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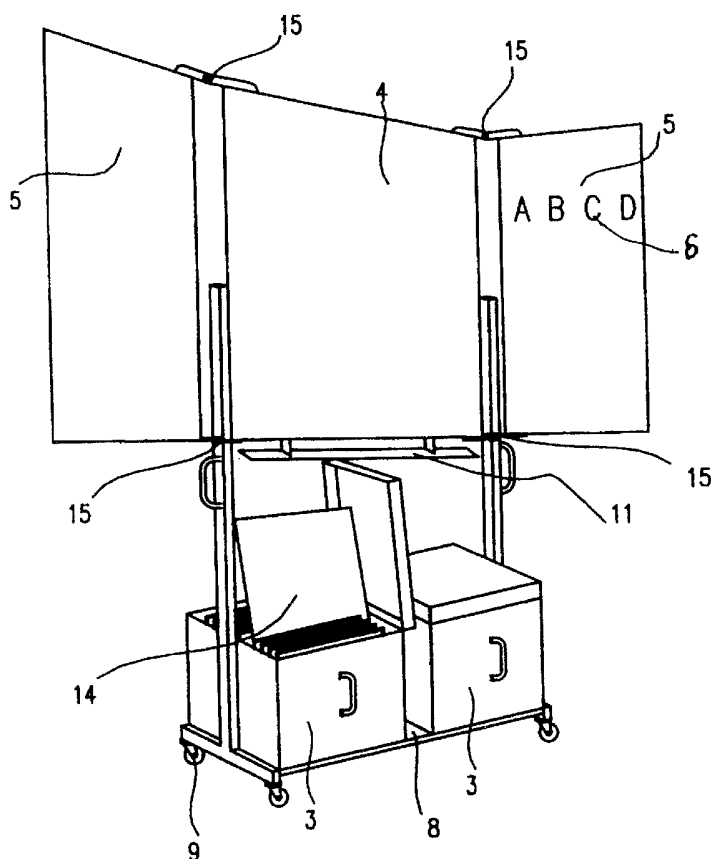
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(54) Title: MULTIPURPOSE MOBILE DEMONSTRATION DEVICE



(57) Abstract: Multipurpose mobile demonstration device The invention consists of a multipurpose mobile demonstration device with a cabinet containing display and storage boards (5), at least one symbol set consisting of symbol carriers made of magnetic foil, and at least one box (3) for the storage of the symbol set. The main characteristic of the invention is that the cabinet (2) has at least one coated display board made of a material suitable for the attachment of symbol carriers, at least one storage board (5), which can be folded or slipped onto the former, and a frame structure (1) for the inclusion of the cabinet (2) and the box (3) for the ordered storage of symbol carriers in one single unit.

Multipurpose Mobile Demonstration Device

The invention consists of a multipurpose mobile demonstration device with a cabinet containing display and storage boards, at least one symbol set consisting of symbol carriers made of magnetic foil, and at least one box for the storage of the symbol set. The main area of use for the given demonstration device is education, however, it is suitable for increasing the attractiveness of lectures, presentations, or facilitating the memorisation of the materials presented.

In the field of demonstrations, whether manual or using simple aids, there are three widely used methods in our days: handwriting, display of items and projection. Schools generally use blackboards, where one can write or draw with chalk. A more modern approach of presentation through handwriting is the use of white boards. They have a surface coated with plastic, which can be written on using so-called "white board markers". One advantage of white boards is that writing can be dry-erased from them with no remains. These tools are primarily used in the areas of adult education and professional trainings, they are not suitable for the education of children, or demanding presentations.

Another field of presentation methods is the display of items. In this method, symbol carriers containing information are developed, the placement whereof next to each other enables the compilation of a diverse presentation material. This is a favoured method for practicing writing and reading skills in primary schools. Symbol carriers are cut out of paper or glued on wooden sheets, and then placed on a smooth surface, or inserted in the pockets of a carrier surface. The disadvantage of this method is that symbol carriers can easily intermix, scatter, it is difficult to store and use them in an ordered manner.

An educational display tool is described in usage pattern No. HU-U 2646. The pattern is aimed at facilitating reading and writing lessons through the use of a device with boards equipped with display and storage surfaces, and a symbol set consisting of symbol carriers. The device, as claimed in the pattern, has a central board with a surface enabling display, and two storage boards, which can be folded onto the former with hinges. If closed, the boards together form a closed block. The boards are made of coated metal sheets. The symbol carriers of the symbol set are sheets made of magnetic foil, whose either one, or both sides contain the information. The device is suitable for use in the education of pupils, however, it can hold relatively few symbol carriers. It is also suitable for the support of the pupils' individual learning, although it cannot be used for demonstration purposes before larger audiences.

