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(54) **Sample-viewing cabinet.**

(57) A sample-viewing cabinet in which four mirrors (13, 14, 15, 16) define, when viewed in plan, a square area into which e.g. a carpet sample (23) can be inserted, is characterised in that the particular mirror which, in use, forms the front mirror (13) of the cabinet is constructed so as to be effectively a one-way mirror which will reflect the image of the viewed sample into the remaining mirrors (14, 15, 16) but which will allow the sample and its reflected images to be viewed directly through the front mirror rather than having to be viewed from above it.

The one-way mirror effect may be achieved by covering the inwardly facing surface of the front sheet of glass (13a) with an aluminium coated polyester film and illuminating the interior of the viewing enclosure with light (17) of sufficient intensity to cause the film covered sheet to reflect into the back mirror of the cabinet whilst allowing the back mirror to be viewed directly through the front sheet.

If all the mirrors are surface-silvered, rather than back-silvered, the image of the viewed sample is reflected infinitely in all directions without interruption.

The ability to view the sample straight through the front mirror enables the entire enclosure defined by the mirrors to be angled towards the floor. The overall height of the cabinet can thus be reduced, so that people of widely varying heights can obtain an ample view of the images reflected inside the cabinet.

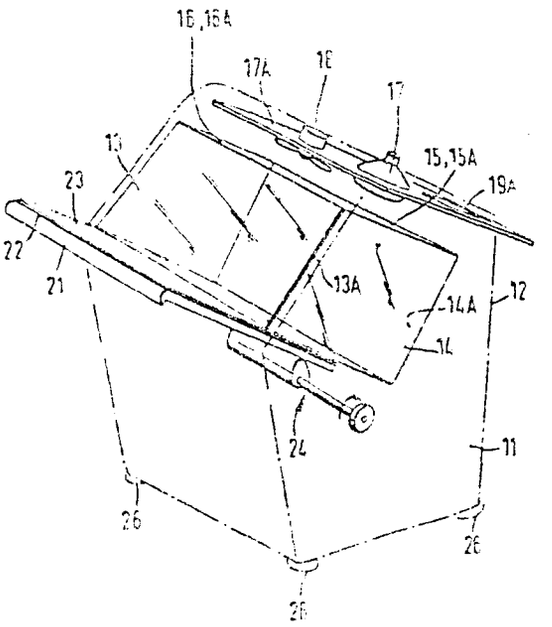

FIG. 3

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SAMPLE-VIEWING CABINET

This invention relates to sample-viewing cabinets.

One well-known design of cabinet for viewing carpet samples comprises essentially four mirrors which are set mutually at right angles to form, when viewed from above, a closed square. Into this square, a carpet sample can be inserted. If the sample exactly fills the square defined by the four mirrors, anyone looking down onto the carpet sample from above the mirrors, or from above and slightly to one side of the mirrors, will see the square of carpet reflected in all directions to infinity by the various mirrors.

When such an arrangement of mirrors is mounted in a cabinet, with provision for sliding different carpet samples into and out of the square defined by the four mirrors, a prospective buyer of the carpet can be given the visual effect of a room-full of carpet, rather than having to rely on only a small square or rectangular sample with the pattern on it.

There are at least two drawbacks to this known design of carpet viewing cabinet. Firstly, because the carpet sample must be viewed from above (or, at best, from above and slightly to one side) the person looking into the carpet viewing cabinet is able to see only a relatively small amount of the successively reflected image. The height of the mirrors effectively cuts off his line of vision beyond a certain point.

Secondly, because the mirrors have a finite thickness and are silvered on their back surfaces, the vertical

join between adjacent mirrors appears as a distinct vertical line in successive reflections. Anyone looking into the mirrors thus sees a succession of these lines, repeated in all directions to infinity, giving the unpleasant and distracting effect of a series of posts or pillars rising from the carpet "floor" seen in the mirrors.

It has also been noted by users of this known carpet viewing cabinet that because the carpet sample must be viewed from above, it is not always easy to arrange the cabinet at a height which will accommodate every size of potential viewer. At best, an adjustable stand must be provided and this adds to the expense of the cabinet and detracts from its simplicity of operation in front of potential customers for the carpet.

