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**(54) A LIGHT FIXTURE FOR DIVERSIFIED LIGHTING AND SYSTEM FOR DIVERSIFIED ROOM LIGHTING**

EINE LEUCHE FÜR DIVERSIFIZIERTE BELEUCHTUNG UND SYSTEM FÜR DIVERSIFIZIERTE RAUMBELEUCHTUNG

UN LUMINAIRE POUR UN ÉCLAIRAGE DIVERSIFIÉ ET UN SYSTÈME POUR UN ÉCLAIRAGE DIVERSIFIÉ DE PIÈCE

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## Description

### Field

**[0001]** This invention relates to a light fixture for diversified lighting with a sliding lampshade and a system for diversified room lighting, particularly office or factory rooms,

### State of the Art

**[0002]** One of the requirements for correctly preparing an indoor worksite is to guarantee an employee an appropriate level of illuminance in the room. Every legislator emphasizes the necessity of satisfying the quality or quantity of lighting needs in an office or factory room and every workstation in this room.

**[0003]** The fundamental parameters of the lighting environment that should be taken into consideration when designing room lighting include:

- Distribution of luminance in an environment - The luminance is defined by the reflection coefficient of light from a surface. An appropriate luminance in a room will have a positive effect, inter alia, on the visual acuity, sensitivity, and performance of visual functions.
- Illuminance - The illuminance level and distribution affect the speed and convenience of spotting and performing visual tasks by an employee.
- Dazzle - Dazzle is a state in the vision process that results from a too high luminance level within the field of view or from inappropriate distribution of luminance (in time or space). The wrong dazzle may cause discomfort and, therefore, reduce the ability to recognize objects in the employee's field of view.
- Light hue and color rendering index - The lower the index value, the poorer the ability to reveal the colors.
- Illumination of the interior and light directionality - These parameters define the reasonability of modeling an interior by light and illuminating a task and the entire zone occupied by humans.
- Flickering and stroboscopic effects - Cause distraction and headache.

**[0004]** The information given in <http://www.instalacje-budowlanepi/8720-29-65-oswietlenie-biura--normy-i-zasady.html> (standards and rules for lighting office rooms) indicates that a lighting system for office rooms should consider energy aspects related to maximal usage of the daylight and selection of the optimal installation equipment. It is necessary to guarantee the required illuminance in the plane of visual work. Also, too high differences in lighting between the closer and farther proximity of the working area are unacceptable.

**[0005]** The availability of daylight in the worksite is recommended and preferred, but not always is possible.

Therefore, it is of great importance to illuminate office and factory rooms properly.

**[0006]** Solutions are known in the state of the art for illuminating worksites using lighting systems or spot installations in a room.

**[0007]** For example, the international patent publication WO2020057982A1 discloses a system for fastening to a suspended collector rail. The collector rail extends along a longitudinal axis and has multiple snap fasteners. Additionally, the system has two parts of a side profile. One may easily connect the parts of the side profile to the snap fasteners of the collector rail using snap fits.

**[0008]** The document US 2009/303737 A1 discloses a luminaire which has a box-like luminaire housing for receiving at least one elongate light source and at least one reflector surface arranged - seen from the region to be illuminated - neighbouring the light source, wherein the luminaire housing forms a light exit opening which is closed by a light exit element for the issue of light.

**[0009]** The document IT 2019 0000 2027 A1 describes an illuminating organ capable of providing light having sufficient intensity and homogeneity and / or distribution on the work surface of a user.

**[0010]** The document CH715 292 A1 discloses an elongated light fixture comprising a body with a least two retaining-locking recesses and at least one projection placed on the external surface of the wall of the lampshade.

**[0011]** The document CN 210 153 630 U describes a lamp with fixed-distance telescopic lens.

**[0012]** However, the light fixture and systems as in the invention now to be described are neither disclosed nor suggested in these documents.

**[0013]** In known systems for lighting office or factory space, when one needs to change the light intensity (a change of the illuminance or the luminance distribution), no matter if to weaken it or increase it, it is necessary to replace the whole light fixture or the lampshade (diffusor). Such a replacement involves high costs of replacing the whole system and/or the lighting installation and possible downtime of the whole office or employees working in the room where the replacement takes place.

### Summary

**[0014]** The object of the present invention is to propose a light fixture and a whole system comprising a light fixture according to the invention, which makes it possible to change the illumination produced by the light fixture without the necessity of replacing the lampshade (or diffusor) or the whole light fixture.

**[0015]** This objective has been reached by a light fixture and a system for diversified room lighting according to the invention.

**[0016]** The subject matter of the invention is a light fixture equipped with mutually slidable elements, being a body and a lampshade, with a possibility of snap fits. The light fixture has a body comprising a reflector fixedly built-

in within it, and the body has at least three retaining-locking recesses on the internal surface of its vertical wall, with which cooperates at least one projection located on the external surface of the wall of the lampshade, the lampshade being slidable relative to the body in the direction of the body outlet or body interior, wherein when the lampshade set in the first recess relative to the body, a focused light beam is emitted, whereas when set in the second recess, a partially diffused light beam is emitted, and when set in the third recess, a diffused light beam is emitted.

**[0017]** According to the invention, the light fixture has at least three retaining-locking recesses. A retaining-locking recess may be in the form of a longitudinal or circumferential groove, or it may be a spot recess with a flat bottom and with a circular or polygonal cross-section, or with a cross-section of any geometric shape.

**[0018]** Preferably, the retaining-locking recess extends linearly along the longitudinal axis on the two opposite sides of the body.

**[0019]** According to the invention, the projection may be spot-wise or linear, with the external surface having a frustoconical shape, a spherical sector shape, a prismatic shape, or in the form of a longitudinal or peripheral double-bending.

**[0020]** An appropriate number of spot-wise projections cooperate with spot-wise retaining-locking recesses, the projections being distributed on the wall of the lampshade symmetrically relative to the spots of the retaining-locking recess. In this case, projections may have the external surface having a frustoconical shape, a spherical sector shape or any frusto-pyramidal shape, or any prismatic shape.

**[0021]** According to the invention, with the lampshade set in the first recess relative to the body, a focused light beam is emitted, whereas when set in the second recess, a partially diffused light beam is emitted, and when set in the third recess, a diffused light beam is emitted.

**[0022]** Preferably, the lampshade is built from a plurality of materials, where the bottom and the lower part of the wall of the lampshade are made from a transparent material, and the upper part of the wall of the lampshade is made from a non-transparent material.

**[0023]** The cross-section of the body and the lampshade is in the form of coaxial rings or coaxial polygons, preferably regular polygons.

**[0024]** Preferably, the light fixture has a linear profile.

**[0025]** According to a first embodiment, a light fixture comprises a body in which a reflector is fixedly built-in. On the internal surface of the vertical wall, the body has at least one retaining-locking recess, with which a projection cooperates placed on the external surface of the lampshade wall. The retaining-locking recesses extend linearly along the longitudinal axis on the two opposite sides of the body symmetrically or asymmetrically.

