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(54) **INDIVIDUAL ELEMENT THAT CAN BE COUPLED TO SHEETS OF PAPER TO FACILITATE THE BINDING THEREOF**

(57) An individual element which can be attached to sheets of paper to facilitate binding, characterized in that it is formed by a strip of thin and ductile material, which allows it to be coupled and secured to the left side of a sheet or paper sheet (5), the length of the paper (5) to be bound to the right side of the individual element (1), not permanently and where this individual element (1) has to have a given width which Admits a perforated piece (4), and joined as a single body with the right side of the strip which is impregnated with an adhesive (3), which is covered by a thin film or film (2) to be disposable in the (5) with this adhesive right part (3) of the individual element (1), forming a single body constituted by the sheet (5) and the individual element (1),

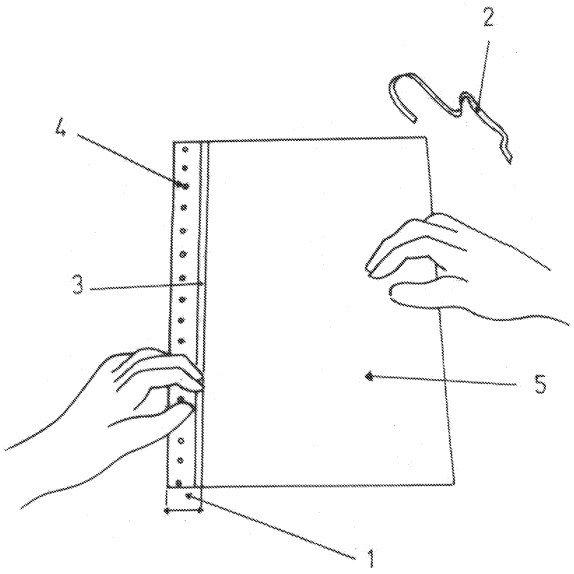

FIG. 5

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Description

OBJECT OF THE INVENTION

[0001] Private companies, public entities and users in general have the need to classify and archive the documents they handle on a daily basis. The documents are written on sheets of paper that usually have a standard format in each country, either folio or DIN A3 format, DIN A4, DIN AS, or the US exclusive, and another one proprietary from Canada etc., being the Anglo-Saxon folio or the DIN A4 the two most used worldwide to bind and to archive documents.

[0002] Despite finding ourselves in an era of information via the Internet, the need to orderly archiving business documents, - contracts, reports, databases etc., has not declined. Likewise, in the public sector, - courts, ministries, etc. - this need for classification, sorting and archiving has multiplied in a few years.

[0003] Of course, individuals, students, self-employed professionals, etc., also have to a greater or lesser extent need to keep their information orderly.

[0004] In order to be able to deepen into the description of the invention, it is important to distinguish between piecing together some notes, papers or documents with a thin wire that takes an elongated and rounded form at its ends, known internationally by clip, which is usually done to gather a few sheets, and another thing is what our invention really intends, which is an action of greater importance, since its objective is to provide the market with a novel system, more professional and technological better than the one that is currently being used, that allows for the binding of documents without damaging them and allowing an easy and at will subsequent individual removal of the sheets that compose the bound set.

STATE OF THE ART

[0005] This requirement to classify and file documents has been carried out in recent years and even today, in three main ways:

- The first way of filing (A), is with a binding system for punched paper sheets, that allows later to undo the binding and thus to extract any document that we want from among all the other pages that are bound with it, being all of them previously punched on the left side, with all the sheets usually bound in a ring binder or in bindings made with two pieces usually metallic, one in the form of a sheet having at its ends the shape of a hairpin and the other is a sheet which leaves the ends of said hairpin caught. This system is internationally known as Fastener system.

- The second way of classifying and filing papers (B), rather than of binding, it is of filing, and it is a system that does not require punching the sheets, since it consists of putting each of the sheets that make up the set, inside transparent covers that already carry a standard punching in their left side.

- The third form of binding (C), is very restrictive and consists of a fixed system that does not allow the removal of any page that compose the set, since this type of binding is intended to be permanent, and consists of stapling, or spiral ringing, or fusing, or sewing, or gluing of the left edge of a group of sheets; this third system is more suitable for binding reports or studies that are to be presented and delivered to others, and is not usually used for the archiving of own documentation, that usually has the requirement of occasional removal of some pages, that with this system would need to be de-stapled, removed from the spiral or the spine glued or sewn, destroying the set as a whole.

PROBLEMS SOLVED BY THE INVENTION

The problem:

[0006] In the fixed system binding (C), which does not allow for the removal of the pages, because of the staple, or because of the spiral ringing, or the spine fusing, is in itself a serious problem, since any page among the group of bound sheets cannot be removed without breaking or undoing the system, or to prevent this, It is necessary to tear the sheet somewhere, making it impossible to return it to the position in which it was without damage.

