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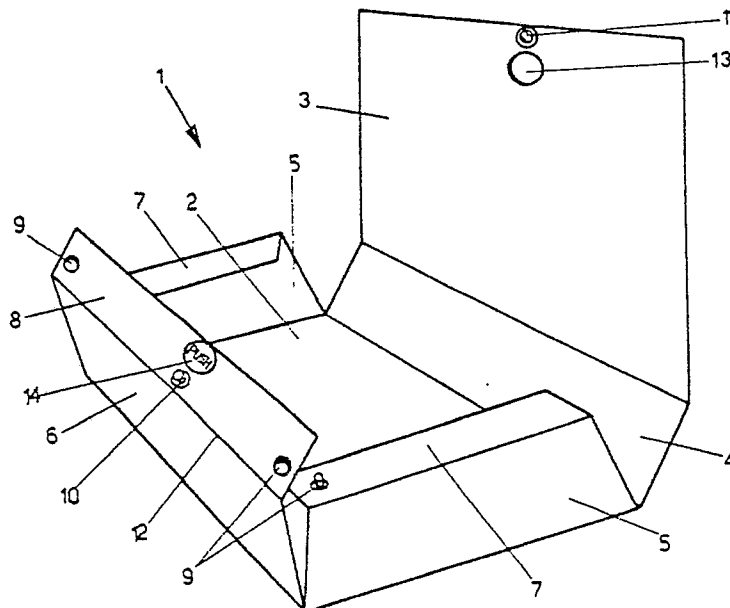
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54 **A button fastening, in particular for stationery articles.**

57 A button fastening means for articles of generally semi-rigid material, comprising a male element (10) and a female element (11) arranged on overlapping walls (8) and (3) respectively, with a window (13) being provided on the latter wall (3) whereby opening of the button can be obtained by operating in proximity to the male element (10) through the window (13).



**FIG.1**

**EP 0 334 079 A2**

## A BUTTON FASTENING, IN PARTICULAR FOR STATIONERY ARTICLES

This invention relates to a particular button-fastening arrangement for articles made of semi-rigid material in general, such as plastics, fuller board, plasticized board and the like, and especially for stationery articles such as fileholders, copyholders or paper-holding cases, folders, brief-cases, bags and the like.

Button fasteners comprising a male element fitting into a corresponding female element are widely marketed devices. The two elements of the button fastener are so disposed that a pull has to be exerted upon the female element in order to release it from the male element upon opening the fastener.

The disadvantages resulting from this known arrangement are clearly apparent considering, by way of example, a paper-holding case provided with said button fastener, it being intended that the same considerations may apply as well to any other article utilizing this type of fastening means.

A case for holding papers is substantially one of parallel epiped shape and has a button fastening means operating on a forward or front wall thereof. In particular, the male element of the button is disposed on an intermediate portion of the front wall and the female element on an extension of the upper wall which partially covers said front wall.

Although this type of fastening means operating on a front wall of a paper-holding case - a widely marketed article - has been adopted for a number of years, it has considerable disadvantages and deficiencies that are well known from all of those making use of this product.

A first disadvantage is experienced upon closing the case because of the button male element generally being in such a position as to induce bending of the front wall during fastening so that a great pressing force has to be exerted upon the female element, which causes deformation of the case in the long run.

A worse difficulty is in any case encountered when opening the container, and is particularly connected with the conventional manner the two button elements are caused to release from one another, that is by a pull exerted upon the female element by means of a grasping flap provided to this end.

As a certain force is required for this type of opening operation, repeated stresses to which the grasping flap is subjected lead to quick tearing of this latter. Also, tearing is likely to occur along the folding line of the upper wall extension which partially covers the front wall of the case.

Said extension partially covering the front wall of the case, besides looking unattractive, is cum-

bersome and likely to interfere with proper filing of a paper-holding case.

Moreover, the necessity of providing an upper wall extension involves waste of material during manufacture and increased cost of the final product.

In spite of the above disadvantages, it has not yet been possible to propose an efficient button-fastening means capable of operating on an upper wall of a case, due to the fact that this upper wall must, for obvious reasons, extend so as to terminate flush with a front wall of the case, it would have no grasping means available thereon for exerting the required pull effect upon the female element of the button. Even if a grasping means may be provided on the upper wall so as to protrude beyond the front wall, this will not permit succeeding in doing the opening, since the required force for the female element to be released from the male element would tend to lift up the entire case, particularly with empty or almost empty case. Thus, it would be necessary to firmly hold the case in place during opening operation and the same problems as mentioned above in relation to a grasping flap would again to be overcome.

The object of this invention is to eliminate all of the above disadvantages by providing a button fastener arranged so that it can be opened and fastened again in an extremely simple manner.

