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(54) **EASY-TO-USE BINDING DEVICE**

(57) Especially conceived for its application in the preparation of catalogues or any other practical situation in which similar features are required, whenever it is necessary to extract its sheets one by one, along with the addition of other new ones, and based on a set of rings as means of securing for the sheets to be bound, said rings being connected to a support plate fixed on the corresponding spine of the folder, complemented by a

sliding plate able to occupy a position for locking of the rings or for their release, in order to be able to add or extract the said sheets, the invention is centred on the fact that the rings (1, 1' and 1'') have a configuration tending towards a semi-circular outline, and are fitted in securing elements (2) forming modules or blocks for fitting on the actual support plate (6) for fastening to the spine of the folder.

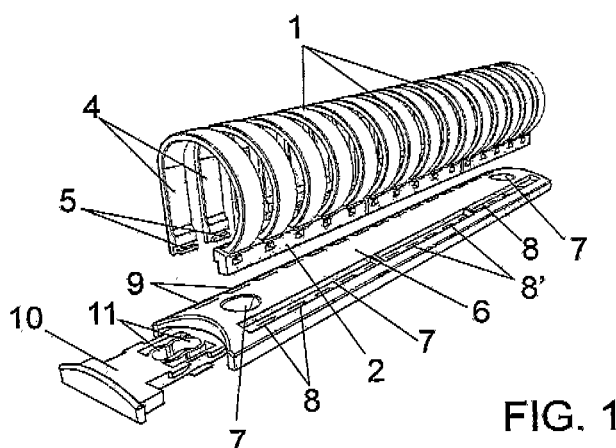


FIG. 1

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to an openable binding device, intended for loose sheets, with the aim of being able to add sheets or extract any of them at any time.

[0002] The device is especially conceived for its application in the preparation of catalogues or any other practical situation in which similar features are required, always provided it is necessary to extract the sheets one at a time and to add other new ones.

BACKGROUND OF THE INVENTION

[0003] There are numerous solutions marketed and even patented for binding an indeterminate number of sheets in a removable or openable fashion. One such classical solution is the type known as a "ring binder" in which there is generally a cover with a hard spine which includes a support with a set of rings, variable in number, but which can in any case be operated by mean of a mechanism intended to keep them open or closed, the sheets being provided with holes close to one of their edges coinciding in number and position with the said rings, to which they couple with a certain degree of fit.

[0004] This solution, which is perfectly valid from the theoretical point of view, in practice has certain problems fundamentally focused on two aspects: on the one hand there is the problem of trying to move a large block of sheets within the folder, since in this case the operation is extremely difficult and can even be impossible, and on the other hand the mechanisms which are intended to stabilize the rings in the two said positions acquire a certain looseness with time, with which their functionality leaves much to be desired following a useful life that is fairly short.

[0005] Another system of binding is the one known as "spiral binding", based on a spiral wire element which, though it offers a high degree of security against tearing of the sheets compared to the case of ring binders, owing to the large number of holes included in each sheet, nevertheless presents a similar problem to the previous case, in addition to implying great complexity in handling when it comes to extracting sheets or adding other new ones.

[0006] Also known are openable bindings that use a plastic sheet with some arched lugs that tend to close on themselves due to the elastic nature of the actual material they are made of, in such a way that in this case, even though the mass swinging of the sheets when the catalogue or folder is being handled is in some way made easier, there nevertheless exists great difficulty when it comes to extracting or introducing sheets, to the point that it become absolutely essential to use a device designed for that purpose.

