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(54) Device for retaining a stack of papers

(57) There is disclosed a device for retaining a stack of hole-punched papers in a file, e.g. an arch lever mechanism for an arch lever file. The device comprises:

a base (10);

at least two loops (14) secured to and extending upwardly from the base for engaging the punched holes in the papers, each loop having a first "L"-shaped section (16) for holding the papers when the file is closed and a second arched section (18), whereby papers on the top of a stack can be slid over the first section and retained on the second section so that papers lower down the stack can be exposed; and

a mechanism for holding the first and second sections in a closed position in which the first and second sections form a closed loop and an open position (as shown) in which the first and second sections are separated to allow papers to be added to, or removed from, the loops. The horizontal limb of the L"-shaped section (16) is secured to, and extends outwardly from, the base (10) and in this way, can be firmly attached to the base. The other limb is straight (thereby easing the addition and removal of papers) and slopes backwardly.

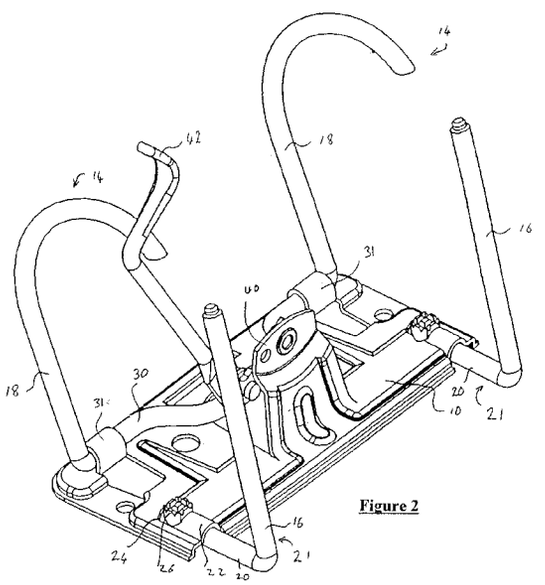

Figure 2

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Description

Field of Use

[0001] The present invention relates to a device for retaining a stack of papers in a file, for example a lever arch mechanism for a lever arch file.

Background

[0002] Lever arch files are well known for retaining a stack of papers in a file. They generally include a base, two loops secured to, and extending upwardly from, the base for engaging holes in the margin of the stack of paper. Each loop is composed of a first section for holding the papers when the file is closed and a second, arched section and a mechanism for holding the first and second sections in a closed position, in which the first and second sections form a closed loop, and an open position in which the first and second sections are separated to allow papers to be added to, or removed from, the loops. In the first position, papers on top of a stack of papers held in a file can be slid over the loop to allow papers further down the stack to be easily consulted.

[0003] Both the first and the second sections are curved and thus it is somewhat awkward to thread the papers onto (or off) the first sections of the loops when adding papers to the stack in the file, particularly when there is a thick stack of papers to be added or removed.

Disclosure of the Invention

[0004] According to a first aspect of the present invention, there is provided a device for retaining a stack of papers that have holes in their margins in a file, which device comprises:

a base;
at least two (and optionally four) loops secured to and extending upwardly from the base for engaging the marginal holes in the papers, each loop being composed of a first section for holding the papers when the file is closed and a second arched section, whereby papers on the top of a stack can be slid over the first section and retained on the second section so that papers lower down the stack can be exposed; and
a mechanism for holding the first and second sections in a closed position in which the first and second sections form a closed loop and an open position in which the first and second sections are separated to allow papers to be added to, or removed from, the loops. The first section is substantially straight.

[0005] Preferably, the second, arched section of each loop is pivotally mounted with respect of the base and the mechanism includes means, for example, a lever, for urging the arched second section into the closed position and a spring that urges the arched second section into the open position when the lever is released. In a preferred embodiment, the first, straight section is not perpendicular to the base but rather slopes rearwardly i.e. towards the second section, in order to assist the mating between the top of the first section and the end of the arched second section; such mating is required to allow papers to be slid over the loops and prevents the papers from snagging on the join between the first and second sections.

[0006] The first straight section of each loop is preferably one limb of an "L" shaped rod, the other limb engaging with the base to hold the first section firmly with respect of the base.

[0007] Generally, in known lever arch files, the paper-engaging part of the lever arch mechanism is a post extending vertically upwardly from a base. This requires the width of the base to be at least as great as the width of each loop. The present invention allows the device to be made more cheaply than the prior art, also allowing a saving in materials.