The invention is the result of having found, during experiments, that opening of a fastening button is extremely facilitated if the male element of the button is acted upon in a certain manner rather than by applying a pull to the female element of the button.

According to the invention, a button fastener has its male and female elements arranged on respective flat overlapping portions of a case, or the like container to be fastened by the button, and the upper portion carrying the button female element has a window provided adjacent to this latter, through which window the flat underlying portion can be acted upon in order to unlock the male element from the female element of the button.

Thus, according to this invention, opening of the button is obtained by exerting a slight pressing force upon a region close to the male element to produce a lever effect that induces a swinging or oscillation of this male element thereby causing it to instantaneously disengage from the female element.

This arrangement makes it possible to eliminate all of the disadvantages connected with opening systems of a known technique utilizing a grasping flap whereby a pull can be exerted upon the

female element of a button. At the same time, opening of the button is extremely easier to do by the arrangement according to the invention.

In the case of a paper-holder of the type described herein before, the button fastener is conveniently arranged on an upper wall thereof, In particular, the male element of the button is preferably arranged on an inwardly folded portion of a front wall of the container, adjacent to its folding edge, so that also refastening of the button is simplified with no bending being induced in the material of the region where the male element is provided.

Further features of the invention will become more clearly apparent from a reading of the following detailed description made by way of example only, in relation to a case for holding papers provided with a button fastener according to the invention, it being intended that the teachings of this invention apply as well to any article utilizing such a button fastener.

In the accompanying drawings :

Figure 1 is a perspective view of a container provided with a button fastener according to the invention, the container being shown when in open condition;

Figure 2 is a partial axonometric view of the container in figure 1 in closed condition with the fastening button being particularly put in evidence;

Figure 3 is a plan view schematically showing the female element of the button from below;

Figure 4 is a side elevational view of the button male element.

Referring now to the above figures, there is generally designated by numeral 1 a case for holding papers. It is comprised of a bottom or lower rectangular wall 2 and an upper or cover wall 3 of the same size as the bottom wall 2 to which it is connected through a back wall 4. The bottom wall 2 also has two sidewalls 5 and a front wall 6 which extend upwardly therefrom and which have the same height as the back wall 4 so that the case will take the shape of a parallelepiped when in closed condition. The sidewalls 5 and front wall 6 have extensions 7 and 8 respectively, which are folded inwardly of the case parallel to the bottom wall 2. In particular, first the extensions 7 on the sidewalls 5 are folded up and then the extension 8 on the front wall 6 is folded over them.

Preferably, the in-turned portion 8 is secured to the in-turned portions 7, for example, by means of buttons 9, in order to have the walls 5 and 6 kept in raised position when the case 1 is in open condition.

Closing of the case 1 is ensured, as is the case with conventional containers of this type, by means of a button. The characterizing features of this invention reside in the manner by which the button

is acted upon for causing it to open, and the location where the button is arranged.

In particular, the male element of the button is arranged on the in-turned portion 8 of the case front wall 6 adjacent to the folding line 12 corresponding to the front edge of the closed case, while the female element 11 of the button is carried by the upper wall 3 in such a position as to be superposed to the male element 10 upon closing the case 1.

Positioning the male element 10 adjacent to the edge 12 where there is a stiffening of the material, prevents any bending of the folded portion 8 during closing operation thereby making easier this latter.

Provided on the upper wall 3, adjacent to the button female element 11, is a window 13, for example of circular shape, through which window the underlying region of the folded portion 8 carrying the male element 10 can be acted upon to cause this male element to release from the associated female element 11 upon opening the case.

Practically, opening of the case is effected by exerting a slight pressing force, for example by a finger, upon the folded portion 8 through the window 13.

In the region 14 on the folded portion 8, which coincides with the window 13 when the case 1 is in closed condition, there may be, for example, a printed inscription or an auto-adhesive label giving instruction about how to operate for opening the closed case.

By operating as indicated above, a lever effect is produced and causes the folded portion 8 to rotate about the folding line 12 at the region where the button male element 10 is arranged.

Said rotation, which is schematically indicated by an arrow F in figure 4 where the male element 10 and a trace of the folding line 12 are shown on enlarged scale, results in the male element 10 being subjected to an oscillation upon disengaging from the female element 11, thereby to aid it in releasing therefrom.

This effect can be best understood in connection with figures 3 and 4 showing the female element 11 and male element 10, respectively, of a button which is known per se.

The female element 11 has an inner circular recess 15 in which two oppositely arranged springs 16 are apparent in a manner known per se.

