A Block-Shaped Storage Container

The present invention relates to a block-shaped storage container according to the precharacterising part of Claim 1.

Such a storage container is known from DE-GM 92 02 381.

In principle, the storage container which is shown and described there has proved its usefulness. However, problems may be encountered in the use of the cover foil insofar as dust accumulates (especially in the case of prolonged storage) on the same at the perforations, with the dust being brushed off when the foil is pulled out, and capable of dropping into the calibrated vessels, and, hence, possibly affecting the results of measurements.

Furthermore, if the calibrated vessels are filled with spheres, static charging of the foil may pull these spheres out of the vessels so that they are no longer suitable for the intended analyses and breakdown of the apparatus may occur.

After placement of the calibrated vessels and application of the foil, the side walls of the known storage container are weld-bonded by ultrasound. There is the risk that also the foil is weld-bonded with the walls of the storage container so that unproblematic and easy subsequent removal of the foil is not ensured in each case.

Therefore, the problem underlying the present invention is to configure a storage container of the generic type in such a way that soiling of the calibrated vessels is precluded and their usability without restrictions is guaranteed in each case.

This problem is solved by a storage container having the characteristic features recited in Claim 1.

By this design the inlet openings of all calibrated vessels are completely covered by the upper housing side of the storage container so that the function of the known foil is taken over by the respective panel of the storage container.

Since the inlet openings of the calibrated vessels are exposed at no time up to the actual use in an automatic analyser, it cannot happen that dust accumulated on the cover enters the calibrated vessels.

In this way the accuracy of analyses or the safety of measurements is substantially improved.

Since there is no foil, static charging of the calibrated vessels is precluded so that the above-described problems associated with removed spheres no longer arise in measurements.

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The disadvantages which result from weld-bonding of the foil are likewise precluded because, as indicated, one can do without a foil.

Naturally, this implies savings in the expenses which result from the production of the foil, on the one hand, and its waste management, on the other.

An advantageous embodiment of the invention provides for arranging the perforations on the panel forming the top of the storage container, and specifically in the edge regions near the front faces and, in part, as a continuation in the rear region.

The length of the perforations on the rear is chosen so that the pushing board is with certainty carried on by the tines of the expelling rake member.

According to a further concept of the invention, it is provided to arrange perforations only at the rear, with the tines of the expelling rake member being urged through the perforations against the pushing board.

In principle, the storage container is closed on all sides except for the perforations at the rear and the release slot at the front.

Other advantageous embodiments of the invention are characterised in the dependent claims.

An embodiment of the invention is described below with reference to the appended drawings.

There show:

Figure 1, a perspective view of a storage container according to the invention;

Figure 2, a rear view of the storage container.

The block-shaped storage container 1 shown in the figures houses a plurality of likewise block-shaped calibrated vessels 6 which are arranged in rows in side-by-side relationship inside the storage container 1 and used to accommodate fluids to be analysed, such as blood, blood plasma and the like.

Two parallel, spaced, slit-like perforations 4, which extend at a right angle to the longitudinal axis, are provided in a panel forming the upper side 8 of the storage container 1. These are placed in the very edge region of the upper side close to the respective front face of the storage container 1 and extend to the rear where they form likewise slit-like perforations 5.

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Into these perforations there can be guided the tines 7 of an expelling rake member 2, with the tines there bearing against a pushing board 3 which extends in the direction of the longitudinal axis of the storage container 1
over the entire length of a longitudinal row of calibrated vessels 6, with the pushing board 3 being arranged between the rear side of the storage container 1 and the last row of calibrated vessels 6.

The openings for filling the calibrated vessels 6 point toward the upper side 8 and are completely covered by the upper side 8, i.e., the perforations 4, 5 are outside the covered area.

In place of the perforations 4, 5 there may be provided perforations on the rear of the storage container 1; through these perforations, appropriately shaped tines of an expelling rake member or a similar device can be guided and move the calibrated vessels 6 by means of the pushing board 3 toward the release slot 9. The same is arranged on the front and, on the front face of the storage container 1, provided with an opening 10 through which the calibrated vessels 6 can exit individually and be transferred to an automatic analyser.