The third method used in the field of presentations is projection, whereby images are projected onto a canvas or white wall with a projection apparatus.

A board suitable for demonstration purposes is proposed in patent description No. SE 4 332 929. The invention, which can be applied before larger audiences, can be used for education, presentation and similar purposes. The board has surfaces equipped with foldable wings, as well as a projection canvas, which can be pulled down and rolled up. The boards rotatable along both the horizontal and vertical axes. The device is suitable for both handwritten and projected presentation, however, the display of items is not possible.

A combined educational magnetic board suitable for both handwriting and display of items is described in patent No. GB 2 352 864. The board is mountable on the wall, and equipped with a ferromagnetic carrier surface, which can hold magnetic symbol carriers. Part of the board is designed as a so-called white board, which can be written on with suitable writing utensils. At the bottom of the board, there are boxes for the storage of symbol carriers and writing utensils. The demonstration board is suitable for double-function presentation purposes, however, its disadvantage is that it can hold relatively few symbol carriers. The fixed, wall-mounted design restricts the use of the device.

Our invention is based on the idea that, through a demonstration

device enabling the combined use of presentation methods, lessons, lectures and presentations can be made more interesting without the need to use a multitude of devices involving high costs and demand for space.

Our invention is aimed at creating a device, which can be widely used for the mastering and presentation of various information. Additionally, it is also our aim that the device should be of a self-bearing, mobile design, and enable continuous use throughout consecutive lectures and presentations.

Based on its essential characteristics, the cabinet of the multipurpose mobile demonstration device specified in the introduction has at least one coated display board made of a material suitable for holding symbol carriers made of magnetic foil, and at least one storage board, which can be either folded, or slipped onto the former, and the device also has a frame structure for the inclusion of the cabinet and the box for the ordered storage of symbol carriers in one single unit.

In one design of the demonstration device, the cabinet is equipped with one display board and two such storage boards symmetrically arranged, which can be folded onto the former. In an even more advantageous design, the cabinet is equipped on both sides with display boards coated with display surfaces, and two times two storage boards fitted to both sides of each of the display boards with hinges in a symmetrical arrangement. The storage boards are lockable, once closed.

In yet another useful design, a work table is attached to the cabinet, which can hold writing utensils, wiping or other tools.

The box for the ordered storage of the symbol carriers has a removable or back-folding, and lockable cover, and the box contains rails for fixing plates in parallel position. The plates are framed flat sheets suitable for the attachment of symbol carriers made of magnetic foil.

The frame structure is a U-shaped structure with the opening at the top, whose legs are attached to the cabinet, and lower cross member holds the plate supporting the boxes. The cabinet adjustable in height is fixed on the legs. Additionally, self-aligning, arrestable wheels, as well as handles are attached to the frame structure.

In the following, the invention will be described in detail through the design example illustrated on the drawings. Such drawings are as follows:

Figure 1 the demonstration device being the subject of the invention,

- Figure 2 the demonstration device, as shown in Figure 1, with open cabinet and symbol carrier storage box, in an axonometric representation,
- Figure 3 side view of the demonstration device, as shown in Figure 1, with open cabinet,
- Figure 4 design of the symbol carrier storage box.

Figure 1 shows the demonstration device being the subject of the invention. The design example illustrates the invention as an educational facility, however, the actual structural layout and the information contained on the symbol carriers may vary within the scope of the patent claimed. The frame structure (1) of the device holds a cabinet (2), and is equipped with two boxes (3). As shown in Figure 3, the cabinet (2) is implemented in a mirrorsymmetric design, it has a centred, double sided display board (4), and two times two storage boards (5) on the face and the back fitted with hinges. The advantage of this design is that both sides of the board can be used for demonstration purposes through turning the device around during the lecture, and going on with the presentation using an identical or different symbol set. The display board (4) and the storage boards (5) are made of 1 mm thick steel plates. The plates are reinforced along their borders with U-shaped frames. Due to this design, the relatively large flat surfaces remain sufficiently stiff. The U-shaped frames may be used for preventing the symbol carriers (6) from coming into contact, or sliding, being pushed away from each other. The storage boards (5) are attached to the display board (4) with hinges (15). In the example design, hinges (15) are of the snap-on design available on the market, whose advantage is that, with the cabinet (2) in open position, about 80-100 mm clearance remains between the storage boards (5) and the display board (4). This gap clearly separates the symbol carriers (6) placed on the display board (4) from those on the storage boards (5), whereby the symbols stored cannot mix up with those displayed, and the children's attention is not diverted from the material lectured due to the multitude of information. When open, the storage boards (5) can be fixed with the stay piece not illustrated in the drawings. When the cabinet (2) is closed, the storage boards (5) can be locked with a padlock (16).

