United States Patent [19]

Kiener

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[54] TOPOGRAPHICAL DISPLAY DEVICE

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 823,730, May 12, 1969, abandoned.

[52] **U.S. Cl.** **35/41**
[51] **Int. Cl.** **G09b 29/12**
[58] **Field of Search** 35/41; 46/17

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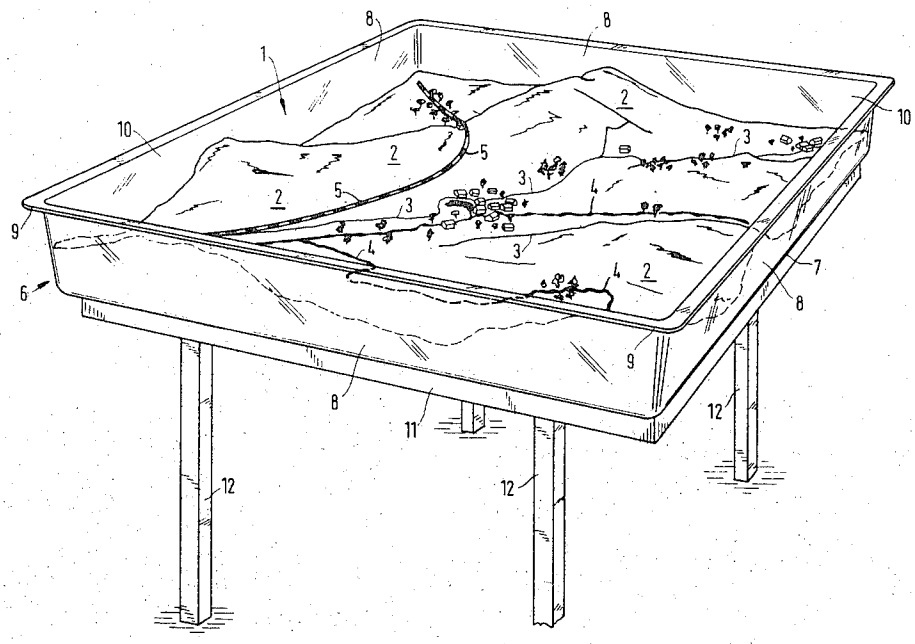
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Primary Examiner—Wm. H. Grieb
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[57] **ABSTRACT**

A device for displaying topographical features containing a terrain of a kneadable mass, the employment of a mixture of sawdust particles and and evaporation resistant liquid for said kneadable mass, in combination with means including chain-like parts for representation further elongated topographical features on said terrain, and a substantially rectangular casing of artificial material including integrally a bottom, vertical side-walls and a horizontal flange affixed to the upper rim of said side-walls for supporting a cover-plate, at least the latter being of transparent material, for encasing said terrain of kneadable mass and said means.

