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(71) Applicant: **Triga Partners S.R.O.**
566 01 Vysoké Mýto (CZ)

(72) Inventor: **Jesina, Petr**
566 01 Vysoké Mýto (CZ)

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(54) **LED illuminated furniture board**

(57) LED illuminated furniture board composed from massive solid support plate 1, LED lighting diods 2, 4 and cover plate 5. Massive support plate is made firm composite wood, fibreboard, laminated chipboard, solid wood or glass. Cover plate is made from transparent or semi-transparent material. The front and rear plate surfaces are smooth. Solid supporting plate is provided with hinges 6 for installation as a furniture door or hinges 7 for

independent instalation on the wall. The grooves or chambers milled from one side of the support plate to a depth less than the thickness of support plate are used for the placement of LED strips or independent LEDs. The channels milled from the same side of the support plate to a depth less than the thickness of board are used for storage of cables to massive supporting plate. Universal LED illuminated furniture board is designed for use in the furniture industry.

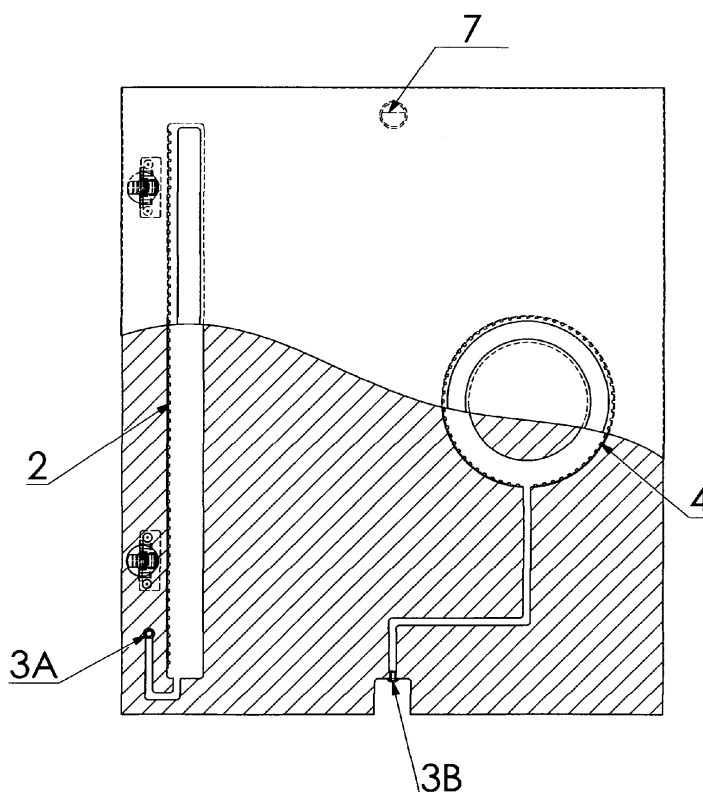
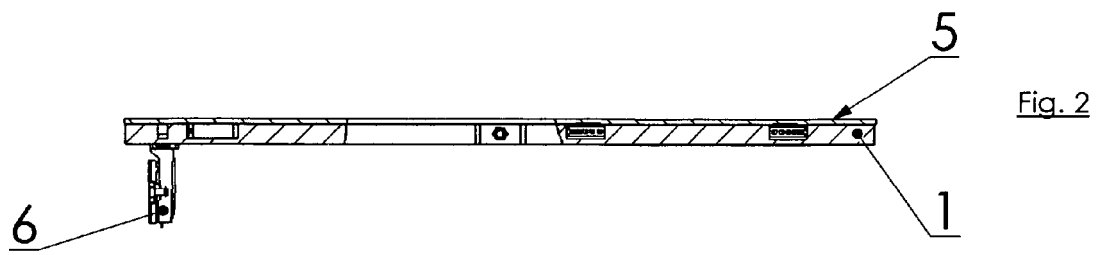


Fig. 1



Description

[0001] The technical solution relates to the structural arrangement of "universal LED illuminated furniture board" designed for use in the furniture industry.

