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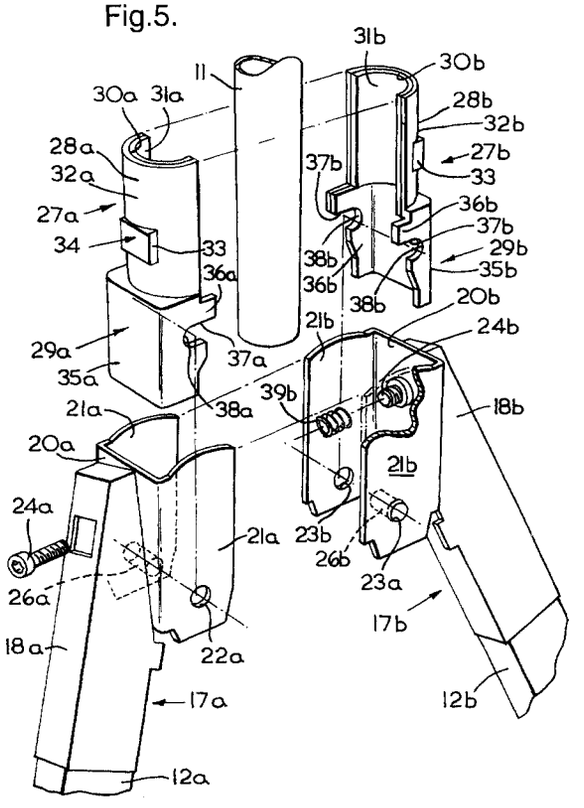
(54) Adjustable supports

(57) A trestle comprises two pairs of legs (12a,12b, 13a,13b) which can be opened and closed relative to one another. A beam (10) has two depending poles (11) and each pole is clamped by a clamping mechanism (14a,14b) carried by an associated pair of legs. When the legs (12a,12b,13a,13b) are open, the clamping mechanism (14a) is operative to hold the associated pole (11) against movement relative to the associated legs (12a,12b) whereas when the legs are moved together, this releases the clamping mechanism and allows the position of the pole to be adjusted.

Fig.5.



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Description

[0001] The invention relates to adjustable supports.

[0002] One form of adjustable support comprises an elongate supporting member and a base including a pair of legs. The supporting member can be moved relative to the base and in one known arrangement, the supporting member includes holes which come into register with holes in the base so that a pin can be inserted through the registering holes to fix the position of the supporting member relative to the base.

[0003] It is a problem with such arrangements that there are only a limited number of relative positions of the supporting member and the base. In addition, fixing the supporting member in position relative to the base involves careful adjustment to bring the holes into register and the manipulation of the pin which can be difficult and time-consuming.

[0004] According to a first aspect of the invention, there is provided an adjustable support comprising an elongate supporting member and a base comprising a pair of legs, the legs being pivoted for relative movement between a separated supporting position and a closer inoperative position, characterized by the legs in the supporting position holding the member relative to the base, relative movement of the legs to the inoperative position releasing the member for adjusting movement relative to the base.

[0005] In this way, the supporting member can be moved to a wide variety of positions relative to the base quickly and easily.

[0006] According to a second aspect of the invention, there is provided a trestle comprising a beam and a pair of spaced supporting members depending from the beam, each supporting member being held by a respective base including an associated pair of legs, the legs of each pair being pivoted for relative movement between a separated supporting position and a closer inoperative position, characterized in that the legs of each pair when in the supporting position hold the associated member relative to the base, and relative movement of the legs of each pair to the inoperative position releases the associated member for adjusting movement relative to the associated base.

[0007] According to a third aspect of the invention, there is provided an adjustable support comprising an elongate supporting member and a base comprising a pair of legs, the legs being pivoted for relative movement between a separated supporting position and a closer inoperative position, characterized by the legs carrying a clamping mechanism which, with the legs in the supporting position, holds the member relative to the base, relative movement of the legs to the inoperative position operating the clamping mechanism to release the member for adjusting movement relative to the base, the clamping mechanism including at least one member having a position in the supporting position that is adjustable relative to the associated legs to adjust clamping pressure.

[0008] According to a fourth aspect of the invention, there is provided an adjustable support comprising an elongate supporting member and a base comprising a pair of legs, the legs being pivoted for relative movement between a separated supporting position and a closer inoperative position, characterized by the legs carrying a clamping mechanism which, with the legs in the supporting position, holds the member relative to the base, relative movement of the legs to the inoperative position operating the clamping mechanism to release the member for adjusting movement relative to the base, the clamping mechanism including at least one member which is movable relative to the legs when the legs are in the inoperative position, means being provided to urge the member against the supporting member when the legs are so positioned to prevent the supporting member moving relative to the legs under the weight thereof while allowing manual such movement.

[0009] According to a fifth aspect of the invention, there is provided an adjustable support comprising an elongate supporting member and a base comprising a pair of legs, the legs being pivoted for relative movement between a separated supporting position and a closer inoperative position, characterized by the legs carrying a clamping mechanism which, with the legs in the supporting position, holds the member relative to the base, relative movement of the legs to the inoperative position operating the clamping mechanism to release the member for adjusting movement relative to the base, additional means being provided operative when the legs are in the separated supporting position to resist relative movement between the supporting member and the legs.

