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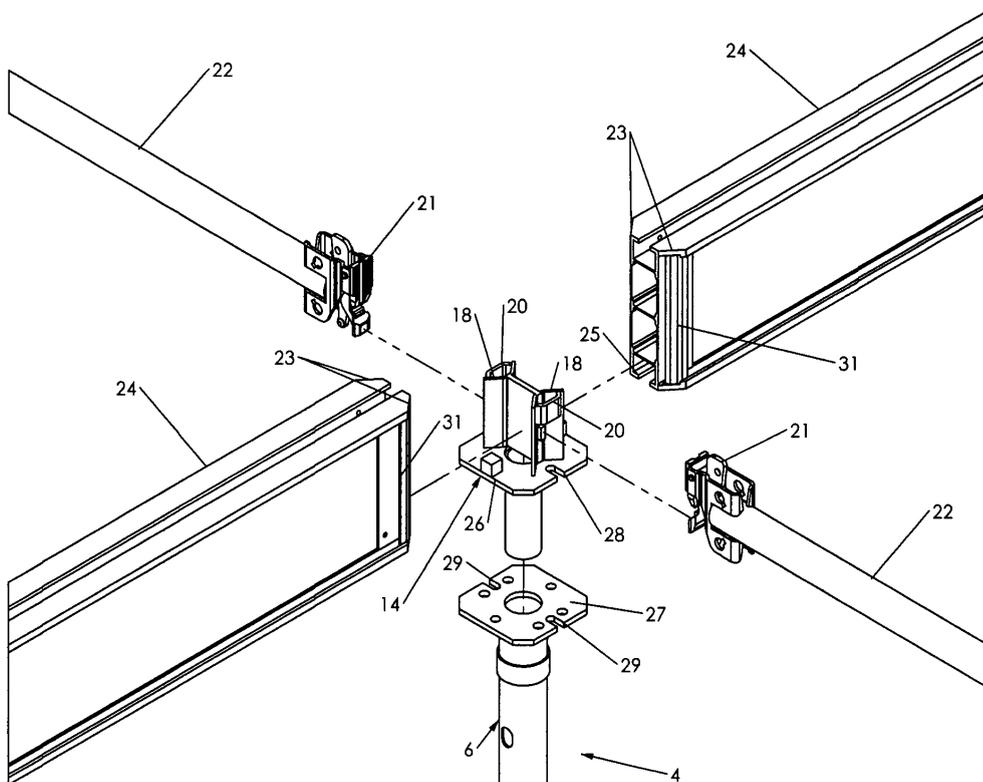
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(54) **Stabilizing receiving member for temporary structures**

(57) Formworks for concrete floors or beams to be cast are in practice supported by vertically adjustable, temporary structures (1). These are mostly comprised of system parts, to wit posts, beams and diagonals, in which the upper part of the posts (4) is mostly embodied as

telescoping inner pipe and outer pipe with screw spindle (5) for enabling a large height adjustment.

The invention relates to a receiving member (14) for an optimum bearing of main beams and stabilization of the top of said structure.



Figuur 4

## Description

**[0001]** The invention relates to a receiving member for bearing or supporting the main beams positioned on the top of a temporary supporting structure adjustable in height.

**[0002]** For casting concrete plates and floors on formworks in building constructions, one mostly employs supporting structures, which are mostly built into spatial structures. The spatial structures are mostly formed by metal scaffolding parts, designed as posts, coupling pipes and diagonal pipes, and further main beams for direct support of the formwork with the usual connecting and adjusting possibilities. The top surface of the supporting structure, to wit the main beams, should be adjustable in height to allow usage for any height. The height adjustment is achieved with posts designed as an inner pipe, which is vertically adjustable within an outer pipe of the post by a screw spindle structure.

**[0003]** When the telescoping length of the inner pipe with screw spindle structure increases, there will be an increasing need for interconnecting and strutting, respectively, of the top of the inner pipe and the support of said main beam, respectively. This is structurally necessary to discharge horizontal forces from the formwork to the base of the supporting structure, said forces being caused by wind load and possible oblique positioning of said posts.

**[0004]** In practice, it is common use that the main beams extend across several points of support, to wit the posts.

**[0005]** Since the main beams are to be mounted at a given height and after setting of the concrete surface, these must be removed from underneath the surface or the formwork by hand, said main beams are mostly embodied in (extruded) aluminium.

