SET OF CONTAINERS, INTENDED TO BE STORED AND/OR TRANSPORTED BY PILING

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ABSTRACT

The invention concerns a set of containers each comprising a receptacle (I') which includes a base provided with anchor means and a cover (I) which includes a top provided with anchor means (4, 5, 16, 17, 18), whereby the dimensions of the base and of the top of the same container are identical to each other, but different from one container to another. The invention is characterised by the fact that each cover and receptacle are complemented with stabilisation means (9, 10) provided with anchor means and by the fact that a constant distance separates the anchor means and the stabilisation means for each cover and receptacle of the containers of the set, in such a manner that in a piling, the containers are off-centred in the direction of the stabilisation means.
SET OF CONTAINERS, INTENDED TO BE STORED AND/OR TRANSPORTED BY PILING

FIELD OF THE INVENTION

[0001] The present invention concerns a set of containers, in particular cylindrical, roughly cylindrical, rectangular or roughly rectangular, intended to be stored and/or transported by means of assembly, more particularly by piling or stacking.

[0002] More precisely, the invention relates to a set of containers of the type comprising a receptacle which includes a transverse wall formed by a base provided with one or several identical or different anchor means, and a cover which includes a transverse wall formed by a top provided with one or several identical or different anchor means, whereby the dimensions of the base and of the top of a same container are identical to each other, but different from one container to another and whereby each of the anchor means located at the level of each cover top are able to co-operate, by encasing, with an anchor mean of a complementary external shape located at the level of each receptacle base, forming within said set of containers one or several groups of anchor means of a complementary external shape.

BACKGROUND OF THE INVENTION

[0003] Musical instruments like percussion instruments such as a bass drum, a snare drum, cymbals or tambourine, are usually stored by means containers of a shape, which is adapted to the object to be stored. The diversity of percussion instruments and their shapes, which are often very different, implies the use of containers with the most varied dimensions. The transport of a set of such diverse containers is generally carried out after their piling in a pyramidal shape. In spite of a good centring of containers on the subjacent container, the stability of such a modular system remains precarious and involves the risk of serious inconveniences, for instance when the piling must be inclined or when it is subjected to accelerations and/or deaccelerations of a transport vehicle.

[0004] By way of example, a pyramid-shaped piling of containers intended for cosmetics has been described in DE 200 11 097 U1.

[0005] These containers all have an identical shape, but different dimensions, and each is provided with a removable cover. On the other hand, the bottom of each container is provided externally with a recess, which is able to co-operate with a relief on the level of the immediately subjacent cover, so as to prevent the displacement of said container on said cover.

[0006] In addition, the containers and covers of such a piling are positioned on top of each other in accordance with a central symmetrical axis, which ensures that the piling formed has the shape of a regular pyramid. However, such a configuration should be avoided in certain circumstances because of instability problems, particularly in case of the transport of such a piling in an inclined position.

SUMMARY OF THE INVENTION

[0007] The purpose of the present invention is to propose a set of containers, of the type indicated above, which allows to remedy the above-mentioned inconveniences, i.e. consisting of modular elements of a simple design and with sufficient stability to form a piling which can be displaced without major difficulties.

[0008] To achieve this goal, the containers in accordance with the invention are characterised by the fact that transverse wall of each cover and the transverse wall of each receptacle are complemented, externally and on the periphery, by stabilisation means which are themselves provided with anchor means and whereby the anchor means and stabilisation means located on the level of each transverse wall of the cover on the one hand and the anchor means and stabilisation means located on the level of each transverse wall of the receptacle on the other hand are equidistant from each other, with said anchor means located on the level of the transverse walls of the covers and receptacles forming a part of the same group of anchor means of complementary external shapes.

[0009] Thus, in accordance with the invention, the containers each have a cover and a receptacle, both comprising a transversal wall provided with stabilisation means, which in turn are provided with anchor means.

[0010] The cover is complemented by a lateral skirt along the perimeter of its transverse wall and its stabilisation means, while the receptacle is complemented by a lateral envelope along the perimeter of its transverse wall and its stabilisation means.

[0011] However, according to the invention, the containers, which form a part of the same set, essentially differ from each other because of the dimensions of their cover tops and receptacle bases, while the overall configurations of their perimeters may be identical or different.