[0010] The following is a more detailed description of an embodiment of the invention, by way of example, reference being made to the accompanying drawings in which-

Figure 1 is a side elevation of a trestle,

Figure 2 is a plan view from above of the trestle of Figure 1 with a beam and poles of the trestle removed,

Figure 3 is a partial end elevation of the trestle of Figures 1 and 2,

Figure 4 is a perspective view of part of a pair of legs of the trestle of Figures 1 to 3 and showing a clamping mechanism of the trestle engaging a pole of the trestle,

Figure 5 is a similar view to Figure 4 but showing the parts exploded, and

Figure 6 is a schematic view of an alternative form of beam for use in the trestle of Figures 1 to 5.

[0011] Referring first to Figures 1 and 2, the trestle comprises a beam 10 which may, particularly where the trestle is to be used for sawing applications, be made of wood. The beam 10 carries a pair of spaced elongate supporting poles 11. As seen in Figure 1, each supporting pole 11 is adjacent an associated end of the beam 10, extends generally vertically and depends from the beam 10.

[0012] The beam 10 and the supporting poles 11 are held by a base including generally two pairs of legs 12a, 12b, 13a,13b. Each pair of legs carries at its upper end a clamping mechanism indicated generally at 14a,14b and Figures 1 and 2.

[0013] As seen in Figure 3 in particular, and as also seen in Figure 2, each pair of legs 12a,12b, and 13a, 13b is interconnected by a pair of links 15a,15b. Each link 15a,15b is of generally L-shaped cross-section and is pivoted at one end to an associated leg 12a,12b, and 13a,13b. The ends of the links 15a,15b remote from the associated legs 12a,12b, 13a,13b are pivoted together in an arrangement which allows the links to go just overcentre, as seen in Figure 3, and so lock the associated legs 12a,12b, 13a,13b in the open supporting position shown in Figures 2 and 3.

[0014] In addition, as seen in Figures 1 and 2, a pair of bars 16a,16b may interconnect the legs towards their upper ends to space the pairs of legs 12a,12b and 13a, 13b apart. These bars 16a,16b are, however, optional and are, indeed, omitted in Figures 3 to 5.

[0015] The construction of the pairs of legs 12a,12b, and 13a,13b at their upper ends will now be described. It will be appreciated that the arrangement is identical for each pair of legs 12a,12b, and 13a,13b and so the arrangement at the ends of the legs 12a,12b only will be described. It will be understood, however, that the arrangement at the ends of the legs 13a,13b are identical.

[0016] Referring particularly to Figures 3, 4 and 5, each leg includes at its upper end a mounting 17a,17b. Each mounting 17a,17b is formed from metal and includes a socket 18a,18b which receives the remainder of the associated leg 12a,12b. Each socket 18a,18b carries a channel-shaped member 19a,19b including a base 20a,20b and a pair of spaced parallel side plates 21a,21b. As seen in Figure 5, each side plate 21a,21b has towards its lower end an associated hole 22a,22b with the holes of each pair of plates 21a,21b being in register. Each base 20a,20b includes a threaded hole 23a,23b through which extends an associated screw 24a,24b whose head is accessible through a window 25a,25b provided in the associated socket 18a,18b.

[0017] As seen particularly in Figure 4, the two channel-shaped members 19a,19b embrace one another so that the side plates 21a of one channel-shaped member 19a lie against the plates 21b of the other channel-shaped member 19b. When so positioned, pins 26a,26b can be inserted through the registering hole 23a,23b of the plates 21a,21b to hold the channel shaped members 19a, 19b together and so allow the legs 12a,12b to pivot relative to one another about the pins 26a,26b.

[0018] Each channel-shaped member 19a,19b embraces an associated clamping member 27a,27b. Again, only one clamping member 27a will be described, it being appreciated that the other clamping member 27b is identical.

[0019] The clamping member 28b comprises a semi-cylindrical portion 28 connected to a support mount 29. The semi-cylindrical portion 28 has an interior curved clamping surface 30 that is lined with an elastomeric material 31 such as rubber. The exterior surface 32 of the semi-cylindrical portion 28 carries a boss 33 with a flat surface 34 which co-operates with an associated one of the screws 24a,24b in a manner to be described below. As seen in Figure 5, the diameter of the clamping surfaces 30 are equal to the outside diameter of the associated pole 11.

[0020] The support mounting 29 is of generally U-shaped cross-section with a rear 35 and two parallel projecting side walls 36a,36b. Each side wall 36a,36b includes an elongate slot 37a,37b terminating in a semicircular end 38a,38b. Below the slots 38a, 38b, the side walls 36a,36b are cut away.

[0021] Each clamping member 27a,27b is carried by the associated channel-shaped member 19a,19b with the inwardly projecting ends of the pins 26a,26b extending into the associated slots 37a,37b. In this way, the position of each clamping member 27a,27b is fixed vertically but the clamping member 27a, 27b has a degree of horizontal movement by relative movement of the slots 37a,37b and the pins 26a,26b. The screws 24a, 24b bear against the associated bosses 33 and springs 39a,39b are provided acting between the bases 20a, 20b respectively and the associated bosses 33. The effect of this is to force the two clamping members 27a, 27b towards one another so that they embrace the associated pole 11 loosely so preventing the associated pole 11 sliding freely between the clamping members 27a,27b while allowing its position to be manually adjusted.