Both the display board (4) and the storage boards (5) are coated. The coating is developed through the application of a so-called "antigraffiti" dry colouring. Through the application of this material — available on the market

– on the surface, so-called “white boards” can be obtained. The special feature of white boards is, that they can be written or drawn on using so-called white board markers, and such writing can be dry-erased from them with no remains.

Within the scope of the patent related with the invention, the display and storage boards can be designed in a different structural arrangement. Therefore, the patent claim also covers such demonstration devices, which have only one display board and one or two storage boards. The storage boards can be fitted both in front of, and behind the display boards, so that the storage boards slip onto the display boards, when the device is closed. The Boards can also be implemented in a sandwich-like panel, whereas they consist of a carrier panel, one or two metal sheets attached to one or both sides, respectively, and cover surfaces fitted thereon. Instead of metal sheets, the boards can be developed from any other material, which is capable of firmly holding magnetic foils, such as magnetic foil glued on a carrier plate. Certainly, the boards can be applied simple paint or plastic finish as well.

Figure 2 illustrates a design, where work table (11) is attached to the cabinet (2). Such work table (11) can hold writing utensils or symbol carriers, as needed. The work table (11) is attached to the frame of the display board (4).

The symbol carriers (6) containing information are placed on the display board (4) of the demonstration device. In the implementation, as shown in the example, the symbol carriers (6) are tetragons with rounded vertices made of magnetic foil. Magnetic foil is a soft, rubber-like plastic ribbon sold in rolls on the market, which contains magnet chippings, whereby it easily adheres to iron or steel surfaces. One side of the foil is black, and magnetic, while the other is white or pastel shaded, coated with thin PVC foil. The latter side does not stick to metal surfaces. Various symbols can be illustrated on the PVC foil either manually, or through printing methods. The use of the magnetic foil is highly extended due to the fact that foil sheets stick to each other. By placing the symbol carriers (6) containing information on top of each other, several variations can be obtained on the display board (4), and additionally, when placed on one another, a large number of symbol carriers (6) can be easily stored.

Symbol carriers (6) can be used in two ways. On one hand, when

using pre-printed symbol carriers (6) containing given information, they are suitable for practicing writing, reading and mathematical skills. On the other hand, it is possible to put arbitrary information – letters, numbers, figures – on the plain side, and develop some composition on the display board (4) using our own symbols. This opportunity provides a useful aid to educators dealing with challenging or disabled children.

What makes the demonstration device being the subject of the invention particularly usable is the great number of symbol sets that can be applied. The teaching of different subjects, such as writing, reading, counting or foreign languages, requires different symbol sets. Such symbol sets should be stored in such an ordered way, so that they cannot intermix within themselves, or mix with other sets, furthermore, they should be easily accessible and selectable before use.

Symbol sets are stored in the boxes (3). The design shown in the example is equipped with two boxes (3) storing symbol sets. The boxes (3) are equipped with covers (12) that opens up around the hinges, and, to facilitate transportation, handles (17) are also fitted thereon. The covers of the boxes (3) are lockable. As shown in Figure 4, rails (13) are attached to the opposite sides of the boxes (3) from the inside. The rails are at such a distance from each other that plates (14) can be slid between them in parallel, or removed from the inside. The plates (14) are framed flat sheets. The sheets are made of the same material as the display boards (4) or the storage boards (5), and have the same coating as the boards. Accordingly, the plates (14) are also suitable for holding or storing symbol carriers (6). Both sides of the plates (14) can hold symbol carriers (6). The symbol carriers (6) can also be placed on one another, whereby it is easy to store all elements of a symbol set in an ordered manner on individual plates (14). Additionally, it is also possible to write or draw on such plates (14), just like on display boards (4) and storage boards (5).

