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(2013.01); **E04B 1/0038** (2013.01)(73) Assignee: **UNIVERSITÄT INNSBRUCK**,
Innsbruck (AT)(57) **ABSTRACT**(21) Appl. No.: **16/311,559**(22) PCT Filed: **Jul. 13, 2017**(86) PCT No.: **PCT/EP2017/067662**

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A connection system for connecting a timber component to a building element, comprising a first holding section for the building element, a second holding section for the timber component, a coupling element which releasably connects the first holding section and the second holding section, wherein the second holding section comprises (i) a timber-component-side fitting having a first contact surface for attachment to a first surface of the timber component, and (ii) a second contact surface for a second surface of the timber component, wherein the first contact surface of the timber-component-side fitting and the second contact surface of the second holding section together enclose an angle (α) other than **180°**.

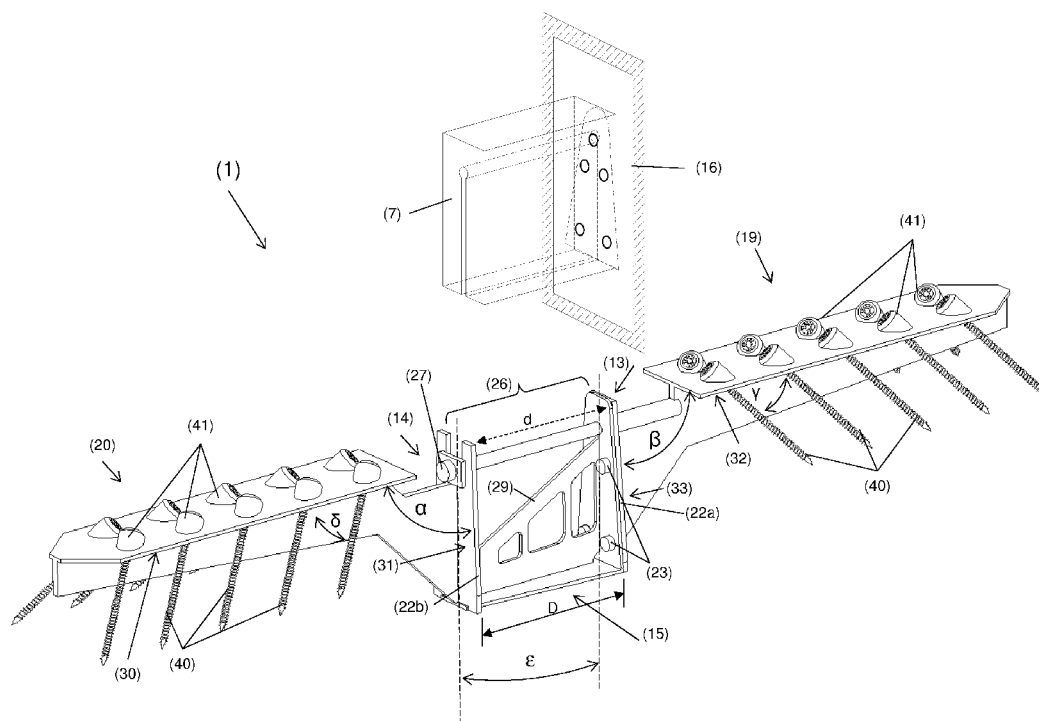


Fig. 1a

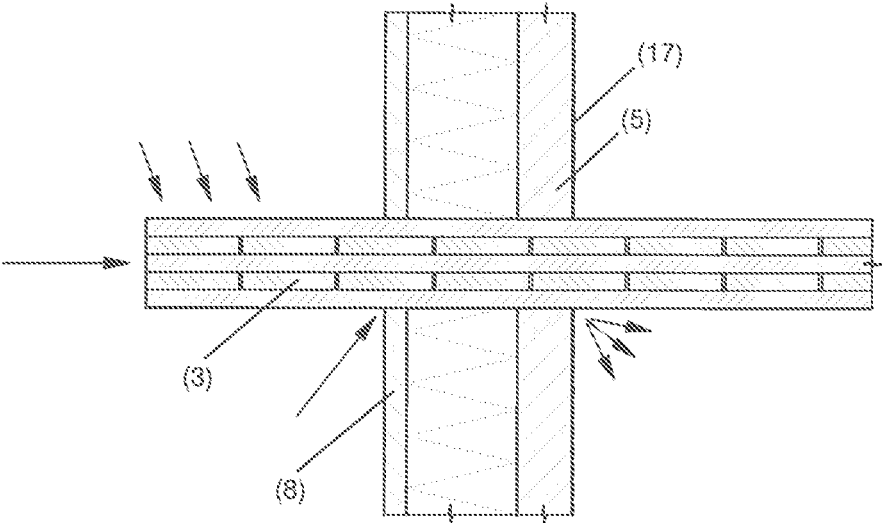
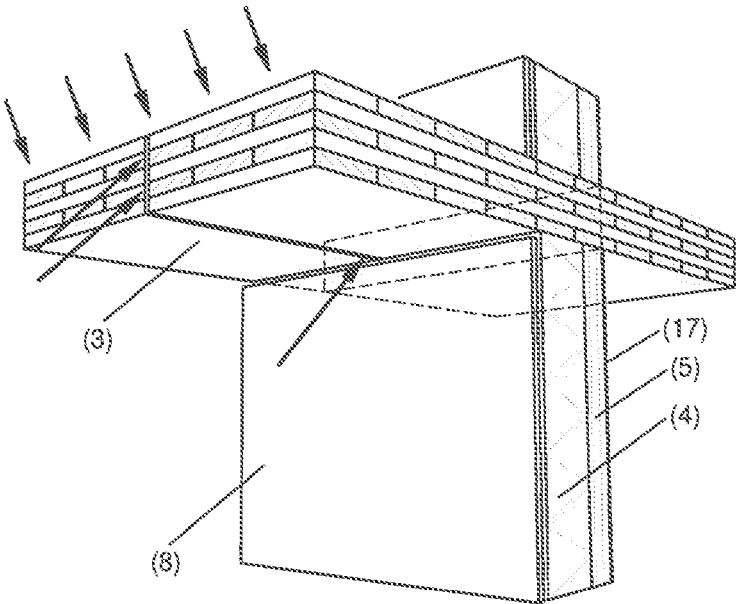