[0022] The function of the screws 24a,24b is to allow the relative positions of the clamping members 27a,27b to be adjusted to accommodate variations in the diameter of the poles 11. Screwing a screw 24a,24b into the associated base 20a,20b presses on the associated boss 33. This pushes the associated clamping member 27a,27b inwardly so increasing the clamping force both when the clamping members 27a,27b are clamped and when they are released. Opposite rotation of a screw 24a,24b reduces the clamping pressures.

[0023] Such relative movement between the clamping members 27a,27b and the associated channel-shaped members 19a,19b is accommodated by the relative movement between the slots 37a,37b and the pins 26a,26b referred to above.

[0024] In use, the arrangement is such that when the legs are in the separated supporting position shown in

Figures 1, 2 and 3, the mountings 17a,17b force the clamping members 27a,27b against the associated pole 11 to prevent relative movement between the pole 11 and the legs 12a,12b. The pole 11, and thus the associated part of the beam 10, is thus fixed in position relative to the legs 12a,12b. This is the position shown in Figure 4.

[0025] As shown in Figure 3, each socket 18a,18b may carry an associated cam locking lever 40 which, when pivoted from the inoperative position shown on the left-hand side of Figure 3 to the operative position shown on the right-hand side of Figure 3, engages the associated pole such that any tendency for continued downward movement by the associated pole 11 wedges a cam 48 of the locking lever 40 even more firmly against the pole 11. This is an optional feature but can be useful when the beam 10 is to carry very high loads.

[0026] The poles 11 are released by lifting the links 15a,15b of the two pairs of legs 12a,12b from the overcentre position shown in Figure 3 to allow the legs to be pivoted about the pins 25a,25b towards one another. In this way, the legs move from their separated supporting position to a closed inoperative position. As a result of such movement, the mountings 17a,17b no longer bear tightly against the clamping members 27a,27b and so these are released from clamping engagement with the associated pole 11.

This allows the pole to be adjusted relative to the legs 12a,12b or 13a,13b to a different position before the legs are re-separated to cause the mountings 17a,17b to press the clamping members 27a,27b against the associated pole 11.

[0027] Figure 6 shows schematically an alternative arrangement of the beam. In this Figure, parts common to Figures 1 to 5 and Figure 6 are given the same reference numerals and will not be described in detail. In addition, in Figure 6, the legs 12a,12b, and 13a,13b and the clamping mechanisms 14a,14b are shown only schematically or not at all.

[0028] In this alternative arrangement, the beam 10 includes an upwardly opening U-shaped channel member 41 with a base 42 and upstanding side walls 43. The side walls include a pair of registering slots 44 that receive respective ends of a rod 45 whose centre extends through the associated pole 11 to connect the pole 11 to the beam 10. This allows relative pivotal movement between the poles 11 and the beam 10 and thus allows the end of one pole 11 to be raised to the level of the other pole 11.

[0029] As seen, in this arrangement, the U-shaped channel member 41 may carry a timber beam which may include a spirit level 47 to allow the whole beam 10 to be level.

[0030] It will be appreciated that there are a number of variations that can be made to the arrangement described above with reference to the drawings. First, although a trestle has been described above, the clamping arrangement can be used in any situation where an elongate supporting member such as a pole is movable relatively to a base comprising a pair of legs which can be opened and closed to operate a clamping mechanism. The elastomeric material 31 is optional as are the screws 24a,24b and the springs 39a,39b.

[0031] The use of separate clamping members and mountings is also optional; the clamping members could be mounted directly at the ends of the legs.

Claims

1. An adjustable support comprising an elongate supporting member and a base comprising a pair of legs, the legs being pivoted for relative movement between a separated supporting position and a closer inoperative position, **characterized by** the legs in the supporting position holding the member relative to the base, relative movement of the legs to the inoperative position releasing the member for adjusting movement relative to the base.

2. A support according to claim 1 wherein two bases are provided, each base including a pair of pivoted legs and each base holding a respective member, the members having respective upper ends interconnected by a beam.

3. A support according to claim 2 wherein the connection between said upper ends and said beam allows relative angular movement between the beam and each member.

4. A support according to any one of claims 1 to 3 wherein the pair of legs carry a clamping mechanism, the legs in the supporting position clamping the member to hold the member, movement of the legs to the inoperative position releasing the clamping mechanism.

5. A support according to claim 4 wherein the clamping mechanism includes two clamping parts embracing respective opposite sides of the associated member, the clamping parts being forced against the associated member to hold the member relative to the associated base when the legs are in the separated supporting position.

6. A support according to claim 5 wherein the or each member is of circular cross-section, each clamping part having a concave clamping surface that fits around the associated member when the legs are in the separated supporting position.

7. A support according to claim 6 wherein each clamping surface is lined with an elastomeric material.

8. A support according to any one of claims 5 to 7 or

wherein each leg includes a part movable therewith that forces an associated clamping part against the associated member when the legs are in the separated supporting position.

