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Section 29  
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Section 29(1)  
Regulation 3.1(2)

AUSTRALIA  
Patents Act 1990

**PATENT REQUEST AND NOTICE OF ENTITLEMENT**

We MULTIBRIDGE B.V.

of Willem de Zwijgerlaan 35, 2252 VN Voorschoten, THE NETHERLANDS

being the Applicant and Nominated Person, request the grant of a patent for an invention entitled CLIP FOR PAPER OR OTHER OBJECTS which is described in the accompanying standard complete specification.

Johanna Lamberta Maria van Ardenne is the actual inventor of the invention.

Convention priority is claimed from the following basic application(s):

Basic Applicant	Application Number	Application Date	Country	Country Code
Johanna Lamberta Maria van Ardenne born van Rhijn	9101313	31 July 1991	The Netherlands	NL

The nominated person is the assignee of the invention from Johanna Lamberta Maria van Ardenne.

The basic application was the first application made in a Convention country in respect of the invention the subject of this request.

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DATED this 27th day of September 1994

By their Patent Attorney

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AU9220737

**(12) PATENT ABRIDGMENT (11) Document No. AU-B-20737/92**  
**(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 656000**

- (54) Title  
CLIP FOR PAPER OR OTHER OBJECTS
- International Patent Classification(s)  
(51)<sup>5</sup> B42F 001/06
- (21) Application No. : 20737/92 (22) Application Date : 31.07.92
- (30) Priority Data
- (31) Number (32) Date (33) Country  
9101313 31.07.91 NL THE NETHERLANDS
- (43) Publication Date : 04.02.93
- (44) Publication Date of Accepted Application : 19.01.95
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- (56) Prior Art Documents  
US 1493072  
US 1476887
- (57) Claim

1. A clip for holding and/or keeping together sheets of paper or other materials or for placing on or against other objects of different types, the clip comprising a single thin strip of resilient sheet-like material bent upon itself to define an end fold and first and second holding legs, each holding leg having an upper leg portion and a lower leg portion, said upper leg portions being interconnected at said end fold, the end fold having been made such that the upper leg portions of the first and second holding legs together define an acute angle,

one of said holding legs including a fold region at a point spaced from said end fold so as to define therebetween an upper leg portion of said one holding leg in such a way that the upper leg portions of the respective legs are spaced from each other, said fold region in said one holding leg being made so as to define an inward bend in said one holding leg and so that said upper leg portion of said one holding leg and a central leg portion of said one holding leg define an obtuse angle,

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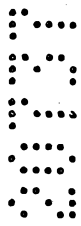
the lower portions of the first and second holding legs lying substantially flatly one against the other and each having lower edges opposite said end fold, which lower edges cross at a contact point at an angle relative to each other and form, when in use, with at least part of their lengths, push-on edges, defining a reverse substantially V-shaped push-on space,

wherein said obtuse angle is chosen so that the lower portions of the first and second holding legs lie substantially flatly one against the other under a bias force and retain a flat configuration when the clip is in use, and the first and second holding legs terminate, at substantially equal distances from the end fold in a single point and are substantially flat in the proximity of their lower edges which constitute the push-on edges.

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**ORIGINAL**  
**COMPLETE SPECIFICATION**  
**STANDARD PATENT**



Invention Title:            **CLIP FOR PAPER OR OTHER OBJECTS**



The following statement is a full description of this invention, including  
the best method of performing it known to us:



**GH&CO REF: P22385-A:CLC:RK**

The invention relates to a clip for holding and/or keeping together sheets of paper or other materials, or for placing on or against other objects of different types.