Achievements

[0002] At present advanced installation of fixed lighting in the bathroom, kitchen or office furniture used conventionally located lighting elements. Lights are mounted to the side, the ceiling or floor boxes, possibly on the wall cladding panels. If such lighting act as light area in front of furniture or cabinets to illuminate working board, must always be handled simultaneously covering lighting fixture protective safety guard. The solution of such housing is necessary to observe provision of standards for the safety of electrical equipment. Requirements of these standards generally complicate the design of furniture with lighting, increase the cost of production significantly and limit the development of furniture designers.

The essence of the technical solution

[0003] The problems above are eliminated by technical solution of "universal LED illuminated furniture board". The solution is to use a massive plate of composite wood, MDF (fibreboard), LTD (laminated chipboard), solid wood or glass with a thickness of at least 12mm. The surface of this massive slabs are milled from a single slot, or chambers, which are not deeper than the thickness of solid boards to keep opposite side of the plate intact and smooth. These grooves and chambers, however, are deep and wide enough to enable them to be able to place a separate LED or LED-strips. Location of grooves and the chamber is free to selected product design and the requirement for lighting performance, however, is limited by the massive flat plates. To connect the LEDs and LED light strips by electrical cables the different grooves, interconnected channels are milled in the same area where they are milled grooves and chambers. Then the channels are milled from the LEDs to the other elements of the lighting system such as switch, socket, terminal block or transformer. After the mounting grooves LED diode or LED strips, after linking the system cables are inserted into the channels and connection of switches, sockets and other elements of the whole area is covered with a transparent solid cover plate, which functions as a sealed protective cover. Cover plate is connected with massive plate by double-sided tape or adhesive sealant, possibly a combination of both technologies. As cover plate can be used flat glass, semi-transparent, translucent sheets in different colors, dark flat glass with reduced transmission of light, silver mirror, which has in place the requirement to remove any bleed through the painted layer sandblasting or etching technique, a special highly reflective plate glass or transparent plastic plate.

Pictures on drawings

[0004] A concrete example of a technical solution is shown on the attached drawings, where Figure 1 shows the front view with a partially exposed surface with visible grooves, with LED lighting diode and connecting the cable channels, Fig.2 shows the cut in place with the grooves and canals and Fig.3 is a 3D model of plate with the disintegration the individual layers.

An example of a technical solution

[0005] Embodiment of universal LED illuminated furniture board to furniture to a massive plate milled two independent grooves for saving LED light strips, from which it is straight and one circular. Furthermore, the board milled channels for cables going from the grooves connector on the back of the 3A and the connector plate 3B in the bottom edge of the board. The grooves are equipped with LED diodes strips 2 and 4 are connected to cable connectors 3A and 3B. Cover plate 5 in this example consists of a silver mirror that has painted layer removed by sanding technique directly above the groove with LED diodes strips. This feature ensures the transmission of light through the mirror plate. Cover plate is connected with solid board by mastic adhesive. In case of mounting hinges 6 to back of board can be hung as a bathroom cabinet mirrored door with self-contained illumination. In case mounting central hinge 7 a board can be individually mounted on a wall, where it will serve as an illuminated bathroom mirror.

Industrial applicability

[0006] Assembled compact "universal LED illuminated furniture board" can be installed as doors in cabinet furniture hung on hinges or struts, can be freely hung on the wall and used as decorative lighting panel. With mirrored glass as the cover plate can serve as a illuminated decorative mirror in living interiors and bathrooms. With tempered safety glass as the cover plates "Universal LED illuminated furniture board" can be used as work desk. With colored glass or glass with colored translucent film as a cover plate can be used as an illuminated plate facing the kitchen. In all these cases is very advantageous, the rear plate of the "universal LED illuminated furniture board" is made of solid material, which greatly simplifies the installation and the installation will utilize the standard market commonly available furniture components and technologies. LED lighting system is energy efficient and durable, is simply shaped and does not limit the creativity of designers. The system works in low voltage and is therefore completely safe.

