Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).
Description

[0001] The invention relates to a storage container, comprising a bottom construction and standing side walls, wherein the side walls are hingedly connected to the bottom construction, wherein the side walls can be folded down onto the bottom construction and wherein at least one side wall is divided into successive segments, and wherein successive segments are arranged hingedly relative to each other over substantially a whole width of the at least one side wall.

[0002] Such a storage container with a rectangular form is known in practice. The height of a side wall is reduced along the whole width thereof by folding an upper-lying segment of the side wall back over an adjacent segment lying thereunder. Loading and unloading of the storage container is thus facilitated. By folding down the side walls after use the storage container acquires a compact form, which is advantageous for instance during storage or return of the storage container.

[0003] A drawback of the known storage container is that storage containers which are stacked onto each other in the folded-down or upright position of the side walls can easily displace relative to each other. A stack of storage containers can hereby fall over easily during transport by truck, for instance as a result of sudden braking. This can cause damage to the storage container itself, to goods present in the storage container or to other goods present in a loading space of the truck.

[0004] It is an object of the invention to provide a storage container of the type stated in the preamble in which this drawback is obviated to an at least significant extent.

[0005] A storage container of the type stated in the preamble is characterized for this purpose in that a plurality of storage containers can be stacked onto each other in a stable stack in upright position of the side walls and/or in folded-down position of the side walls. Relative displacement of storage containers in a stack of storage containers is prevented. The chance of a stack of storage containers tipping over is thus greatly reduced, even for instance in the case of a hard impact against the stack. The storage container is therefore particularly suitable for use in a loading space of a container, for instance for a semitrailer.

[0006] A preferred embodiment of the storage container is characterized in that the storage container has standing parts which extend from the bottom construction for the purpose, in the folded-down position of the side walls, of nesting between the standing parts an underside of a further storage container. The standing parts have the additional advantage that they can form a support for the side walls of the storage container, so that the side walls can remain standing upright independently when they have not yet been fixed in a standing position. Placing of the storage container into a ready-to-use position from a position in which the side walls are folded down is hereby made easier. A further preferred embodiment of the storage container is characterized according to the invention in that the standing parts comprise profiles with a right-angled progression, wherein the profiles are provided at the position of corner points of the bottom construction. The profiles also increase the strength of the storage container. The profiles form protective structural parts for the storage container when the profiles are arranged externally relative to the bottom construction. The chance of damage to the storage container by impacts against the bottom construction at the position of a corner point thereof is thus reduced.

[0007] A particular embodiment of the storage container is characterized in that the storage container is provided with standing elements extending from a top side of at least two side walls for the purpose, in the standing position of the side walls, of nesting between the standing elements an underside of a further storage container placed on the storage container. Upper edges of the side walls of the storage container can herein form a support surface for the underside of the further storage container. Movement of the further storage container in lateral direction is prevented by the standing elements.

[0008] The segments preferably have roughly the same height and/or the same width, whereby production of the storage container is simplified. In an embodiment a set of opposite side walls of the storage container is divided into segments.

[0009] In a further preferred embodiment a height dimension of the at least one side wall is greater than a distance between the at least one side wall and an opposite side wall. In the case for instance that two opposite side walls divided into segments each have a height dimension greater than a distance between the two side walls, higher products can be transported in the storage container without protruding above it. It remains possible here to fold down both side walls onto the bottom construction in the empty state of the storage container; by folding adjacent segments over each other both side walls are reduced in height so that neither side wall will obstruct folding down of the other. Nor will the two side walls in folded-down position then protrude laterally outside the bottom construction.

[0010] In a further preferred embodiment a length dimension and a width dimension of the storage container amount respectively to about 1200 mm and 800 mm, or respectively about 800 mm and 800 mm.

[0011] The invention will now be further elucidated on the basis of an exemplary embodiment and an associated drawing. In the drawing:

Figure 1 shows an exemplary embodiment of a storage container according to the invention with standing side walls.

Figures 2-6 show folding down of the side walls of the storage container shown in fig. 1.

Figure 7 shows the storage container of figure 1 with folded-down side walls.
The figures are otherwise purely schematic and not drawn to scale. Some dimensions in particular may be exaggerated to greater or lesser extent for the sake of clarity. Corresponding parts are designated as far as possible in the figures with the same reference numeral.