5 United States Patent No. 1,637,564 describes a clamp having a substantially V-shaped push-on space formed for the greater part by two points in which the foremost holding leg ends. The rear holding leg is shorter and ends in a single point in the middle of the clamp. In  
10 order to create a push-on facility all these points are curved rearwardly. As a result they are inclined to cause damage, in the form of scratches or folds, to the paper or the other material which they hold together, or on which they have been placed, both when placing them  
15 and when removing them. Furthermore the parts of the front and rear holding legs initially lying one against the other will not remain flat against each other when one or several sheets of paper are in between them; the contact is limited to a line contact. As a result the  
20 capacity of the clamp is very much limited and also the risk increases that the rear holding leg will be pulled off the pile of sheets.

Another known paper clip comprises two holding elements lying essentially in parallel planes and biased  
25 against each other in which the two end edges run at an angle relative to each other and form push-on edges when in use, which edges define a V-shaped push-on space. This is a paper clip of spring steel wire and is a variation of the most common type of paper clip with two  
30 semi-circular push-on ends lying some distance apart.

A major disadvantage lies in the thickness of the clip which is due to the diameter of the steel wire from which they are made, and from the fact that the paper will bend through the gripping action. Also the  
35 deformation when pushing on the clip is concentrated as torsion of the part of the wire which constitutes the connection between the two holding members. As a result these holding members will no longer lie parallel to each



other and flatly against the paper which is being clamped, rather they will bend outwards and there will be no clamping between the portion of the members which has bent outwardly. When a number of piles all containing  
5 such paper clips on the same corner, are stacked up, a thickening which is a multiple of the thickness of the whole pile of paper is very soon produced at the corner.

Ordinary and special paper clips are known (WO 81/01535) which can be provided with client-specific  
10 identification; they are expensive, however. Besides, they cannot be used together with a permanent holder (e.g. staples), or at least they provide no possibilities for masking the common staple.

The objects of the invention is to provide a clip  
15 which is functionally comparable to or better than the known holders.

According to the present invention there is provided a clip for holding and/or keeping together sheets of paper or other materials or for placing on or against  
20 other objects of different types, the clip comprising a single thin strip of resilient sheet-like material bend upon itself to define an end fold and first and second holding legs, each holding leg having an upper leg portion and a lower leg portion, said upper leg portions  
25 being interconnected at said end fold, the end fold having been made such that the upper leg portions of the first and second holding legs together define an acute angle,

one of said holding legs including a fold region at  
30 a point spaced from said end fold so as to define therebetween an upper leg portion of said one holding leg in such a way that the upper leg portions of the respective legs are spaced from each other, said fold region in said one holding leg being made so as to define  
35 an inward bend in said one holding leg and so that said upper leg portion of said one holding leg and a central leg portion of said one holding leg define an obtuse angle,



the lower portions of the first and second holding legs lying substantially flatly one against the other and each having lower edges opposite said end fold, which lower edges cross at a contact point at an angle relative to each other and form, when in use, with at least part of their lengths, push-on edges, defining a reverse substantially V-shaped push-on space,

wherein said obtuse angle is chosen so that the lower portions of the first and second holding legs lie substantially flatly one against the other under a bias force and retain a flat configuration when the clip is in use, and the first and second holding legs terminate at substantially equal distances from the end fold in a single point and are substantially flat in the proximity of their lower edges which constitute the push-on edges.

According to the present invention there is also provided a device comprising a plurality of such clips fixed on an elongated carrier.

As regards holding, the clip according to the invention combines virtually all positive features of the staple and the paper clip while, in practical terms, all disadvantages of both holders are eliminated as well as those of the other clips discussed above. It provides semi-permanent holding through much greater gripping force than all known paper clips.