[0007] This system is dedicated almost exclusively to report elaboration and delivery, but without an archiving purpose and without the possibility of later use of individual pages since they are all forever bound to each other by the fixed binding system.

[0008] Binding requiring a plastic sheath (B) in which the document is introduced in, is nowadays widely used for filing papers that can not be damaged with punches and also those that at any given time have to be extracted from the folder for individual use, such as photocopying or filing them in another folder.

[0009] The binding by punching system (A), is not fixed and has been done in two ways; the most frequent one is to punch holes on the left side of the sheets to be bound by means of a manual or automatic device and insert these, by the punched round or oval holes, into a ring folder or in bindings made with pieces of the type mentioned before, made by two pieces, base and compressor, internationally known as Fastener, which entails several drawbacks.

[0010] Punching two or more holes on the left side of a sheet of paper is damage to the document that we cannot always afford, either for functional or aesthetic reasons.

b) If the binding is made with a piece of the type of the two piece prong, the visibility of a strip of the

margin on the left hand side of all the pages, of approximately 2 cm, is lost and the reading is impeded if those few centimeters of text area have been covered.

e) It is even worse if we have to make frequent consultations of the bound documentation with the two piece prong system, internationally known as Fastener, since these usually cause the tearing or cutting of the paper sheets at the holes and the inability to be repaired, thus leaving loose sheets within the set of sheets.

[0011] To avoid these inconvenients, paper damage and loss of vision of the left side strip of the sheets, the other means of filing, is to put each folio in a transparent sheath (B), which negatively causes an unnecessary bulging of the archived document set, because the thickness of each sheet, which is inserted inside each sheath of two transparent faces, is now tripled.

[0012] Likewise, a document set bound in transparent covers implies a high cost.

The solution:

[0013] This invention seeks to solve the need for binding without the use of transparent covers and without applying mutilating systems of punching or stapling. Even more, our invention is of complementary use to any other removable binding system like the one we pointed to of the two pronged binding system, known internationally as Fastener system.

[0014] Our invention consists in the application of an attachable element to the paper sheet, namely an already punched and potentially removable adhesive strip, to be fixed in the edges of pages or other page format and thus allow binding without having produced to said sheets of paper no damage whatsoever.

[0015] Our invention is ambitious and allows for the manual attachment of the strip or tape to the side of the sheet of paper; also the coupling and set can be semi-manual, and this with the aid of a mechanical device or coupling tool that achieves the adhesion of the tape or strip to the side of the sheet; and finally, the mechanical use of setting and fixing the tape or strip to the side of the paper sheet when this tape is affixed or stripped to the folio simultaneously to the realization of any type of printing in a printing machine, xerography, reprography, photocopying, thermo setting, etc.

BRIEF EXPLANATION OF THE DRAWINGS

[0016]

FIGURE 1. - Perspective view of the sheet to be filed and the elements of the invention

FIGURE 2. - Perspective view of the sheet of paper with the individual element posed in the working position.

FIGURE 3.- View in perspective of the individual element in which the punched holes can be seen (4)

FIGURE 4.- Perspective view of the individual element in a roll format

FIGURE 5.- Perspective view of the sheet to be filed with the disposable film (2) removed

FIGURE 6.- Perspective and schematic view of a cartridge for storing the individual element in roll format.

FIGURE 7.- Perspective and schematic view of a flat cartridge storing the individual element in block format.

FIGURE 8.- Schematic perspective view of a printing or reprographic machine

FIGURE 9.- Schematic perspective view of a printing or reprographic machine with the individual element outside the machine.

FIGURE 10.- Perspective and schematic view of a storage cartridge of the individual block elements

FIGURE 11.- Schematic perspective view of a printing or reprographic machine with the individual element stored in cartridge format.

DETAILED DESCRIPTION OF THE INVENTION

[0017] The invention consists of an individual element (1) attachable to sheets of paper to facilitate binding, composed of a strip of thin and ductile material, whether synthetic, natural or any other type of material, which is served in two formats, in reel or in strip, than can be set and fixed on the left hand side of a folio or sheet of paper (5), said sheet being adhered to the right-hand side of the individual element (1), not necessarily permanently, as said adhesion can be removed without difficulty at the will of the user.

[0018] This individual element must have a certain width which allows for a penetration or a perforation (4), which should usually be pre-made, although not necessarily, located on the left hand side of the strip or tape, adjoining and attached as a single body with the right hand side of the strip which is coated with an adhesive (3), which is covered by a thin film or a film (2) which is to be disposed of at the time of the setting and fixing on the sheet (5), by means of the adhesive right hand part (3) of the individual element (1).