[0012] More precisely, on the inside of such a set, while the cover top and receptacle base of the same container generally have the same dimensions, they vary from one container to the other of the set; also, while the perimeters of the cover top and receptacle base of the same container have the same general configuration, these may vary from one container to another of the set.

[0013] By way of example, containers which are each provided with a cover top and receptacle base, both circular and with the same diameter, differing however from one container to another, may constitute a set of containers in accordance with the invention. Similarly, another set of containers in accordance with the invention may be formed, for example, by containers which are each provided with a cover top and receptacle base, both of a rectangular shape and with the same dimensions, although the dimensions may vary from one container to another.

[0014] Nevertheless, containers with cover tops and receptacle bases which have an identical overall shape, for instance circular, and containers with cover tops and receptacle bases with different overall shapes, for instance rectangular, may also constitute a set of containers according to the invention.

[0015] Also, in the description below as well as in the claims, the expression “dimensions of a container” will indicate the identical dimensions of the cover top and receptacle base of a container of the invention.
The containers of the invention forming a part of the same set may be assembled by means of juxtaposition in a particularly advantageous manner, from the cover top of one container and the receptacle base, with smaller dimensions, of another container placed on top along a vertical axis and, if necessary, by repeating this operation successively with other containers of the set, to form an assembly by stacking.

However, another type of assembly may be realised as well from the top of a first container with the receptacle base of a second container, by means of juxtaposition along a horizontal axis and by repeating this operation successively with other containers of the set, if necessary. The assembly, in this case, is realised by means of a side-by-side alignment of the containers.

In accordance with a particular type of realisation, containers forming a part of the same set may serve as a basis or support for various different pilings of containers included in this set. This is the case, for instance, for a container with an overall rectangular shape supporting a piling of containers on both extremities of the top.

In any case, with these types of assembly, each base of a juxtaposed container has a dimension smaller than the top of the adjacent container, or the subjacent container when it concerns a piling.

Whether it concerns superposition or alignment, the assembly by means of juxtaposition of containers in accordance with the invention, the base dimensions of which are smaller than those of the cover top of another immediately adjacent container, necessitates the use of appropriate means to hold them in place efficiently and to limit lateral movements due to sliding, particularly when the juxtaposed container is placed on top of another container of the invention. For this purpose, anchor means provided on the level of the cover top of the largest container have been provided for, which are able to co-operate with the anchor means on the level of the receptacle base of the immediately adjacent container.

These anchor means have the shape of a first protuberant mean, projecting from the exterior surface of the cover top of a container which can make contact with a second recessed mean on the exterior surface of the receptacle base of an adjacent container. These anchor means may co-operate with each another because of the complementarity of their exterior shapes and, for this reason, constitute a couple of anchor means with complementary shapes, which ensure maximum contact by encasing.

These anchor means with complementary exterior shapes will be indicated below by "complementary anchor means".

On the other hand, on the inside of a set of containers in accordance with the invention, each cover top is provided with an identical anchor mean and each receptacle base is also provided with an analogous anchor mean with an exterior shape complementary to the exterior shape of the anchor mean of the cover top. This way, the anchor mean on the level of each cover top can be combined with the anchor mean on the level of each receptacle base to form identical couples of complementary anchor means, whereby the set of anchor means constitutes a group of complementary anchor means.

The result is that the plane transverse walls of the top and receptacle of the same container, having the same dimensions, the same perimeter configuration and provided with complementary anchor means, will have exterior shapes entirely complementary to each other. This particularity is the case for each of the containers of the set, regardless of their own dimensions.

In certain cases, however, the receptacle base of the container may not be provided with anchor means, particularly when this container is the basic modular element of a piling, whereby no container is juxtaposed subjacent to this modular element.

Due to the above-mentioned characteristics, it is be possible, consequently, to add or take away one or several containers from a set, for example a piling, of containers in accordance with the invention forming a part of the same set.

Usually, to increase the stability of juxtaposed containers in such an assembly by means of piling in particular, the cover tops and receptacle bases of containers of the same set are preferably provided with several groups of anchor means with shapes complementary to each other, whereby these complementary shapes may be identical or different from one group to another.

Preferably, 1 to 7, for example 3 to 5, complementary anchor means per cover top or receptacle base are used on the level of the containers in accordance with the invention.