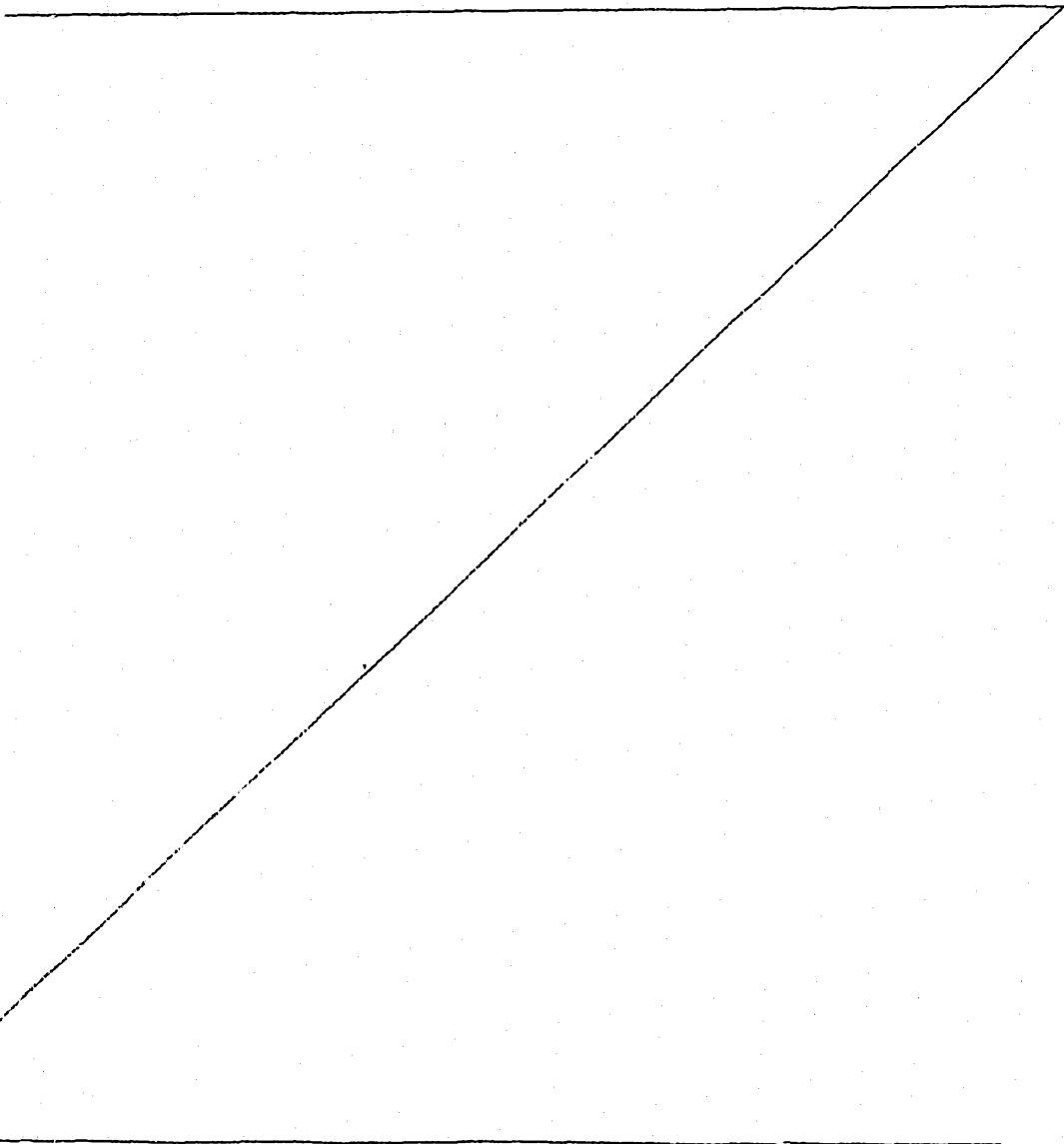
The broad, flat holding area between the two holding legs, which, as a result of the bias tension, will remain flat, means that the clips have a greater gripping force than the known paper clip, with the result that when a page is turned they cannot slip as easily from the paper. The basic type clips 1 to about 15 sheets of paper (approximately 90 grammes), the total thickness of the paper held by the clip increasing only by the material thickness, and thus being negligible, in contrast to conventional paper clips and staples. Unlike all prior art paper clips, the clip also remains virtually complete flat.