Fig. 1b



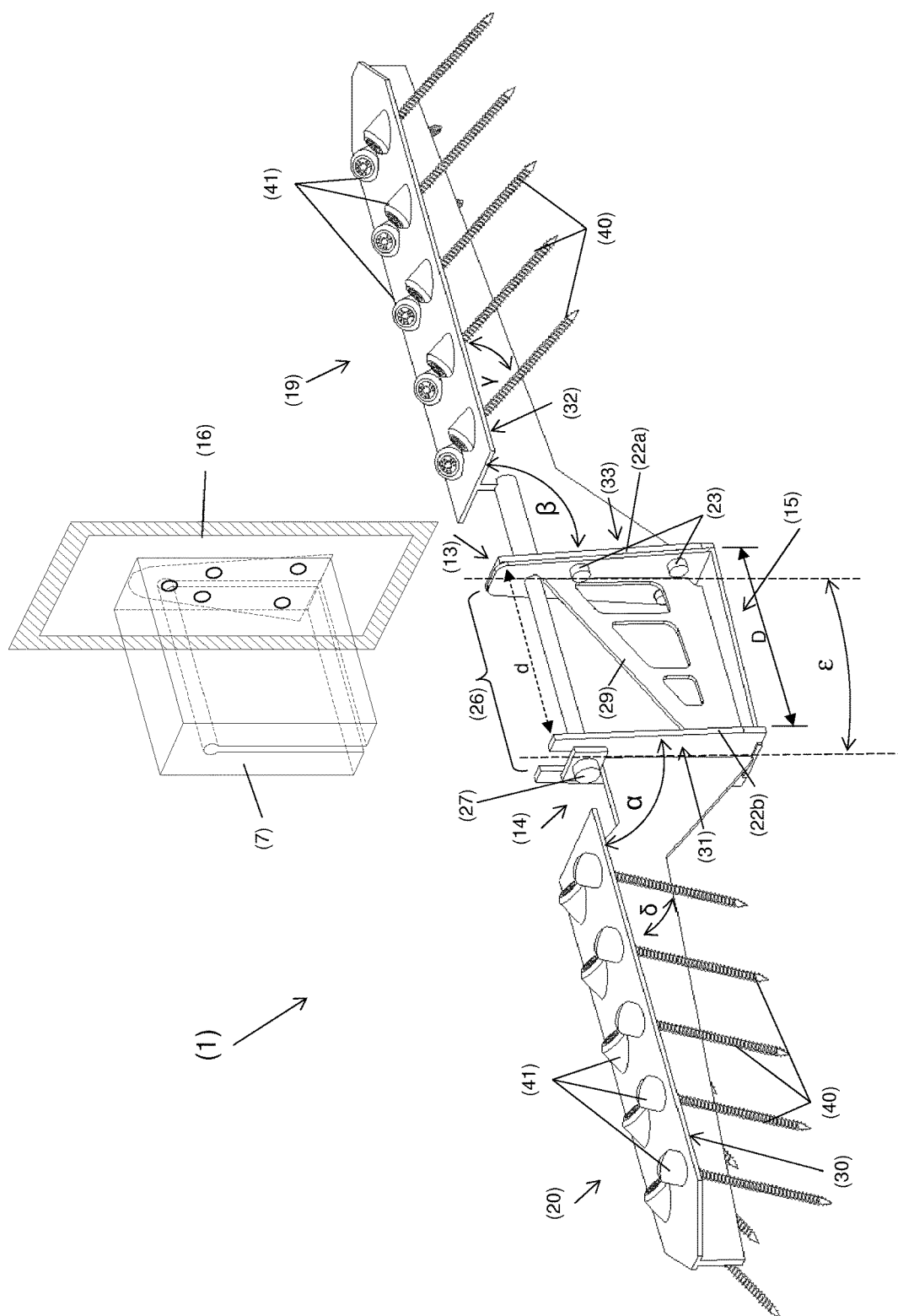


Fig. 2

Fig. 3

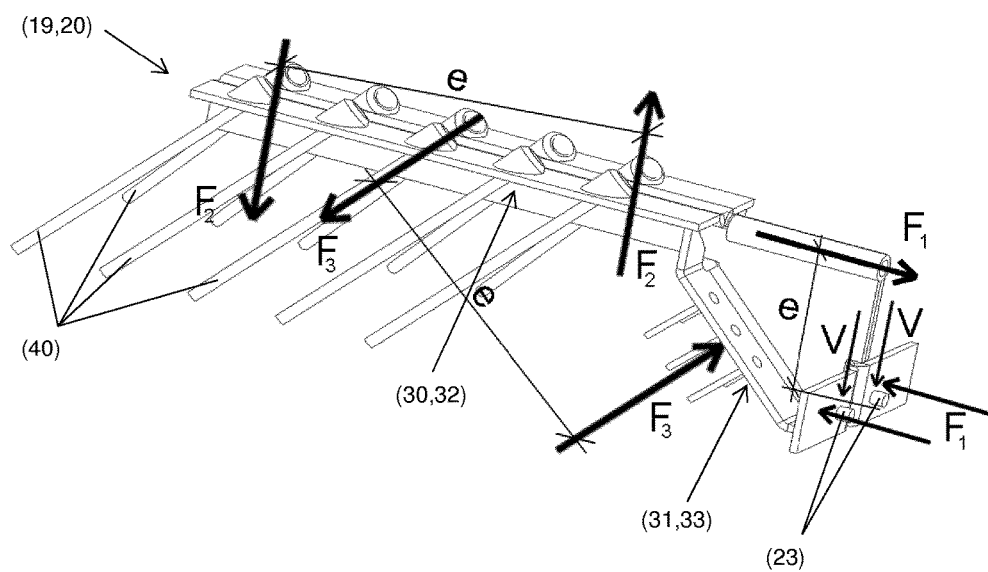


Fig. 4

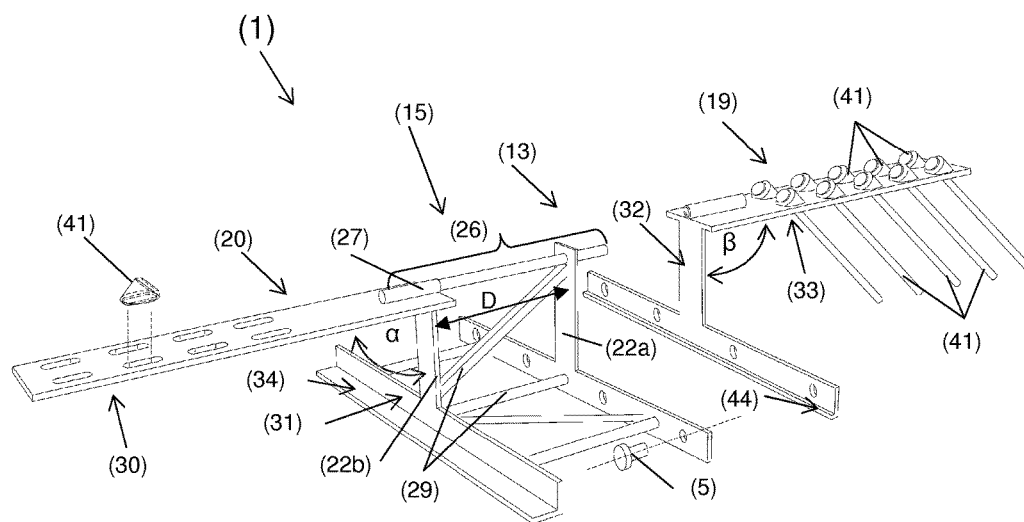


Fig. 5

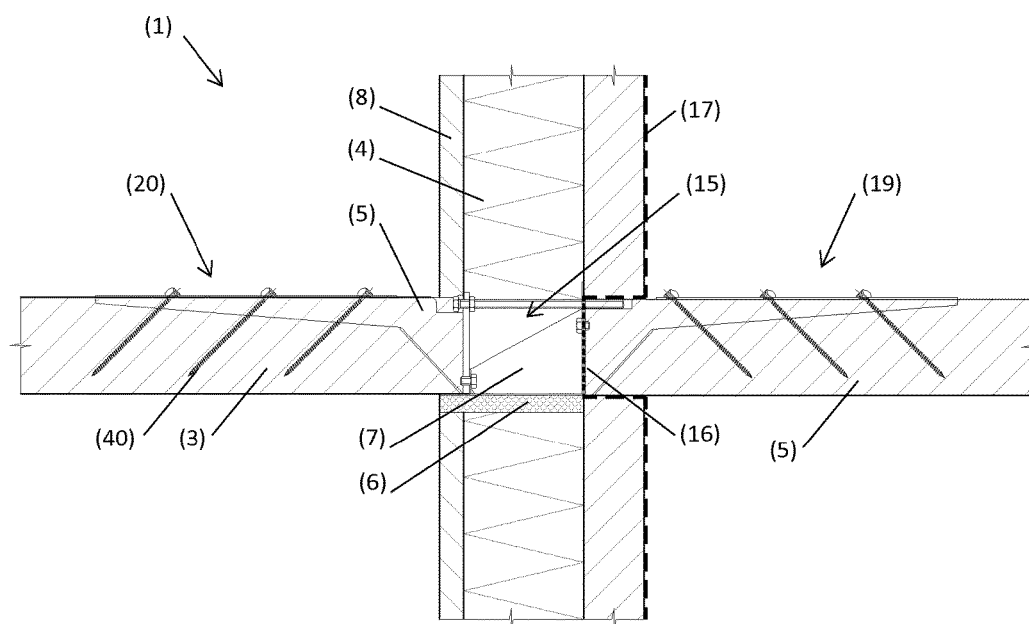


Fig. 6

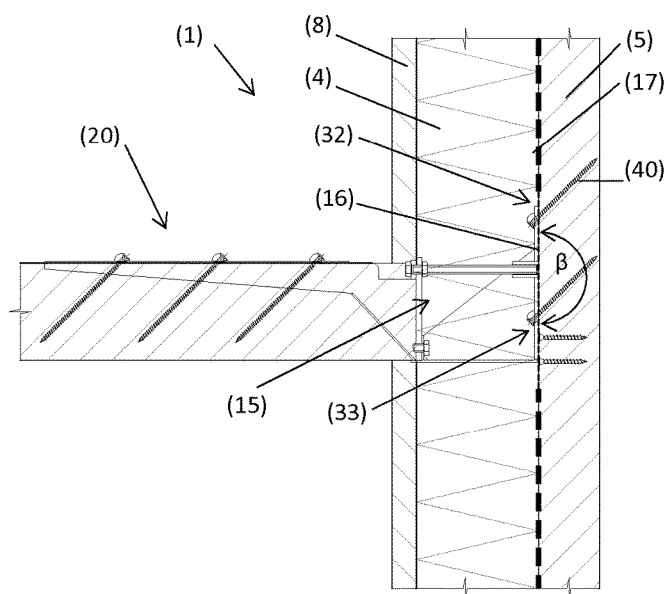


Fig. 9

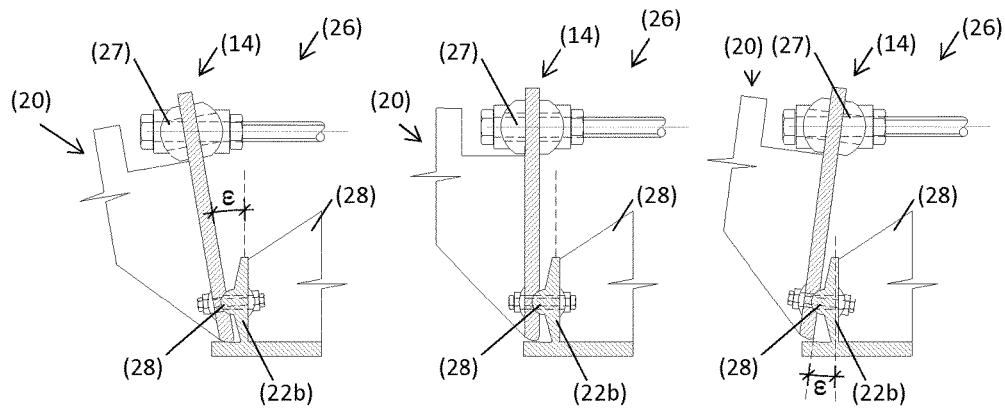
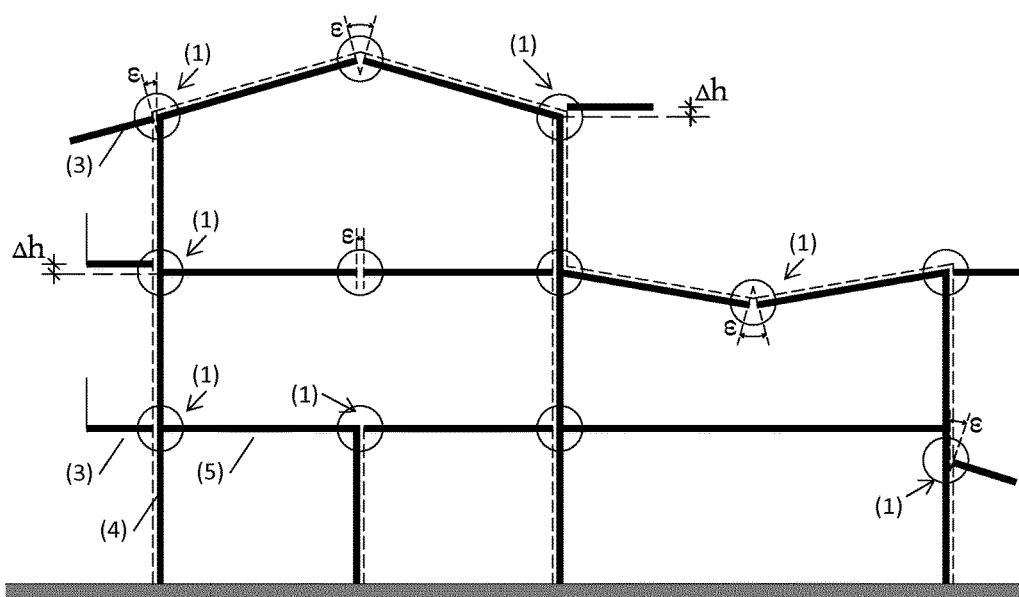


Fig. 10



CONNECTION SYSTEM

[0001] The present invention relates to a connection system for connecting a timber component to a building element. Furthermore, the invention relates to a timber construction joint comprising at least one such connection system. Finally, the invention relates to a building comprising at least one such connection system.

STATE OF THE ART

[0002] In concrete construction, various connection systems for connecting a building to a projecting component part are well known, which avoid local thermal bridges. The attachment or, respectively, the implementation of an insulating layer can be accomplished without interruption by thermally decoupling a building exterior and the projecting component part.