2 Claims, 5 Drawing Figures



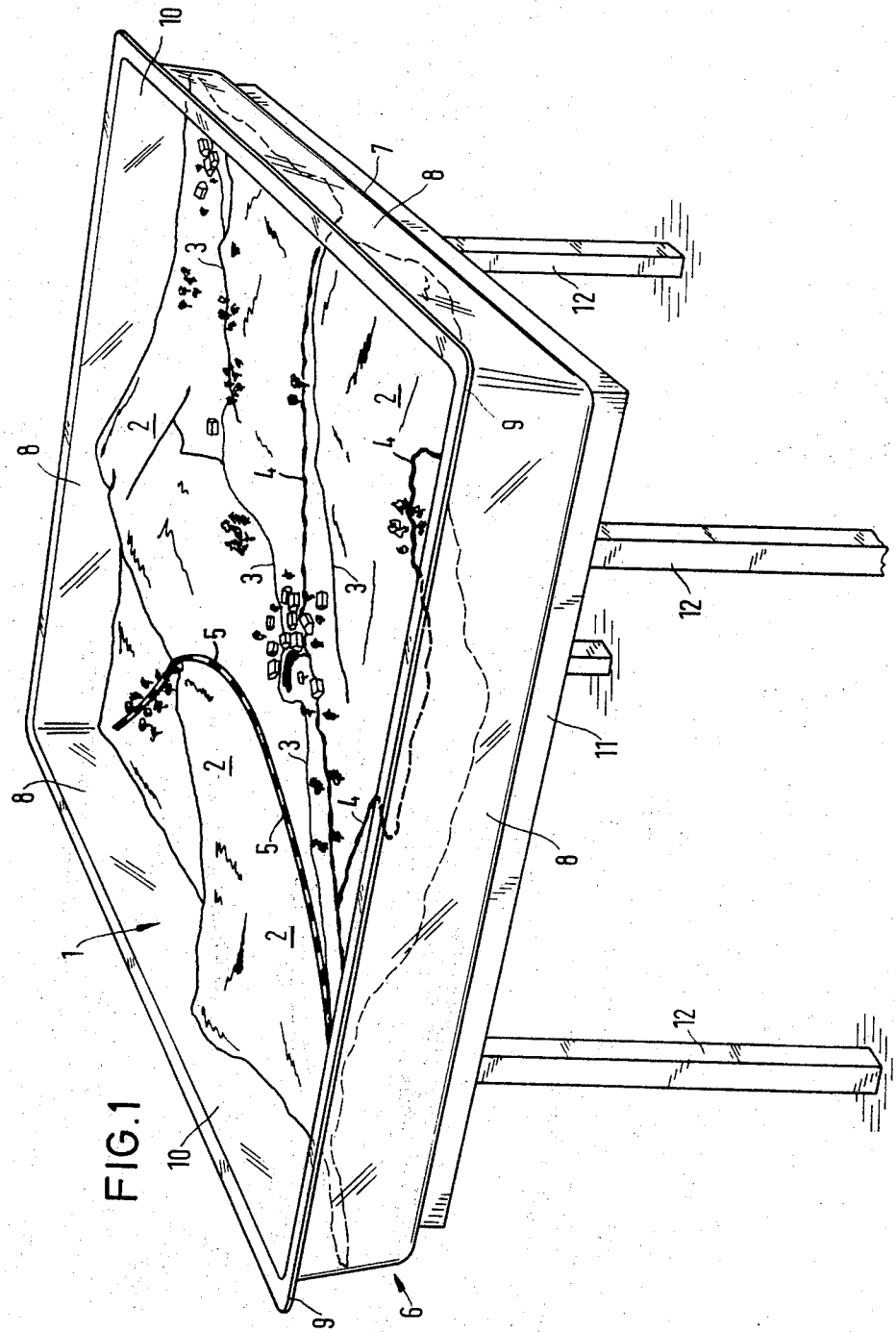


FIG.1

FIG. 2

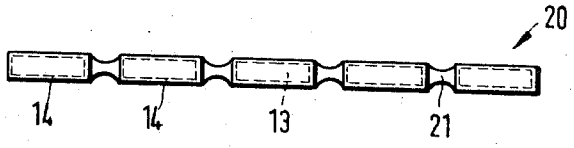


FIG. 3

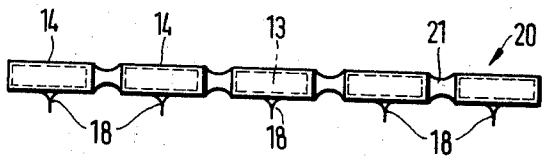


FIG. 4

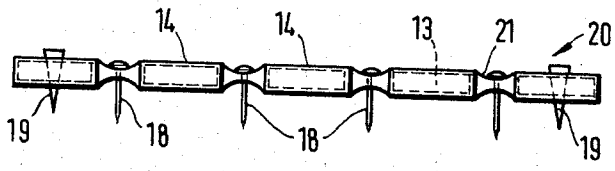
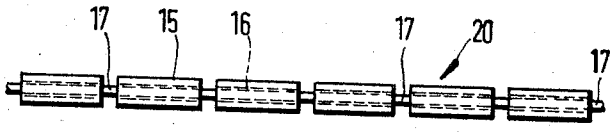


FIG. 5



TOPOGRAPHICAL DISPLAY DEVICE

This application is a continuation-in-part of application Ser. No. 823,730 filed May 12, 1969, now abandoned.