List of reference numbers

1 storage container
2 expelling rake member
3 pushing board
4 perforation
5 perforation
6 calibrated vessel
7 tines
8 upper side
9 release slot

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Claims

1. A block-shaped storage container having perforations adapted to guide an expelling rake member with which calibrated vessels arranged in rows for accommodating fluids to be analysed such as blood, blood plasma, or the like, can be moved to a frontal release slot, wherein between the last row of calibrated vessels far from the release slot and the rear wall of the storage container there is arranged a pushing board against which the expelling rake member bears, characterised in that the perforations (4, 5) are arranged laterally beyond the covered area of the calibrated vessels (6).

2. The storage container according to Claim 1, characterised in that the perforations (5, 6) are provided in the outermost edge region of the upper side (8) and the rear, close to the facing front sides.

3. The storage container according to Claim 1, characterised in that the perforations are provided only at the short rear side.

Block-shaped storage container

Abstract

It has been known to cover with a foil the openings for filling calibrated vessels used for the analysis of blood, blood plasma or the like, and arranged in such a container, in order to protect them from soiling. But when the foil was removed, dust which had settled on the foil could be wiped off and fall into the calibrated vessels, affecting the measurement data. The goal of the invention is to configure a storage container so that the full functionality of the calibrated vessels is preserved. It is contemplated for this purpose to arrange perforations (4, 5) laterally beyond the covered area of the calibrated vessels (6), with the perforations serving to guide an expelling rake member (2) and provided on the upper side (8) of the storage container. Since the calibrated vessels are in this way fully covered by the upper side (8) of the storage container (1), the use of a foil, which would have the above-described shortcomings, is no longer required.

Figure 1.