9. A support according to claim 8 wherein each part includes a connecting portion for connecting the part to the remainder of the associated leg and a channel shaped portion which embraces the associated clamping part when the legs are in the separated supporting position.

10. A support according to claim 9 wherein the legs of the channel portions of the or each pair are pivotally connected together to provide a pivot for the associated legs.

11. A support according to any one of claims 5 to 10 wherein adjustment means are provided for adjusting the position of the clamping parts relative to the associated legs and so adjust the clamping pressure applied to the associated member when the legs are in the separated supporting position.

12. A support according to any one of claims 5 to 11 wherein the clamping parts are urged together by spring means to embrace the associated member with sufficient force to prevent relative movement between the member and the associated clamping parts under the weight of the member alone with the legs in the inoperative position but permit manual movement of the member relative to the associated clamping parts with the legs so positioned.

13. A support according to any one of claims 1 to 12 wherein additional locking means are provided to lock the member to the associated base on movement of the member relative to the base with the associated legs in the separated supporting position.

14. A support according to claim 13 wherein the locking means comprise an eccentrically mounted rotatable cam movable between the member and an associated leg, said relative movement increasing wedging the cam between the member and the leg to prevent said movement.

15. A trestle comprising a beam and a pair of spaced supporting members depending from the beam, each supporting member being held by a respective base including an associated pair of legs, the legs of each pair being pivoted for relative movement between a separated supporting position and a closer inoperative position, **characterized in that** the legs of each pair when in the supporting position hold the associated member relative to the base, and relative movement of the legs of each pair to the inoperative position releases the associated member for adjusting movement relative to the associated base.

16. An adjustable support comprising an elongate supporting member and a base comprising a pair of legs, the legs being pivoted for relative movement between a separated supporting position and a closer inoperative position, **characterized by** the legs carrying a clamping mechanism which, with the legs in the supporting position, holds the member relative to the base, relative movement of the legs to the inoperative position operating the clamping mechanism to release the member for adjusting movement relative to the base, the clamping mechanism including at least one member having a position in the supporting position that is adjustable relative to the associated legs to adjust clamping pressure.

17. An adjustable support comprising an elongate supporting member and a base comprising a pair of legs, the legs being pivoted for relative movement between a separated supporting position and a closer inoperative position, **characterized by** the legs carrying a clamping mechanism which, with the legs in the supporting position, holds the member relative to the base, relative movement of the legs to the inoperative position operating the clamping mechanism to release the member for adjusting movement relative to the base, the clamping mechanism including at least one member which is movable relative to the legs when the legs are in the inoperative position, means being provided to urge the member against the supporting member when the legs are so positioned to prevent the supporting member moving relative to the legs under the weight thereof while allowing manual such movement.

18. An adjustable support comprising an elongate supporting member and a base comprising a pair of legs, the legs being pivoted for relative movement between a separated supporting position and a closer inoperative position, **characterized by** the legs carrying a clamping mechanism which, with the legs in the supporting position, holds the member relative to the base, relative movement of the legs to the inoperative position operating the clamping mechanism to release the member for adjusting movement relative to the base, additional means being provided operative when the legs are in the separated supporting position to resist relative movement between the supporting member and the legs.

Fig.1.