The lampshade may be "clicked" into the light fixture in many positions by placing the projection within a selected retaining-locking recess. Depending on the retaining-

locking recess in which the lampshade is located, the light fixture may: a) shine widely, then the lampshade projects from the light fixture, or b) shine with a medium focus, then the lampshade is flush with the profile, or c) shine narrowly, then the lampshade is retracted in the light fixture. Depending on the shining effect one wants to obtain: diffused, partially diffused, or focused, as well as combinations of these effects, the body has at least three retaining-locking recesses, for example, three, four, five, or more retaining-locking recesses. To obtain the selected shining effect, one moves the lampshade relative to the body toward the outlet of the body or interior of the body.

**[0026]** According to the first embodiment, the retaining-locking recess may be in the form of a longitudinal or peripheral groove, for example, having a cross-section in the form of a right trapezoid, a triangular, tetragonal, or hexagonal prism.

**[0027]** In the first embodiment, the projection may be:

- spot-wise, with the external surface having a frustoconical shape, or a spherical sector shape,
- in the form of a longitudinal double-bending, where the outward bending is at an angle  $<90^\circ$ , and the inward bending is at an angle  $90^\circ$ ,
- in the form of a longitudinal double-bending of a cross-section in the form of an angle iron,
- in the form of a peripheral double-bending, where the outward bending is at an angle  $<90^\circ$ , and the inward bending is at an angle  $90^\circ$ ,
- in the form of a peripheral double-bending of a cross-section in the form of an angle iron.

**[0028]** The shape of the projection is matched to the shape of the retaining-locking recess.

**[0029]** In a second embodiment of the light fixture, the body is built similarly to the first embodiment, and it has retaining-locking recesses (for example, three) on the internal surface of the vertical wall. According to this embodiment of the invention, the retaining-locking recesses on the vertical wall have a form of arbitrarily located spots. The retaining-locking recesses may have a form of serially, horizontally distributed spots extending along the longitudinal axis on one or two opposite sides of the body. However, more preferably, they extend along the longitudinal axis on the two opposite sides of the body. Every retaining-locking recess is created by a line of spots. According to the invention, the term line of spots or spot-wise distribution means an arbitrary number of spots arranged in arbitrary distances each from other creating a line (straight line, a curve, zigzags, arcs, patterns) that extends through the whole length of the body or only through a part thereof. It is also possible that every retaining-locking recess is a separate line of spots. For example, the first retaining-locking recess is a straight line of spots, and the second retaining-locking recess is a line of spots creating a sinusoidal wave. The retaining-locking recesses may be created in one line or,

for example, in two parallel lines. The retaining-locking recesses extend along the longitudinal axis on the two opposite sides of the body symmetrically or asymmetrically. The spots, also called openings in the context of the present invention, are openings of any shape, for example, in the form of circles, ellipses, squares, rectangles, triangles. According to the present embodiment, with every line of spots creating retaining-locking recesses, cooperate the same number of projections on the external surface of the lampshade wall to insert corresponding projections into the corresponding number of openings in the line of spots of the retaining-locking recesses. The projections may be inserted into every opening of the line of spots or only into selected openings - for example, every second or every third opening. Openings (interchangeably called spots) in the line of spots have dimensions from 0.5 mm to 20 mm, preferably from 1 mm to 10 mm, and most preferably from 1 mm to 6 mm. Thus, in the present embodiment of the invention, the connection of the retaining-locking recess and the projections located on the external surface of the lampshade wall is spot-wise. The shape of every single projection in this embodiment is matched to the shape of the corresponding opening in the line of spots of the retaining-locking recess.

**[0030]** Preferably, in the present embodiment, the retaining-locking recesses may be spot-wise, of a round cross-section and a flat bottom or spot-wise of a polygonal cross-section and a flat bottom. Preferably, the projections are spot-wise, distributed on the wall of the lampshade symmetrically to the line of the spots of the retaining-locking recess and, for example, their external surface has a frustoconical shape, a spherical sector shape, or any frusto-pyramidal shape.

**[0031]** According to the invention, the external surface of the wall of the lampshade and the projections and/or projection placed thereon may be made from aluminum, steel, or plastic material.

**[0032]** According to the invention, the position of the lampshade relative to the body may be changed by manual deflecting the projection and/or projections beyond the recesses sliding the lampshade inside the body, depending on the shining effect one wants to obtain, toward the outlet or interior of the body.

**[0033]** Also, the subject matter of the invention is a system for diversified room lighting comprising a set of at least two light fixtures according to the invention. Every light fixture in the set has its individual setting by setting the lampshade relative to the body in any retaining-locking recess. The individual setting of a given light fixture ensures the desired general shining and/or spot shining and/or combined shining for different zones of the illuminated room.

**[0034]** Preferably, the set of the light fixtures consists of at least two light fixtures linearly connected with each other or separate light fixtures arbitrarily distributed in the room.

**[0035]** The terms "first," "second," "third" as used in the

specification and claims have the function of differentiating similar elements and do not define any sequential or chronological order. It is to be understood that the terms used in this way are interchangeable in corresponding circumstances and that the described embodiments of the present invention may operate in other sequences than the described or illustrated in the present document. According to the invention, a user may use only one retaining-locking recess for the whole period of using the light fixture, or he/she may change the light emission through the light fixture on his/her own.

**[0036]** The term "cooperates" means changing the position of the lampshade relative to the body by manually deflecting the projection and/or projections beyond the retaining-locking recess, sliding the lampshade inside the body, and clicking the projection and/or projections into another selected retaining-locking recess.

**[0037]** The advantage of the solution according to the invention is the possibility of changing the way the light fixture shines without the necessity of replacing the lampshade or the whole light fixture. When an investor/user wants to change the nature of the illumination produced by light fixtures in a given room, for example, from narrowly shining into a wide focus of the light, he/she does not have to replace the light fixtures nor components in the light fixtures, but only change the level of the lampshade from the first retaining-locking recess into the second or yet subsequent retaining-locking recess. The body of the light fixture according to the invention has at least three retaining-locking recesses.

**[0038]** Another important feature of the present solution, in particular for architects, is that they may consider using one universal light fixture instead of several different designs and may obtain various shining nature only by changing the position of the lampshade in the light fixture, whereby they may arrange designed space in different ways.

**[0039]** Using the light fixture or the whole system according to the invention is cheaper when obtaining diversified lighting.

**[0040]** The invention will be more fully understood and appreciated from the following detailed description, taken in connection with the accompanying drawings in which:

Fig. 1 schematically shows a light fixture in a first embodiment, without a reflector,

Fig. 2 schematically shows a vertical cross-section of a light fixture in a first embodiment in the extreme internal position of the lampshade,

Fig. 3 schematically shows a vertical cross-section of a light fixture in a first embodiment in the intermediate position of the lampshade,

Fig. 4 schematically shows a vertical cross-section of a light fixture in a first embodiment in the extreme external position of the lampshade,

Fig. 5 schematically shows a light fixture in a second embodiment, without a reflector,

Fig. 6 shows examples of a set of openings defining a retaining-locking recess of the second embodiment, Fig. 7 shows an example of projections of the second embodiment.

