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(54) **LOFT STAIRS WITH COPLANAR INFILL**

LOFTTREPPE MIT KOPLANARER FÜLLUNG

ESCALIER MANSARDÉ AVEC REMPLISSAGE COPLANAIRE

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Description

[0001] The invention relates to loft stairs comprising a coplanar infill that makes the loft stairs frame being in one plane with the surface of the loft stairs flap, the infill being a finishing element for installation of the stairs in the ceiling, covering the space between the loft stairs frame and the ceiling wall.

[0002] Austrian patent application AT 505 683 A1 discloses loft stairs according to the preamble of claim 1.

Background of the invention

[0003] There is known solution from WO2007091171 A1 application which refers to doors, windows or lightings, where the sash features profiles that form a frame around the door, window or lighting frame. Profiles have one arm with its surface on the same plane as the surface of the wall in which the door or window is mounted.

[0004] There is also known solution from Polish patent application PL 402367 which refers to integrated door frame for internal or external doors, whose middle section forming the door frame is made of wood, plywood, wood-based panels, metal or plastic. The outer side of the door frame, parallel to the plane of the door's opening in the wall, has at least one profile element on the door leaf side and/or a profile element on the opposite side of the door leaf, this being made of metal or plastic and additionally connecting the door frame to the wall surrounding the door opening, on one or both sides in the plane of the wall.

[0005] There is known another solution from US3855746 B1 patent, presenting a profile that covers the junction of two structural elements mounted perpendicular to each other. This covering profile has two pockets in which the ends of the two elements are attached, and the outer wall of the profile covers the place where they are joined.

[0006] There is also known invention from patent application AT505683A1 which discloses a loft stairs with a double closing flap and frame, which is embedded in the ceiling deeper than one of said closing flap. Additionally, loft stairs comprises side frame, which cross-section is in Z-shape and which comprises sealing for tight connection with one of the closing flap.

[0007] **The field of the invention** is a loft stairs comprising a standard frame, an extendable ladder or a scissor ladder mounted in it, a flap closing the frame, and a coplanar infill that makes the frame being in one plane with the surface of the ceiling.

[0008] The loft stairs are installed in a ceiling opening, where said opening dimensions corresponds to dimensions of the loft stairs frame, while maintaining free play clearances for convenient installation of said stairs. The loft stairs frame comprises four members, which are joined together in preferably rectangular frame which is closed from the inside of the building by means of a flap. The loft stairs comprises also at least two extendable

ladder segments which are embedded on the closing flap of the stairs, and which are movable relative to other segments or extendable ladder is a scissor ladder. The ladder segments and the scissor ladder are connected to the frame by means of a hinges.

[0009] The flap may be attached directly to the frame member by hinge connection, which allow for pivotal movement of the flap in respect to said frame member or the flap may be attached only to the first ladder segment, where the latter is directly attached to the frame member by mentioned above hinges. In the loft stairs installed state, its frame is embedded deeper in the ceiling than the closing flap, such that in the area of that difference in the depth of their embedding, a coplanar infill is located. Said coplanar infill makes that the frame is placed in one plane with the surface of the ceiling, where said ceiling may be made of a plaster and plasterboard, covering the aforementioned free play clearances.

[0010] The coplanar infills are a covering strips, made particularly of aluminium, but possibly also of any other material. The coplanar infill forms an integral element with the loft stairs frame when the stairs are delivered to the customer.

[0011] Said covering strips comprises an embedding section whose extension is an attachment arm basically parallel to the surface of the ceiling. In the assembled state, the embedding section is located in the area constituting the difference in the depth of the loft stairs frame and the closing flap in the ceiling. An inner surface of the embedding section is directed towards the frame while its outer surface lies under the plaster layer or another layer covering the ceiling.

[0012] The attachment arm of the covering strip is an extension of the outer surface of the embedding section and serves as an element attaching the covering strip in the ceiling, while additionally the attachment arm is fixed to the ceiling by means of a screw. The attachment arm is located under the outer surface of the ceiling covering, e.g. plaster, or is embedded under the thermal insulation layer of the ceiling, e.g. the plasterboard layer. The covering strips are attached around the four frame members of the frame to form a closed frame around the stairs.