[0019] The format of the individual element (1) should have the length and width dimension of the size of the

folio or sheet (5) to be attached and affixed to, although in the ribbon format on reel, it could exceed it and be later cut, and a width (1) which allows to maintain on its left hand side a portion with the perforation (4) and attached to this left hand side but on its right hand side, an adhesive band (3) covered by a very thin film or protective film (2).

[0020] The individual strip-shaped element (1), shown, allows the setting and manual fixing thereof to the sheet (5) directly.

[0021] The individual strip-shaped element (1) may be grouped into a cartridge (9), which will allow its insertion and use into a printing or reprographic machine so the individual fastening of the strips to the sheets of paper can happen in a fast way, through passes.

[0022] The passing of the slider (8) tears the very thin film or protective film 2 and the left hand side portion of the sheet (5) is adhered to the adhesive right hand side (3) of the strip.

[0023] The individual strip-shaped element (1) will achieve the greatest efficiency if it is used technologically and industrially and this basically making use of a cartridge or the like, which is coupled to a printing, photocopying or reprographic machine where when the sheets (5) are ejected from the machine after printing or copying, will already be had the strip (1) adhered, allowing for a direct binding action.

[0024] The individual roll-shaped element has a structure similar to the strip format, although most possibly the latter film part (2) will be dispensable if the attachment of the paper sheet to the element is made with a suitable tool or machine.

[0025] The individual roll-shaped element is suitable for insertion into a semi-manual tool machine such as that shown in Figure 6, which at its end (7) has a blade which would cut the end of the tape from the roll after the tape has been fixed on to the sheet (5).

[0026] However, the tape itself could already be marked with a stitch line, easily cut or self-cut, at the end of its length, this mark coinciding with the longitudinal dimension of the sheet, and thus, after the coupling of the Individual element to the sheet, with a slight pull, the tape will be teared off, leaving the tool available for the next use.

[0027] Both formats, of strip and ribbon on reel perfect to be the innovative and technological component in any semiautomatic machine or automatic machine for printing, photocopying or reprography, regardless of its size and characteristics in such a way that simultaneously to the printing, if selected by the user, the sheet (5) will be automatically set and fixed to the individual element (1) in strip format, leaving that printed sheet through the ejection tray of the machine with the strip already set, said strip (1) being cut to the same length as that of the sheet (5), when the machine exits the document being reproduced or printed.

Claims

1. Individual element attachable to sheets of paper to facilitate binding, consisting of any type of material of relative ductility, the purpose of which is to adapt and facilitate the binding of multiple sheets of paper (5) of any format, which can be subsequently removed individually Of said individual element (1), **characterized in that** it is formed by a single element (1) which can be coupled to paper sheets to facilitate binding and by a strip of thin and ductile material, which allows its engagement and fixed to the left side of A sheet or sheet of paper 5, the length and width of the paper sheet 5 to be bound, said sheet 5 being adhered to the right side of the individual member 1, not permanently and Where this individual element (1) must have a certain width which admits a perforated (4), and joined as a single body with the right part of the strip which is impregnated with an adhesive (3), which is covered by a Thin film or film (2) to be disposed at the moment of performing the engagement and gluing operation of the folio (5) with this adhesive right part (3) of the individual element (1), forming a single body constituted by the Sheet (5) and the individual element (1).

2. Individual element attachable to sheets of paper to facilitate binding, consisting of any type of material of relative ductility, the purpose of which is to adapt and facilitate the binding of multiple sheets of paper (5) of any format, which can be subsequently removed individually Of said individual element (1) according to claim 1 and **characterized in that** the left part (4) of the strip (1) over its whole length comprises a series of perforations (4) either round or oval which should be slightly Higher than that of the perforating bolts of the standard machine which makes them, the distance between these bores corresponding to this part of the body (4) of the strip (1) corresponding to the different standard distances of the paper punch machines of the international market, And this to allow the binding without having to make new perforations in this left part (4) of the strip body (1) additional to those already made.

3. Individual element attachable to sheets of paper to facilitate binding, consisting of any type of material of relative ductility, the purpose of which is to adapt and facilitate the binding of multiple sheets of paper (5) of any format, which can be subsequently removed individually Of said individual element (1) according to claim 1 and **characterized in that** the right part of the body of the individual element (1) is shown in strip form on this right part and on the whole impregnated length an adhesive (3) (2) superimposed on the adhesive impregnated portion (3) to fix the individual element (1) to the left edge of each paper sheet (5), so that the adhesive (3) is not The

paper sheet 5 being subsequently removed, the left edge of the paper sheet 5 being detached from the right side of the individual element 1 without any damage to the elements.