#### Detailed description

**[0041]** The following description presents embodiments of a system for diversified room lighting, particularly office or factory rooms, and a universal light fixture that makes it possible to change the illumination without the necessity of replacing the lampshade and/or the whole light fixture. The shining may be changed by a simple movement of the lampshade relative to the lamp's body, not requiring any special skills nor changing equipment.

**[0042]** However, it should be categorically emphasized that the examples described below do not limit the scope of protection but merely illustrate one of many possible applications of the present invention. The present invention may be applied everywhere, where there is a need for using diversified lighting for office or factory rooms using a light fixture or a system comprising at least two light fixtures.

**[0043]** The term "a light fixture" may define a fixture or another device for fastening a lampshade. These terms are used interchangeably.

**[0044]** Fig. 1 schematically illustrates a light fixture 10 in a first embodiment. The universal light fixture 10 comprises a body 1, in which a reflector 2 is fixedly built-in, nor shown in the drawing. On the internal surface of the vertical wall 1.1, the body 1 has at least one retaining-locking recess 1.2, 1.3, 1.4, with which a projection 3.2 cooperates placed on the external surface of the wall 3.1 of the lampshade 3. The retaining-locking recesses 1.2, 1.3, 1.4 extend linearly symmetrically along the longitudinal axis on the two opposite sides of the body 1. It is also possible that they extend asymmetrically. The lampshade 3 may be "clicked" into the light fixture 10 in many positions by placing the projection 3.2 within a selected retaining-locking recess 1.2, 1.3, 1.4. Depending on the retaining-locking recess 1.2, 1.3, 1.4 in which the lampshade 3 is located, the light fixture 10 may: a) shine widely, then the lampshade 3 projects from the light fixture, or b) shine with a medium focus, then the lampshade 3 is flush with the profile, or c) shine narrowly, then the lampshade 3 is retracted in the light fixture 10. Depending on the shining effect one wants to obtain: diffused, partially diffused, or focused, as well as combinations of these effects, the body 1 has at least three retaining-locking recesses, for example, three, four, five, or more retaining-locking recesses. According to the invention, the body 1 has at least three retaining-locking recesses. To obtain the selected shining effect, the lampshade 3 moves relative to the body 1 toward the outlet of the body 1 or interior of the body 1.

**[0045]** The cross-section of the body 1 and the lampshade 3 has a form of coaxial rings, for example, U, V, or  $\Omega$

- shaped, or coaxial polygons, preferably regular polygons. Also, the cross-section of the lampshade 3 may have one or two bends, convex or concave, or a curvilinear shape, concave or convex, or parabolic, circular or semicircular.

**[0046]** Preferably, the lampshade 3 is built from a plurality of materials. The bottom 3.3 and the lower part 3.4 of the wall 3.1 of the lampshade 3 are made from a transparent material. For example, they are made from glass, acrylic glass, polycarbonate, or polystyrene. On the contrary, the upper part 3.5 of the wall 3.1 of the lampshade 3 is made from a non-transparent material. It may be, for example, aluminum, plastic material, for example pigmented polycarbonate, polystyrene, polypropylene. Similarly, the body 1 may be made from aluminum, steel, or plastic material.

**[0047]** Preferably, the light fixture 10 has a linear profile. However, the present invention may be embodied in any fixture. For example, the light fixture 10 has a length from 30 cm to 300, preferably from 20 cm to 200 cm, and most preferably 122 cm.

**[0048]** As shown schematically in Fig. 2, the light fixture 10 comprises a body 1, in which a reflector 2 is fixedly built-in. Preferably, the body 1 of the light fixture 10 has three retaining-locking recesses 1.2, 1.3, 1.4, with which a projection 3.2 cooperates. According to the invention, with the lampshade 3 set in the first recess 1.2 relative to the body 1, i.e., in the extreme internal position, the light fixture 10 emits a focused light beam, as shown in Fig. 2. If the lampshade 3 will be positioned in the second intermediate recess 1.3 relative to the body 1, the light fixture 10 emits a partially diffused light beam - as shown in Fig. 3. Fig. 4 illustrates the setting of the lampshade 3 in the third recess 1.4 relative to the body 1, i.e., in the extreme external position of the lampshade 3, when the light fixture 10 emits a diffused light beam. The position of the lampshade 3 relative to the body 1 may be changed by manual deflecting the projections 3.2. beyond the recesses 1.2, 1.3, 1.4 sliding the lampshade 3 inside the body 1, depending on the needs, toward the outlet or interior of the body 1.

**[0049]** According to the present embodiment, the retaining-locking recess 1.2, 1.3, 1.4 may be in the form of a longitudinal or peripheral groove, for example, having a cross-section in the form of a right trapezoid, a triangle, a tetragon, or a hexagonal prism.

**[0050]** The projection 3.2 may be:

- spot-wise, with the external surface having a frustoconical shape, a spherical sector shape,
- in the form of a longitudinal double-bending, where the outward bending is at an angle  $<90^\circ$ , and the inward bending is at an angle  $90^\circ$ ,
- in the form of a longitudinal double-bending of a cross-section in the form of an angle iron,
- in the form of a peripheral double-bending, where the outward bending is at an angle  $<90^\circ$ , and the inward bending is at an angle  $90^\circ$ ,

- in the form of a peripheral double-bending of a cross-section in the form of an angle iron.