**[0006]** Main beams extending across several points of support affect the loads arising on the posts as a result of the occurrence of bending moments in said beams above said points of support. This provides an unequal bearing force distribution in the posts and due to that, the points of support or posts across which the main beams extend, will have to be dimensioned for said heavier loads.

**[0007]** A further disadvantage of the continuous main beams, which are generally not reinforced at their extremities, is that the extremities can easily get damaged, which may lead to an unfavourable direction of forces into the supporting structure.

**[0008]** The above shows that the known supporting structures have a number of disadvantages.

**[0009]** The object of the present invention is to provide a modified and improved temporary supporting structure that does not have the above-mentioned disadvantages and can be put onto the market in an economically sound way.

**[0010]** To this end, a stabilizing receiving member according to the invention is incorporated in the temporary

supporting structure in an inventive way, characterized in that said receiving structure is provided with means for bearing and centring adapted head ends of main beams with provisions having been made for interconnecting and stabilizing the top plane of said supporting structure.

**[0011]** The advantage is that the top plane of the temporary supporting structure forms a very stable surface underneath the formwork.

**[0012]** Further, the receiving member according to the invention is developed further in such a way, that said adapted head ends of the main beams are bevelled and can be retained between V-shaped upstanding wings of said supporting structure.

**[0013]** The advantage is that the head ends will bear on the receiving member in a stable way.

**[0014]** Then, the receiving member according to the invention is developed further in such a way, that said retaining facility has been established by a retaining cam with a corresponding recess in the bottom side of the bevelled head ends of main beams, so that a centric connection can be achieved.

**[0015]** Further, the receiving member according to the invention is developed further in such a way, that said facilities for mounting said interconnecting means are brackets welded to the V-shaped raised wings, a connecting lip being provided at the extremities of the interconnecting rods gripping over them.

**[0016]** The advantage is that a properly stabilizing structure of the top surface of the temporary supporting structure has been obtained.

**[0017]** Hereinafter, the invention is explained further by way of a preferred embodiment, shown in the drawing. There

fig. 1A shows a vertical longitudinal section through the top side of a temporary supporting structure according to the state of the art;

fig. 1B shows a vertical cross-section of the top of a temporary supporting structure according to the state of the art;

fig. 2A a vertical longitudinal section of the upper side of a temporary supporting structure with the receiving member according to the invention;

fig. 2B a vertical cross-section of the upper side of a temporary supporting structure according to the invention;

fig. 3 a perspective view of the receiving member a. o. according to the invention, in a mounted state;

fig. 4 a perspective view of the receiving member a. o. in an exploded view according to the invention; and

fig. 5 a perspective view of the receiving member according to a preferred embodiment of the invention.

**[0018]** Figure 1A shows a vertical longitudinal section of the top side of a temporary supporting structure 1 as employed at the moment (state of the art), in which figure

1B shows a vertical cross-section thereof. The upper vertical posts 4 are embodied as outer pipes 3 provided with screw spindle 5 with inner pipe 6 for height adjustment of the main beams 7 having the usual formwork carriers 8 with the formwork parts 9 thereon.

**[0019]** According to the state of the art, the main beams 7 continue across at least one post 4, thus causing the post 4 across which main beam 7 extends to withstand a higher vertical bearing force. This leads to unequal loads on the vertical posts 4, which may give rise to undesirable situations. Further, the vertical posts 4 should be interconnected and strutted for reasons of stability. In the known construction according to the figures 1A and 1B this takes place with the interconnecting bars 10 and 11 and the diagonal bars 12 and 13. As can be seen in figures 1A and 1B, interconnecting by means of interconnecting bars 10 and 11 and strutting by means of diagonal bars 12 does not occur at the level of the main beams 7, due to which stabilizing the supporting structure 1 in relation to horizontal forces is less effective and may lead to unstable situations.

**[0020]** Figures 2A and 2B illustrate the same vertical cross-sections of a supporting structure 1 provided with the receiving member 14 according to a preferred embodiment of the invention. See also figures 3, 4 and 5.

**[0021]** The receiving member 14 is inserted in the inner pipe 6 of the vertical post 4 by a short piece of pipe 15 (see figures 4 and 5).