4. Individual element attachable to sheets of paper to facilitate binding of any type of material of relative ductility, the purpose of which is to adapt and facilitate the binding of multiple sheets of paper (5) of any format, which can be subsequently removed individually Of said individual element (1), according to claims 1, 2 and 3 and **characterized by** the individual element (1) on its right side and above it, on the area of the adhesive (3), a very thin sheet slightly adhered (2) formed as a disposable member upon removal of the left side edge of the back of the paper sheet (5) over the right side of the individual element (1),

5. Individual element attachable to paper sheets to facilitate binding, made up of any type of material of relative ductility, the purpose of which is to adapt and facilitate the binding of multiple sheets of paper (5) of any format, which can then be individually removed of said individual element (1) according to claims 1, 2, 3 and 4 and **characterized in that** the individual element (1) can be constituted by a long roll-shaped perforated strip.

6. Individual element attachable to sheets of paper to facilitate binding, consisting of any type of relatively ductile material, the purpose of which is to adapt and facilitate the binding of multiple sheets of paper (5) of any format, which can then be individually removed Of said individual element (1) according to the previous claims and **characterized in that** the individual roll-shaped element (1) can be inserted into a semi-manual machine, which at its end (7) has a blade Which would cut the end of the tape from the roll after the tape has been attached to the sheet (5).

7. Individual element attachable to sheets of paper to facilitate binding of any type of material of relative ductility, the purpose of which is to adapt and facilitate the binding of multiple sheets of paper (5) of any format, which can be subsequently removed individually Of said individual element (1) according to the preceding claims and **characterized in that** the individual element (1) in its roll presentation could be marked with a stitchable, easily cut or self-cut line at the end Of its length, this mark coincides with the longitudinal height of the sheet 5, and thus, upon completion of coupling the individual member to the sheet 5, with a slight pull, it would tear through the stitching area, leaving the tool Available for an upcoming application.

8. Individual element attachable to sheets of paper to facilitate binding by any type of material of relative ductility, the purpose of which is to adapt and facilitate the binding of multiple sheets of paper (5) of any format, which can then be individually removed Of said individual element (1) according to the previous claims and **characterized in that** the individual element (1) in its cartridge format (8) can be used by the use of a semi-automatic or automatic machine for traditional or digital printing, typography , Of flexography, offset, reproduction, photocopying, scanning, xerographic, fixed term, or any similar intention, irrespective of whether they are thermal transfer machines, toner, cartridges or other means , The cartridge (8) can be located with the individual elements (1) inside either the inside of the machine or outside the machine.

9. Individual element attachable to sheets of paper to facilitate its binding consisting of any type of material of relative ductility, the purpose of which is to adapt and facilitate the binding of multiple sheets of paper (5) of any shape, which can subsequently be individually removed from said element (1) according to the preceding claims and **characterized in that** the individual element (1) fixed individually by adhesive fastening and thus suitable for the binding of multiple sheets of paper, has the possibility of subsequent individual removal, since it can be Take off the left edge of each of the paper sheets (5) of the right strip of the body of each and every one of the elements (1) and this, at any time after the coupling action and fixed.

