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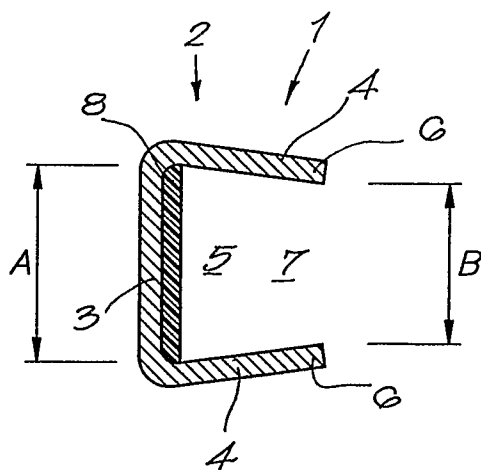
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(54) Title: BINDING ELEMENT



(57) Abstract: Binding element which mainly comprises a U-shaped profile (2) made of a heat-conducting material, which U-shaped profile (2) consists of a back side (3) and two side walls (4), on which back side (3) is provided a layer of glue (8) which melts under the influence of heat, characterised in that the distance between the side walls (4) at a distance from the back side (8) is smaller than the width (A) of the inside of the back side (3) which actively glues the leaves together.

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Binding element.

The present invention concerns a binding element.

More specifically, the present invention concerns a binding element in the form of a U-shaped profile which is made of a heat-conducting material, which U-shaped profile consists of a back wall and two standing side walls, such that a space is enclosed, whereby in the above-mentioned space, on the above-mentioned back wall, is provided a layer of glue which melts under the influence of heat.

In order to bind a bundle of leaves, these leaves are put in the known manner in the above-mentioned space with one edge, and the binding element, together with the leaves, is provided in an appropriate binding device so as to heat the binding element to a temperature at which the above-mentioned glue becomes liquid and is spread around the above-mentioned edge of the leaves, after which the binding element with the leaves is left to cool so as to make the glue harden again and to thus obtain a bound bundle whose leaves are glued in the binding element.

In practice it appears that the user often puts too many leaves in the binding device, as a result of which the farthest leaves, in particular the front series and the hindmost series of leaves, often no longer make contact with

the above-mentioned layer of glue.

Indeed, research has shown that the flexibility of the U-shaped profile makes it possible to force the side walls open somewhat, as a result of which the width of the binding element's feed opening becomes larger than the width of the inside of the back of the U-shaped profile and consequently of the layer of glue.

Said forcing open may take place for example when the user puts two end leaves in the U-shaped profile, and then pushes a too large amount of leaves to be bound in between them.

According to a known variant of an embodiment of such a binding element, the side walls of the U-shaped profile are already provided with an end leaf.

Moreover, because of the aesthetics and also in order to protect the user from cuts which may be caused by the sharp edges of such a binding element, such a binding element is often provided with a coating layer on the outside.

The coating material is made for example of paper, cardboard, plastic, textiles or a combination thereof.

It was found that the above-mentioned problem of a bad or lacking bond of the front series and the hindmost series of leaves often occurs with the last-mentioned binding elements.

Moreover, the above-mentioned coating layer of the binding

element is often provided in the known manner, combined with end leaves.

Research has shown that, as a result of the self-weight of the end leaves and the opening of the end leaves by the user, together with the non-perfect flexible binding of the end leaves to the coating of the U-shaped profile, the side walls of the U-shaped profile may be forced open, as a result of which the width of the feed opening becomes larger than the width of the layer of glue.

A merely visual observation or measurement may mislead the user and may cause him to put more leaves in the binding element than he should.

Irrespective of the cause of the problem, be it an inappropriate feeding of too many leaves between two end leaves, the deformation of the U-shaped profile as a result of a coating layer being applied on the profile, a deformation as a result of the self-weight and/or the end leaves that are connected to the U-shaped profile being opened, it should be clear that the deformation of the profile may bring the user to feed too many leaves, as a result of which a badly bound document is obtained.