[0003] In timber construction, the formation of projecting component parts causes minor local thermal bridges due to the relatively poor thermal conductivity of wood, which thermal bridges will normally lead only to minor structural-physical weak points. With a thermal conductivity of approx. 0.12 W/mK, timber is worse than conventional thermal insulating materials, which have an average thermal conductivity of 0.04 W/mK, by a factor of around 3. In buildings with increased thermal requirements (such as, e.g., in passive houses, active houses), the projections configured according to the prior art also cause problems in timber construction, with the timber element being guided through and the insulation plane being interrupted.

[0004] In addition to the requirements for heat or cold protection, the implementation of projections in timber construction according to the prior art is associated with another weak point, which is partially much greater. This relates to the formation of a continuous airtight plane in order to prevent an undesirable local convection of warm, moisture-saturated air from the inside to the outside so as to avoid the resulting increased moisture input into the load-bearing structural elements and the damage usually associated therewith. Since in constructions made of timber, in particular cross-laminated timber (in short BSP or, respectively, CLT), joints and bumps are present depending on the system, the risk of increased air convection in the area of elemental bumps but also in the area of lamellar bumps of individual elements is particularly high. This can be reduced only by an increased workload by subsequent sealing and/or bonding.

[0005] Another problem in timber construction is the weather exposure of projecting component parts, in particular also during the construction and assembly phase. Even with a rule-consistent sealing of projecting component parts, various factors (e.g., direct ventilation) may cause damage to the timber component part. To make matters worse, projecting component parts that run through from the interior of the building toward the exterior area, can be replaced in the event of damage only with considerable effort and, respectively, can be reassembled normally only as separate prefixed component parts, whereby separate load dissipation structures become necessary.