**[0022]** Figure 5 shows receiving member 14 according to a preferred embodiment of the invention in a perspective view. A head plate 16 is welded to said short pipe 15 and an I-shaped profile 17 having V-shaped wings 18 and a body 19 is welded to said head plate. Brackets 20 are welded to said V-shaped wings 18 for (torsionally stiff) connecting lip 21 of the interconnecting bars 22 to them. Again, a diagonal bar 30 can be connected in the way indicated. In a slot of main beams 24, near the head ends 23 a facility is mounted for tension stiff support of bevelled adapted head ends 23 of the adapted main beams 23, said facility gripping behind retaining cam 26.

**[0023]** Further, a bolt (not illustrated) can secure head plate 16 to the head plate 27 of the inner pipe 6 of the post 4, to which end the slots 28 and 29 have been provided.

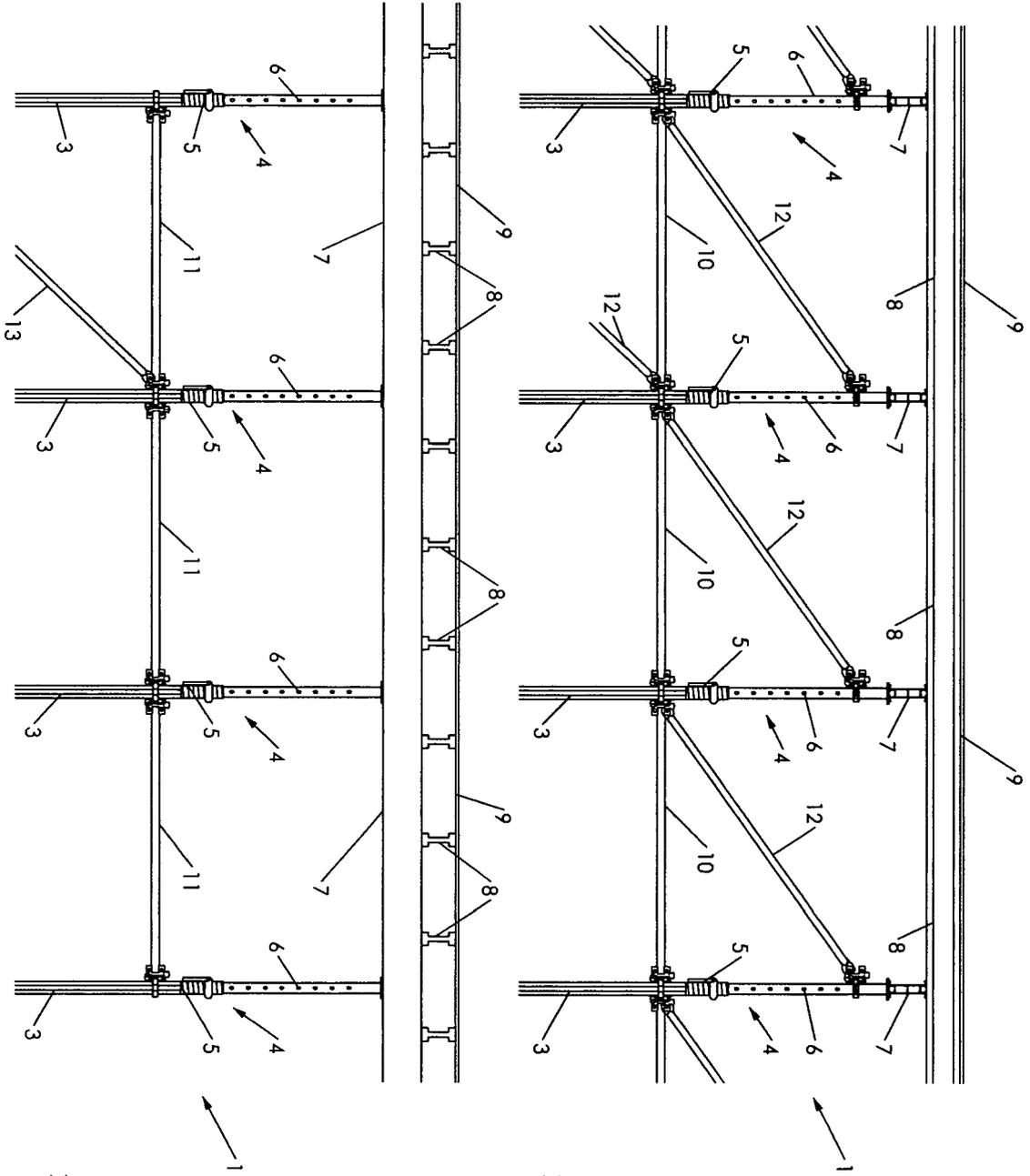
**[0024]** Figures 3 and 4 illustrate receiving member 14 in a mounted state (figure 3) and in exploded view (figure 4). For protecting the adapted main beams 24 from falling during mounting and demounting, the bevelled head ends 23 are provided with reinforcing strips 31.