The badly bound document must be unbound, which results at least in a loss of quality, or the document must be prepared all over again.

The present invention aims to remedy the above-mentioned and other disadvantages.

To this end, the present invention concerns a binding element in the form of a predominantly U-shaped profile made of a heat-conducting material, which U-shaped profile consists of a back wall and two side walls enclosing a space, whereby a layer of glue is provided on the above-mentioned back wall which melts under the influence of heat, whereby the distance between the side walls at a distance from the back side is smaller than the width of the back side.

An advantage of such a binding element according to the invention is that the user does not have the possibility to put more leaves in the binding element than can be adhered in the layer of glue, such that the bundle of leaves can always be glued as a whole.

According to a preferred embodiment, the side walls are made flat and they run towards each other.

Such a predominantly U-shaped profile is advantageous in that it can be manufactured in a simple manner.

According to a preferred embodiment, the side walls are directed such that the width at the feed opening is at least 10%, and better still at least 30% smaller than the width of the back side.

An advantage thereof is that, even with a restricted deformation of the binding element, for example by opening the end leaves which are connected to the respective side walls, the feed opening is sufficiently restricted so as to

prevent a too large number of leaves being put in the binding element.

In order to better explain the characteristics of the invention, the following preferred embodiment of a binding element according to the invention is given as an example only without being limitative in any way, with reference to the accompanying drawings, in which:

figure 1 schematically represents a section of a binding element according to the invention;
figure 2 represents the use of a binding element according to figure 1;
figures 3 to 5 represent variants of a binding element according to figure 1.

Figure 1 represents a binding element 1 according to the invention which mainly comprises a U-shaped profile 2 which is made of steel in this case, but which could also be made of other materials which are preferably heat-conductive.

The predominantly U-shaped profile 2 consists of a back side 3 and two flat side walls 4, such that a space 5 is enclosed.

Between the free ends 6 of the side walls 4 is provided a feed opening 7 via which side edges of a bundle of loose leaves or documents can be fed into the space 5.

The back side 3 is provided with a layer of glue 8 which is in this case provided over the entire width A of the back side 3.

According to the invention, the side walls 4 are provided such on the back side 3 that they run towards each other, such that the minimal distance B between the side walls 4, which in this case corresponds to the distance between the free ends 6 of the side walls 4, is smaller than the width A of the back side 3.

According to a preferred characteristic of the invention, the minimal distance B between the side walls 4, at a distance from the back side 3, is at least 10% smaller, and better still 30% smaller than the width of the back side 3.

The use of the binding element 1 according to the invention is very simple and as follows.

In order to bind a bundle of loose leaves 9 or documents having a thickness C by means of a binding element 1 according to the invention, this bundle of leaves 9 is pushed in the space 5 with its side edge 10 to be bound via the feed opening 7, as is represented in figure 2.

Given the pre-determined width B of the feed opening 7, the thickness C of the bundle 9 must be smaller than or practically equal to said width B so as to be able to provide said bundle in the binding element 1.

Since the width A of the back side 3 is larger than the width B of the feed opening 7, and consequently also larger than the thickness C of the bundle 9, all the leaves of this bundle 9 can be put into the layer of glue 8 without any problems, which can be made to melt in the known manner so as to bind the

edge of the bundle 9.

Figure 3 represents a variant of a binding element according to figure 2, which is mainly constructed in the known manner, for example as described in BE 2005/0438 of the same applicant, and whereby the predominantly U-shaped profile 2 is provided with an inner coating 10 on the inside, for example made of paper, and with an outer coating 11 on the outside, for example made of plastic.

In the prolongation of the above-mentioned side walls 4 are in this case provided end leaves 12 which are made in the shape of a leaf 13 made of a relatively rigid material, such as for example cardboard, coated with the above-mentioned inner coating 10 on one side and with the outer coating 11 on the other side.

Between the end leaves 12 and the side walls 4 are provided narrowed hinge zones 14, as is known from the above-mentioned BE 2005/0438.

