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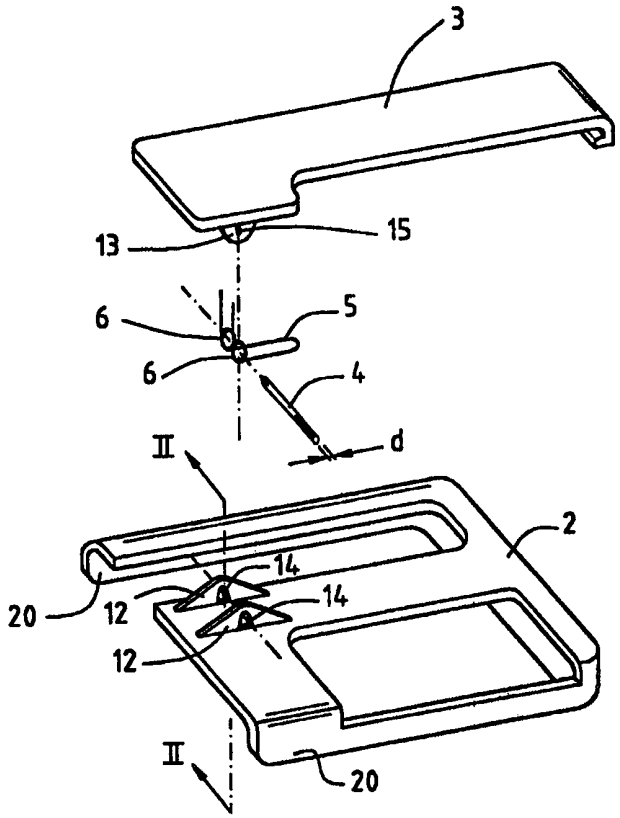
(54) Title: CLAMPING ASSEMBLY

(57) Abstract

Clamping assembly, comprising a base part (2), a clamping part (3), a pivot pin (4) and spring means (5). The base part (2) and the clamping part (3) have projections (12, 13) with passages (14 and 15, respectively). In the assembled state, the passages (14, 15) lie in line with one another and hold the pin (4) in place. The passages (14) of one part (2) are formed by a recess (17) which extends from a side of the part (2) which does not have the projections (12) to the side of the part (2) which does have the projections (12).



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Clamping assembly

The invention relates to a clamping assembly, comprising a base part, a clamping part, a pivot pin and spring means, the base part and the clamping part having projections on sides which lie opposite one another, which projections have passages which are aligned with one another and are suitable for receiving and retaining the pivot pin, and the spring means being suitable for pushing one end of the clamping part against the base part.

The invention relates in particular to a clamping assembly of this kind for attaching an electronic unit, such as a radio pager, to an item of clothing.

A clamping assembly consisting of cast material is known in practice. In the known clamping assembly, the passages in both the base part and the clamping part are round openings, i.e. they have a continuous cylindrical wall.

The known clamping assembly has the drawback that a mould for casting the parts requires an axially displaceable pin for each of the openings for the pivot pin. As a result, the mould is relatively complicated and expensive, while the use of the displaceable pin requires additional operations, time and/or energy in order to pull the pin out of the cast material when the material has sufficiently solidified. This considerably increases the cost price of the clamping assembly.

Furthermore, the accuracy of the position and of the dimensions of the passages is dependent on the time and speed at which the pin is pulled out of the cast material. The more quickly the pin is pulled out, the more damaging this will be to the accuracy.

The object of the invention is to eliminate the above drawbacks.

The clamping assembly of the type mentioned in the preamble is therefore characterized, according to the invention, in that the passage of each projection of one

part is formed by a recess which extends from a side of the part which does not have the projections to the side of the part which does have the projections.

As a result, when casting the part with the passages formed by recesses, it is possible to use a simple mould without movable shaping members, with the result that the part can be cast quickly, accurately and inexpensively.

The clamping assembly is preferably characterized in that a passage, which is formed by a recess, has a height from a side of the part which has the projections to a base of the recess which is greater than the diameter of the pivot pin.

As a result, the parts can move towards one another, counter to the action of the spring means, so that a shock-absorbing property is obtained. Furthermore, since the pivot pin has to be pushed through passages whose dimensions are greater than the diameter of the pin, the clamping assembly can be assembled more easily and more quickly.