[0006] DE 88 03 937 U1 discloses a connection system for connecting a timber component to a building element, comprising a holding section cast in concrete and a holding

section for the timber component. The connection system is formed in one piece, since the two holding sections are welded to each other.

[0007] The device disclosed in U.S. Pat. No. 8,893,441 shows attachment of a timber component pivotable about an axis of rotation. However, a generic connection system cannot be derived from U.S. Pat. No. 8,893,441, since it appears to be impossible to connect a timber component to a building element because of the pivotability.

BRIEF DESCRIPTION OF THE INVENTION

[0008] It is the object of the invention forming the subject-matter to provide a connection system for timber construction which addresses the above-mentioned problems. In particular, the problem of interchangeability of projecting component parts as well as that of thermal decoupling of the projecting component part should be solved.

[0009] This object is achieved by a connection system for connecting a timber component to a building element, characterized by a first holding section for the building element, a second holding section for the timber component, a coupling element which releasably connects the first holding section and the second holding section, wherein the second holding section comprises (i) a timber-component-side fitting having a first contact surface for attachment to a first surface of the timber component, and (ii) a second contact surface for a second surface of the timber component, wherein the first contact surface of the timber-component-side fitting and the second contact surface of the second holding section together enclose an angle α other than 180°.

[0010] The building element is preferably also a timber component, for example a floor slab.

[0011] On the one hand, such a connection system is mounted to the building, such as, e.g., a floor slab, via the first holding section, preferably via a building-side fitting. On the other hand, the timber component such as, e.g. a balcony or a balcony support, is fastened via the timber-component-side fitting so that the building and the timber component are connected via the connecting element. The connection is a releasable connection. This means that the connection of the two holding sections can be loosened without destroying one of the holding sections, e.g., via a screw connection, rivets or the like.

[0012] Via such a connection system, it is possible that the building-side fitting is first attached to the building with an airtightness element. In a further step, the airtightness layer inherent to the building is connected to the airtightness element, for example, by means of bonding.

[0013] The airtightness layer may comprise a film and/or thermal and/or acoustic insulating elements which are applied to the building.

[0014] Thereafter, the timber component can be attached to the building via the timber-component-side fitting in that the two fittings are connected to each other via the coupling element. The connection between the two fittings is indeed releasable, but also substantially rigid and stiff. In the simplest case, a releasable connection can be a screw connection. However, other types of connections might be conceivable, too, such as, for example, a hook connection, a positive connection such as, e.g., a dovetail connection. A stiff connection is understood to be one in which deformations are so small that the force application points undergo

negligible displacements. At most, such stiff connections include moderately elastic connections which result from impact sound insulation.

[0015] As a result of the fact that two contact surfaces arranged relative to each other at an angle other than 180° are provided, the holding section embraces the timber component at two contact surfaces, allowing an optimum flux of force within the connection system.

[0016] In an embodiment variant, it is provided that the first holding section comprises (i) a building-side fitting having a first building-side contact surface for attachment to a first surface of the building element and (ii) a second building-side contact surface for a second surface of the building element, wherein the first building-side contact surface of the building-side fitting and the second building-side contact surface of the first holding section together enclose an angle β other than 180° .

[0017] The previously described embodiment variants allow an optimum flux of force between the elements to be connected. In particular, high bending stresses occur due to the usually slim cross-sectional shapes of the timber component. As a result of the fact that the second holding section comprises a timber-component-side fitting having a contact surface for attachment to a first surface of the timber component and a bearing surface for a second surface of the timber component, said surfaces being arranged relative to each other at an angle α other than 180° , those bending moments can be transferred from the timber-component-side fitting to the building element via the coupling element in an optimum fashion. This permits also timber construction elements projecting widely.

[0018] Although the first holding section comprises a building-side fitting having a contact surface for attachment to a first surface of the building element and a contact surface for a second surface of the building element, and although the contact surface of the building-side fitting and the other contact surface together enclose an angle β other than 180° in this case, those forces can also be transmitted in an optimum fashion.

[0019] In one embodiment variant, it may be provided that the angle α and/or the angle β range(s) between approximately 45° and 135° , preferably amounting to approximately 90° . Furthermore, timber components are usually made with surfaces arranged at right angles to each other so that production-related advantages arise also in this case.

[0020] It is preferably provided that the first contact surface of the building-side fitting and the first contact surface of the timber-component-side fitting are arranged substantially in parallel to each other or lie essentially in one plane. The variant that the contact surfaces are located roughly in one plane or only have an offset (and hence a parallel arrangement) of less than 100% of the thickness of the timber component entails advantages for the transmission of forces.

[0021] In one embodiment variant, the building side-fitting and the timber-component-side fitting can be arranged substantially in parallel to each other or can lie essentially in one plane.

[0022] One embodiment variant envisages that the second contact surface of the second holding section and the second contact surface of the first holding section are arranged substantially in parallel to each other. Thus, these two contact surfaces are arranged at a distance from each other. This has the advantage that further elements, in particular

insulating elements, plaster, fire protection elements or the like can be introduced at said distance.

[0023] Therefore, it may be provided that, in the installed state, the timber component can end up lying at a distance D from the building element so that a thermal insulation element and/or a different front element—such as, e.g., a plaster layer or fire protection boards—can be introduced between the timber component and the building element.

[0024] Furthermore, it may be provided that the building-side fitting is designed such that it can be connected to the building element by means of at least one fastener, and that the timber-component-side fitting can be connected to the timber component by means of at least one fastener. This allows the timber component and the building element to be mounted with ease. In the simplest case, bores can be provided via which the fasteners can be inserted and introduced into the timber component or building element. The fasteners may be pin-shaped such as, e.g., screws, nails, bolts or the like. However, other types of attachment may be provided as well, such as, for example, clamps, fixtures, glue etc.