[0013] The covering strip, being an integral part of the loft stairs frame, comprises the embedding section with an adhering arms, through which the strips are attached to the frame members already in a delivered to the customer loft stairs state. Two adhering arms forms a pocket for the frame members. The width of the covering strips pocket is defined as the distance between the inner walls of the two adhering arms of the pocket and is equal at least to the width of the end section of each frame member that fits into that pocket. The embedding section has an outer surface lying under the plaster layer of the ceiling or another layer covering the ceiling.

[0014] Each of the aforementioned covering strips comprising any dimensions and shape that match the stairs that it is to be used with.

[0015] The advantage of this solution is new loft stairs

provided with an coplanar infill in the form of the covering strips located between the depth of the frame and the closing flap, covering the junction of the frame with the edge of the ceiling, lending the stairs an aesthetic appearance as seen from the room in which they are installed.

[0016] The solution is disclosed also in the following drawings:

Fig. 1 view of the closed loft stairs as seen from the room

Fig. 2 cross section of stairs fitted with the covering strips according to the invention

[0017] Loft stairs comprising a frame 1 closed from the outside by the flap 2, a coplanar infill that comes flush with the surface of the ceiling 4. The stairs also have folding ladder segments or a scissor ladder, not shown in the drawings. The infill is in the form of a covering strips 5 integral with the frame 1, the former featuring an embedding section 5' and an attachment arm 5". In the installed state, as shown in Fig. 2, the attachment arm 5" is located under the plaster board layer and is attached to the ceiling wall by means of a screw 7. The frame 1 abuts on the embedding section 5'. The integral covering strip 5 comprises a double adhering arm 5"', forming a pocket for the frame members in addition to being connected to the frame by means of fasteners preferably in the form of screws 6. From the outside, the embedding section is covered with a plaster layer. The integral covering strips also forms a closed frame surrounding the stairs mounted in the ceiling.

Claims

1. A loft stairs comprising

- a frame (1) which comprises four members arranged to be joined together to form a rectangular frame,
 - a closing flap (2), movable in relation to the frame (1),
 - at least two folding ladders or scissor segments arranged to be mounted in the frame (1) and embedded on the closing flap (2), and the frame (1) is, in the installed state, embedded deeper in the ceiling than the closing flap (2), and in the area of that difference in depth of their seating a coplanar infill is located such that, in the installed state, the coplanar infill is flush with the outer surface of the ceiling (4);
- characterised in that** the coplanar infill consists of covering strips (5) integral with the frame (1), each integral covering strip (5) comprising an embedding section (5') and an attachment arm (5") constituting a product ready for installation when the stairs are delivered, each integral cov-

ering strip (5) further comprising two adhering arms (5'') forming a pocket for a corresponding frame member, wherein a width of the pocket corresponds to the distance between the inner walls of the two adhering arms (5'') of the pocket, and is at least equal to the width of the end section of the frame members of the frame (1).

2. Loft stairs according to claim 1, **characterized in that** the attachment arm (5") when installed, lies beneath the surface of the ceiling (4).
3. Loft stairs according to claim 2, **characterized in that** the attachment arm (5"), when installed, lies beneath the outer layer of the ceiling (4), particularly under the plaster layer.
4. Loft stairs according to claim 2 or 3, **characterized in that** the attachment arm (5") is fixable to the ceiling wall by means of a screw (7).
5. Loft stairs according to claim 1, or 2, or 3, or 4, , **characterized in that** the covering strips (5) form a closed frame when installed in the ceiling.

Patentansprüche

1. Dachbodentreppe gebaut aus:

- einem Zargenkasten (1), der aus vier, miteinander in einen rechtwinkligen Rahmen verbundenen Rahmenhölzern gebildet ist,
- einer gegenüber dem Zargenkasten (1) beweglichen Schließklappe (2),
- den in dem Zargenkasten (1) montierten und auf der Schließklappe (2) eingebetteten mindestens zwei gegeneinander beweglichen Segmenten von Leiter- oder Scherentreppen,
- und der Zargenkasten (1) befindet sich tiefer in der Decke, als die Schließklappe (2), und in dem Bereich ihres Einbautiefenunterschiedes befindet sich eine Fluchtrecht-Füllung, auf solche Weise, dass die Fluchtrecht-Füllung im montierten Zustand mit der äußeren Oberfläche der Decke (4) fluchtrecht liegt, **dadurch gekennzeichnet, dass** die Fluchtrecht-Füllung aus einer mit dem Zargenkasten (1) integralen Schutzleiste (5) gebaut ist, und jede der integralen Schutzleisten (5) einen Einbettungsteil (5') und einen Befestigungsarm (5'') besitzt, so dass sie ein fertiges Montageprodukt in dem Zustand der Treppenlieferung ist, und jede integrale Schutzleiste (5) auch zwei anliegende Arme (5'') hat, die eine Tasche für das entsprechende Rahmenholz des Zargenkastens (1) auf solche Weise bilden, dass die Taschenbreite dem Abstand der inneren Wände der zwei anliegenden