[0008] According to a second aspect of the present invention, there is provided a device for retaining a stack of papers that have holes in their margins in a file, which device comprises:

a base;
at least two (and optionally four) loops secured to and extending upwardly from the base for engaging the marginal holes in the papers, each loop being composed of a first section for holding the papers when the file is closed and a second arched section, whereby papers on the top of a stack can be slid over the first section and retained on the second section so that papers lower down the stack can be exposed; and

a mechanism for holding the first and second sections in a closed position in which the first and second sections form a closed loop and an open position in which the first and second sections are separated to allow papers to be added to, or removed from, the loops. The first section of each loop is one limb of an "L" shaped rod, the other limb extending horizontally from the base and being secured thereto to hold the first section firmly with respect of the base.

Description of Drawings

[0009]

Figure 1 is a perspective view of a device for the present inventions, in the "closed" position;
Figure 2 is identical to Figure 1 but shows the device in an "open" position.
Figure 3 is a side elevation of the mechanism shown in Figures 1 and 2.

Figure 4 is a plan view of the mechanism shown in Figures 1 and 2.

Figure 5 is a sectional view of the device shown in Figures 1 and 2, taken along the lines A-A shown in Figure 3.

Figure 6 is an exploded view of the device shown in Figures 1 and 2.

Description of the Preferred Embodiments

[0010] Referring initially to Figure 1, there is shown a device for retaining a stack of papers in a file. The device includes a base 10 made from pressed steel and including two holes 12 that accommodate rivets (not shown) for securing the device to a file. Two loops 14 extend from the base 10, each loop being composed of a first straight section 16 and an arched section 18.

[0011] The first straight section of each loop 14 is a slanting limb (or pillar) of a generally L-shaped rod 21; each of the L-shaped rods 21 also has a generally horizontal limb 20, which preferably extends outwardly from the base and has a turned-over end 26. Each L-shaped rod 21 (see Figure 6) is secured to the base 10 by means of the horizontal limb 20 being engaged within a channel 22 in the base 10. The turned over end 26 of each rod passes through an opening 24 in each channel 22 and is splayed (see Figure 1) to prevent it moving back through the opening 24 and to secure it firmly within the opening 24 so that the L-shaped rods 21 are firmly secured to the base 10.

[0012] The arched sections 18 of the two loops 14 are joined together by a central section 30, which is pivotally held on the base by two bent over tabs 31, which are pressed out from the base 10. Such an arrangement allows the arched sections 18 and the connecting part 30 to pivot about a horizontal axis extending between the two tabs 31.

[0013] The connecting section 30 includes a crank section 32. A leaf spring 34 is secured at one end (43') in a slot 36 in the base; the other end 34" engages underneath the crank section 32 and tends to urge the crank section 32 upwardly.

[0014] A generally upright wall 40 is pressed out from the base 10. A lever 42 is secured to the wall 40 by means of a rivet 44 that passes through a hole 46 in the wall 40 and a hole 48 in the lever 42. The arrangement is such that the rivet 44 allows the lever 42 to pivot about the wall 40.

[0015] The lever 42 carries a roller 50 that is secured to it by a further rivet 52 whose end is secured in a hole 54 in the lever 42. The roller engages the top of the crank section 32 to control the opening and clothing of the arched section 18 of the loop 14, as will be described later.

[0016] The tops of the pillars 16 have a male profile 60 that mates with a corresponding profile at the end 62 of the arched sections 18 (see Figure 5); this allows a positive engagement between the pillar 16 and the arched section 18 of each loop 14 and assists the alignment between the pillar 16 and the arched section 18 of each loop so that paper cannot snag on the join between the pillar and the arched section.

[0017] The lever 42 can be moved about rivet 44 between a horizontal position 42 (see Figure 1) and an upwardly extending position shown in Figure 2. In the position shown in Figure 1, the roller 50 presses the crank section 32 down against the action of the spring 34 to keep the arched sections 18 of each loop in the locked position abutting against the corresponding pillars 16 to form the closed loops shown in Figure 1. When the lever 42 is moved to the upwardly extended position shown in Figure 2, the roller 50 no longer presses down on the crank section 32 and this allows the crank section 32 to be moved upwardly by spring 34 into the open position shown in Figure 2. By pressing down on the lever 42, the crank section 32 can be moved by the roller 50 against the action of the spring 34 into the closed position shown in Figure 1.