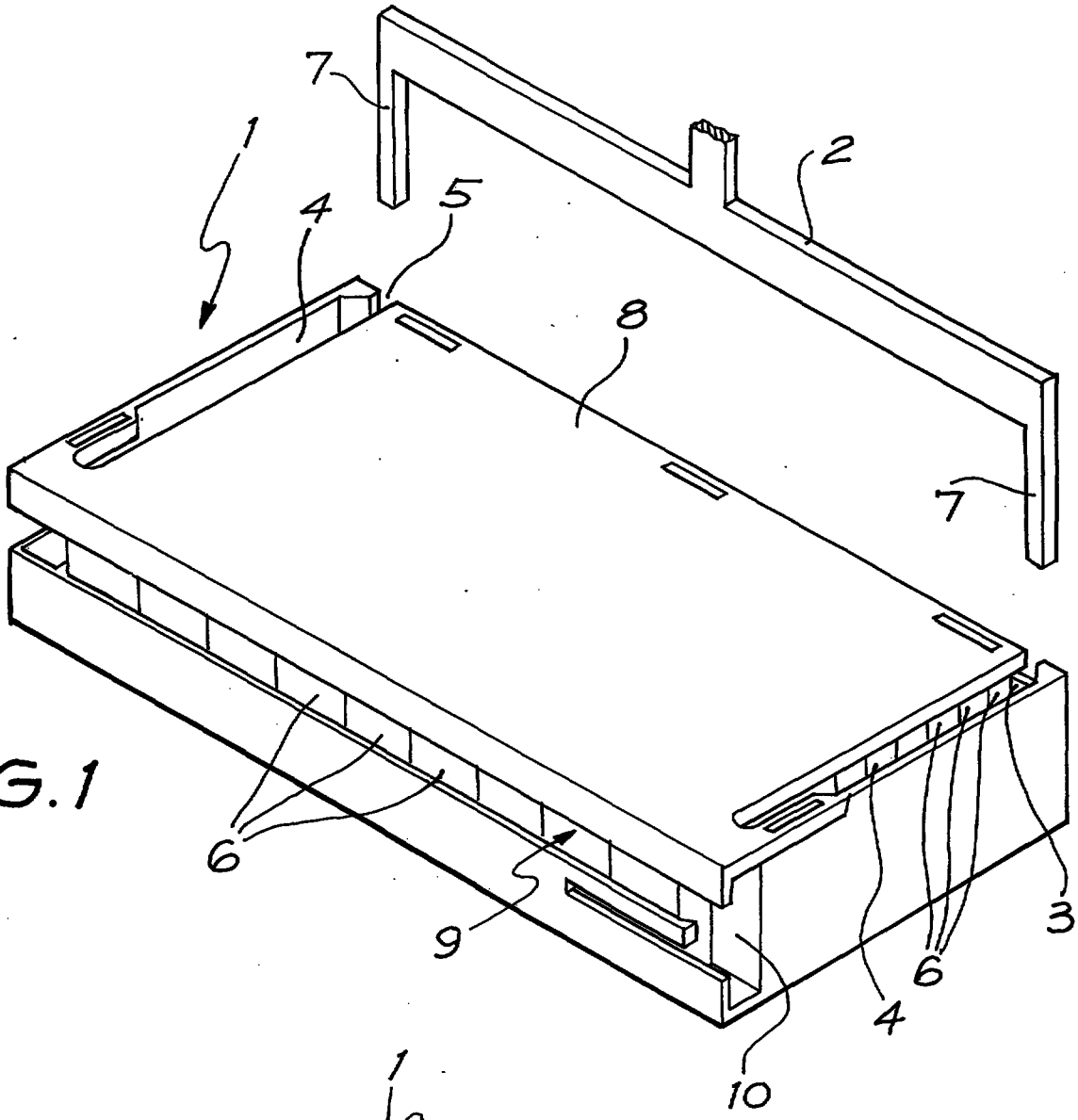


FIG. 1

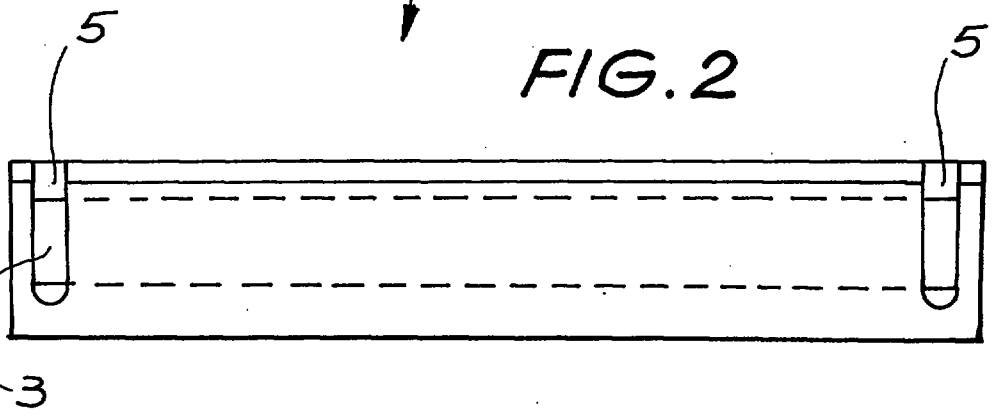


FIG. 2

* C L M S *

CLAIMS

1. A block-shaped storage container having perforations adapted to guide an expelling rake member with which calibrated vessels arranged in rows for accommodating fluids to be analysed such as blood, blood plasma, or the like, can be moved to a frontal release slot, wherein between the last row of calibrated vessels far from the release slot and the rear wall of the storage container there is arranged a pushing board against which the expelling rake member bears, characterised in that the perforations (4, 5) are arranged laterally beyond a covered area of the calibrated vessels (6).

2. The storage container according to claim 1, characterised in that the perforations (5, 6) are provided in the outermost edge region of the upper side (8) and the rear, close to the facing front sides.

3. The storage container according to claim 1, characterised in that the perforations are provided only at the short rear side.

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The disadvantages which result from weld-bonding of the foil are likewise precluded because, as indicated, one can do without a foil.