The cabinet (2) and the boxes (3) are included in a single block by a frame structure (1). Such frame structure (1) is a U-shaped structure with the opening at the top, whose legs (7) are attached to the cabinet (2), and lower cross member holds the plate (8) supporting the boxes (3). Four self-aligning, arrestable wheels (9) are also attached to the frame structure (1). These wheels, on one hand, facilitate the transportation of the demonstration device from one room to another, and on the other hand, they enable,

through turning the device, the continuous use of two display boards installed in a symmetrical arrangement. To facilitate the movement of the demonstration device, handles (10) are attached to the frame structure. The cabinet (2) is fixed to the legs (7) with screws, and adjustable in height. This solution enables to adjust the height of the cabinet (2) as needed.

A plate (8) is attached to the bottom of the frame structure (1). This plate (8) supports the boxes (3). The dimensions of the demonstration device is chosen so as to enable easy opening of the boxes (3), when they are placed on the plate (8), and easy removal of the plates (14). The dimensions, and the height, in particular, of the cabinet (2) are restricted by the opening covers of the boxes (3). The dimensions of the box (3) and the number of plates (14) installed therein are subject to the expectations related with the demonstration device. Each plate (14) can be implemented in e.g. 300x400 mm size, to enable easy holding in one hand. In the example design, the dimensions of the box (3) are selected so that it can hold 20 plates (14), whereby it is possible to store 8000 symbol carriers in an ordered manner.

In the following, we shall illustrate the use of the demonstration device being the subject of the invention. In the example, we shall describe an educational device to be applied in the teaching of pupils, although it is easy to see that the device is well suited for a wide range of other applications. Before the lesson, the teacher selects the plate (14) containing the symbol set needed for the given material, and places the symbol carriers (6) on the storage boards (5) and the display board (4). On the other side of the symmetrically implemented demonstration device, he prepares the symbol carriers (6) taken from another plate (14) for the next lesson, and places them on the storage boards (5) and the display board (4). By locking the cabinet (2), he may prevent the children from making changes to the prepared material. Then the teacher will be enabled to hold two consecutive lessons without having to deal with preparation for the next one during the break. During the lesson, the surfaces of the boards can be used for writing, display of items or projection, as needed.

List of reference labels

- 1 frame structure
- 2 cabinet
- 3 box
- 4 display board
- 5 storage board
- 6 symbol carrier
- 7 leg
- 8 plate
- 9 wheel
- 10 handle
- 11 work table
- 12 cover
- 13 rail
- 14 plate
- 15 hinge
- 17 handle

Patent Claims

1. Multipurpose mobile demonstration device with a cabinet containing display and storage boards, at least one symbol set consisting of symbol carriers made of magnetic foil and at least one box for the storage of the symbol set, wherein

the cabinet (2) has at least one coated display board (4) made of a material suitable for the attachment of symbol carriers (6), at least one storage board (5), which can be folded or slipped onto the former, and a frame structure (1) for the inclusion of the cabinet (2) and the box (3) for the ordered storage of symbol carriers (2) in one single unit.

2. The demonstration device, as claimed in Claim 1, wherein the cabinet (2) is equipped with one display board and two such storage boards (5) symmetrically arranged, which can be folded onto the former.

3. The demonstration device, as claimed in Claim 1, wherein the cabinet (2) is equipped on both sides with display boards (4) coated with display surfaces, and two times two storage boards (5) fitted to both sides of each of the display boards (4) with hinges in a symmetrical arrangement.

4. The demonstration device, as claimed in any of the Claims above, wherein a work table (11) is attached to the cabinet (2).

5. The demonstration device, as claimed in any of the Claims above, wherein the box (3) for the ordered storage of the symbol carriers (6) has a removable or back-folding, and lockable cover (12), and the box (3) contains rails (13) for fixing plates (14) in parallel position.