The rectangular storage container 1 shown in figure 1 has side walls 2,3,4,5 and a bottom 8 for placing of products thereon. Side walls 2,3,4,5 are mounted hingedly on a bottom construction 6 arranged on a pallet 7, and are fixedly connected to bottom construction 6 so that storage container 1 always forms one whole. A length and width dimension of storage container 1 or of pallet 7 amount in this example to respectively about 1200 mm and 800 mm. An internal height of storage container 1 amounts to about 880 mm; the internal height is understood to mean the height between bottom 8 and an upper edge of a side wall 2,3,4,5. In this exemplary embodiment the internal height is greater than the width of storage container 1 (the internal height is greater than the smallest width dimension of side walls 2,3,4,5). A height h of side walls 3,5 is greater than a distance d therebetween (the distance d is roughly equal to the width of storage container 1 or of pallet 7). Profiles bent at right angles (standing parts) 21 extending from bottom construction 6 are provided at the position of corner points of bottom construction 6.

Side wall 3 is divided into segments 10,11 arranged one above the other and mutually connected by means of hinge 14. Side wall 5 is likewise divided into segments 12,13 which are mutually connected by means of hinge 15. Side walls 2,3,4,5 are further provided with coupling elements for coupling adjacent side walls 2,3,4,5 to each other so as to hold them in standing position. These coupling elements are per se known and not further discussed. Side walls 2,3,4,5 are further provided on their upper edges with tongues (standing elements) 20. Between tongues 20 can be nested an underside of a further storage container placed on storage container 1. The underside of the further storage container herein rests on the upper edges of side walls 2,3,4,5. In the upright position of side walls 2,3,4,5 a plurality of storage containers 1 can herein be stacked on each other in a stable stack.

The respective upper segments 11,13 can be folded back over lower segments 10,12 as shown in fig. 2. Upper segments 11,13 can herein be folded down from the position shown in fig. 1 through about 180° against lower segments 10,12; this fully folded-down situation of upper segments 11,13 over the standing lower segments 10,12 is for instance suitable for loading and unloading of storage container 1.

From the situation shown in fig. 2 the side walls 3,5 can be folded down by first folding down for instance side wall 5 as shown in fig. 3 and 4. Side wall 5 is herein folded down with the upper segment 13 folded back over lower segment 12. Side wall 3 is then folded down in a similar manner as shown in fig. 4 and 5. Folding down of side walls 2,3,4,5 is then completed by successively folding down side walls 4,2 as shown in figures 5, 6 and 7. The reverse sequence of that described above is followed in order to fold up side walls 2,3,4,5 from the situation shown in fig. 7. When side walls 2,3,4,5 are folded down as shown in figure 7, a further storage container can be nested with an underside thereof between profiles 21. A plurality of storage containers 1 with folded-down side walls 2,3,4,5 can thus be stacked onto each other in a stable stack. Profiles 21 further impart strength to storage container 1 and form protective structural parts for storage container 1. This therefore greatly reduces the chance of damage to storage container 1 by impacts against it at the position of a corner point of bottom construction 6.

Loading and unloading of storage container 1 is simplified by (fully) folding upper segments 11,13 back over the respective lower segments 10,12 from the situation shown in fig. 1, since it is then not necessary to reach so high. Because side walls 3,5 are then reduced in height along the whole width thereof, it is for instance possible to load and unload with a number of people via these lowered side walls 3,5. In an alternative embodiment the side walls 2,3,4,5 can have a greater height, for instance 1000 mm or more. Side walls 3,5 are reduced in height by folding upper segments 11,13 back over lower segments 10,12, so that the one standing side wall will not impede folding down of the other opposite side wall. Both side walls 3,5 can thus be folded down onto bottom construction 6, wherein in the folded-down position the two side walls 3,5 do not protrude laterally relative to bottom construction 6. Due to the greater allowable height of side walls 2,3,4,5 it becomes possible to transport higher products in storage container 1 without these protruding above storage container 1.

Although the invention has been further elucidated on the basis of only one exemplary embodiment, it will be apparent that the invention is by no means limited thereto. On the contrary, many variations and embodiments are still possible within the scope of the invention as defined by the claims.

Claims

1. Storage container (1), comprising a bottom construction (8) and a number of side walls (2,3,4,5) that are hingedly connected to the bottom construction (8), wherein the side walls (2,3,4,5) can be folded down onto the bottom construction (8) and wherein at least one side wall (3,5) is divided into successive segments (10,11,12,13) that are arranged hingedly relative to each other over substantially a whole width of said side wall (3,5), and wherein a plurality of storage containers (1) can be stacked onto each other in a stable stack in upright position of the side walls (2,3,4,5) and/or in folded-down position of the side walls (2,3,4,5), characterized in that the storage container (1) has standing parts (21) which extend
from the bottom construction (8) for the purpose, in
the folded-down position of the side walls (2,3,4,5),
of nesting between the standing parts (21) and an
underside of a further storage container placed on
the storage container (1) such that said plurality of
storage containers (1) can be stacked onto each oth-
er in said stable stack both in upright position of the
side walls (2,3,4,5) as well as in folded-down position
of the side walls (2,3,4,5).