[0007] In order to solve these problems and draw-

backs, the applicant is the holder of a Spanish Invention Patent P 200702558, which describes a system of binding functioning in a way similar to that of the classical ring folders, where the rings are semi-circular and are fitted movably and independently on a support plate, these rings having a semi-circumferential or similar shape, of considerable length, matching the length of certain linear windows made in the support plate, for coupling of the edges of those rings in the said linear windows of the support plate by means of a tongue and groove connection operated under pressure. For this purpose, provided in the longitudinal edges of the rings are some internal grooves that extend beyond the linear windows of the support plate, receiving beneath this a tongue or slide with alternating narrow and wide sectors, which respectively release and lock the semi-rings. In this way, the sheets manage not to be damaged when introducing or removing them, nor during the use of the folder, furthermore permitting an easy simultaneous swinging of a considerable number of sheets.

[0008] This system is very practical and simple to operate when it comes to the addition and/or extraction of sheets with respect to the rings, though the intention is for there to be four rings in a normal block and for certain catalogues this sometimes does not offer sufficient rigidity, as in the case of furniture and similar catalogues.

DESCRIPTION OF THE INVENTION

[0009] The binding device being proposed is based on the one referred to in the last paragraph of the previous section, in other words, on the binding system patented by the same applicant firm, but with a series of innovations leading to advantages and new features.

[0010] More specifically, the inventive device, being of the type of those which include a support plate on the spine of the folder or block, and a sliding piece located beneath that plate, with facing holes for the passage of the rivets for fastening the unit to the spine, has the particular feature that the rings are completely curved in one of their sides, while the opposite side consists of a straight end section, which makes it easier for the bound sheets to pass through.

[0011] Another novel characteristic is that the rings are grouped into blocks and are located close to each other, which increases their number and therefore provides the whole assembly with greater strength. In the set of rings themselves, they can be distributed in three blocks or modules which are coupled to the support plate, though each ring can be detached from its corresponding block or module, so that it can be replaced in the event of breakage or deterioration to it.

[0012] A further novel characteristic is that the lower sliding piece on which the support plate is located has its passage hole for the rivet for fastening to the corresponding spine of the folder or block in a configuration that is doubly circular, in other words, with two circular contours connected together via a narrow section. This

allows the rivet to be located in either of these two widened circular zones in a stable situation, defining the open or closed position, in other words, making it possible to carry out the extraction or addition of sheets since in one of the positions the rings remain perfectly interlocked and immobilized, while in the other the rings can be released and allow said extraction or addition of sheets.

[0013] In this way, as well as the advantages already referred to, it becomes possible for the sheets to be able to be handled, both in their extraction and in their addition, without any need to operate each ring one by one, instead, as the rings are grouped into blocks or modules, it will be each one of these that is handled as a whole, thereby facilitating operations and thus reducing the time taken in doing so.

[0014] According to a variant of embodiment of the invention, instead of the rings having one end straight and the other markedly bent, they can have both ends straight and divergent towards their free end, ending in lugs which are bend outwards, in other words, they remain in a coplanar arrangement in contraposition, in such a way that once the groups of rings have been introduced into the support body, they remain trapped by those lugs and by the complementary plate sliding on the body.

[0015] This solution offers greater guarantees from the point of view of structural solidity, in other words, from the point of view of fastening of the groups of rings to the body of the system, and consequently to the spine of the file, but on the other hand the said lugs to a certain degree hinder handling when introducing and extracting the sheets.

[0016] Finally, and according to another variant of embodiment of the invention, provision has been made so that the said rings maintain the configuration of the previous variant of embodiment in terms of the straight and divergent sections in the ends of their lateral branches but, instead of ending in "sharp" lugs defining stops that are practically staggered, they have ends that are more rounded which, to the slight detriment of the fastening, make the introduction and extraction of the sheets very much easier.

[0017] Moreover, instead of being orientated in contraposition, in other words with both of these projections facing out, they are orientated in the same direction, in other words, all of those making up one longitudinal edge of the piece face outwards and those of the other longitudinal edge face inwards.

[0018] In this case, the sliding place is provided with some projections in the form of a wedge, which push the ends of each lug towards the same side, with the exit of those lugs being blocked by the cover for the unit.