Arme (5'') der Tasche entspricht und der Breite des Endabschnitts der Rahmenhölzer des Zargenkastens (1) mindestens gleich ist.

2. Dachbodentreppe gemäß Anspruch 1, **dadurch gekennzeichnet, dass** sich der Befestigungsarm (5'') im montierten Zustand unter der Oberfläche der Decke (4) befindet.
3. Dachbodentreppe gemäß Anspruch 2, **dadurch gekennzeichnet, dass** sich der Befestigungsarm (5'') im montierten Zustand unter der äußeren Schicht der Decke (4), insbesondere unter der Putzschicht befindet.
4. Dachbodentreppe gemäß Anspruch 2 oder 3, **dadurch gekennzeichnet, dass** der Befestigungsarm (5'') an die Deckenwand mittels einer Holzschraube (7) befestigt ist.
5. Dachbodentreppe gemäß Anspruch 1 oder 2 oder 3 oder 4, **dadurch gekennzeichnet, dass** die Schutzleisten (5) einen geschlossenen Rahmen bilden, der in der Decke im montierten Zustand montiert wird.

Revendications

1. Escalier de grenier composé :

- d'un cadre-bâti (1) construit de quatre dormants assemblés entre eux et formant un cadre rectangle,
- d'une trappe (2), mobile par rapport au cadre-bâti (1),
- d'au moins deux parties mobiles l'une par rapport à l'autre d'escalier de meunier ou escalier ciseaux montés au cadre-bâti (1) et encastrés dans la trappe (2)
- et le cadre-bâti (1) se trouve dans le plafond au niveau plus profond par rapport à la trappe (2) et dans cet écart de profondeur d'encastrement se trouve un remplissage de revêtement de telle façon que ce remplissage de revêtement en état assemblé est aligné à la surface extérieure du plafond (4), **caractérisé en ce que** le remplissage de revêtement est construit d'une baguette de recouvrement (5) intégrée au cadre-bâti (1) et chacune de ces baguettes de recouvrement (5) intégrées possède sa partie d'encastrement (5') et son bras de fixation (5'') ce qui constitue un produit prêt à encastrer lors de livraison de l'escalier et chaque baguette de recouvrement (5) intégrée possède aussi deux bras adhérents (5''') qui constituent une poche pour un dormant de ce cadre-bâti (1) correspondant, de telle façon que la largeur de cette poche correspond à la distance entre les bords intéri-

eurs de deux bras adhérents (5''') de cette poche (nid) et est au moins égale à la largeur d'une section finale des dormants de ce cadre-bâti.

2. Escalier de grenier selon la revendication 1 **caractérisé en ce que** le bras de fixation (5'') en état assemblé se trouve sous la surface du plafond (4).
3. Escalier de grenier selon la revendication 2 **caractérisé en ce que** le bras de fixation (5'') en état assemblé se trouve sous la couche extérieure du plafond (4) et surtout sous la couche d'enduit.
4. Escalier de grenier selon la revendication 2 ou 3 **caractérisé en ce que** le bras de fixation (5'') est fixé à l'aide d'une vis (7) au plafond.
5. Escalier de grenier selon la revendication 1 ou 2 ou 3 ou 4 **caractérisé en ce que** les baguettes de recouvrement (5) forment un cadre fermé à encastrer au plafond en état assemblé.