The present invention seeks to provide a sample-viewing cabinet which overcomes these drawbacks.

To this end, the invention in its broadest aspect is embodied in a sample viewing cabinet in which four mirrors define, when viewed in plan, an exactly square enclosed area into which a sample, for example a carpet sample, can be inserted, characterised in that the particular mirror which, in use, forms the front mirror of the cabinet is constructed so as to be effectively a one-way mirror which will reflect the image of the viewed sample into the remaining mirrors but which will allow the sample and its reflected images to be viewed directly through the front mirror rather than having to be viewed from above it.

Thus, the height of the mirrors no longer cuts off the line of vision of the person viewing the sample. Instead, one can look straight through the front mirror and into the other mirros, and the entire "floor" constituted by the sample and its infinitely reflected images can be viewed to the maximum advantage.

Carpet viewing cabinets in general are used to display carpet samples with a pronounced pattern. This is because it is well known that people have difficulty in extrapolating the visual effect of a pattern from the relatively small carpet sample to a fair sized room. In accordance with known principles there are provided four viewing mirrors set mutually at right angles to define an exactly square enclosure to receive the carpet sample. In this construction, the pattern will then be uniformly reflected in the four mirrors, with the reflected patterns of the sample repeating in line with one another across the "floor" seen in the mirrors.

In its broadest aspect, the invention overcomes the restricted field of vision which is a drawback with known carpet viewing cabinets. In a further aspect, the mirrors used may be surface-silvered rather than back-silvered: thus the further problem of the annoying vertical lines at the joins between adjacent mirrors is eliminated in a particularly neat and effective manner.

One-way mirrors achieved by traditional methods are expensive. As a further development of the invention, a one-way effect can be achieved in the front mirror by covering that face of the mirror which faces into the cabinet with a suitably reflective film. Purely by way of example, one such film made by the 3M Company is known as "Scotch Tint Solar Control Film". This is an aluminium coated polyester film frequently used to overglaze glass-walled buildings in order to reduce the effect of the sun on those working inside the building. It has the useful side-effect that, in strong sunlight when the light intensity outside the building is greater than that inside, the film acts as a one-way mirror and allows those inside the building to see out whilst simply reflecting the images of people standing outside the

building and preventing them from seeing in.

This film can be applied to a sample-viewing cabinet embodying the invention, since if the interior of the cabinet is strongly lit, the one-way mirror effect will cause the inside face of the film-covered glass to reflect the viewed sample back into the other mirrors, whilst allowing those looking into the cabinet to see straight through to the sample and its reflections.

Conceivably all the mirrors used in the cabinet could be made by covering sheets of glass with reflective film having these properties, and of course the enclosure defined by the mirrors must be sufficiently strongly lit to give the one-way effect to all the mirrors irrespective of lighting conditions outside the cabinet. Such mirrors are durable, lightweight and cheap.

The ability to view the sample straight through the front mirror enables the entire enclosure defined by the mirrors to be angled towards the floor, rather than being horizontal with respect to the floor, on which the cabinet stands. Thus, the overall height of the cabinet can be reduced and there is no need to provide any form of adjustable stand in order to give people of widely varying heights an ample view of the reflected "floor" of carpeting inside the cabinet. In addition, very large mirrors can be used, to enhance the effect of a large room-full of carpeting which the cabinet attempts to give.

One carpet viewing cabinet embodying the invention is shown, by way of example only, in the accompanying drawings. It will now be described with reference to those drawings. In the drawings:-

Figure 1 shows the cabinet in front perspective;

Figure 2 shows the cabinet in rear perspective; and

Figure 3 shows the working parts of the cabinet, the cabinet shell being shown in broken line.