Also, in the description below as well as in the claims, the expression "transverse walls with complementary shapes" will indicate a transverse wall of a cover and a transverse wall of a receptacle, the tops and bases of which will be provided with one or several complementary anchor means, respectively.

According to another characteristic of the invention, these complementary anchor means consist of:

on the level of the top, one or several relief features, originating from the plane of the top, formed by protuberant portions, the flat tops of which are located in at least one plane parallel to this cover top,

on the level of the receptacle, one or several incised features originating from the plane of the base, formed by recessed portions, the flat bottoms of which are located in at least one plane parallel to this receptacle base,

whereby these anchors are able to co-operate by encasing.

To increase the stability of an assembly of containers with different dimensions forming a part of the same set, one or several stabilisation means have been provided, in accordance with the invention, on the level of the receptacle and cover of each container, preferably identical stabilisation means in order to ensure the maximum stability pursued.

Thus, in accordance with another characteristic of the invention, the stabilisation means consist of at least two excrescences, usually two excrescences, of the transverse wall of the cover on the one hand, particularly at least two excrescences in the plane of the top and at least two excrescences, usually two, of the transverse wall of the
receptacle, particularly at least two excrescences in the plane of the base, on the other hand.

[0035] According to a supplementary characteristic of the invention, these excrescences originate on the one hand from a plane located between and including the cover top and the plane defining the flat top—of a protuberance—which is the farthest from this cover top and on the other hand, from a plane located between and including the receptacle base and the plane defining the flat bottom—of a recessed portion—the farthest from this receptacle base.

[0036] In addition, in accordance with another characteristic of the invention, these excrescences, when not forming an extension of the plane of the cover top or the receptacle base, originate from a plane preferably belonging to an anchor mean of the top or base.

[0037] According to a preferred realisation mode, the excrescences on the level of the transverse wall of the cover originate from the plane of the top, while the excrescences on the level of the transverse wall of the receptacle originate from the plane defining the flat bottom which is farthest from the base.

[0038] The anchor means provided on the level of the transverse walls of the cover and receptacle are generally analogous with the anchor means on the level of the cover top and on the level of the receptacle base, respectively.

[0039] Preferably and in accordance with other characteristics of the invention, the anchor means provided on the level of the stabilisation means which complement the transverse wall of the top, for example the excrescences of the top plane, are made of studs, for example with a significantly truncated conical exterior shape, while the anchor means on the level of the stabilisation means complementing the transverse wall of the receptacle, for example excrescences of the base plane, are made of cavities, the shape of which is complementary or significantly complementary to the exterior shape of the studs, so that these different anchor means can co-operate efficiently by encasing.

[0040] These cavities generally represent the interior part of a portion of a tubular adapter, forming a housing, whereby said portion of a tubular adapter may be partially hollowed out, if necessary.

[0041] According to a preferred realisation mode, the anchor means on the level of the excrescences of the cover top plane are made of studs as described above, while the anchor means on the level of the excrescences originating from the plane defining the flat bottom farthest from the receptacle base are made of portions of a tubular adapter as described above, with these anchor means being able to co-operate by encasing.

[0042] Alternatively, the anchor means on the level of the excrescences of the transverse wall of the receptacle, for example excrescences of the base plane, are made of studs as described above, while the anchor means provided on the level of the excrescences of the transverse wall of the cover, for example excrescences of the top plane, are made of cavities with a complementary shape as described above, with these anchor means being able to co-operate between them by encasing.

[0043] On the other hand, to improve even more the stability of assemblies by superposition or alignment of containers of different dimensions belonging to the same set, the anchor means provided on the cover tops and the additional anchor means provided on the receptacle bases are positioned, according to the invention, in a particularly advantageous manner.

[0044] Thus, generally speaking, the anchor means in question are positioned in such a manner that on the level of the cover top or receptacle base of the same container, a constant distance separates the anchor means on the surface of this top and the stabilisation means extending from the transverse wall of the cover, preferably the top of this cover on the one hand, from the complementary anchor mean on the surface of this base and the stabilisation means extending from the transverse wall of the receptacle, particularly the plane defining the flat bottom farthest from the base, on the other hand.

[0045] This characteristic applies to all the complementary anchor means of the same group belonging to the same set of containers in accordance with the invention.