[0018] A stack of papers (not shown) having holes in their margins can be threaded onto the pillars 16 when the loops are in their "open" position (shown in Figure 2). Because the pillars 16 are straight, the threading of the holes onto the section 16 is relatively easy and indeed a relatively large stack of papers can be simultaneously be pushed onto the pillars 16. The threading of paper onto (or off) the pillars was awkward with the prior art arrangement of lever arch devices since the pillars of each loop are curved over at their tops and therefore a stack of paper (particularly a thick stack of paper) could not simply be pressed onto (or pulled off from) the pillars but had to be carefully manoeuvred in order to thread them onto (or off) the pillars.

[0019] Once the stack of papers has been threaded on to the straight section 16, the lever 42 can be depressed to the position shown in Figure 1 to hold the stack of papers captive on the loops 14. The upper pages of the stack may be slid over the pillars 16 and retained on the arched sections 18 so that papers lower down the stack can be exposed for easy reading. In the arrangement of the present invention, the sliding of paper over the pillars is easier than with the prior art curved pillars.

[0020] The width "W" of the base 10 is relatively small in the arrangement of the present invention by virtue of the provision of the horizontal limb 20 of the L-shaped rods 21. In the prior art devices, the pillars extend upwardly directly from the base and so the width of the base is slight greater than the width of the loops. The arrangement of the present invention allows a saving in material used to make the base and therefore allows the device of the present invention to be made more cheaply than the prior art device.

Claims

1. A device for retaining a stack of papers that have holes in their margins in a file, which device comprises:

   a base;
   at least two loops secured to and extending upwardly from the base for engaging the marginal holes in the papers, each loop being composed of a first section for holding the papers when the file is closed and a second arched section, whereby papers on the top of a stack can be slid over the first section and retained on the second section so that papers lower down the stack can be exposed; and
   a mechanism for holding the first and second sections in a closed position in which the first and second sections form a closed loop and an open position in which the first and second sections are separated to allow papers to be added to, or removed from, the loops, characterised in that the first section is substantially straight.

2. A device as claimed in claim 1, wherein the second, arched section of each loop is pivotally mounted with respect of the base and the mechanism includes means for urging the arched second section into the closed position and a spring that urges the arched second section of each loop into the open position when the urging means is released.

3. A device as claimed in claim 1 or claim 2, wherein the straight section of each loop slopes rearwardly towards the second section.

4. A device as claimed in any one of claims 1 to 3, wherein the first straight section of each loop is one limb of an "L" shaped rod, the other limb engaging with base to hold the first section firmly with respect of the base.

5. A device for retaining a stack of papers that have holes in their margins in a file, which device comprises:

   a base;
   at least two loops secured to and extending upwardly from the base for engaging the marginal holes in the papers, each loop being composed of a first section for holding the papers when the file is closed and a second arched section, whereby papers on the top of a stack can be slid over the first section and retained on the second section so that papers lower down the stack can be exposed; and
   a mechanism for holding the first and second sections in a closed position in which the first and second sections form a closed loop and an open position in which the first and second sections are separated to allow papers to be added to, or removed from, the loops, wherein the first section of each loop is one limb of an "L" shaped rod, the other limb extending horizontally from the base and being secured thereto to hold the first section firmly with respect of the base.

6. A device as claimed in claim 5, wherein the second, arched section of each loop is pivotally mounted with respect of the base and the mechanism includes means for urging the arched second section into the closed position and a spring that urges the arched second section of each loop into the open position when the urging means is released.

7. A device as claimed in claim 5 or claim 6, wherein the straight section of each loop slopes rearwardly towards the second section of that loop.