Naturally, this implies savings in the expenses which result from the production of the foil, on the one hand, and its waste management, on the other.

According to one aspect of the present invention there is provided a storage container for measuring vessels containing fluids to be tested, such as blood, blood plasma; comprising: a housing having an interior space for accommodating a plurality of measuring vessels arranged in rows, said housing having a top surface covering the vessels and provided with openings formed laterally in the top surface outside an area of the vessels covered by the top surface, said housing further including a rear wall and a front wall which exhibits an ejection slot for discharge of single vessels; and ejector means for displacing the rows of vessels toward the ejection slot, said ejector means including a guide rail extending across and behind a rearmost row of vessels between the rearmost row of vessels and the rear wall, and an ejector insertable through the openings and acting on the guide rail for moving the guide rail in direction toward the discharge slot, thereby shifting the rows of vessels in direction toward the ejection slot.

In principle, the storage container is closed on all sides except for the perforations at the rear and the release slot at the front.

Other advantageous embodiments of the invention are characterised in the dependent claims.

An embodiment of the invention is described below with reference to the appended drawings.

There show:

Figure 1, a perspective view of a storage container according to the invention;

Figure 2, a rear view of the storage container.

The block-shaped storage container 1 shown in the figures houses a plurality of likewise block-shaped calibrated vessels 6 which are arranged in rows in side-by-side relationship inside the storage container 1 and used to accommodate fluids to be analysed, such as blood, blood plasma and the like.

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☑ Description : paged 2 to paged 3
☑ Claim(s) : paged 5 to paged 7
☐ Drawing(s) : paged ..... to paged .....
☐ Abstract : paged ..... to paged .....
DATE OF RECEIPT 16/6/98

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Date: 18 JUN 1998

Two parallel, spaced, slit-like perforations 4, which extend at a right angle to the longitudinal axis, are provided in a panel forming the upper side 8 of the storage container 1. These are placed in the very edge region of the upper side close to the respective front face of the storage container 1 and extend to the rear where they form likewise slit-like perforations 5.

Into these perforations there can be guided the tines 7 of an expelling rake member 2, with the tines there bearing against a pushing board 3 which extends in the direction of the longitudinal axis of the storage container 1 over the entire length of a longitudinal row of calibrated vessels 6, with the pushing board 3 being arranged between the rear side of the storage container 1 and the last row of calibrated vessels 6.

The openings for filling the calibrated vessels 6 point toward the upper side 8 and are completely covered by the upper side 8, i.e., the perforations 4, 5 are outside the covered area.

In place of the perforations 4, 5 there maybe provided perforations on the rear of the storage container 1; through these perforations, appropriately shaped tines of an expelling rake member or a similar device can be guided and move the calibrated vessels 6 by means of the pushing board 3 toward the release slot 9. The same is arranged on the front and, on the front face of the storage container 1, provided with an opening 10 through which the calibrated vessels 6 can exit individually and be transferred to an automatic analyser.

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CLAIMS

1. A storage container for measuring vessels containing fluids to be tested, such as blood, blood plasma; comprising:

a housing having an interior space for accommodating a plurality of measuring vessels arranged in rows, said housing having a top surface covering the vessels and provided with openings formed laterally in the top surface outside an area of the vessels covered by the top surface, said housing further including a rear wall and a front wall which exhibits an ejection slot for discharge of single vessels; and

ejector means for displacing the rows of vessels toward the ejection slot, said ejector means including a guide rail extending across and behind a rearmost row of vessels between the rearmost row of vessels and the rear wall, and an ejector insertable through the openings and acting on the guide rail for moving the guide rail in direction toward the discharge slot, thereby shifting the rows of vessels in direction toward the ejection slot.

2. The storage container of claim 1 wherein the housing has opposite end faces spaced from each other in a longitudinal direction, said openings being arranged in a marginal area of the top surface adjacent the end faces of the housing and terminating in slots formed in the rear wall.

3. The storage container of claim 1 wherein the openings are formed only in an area of the rear wall which defines a narrow side of the housing.

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