray 2.

[0022] The stop 8 lies adjacent to the upper side of the elongate element 6 and in addition to a bevel 12 on its lower side which combines with the bevel 10 of the raised rim 5 is provided with a second bevel 13, narrowing towards its upper extremity. The latter widens towards the bottom and the inclined side 14 of the plastic protective ring 9 fits within it.

[0023] The raised rim 5 is formed as a separately removable element of the serving system, consisting of a tubular element 15 provided with an internal screw thread and a ring 16 provided with an internal thread which is threaded onto tubular element 15 and together with a radial flange 17 which is an integral element of tube section 15 clamps part of tray 2 and is in this way attached to the tray 2.

[0024] In a variant of this which is not shown the raised rim 5 consists of a single element, namely a tube provided with an external screw thread which tightens into an internal screw thread in a cylindrical opening in the tray 2.

[0025] Around the stop 8 lies a cylindrical ring 18 made in soft plastic, which serves to dampen shock and noise when the elongate element 6 almost reaches the stop 8 when falling downwards.

[0026] The elongate element 6 is removable from the opening 4 by moving it upwards past the rest position, after the plastic protective ring 9 has been loosened. Once the elongate element 6 has been removed there is space to remove items to be served, for example beer glasses, from the location of the opening 4. This is in particular the case where the threaded ring 16 around tube element 15 has a diameter whereby an intervening space is created between the items placed on the tray 2, as in the embodiment shown. The tubular element 15 is around 32 mm high here, and the threaded ring 16 has a diameter of around 54 mm.

[0027] In the example embodiment shown the plastic protective ring 9 is fabricated in soft plastic and is easily removed by sliding, but in another embodiment not shown this may be fabricated in metal and be connectable by screwing to the elongate element 6, so offering the possibility of also lifting the serving tray by grasping the end of the elongate element 6 which protrudes above the tray 2.

[0028] In Figure 2 a tubular coupling piece is visible which has two ends, 19a and 19b, as well as a widening 20 located close to the middle of the coupler 19, as viewed in the longitudinal direction.

[0029] Two serving systems in accordance with Figure 1 can be coupled together to form a stacking serving system, by sliding the end 19a of the coupling piece 19 into the lower end of the first elongate element 6 and the end 19b into the upper end of the second elongate ele-

ment 6. The two elongate elements 6 can thereby be located with the stop 8 either below or above the raised rim 5 in question, depending on the desired manner of use. The benefits of slideability are however only obtained if the stop 8 is positioned above the raised rim 5, at least in the case of the lower serving system. Clearly three or more systems can also be coupled together.

[0030] Variants on the example embodiment provided above are also possible which fall within the scope of the invention defined in the claims. So for example the opening 4 instead of being located centrally can also be located in an out of centre position, for example, depending on the anticipated use and loading method for the serving tray, in order to relocate a load further towards the forearm of a serving person which is positioned under the tray 2. The serving tray may in addition be rectangular, and the opening 4 may be located on one of its longer sides, so that the serving person can easily rest the serving tray on his or her forearm. Also the serving tray may be manufactured in other materials apart from those mentioned above, including for example stainless steel, aluminium and a variety of plastics, matched to the specific requirements of the intended application in relation to durability, hygiene, strength, visual appearance and other factors.