The male element 10 is in the form of a conical pawl 17 whose diameter is decreasing in a direction towards the base of the pawl so that upon closing the button the pawl will first cause the springs 16 to move away from one another and then to snap back against the tapering wall of pawl 17 to keep it clamped in place.

During opening according to the invention, os-

cillation of the pawl 17 upon disengaging from recess 15 causes the tapering profile of the pawl to slide over one (at the right in figure 3) of the two springs 16, which makes for easy release of the pawl.

Thus, according to the invention, a considerably less force is sufficient to open the button than in the case when an axial or almost axial pull is applied to one of the two elements 10 and 11; in this latter case, in fact, the two springs 16 are almost simultaneously disengaged from the tapering profile of pawl 17. This is what occurs when using button fasteners of a conventional type wherein operation on the female element fails to provide sufficient oscillation effect.

From the above, it is apparent that the disposition of the elements of the button fastening according to the invention, permits overcoming all of the difficulties connected with prior art arrangement of same elements.

Here again, it is to be noted that application of the button fastening of the invention is not restricted to the particular container described herein before, but may be extended to any article, such as fileholders, folders, briefcases, bags, etc., utilizing this type of fastening means.

## Claims

1. A button fastening for articles made of semi-rigid material, such as plastics material or the like, characterized in that the male and female elements (10-11) of the button are arranged in such positions that, upon opening the button, it is possible to operate on the male element (10) to cause release thereof from the female element (11).

2. The fastening according to claim 1, wherein opening of the button is obtained by exerting a pressing force in proximity to the male element (10) to cause an oscillation of the male element (10) upon disengaging thereof from the female element (11).

3. The fastening according to claim 2, wherein said pressing force exerted in proximity to the male element (10) is applied through a window (13) in a wall (3) carrying the female element (11), which overlaps a wall (8) carrying the male element (10).

4. A case for holding papers characterized in that it utilizes a button fastening according to any one of claims 1 to 3.

5. The case according to claim 4, comprising a bottom wall (2), a top wall (3), a back wall (4), two sidewalls (5) having respective in-turned portions (7), and a front wall (6) having an in-turned portion (8), wherein the male element (10) of said fastening

button is arranged on said in-turned portion (8) while the female element (11) is arranged on said top wall (3) of the case.

6. The case according to claim 5, wherein the male element (10) of the fastening button is arranged in proximity to a folding line (12) of said in-turned portion (8).

7. The case according to claim 5, wherein provided at a region of the in-turned portion (8) which corresponds with said window (13) in the upper wall (3) are instructions about the way of opening the button.

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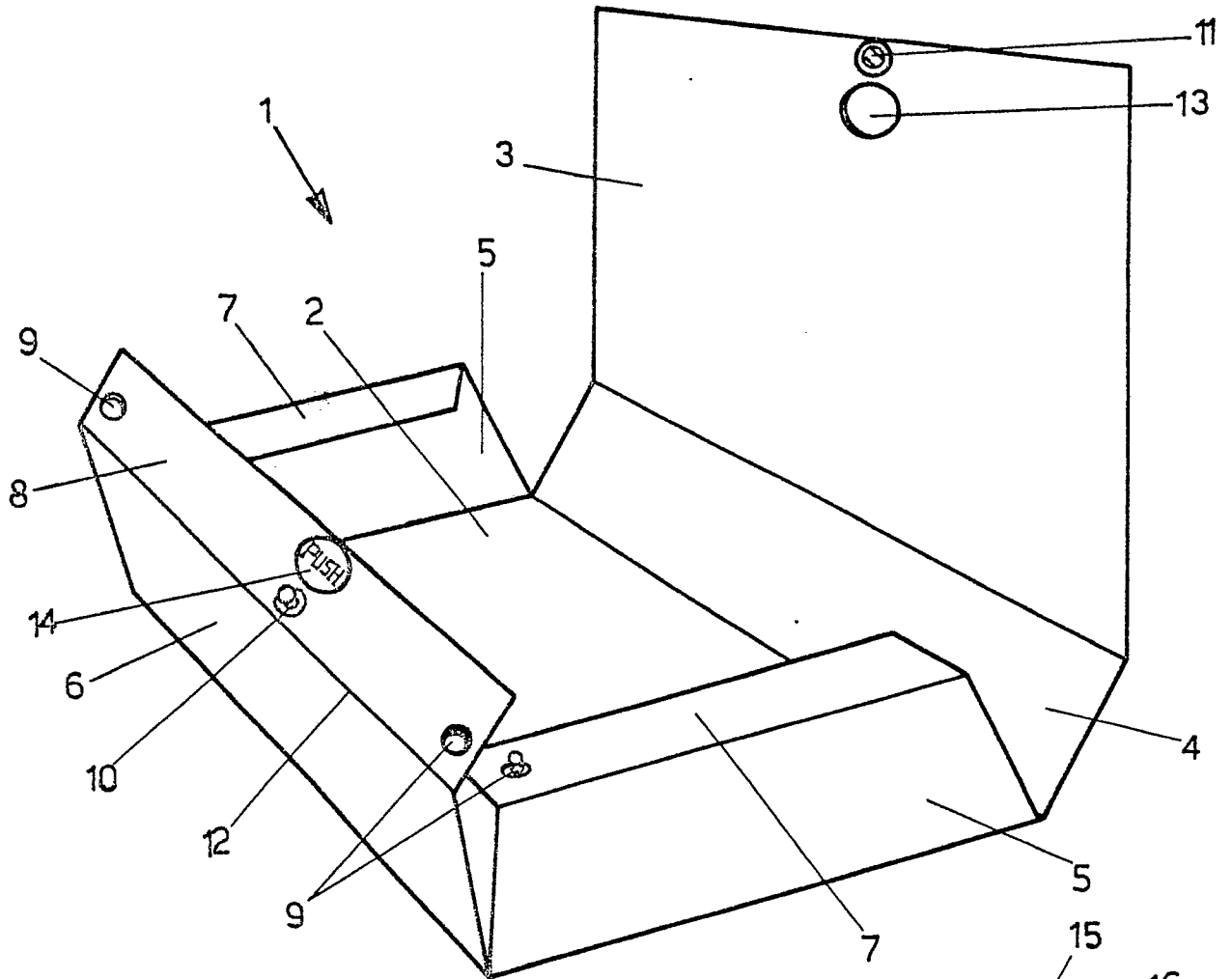