[0046] Consequently, the complementary anchor means forming a part of several groups are spread, in accordance with the invention, in such a manner that, for each group, the distance separating:

[0047] the anchor means on the level of the transverse wall of the covers, in particular the top, and the stabilisation means extending this transverse wall, on the one hand, and

[0048] the anchor means on the level of the transverse wall of the receptacles, in particular the plane defining the flat bottom farthest from the base and the stabilisation means extending this transverse wall, on the other hand,

is identical for each group, while varying from one group to another.

[0049] Similarly, in an assembly of containers belonging to the same set, regardless of their dimensions, the complementary anchor means on the level of the covers and receptacles juxtaposed by means encasing, are spread over one or several rectilinear alignments in the assembly, depending on whether the anchor means form one or several groups of complementary anchor means, whereby these alignments are parallel with the rectilinear alignments formed by the stabilisation means as well as their own anchor means.

[0050] Containers in accordance with the invention which form a part of the same set are assembled with anchor means, provided on the level of the cover top of a first container on the one hand and provided on the level of the stabilisation means extending this cover on the other hand, through encasing in the anchor means on the level of the receptacle base of a second container and in the anchor means on the level of the stabilisation means extending this receptacle, respectively.

[0051] This operation may be repeated with one or several other containers of the set, starting from the cover of the second container on top of it and/or the base of the first, in order to produce an assembly, the base of which has larger dimensions than the top.
In such an assembly, whether it concerns superposition or alignment, each container is off-centre compared to the adjacent container, in the direction of the stabilisation means of this adjacent container which are aligned in the common planes; during assembly, each anchor mean of the cover of a container co-operates with a complementary anchor mean of the receptacle of the juxtaposed container, if there is one.

Consequently, in accordance with another of its objects, the invention concerns an assembly of the encasing or alignment type as mentioned above, characterised by the fact that each container of the assembly is off-centre in the direction of the stabilisation means of the adjacent container.

In addition, in accordance with an additional characteristic, when making contact, the anchor means on the level of the cover of a container of the assembly and the complementary anchor means on the level of the receptacle of an adjacent container, on the one hand, and the anchor means on the level of the stabilisation means of a container and the complementary anchor means on the level of a receptacle of an adjacent container, on the other hand, co-operate by encasing.

For these reasons, the resulting assembly will have the overall shape of a truncated cone or a truncated pyramid, both sectioned by a longitudinal plane, with the stabilisation means aligned longitudinally along the longitudinal plane of the section.

This also implies that in such an assembly, for each cover top provided with at least two stabilisation means and each receptacle base provided with at least two stabilisation means, at least a portion of the perimeter of the top and the base between two stabilisation means, respectively, is located in the same plane or is flush with the same plane.

Similarly, in such an assembly, for each cover provided with at least two stabilisation means and each receptacle provided with at least two stabilisation means, at least a portion of the perimeter of the lateral skirt of the cover and the lateral envelope of the receptacle between two stabilisation means, respectively, is located in the same plane or is flush with the same plane.

By way of example, one or two portions of the tops or rectangular bases between two stabilisation means may be aligned in the same plane or, in case of circular tops and base, flush with the same plane.

The containers in accordance with the invention are usually rotomoulded. They are preferably made of two separate pieces, i.e. the cover and the receptacle, each moulded in one piece and made of one or several materials. The container is generally made from thermoplastic polyolefin material(s). The containers in accordance with the invention are preferably made of a single polymer material, preferably polyethylene, which may be of a low density, linear low density, medium density or high density. Octane-based high-density polyethylene (HDPE) with a density of 0.940 to 0.965 g/cm³ and a crystalline density of 75-90% is a particularly preferred material for the production of containers in accordance with the invention because of its high impact resistance, while providing rigidity to the lateral envelope and lateral skirt, both having the desired thickness.

The invention will be better understood and other goals, characteristics and advantages will become clearer in the course of the explicative description which will follow with reference to the enclosed schematic drawings, which are only given by way of example to illustrate a type of realisation of the invention and in which:

FIG. 1 is a perspective drawing of a first type of realisation of the circular cover of a container in accordance with the invention.

FIG. 2 is a perspective drawing of a first type of realisation of the circular receptacle of a container in accordance with the invention.

FIG. 3 is a perspective drawing of a second type of realisation of the circular cover of a container in accordance with the invention.