2. Storage container (1) as claimed in claim 1, charac-
terized in that the standing parts (21) comprise pro-
files (21) with a right-angled progression, wherein
the profiles (21) are provided at the position of corner
points of the bottom construction (8).

3. Storage container (1) as claimed in claim 1 or 2, charac-
terized in that the storage container (1) is provided
with standing elements (20) extending from a top side of at least two side walls (2,3,4,5) for the
purpose, in the standing position of the side walls
(2,3,4,5), of nesting between the standing elements (20) an underside of a further storage container
placed on the storage container (1).

4. Storage container (1) as claimed in one or more of
the foregoing claims, characterized in that the seg-
ments (10,11,12,13) have roughly the same height.

5. Storage container (1) as claimed in one or more of
the foregoing claims, characterized in that the seg-
ments (10,11,12,13) have roughly the same width.

6. Storage container (1) as claimed in one or more of
the foregoing claims, characterized in that a set of
opposite side walls (3,5) of the storage container (1)
is divided into segments (10,11,12,13).

7. Storage container (1) as claimed in one or more of
the foregoing claims, characterized in that a height
dimension of the at least one side wall (3,5) is greater
than a distance between the at least one side wall
(3) and an opposite side wall (5).

8. Storage container (1) as claimed in one or more of
the foregoing claims, characterized in that the at
least one side wall (3) is divided into two, three or
four segments (10,11).

9. Storage container (1) as claimed in one or more of
the foregoing claims, characterized in that an upper
segment (11,13) of two successive segments
(10,11,12,13) is pivotable in outward direction rela-
tive to the storage container (1).

10. Storage container as claimed in one or more of the
foregoing claims, characterized in that a distance
between a bottom surface of the storage container
(1) and an upper edge of a side wall amounts to
about 880 mm or 1200 mm.

11. Storage container as claimed in one or more of the
foregoing claims, characterized in that a length di-
mension and a width dimension of the storage con-
tainer (1) amount respectively to about 1200 mm and
800 mm, or respectively about 800 mm and 800 mm.

Patentansprüche

1. Lagerbehälter (1), umfassend eine Bodenkonstruk-
tion (8) und einer Mehrzahl von mit der Bodenkon-
struktion (8) gelenkig verbundenen Seitenwänden (2,
3, 4, 5), wobei die Seitenwände (2, 3, 4, 5) auf die
Bodenkonstruktion (8) herunterklapbar sind und
wenigstens eine Seitenwand (3 ,5) in aufeinander-
folgende Segmente (10, 11, 12, 13) unterteilt ist, die
im Wesentlichen über die ganze Breite der Seiten-
wände (3,5) gelenkig, relativ zueinander angeordnet
sind, und wobei mehrere Lagerbehälter (1) in einem
stabilen Stapel in aufrechter Position der Seitenwän-
de (2, 3, 4, 5) und/oder in zweiseitig geklappter Stel-
lung der Seitenwände (2, 3, 4, 5) aufeinander gesta-
pelt werden können, dadurch gekennzeichnet, dass
der Lagerbehälter (1) zu diesem Zweck von
der Bodenkonstruktion (8) ausgehende Stehteile
(21) aufweist, in der zusammengeklappten Stellung
der Seitenwände (2, 3, 4, 5) zwischen den Stehteilen
(21) und der Unterseite eines weiteren Lagerbehäl-
ters, der auf dem Lagerbehälter (1) derart angeord-
et ist, dass die Mehrzahl von Lagerbehältern (1) in
dem stabilen Stapel sowohl in aufrechter als auch in
zweiseitig geklappter Stellung der Seitenwände (2,
3, 4, 5) gestapelt werden können.

2. Lagerbehälter (1) nach Anspruch 1, dadurch geken-
nzeinheit, dass die Stehteile (21) Profile (21) mit
gerichtetem Verlauf aufweisen, wobei die
Profile (21) an den Eckpunkten der Bodenkonstruk-
tion (8) vorgesehen sind.