**[0051]** In a second embodiment, the body 1 is built similarly to the first embodiment, and on the internal surface of the vertical wall 1.1', it has three retaining-locking recesses 1.2', 1.3', 1.4'. According to this embodiment of the invention, the retaining-locking recess 1.2', 1.3', 1.4' on the vertical wall 1.1' has a form of arbitrarily located spots. It is possible that every retaining-locking recess 1.2', 1.3', 1.4' is made in the form of serially, horizontally distributed spots extending along the longitudinal axis on the two opposite sides of the body 1. It is also possible that every retaining-locking recess 1.2', 1.3', 1.4' is created by a line of spots. The retaining-locking recesses 1.2', 1.3', 1.4' may be created in one line. Fig. 5 shows the retaining-locking recesses 1.2', 1.3', 1.4' created by spots making a line of spots extending horizontally along the longitudinal axis of the body 1, where every line of spots of the retaining-locking recess 1.2', 1.3', 1.4' is created by 10 openings, uniformly spaced each from other. The number of openings depends proportionally on the length of the light fixture 10, i.e., the number of openings may be proportionally higher or smaller. Fig. 5 shows that the retaining-locking recesses 1.2', 1.3', 1.4' extend symmetrically along the longitudinal axis on the two opposite sides of the body 1. Openings in the line of spots have dimensions from 1 mm to 10 mm, most preferably from 1 mm to 6 mm. Fig. 6 shows examples of arranging the lines of spots on the vertical wall 1.1'. It shows that the spots may be of any shape, for example, in the form of circles, ellipses, squares, rectangles, triangles, and of any size from 1 mm to 20 mm, preferably from 1 mm to 10 mm, and most preferably from 1 mm to 6 mm. For example, Fig. 6a shows three retaining-locking recesses 1.2', 1.3', 1.4' in the form of spots of a round cross-section, that are spaced from each other by a diameter of a circle, distributed by 10 circles in each of the three retaining-locking recesses 1.2', 1.3', 1.4', and the circles of three retaining-locking recesses 1.2', 1.3', 1.4' create 10 columns consisting of 3 circles. Fig. 6b shows the retaining-locking recesses 1.2', 1.3', 1.4' in the form of circles arbitrarily arranged on the vertical wall 1.1', and Fig. 6c shows the example of Fig. 6a but with the circles spaced from each other by two diameters of the circle. Fig. 6d shows 5 circles, where the second retaining-locking recess 1.3' is shifted to the right by the half of the distance between the circles relative to the first 1.2' and the third 1.4' of the retaining-locking recesses. Fig. 6e shows spots having a hexagonal cross-section, Fig. 6f - triangular cross-section, and Fig. 6g - rectangular cross-section. Fig. 6h shows a distribution of spots similar to that shown in Fig. 6d, and the spots have a rectangular cross-section. Fig. 6i shows an arbitrary arrangement of spots having a rectangular cross-section, and Fig. 6 shows the usage of spots defining the retaining-locking recess 1.2', 1.3', 1.4' of different cross-sections.

**[0052]** According to the present embodiment, an appropriate number of projections 3.2' cooperate with every line of spots defining a retaining-locking recess 1.2', 1.3', 1.4', the projections being located on the external surface of the wall 3.1 of the lampshade 3, such that at least one projection 3.2' is inserted into spots defining the retaining-locking recess 1.2', 1.3', 1.4'. Thus, the projections 3.2' may be inserted into every spot of the retaining-locking recess 1.2', 1.3', 1.4' or only into selected spots - for example, into every second or every third spot of the given retaining-locking recess 1.2', 1.3', 1.4'. In the present embodiment of the invention, the joint between the retaining-locking recess 1.2', 1.3', 1.4' and the projections 3.2' located on the external surface of the wall 3.1 of the lampshade 3 is spot-wise. According to the present embodiment, the external surface of the wall 3.1 of the lampshade 3 and the projections placed thereon 3.2' may be made from aluminum, steel, or plastic material. The shape of the projection 3.2' is matched to the shape of the spot of the retaining-locking recess 1.2', 1.3', 1.4'. The position of the lampshade 3 relative to the body 1 may be changed by manual deflecting all the projections 3.2' beyond the retaining-locking recesses 1.2', 1.3', 1.4' sliding the lampshade 3 inside the body 1, depending on the shining effect one wants to obtain, toward the outlet or interior of the body 1.

**[0053]** According to the invention, if the lampshade 3 is set in the first recess 1.2 relative to the body 1', i.e., in the extreme internal position, the light fixture 10 emits a focused light beam, as shown in Fig. 2 for the first embodiment. If the lampshade 3 will be positioned in the second intermediate recess 1.3' relative to the body 1, the light fixture 10 emits a partially diffused light beam - as shown in Fig. 3 for the first embodiment. Fig. 4 illustrates the setting of the lampshade 3 in the third recess 1.4 relative to the body 1', i.e., in the extreme external position of the lampshade 3, when the light fixture 10 emits a diffused light beam.

**[0054]** Preferably, the retaining-locking recesses 1.2', 1.3', 1.4' in the present embodiment may be spot-wise, of a round cross-section and a flat bottom or spot-wise of a polygonal cross-section and a flat bottom. Preferably, the projections 3.2' are spot-wise, distributed on the wall 3.1 symmetrically to the line of the spots of the retaining-locking recess 1.2', 1.3', 1.4' and, for example, their external surface has a frustoconical shape, a spherical sector shape or any frusto-pyramidal shape, or a prismatic shape. Fig. 7 shows an exemplary arrangement of the projections 3.2' on the wall 3.1 according to the second embodiment.

**[0055]** In the system for diversified room lighting according to the invention, one illuminates a room by means of at least two light fixtures, and, preferably, for every universal light fixture 10 in a set, one selects individual settings by setting the lampshade 3 in the first recess 1.2, 1.2' or the second recess 1.3, 1.3' or the third recess 1.4, 1.4' relative to the body 1. Thus, it is possible that in a single room which has, for example, three light fixtures

installed, one light fixture 10 emits a partially diffused light beam, since it is in the second intermediate recess 1.3, 1.3', a second light fixture 10 emits a diffused light beam, since it is in the extreme external position of the lampshade 3, because the projections 3.2 are clicked into the third recess 1.4, 1.4', and the third light fixture 10 emits a focused light beam since the projections 3.2 are clicked into the first recess 1.2, 1.2', i.e., into the extreme internal one.

**[0056]** Preferably, the system consists of at least two light fixtures 10 connected linearly, in which the lampshade 3 is in the same position - extreme internal, intermediate, or extreme external. However, any positions of the lampshade 3 are possible.

**[0057]** A system comprising light fixtures may constitute a first set of at least two universal light fixtures 10 connected linearly with each other, and a second set of subsequent at least two light fixtures 10, also connected linearly with each other, but not connected with the first set of the light fixtures 10. The system may have any arbitrary number of sets of the universal light fixtures 10.

**[0058]** According to the invention, a system of universal light fixtures may comprise light fixtures 10 that are arbitrarily distributed in a room, and its arrangement depends on individual needs - the light fixtures 10 according to the present solution may create a square, a rectangle, a circle, or any other geometric shape. Also, they may be arranged in the form of parallel, perpendicular, or arbitrarily arranged lines.

**[0059]** According to the invention, in the system for diversified room lighting comprising at least two light fixtures 10, every light fixture 10 has its setting, ensuring the desired shining effect: diffused, partially diffused, or focused for different zones of the illuminated room.

**[0060]** According to the invention, diffused shining is understood as uniform illumination of a room, not considering any specific needs for illuminating any particular zones thereof. Focused shining is meant to illuminate the region of a visual job, considering specific illumination needs, for example, to expose details, the focused shining being switched on independently on the diffused shining. Preferably, the focused shining is used to illuminate work areas or artistic installations (pictures, sculptures). The partially diffused shining denotes shining that combines the features of the focused and diffused shining.