Paper clips that make use of twisting techniques



almost always have the disadvantage that ends of the holding legs bend out and thus produce an additional thickening on top of the thickening resulting from the thickness of the material of the paper clip. In contrast, in a clip according to the invention the ends of the holding legs cannot bend out. This means that where even two papers are joined that the clip is less thick in use than staples and paper clips, with the result that the papers are more readily stackable. The clip never - or hardly ever - catches, because it has no parts projecting from the plane.

It can be slipped onto the paper very readily into the correct position without tools, with a certain natural ease and without hurting the fingers, and it can



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also be removed again with the same ease, if necessary temporarily (e.g. for photocopying).

5 The clip according to the invention is very easy and quick to place in the intended place, without tools (e.g. no stapler), as a result of the V-shape which the two holding legs form with each other. The legs therefore need not be moved apart; for, the material to be joined can simply be turned between the legs and slid in. Once fitted, the clip can be pushed fairly easily into the correct position, owing to the flat clip shape. It is also easy to remove from the gripped material on account of the finger grip, which also results from the design of the clip. Compared with conventional small paper clips, putting it on does not hurt the fingers as much, owing to the flat shape of the holding legs. Unlike the conventional paper clip and the staple, the clip is absolutely not destructive. Damage to writing paper and to the glaze layer of photographs or leaflets etc. and scratches and creases are ruled out.

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20 The clip can be re-used, and its functionality, gripping power and character, even after use for the maximum of material, are fully retained. Finally, its specific shape means that the clip can be pushed over a staple, with the result that it also gives a pleasing appearance to and identifies items which must be kept permanently together. The staple then has to be placed in such a way that it comes to lie inside the region where the clip according to the invention has its bends, because there is space there for the staple between the front holding leg and the top part of the rear holding leg.

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35 In order to obtain absolute fixing of the clip, and thus actually in order to prevent easy removal, it is also possible to make one or more inward directed V-shaped incisions in the rear side of the clip, which on attempts at shifting will cut into the gripped material. This therefore does not involve any additional action during placing on the object. Removal without damage is then possible only by using a special tool, where, for

example, a hard strip is slid into the clip, or the holding legs are bent apart (use for clothing). There is therefore no problem during the placing. One or more of said V-cuts can already be made at the time of manufacture, and not directed inward until later (with special tool).

The clip according to the invention is already very attractive in its basic form, but its design is neutral. It can be adapted to convey the message of any target group through the direct application of plain or coloured messages, logos, trade marks etc. In addition to its function as a paper clip, the invention can be used - possibly in a different size or shape, but on the basis of the same powerful holding construction combined with ease of placing (V-shape) - as a money clip, tie pin, garment ornament, hanging clip (with wire or provided with adhesive strip or eyelet), badge, tab, clothes peg, bookmark or identification clip through different colours, photograph hanging or poster hanging clip, or as a memo clip by means of which smaller notes or memos can be attached to a larger sheet or other surface, by applying double-sided permanent or semi-permanent adhesive strip or something similar to the rear side.

Moreover, the clip according to the invention can be provided with all kinds of information and other means of identification on one or both holding legs, by die-cutting or sticking printed or die-cut materials on it. The great advantage of die-cutting or stamping is that it can be carried out during production, with the result that clips with standard texts in large numbers become very cheap.

The clip can also be used purely as a new fastening technique for the same or different materials, which are connected in different forms to or by the clip, e.g. fastening method for brochures etc.

It is conceivable to make the clip in two variants which are a mirror image of each other as regards each of the first and second holding legs being capable of crossing over the other, front view, with the result that a fold line can always be formed by folding over the leg around a push-on edge



instead of around the angular transition between a push-on edge and the side edge of the clip.

The clip is preferably made of rustproof or rustproofed sheet metal material of low thickness, e.g. 0.2 mm.