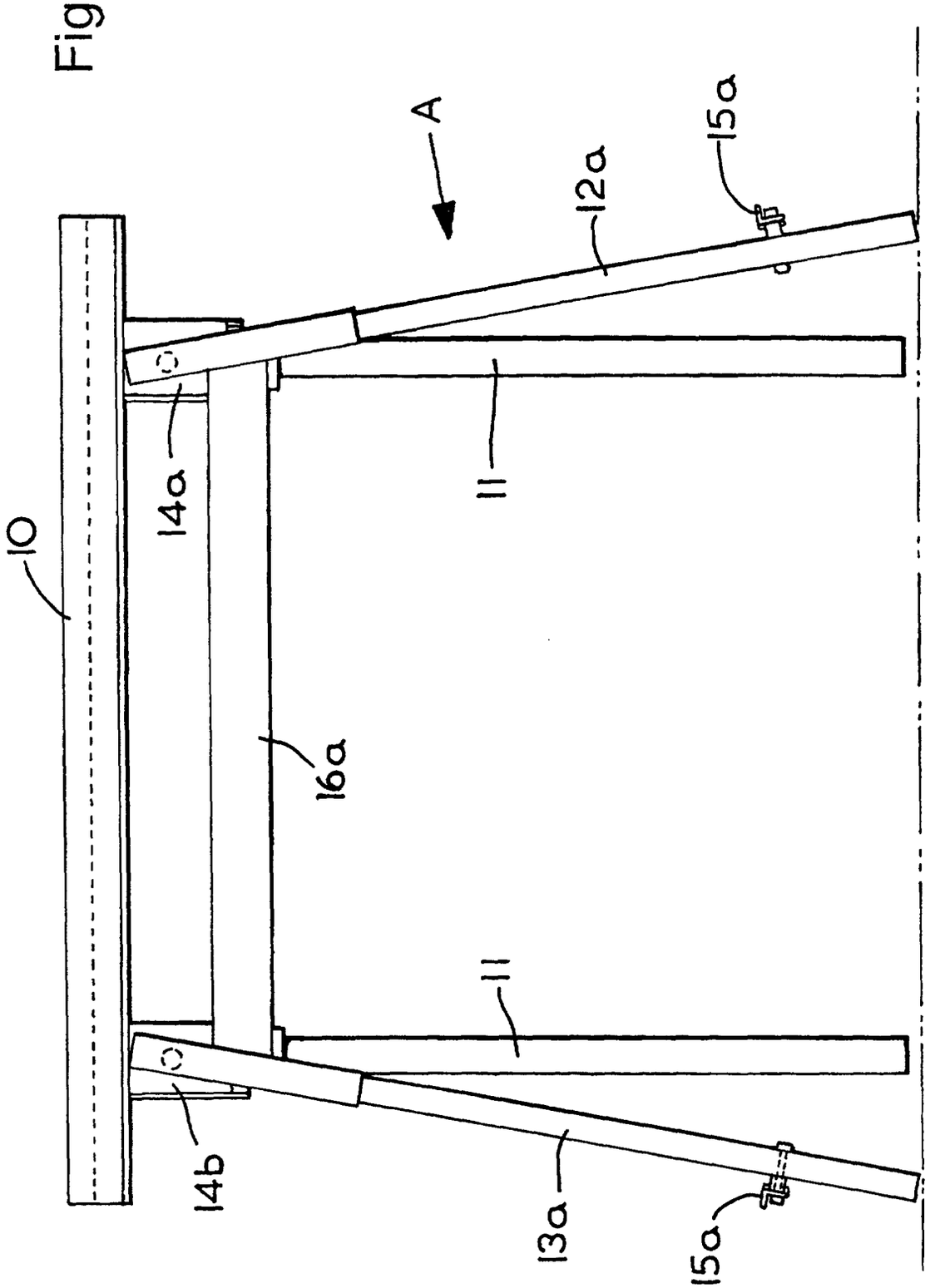

Fig.2.

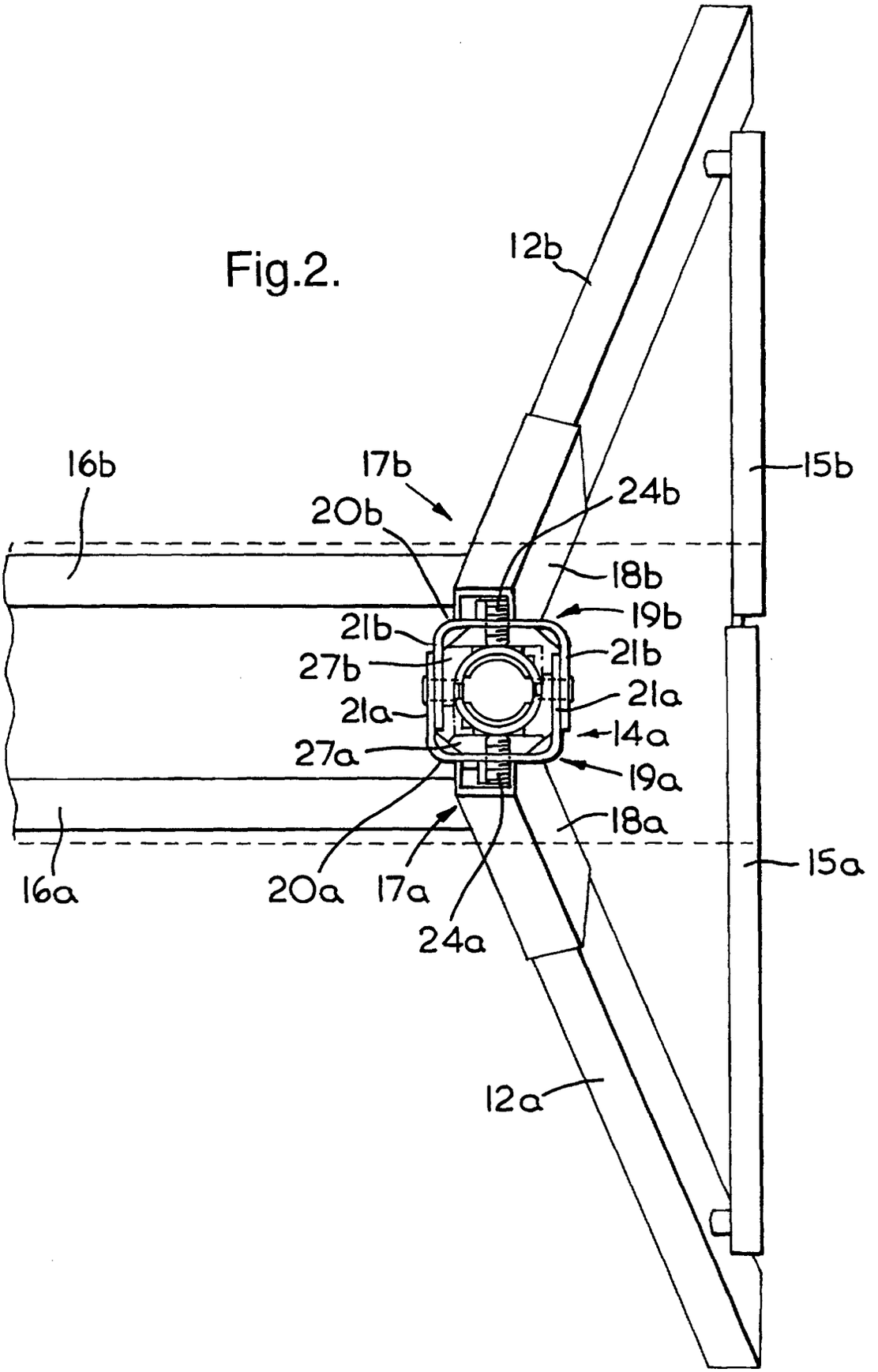
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Fig.3.