[0025] It is preferably provided that the respective fitting comprises guides for—preferably pin-shaped—fasteners so that the fasteners can be introduced at a defined spatial angle γ , δ relative to the respective contact surface of the fitting. At least part of the guides of the fastener guides can be designed such that, in the installed state, the respective pin-shaped fasteners penetrate into the respective component obliquely to the bearing surface on the fitting, preferably at a spatial angle γ , δ of between 30 degrees and 60 degrees (FIG. 4). This is particularly advantageous if the timber component or the building element is made of cross-laminated timber, since this ensures stable and secure anchoring. But also glued-laminated timber or non-glued timber can be attached safely in this manner.

[0026] In one embodiment variant, an adjusting device is provided by means of which the angle of inclination c between the second contact surface of the second holding section and the second building-side contact surface of the first holding section is adjustable. In this way, load-related or production-related inclinations between the timber component and the building element can be levelled out.

[0027] Furthermore, it may be provided that the adjusting device has an adjusting element by means of which a distance d between the first holding section and the second holding section is alterable. In the simplest case, the contact surfaces of the two holding sections arranged in parallel to each other form a profile with two legs, e.g., a U- or V-profile (wherein the orientation of the profile is of no significance), via the coupling element, with the ends of the legs being variable in distance via the adjusting element.

[0028] The adjusting device can be attached to a first connection point on the building side-fitting and, at a distance, to a second connection point on the timber-component-side fitting, with the adjusting device comprising an adjusting element by means of which the distance d between the two connection points is variable.

[0029] The adjusting device may also comprise an articulated section by means of which the angle of inclination ϵ is adjustable.

[0030] For example, an articulated adjusting element might be provided which has a spherical cap by means of which at least the angle of inclination between the building-side fitting and the timber-component-side fitting is adjust-

able about an axis of rotation A formed by a spherical cap. Alternatively, the adjusting element may comprise an adjusting device which has a tension screw, a pressure screw, an eccentric or a combination thereof, which is received by the adjusting element by means of a spherical cap, a cylinder segment or the like.

[0031] Furthermore, it may be provided that an airtightness element is attached to the first holding section, with the building-side airtightness layer being coupled thereto, for example, by means of bonding. As a result, air convection is additionally reduced.

[0032] The connection system can be designed such that the coupling element can be connected to the building-side fitting, the timber-component-side fitting or both in a releasable and substantially rigid manner. In this case, the coupling element can be separated from the two fittings. In a preferred embodiment variant, the coupling element is inseparably connected to the building side-fitting and is connected releasably and substantially rigidly to the timber-component-side fitting. This embodiment variant has the advantage that the building-side fitting can be attached, on the one hand, to the building, and the timber-component-side fitting can be attached, on the other hand, to the timber component, whereupon the two fittings are connected to each other so that the timber component can be installed quickly.

[0033] The releasable connection of the building-side fitting and the timber-component-side fitting may also occur, for example, in such a way that, at the same, the timber component is attached as well. For example, a screw may be provided by means of which the two fittings are connected to each other in that the screw is guided through receptacles in the two fittings (such as bores) and is screwed into the timber component.

[0034] In one embodiment variant, it may be provided that the coupling element and the timber-component-side fitting have sections which positively interlock in such a way that at least part of the load transfer from the timber-component-side fitting to the coupling element occurs via this positive connection.

[0035] The coupling element preferably has recesses and several legs which permit an optimum flux of force. Therefore, a stiffening element may be provided for increasing the stability of the coupling element. If the coupling element has parallel legs, the stiffening element can connect the two legs with each other.

[0036] It may be provided that, on the timber-component-side fitting, the timber component is connectable to the timber-component-side fitting in the assembled state in a suspended manner.

[0037] In one aspect of the invention, a timber construction joint is provided which comprises a connection system of the aforementioned type, wherein the timber-component-side fitting and the building-element-side fitting are connected to the coupling element, a timber component connected to the timber-component-side fitting by means of at least one fastener, and a building element connected to the building-element-side fitting by means of a fastener.

DETAILED DESCRIPTION OF THE INVENTION

[0038] Further advantages and details of the invention are illustrated on the basis of the following figures.

[0039] FIG. 1a, 1b shows two views of a timber construction joint according to the prior art.

[0040] FIG. 2 shows a connection system according to the invention.

[0041] FIG. 3 shows the fluxes of force occurring in the connection system according to FIG. 2 and the contact surfaces.

[0042] FIG. 4 shows a connection system according to one embodiment.

[0043] FIG. 5 shows a connection system based on FIG. 2 with a timber component and a building element that have been slightly modified.

[0044] FIG. 6 shows an alternative embodiment variant of a connection system.

[0045] FIG. 7, 8 show further connection systems based on FIG. 2 with a timber component and a building element that have been slightly modified.

[0046] FIG. 9 shows an adjusting device for a connection system.

[0047] FIG. 10 shows several arrangement positions in a schematic illustration based on a building.

[0048] FIG. 1a and 1b show a timber construction joint according to the prior art in cross-section and in oblique projection. A projecting timber component 3 is connected to a building element 5 by the projecting timber component 3 penetrating into the building element 5. In FIGS. 1a and 1b, air flows are indicated by arrows. An air flow impinging on the joint between the timber component 3 and the building element 5 can enter into the interior of the building due to the lack of an airtight plane.

[0049] FIG. 2 shows a timber construction joint according to the invention. For reasons of clarity, the connection system 1 is shown without timber component 3 and building element 5 (see also FIGS. 5 and 6), and it has a first holding section 13 for the building element 5 and a second holding section 14 for the timber component 3. In the middle, the actual coupling element 15 is shown, which releasably connects the first holding section 13 to the second holding section 14. For this purpose, the second holding section 14 is attached to the first holding section 13 by means of coupling screws 23.