Preferably, the clamping assembly is moreover characterized in that a dimension of the passage decreases towards the base of the recess, as seen perpendicular to the pivot pin. As a result, the parts moreover have the freedom to rotate slightly with respect to one another, counter to the action of the spring means, about an axis which is perpendicular to the pivot pin. As a result, a further shock-absorbing property is obtained.

The invention will be explained below with reference to the appended drawings, in which:

Fig. 1 shows a perspective, exploded view of an embodiment of the clamping assembly according to the invention; and

Fig. 2 shows a cross-section, on line II-II, through a section of the base part shown in Fig. 1.

The clamping assembly according to the invention shown in Fig. 1 comprises a base part 2, a clamping part 3, a pivot pin 4 and spring means 5. The spring means 5 comprise two coil springs, which are connected via their ends, and round openings 6 in which are suitable for

allowing through the pivot pin 4.

On mutually facing sides, the base part 2 and the clamping part 3 have projections 12 and 13, respectively, which are arranged at distances from one another which are such that after the clamping assembly has been put together they fit between one another.

The projections 12, 13 have passages 14 and 15, respectively, which after the clamping assembly has been put together lie in line with one another and with the openings 6 of the spring means 5 and the pin 4.

The passages 15 are suitable for holding the pin 4 in place in the assembled state of the clamping assembly (not shown).

As shown in Fig. 2, a passage 14 comprises a recess 17 which extends from a side of the base part 2 which does not have the projections 12 to a side of the base part 2 which does have the projections 12. Since the passages 14 do not have a continuous, closed internal wall, the base part 2 can be cast using a simple mould without movable components for forming the passages 14.

As shown, the passage 14 preferably has a height h between its base 18 and that side of the base part 2 from which the projection 12 starts which is greater than the diameter d of the pivot pin 4. As a result, in the assembled state the base part 2 and the clamping part 3 can move towards one another, counter to the action of the spring means 5, through the difference in dimensions h-d, thus counteracting damage to the pivoting coupling, for example in the event of impacts, while moreover components which are attached directly or indirectly to the base part 2, in particular electronic components (not shown), are protected from impacts.

As is also shown in Fig. 2, a dimension w measured perpendicular to the pivot pin decreases from the recess 17 towards the base 18 of the recess 17. As a result, the parts 3, 4 can moreover rotate through a small angle with respect to one another about an axis which is perpendicular to the pivot pin. As a result, the shock-absorbing properties of the assembly are improved.

The invention is explained above on the basis of a base part 2 which may, in particular, be a holster for an electronic unit, in particular a radio pager. A housing (not shown) for the electronic unit can in this case be pushed with a slight clearance between flanges 20 of the base part 2, which flanges extend opposite one another, in which case ribs 21 which are arranged on opposite sides of the flanges 20 can be received in recesses in the housing for the purpose of holding the housing in the base part 2. As an alternative, the said housing itself may according to the invention be provided with projections 12 of the type explained above. In order to protect the electronic components inside the housing, the recesses may then be covered, for example by means of a self-adhesive film/foil 23, as shown diagrammatically in Fig. 2.

CLAIMS

1. Clamping assembly, comprising a base part (2), a clamping part (3), a pivot pin (4) and spring means (5), the base part (2) and the clamping part (3) having projections (12, 13) on sides which lie opposite one another, which projections have passages (14, 15) which are aligned with one another and are suitable for receiving and retaining the pivot pin (4), and the spring means (5) being suitable for pushing one end of the clamping part (3) against the base part (2), characterized in that the passage (14) of each projection of one part is formed by a recess (17) which extends from a side of the part (2) which does not have the projections (12) to the side of the part which does have the projections (12).

2. Clamping assembly according to claim 1, characterized in that a passage (14), which is formed by a recess (17), has a height (h) from a side of the part (2) which has the projections (12) to a base (18) of the recess (17) which is greater than the diameter (d) of the pivot pin (4).

3. Clamping assembly according to claim 2, characterized in that a dimension (w) of the passage (14) decreases towards the base (18) of the recess (17), as seen perpendicular to the pivot pin (4).

4. Clamping assembly according to one of the preceding claims, characterized by a cover member (23) which is suitable for covering the recess (17) on the side of the part (2) from which the recess (17) begins.

5. Clamping assembly according to claim 4, characterized in that the cover member is a piece of self-adhesive film/foil (23).

6. Clamping assembly according to one of the preceding claims, characterized in that the part (2) with the passages (14) formed by the recesses (17) is a housing for a portable electronic unit.