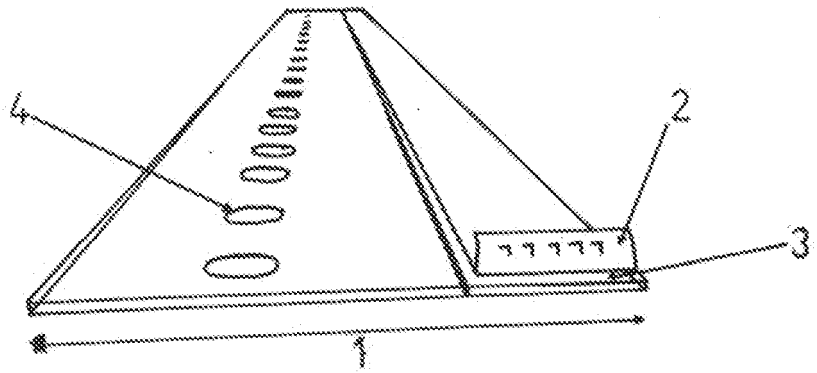

FIG. 1

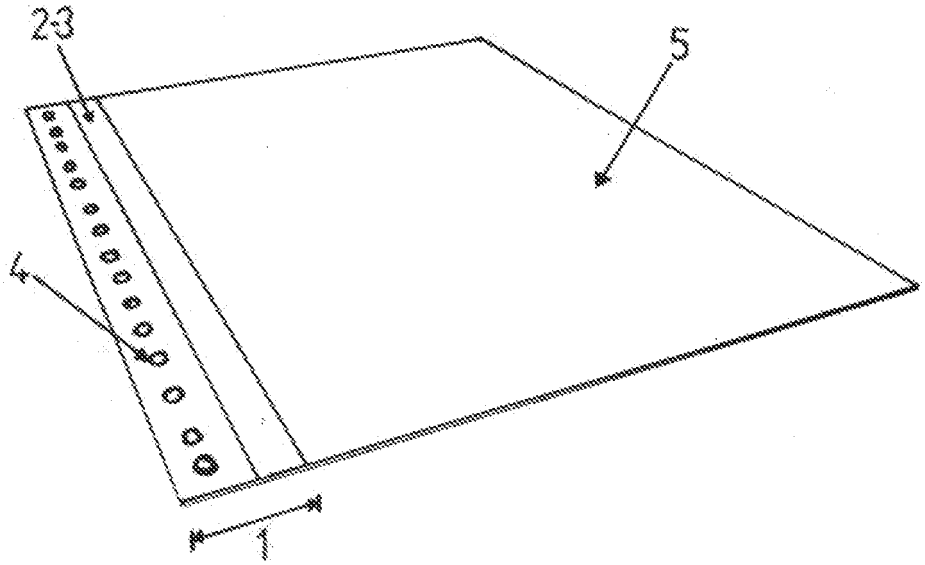

FIG. 2

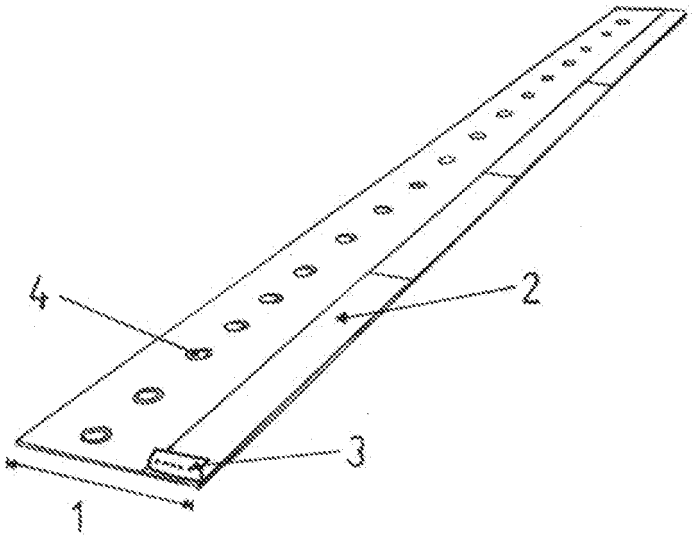

FIG. 3

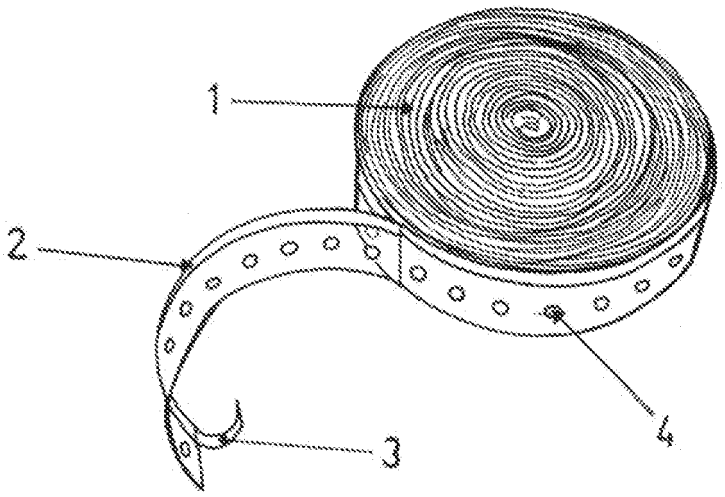

FIG. 4

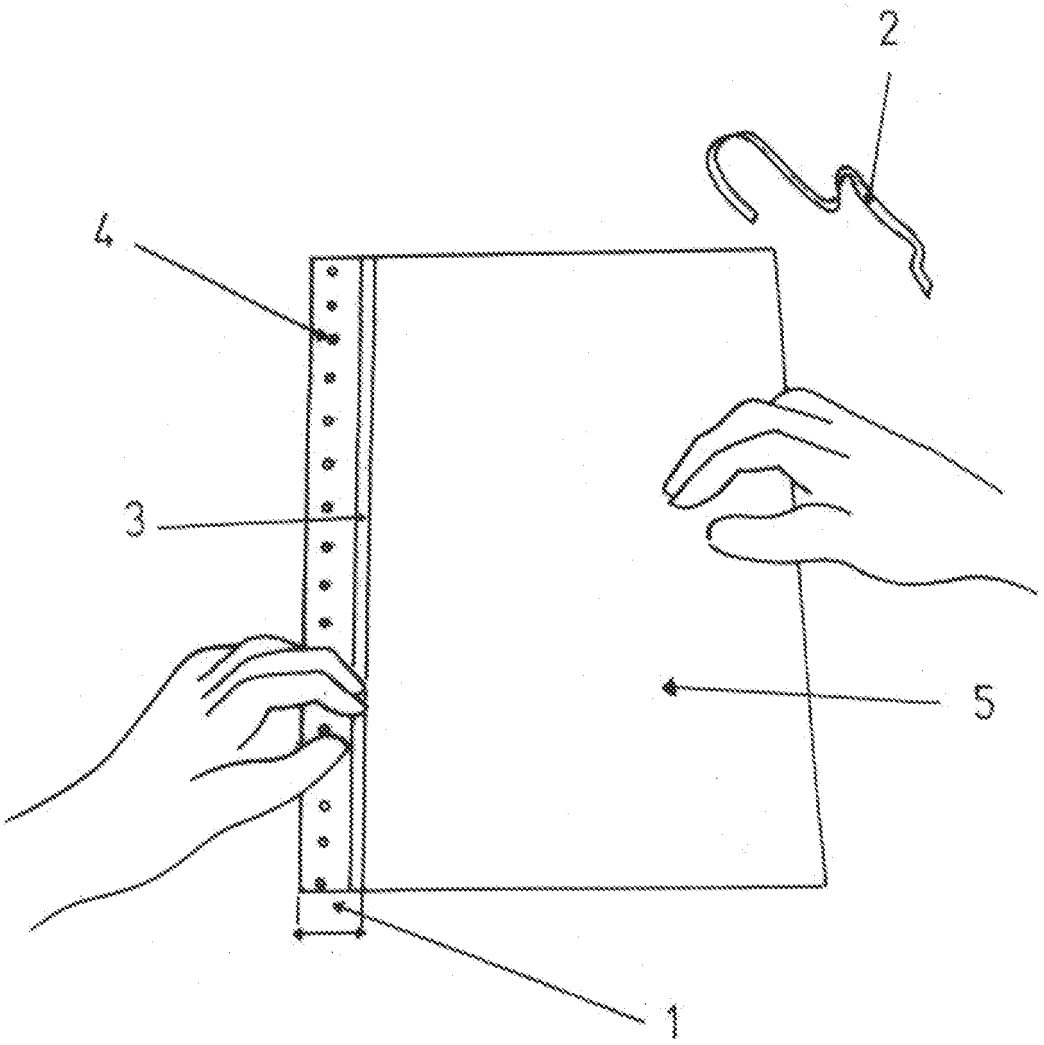