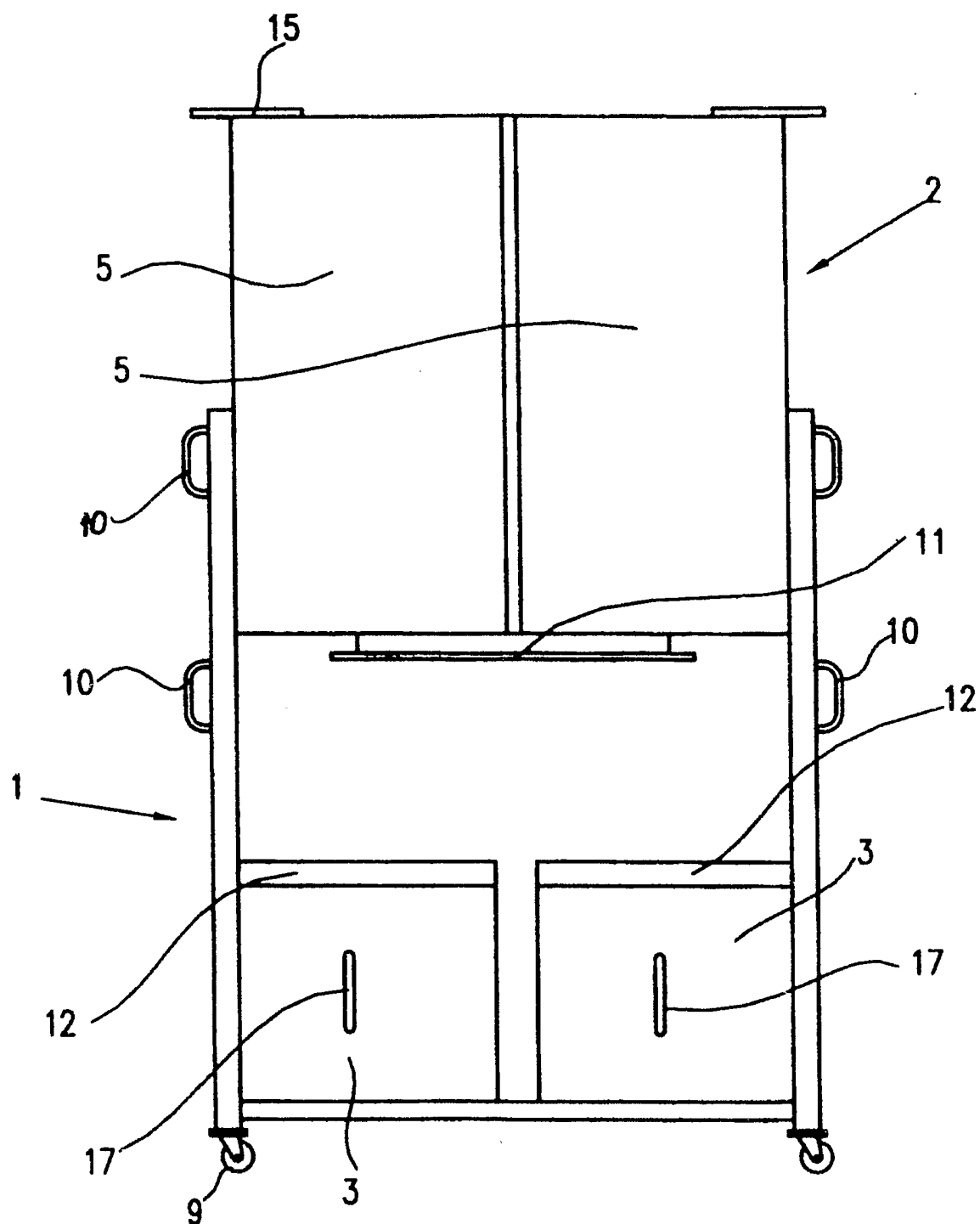
6. The demonstration device, as claimed in Claim 5, wherein the plates (14) are framed flat sheets suitable for the attachment of symbol carriers (6) made of magnetic foil.

7. The demonstration device, as claimed in any of the Claims above, wherein the frame structure (1) is a U-shaped structure with the opening at the top, whose legs (7) are attached to the cabinet (2), and lower cross member holds the plate (8) supporting the boxes (3).