**[0061]** The system for diversified room lighting ensures desired illuminance at the optimal energy saving.

#### List of references

#### [0062]

10 light fixture  
1 body  
1.1 vertical wall  
1.2 first retaining-locking recess  
1.3 second retaining-locking recess

1.4 third retaining-locking recess  
1.2' first retaining-locking recess  
1.3' second retaining-locking recess  
1.4' third retaining-locking recess  
5 2 reflector  
3 lampshade  
3.1 wall of the lampshade  
3.2 projection  
3.2' projections  
10 3.3 bottom  
3.4 the lower part of the wall of the lampshade  
3.5 the upper part of the wall of the lampshade

#### Claims

- 15
1. A light fixture (10) equipped with mutually slidable elements, being a body and a lampshade, with a possibility of snap fits, wherein a body (1), comprising a reflector (2) fixedly built-in within it, has at least three retaining-locking recesses (1.2, 1.3, 1.4, 1.2', 1.3', 1.4') on the internal surface of its vertical wall (1.1, 1.1'), with which cooperates at least one projection (3.2, 3.2') placed on the external surface of the wall (3.1) of the lampshade (3), the lampshade (3) being slidable relative to the body (1) toward the outlet of the body (1) or interior of the body (1), wherein when the lampshade (3) is set in the first recess (1.2, 1.2') relative to the body (1), a focused light beam is emitted, whereas when set in the second recess (1.3, 1.3'), a partially diffused light beam is emitted, and when set in the third recess (1.4, 1.4'), a diffused light beam is emitted.
  2. The light fixture according to claim 1, **characterized in that** the retaining-locking recess (1.2, 1.3, 1.4) has a form of a longitudinal or circumferential groove.
  3. The light fixture according to claim 1, **characterized in that** the retaining-locking recess (1.2', 1.3', 1.4') is spot-wise with a flat bottom and a circular or polygonal cross-section, or with a cross-section of any geometric shape.
  4. The light fixture according to one of the above claims, **characterized in that** the retaining-locking recess (1.2, 1.3, 1.4, 1.2', 1.3', 1.4') extends linearly along the longitudinal axis on the two opposite sides of the body (1).
  5. The light fixture according to claim 1 or 2 **characterized in that** the projection (3.2) jest spot-wise or linear, with the external surface having a frustoconical shape, a spherical sector shape or a prismatic shape, or in the form of a longitudinal or peripheral double-bending.
  6. The light fixture according to claim 1 or 3, **characterized in that** an appropriate number of spot-wise
- 20  
25  
30  
35  
40  
45  
50  
55

projections (3.2') cooperate with spot-wise retaining-locking recesses (1.2', 1.3', 1.4'), the projections being distributed on the wall (3.1) of the lampshade (3) symmetrically relative to the spots of the retaining-locking recess (1.2', 1.3', 1.4').

7. The light fixture according to claim 6, **characterized in that** the projections (3.2') have the external surface having a frustoconical shape, a spherical sector shape, or any frusto-pyramidal shape, or any prismatic shape.
8. The light fixture according to claim 1, **characterized in that** the lampshade (3) is built from a plurality of materials, where the bottom (3.3) and the lower part (3.4) of the wall (3.1) of the lampshade (3) are made from a transparent material, and the upper part (3.5) of the wall (3.1) of the lampshade (3) is made from a non-transparent material.
9. The light fixture according to claim 1, **characterized in that** the cross-section of the body (1) and the lampshade (3) has a form of coaxial rings or coaxial polygons, preferably regular polygons.
10. The light fixture according to claim 1, **characterized in that** it has a linear profile.
11. A system for diversified room lighting comprising a set of at least two light fixtures (10) as defined in claims 1-10.
12. The system according to claim 11, **characterized in that** every light fixture (10) in a set has its individual setting by setting the lampshade (3) in any recess (1.2, 1.3, 1.4, 1.2', 1.3', 1.4') relative to the body (1), whereby the individual setting of a given light fixture (10) ensures the desired general shining and/or spot shining and/or combined shining for different zones of the illuminated room.
13. The system according to claim 11 or 12, **characterized in that** at least two light fixtures (10) comprised in a set are arbitrarily distributed in a room and are connected linearly with each other and/or are not connected.

#### Patentansprüche

1. Leuchte (10), die mit wechselseitig gleitfähigen Elementen, die ein Körper und ein Lampenschirm sind, mit einer Möglichkeit von Schnapppassungen ausgestattet ist, wobei ein Körper (1), der einen fest darin eingebauten Reflektor (2) umfasst, mindestens drei Rückhalte-Verriegelungsausnehmungen (1.2, 1.3, 1.4, 1.2', 1.3', 1.4') an der Innenfläche seiner vertikalen Wand (1.1, 1.1') aufweist, mit wel-

chen mindestens ein Vorsprung (3.2, 3.2') zusammenwirkt, der an der Außenfläche der Wand (3.1) des Lampenschirms (3) platziert ist, wobei der Lampenschirm (3) relativ zu dem Körper (1) zu dem Auslass des Körpers (1) oder dem Inneren des Körpers (1) gleitfähig ist, wobei, wenn der Lampenschirm (3) in der ersten Ausnehmung (1.2, 1.2') relativ zu dem Körper (1) eingerichtet ist, ein fokussierter Lichtstrahl ausgestrahlt wird, während, wenn er in der zweiten Ausnehmung (1.3, 1.3') eingerichtet ist, ein teilweise diffuser Lichtstrahl ausgestrahlt wird, und wenn er in der dritten Ausnehmung (1.4, 1.4') eingerichtet ist, ein diffuser Lichtstrahl ausgestrahlt wird.

2. Leuchte nach Anspruch 1, **dadurch gekennzeichnet, dass** die Rückhalte-Verriegelungsausnehmung (1.2, 1.3, 1.4) eine Form einer länglichen oder um den Umfang verlaufenden Kerbe aufweist.
3. Leuchte nach Anspruch 1, **dadurch gekennzeichnet, dass** die Rückhalte-Verriegelungsausnehmung (1.2', 1.3', 1.4') punktförmig mit einem flachen Boden und einem kreisförmigen oder vieleckigen Querschnitt oder mit einem Querschnitt einer beliebigen geometrischen Form ist.
4. Leuchte nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** sich die Rückhalte-Verriegelungsausnehmung (1.2, 1.3, 1.4, 1.2', 1.3', 1.4') linear entlang der Längsachse an den zwei gegenüberliegenden Seiten des Körpers (1) erstreckt.
5. Leuchte nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der Vorsprung (3.2) punktförmig oder linear ist, wobei die Außenfläche kegelförmig, kugelsektorförmig oder in einer prismatischen Form oder in Form einer Längs- oder Umfangsdoppelbiegung ist.
6. Leuchte nach Anspruch 1 oder 3, **dadurch gekennzeichnet, dass** eine entsprechende Anzahl von punktförmigen Vorsprüngen (3.2') mit punktförmigen Rückhalte-Verriegelungsausnehmungen (1.2', 1.3', 1.4') zusammenwirkt, wobei die Vorsprünge auf der Wand (3.1) des Lampenschirms (3) symmetrisch relativ zu den Punkten der Rückhalte-Verriegelungsausnehmung (1.2', 1.3', 1.4') verteilt sind.
7. Leuchte nach Anspruch 6, **dadurch gekennzeichnet, dass** die Vorsprünge (3.2') die Außenfläche haben, die kegelförmig, kugelsektorförmig, pyramidenstumpfförmig oder prismatisch ist.
8. Leuchte nach Anspruch 1, **dadurch gekennzeichnet, dass** der Lampenschirm (3) aus einer Vielzahl von Materialien aufgebaut ist, wobei der Boden (3.3)

und der untere Teil (3.4) der Wand (3.1) des Lampenschirms (3) aus einem transparenten Material hergestellt sind und der obere Teil (3.5) der Wand (3.1) des Lampenschirms (3) aus einem nicht transparenten Material hergestellt ist.