FIG. 5

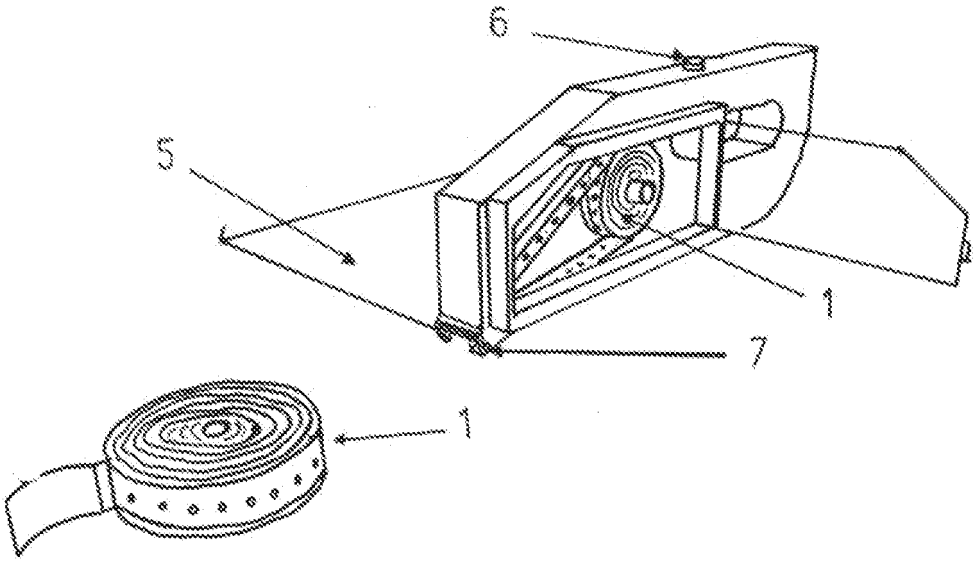

FIG. 6

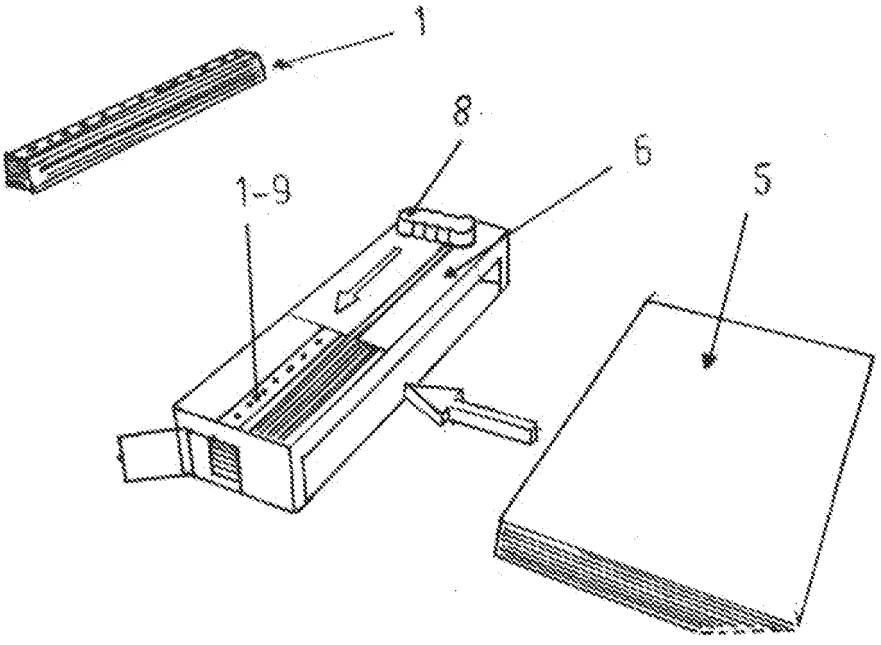

FIG. 7

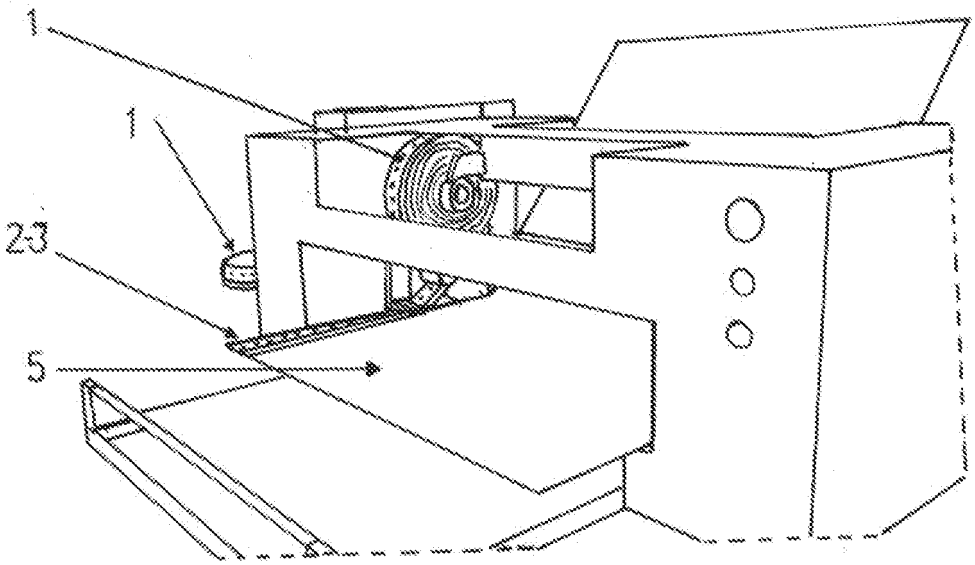

FIG. 8

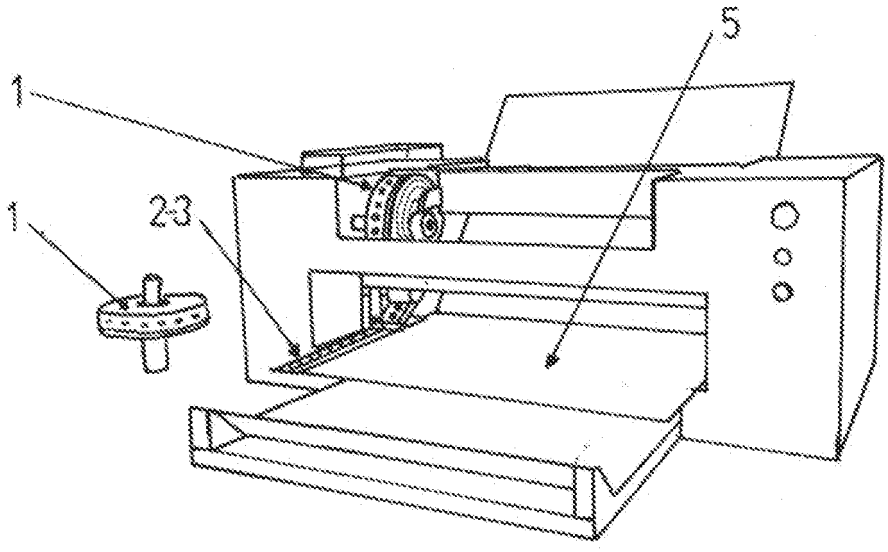

FIG. 9