FIG. 4 is a perspective drawing of a second type of realisation of the circular receptacle of a container in accordance with the invention.

FIG. 5 is a perspective drawing of a cylindrical container in accordance with the invention, showing a third type of realisation of the cover.

FIG. 6 is a perspective drawing of a cylindrical container in accordance with the invention, showing a third type of realisation of the receptacle.

FIGS. 7 and 8 are perspective drawings of different pilings of cylindrical containers in accordance with the invention.

FIG. 9 is a plan drawing of the rectangular cover of a container in accordance with the invention.

FIGS. 10 and 11 are plan drawings of different pilings of cylindrical and rectangular containers in accordance with the invention.

DETAILED DESCRIPTION OF THE INVENTION

As shown in FIG. 1, the top of cover 1 of a container in accordance with the invention occupies a circular section of a lower plane a, a circular section of perimeter p and centre C.

Overall, this circular section thus defines the top of cover 1, portions 2 and 3 of which are visible. On the other hand, FIG. 1 also shows various relief features, more precisely the protuberances of flat tops 4 to 8 defined by an upper plane i, parallel with plane a, whereby these protuberances originate from the cover top.

In addition, it is noted that the concentric circular edges of C which run alongside the protuberances of tops 4 and 5 give it a ring shape, that the connecting walls of tops 4, 6 and 8 to portion 2 of the cover top and the connecting walls of tops 5, 7 and 8 to portion 3 of the same cover top are orthogonal to planes a and P and that diameter d of the cover top forms the symmetry axis for all the relief features 4 to 8 shown in FIG. 1.

Moreover, it can be remarked that flat top 8, centred longitudinally on diameter d, is bordered by two parallel longitudinal ridges, while flat tops 6 and 7, which are in turn lined by the edges formed by the circular portions centred in c on diameter d, are positioned on both sides of top 8, along the longitudinal ridges.
Thus, the visible portions 2, 3 of the cover top as well as the various flat tops 4 to 8 and their respective walls together form the outer transverse wall of top 1.

Conversely, on the level of receptacle 1' of the container in accordance with the invention, FIG. 2 shows a circular section of an upper plane p', a circular section of perimeter p' and centre C. Overall, this circular section thus defines the base of receptacle 1', portions 2' and 3' of which can be seen.

In addition, FIG. 2 also shows various incised features represented by the recesses with flat bottoms 4' and 8' defined by a lower plane p, parallel with plane p', whereby these recesses originate from the receptacle base.

It can also be noted that the edges running alongside bottoms 4' and 5' are circular and centred on C, and that the connecting walls of flat bottoms 4', 6' and 8' to portion 2' of the receptacle base and flat bottoms 5', 7' and 8' to portion 3' of the same cover base are orthogonal to planes p' and p, while diameter d' of the receptacle base forms the symmetry axis for all the incised features 4' and 8' in FIG. 2.

In addition, it may be noted that flat bottom 8', centred longitudinally on diameter d' is bordered by two parallel longitudinal ridges, while flat bottoms 6' and 7', which are lined by the edges consisting of circular portions centred on d' on diameter d', are positioned on both sides of bottom 8', along its longitudinal ridges.

Thus, visible portions 2', 3' of the receptacle base as well as the various flat bottoms 4' to 8' and their connecting walls to this base together form the outer transverse wall of receptacle 1'.

A comparison of the relief features on the level of the top cover in FIG. 1 and the incised features on the level of the receptacle base in FIG. 2 allows an overall complementarity of the transverse walls thus created, in such a manner that the outer transverse wall of the cover will encase in the transverse wall of the receptacle base.

Referring to FIGS. 1 and 2, it is also remarked that the circular portions of plane a and plane b' locally extend into exterior excrescences 9 and 10 on the level of cover 1 and in analogous excrescences 9' and 10' on the level of receptacle base 1'.

Indeed, the edges of these excrescences 9 and 10 on the one hand and 9' and 10' on the other hand, symmetrically originate from diameter d or diameter d', respectively, and curve on the same side with regard to orthogonal diameter d or d', respectively, and then connect tangentially with the circular portion of plane a (cover top) or with the circular portion of plane p' (receptacle base), respectively.