The cabinet is built around a basically flat-sided fibre-glass box or shell 11. The shell can be made in a one-piece moulding, apart from the back panel 12 which is detachably screwed to the rest of the shell. The optical reflecting properties of the viewing cabinet are achieved by the use of four relatively large flat rectangular mirrors 13, 14, 15, 16, set mutually at right angles so as to define an exactly square enclosure. The enclosure is slanted towards the floor on which the cabinet stands in use, and it will be noted that the overall height of the cabinet is not great.

Each of these mirrors has its inwardly-facing surface 13A, 14A, 15A, 16A covered with a sheet of the 3M "Scotch Tint" film previously referred to. The rest of the mirror is simply a sheet of flat glass. A light 17 of suitable intensity is mounted in a board 17A positioned above the enclosure defined by the mirrors, and because very powerful lights are needed to give the "one-way" mirror effect an electrically driven fan 18 is also mounted in the board 17A to keep the lamp 17 cool.

As shown, the fan 18 draws air in through horizontal slots 19 let into the non-removable top portion of the back of the cabinet. The air passes over the lamp 17 and is exhausted through a mesh 19 set in the board 17A, and thence out through the back of the cabinet, the back panel 12 being ventilated for this purpose.

The floor of the enclosure defined by the four mirrors 13, 14, 15, 16 is constituted by a tray 21 which is slidable into and out of the cabinet. The surface of this tray is ribbed, or carries a rubber mat 22, so that when a carpet sample 23 is placed on the tray 21 the sample can be slid into the enclosure defined by the four mirrors and will not roll off the tray. A simple cam 24 allows the tray 21, and the carpet sample 23 to be brought up

tight against the bottom edges of the mirrors 13, 14, 15, 16 when the tray 21 has been slid fully home.

An electric time delay switch 25, when pressed inwards, illuminates the lamp 17 and automatically starts the fan 18. After, say, one minute the time switch 25 automatically cuts out both lamp and fan in order to avoid any danger of the lamp 17 overheating.

The fan 18, as well as keeping the lamp 17 cool, keeps the interior of the viewing enclosure ventilated and so avoids any inadvertant tendency to set the carpet sample 23 on fire. The lamps used in order to achieve the one-way effect have to be of such intensity that this is a very real danger if not adequately allowed for in the design of the cabinet.

Castors 26 are provided to support the cabinet at each of its corners.

By way of example, a 500 watt halogen lamp could be used, with a half-horse-power motor driving an 8" diameter twin-bladed fan.

Although a carpet-sample-viewing cabinet has been specifically described and illustrated, the invention is equally applicable to cabinets for viewing samples of wall-covering materials, tiles, veneers, etc. when a visual display of the large-scale application of such materials is desired.

If desired, an array of lamps 17 can be used, illuminating the enclosure inside the mirrors 13, 14, 15, 16 through a diffusing screen (not shown in the drawings).

CLAIMS:

1. A sample viewing cabinet in which four mirrors define, when viewed in plan, a square area into which e.g. a carpet sample can be inserted, characterised in that the particular mirror which, in use, forms the front mirror of the cabinet is constructed so as to be effectively a one-way mirror which will reflect the image of the viewed sample into the remaining mirrors but which will allow the sample and its reflected images to be viewed directly through the front mirror rather than having to be viewed from above it.

2. A cabinet according to claim 1, in which the one-way mirror effect is achieved by covering the inwardly-facing surface of the front sheet of glass with an aluminium-coated polyester film and illuminating the interior of the viewing enclosure with light of sufficient intensity to cause the film-covered sheet to reflect into the back mirror of the cabinet whilst allowing the back mirror to be viewed directly through the front sheet.

3. A cabinet according to claim 1 or claim 2, in which all the mirrors are surface-silvered.

4. A cabinet according to claim 3, in which the surface-silvering is achieved by covering the inwardly-facing surfaces of all four glass sheets defining the viewing enclosure with an aluminium-coated polyester film, and illuminating the interior of the viewing enclosure with light of sufficient intensity to cause the film-covered sheets to reflect inwardly into the viewing enclosure.

5. A cabinet according to any preceding claim, in which the viewing enclosure is illuminated and in which a fan is automatically started when the illuminating light is switched on, the cabinet incorporating air

intake and exit means which allow the fan to ventilate the interior of the viewing enclosure.