Naturally, the binding element 1 must not necessarily be provided with two end leaves 12; it is also possible to provide merely one end leaf 12.

The use of such a binding element 1 is analogous to that of the preceding embodiment, as is represented in figures 1 and 2.

Figure 4 represents another embodiment of a binding element 1 according to the invention, whereby the width B of the feed opening 7 is restricted as protrusions 15 are provided on the

inside of the side walls 4, opposite one another, which in this case are made in the shape of the far ends 6 of the side walls 4, which far ends 6 are bent towards each other.

It is clear that, according to the invention, it is sufficient to provide a protrusion 15 on one of the insides of the side walls 4 so as to reduce the width B of the feed opening 7.

Figure 5 represents yet another embodiment of a binding element 1 according to the invention having a practically identical construction as the binding element from figure 1, but whereby, in this case, the U-shaped profile 2 is provided with a coating 16, for example made of paper.

The use of such a variant is analogous to that of the embodiment which is represented in figure 1.

Preferably, the width of the layer of glue 8 mainly corresponds to the width A of the back side 3, but it is also possible, according to an embodiment of a binding element 1 according to the invention which is not represented in the figures, to provide the layer of glue 8 only over a narrow strip on the inside of the back side 3, whereby, while the layer of glue 8 is being melted, this glue will spread over the entire width A of the back side 3.

In the given examples, the above-mentioned side walls 4 of the binding element 1 are made flat, but it is also possible according to the invention to bend these side walls 4 and/or the back side 4.

The present invention is by no means limited to the embodiments given as an example and represented in the accompanying drawings; on the contrary, such a binding element according to the invention can be made in all sorts of shapes and dimensions while still remaining within the scope of the invention.

Claims.

- 1.- Binding element which comprises a predominantly U-shaped profile (2), made of a heat-conducting material, which U-shaped profile (2) consists of a back side (3) and two side walls (4), on which back side (3) is provided a layer of glue (8) which melts under the influence of heat, characterised in that the distance between the side walls (4) at a distance from the back side (8) is smaller than the width (A) of the back side (3).
- 5
- 10 2.- Binding element according to claim 1, characterised in that the side walls (4) are made flat, but are provided in such a manner on the back side (3) of the predominantly U-shaped profile (2) that they run towards each other.
- 3.- Binding element according to claim 1, characterised in that the side walls (4) are bent.
- 15
- 4.- Binding element according to claim 1, characterised in that at least one of the side walls (4) is provided with a protrusion (15) on its inside.
- 20 5.- Binding element according to claim 1, characterised in that the minimal distance (B) between the side walls (4) at a distance from the back side (3) is at least 10% smaller than the width (A) of the back side (3).

6.- Binding element according to claim 5, characterised in that the minimal distance (B) between the side walls (4) at a distance from the back side (3) is at least 30% smaller than the width (A) of the back side (3).

- 5 7.- Binding element according to any one of the preceding claims, characterised in that it is provided with at least one end leaf (12) which is provided opposite an above-mentioned side wall (4) and is connected to it.