Besides, FIGS. 1 and 2 show that excrescences 9 and 10 of cover 1 are provided with studs 11 and 12, respectively, which are slightly less high than flat tops 4 to 8 and, conversely, excrescences 9' and 10' of receptacle base 1' are provided with housings 11' and 12', with an interior shape which is complementary or significantly complementary with that of studs 11 and 12, which can encase with the housing in question.

In addition, FIG. 1 shows that the set consisting of cover top 1 provided with excrescences 9 and 10 is bordered, along its entire perimeter, by a lateral skirt 13 orthogonal to plane a.

This set thus forms a single piece, preferably moulded from high-density polyethylene, for instance.

Also, FIG. 2 clearly shows that receptacle base 1' provided with excrescences 9' and 10' is also bordered by a lateral envelope 13', which is less high than skirt 13. This envelope, orthogonal to plane b, closely follows the perimeter of base 2, provided with excrescences 9' and 10'. The resulting set consists of a single piece, preferably moulded from high-density polyethylene, for instance.

In accordance with another type of realisation shown in FIG. 3, circular cover 1 is identical to the cover in FIG. 1. However, the flat tops of the protuberances originating from the lower plane a are located not in one but in two different planes, parallel to plane a, i.e. a plane b which defines flat tops 4, 5 and 8 and an intermediate plane γ which defines tops 14 and 15, the connecting walls of top 8 to tops 14 and 15, orthogonal to plane γ.

Identically, FIG. 4 shows circular receptacle 1', identical to the receptacle of FIG. 2 with the difference that, instead of a single plane, the incised features are located in two different planes parallel to plane a, i.e. a lower plane b' which defines flat bottoms 4', 5' and 8' and an intermediate plane γ' which defines flat bottoms 14' and 15', the connecting walls of flat bottom 8' to flat bottoms 14' and 15', orthogonal to plane γ'.

As in FIGS. 1 and 2, a complementarity exists between the protuberances of flat tops in FIG. 3 and the recesses with flat bottoms in FIG. 4, such that the outer transverse wall of the receptacle can encase itself with the outer transverse wall of the cover.

The relief or incised features of tops 14, 15 in intermediate plane γ and flat bottoms 14', 15' in intermediate plane γ', respectively, form complementary anchor means which add to the rigidity of the outer transverse walls of the cover and receptacle, respectively.

FIG. 5 shows a container in accordance with the invention comprising a receptacle 1', with a circular base, the lateral wall of which is visible in 13' and a cover 1, with a circular top provided with a lateral skirt 13. This cover is attached to the receptacle, by encasing, in such a manner that the set formed defines a chamber which can accommodate a significantly cylindrical object, for example a musical percussion instrument such as a tambourine or a snare drum.

The cover has an overall configuration analogous with the configuration shown in FIG. 3, which also has protuberances, originating from plane a, tops 4, 5 and 8 of which are defined by plane b and tops 14 and 15 by plane γ. However, these tops 14, 15 each have slight depressions, bottoms 16 and 17 of which are located in the same plane δ, parallel with plane a, while top 8 also has a slight depression, bottom 18 of which is defined by a plane coinciding with plane δ or a different plane, parallel with plane a, respectively.

These level differences of tops 8, 14 and 15 particularly help to increase the rigidity of the outer transverse wall of the cover, but also serve as housings for various accessories. Thus, the level differences of bottoms 16, 17 may accommodate, if necessary, a covering such as a shockproof covering, fastened by means of gluing for instance.
To increase the cover’s mechanical resistance even more, most tops can have different features forming a relief and be joined with their respective portion of the outer transverse wall by means of connecting walls extending in the direction of their lower edges at an angle of less than 90°, compared with the normal angle. This angle is generally between 5° and 50°.

This is the case particularly with regard to the walls connecting tops 4, 6, 8, 14 and 5, 7, 8, 15 with portions 2 and 3 of the cover top, respectively, as well as the walls connecting top 8 with tops 14, 15 and bottoms 16, 17.

FIG. 5 also shows in 19, on the level of the cover, a longitudinal groove with a flat bottom serving as housing for a portion of a closing strap and in 20, on the level of the receptacle, the same extending groove, while grooves 21 to 24, on the outside of the cover, ensure that a liquid can run off which may cover the outer transverse wall.

To facilitate this run-off and to increase the wall’s mechanical resistance even more, it may be slightly rounded or convex, in particular to absorb the compression forces generated by the weight of a superimposed container.