The present invention relates to a device for displaying topographical features containing a terrain of kneadable mass, comprising a mixture of sawdust and an evaporation resistant liquid for said kneadable mass, in combination with means for representing further topographical features upon said terrain, and a substantially rectangular casing for said terrain of kneadable mass and said means.

In peviously proposed devices for displaying topographical features sand moistened with water was to be shaped in order to represent the terrain, for instance for teaching purposes. A disadvantage of such a display device is, however, that the water evaporates from the sand which then crumbles. Furthermore the sand moistened with water gets dirty and forms soon a hard crust. For new use, that is to say for representing different features of terrain, the sand must be mixed again with water, which is very difficult, so that new sand with water is necessary.

A further disadvantage of this prior art proposal is that the water tends to leak out of the mass of sand together with dissolved substances which may become unpleasant in smell owing to micro-biological decomposition.

Under the mass of sand a box-like structure of wood or another opaque material was to be placed. Such a structure hindered inspection of the features represented by the mass of sand.

Proposals to overcome some of these disadvantages especially to avoid the contact of the kneading hands with the dirty sand by placing thin foils between the kneading hands and the mass of sand and water are insufficiant and not suitable as the foil hinders the kneading.

One object of the invention is to overcome these disadvantages by a device which is as simple as possible and employs a cheap material for the mass representing features of terrain and which does not have the disadvantages of the known displaying devices employing sand with water for the mass or foils over the sand.

The present invention comprises an improved device for displaying topographical features containing a terrain of a kneadable mass, in which a mixture of sawdust particles and an evaporation resistant liquid is employed, in combination with means for representing further topographical features upon said terrain, and a substantially rectangular casing for said terrain of kneadable mass and said means.

Further features and advantages of the invention are described in the following specification with reference to the accompanying drawings. In the drawings some embodiments of parts of the invention are represented.

FIG. 1 is a general view of an embodiment of display device in accordance with the invention, in perspective, the terrain and the means for representing elongated topographical features in a transparent box-like casing.

FIGS. 2 to 5 show some embodiments of elongated chain-like parts for representing elongated topographical features of the invention.

In FIG. 1 of the drawing is 1 the terrain made by kneading of a kneadable mass 2 of a mixture of sawdust particles and an evaporation resistant liquid such as glycerine or paraffin oil, white oil or something similar.

3 denotes ways or roads, 4 denotes rivers and 5 railways as elongated topographical features represented by means including elongated chain-like parts in different colors layed down upon the terrain.

For representing ways or roads 3, the elongated chain-like parts are colored black. For representing rivers 4, the elongated chain-like parts are colored blue. For representing railways 5, the elongated chain-like parts are colored alternately black and white.

The terrain 1 kneaded from the aforementioned mass 2 of a mixture of sawdust particles and paraffin oil or another evaporation resistant liquid and the means 3,4,5 for representing elongated topographical features, such as ways or roads 3, rivers 4 and railways 5 are disposed in a substantially rectangular casing 6 of artificial material (synthetic resin) including integrally a bottom 7, vertical side-walls 8 and horizontal flange 9 at the top of said side-walls 8 upon which a transparent cover plate 10 is removably disposed.

In the embodiment of FIG. 1 the casing is also made of transparent artificial material and placed on a table plate 11 with feet 12.

As sawdust of the mass 2 spruce wood is preferably used. For kneadable mass or mixture 2 20 parts by weight of finely divided and sieved sawdust particles are mixed with a liquid resistant to evaporation, such as paraffin oil, white oil or glycerine previously heated beated about 20° C and stirred together so as to bring about a thorough mixing so that a coherent mass is produced.