FIG-1

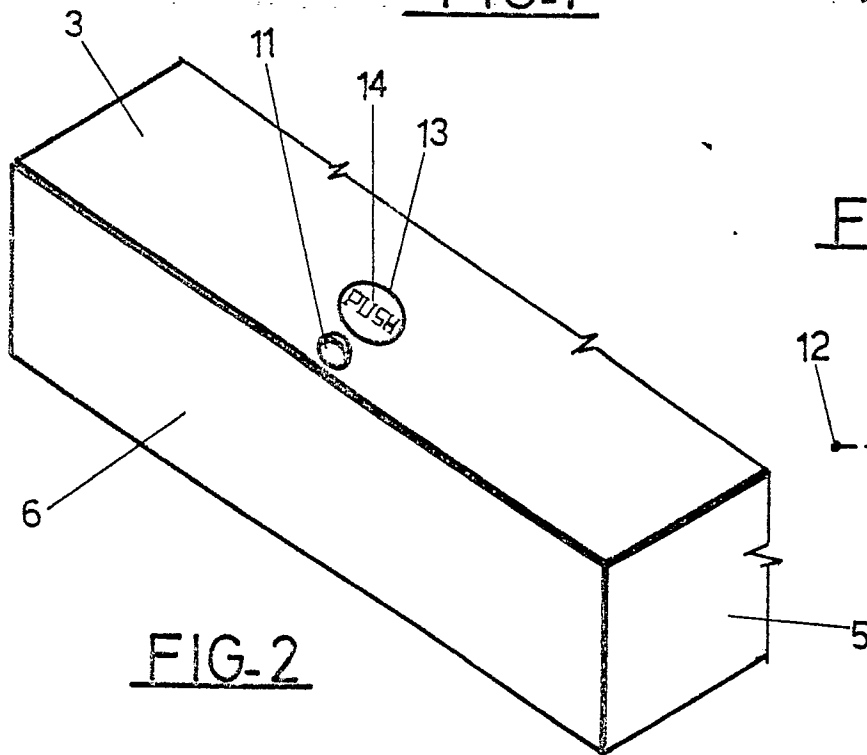


FIG-2

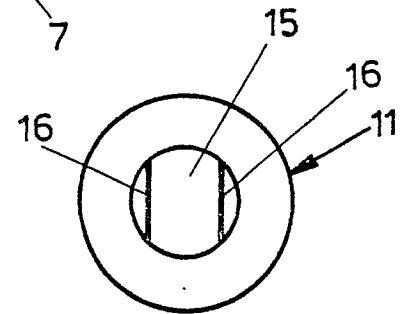


FIG-3

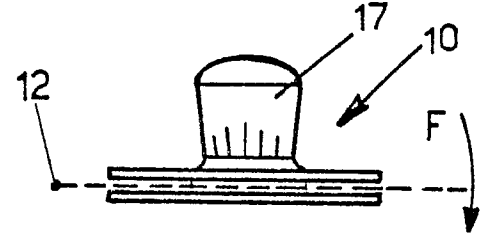


FIG-4