Claims

1. A serving system (1) comprising:

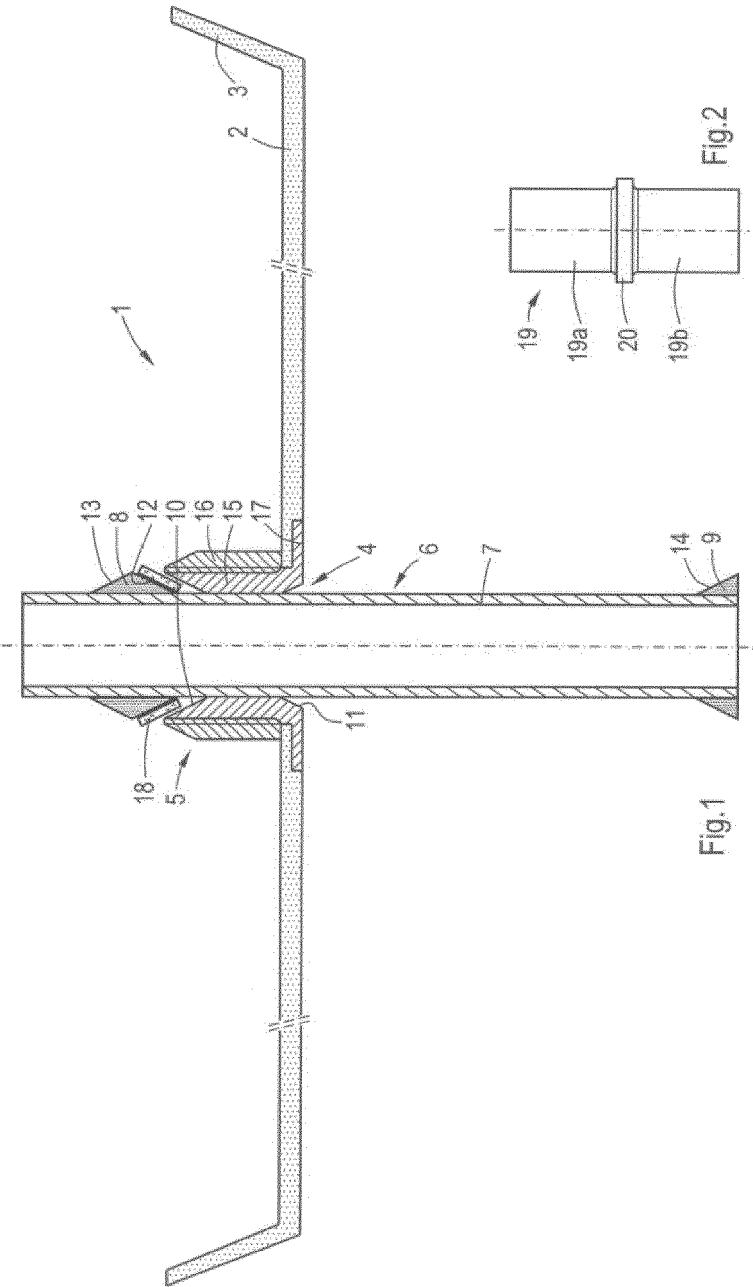
- a tray (2) provided with an upstanding rim (3) over at least part of its perimeter;
- where the tray (2) is provided with an opening (4);
- which serving system includes an elongate element (6) which protrudes at least partially from the underside of the tray in order to form a hand grip;

characterised in that:

- the tray (2) is provided at the opening (4) with a raised inner rim (5);
- the elongate element (6) extends through the opening in the tray and is slideable between the position mentioned where it protrudes at least partially from the underside of the tray, which position is referred to as the working position, and a rest position, in which rest position the lower extremity lies at the same height as the underside of the tray or higher, and;
- the elongate element (6) is provided with at least one stop (8), which stop (8) impinges upon the raised inner rim (5) of the specified opening in the tray when the elongate element (6) is in the working position and so impedes the elongate element falling down past the working po-

sition.

2. A serving system in accordance with claim 1, **characterised in that** said raised inner rim (5) around the opening (2) in the tray is provided at its upper end with an inclined section (10) narrowing towards the bottom, and said stop on the elongate element (6) is provided with a narrowing (12) towards the bottom, which inclined section (10) and which narrowing (12) combine when the elongate element (6) is in the working position to prevent the falling downwards mentioned.
3. A server system in accordance with any one of the foregoing claims, **characterised in that** the raised inner rim (5) mentioned is implemented as a separately removable part of the serving system.
4. A serving system in accordance with claim 3, whereby the opening in the tray is provided with a screw thread.
5. A serving system in accordance with any one of the foregoing claims, whereby the stop is provided with a shock dampening facility (18).
6. A serving system in accordance with claim 5, whereby the shock dampening facility (18) is an elastic ring, for example in plastic.
7. A serving system in accordance with claim 6, whereby the elongate element (6) is removable by moving it upwards past the rest position.
8. A serving system in accordance with any one of the foregoing claims, whereby the elongate element (6) is provided close to its upper end with a bevel (13), narrowing towards its upper end, and the opening in the tray is provided with a bevel (14) on its underside which widens towards the bottom and into which the narrowing bevel mentioned fits.
9. A stacking serving system, consisting of two or more serving systems (1) in accordance with claim 8 as well as a removable coupling piece (20) which is arranged so as to connect the lower extremity of the elongate element of the first serving system to the upper extremity of the second serving system.
10. A stacking serving system in accordance with claim 9, in which the elongate elements (6) are tubular in form and the coupling piece (19) is cylindrical, with a diameter which fits closely within the elongate elements and which is provided on the exterior at a distance from each end with a stop (20) which impedes the sliding of the elongate element mentioned past that stop.





EUROPEAN SEARCH REPORT

Application Number
EP 13 19 2000

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2 372 073 A (FLOURNOY ALGERNON F) 20 March 1945 (1945-03-20) * page 2, column 1, line 11 - column 2, line 6; figures 4,5 *	1,3,7	INV. A47G23/06
A,D	W0 2010/151151 A1 (PARSONS BRYAN [NZ]) 29 December 2010 (2010-12-29) * page 7, line 11 - page 18, line 7; figures *	1	
X,P	DE 20 2012 004490 U1 (GLAS BERNHARD [DE]) 25 January 2013 (2013-01-25) * paragraph [0003] - paragraph [0005]; figures *	1,7	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47G
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 18 March 2014	Examiner Vistisen, Lars
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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18-03-2014

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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