**[0025]** The adapted main beams 24 extend from receiving member 14 to receiving member 14 and are therefore girders on points of support at both extremities (statically determined).

**[0026]** Further, it will be obvious, that a preferred embodiment of the invention has been described above and that many modifications and the like are possible without departing from the protective scope of this patent application.

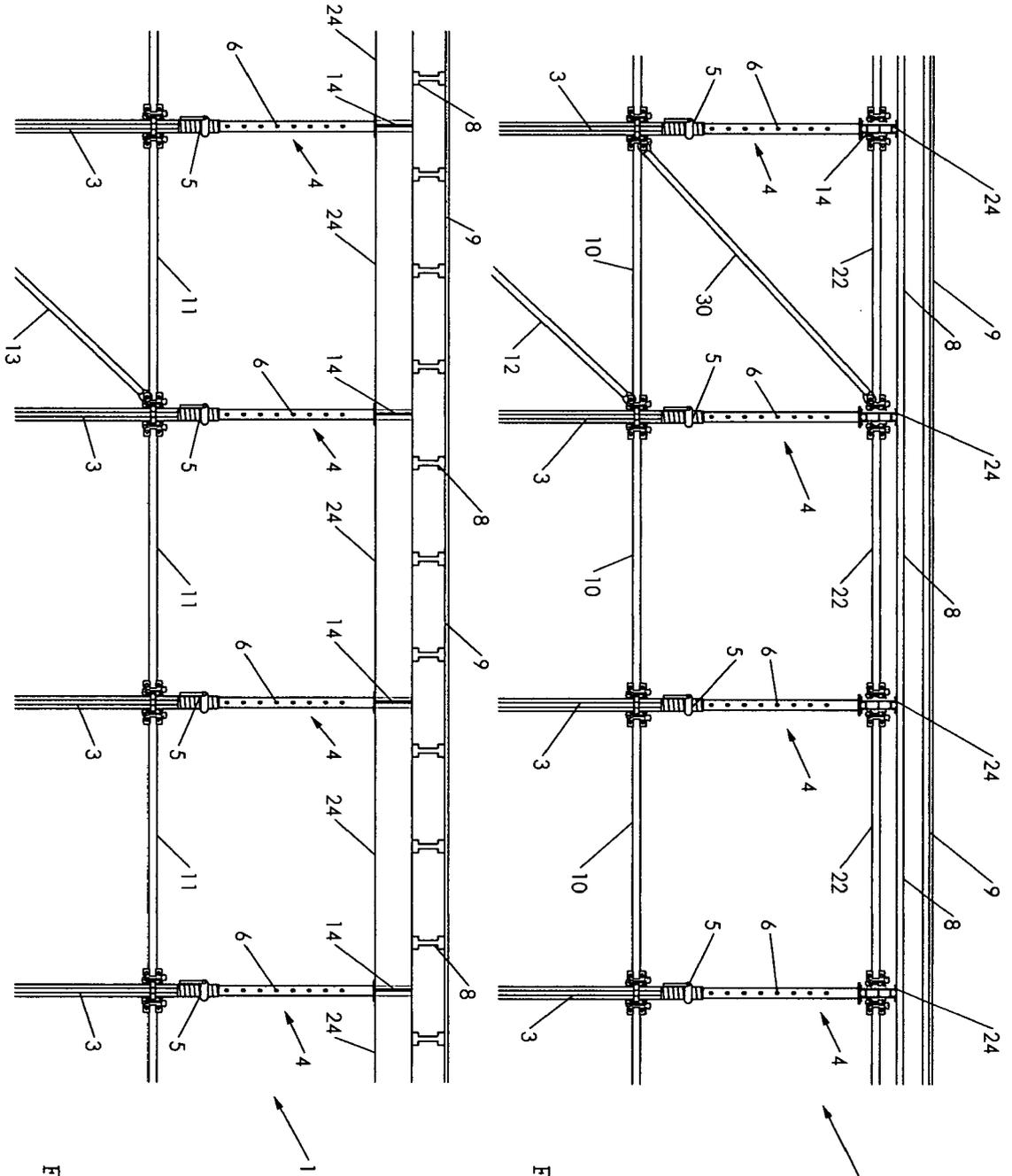
## Claims

1. Receiving member for bearing or supporting the main beams (24) positioned on the top of a height-adjustable, mostly temporary supporting structure (1), **characterized in that** said receiving member (14) is provided with means for bearing and centring the main beams (24) with adapted head ends (23) and in which facilities for interconnecting and stabilizing the top surface of said supporting structure (1) are provided.
2. Receiving member according to claim 1, **characterized in that** said adapted head ends (23) of the main beams (24) are bevelled and can be retained between V-shaped raised wings (18) of said receiving member (14).
3. Receiving member according to claim 2, **characterized in that** it is provided with a retaining cam (26) for centring the main beams (24) in relation to the posts (4).
4. Receiving member according to claim 1, **characterized in that** said facilities for mounting interconnection connecting means are brackets (20) welded to the V-shaped raised wings (18).
5. Receiving member according to claims 1 - 3, **characterized in that** said main beams (24) are extruded and manufactured of aluminium in the conventional way, in which said bevelled head ends (23) are provided with reinforcing members (31).
6. Receiving member according to claim 3, **characterized in that** said main beams (24) are provided with a member engaging behind the retaining cam (26) such that the main beams (24) are interconnected with tension fixed in longitudinal direction.