[0050] The second holding section 14 has a timber-component-side fitting 20 with a first contact surface 30 for attachment to a first surface of the timber component 3. For this purpose, the timber component 3 is applied to the contact surface 30 and fixed via fasteners 40. Furthermore, the timber-component-side second holding section 14 has a second contact surface 31 for a second surface of the timber component 3. At this point, the timber component 3 lies against the second contact surface 31 and thus provides for a dissipation of force into the coupling element 15 toward the first holding section 13.

[0051] The first contact surface 30 of the timber-component-side fitting 20 and the second contact surface 31 of the second holding section are located at an angle relative to each other (shown here with $\alpha=90^\circ$), which is adapted to the flux of force and the timber component.

[0052] In the illustrated exemplary embodiment, it is provided that the first holding section 13 has a building-side fitting 19 with a first contact surface 32 for attachment to a first building-side contact surface 32 of the building element 5. An attachment is effected also on this holding section 13 by means of fasteners 40 (e.g., screws), with the building element 5 being attached at this point.

[0053] Furthermore, the first holding section 13 has a second contact surface 33 for a second building-side surface 33 of the building element 5. Thus, the building element 5 also lies against two surfaces 32, 33 on the connecting element 1, wherein the first contact surface 32 of the building-side fitting 19 and the second contact surface 33 of the first holding section 13 enclose an angle 13 which is adapted according to an optimum flux of force and to the timber component (shown here with $\beta=90^\circ$).

[0054] In the connection system 1 of FIG. 2, the first contact surface 32 of the building-side fitting 19 and also the first contact surface 30 of the timber-component-side fitting 20 lie in one plane. In the exemplary embodiment of FIG. 7, those two contact surfaces 30, 32 are arranged in parallel to each other and exhibit an offset Ah.

[0055] Furthermore, the connection system 1 of FIG. 2 has an arrangement of the second contact surface 31 of the second holding section 14 and of the second contact surface 33 of the first holding section 13 which is parallel at a distance D. It would thus be possible to introduce a thermal insulation element 7 between the two holding sections 13, 14 in the area of the coupling element 15.

[0056] The timber component 3 and the building element 5 are connected to the connection system 1 with several fasteners 40. For this purpose, in particular pin-shaped fasteners 40 such as screws (as illustrated), nails, bolts and clamps, but also planar fasteners 40 such as epoxy resin glue or the like come into consideration. If pin-shaped fasteners 40 are used, the respective fitting 19, 20 has fastener guides 41 so that they can be introduced at angles γ , δ relative to the respective contact surface 30, 32 and, respectively, 31, 32 of the fitting 19, 20 which have been adapted to the required load-bearing and stiffness behaviour. Herein, the angles γ , δ are shown, in each case, with approximately 45° .

[0057] In the area of the coupling element 15, an adjusting device 26 is provided. By means of said device, the angle of inclination ϵ can be adjusted between the legs 22a, 22b of the coupling element 15. If the angles α and β (as illustrated in FIG. 2 in contrast to FIG. 3) enclose an angle of 90° , the first contact surface 33 of the first holding section 13 is located in the same plane as the first leg 23a, and the contact surface 31 of the second holding section 14 is located in the same plane as the second leg 23b of the coupling element. In most cases, the angle of inclination ϵ is 0° for common fields of application (parallel arrangement of the legs 23a, 23b of the coupling element 15), but may also differ therefrom as a result of the load or the structure. With the adjusting device 26, this angle of inclination ϵ can be adjusted to the desired value. For example, an inclination can thus be levelled out so as to rearrange the contact surfaces 31 and 33 in parallel, or a desired inclination could be introduced if the timber component is designed, for example, as a canopy (FIG. 10, bottom right) and an angle of inclination ϵ other than 0° is desired.

[0058] In the illustrated exemplary embodiment, the adjusting device 26 comprises an adjusting element 27 by means of which a distance d between the first holding section 13 and the second holding section 14 is variable. As a result, the angle between the legs 23a, 23b of the coupling element 15 can be adjusted. Thereby, the inclination of the legs 22a, 22b arranged relative to each other in U-shape is changed.

[0059] In the installed state, the timber component 3 is spaced apart from the building element 5 by a distance D so that a thermal insulation element 7 and/or a different front

element 8—such as, for example, a plaster layer or fire protection boards—can be introduced between the timber component 3 and the building element 5.

[0060] Furthermore, the stiffening element 29 can be seen, which serves for a better flux of force between the two holding sections 13, 14.

[0061] FIG. 3 shows fluxes of force within the connection system 1 which arise due to the strains on the timber element 3 and, respectively, the building element 5 in order to be able to transfer the bending moment and shear force stresses to the respective holding section 13, 14. Due to the arrangements of the contact surfaces between the fittings 19, 20 and the elements 3, 5 to be connected, which arrangements are adapted to the static stress, the bending moment is divided into several tensile and compressive components F_1 , F_2 , F_3 , whereby several load reserves of the base material are activated. Subsequently, an exclusive bending stress of the holding sections 13, 14 is thereby prevented. The transmission of force between the timber element 3 and the building element 5 is effected by the coupling element 15. Thereby, the bending moment and shear force stresses mainly cause tensile and compressive forces F_1 within the coupling element 15. The tensile force is transferred from the holding section 13 to the holding section 14 by the adjusting element 26, and the compressive force is transferred from the timber component 3 to the building element 5 via the contact surfaces 32 and 33. Depending on the stiffness ratio of the fasteners 40 to the fitting 13, 14, a secondary bending moment is broken down into a force component F_2 , F_3 , wherein the tensile component is transferred through the fastener(s) 40 and the compressive component is transferred through the contact surfaces 30, 31, 32, 33 into the element to be connected (timber component 3, building element 5).