Claims

1. LED illuminated furniture board composed of a mas-

sive solid support plate, LED lighting diodes and cover plate is **characterized by** a massive supporting plate includes at least one groove or chamber, milled from one side of the plate to a depth less than the thickness of support plate for the placement of LED strips or independent LEDs and also includes channels milled from the same side of the plate to a depth less than the power of board for storage of cables.

2. LED illuminated furniture board according to claim 1, **characterized in that** the front and rear surface of furniture panels are smooth and solid supporting plate is provided with hinges or mounting.

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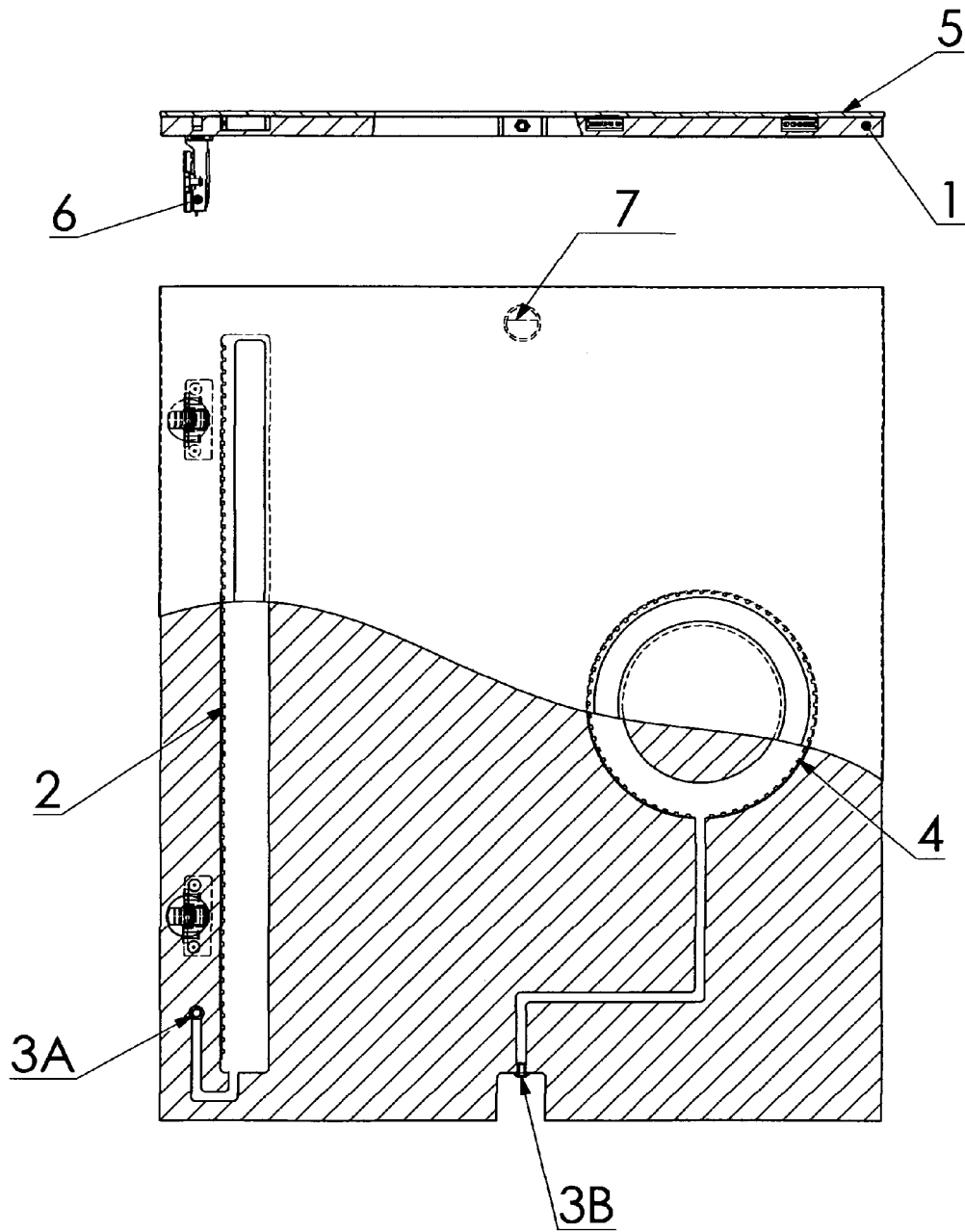
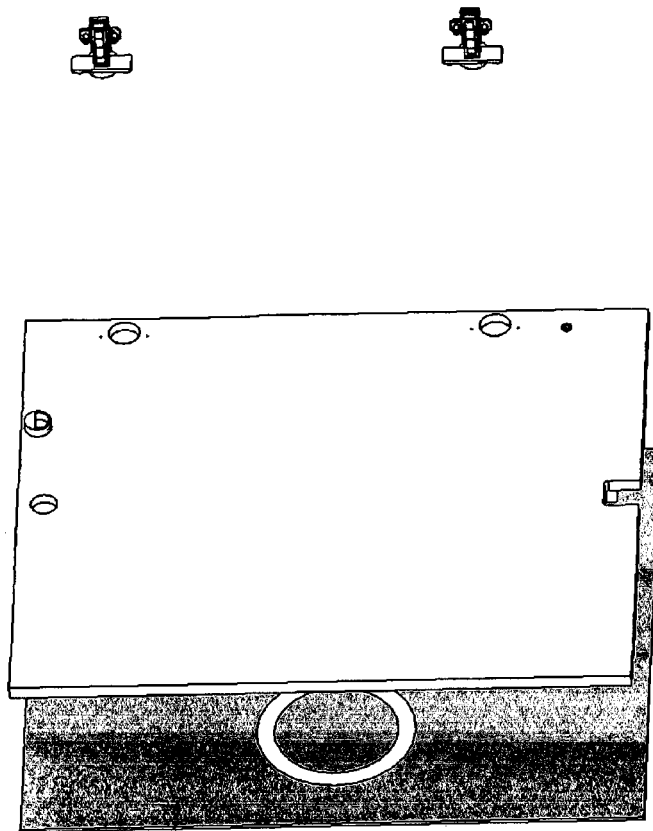