Conversely, FIG. 6 shows the same container as in FIG. 5, of which it clearly shows receptacle 1’. It is noted that this receptacle has an overall configuration analogous to that of FIG. 4, and it is also provided with incised features, the flat bottoms 4’, 5’ and 8’ of which are located in plane P and the flat bottoms 14’ and 15’ of which are located in plane γ. These flat bottoms 14’ and 15’ each have slight protuberances, the tops 16’ and 17’ of which are defined by a same plane δ, parallel with plane α’, respectively.

The level differences of flat bottoms 14’ and 15’ particularly reinforce the rigidity of the outer transverse wall of the receptacle.

As in FIGS. 1, 2 and 3, 4, respectively, the exterior shapes of the outer transverse walls of the cover and receptacle are complementary and can encase.

However, when the level differences 16, 17 on the level of the top of a container are provided with a covering, flat bottoms 16’, 17’ of which will preferably be omitted and be flush with flat bottoms 14’, 15’, respectively.

Besides, it is noted in FIG. 5 that the grooved portion 25’ of the lateral wall of the receptacle, as well as grooved portion 25 of the lateral wall of the cover in FIG. 4 may serve as support for a closing strap.

Thanks to all the characteristics illustrated, it is easy to make any piling whatsoever of containers of the same configuration, but with different dimensions.

FIGS. 7 and 8 show such pileings; in FIG. 7 two containers 26, 27 can be distinguished which are identical to the container shown in FIGS. 5 and 6, of which 27 is superimposed on 26. FIG. 8 shows five containers 28 to 32, identical to the container shown in FIGS. 5 and 6, four of which are superimposed on container 28.

In such modular assemblies, housings 11’ and 12’ (not visible) of container 27 are meant to co-operate by encasing with studs 11 and 12 (not visible) of container 26, while the transverse wall of receptacle 33 of container 27 is supported by the transverse wall of cover 34 in such a manner that the anchor means on the level of receptacle 33 co-operate with the anchor means on the level of cover 34. The support areas 2’ and 3’ (not visible) on the level of receptacle 33 are consequently wedged between the walls of tops 4, 14 (not visible) and 5, 15 (not visible), respectively.

On the other hand, FIG. 8 clearly shows that each of the stabilisation means 9, 10 and 9’, 10’ of containers 28 to 32 form two separate sets of stabilisation means, flush with the same plane. Consequently, this piling may be supported by a vertical wall defined in the same plane or, after a 90° rotation, on a horizontal wall in such a manner that each container, by means of one of its stabilisation means, will be supported directly by the wall in question.

Also, this FIG. 8 shows that each of portions 25 and 25’ of the lateral skirts of the covers and the lateral envelopes of the receptacles, respectively, are also located in the same longitudinal plane, in such a manner that each container, by means of its portions 25, 25’ may be directly supported by a support capable of being inserted in each of the recesses 9, 10 and 9’, 10’.

According to a type of realisation different from FIG. 9, the cover with an overall rectangular shape of a container 33 shows, on the one hand, the circular anchor means 34 coupled with stabilising recesses 35, 36 and, on the other hand, the circular anchor means 37 with regard to the stabilising recesses 38, 39. On the other hand, the rectangular anchor means are visible in 40.

In addition, four anchor means 41 to 44 can be seen, consisting of tubular adapters partly hollowed out laterally and originating from recesses 35, 36, 38 and 39.

Thus, anchor means 34, 40, 41 and 42 can encase with the complementary anchor means (not visible) of the receptacle base of container 45, in FIG. 10, such as to form a first piling, while anchor means 37, 40, 43 and 44 may co-operate by encasing, if necessary, with the anchor means at the receptacle base of a container identical to container 43 or with different dimensions, in order to form a second piling on container 33.

An illustration of a double piling of this type, with each of these pileings consisting of two containers, i.e. 46, 47 and 48, 49, is visible in FIG. 11 and clearly shows the different dimensions of each of the containers.

Compared with the known containers destined for the storage and transport of musical percussion instruments, the containers in accordance with the invention forming a part of the same set offer undeniable advantages, combining simplicity, efficiency and safety, thus providing a preferred solution for the above-mentioned objects.