8. A file including a device as claimed in any one of claim 1 to 8.

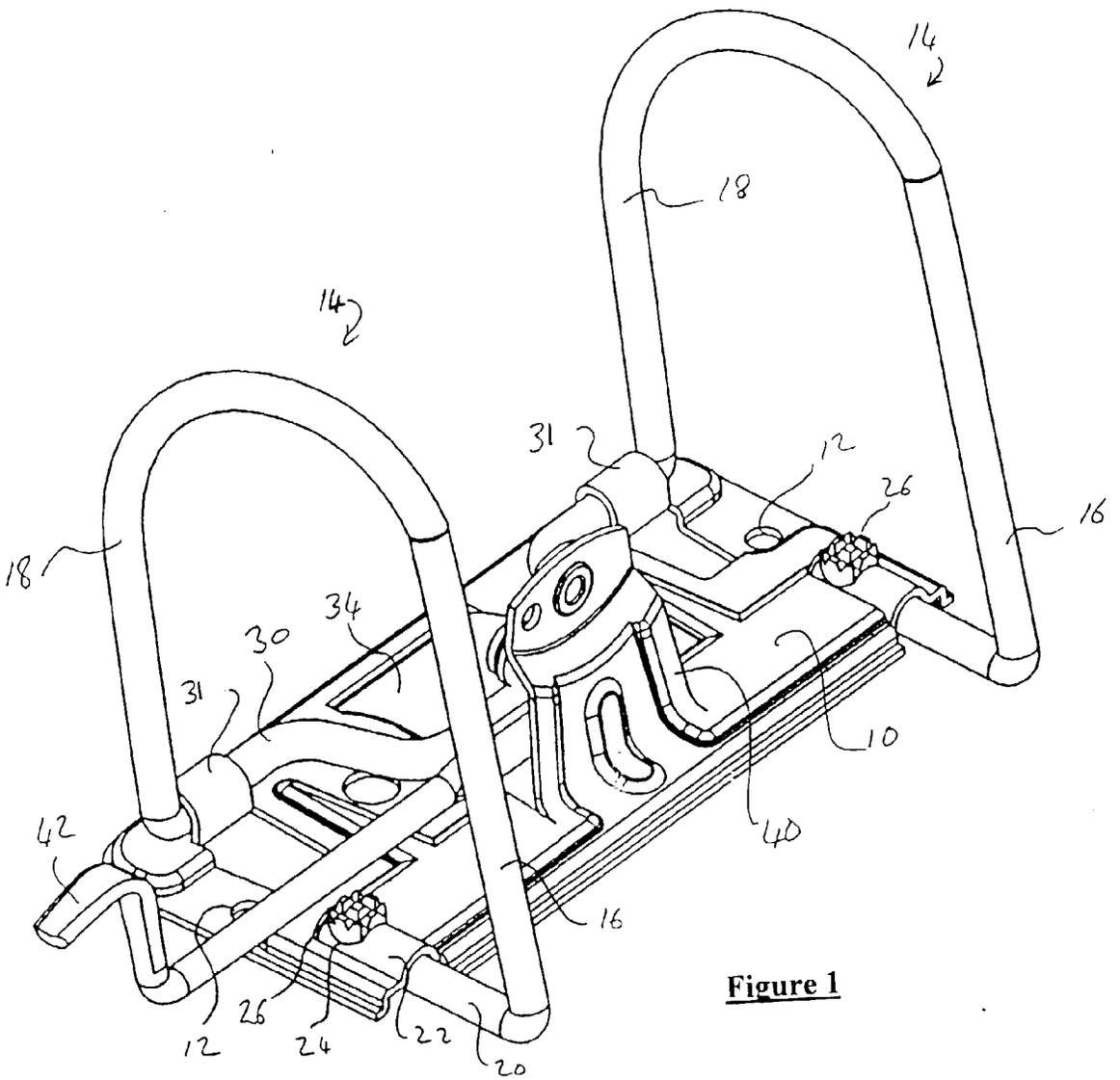

Figure 1

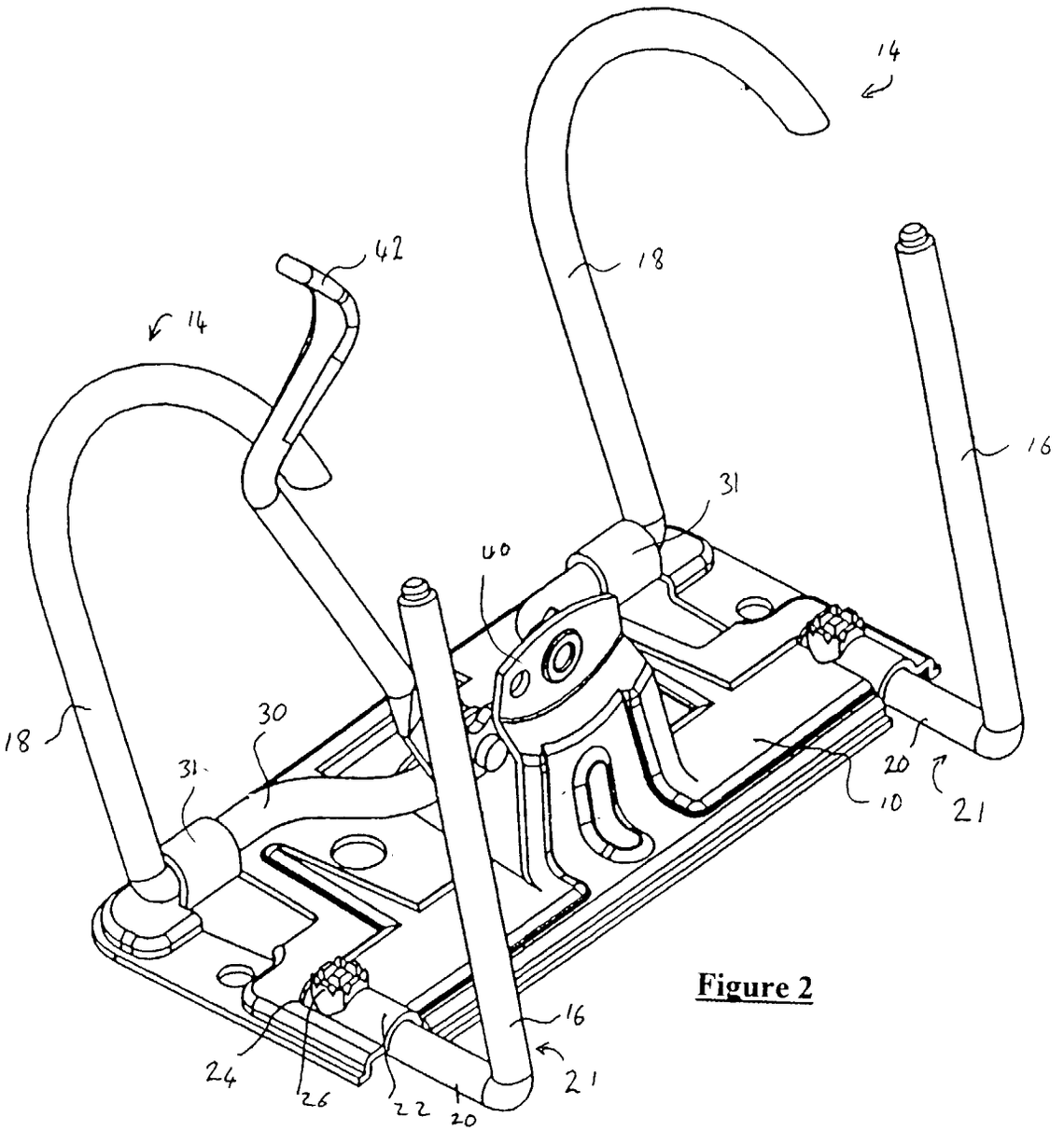

Figure 2

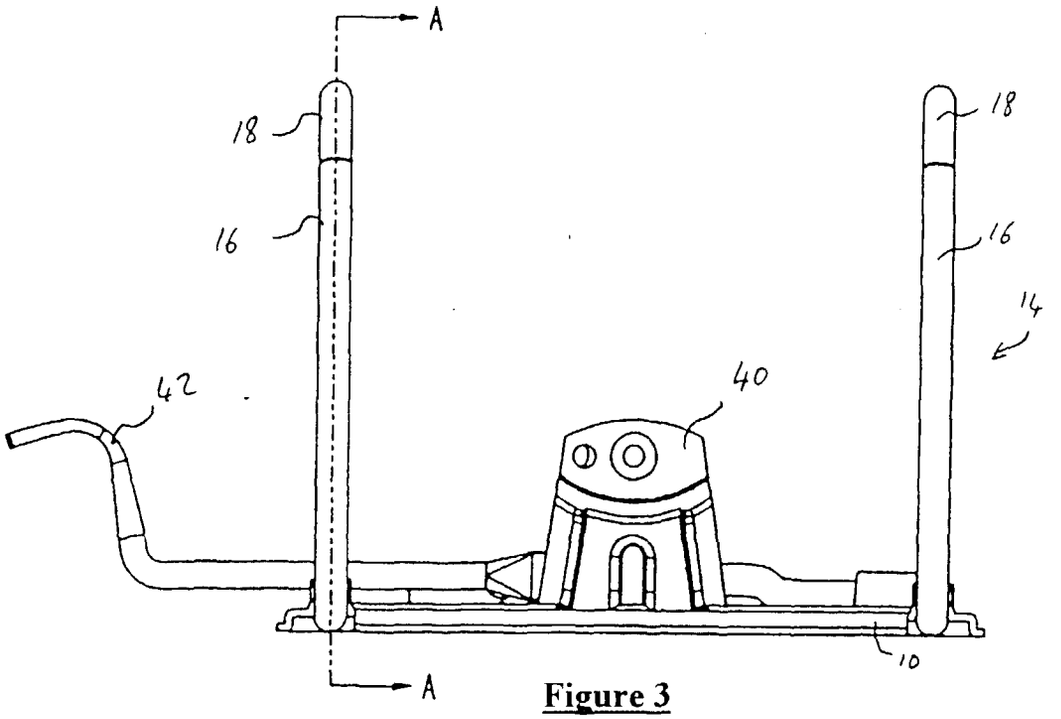