DESCRIPTION OF THE DRAWINGS

[0019] In order to complement the description that is being made and with the aim of aiding a better understanding of the characteristics of the invention in accordance with a preferred example of practical embodiment

thereof, attached as an integral part of said description is a set of drawings in which the following has been represented in an illustrative and nonlimiting way:

Figure 1.- Shows a representation according to an exploded perspective view of the binding device forming the object of the invention, showing the support plate for fastening to the spine of the folder, the sliding piece to which the support plate is connected in the position of being practically extracted, and three blocks or modules of rings in the situation of being coupled on the aforesaid support plate.

Figure 2.- Shows a view from one of the ends of the assembly represented in the previous figure, in the fitted position.

Figure 3.- Shows a view in lateral perspective of an end part of the inventive device, where the fitting of the rings on the support plate and the latter on the sliding piece in the partially extracted position can be clearly seen.

Figure 4.- Shows a representation in a general perspective of one of the detached rings.

Figure 5.- Shows a detail in perspective of a group of lugs embodied according to the first variant of embodiment that has been cited.

Figure 6.- Shows a profile of the above group.

Figures 7 and 8.- Show representations respectively coinciding with those of figures 5 and 6, but belonging to the second variant of embodiment that has been cited.

PREFERRED EMBODIMENT OF THE INVENTION

[0020] Looking at the stated figures it can be seen how the openable binding device which the invention proposes starts from the utilization of a set of rings (1) which form modules or groups thereof due to being linked via one of their ends to respective elements or profiles (2), in such a way that in each of them there exist or are coupled several rings (1), these being provided in said end for coupling to the assembly element (2) with the corresponding means of interlocking (3), while the other end is straight, since it has to be borne in mind that the rings start from a configuration that is practically semi-circular but that the end to which we are referring to, referenced with (4), is completely straight and ends in an internal projection (5) the function of which will be explained further below.

[0021] These modules or sets of rings (1) are fitted on a support plate (6) provided with holes (7) for the passage of the corresponding rivets for fastening to the corresponding spine of a folder or file, said plate (6) being

provided close to one of its side edges with some grooves (8) in the longitudinal direction, with windows (8') for the securing of the elements (2) corresponding to the modules or sets of rings (1). Close to the opposite longitudinal edge of said support plate (6), some windows (9) have been provided in which are located the ends of the straight sections (4) of the rings (1), the projections (5) of the said end straight sections (4) of the rings being retained in those windows (9).

[0022] The support plate (6) is complemented with a sliding piece (10) containing a double hole (11), in other words, provided with two circular expansions with an intermediate section defining a narrow section, in such a way that the rivet passing through each of the holes (7) of the plate (6) for the fastening of the latter to the spine of the folder or block coincides with one of those circular expansions (11) so that, depending on the positioning of the rivet in one expansion or the other (11), the situation of locking of the rings (1) or their release is allowed to be established in order to be able to carry out the extraction or exchange of sheets.

[0023] As is represented in figure 1, the rings (1) are fitted forming blocks, since they are interlocked in the elements (2) and these in turn are fitted in the grooves (7) established in one of the longitudinal edges of the support plate (6). This facilitates and eases the fitting and removal, since it is done in terms of groups of rings and not for each individual ring, as well as the fact that there is a notable number of these, which means that the strength of the whole unit is increased.

[0024] In accordance with the variant of embodiment shown in figures 5 and 6, it is feasible for the rings (1'), forming more or less numerous groups as in the previous case or all of them even being able to form a single piece, to have both end zones (12) straight and divergent, as can be seen particularly in figure 6. Said rings are appreciably symmetrical with respect to the plane along the middle of the unit and ending in separate lugs (13), bent outwards, arranged in opposition and coplanar, in such a way that the corresponding sliding piece (10) locks or unlocks those lugs (13) depending on its position with respect to the support (6), in other words, depending on whether one or the other of the circular zones of double holes (11) is facing the corresponding rivet for fastening to the spine of the file.