6. A cabinet according to any preceding claim, in which the viewing enclosure is slanted towards the floor on which the cabinet stands in use, rather than being approximately horizontal with respect to the floor.

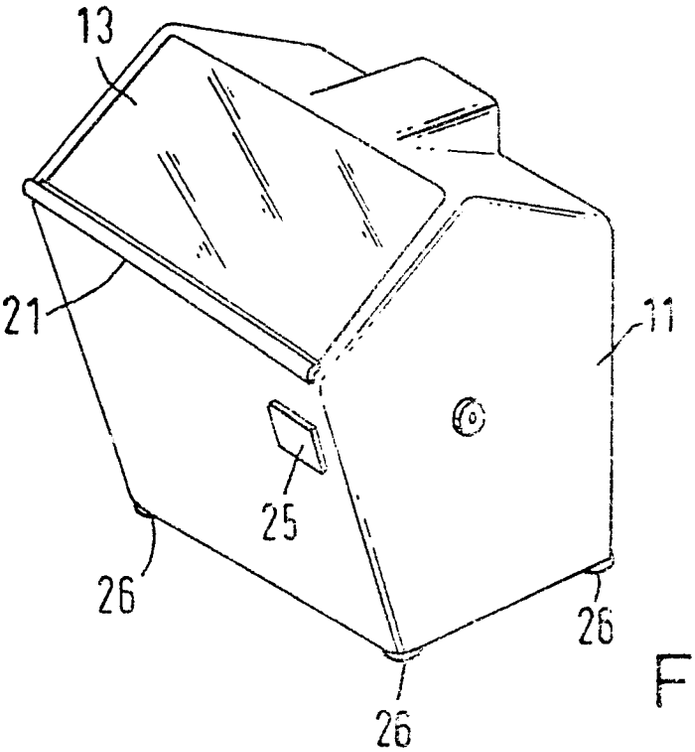

FIG. 1

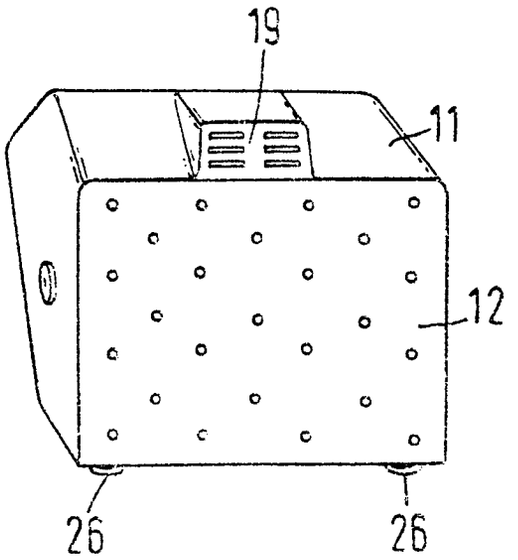

FIG. 2

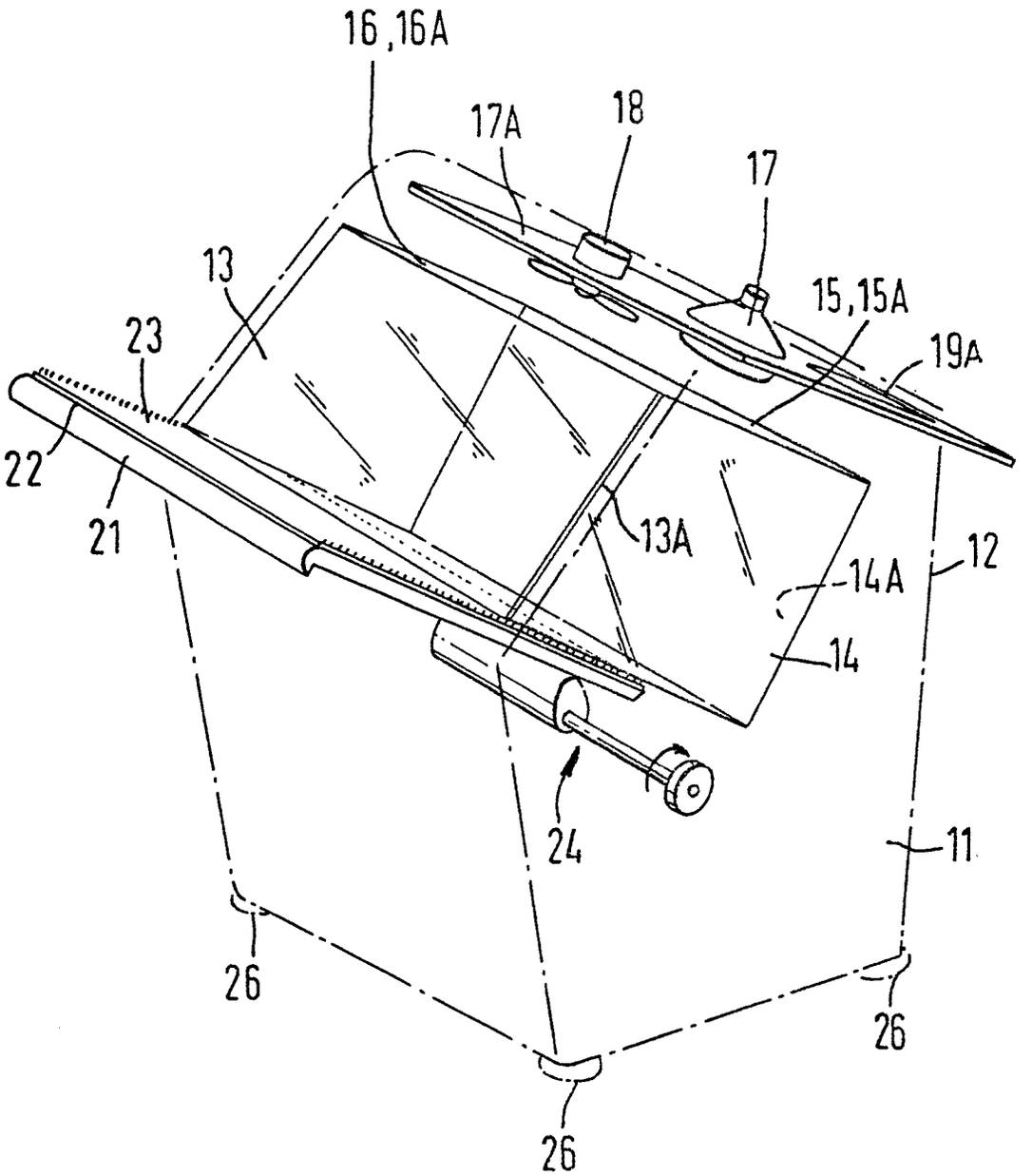

FIG. 3

European Patent Office

EUROPEAN SEARCH REPORT

Application number

EP 78 300 730.5

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
X	US - A - 3 823 500 (ADVERTISERS DISPLAY et al) * column 3, lines 1 to 15; column 4, lines 25 to 32 *	1 5
	GB - A - 1 229 912 (C.R. GEOFFROY) * page 1, lines 76 to 82 *	2,4
	US - A - 3 482 896 (A. BOGOSIAN) * fig. 1 *	6
A	DE - U - 1 688 603 (R. MAHN et al) * complete document *	
A	CH - A - 284 223 (W. FLOTOW) * complete document *	

CLASSIFICATION OF THE APPLICATION (Int Cl ²)

G 09 F 13/14
G 09 F 19/16

TECHNICAL FIELDS SEARCHED (Int.Cl.²)

G 02 B 27/08
G 09 F 5/04
G 09 F 13/12
G 09 F 13/14
G 09 F 19/16

CATEGORY OF CITED DOCUMENTS

X particularly relevant
A technological background
O. non-written disclosure
P intermediate document
T: theory or principle underlying the invention
E: conflicting application
D: document cited in the application
L: citation for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Berlin	07-03-1979	FUCHS

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