3. Lagerbehälter (1) nach Anspruch 1 oder 2, dadurch gekenn
zeinheit, dass der Lagerbehälter (1) mit
Eingreifelementen (20) versehen ist, die sich von der
Oberseite von mindestens zwei Seitenwänden (2, 3,
4, 5) erstrecken mit dem Zweck, in der stehenden
Position der Seitenwände (2, 3, 4, 5) zwischen den
Eingreifelementen (20) die Unterseite eines weite-
ren, auf dem Lagerbehälter (1) angeordneten Lager-
behälter, zu verschachteln.

4. Lagerbehälter (1) nach einem oder mehreren der
vorhergehenden Ansprüche, dadurch gekenn
zeinheit, dass die Segmente (10, 11, 12, 13) etwa
die gleiche Höhe aufweisen.
5. Contenant de stockage (1) selon une ou plusieurs des revendications précédentes, comportant une structure inférieure (8) ainsi que plusieurs parois latérales (2, 3, 4, 5) qui sont fixées de manière articulée à la structure inférieure (8) afin que les segments (10, 11, 12, 13) puissent être empilés les uns sur les autres pour former ladite pile stable tant à la verticale des parois latérales (2, 3, 4, 5) qu'en position repliée par rapport aux parois latérales (2, 3, 4, 5).

6. Contenant de stockage (1) selon une ou plusieurs des revendications précédentes, caractérisé en ce que le contenant de stockage (1) est doté de parties verticales (21) qui partent de la structure inférieure (8) afin que les segments (10, 11, 12, 13) puissent être empilés les uns sur les autres pour former ladite pile stable tant à la verticale des parois latérales (2, 3, 4, 5) qu'en position repliée par rapport aux parois latérales (2, 3, 4, 5).

7. Contenant de stockage (1) selon une ou plusieurs des revendications précédentes, caractérisé en ce que la paroi latérale (3) est divisée en deux, trois ou quatre segments (10, 11, 12, 13) qui sont disposés de manière articulée les uns par rapport aux autres sur la quasi-totalité de la largeur de ladite paroi latérale (3, 5), et dans lequel une pluralité de contenus de stockage (1) peuvent être empilés les uns sur les autres pour former ladite pile stable à la verticale des parois latérales (2, 3, 4, 5) et/ou en position repliée vers le bas par rapport aux parois latérales (2, 3, 4, 5), caractérisé en ce que le contenant de stockage (1) est doté de parties verticales (21) qui partent de la structure inférieure (8) afin que les segments (10, 11, 12, 13) puissent être empilés les uns sur les autres pour former ladite pile stable tant à la verticale des parois latérales (2, 3, 4, 5) qu'en position repliée par rapport aux parois latérales (2, 3, 4, 5).

8. Contenant de stockage (1) selon une ou plusieurs des revendications précédentes, caractérisé en ce que les segments (10, 11, 12, 13) ont à peu près la même hauteur.

9. Contenant de stockage (1) selon une ou plusieurs des revendications précédentes, caractérisé en ce que l'ensemble de parois latérale opposées (3, 5) du contenant de stockage (1) est divisé en segments (10, 11, 12, 13).

10. Contenant de stockage (1) selon une ou plusieurs des revendications précédentes, caractérisé en ce que la hauteur d'au moins une paroi latérale (3, 5) est supérieure à la distance entre une paroi latérale (3) et une paroi latérale opposée (5).

11. Contenant de stockage (1) selon une ou plusieurs des revendications précédentes, caractérisé en ce que la paroi latérale (3) est divisée en deux, trois ou quatre segments (10, 11).

12. Contenant de stockage (1) selon une ou plusieurs des revendications précédentes, caractérisé en ce que la paroi latérale (3) est divisée en deux, trois ou quatre segments (10, 11).
des revendications précédentes, caractérisé en ce qu’un segment supérieur (11, 13) de deux segments successifs (10, 11, 12, 13) pivote vers l’extérieur par rapport au contenant de stockage (1).

10. Contenant de stockage (1) selon une ou plusieurs des revendications précédentes, caractérisé en ce qu’une distance entre une surface inférieure du contenant de stockage (1) et un rebord supérieur d’une paroi latérale mesure environ 880 mm ou 1200 mm.

11. Contenant de stockage (1) selon une ou plusieurs des revendications précédentes, caractérisé en ce qu’une longueur et une largeur du contenant de stockage (1) mesurent respectivement environ 1200 mm et 800 mm, ou respectivement environ 800 mm et 800 mm.