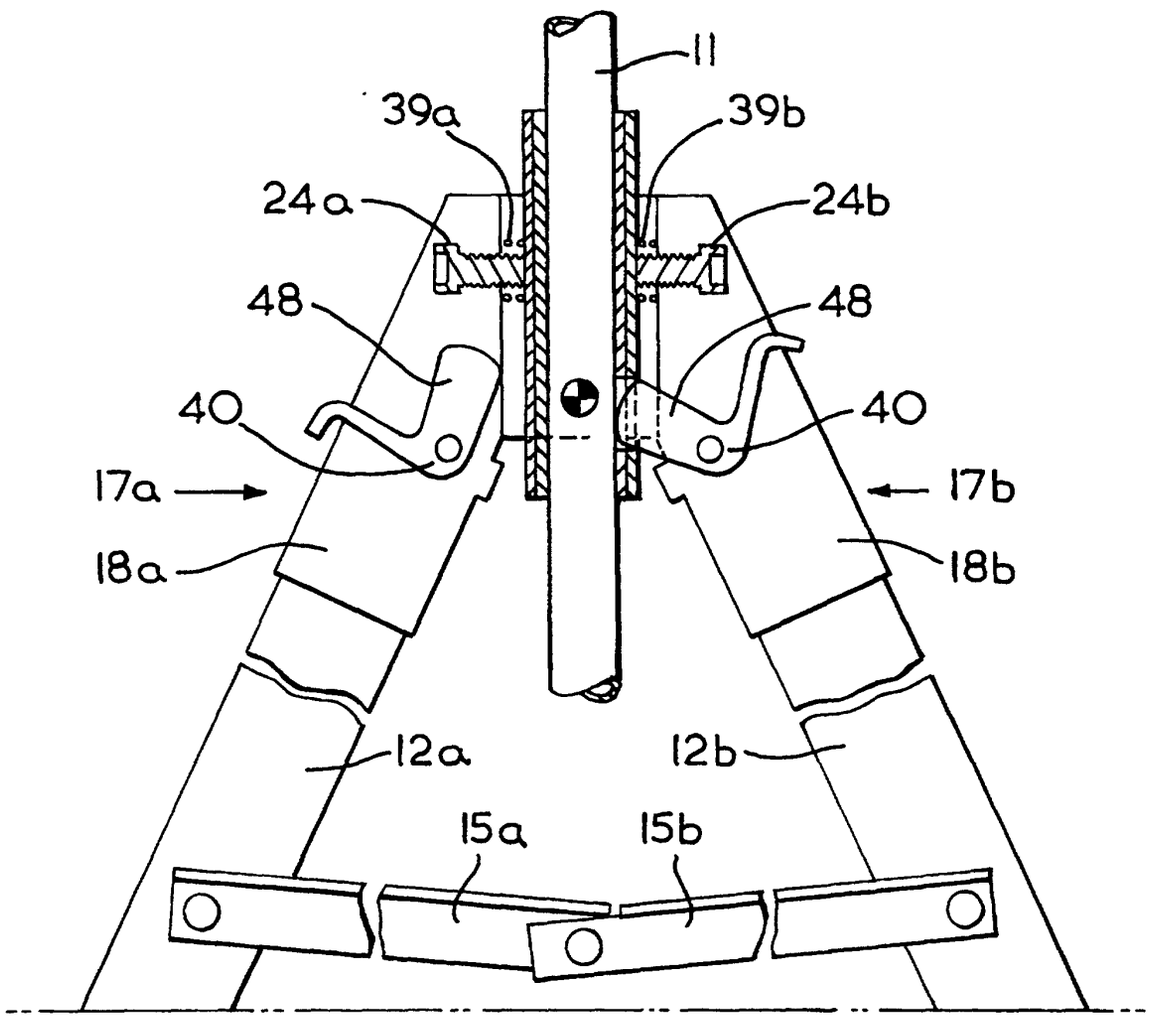

Fig.4.