Figure 3

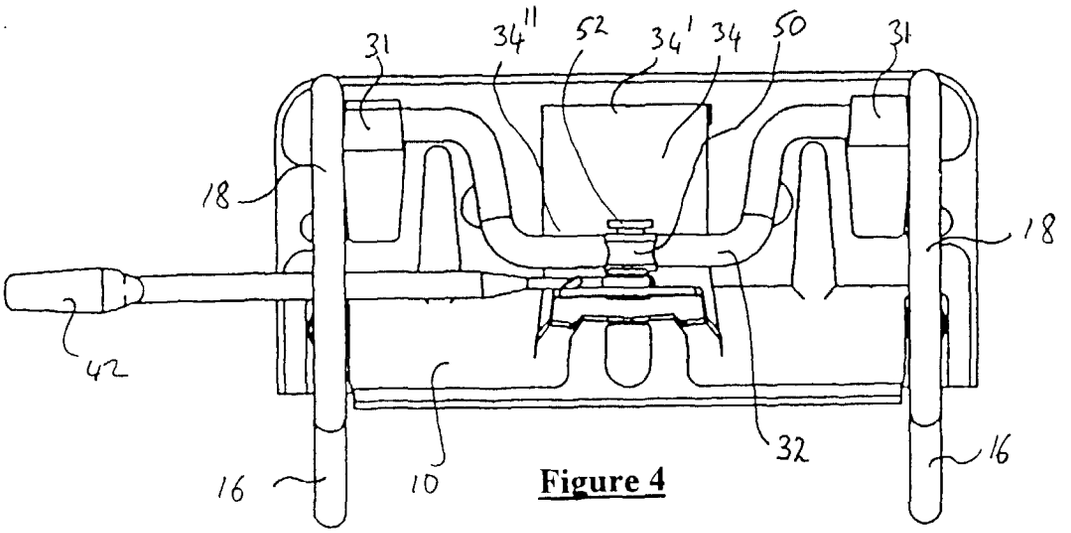

Figure 4

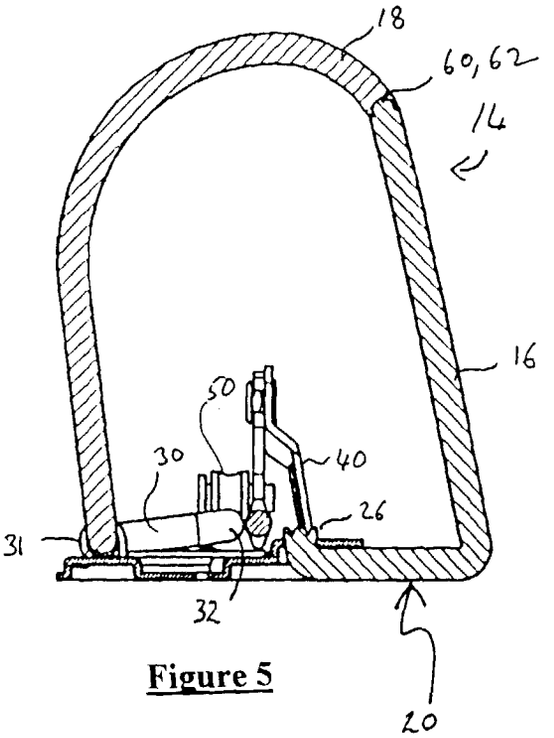

Figure 5

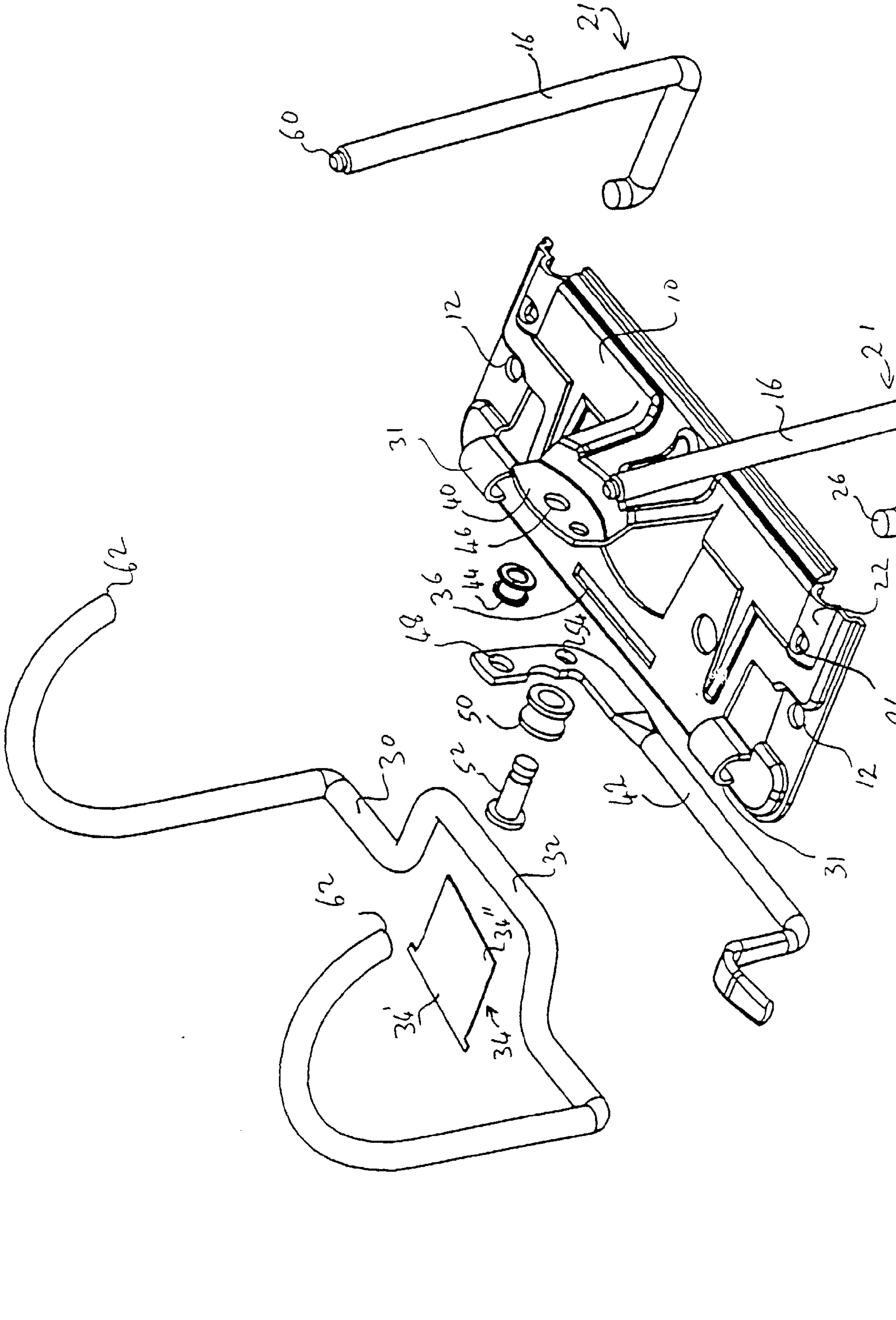

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Figure 6

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 4295

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.6)
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TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B42F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	25 August 1999	Loncke, J

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