For the manufacture, all kinds of solutions are available to the person skilled in the art of metalworking, in particular punching, moulding and cutting techniques using dies. Modern techniques such as laser cutting or etching techniques can also be used, in particular with a view to the good finish which is then obtainable, in order to rule out damage of the gripped material. The cutting of letters of certain shapes in the faces suitable for them is then carried out, of course, during the manufacture, and the same then also applies to the combination of printing or sticking processes and the shaping techniques.

Preferred embodiments of the invention will now be described by way of example only with reference to the accompanying drawings in which:-

Fig. 1 shows a front view of a clip, and

Fig. 2 shows a side view from the right side, for the sake of clarity the dimensions in the horizontal direction being shown exaggerated compared with those in the vertical direction.

The clip is composed of a front holding leg 1 and a rear holding leg 2, connected to each other at the place indicated by 3.

In the embodiment shown, the connection at the place 3 is in the form of a line where the two legs have been folded during manufacture (a weld at the point 3 between the front and rear leg is also conceivable). The top part 4 of the rear leg 2 forms a small angle  $\alpha$  here with the top part 10 of the front leg 1.

In the fold region indicated by 5, some distance below the fold line or connecting line 3, the rear leg 2 is folded again, towards the front leg 1, so that the said part 4 and the part 6 at the other side of the fold line 5 form an obtuse angle  $\beta$  with each other. Since  $\beta$  is made



smaller than the complement of  $\alpha$  (thus the sum of  $\alpha$  and  $\beta$  is e.g. 5 to 10° less than 180°), the rear leg 2 then comes to rest against the front leg 1, approximately from the point indicated by 7. As a result of the resilience of the materials, the part 8 comes to rest against the lower part 9 of the front leg 1 with a certain force which is used as the gripping force.

The force between the parts 8 and 9 of the rear and front leg respectively also means, of course, that the top part 10 of the front leg does not retain its original flat state, but will bend slightly forward, while the part 6 of the rear leg between the point 7 and the fold line 5 will also bend. The top part 4 of the rear leg will also have a slight curve, but this has not been shown, because that curve will be very small, as a result of the relatively short distance between the lines 3 and 5.

The pressure between the parts 8 and 9 of the rear and front leg respectively takes place over the whole surface where these parts touch each other, from line 7 downwards, because there are in fact no forces giving rise to curvature of these lower parts of the legs.

When the clip made in this way is slid onto one or more sheets of paper or onto another object, the gripping action thus takes place over that entire surface. When, through sliding the clip onto one or more sheets of paper or onto another object, the lower parts 8 and 9 of the clip legs give way slightly, they will always do this parallel; even in this position there is no force which will cause these parts to bend by themselves, unless overloading takes place due to the fact that the fixed clip causes a pile of papers to acquire a greater thickness than the distance between the fold line 5 and the top part 10 of the front leg 1. Up to that limit value the parts 9 and 10 of the front leg and the parts 8 and 6 of the rear leg retain their flat shape when unloaded, and this is also the situation which they again try to reach when the clip is pushed on. (The bending of part 10

could also be reduced if desired by providing some type of recess, rib or similar reinforcement in the sheet material).

5 The best values of  $\alpha$  and  $\beta$  which can be used depend on the choice of material to be used. As the elasticity increases, the sum of  $\alpha$  and  $\beta$  will have to go further away from  $180^\circ$  for the same gripping action. On the other hand, materials with little elasticity will require a greater angle  $\alpha$ , otherwise the gripping force  
10 will become too great, or the capacity too small. For materials which can be used in practice, an angle  $\alpha$  of approximately  $15^\circ$  seems preferable, and an angle  $\beta$  of  $145^\circ$  to  $160^\circ$ , so that the sum of  $\alpha$  and  $\beta$  becomes  $160^\circ$  to  $175^\circ$ , thus  $5^\circ$  to  $20^\circ$  less than  $180^\circ$ .