[0025] Finally, provision has also been made for the embodiment shown in figures 7 and 8, which is very similar to the one that has just been described, but in which the rings (1''), also maintaining straight and divergent end sections (12'), end in protuberances (14) that are much more rounded than the lugs (13) of the previous case, and they are also orientated in the same direction, as can be seen especially in figure 8, in such a way that this configuration, likewise permitting the rings to be locked to the support with the aid of the slider, facilitates the introduction/extraction of the sheets to and from the folder or file by virtue of its rounded shapes.

[0026] In this case, of course, the configuration of the

slider (10) will also be adapted to the configuration and arrangement of said projections (14).

5 Claims

1. Openable binding device which, being based on a set of rings as means of securing for the sheets to bind, and whose rings are connected to a support plate fixed on the corresponding spine of the folder, said support plate being complemented by a sliding plate able to occupy a position for locking of the rings or for their release, in order to be able to add or extract sheets, is **characterized in that** the rings (1, 1' and 1'') have a configuration tending to form a semi-circular outline and are fitted in securing elements (2) forming modules or blocks for fitting on the actual support plate (6) for fastening to the spine of the folder.
2. Openable binding device, according to claim 1, **characterized in that** the rings (1), with a configuration tending towards a semi-circular outline, have a straight section (4) in correspondence with one of their ends.
3. Openable binding device, according to claim 1, **characterized in that** each of the rings of the different blocks or modules can be detached.
4. Openable binding device, according to claim 1, **characterized in that** the elements (2) in which each group of rings is fitted to form a module or block include means of interlocking in grooves (8) with windows (8') made in the support plate (6), close to one of the longitudinal edges thereof, the opposite edge having windows for securing the corresponding end to the straight section (4) of the rings, and each one of these rings having **in that** end of the straight section a projection for interlocking (5) in the windows made close to the respective longitudinal edge of the support plate (6).
5. Openable binding device, according to the above claims, **characterized in that** the sliding piece (10) attached underneath to the support plate (6) for fastening to the spine of the folder includes pairs of circular depressions (11) joined by a narrow section, which are able to face the holes (7) for the passage of the corresponding rivets for fastening to the spine of the folder, in such a way that the positioning of the rivet in one or the other depression determines a position of closure or release of the rings for permitting the addition or extraction of sheets.
6. Openable binding device, according to claim 1, **characterized in that** the rings (1') have both end sectors (12) straight and divergent, ending in lugs (13) bent

outwards, in other words, arranged in contraposition and in a coplanar fashion.

7. Openable binding device, according to claim 1, **characterized in that** the rings (1") have both terminal sections (12') straight and divergent, ending in separate projections (14), rounded and both orientated in the same direction, in other words, one of them towards the inside of the ring and the other towards the outside.

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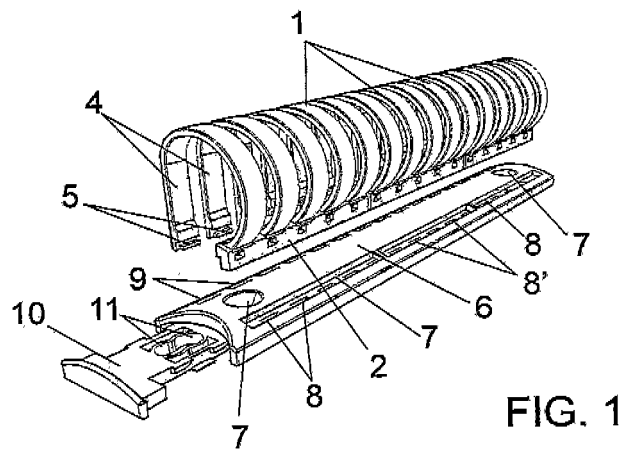