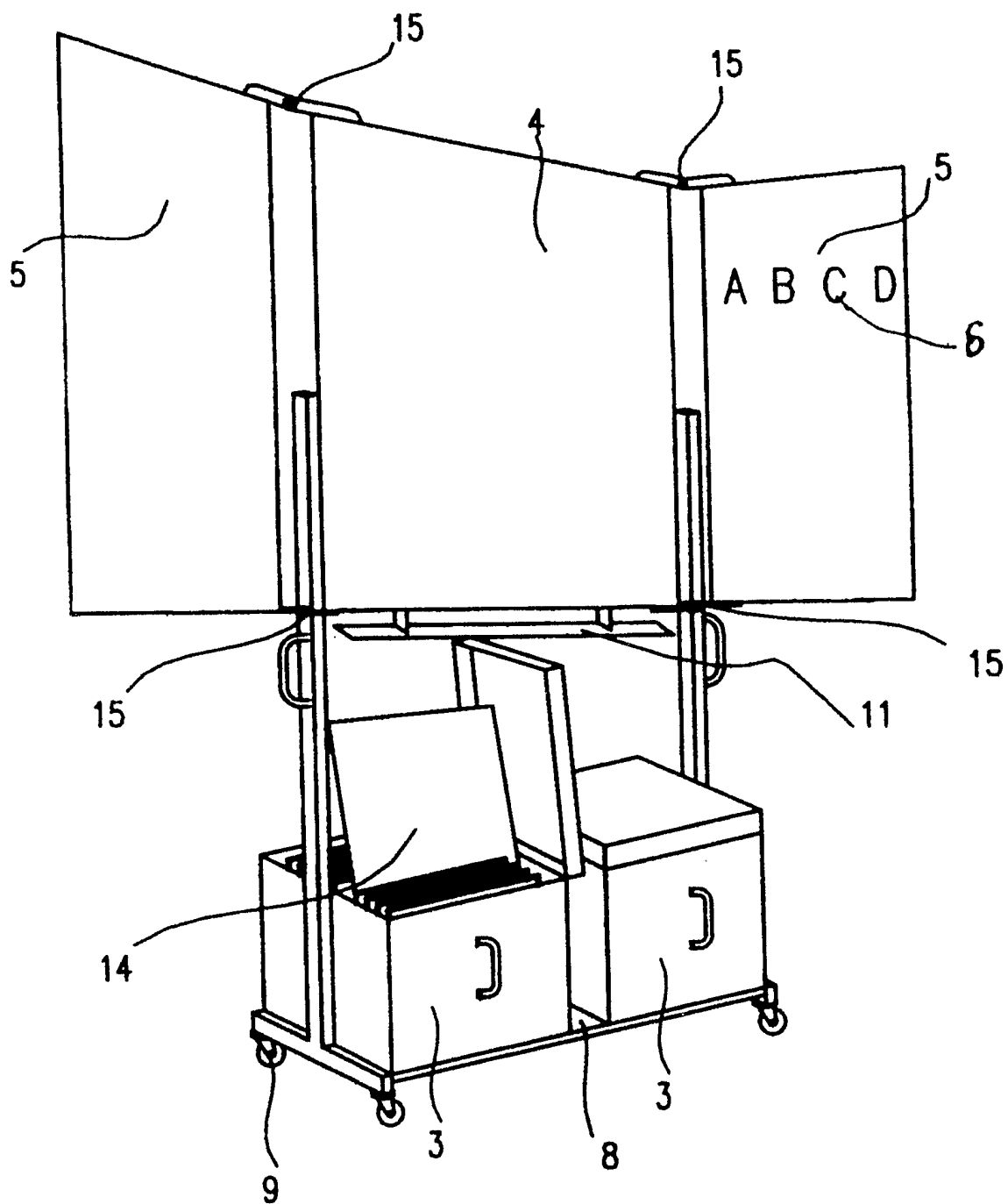
8. The demonstration device, as claimed in Claim 7, wherein the cabinet (2) adjustable in height is fixed on the legs (7).

9. The demonstration device, as claimed in any of the Claims above, wherein self-aligning, arrestable wheels are attached to the frame structure (1) .

10. The demonstration device, as claimed in any of the Claims above, wherein handles are attached to the legs (7) or the frame structure (1).