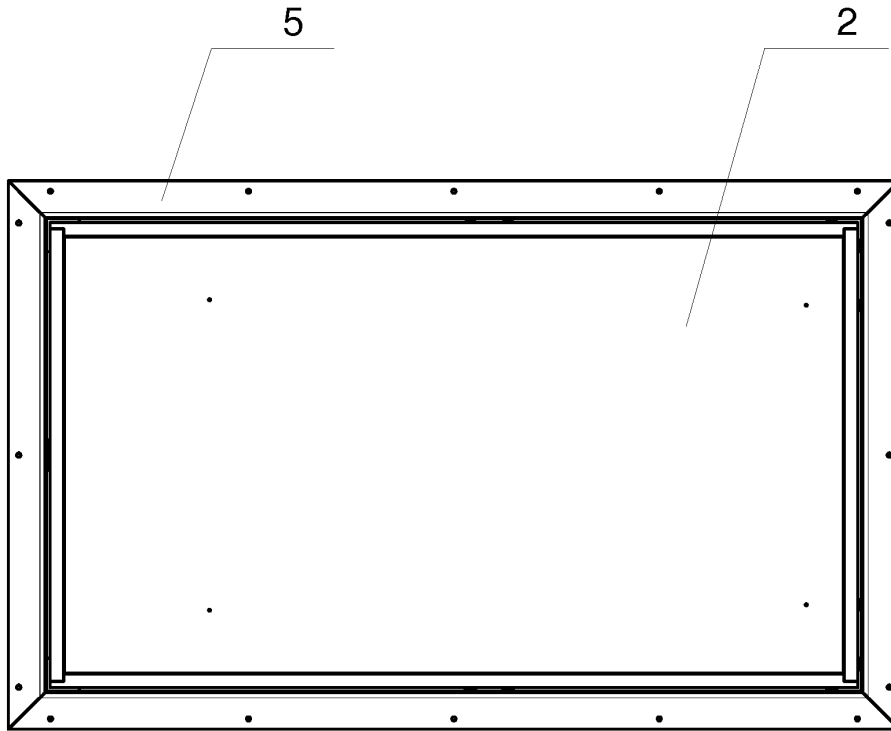


Fig. 1

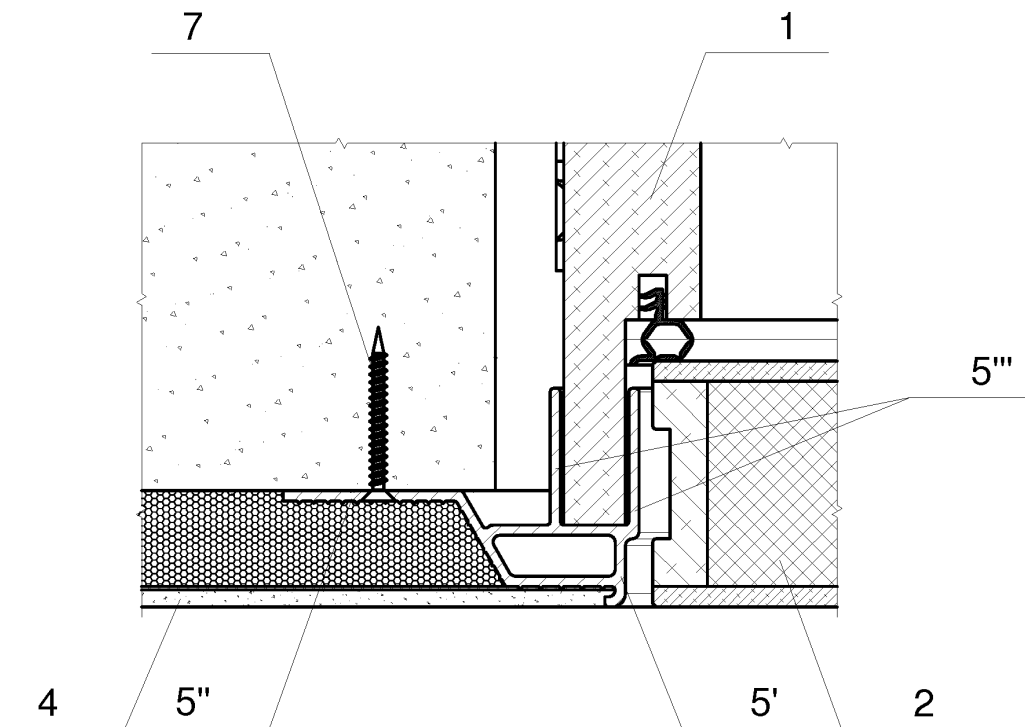


Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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