The containers in accordance with the invention particularly allow an undeniable improvement of the stability of a pyramid-shaped piling made with these containers, thanks to the shifting of the longitudinal axis of this set to significantly improved grouped stabilisation and anchoring areas.

Consequently, it will be convenient to place this modular set against any wall whatsoever, having a minimum number of support points for the piling.

This characteristic is particularly advantageous in case of transport, for example on board a vehicle, as the
conveniently oriented piling against a wall of this vehicle may involve less balance problems due to inertia, particularly when this piling is subjected to accelerations or decelerations.

Also, it may improve the transport of luggage by means of a trolley, as the lateral movements are minimised or even suppressed and any uncontrolled sliding will be avoided in case of inclination of the transport means. Indeed, the centre of gravity of the modular system is closer to the rotation shaft during transport, creating less risk of muscular tension and bodily injuries to users.

1. A set of containers, in particular cylindrical, slightly cylindrical, rectangular or slightly rectangular containers, intended to be stored and/or transported by assembling, more particularly by piling, of the type comprising:

   a receptacle which includes a transverse wall formed by a base provided with one or several identical or different anchor means,

   and a cover which includes a transverse wall formed by a top provided with one or several identical or different anchor means,

   the dimensions of the base and of the top of a same container being identical to each other and different from one container to another and each of the anchor means located at the level of the top of each cover being able to co-operate, by encasing, with an anchor mean of complementary external shape located at the level of the base of each receptacle forming within said set of containers one or several groups of anchor means of complementary external shape,

   wherein the transverse wall of each cover and the transverse wall of each receptacle are completed, externally and in the periphery, by stabilisation means which are themselves provided with anchor means and wherein the anchor means and the stabilisation means located at the level of each transverse wall of the cover on one hand and the anchor means and stabilisation means located at the level of each transverse wall of said receptacle on the other hand are equidistant to each other when said anchor means located at the level of the transverse walls of the covers and receptacles are part of a same group of anchor means of complementary external shapes.

2. The set of containers according to claim 1, wherein:

   the anchor means located at the level of the cover are made of one or several relief features that originate in the plan of the top of said cover, formed by protuberant portions which flat tops are located in at least one plan which is parallel to the top of the cover;

   the anchor means located at the level of the receptacle are made of one or several incised features that originate in the plan of the base of said cover, formed by recessed portions which flat bottoms are located in at least one plan which is parallel to the base of the receptacle,

   these anchor means being able to co-operate between them by encasing.

3. The set of containers according to claim 1, wherein the stabilisation means are formed by at least two excrescences of the cover transverse wall and by at least two excrescences of the receptacle transverse wall.

4. The set of containers according to claim 3, wherein the excrescences originate in the plan of the receptacle base.

5. The set of containers according to claim 3, wherein the excrescences originate in the plan of the cover top.

6. The set of containers according to claim 1, wherein the excrescences originate, on one hand, in a plan located between, and including, the top of the cover and the plan forming the farthest flat top with regards to said cover top and, on the other hand, in a plan located between, and including, the base of the receptacle and the farthest flat bottom with regards to said receptacle base.

7. The set of containers according to claim 1, wherein the excrescences originate in a plan that is part of an anchor mean of the top or the base.

8. The set of containers according to claim 7, wherein the excrescences originate in the plan forming the farthest flat bottom from the base.

9. The set of containers according to claim 1, wherein the anchor means provided at the level of the stabilisation means finishing the cover transverse wall are studs and wherein the anchor means provided at the level of the stabilisation means finishing the receptacle transverse wall are cavities which shape is complementary to the inner shape of the studs, said anchor means being able to co-operate between them by encasing.

10. The set of containers according to claim 1, wherein the anchor means provided at the level of the excrescences of the plan of the cover top are studs and wherein the anchor means provided at the level of the excrescences of the plan finishing the farthest flat bottom from the receptacle base are portions of tubular adapters forming a housing, said anchor means being able to co-operate between them by encasing.

11. An assembling of a set of containers according to claim 1, wherein each container is out of centre in direction of the stabilisation means of the adjacent container.

12. The assembling according to claim 11, wherein, once in contact, the anchor means located at the level of a container cover and the complementary anchor means located at the level of the receptacle of an adjacent container, on one hand, and the anchor means of the stabilisation means of a container and the complementary anchor means of the receptacle of an adjacent container, on the other hand, co-operate between them by encasing.

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