*Figure 1*

2/3

*Figure 2*

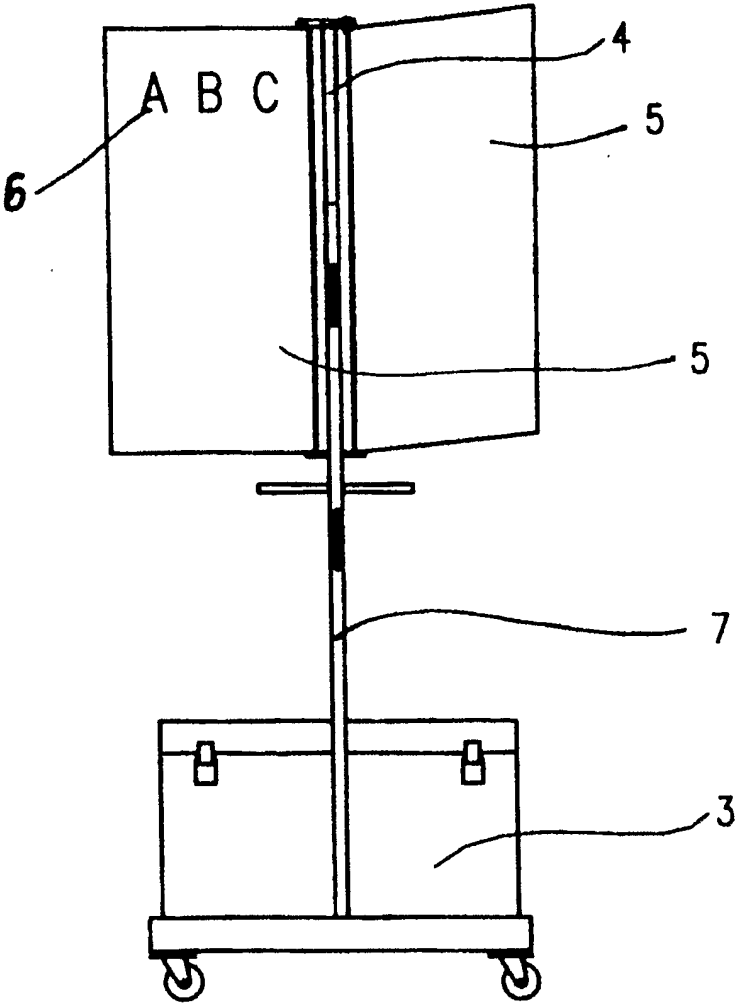


Figure 3

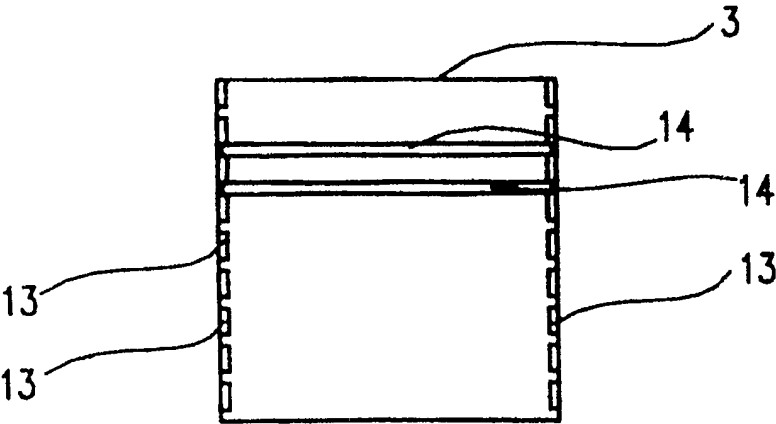


Figure 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/HU 2005/000114A. CLASSIFICATION OF SUBJECT MATTER *B43L 1/04 (2006.01)*

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A47B 46/00, 83/00, 97/00, 97/04, 97/08, A63F 3/00, 3/02, B43L 1/00, 1/04, 1/06, G09B 19/00

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) RUPAT, esp@cenet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| Y | US 5941713 A (HAWORTH, INC.) 24.08.1999, col. 4, line 40 – col. 5, line 6, col. 10, lines 45-63, col. 11, lines 5-11 | 1-10 |
| Y | RU 23060 U1 (OSTROVSKY BORIS MIKHAYLOVICH et al.) 20.05.2002, claims | 1-10 |
| Y | RU 2123371 C1 (MAKAROV IGOR VIKTOROVICH) 20.12.1998, col. 7, lines 16-19 | 1-10 |
| Y | SU 1516082 A1 (GOSUDARSTVENNY INSTITUT PO PROEKTIROVANIYU TEATRALNO-ZRELISCHNYKH PREDPRIYATIY "GIPROTEATR") 23.10.1989, col. 3, line 10 – col. 4, line 8 | 1-10 |
| Y | US 5775919 A (RIGHT MESSAGE, L.L.C.) 07.07.1998, col. 4, lines 29-38 | 3 |

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

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Russia, 123995, Moscow, G-59, GSP-5,
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/HU 2005/000114

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| Y | RU 2060904 C1 (TOVARISCHESTVO S OGRANICHENNOY OTVETSTVENNOST'YU "VEDI-SL") 27.05.1996, col. 3, line 49 - col. 4, line 29 | 7-8, 10 |