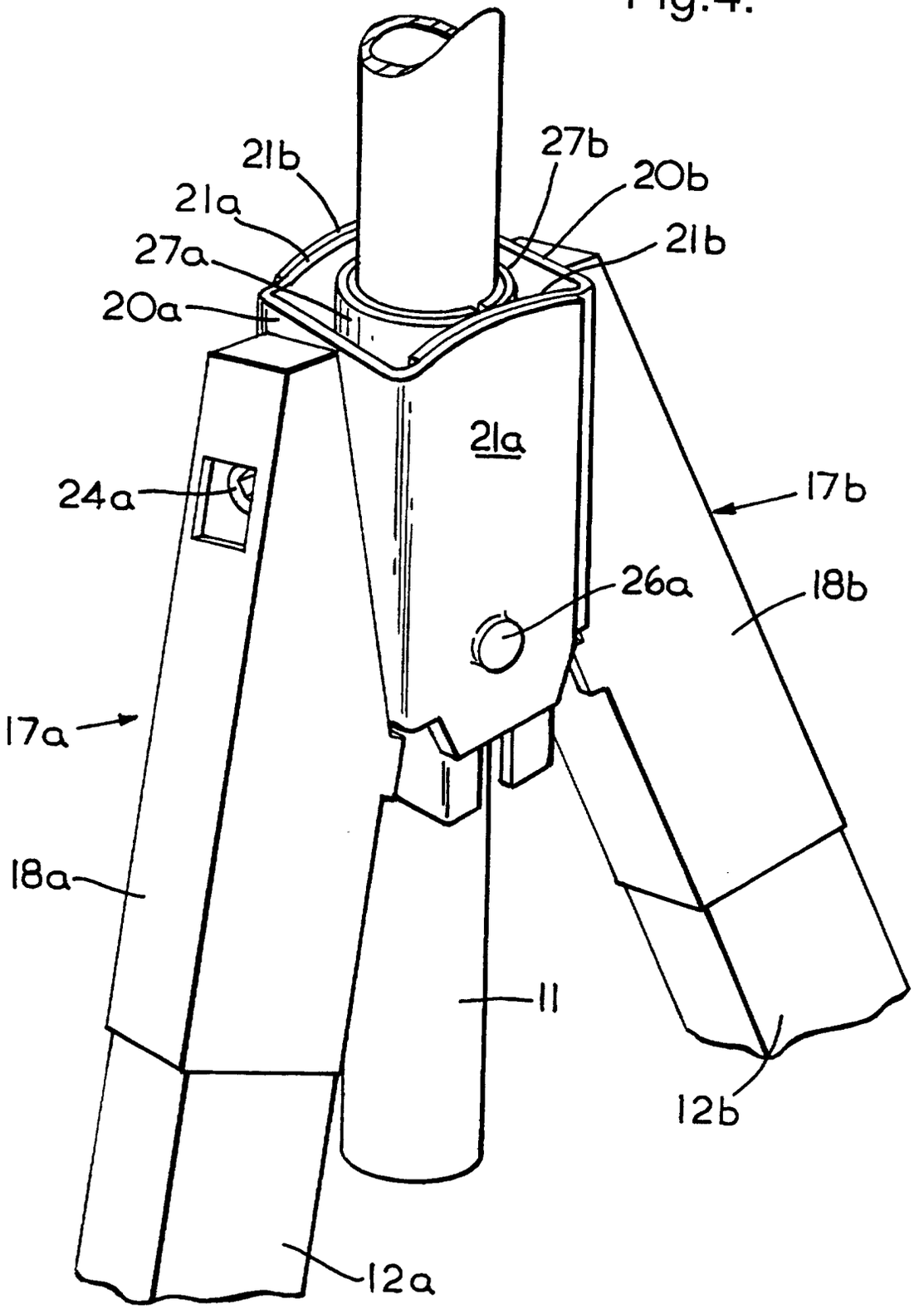
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Fig.5.