FIG. 1

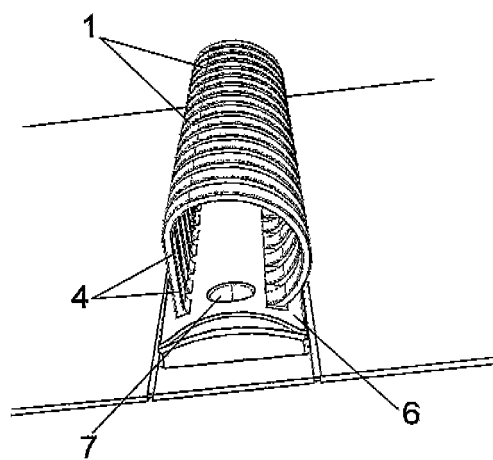


FIG. 2

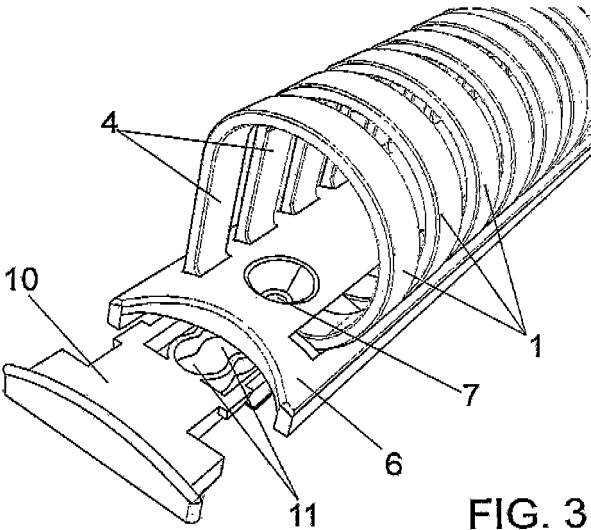


FIG. 3

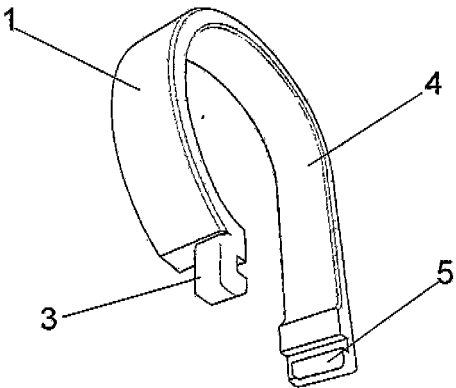
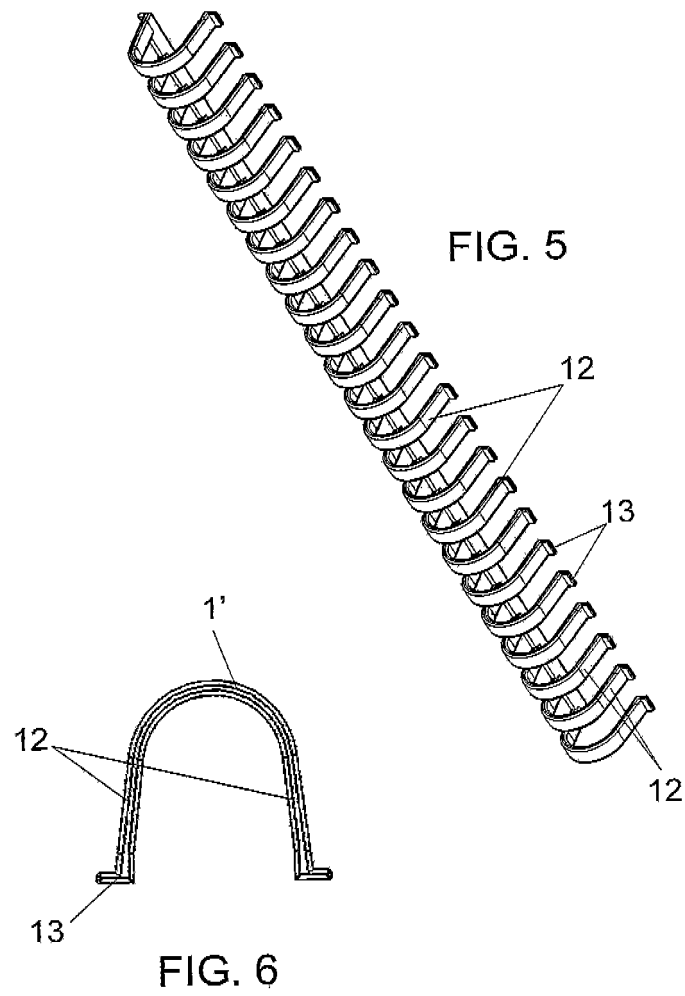