9. Leuchte nach Anspruch 1, **dadurch gekennzeichnet, dass** der Querschnitt des Körpers (1) und des Lampenschirms (3) eine Form von koaxialen Ringen oder koaxialen Vielecken, vorzugsweise regelmäßigen Vielecken hat.
10. Leuchte nach Anspruch 1, **dadurch gekennzeichnet, dass** sie ein lineares Profil hat.
11. System zur diversifizierten Raumbelichtung, das einen Satz von mindestens zwei Leuchten (10) wie in Ansprüchen 1-10 definiert umfasst.
12. System nach Anspruch 11, **dadurch gekennzeichnet, dass** jede Leuchte (10) in einem Satz ihre individuelle Einrichtung hat, indem der Lampenschirm (3) in einer Ausnehmung (1.2, 1.3, 1.4, 1.2', 1.3', 1.4') relativ zu dem Körper (1) eingerichtet wird, wodurch die individuelle Einrichtung einer gegebenen Leuchte (10) das gewünschte allgemeine Leuchten und /oder Punktleuchten und/oder ein kombiniertes Leuchten für verschiedene Zonen des beleuchteten Raums sicherstellt.
13. System nach Anspruch 11 oder 12, **dadurch gekennzeichnet, dass** mindestens zwei Leuchten (10), die in einem Satz umfasst sind, beliebig in einem Raum verteilt sind und linear miteinander verbunden und/oder nicht verbunden sind.

## Revendications

1. Luminaire (10) équipé d'éléments coulissants, constitués d'un corps et d'un abatjour, avec possibilité d'encliquetage, dans lequel un corps (1), comprenant un réflecteur (2) intégré de manière fixe, comporte au moins trois évidements de retenue-verrouillage (1.2, 1.3, 1.4, 1.2', 1.3', 1.4') sur la surface interne de sa paroi verticale (1.1, 1.1'), avec lesquels coopère au moins une protubérance (3.2, 3.2') placée sur la surface externe de la paroi (3.1) de l'abat-jour (3), l'abat-jour (3) étant coulissant par rapport au corps (1) vers la sortie du corps (1) ou l'intérieur du corps (1), dans lequel lorsque l'abat-jour (3) est placé dans le premier évidement (1.2, 1.2') par rapport au corps (1), un faisceau lumineux focalisé est émis, tandis que lorsqu'il est placé dans le deuxième évidement (1.3, 1.3'), un faisceau lumineux partiellement diffusé est émis et lorsqu'il est placé dans le troisième évidement (1.4, 1.4'), un faisceau lumineux diffusé est émis

2. Luminaire selon la revendication 1, **caractérisé en ce que** l'évidement de retenue-verrouillage (1.2, 1.3, 1.4) présente une forme de rainure longitudinale ou circonférentielle.
3. Luminaire selon la revendication 1, **caractérisé en ce que** l'évidement de retenue-verrouillage (1.2', 1.3', 1.4') est ponctuel, à fond plat et de section transversale circulaire ou polygonale ou avec une section transversale de forme géométrique quelconque.
4. Luminaire selon une des revendications précédentes, **caractérisé en ce que** l'évidement de retenue-verrouillage (1.2, 1.3, 1.4, 1.2', 1.3', 1.4') s'étend linéairement le long de l'axe longitudinal sur les deux côtés opposés du corps (1).
5. Luminaire selon la revendication 1 ou 2, **caractérisé en ce que** la protubérance (3.2) est ponctuelle ou linéaire, la surface extérieure ayant une forme tronconique, une forme de secteur sphérique ou une forme prismatique, ou sous la forme d'une double courbure longitudinale ou périphérique.
6. Luminaire selon la revendication 1 ou 3, **caractérisé en ce qu'**un nombre approprié de protubérances (3.2') coopèrent ponctuellement avec des évidements de retenue-verrouillage (1.2', 1.3', 1.4') de chaque spot, les protubérances étant réparties sur la paroi (3.1) de l'abat-jour (3) symétriquement par rapport aux points de l'évidement de retenue-verrouillage (1.2', 1.3', 1.4').
7. Luminaire selon la revendication 6, **caractérisé en ce que** les protubérances (3, 2') ont une surface externe de forme tronconique, de forme de secteur sphérique ou de toute forme pyramidale tronquée ou de toute forme prismatique.
8. Luminaire selon la revendication 1, **caractérisé en ce que** l'abat-jour (3) est constitué de plusieurs matériaux, où le fond (3.3) et la partie inférieure (3.4) de la paroi (3.1) de l'abat-jour (3) sont constitués d'un matériau transparent et la partie supérieure (3.5) de la paroi (3.1) de l'abat-jour (3) est constituée d'un matériau opaque.
9. Luminaire selon la revendication 1, **caractérisé en ce que** la section transversale du corps (1) et de l'abat-jour (3) présente une forme d'anneaux coaxiaux ou de polygones coaxiaux, de préférence des polygones réguliers.
10. Luminaire selon la revendication 1, **caractérisé en ce qu'**il présente un profil linéaire.
11. Système d'éclairage de pièce diversifié comprenant

un ensemble d'au moins deux luminaires (10) tels que définis dans les revendications 1 à 10.

12. Système selon la revendication 11, **caractérisé en ce que** chaque luminaire (10) d'un ensemble possède son réglage individuel en plaçant l'abat-jour (3) dans un évidement quelconque (1.2, 1.3, 1.4, 1.2', 1.3', 1.4') par rapport au corps (1), moyennant quoi le réglage individuel d'un luminaire donné (10) assure l'éclairage général et/ou l'éclairage ponctuel et/ou l'éclairage combiné souhaités pour différentes zones de la pièce éclairée. 5 10
13. Système selon la revendication 11 ou 12, **caractérisé en ce qu'**au moins deux luminaires (10) compris dans un ensemble sont répartis arbitrairement dans une pièce et sont connectés linéairement entre eux et/ou ne sont pas connectés. 15 20 25 30 35 40 45 50 55