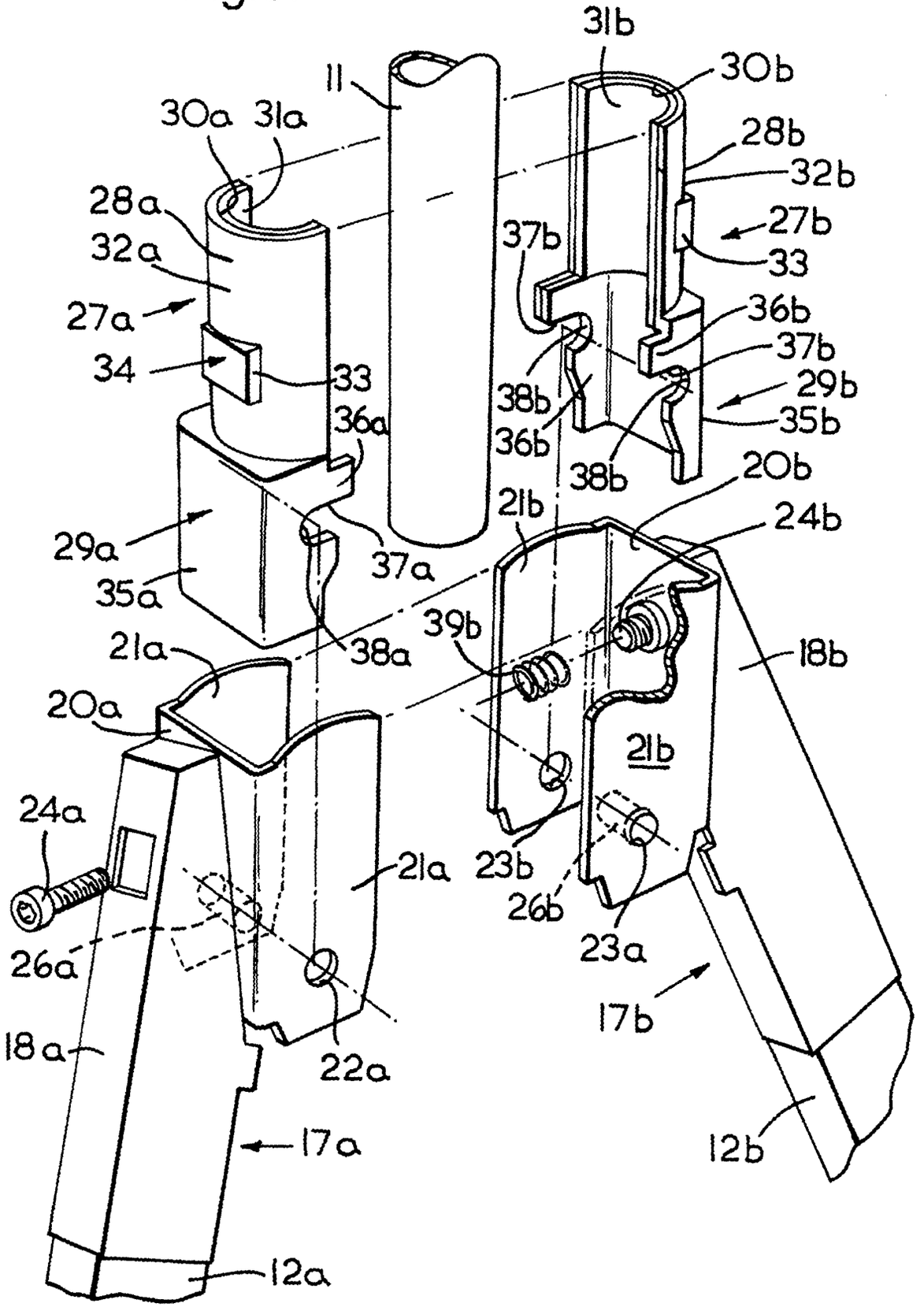
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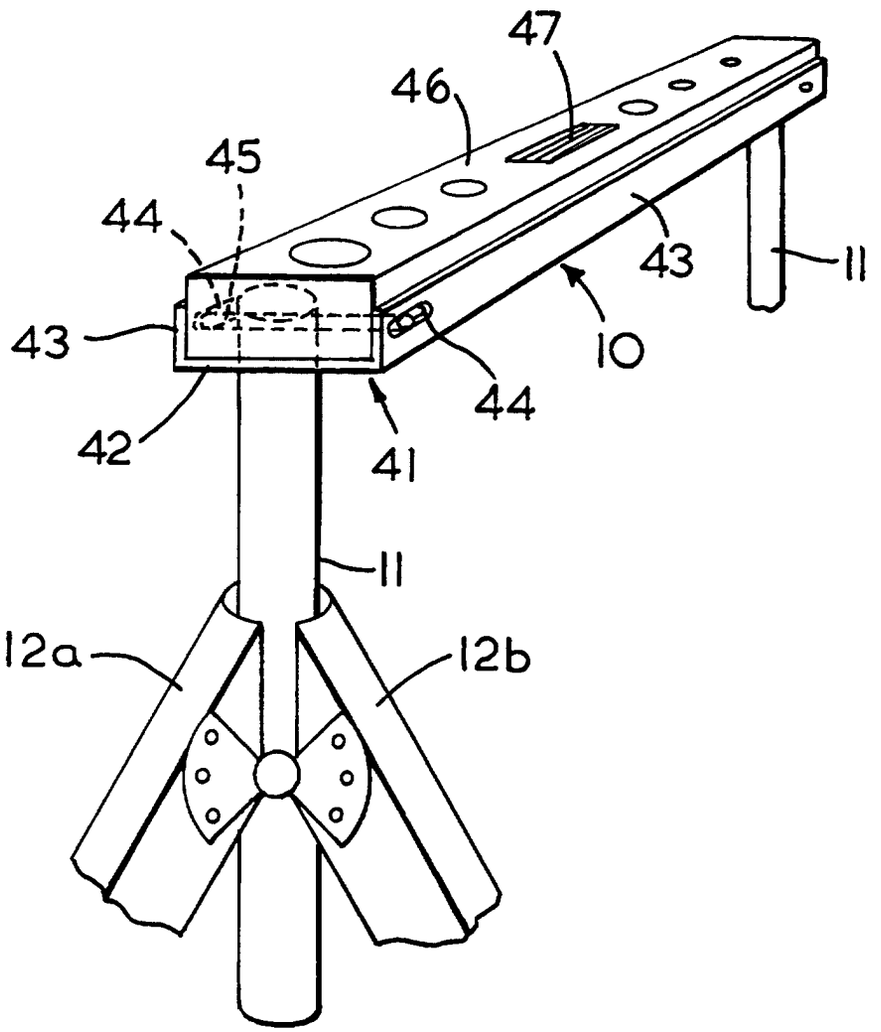
Fig.6.



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EUROPEAN SEARCH REPORT

Application Number
EP 01 30 3852

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	14 August 2001	Matzdorf, U

CATEGORY OF CITED DOCUMENTS

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