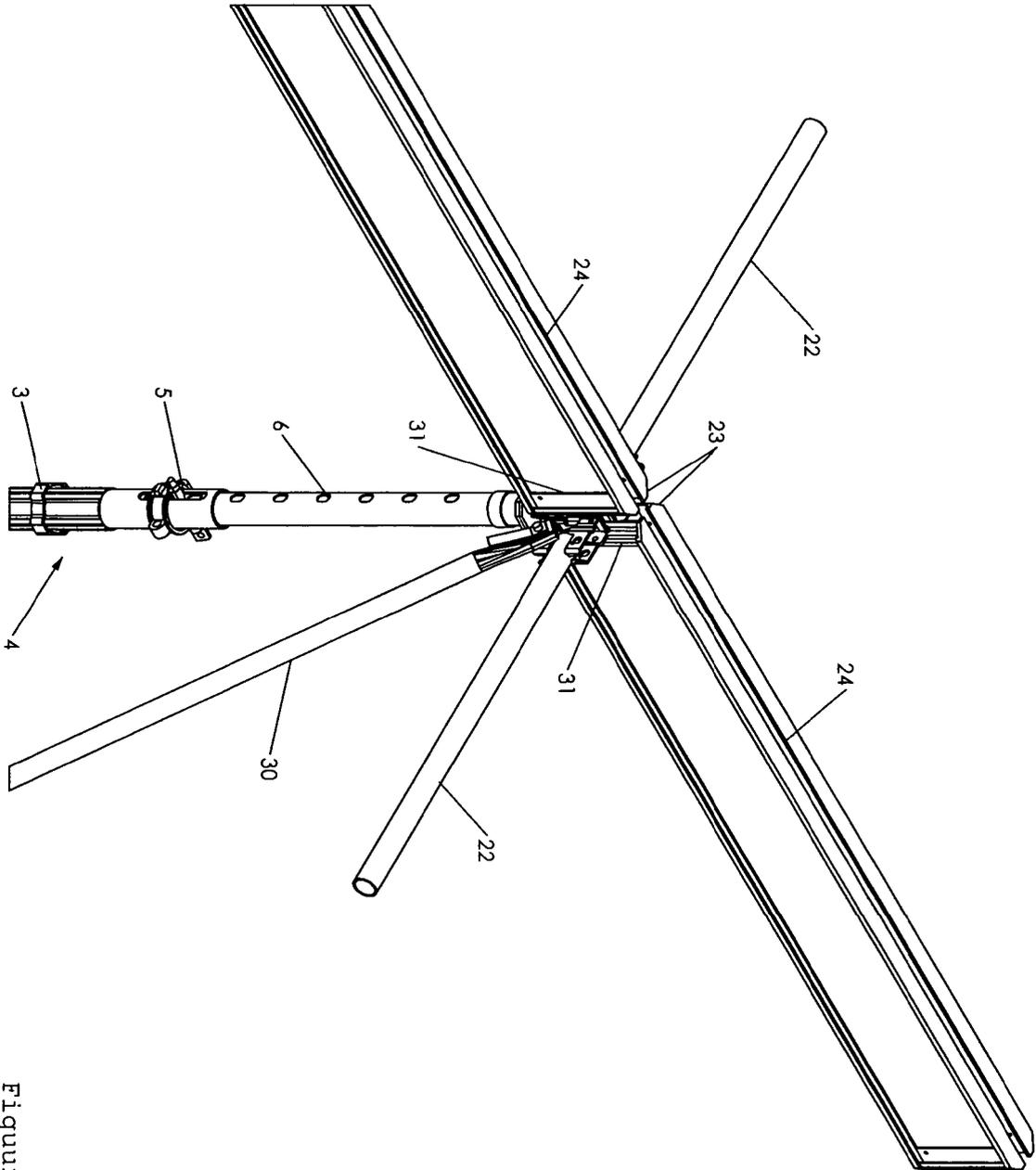
Figuur 1A

Figuur 1B

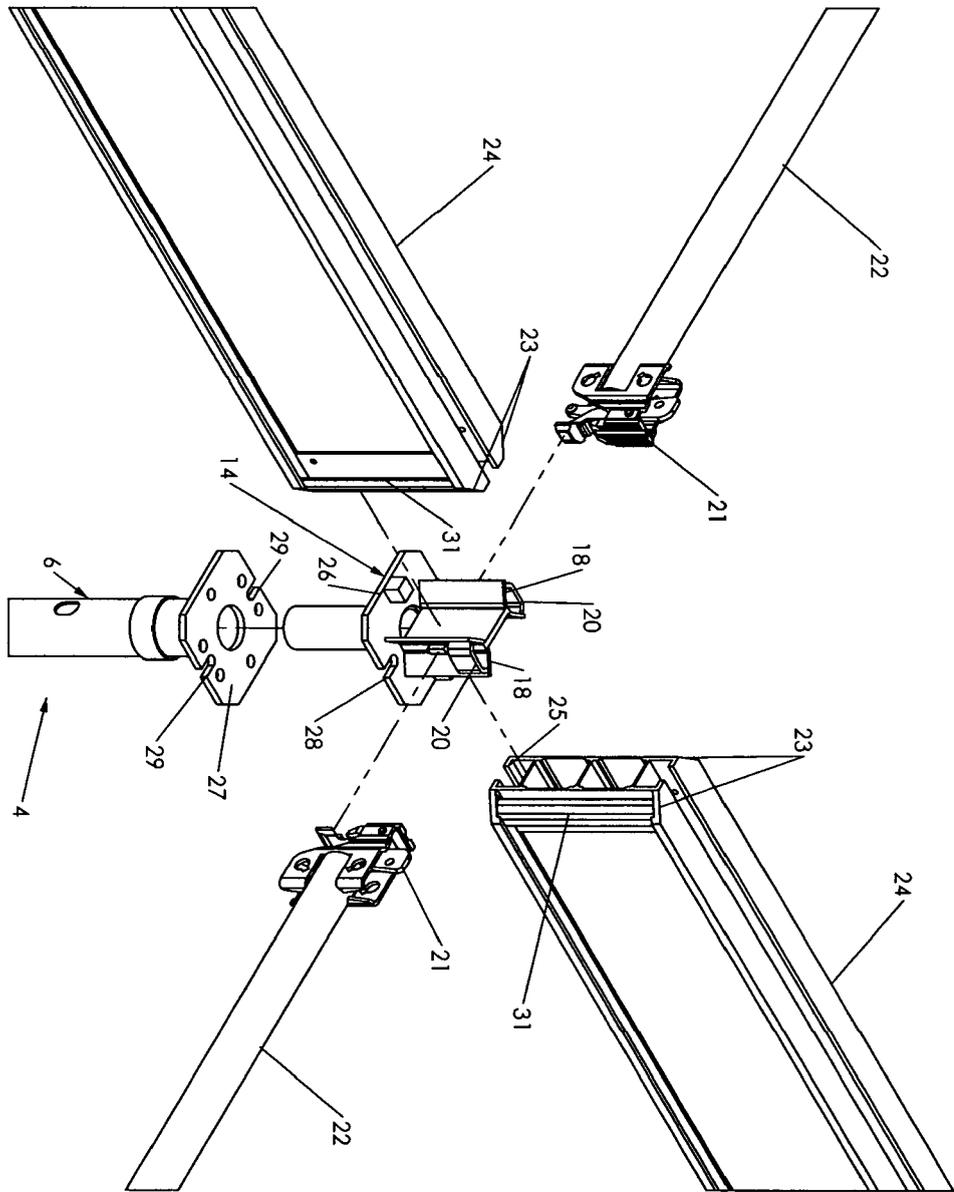


Figuur 2A

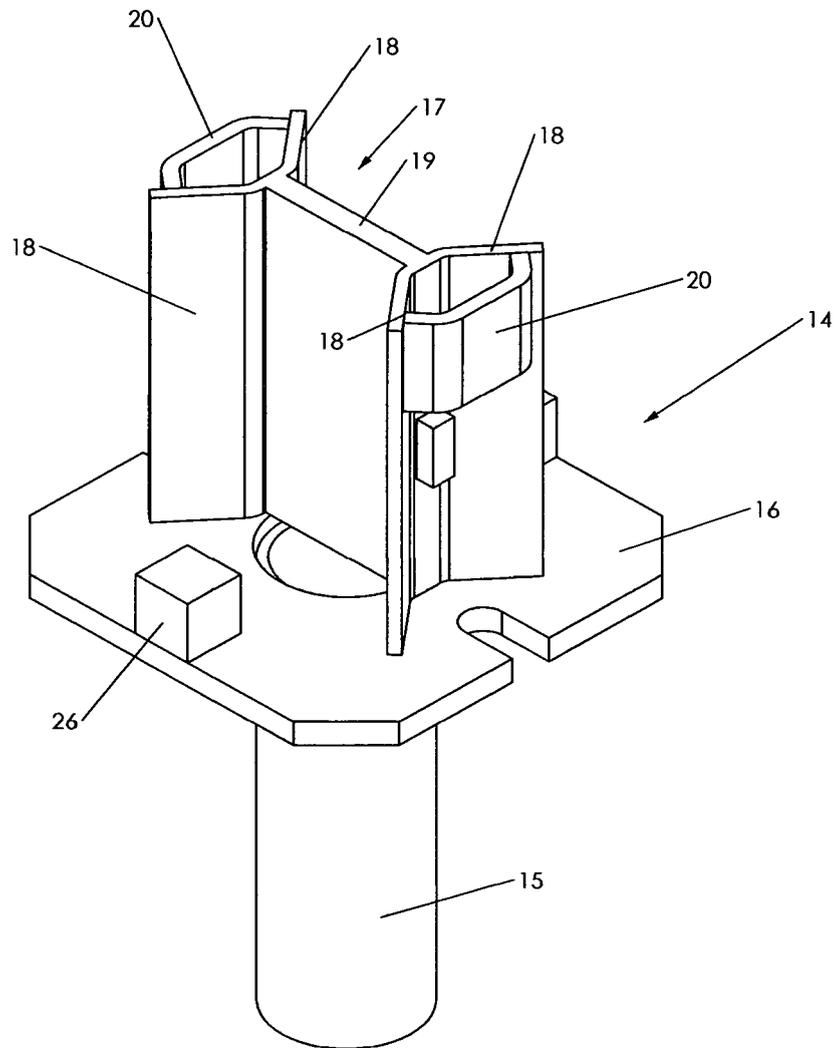
Figuur 2B



Figur 3



Figuur 4



Figuur 5



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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	DE 43 04 438 A1 (PERI GMBH [DE]) 18 August 1994 (1994-08-18) * figure 2 *	2	
			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 2 July 2008	Examiner Saretta, Guido
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	

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