Fig. 2

Fig. 1



obr. 3
Rear view

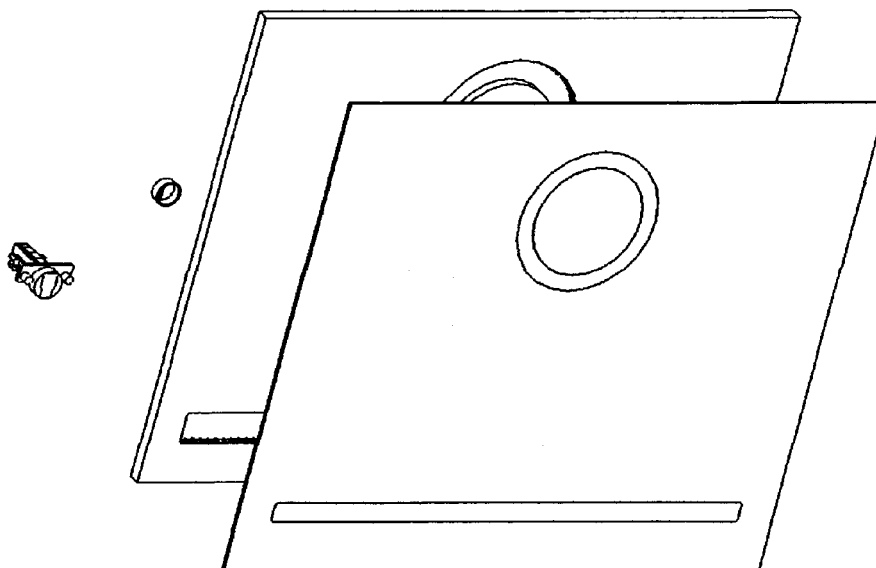


Fig. 3
Front view



EUROPEAN SEARCH REPORT

Application Number
EP 11 46 6005

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			TECHNICAL FIELDS SEARCHED (IPC)
			B44C B44F A47B F21V
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 19 April 2012	Examiner Ziegler, Hans-Jürgen
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 11 46 6005

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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