15 The basic idea of the invention is to provide such a bend in the rear leg 2 relative to the front leg 1 that flat contact between the parts 9 and 8 can be achieved. For this, solutions other than the fairly sharp fold line 3 and the fold line 5 shown are possible.  
20 Instead of the single fold line 5, two fold lines can be made, with the angle transitions being divided. One may even apply a fold region with a relatively great radius of curvature in order to produce the change of direction of part 4 to part 7, by which the clamping force between parts 8 and 9 is obtained. Even if it is made as sharp as possible, the fold line 3 by the nature of things already has a small radius of curvature. This fold need not,  
25 however, be made as sharp as possible; the radius of curvature of the bend can be increased, with the result that a smaller angle is produced between the parts 4 and 10. It is also conceivable to replace the single fold line 3 by two fold lines, so that the parts 4 and 10 run essentially parallel to a connecting strip which is horizontal in the drawing. This in particular can  
30 increase the capacity of the clip. It is also conceivable, instead of two angular fold lines at the top side, to make a single semi-circular transition zone between essentially parallel parts 4 and 10. This can even go so far that this curve is continued until the  
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zone corresponding to the part 6 in Fig. 2 extends approximately in the same direction; the intended gripping effect is then obtained without further ado.

5 In the embodiment described so far, the clip can be slid on and off without restriction. It is conceivable to create a fixing by making a V-shaped cut-out in one of the holding legs, shown by dashed lines in Fig. 1 and indicated by 11, which is then bent during manufacture or after placing on the object, so that it resists removal  
10 and shifting.

In the embodiment shown, the push-on edges 12 and 13 of the front and rear leg respectively, by means of which - as the name already indicates - the clip is inserted on the edge of the sheets of paper or the other  
15 object, following which it is slid over it, are at an angle of  $45^\circ$  relative to the long edges 14, 15 respectively, so that they are at right angles to each other. Other angles are also conceivable. For purposes of this pushing on, it is desirable for the edges 12 and 13 to be  
20 rounded at least at the sides of the legs 1 and 2 facing each other. They must, of course, at least be made free from burrs, but these are aspects connected with the manufacturing method, and they are problems which will be solved by the person skilled in the art.

25 The front and the rear holding leg are also shown to be the same shape. Here again, this is not essential. Instead of the trapezoidal shape shown, all kinds of shapes are conceivable, in which the long legs and the push-on edges run at other angles or are curved, or  
30 meander, provided that the push-on edges cross each other at one or two points, in order to make it easy to start the pushing on, while the front and the rear holding leg can also be different shapes from each other. The only important factor is that a sufficiently large contact  
35 face should remain for achieving the gripping effect according to the invention.

It is also advantageous to make an embodiment which in front view is the mirror image of that of Fig. 1. When the embodiment of Fig. 1 is pushed onto the

top edge of a pile of sheets near the left corner, a fold line around edge 12 is automatically obtained on turning over. If the clip is pushed on along the left side, e.g. especially in order to cover a staple inserted parallel to that left edge, one has to fold round one point, which could cause tilting of the clip, with the risk of it cutting into the paper, and the paper can be more easily pulled out of the clip. This is prevented by a mirror image embodiment, for we then again have a fold line running at 45° relative to the top edge and left edge.

It will be clear that the holding legs of the clip according to the invention have all kinds of surfaces on which information can be placed, either by printing, or by stamping or cutting out. This is indicated by way of example by information faces 16 and 17 at the front side of the front leg, but also by a face 18 which is situated on the visible side, but is in fact on the inside of the rear leg 2. The invention is not, however, restricted to the places to which this information is applied, and it is, of course, equally not restricted to the way in which said information is placed on the clip. A further variant of this is the provision of holes of a certain shape. If these holes are too large, the gripping force could be reduced at the position of the contact faces 8 and 9, but in particular at the position of the face 16 shown, thus in the top part 10 of the front holding leg, holes of different shapes can be cut out, or can be made by, for example, laser cutting, without reduction of the gripping surface. It must be remembered here that too extensive removal of material could result in a reduction of the gripping force of the whole product.