7. Clamping assembly according to one of claims 1 to 5, characterized in that the part (2) with the passages (14) formed by the recesses (17) is a holster for a housing

for a portable electronic unit.

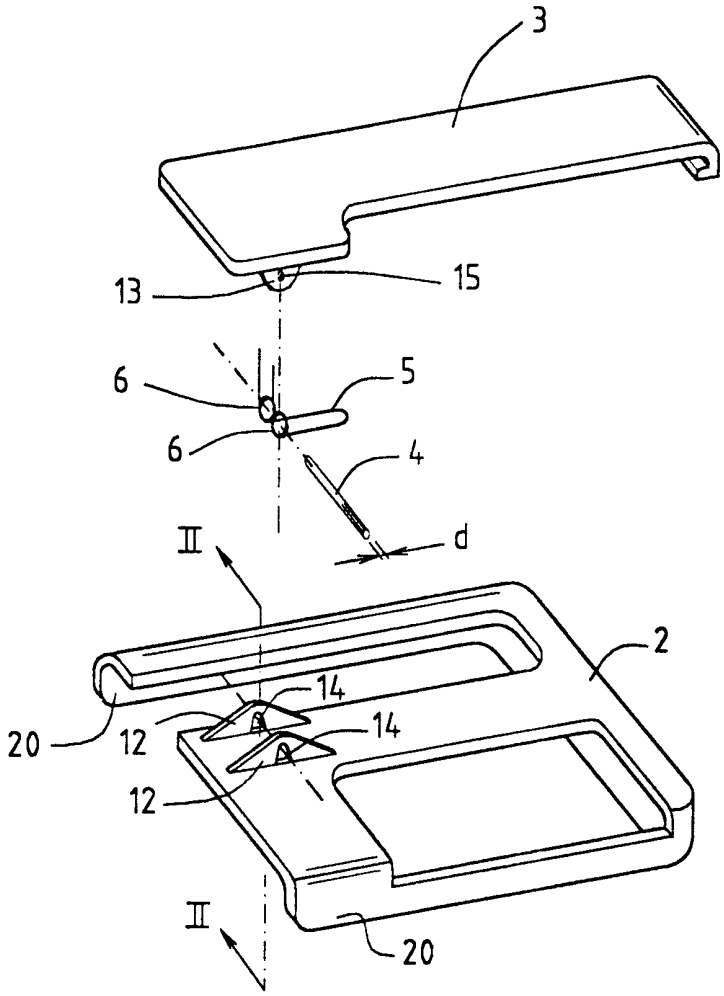

FIG. 1.

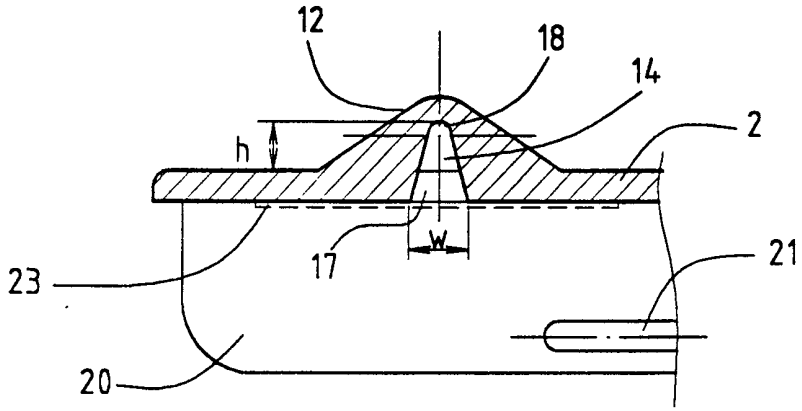

FIG. 2.

INTERNATIONAL SEARCH REPORT

Inter nal Application No
PCT/NL 98/00423

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A45F5/02 H04B1/08 G08B3/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G08B A45F H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 016 326 A (GOLDENBERG MICHAEL P) 21 May 1991 see column 2, line 42 - column 3, line 3	1-4,6,7
A	US 4 744 487 A (WELBORN KENNETH G) 17 May 1988 see page 3, line 7 - page 4, line 13; figures 2-5	2-4
A	US 5 081 709 A (BENYO JOHN R ET AL) 14 January 1992 see the whole document	1,6
A	CHAN H B ET AL: "PAGER BELT CLIP" MOTOROLA TECHNICAL DEVELOPMENTS, vol. 12, 1 April 1991, pages 1-2, XP000229121 see the whole document	1,6

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☒ Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/NL 98/00423

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