An object prepared from this mass maintains its shape for long periods of time and can be remodelled, that is to say changed in shape, without addition of liquid. Owing to the resistance to evaporation of the matrix liquid used, drying out does not take place. The mass is substantially lighter than sand in weight and enables changes in the features to be made, as may be required for example in teaching use, without any difficulty. The mass does not stick to the kneading hands, to moulds or other tools in contact with it. The matrix component such as paraffin oil, white oil or glycerine oil does not exert any harmful influence on human skin. Small models or the like placed on the mass are not made dirty by it, as is the case with a mass made of sand and water. In order to indicate railways, roads, rivers or the like use is made of chain-like parts which are laid on the mass after it has been shaped and attached by means of pins.

In accordance with the chain-like part 20 shown in FIG. 2 link-like parts 13 are covered with a continuous coating 14 of fabric or plastic foil or another suitable material. The link-like parts 13 can be made of metal, for instance lead, wood, or plastic material.

The coating 14 is bound between the link parts 13 to form the flexible connecting elements 21. In the case of the embodiment shown in FIG. 5 the chain-like part comprises link parts 15 provided with apertures 16. The link parts 15 are in the form of beads which are strung on a wire or string 17 which forms the flexible connecting element between the link parts 15. The link parts 15 or 13 are colored black in order to indicate a road or path, while for indicating a river they are colored blue. For indicating a railway they are colored alternately black and white.

The retaining or attachment means in the form of pins or needles **18**, or staples **19** surrounding the link parts **13** and **15** or the flexible connecting elements **14** and **17** can be rigidly connected with the chain parts (FIG. **3**) or the connecting elements **17** (FIG. **4**). They can also be passed through bead-like link parts. The link parts **13** and **15** can be made of a metal, such as lead, or wood, or plastic material. They can be surrounded with fabric or plastics material **14**. In shape they can be elongated, spherical, prism-shaped or sleeve shaped. They can be solid or hollow with any suitable cross-section. The coating **14** can be made of fabric, nylon, plastic material, or any suitable material with which a flexible core or thread can be made, such as wire, plastic material, nylon or hemp.

They or the link like parts of them can be made of glass of a suitable color. In the case of the use of a threading wire or flexible core it is possible to make use of a ferrous metal with a rust-resistant coating of tin or zinc. Such a flexible core enables the chain-like elements to be bent into a desired shape before being placed on the mass of the display device. The casing of the device, see FIG. **1**, can be made of transparent plane foil or sheet material, for instance synthetic resin. The pieces of sheet can be combined together to form the box-like substantially rectangular casing, with horizontal flange portions **9** at the top of the side-walls made by bending these walls. The flanges then provide an abutment for a flat transverse sheet plastics material as cover plate. If the mass forming a terrain **12** of the object is to remain in position a particularly long period of time, its surface can be sprayed by a material which hardens and thus prevents any crumbling. It is also possible to use such a coating of sprayed on material as a preparation for transport.

What I claim is:

1. A device for displaying topographical features, comprising in combination a substantially rectangular casing of artificial material including integrally a bottom, vertical side walls and a horizontal flange affixed to the upper rims of the side walls, and a cover plate removably disposed upon the horizontal flange of the side walls for encasing a terrain of kneadable mass, including a mixture of sawdust particles, and an evaporation-resistant liquid for the kneadable mass, means for representing further elongated parts, a flexible elongated enclosure retaining the elongated parts in spaced relationship therein, neck-like parts between the elongated parts for chain-like relation to the latter, the elongated chain-like parts comprising at least three such chain-like parts, one chain-like part being colored black for indicating ways, the second chain-like part being colored blue for indicating rivers, the third chain-like part being colored alternately black and white for indicating railways on the terrain.

2. A device for displaying topographical features, comprising in combination a substantially rectangular casing of artificial material including integrally a bottom, vertical side walls, and a horizontal flange affixed to the upper rims of the side walls, for encasing a terrain of kneadable mass, including a mixture of sawdust particles and an evaporation-resistant liquid for the kneadable mass, means for representing further elongated parts, a flexible elongated enclosure retaining the elongated parts in spaced relationship therein, neck-like parts between the elongated parts for chain-like relation to the latter.

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