Printing with ink which can be written on, or printing with a bar code are particularly advantageous.

The clip can be designed in such a way that it is provided with a hanging device in the form of a cord or wire loop threaded through the space present in the top part of the clip, or with a stamped-out hanging eyelet near the fold line 5 in holding leg 2. It is also advan-

tageous if a number of clips are fixed permanently or by adhesive on an elongated carrier. The clip can also be provided with a layer of adhesive on the rear side 2, either for permanent fixing or for temporary fixing.

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The claims defining the invention are as follows:-

1. A clip for holding and/or keeping together sheets of paper or other materials or for placing on or against other objects of different types, the clip comprising a  
5 single thin strip of resilient sheet-like material bent upon itself to define an end fold and first and second holding legs, each holding leg having an upper leg portion and a lower leg portion, said upper leg portions being interconnected at said end fold, the end fold  
10 having been made such that the upper leg portions of the first and second holding legs together define an acute angle,

one of said holding legs including a fold region at a point spaced from said end fold so as to define  
15 therebetween an upper leg portion of said one holding leg in such a way that the upper leg portions of the respective legs are spaced from each other, said fold region in said one holding leg being made so as to define an inward bend in said one holding leg and so that said  
20 upper leg portion of said one holding leg and a central leg portion of said one holding leg define an obtuse angle,

the lower portions of the first and second holding legs lying substantially flatly one against the other and  
25 each having lower edges opposite said end fold, which lower edges cross at a contact point at an angle relative to each other and form, when in use, with at least part of their lengths, push-on edges, defining a reverse substantially V-shaped push-on space,

30 wherein said obtuse angle is chosen so that the lower portions of the first and second holding legs lie substantially flatly one against the other under a bias force and retain a flat configuration when the clip is in use, and the first and second holding legs terminate, at  
35 substantially equal distances from the end fold in a single point and are substantially flat in the proximity of their lower edges which constitute the push-on edges.

2. A clip according to claim 1, wherein the fold region



is in the form of a fold line.

3. A clip according to claim 2 wherein said fold line lies at a distance from the end fold which is no more than approximately a quarter of the distance between the end fold and the contact point of the lower edges of the two holding legs.

4. A clip according to anyone of claims 1-3 wherein said acute angle is approximately  $15^\circ$  and said obtuse angle has a value between  $145^\circ$  and  $160^\circ$ .

5. A clip according to anyone of claims 1-4 wherein the lower edges of the first and second holding legs lie substantially at right angles to each other at the contact point.

6. A clip according to anyone of claims 1-5 wherein the lower edges are rounded at least at the sides facing each other.

7. A clip according to anyone of claims 1-6 wherein the first and second holding legs are different shapes from each other.

8. A clip according to anyone of claims 1-7 wherein at least one of the holding legs is provided with information in the form of printing, or is stamped or cut out.

9. A clip according to anyone of claims 1-7 wherein at least one of the holding legs is provided with an ink which can be written on.

10. A clip according to anyone of claims 1-7 wherein at least one of the holding legs is provided with printed bar code.

11. A clip according to anyone of claims 1-10 wherein the or each clip is provided with a layer of adhesive on its rear side.

12. A clip according to one of claims 1-11 wherein the lower edge of the first holding leg crosses over the lower edge of the second holding leg.

13. A clip according to anyone of claims 1-11 wherein the lower edge of the second holding leg crosses over the lower edge of the first holding leg.



14. A clip according to any one of claims 1-13 further  
comprising a cord or wire loop threaded through a space  
present in the top part of the clip, or with a stamped-  
out hanging eyelet near the fold line in one of the  
5 holding legs.

15. A device comprising a plurality of clips defined in  
any one of claims 1-13 fixed on an elongated carrier.

16. A clip substantially as hereinbefore described with  
reference to the accompanying drawings.

10 DATED this 27th day of September 1994

MULTIBRIDGE B.V.