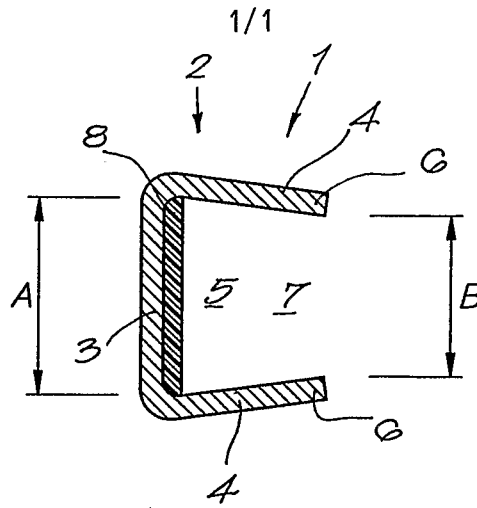


Fig. 1

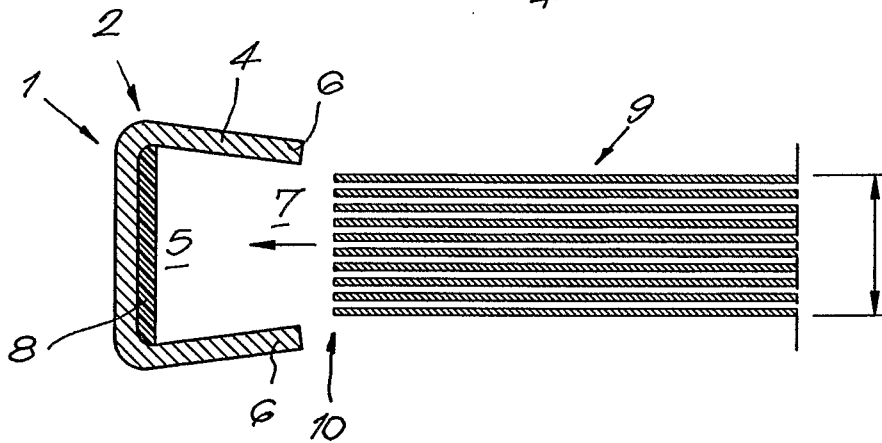


Fig. 2

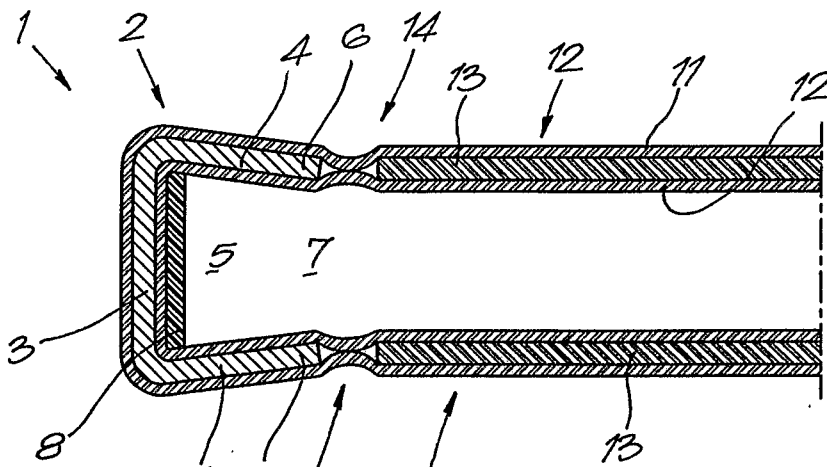


Fig. 3

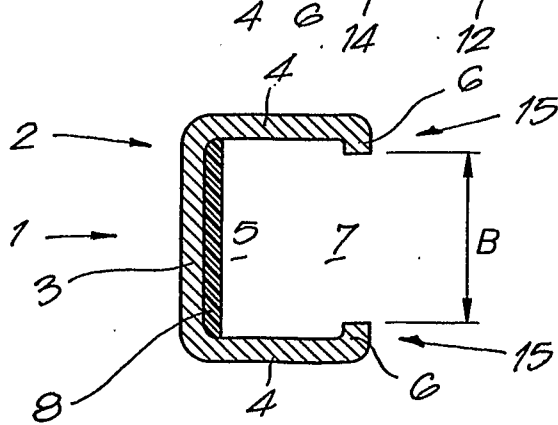


Fig. 4

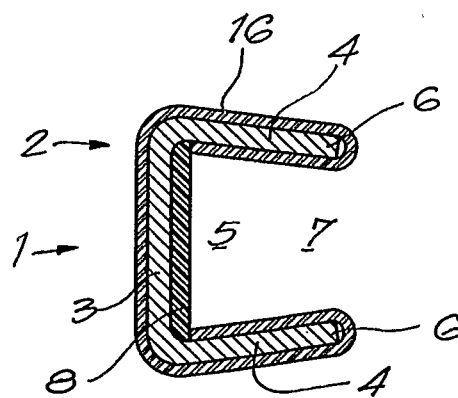


Fig. 5