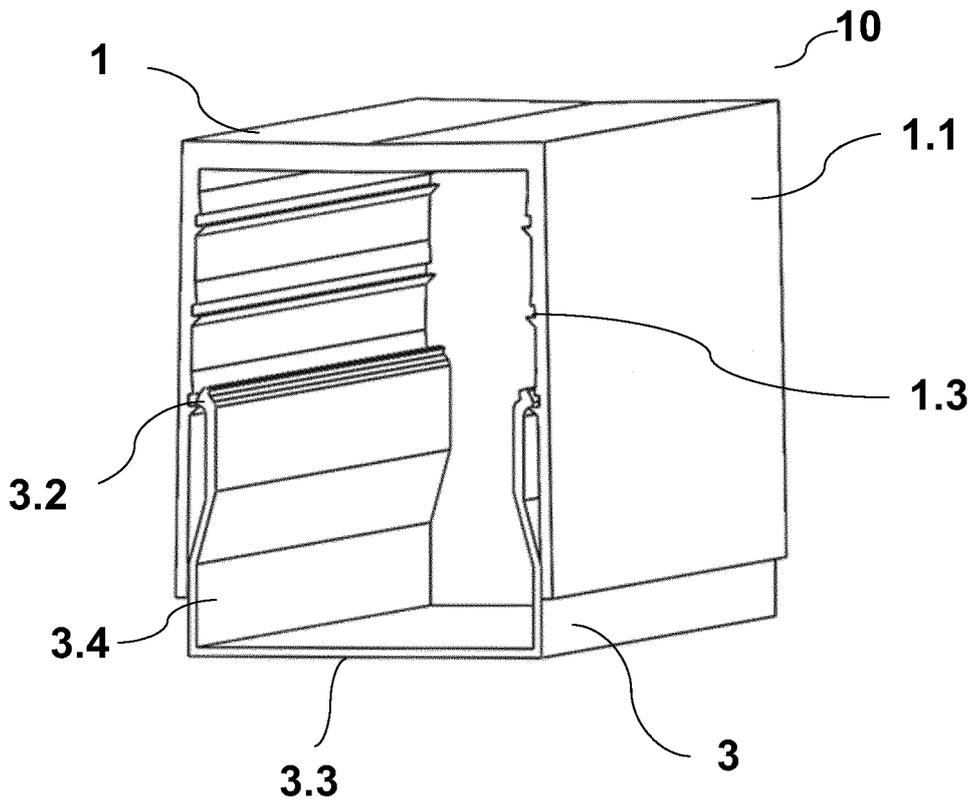


Fig.1

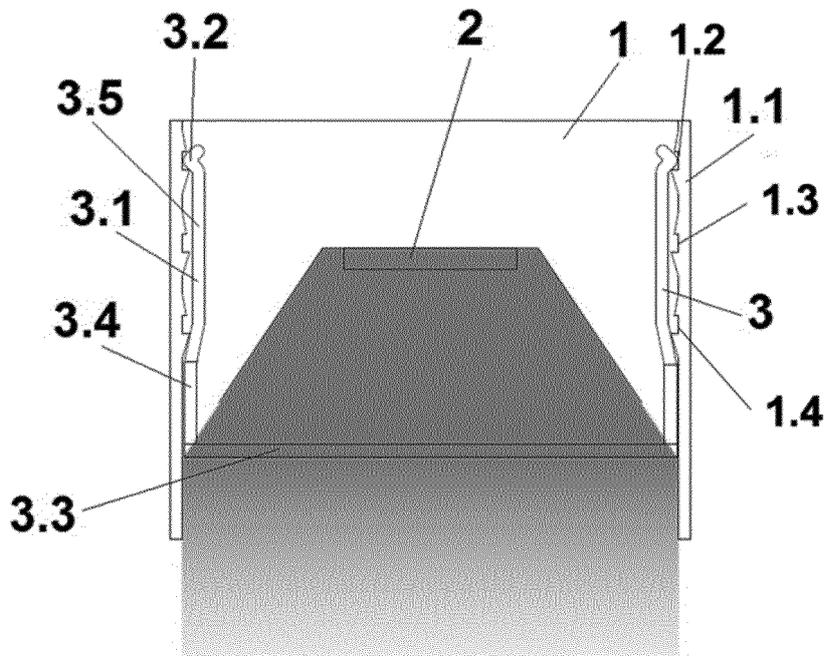


Fig. 2

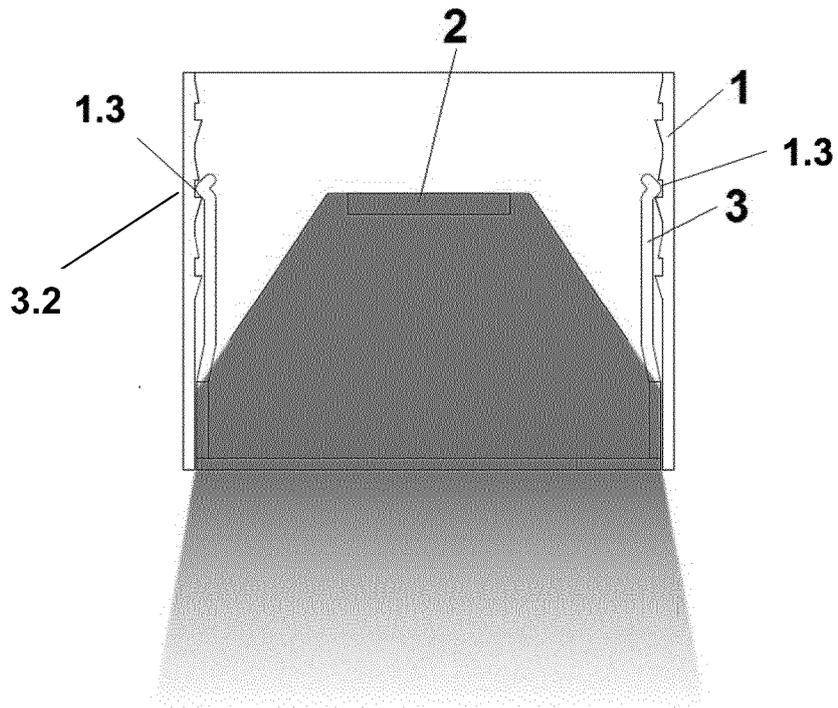


Fig. 3

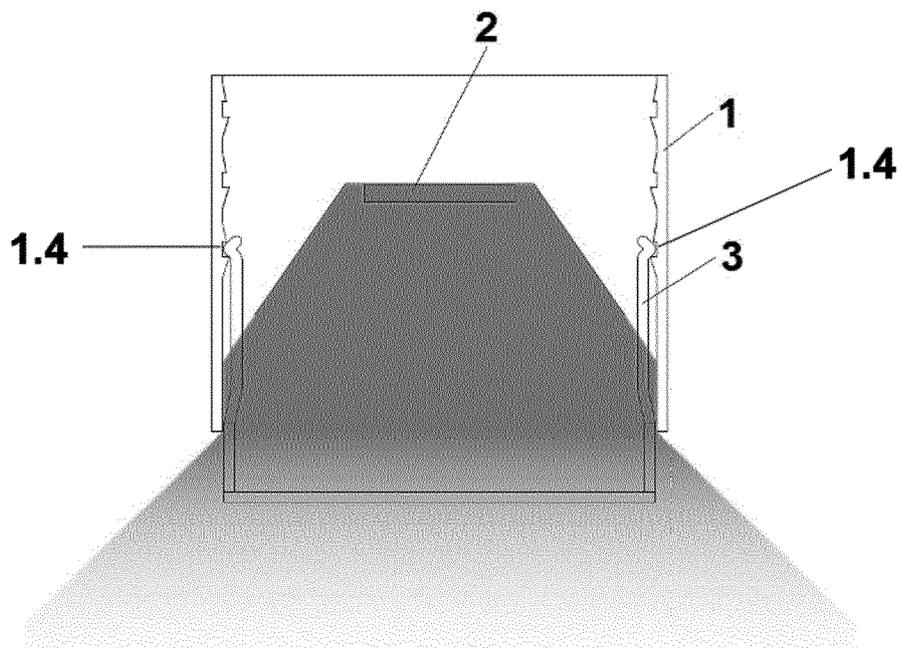


Fig. 4

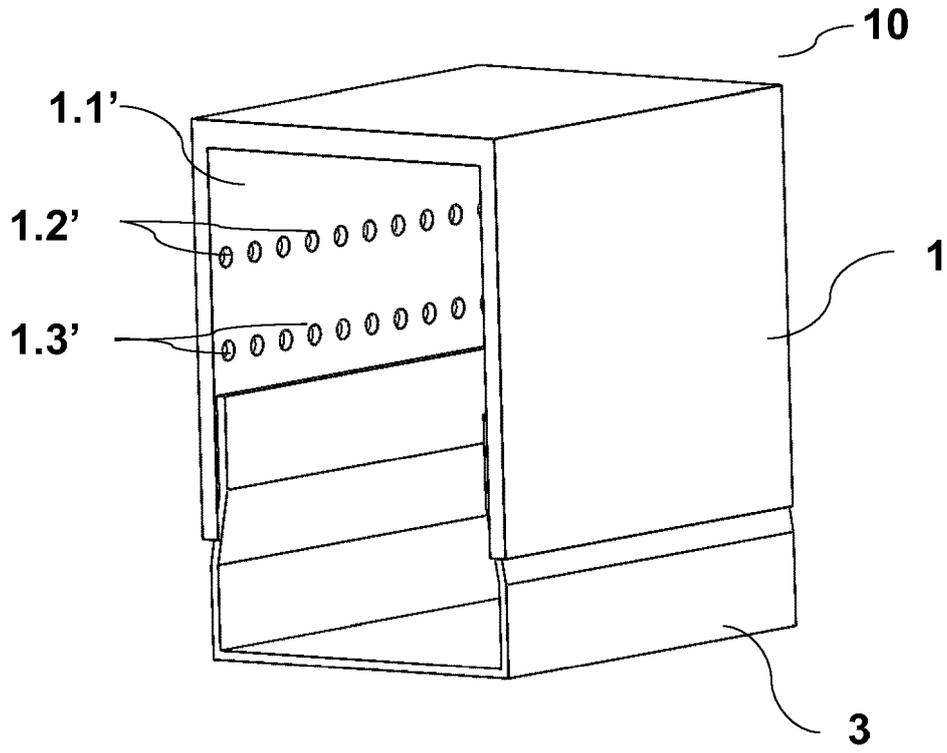