By their Patent Attorneys

GRIFFITH HACK & CO.

LS  
LS



ABSTRACT

Clip for holding and/or keeping together sheets of paper or other materials, comprising two holding elements lying essentially in parallel planes and springing relative to each other, and of which the two end edges run parallel at a distance from each other or at an angle relative to each other, and form push-on edges when in use. According to the invention, the two holding elements are in the form of holding legs (1, 2) of sheet-type material, and one (2) of said holding legs is bent in such a way that a part (4, 6) adjacent to the connecting line (3) with the other leg (1) lies at a distance from said other leg, and a second part (8), essentially ending at the push-on edge (13), lies with at least a part of its inside essentially flat and resiliently against the inside of a part (9) of the other holding leg (1). The clip can also be placed on other objects of different types (Figure 2).



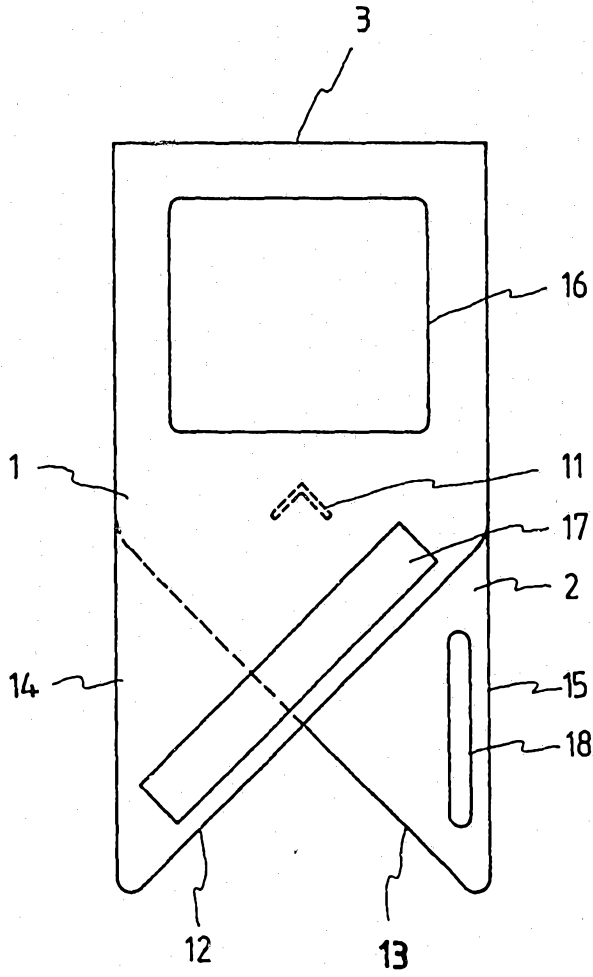


FIG. 1

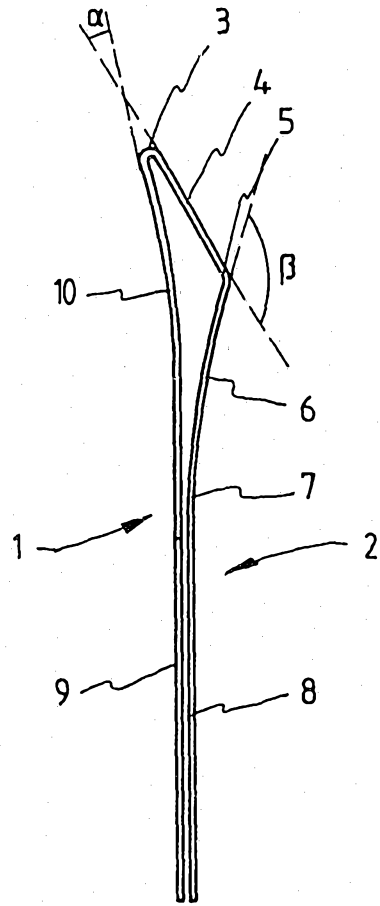


FIG. 2