[0062] FIG. 4 shows an alternative embodiment of the connection system 1. Like components are provided with like reference numerals in all figures so that the figure description of the other figures can be referred to and only differences are described. The illustrated exemplary embodiment has, on the timber-component-side fitting 20, a third contact surface 34 against which the timber component 3 may lie. In addition, the connection system 1 has a wider design so that the stiffening elements 29 are no longer formed only in one plane, but in the shape of pins in two planes. Herein, the releasable attachment is composed of a plug connection (positive engagement) which provides a support 44 so that the timber component 3 can be mounted with the pre-assembled timber-construction-side fitting 20 on the first holding section 13 to the building-side fitting 19 of the building element 5.

[0063] FIG. 5 shows the connection system 1 of FIG. 2 with a timber component 3 and a building element 5 with the intermediate continuous airtight plane formed from an airtightness element 16 in the area of the coupling element 15 and the airtightness layer 17 inherent to the building, as well as the insulation element 7 arranged therebetween, and the attachment of a possible front element 8. In addition, the arrangement of a fire protection element 6 is shown on the bottom side of the coupling element 15.

[0064] FIG. 6 shows an embodiment variant of the connection system 1 as in FIG. 2 or 4 with the difference that, in the connection system 1 of FIG. 2, the first contact surface 32 and the second contact surface 33 of the building-side fitting 19 lie in one plane ($\beta=180^\circ$).

[0065] FIG. 7 shows a very similar connection system 1 as in FIG. 2 or 4 with the difference that, in the connection system 1 of FIG. 2, the first contact surface 32 of the building-side fitting 19 and the first contact surface 30 of the timber-component-side fitting 20 lie in one plane, while, in the exemplary embodiment of FIG. 7, those two contact surfaces 30, 32 are arranged in parallel to each other and exhibit an offset Δh .

[0066] FIG. 8 shows a connection system 1 according to the invention, wherein, in addition to the thermo-technical and air-convective decoupling, the possibility is shown how 9 appropriate improvements of sound insulation can be achieved by means of inserts of impact sound insulation elements 9.

[0067] FIG. 9 shows an articulated adjusting element in three different positions. The adjusting element has a spherical cap 28 and allows the adjustment of the angle of inclination between the building-element-side fitting 19 and the timber-component-side fitting 20 about an axis of rotation A formed by a spherical cap 27.

[0068] FIG. 10 describes a building with connection systems 1 according to the invention, wherein different possible applications are shown. Possibilities of application are, for example, balcony fixtures, false ceiling fixtures, canopy fixtures or roof fixtures.

1. A connection system for connecting a timber component to a building element, comprising
a first holding section for the building element,
a second holding section for the timber component,
a coupling element which releasably connects the first holding section and the second holding section,
wherein the second holding section comprises

- (i) a timber-component-side fitting having a first contact surface for attachment to a first surface of the timber component, and
- (ii) a second contact surface for a second surface of the timber component,

wherein the first contact surface of the timber-component-side fitting and the second contact surface of the second holding section together enclose an angle α other than 180° .

2. The connection system according to claim 1, wherein the first holding section comprises

- (i) a building-side fitting having a first building-side contact surface for attachment to a first surface of the building element, and
- (ii) a second contact surface for a second surface of the building element,

wherein the first contact surface of the building-side fitting and the second contact surface of the first holding section together enclose an angle β other than 180° .

3. The connection system according to claim 1, wherein the angle α or the angle β both angles α and β range between approximately 45° and 180° .

4. The connection system according to claim 2, wherein the first contact surface of the building-side fitting and the first contact surface of the timber-component-side fitting are arranged substantially in parallel to each other or lie essentially in one plane.

5. The connection system according to claim 2, wherein the second contact surface of the second holding section and the second contact surface of the first holding section are arranged substantially in parallel to each other.

6. The connection system according to claim 1, wherein the timber-component-side fitting can be connected to the timber component by means of at least one fastener and the building-side fitting can be connected to the building element by means of at least one fastener, wherein the respective fitting has fastener guides for the fasteners so that the fasteners can be introduced at an angle γ, δ relative to the respective contact surface of the fitting other than 90° .

7. The connection system according to claim 1, wherein an adjusting device is provided by means of which the angle of inclination ϵ between the legs and of the coupling element is adjustable.

8. The connection system according to claim 7, wherein the adjusting device comprises an adjusting element by means of which the distance between the first holding section and the second holding section is alterable.

9. The connection system according to claim 7, wherein the adjusting device comprises an articulated section by means of which the angle of inclination is adjustable.

10. The connection system according to claim 1, wherein an airtightness element is attached to the first holding section, with the building-element-side airtightness layer being coupled thereto.

11. The connection system according to claim 1, wherein, in the installed state, the timber component ends up lying at a distance from the building element so that a thermal insulation element or a different front element can be introduced between the timber component and the building element.

12. The connection system according to claim 1, wherein a fire protection element is attached underneath the coupling element between the first holding section and the second holding section or that impact sound insulation elements are arranged between the contact surfaces.

13. The connection system according to claim 1, wherein, in the installed state, the holding sections together with the timber component and the building element constitute a composite component, wherein the flux of force occurs via the timber component and the building element due to an appropriate arrangement of the attachment elements relative to the contact surfaces.

14. (canceled)

15. (canceled)

16. The connection system according to claim 3, wherein the angle α or the angle β amount to approximately 90° .

17. A timber construction joint which comprises

a connection system according claim 1, wherein the timber-component-side fitting and the building-element-side fitting are connected to the coupling element),

a timber component connected to the timber-component-side fitting by means of at least one fastener, and

a building element connected to the building-element-side fitting by means of a fastener.

18. The building comprising a timber construction assembly according to claim 17.

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