FIG. 4



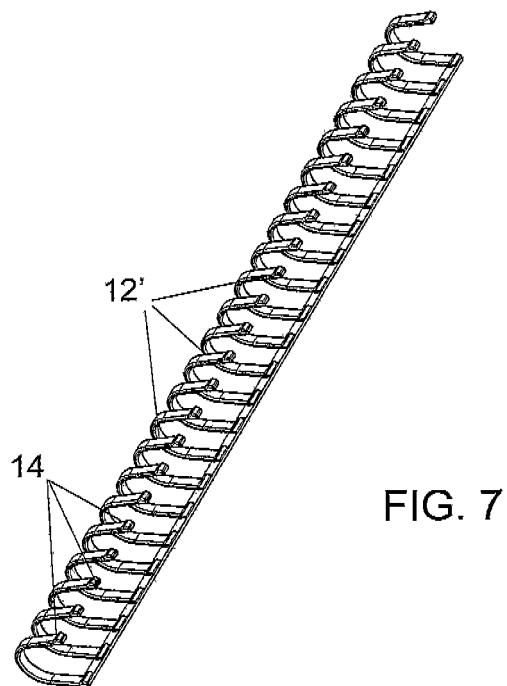


FIG. 7

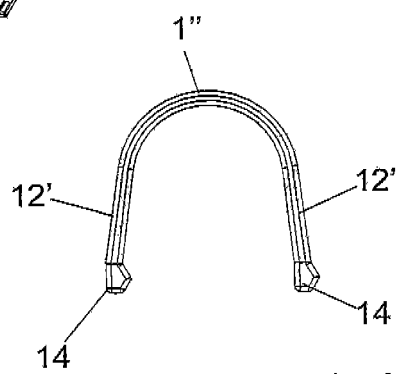


FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ ES 2009/070158

A. CLASSIFICATION OF SUBJECT MATTER

see extra sheet

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)

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 practicable, search terms used)

INVENES,EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 11059051 A (MORITO CO LTD) 02.03.1999, figures 1,2.	1,2,4,6,7 5
Y	JP 2001341481 A (KOKUYO KK) 11.12.2001, figures 1-5.	5
X	US 962868 A (WILFRED C. TRAHER) 28.06.1910, page 1, line 69 - page 2, line 27; figures.	1,2,4-7
X	GB 687016 A (JAMES BURN AND COMPANY LTD) 04.02.1953, page 2, lines 9-41; figures 4-6.	1,2,4,6,7
A	DE 812187 C (BERBERICH WILLI) 27.08.1951, figures.	1,2,4,6
A	ES 305772 A1 (SCHWORER ROBERT) 16.03.1965, figures 1-3.	1,2,4,6
A	FR 834090 A (M. LE TEXIER) 10.11.1938, page 1, lines 1-18; figures 1-15.	1,4,6,7

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance.	
"E" earlier document but published on or after the international filing date	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"O" document referring to an oral disclosure use, exhibition, or other means	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents, such combination being obvious to a person skilled in the art
"P" document published prior to the international filing date but later than the priority date claimed	
	"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/ ES 2009/070158

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
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INTERNATIONAL SEARCH REPORT

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CLASSIFICATION OF SUBJECT MATTER

B42F 13/16 (2006.01)

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