Fig. 5

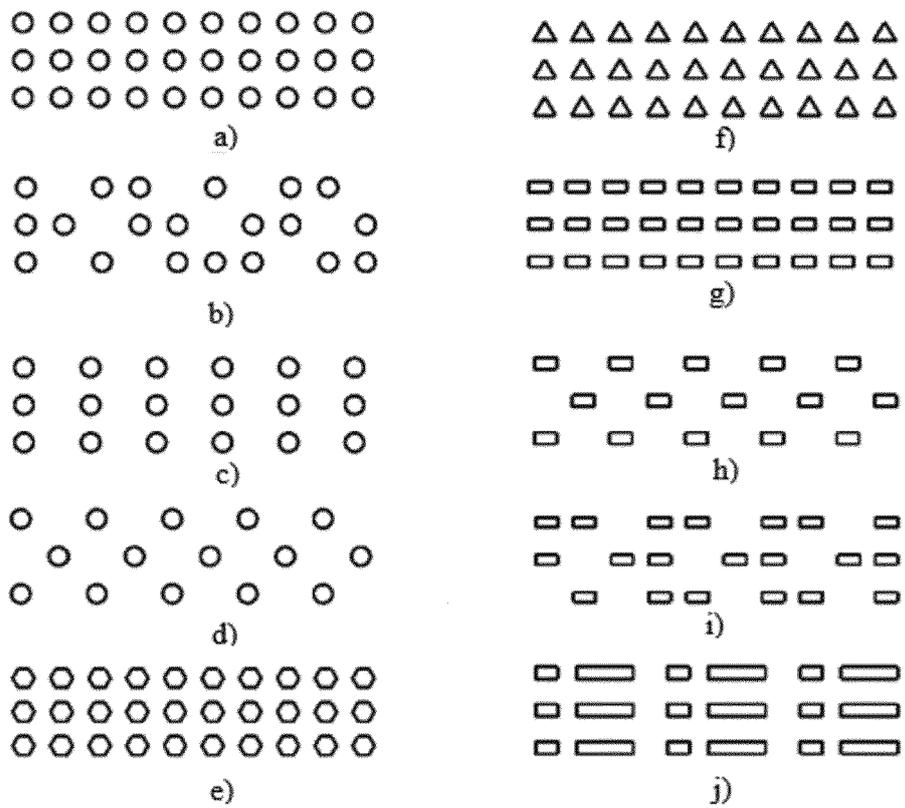


Fig. 6

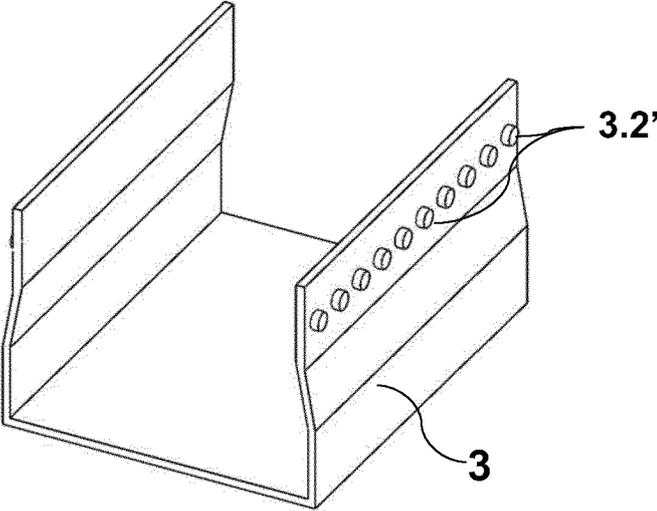


Fig. 7

**REFERENCES CITED IN THE DESCRIPTION**

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