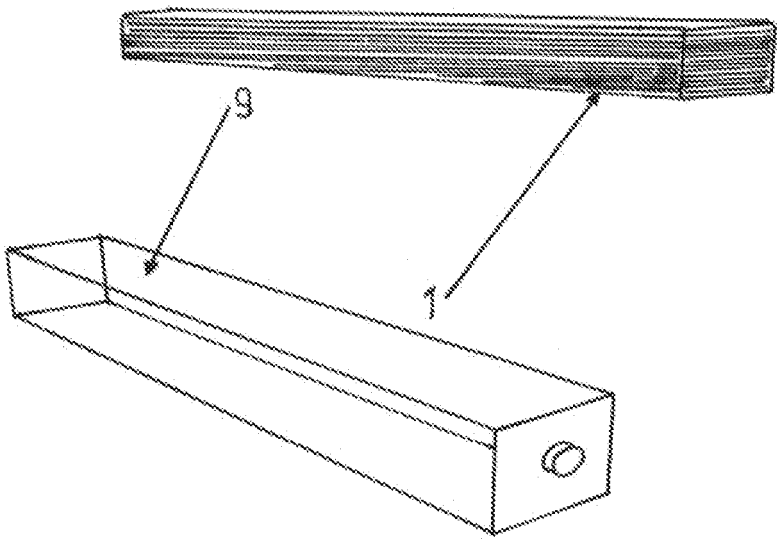

FIG. 10

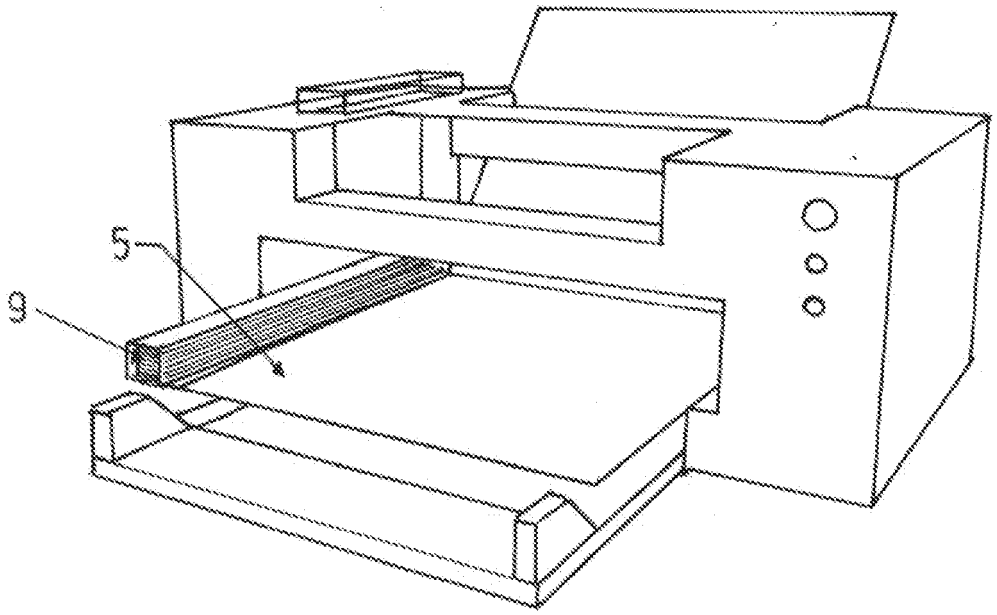

FIG. 11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2015/070263

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)
B42F, B41J

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)

EPODOC, INVENES

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 8702941 A1 (CHENG AMY KING YIN ET AL.) 21/05/1987, the whole document.	1-4,9
X	WO 9700779 A1 (MINNESOTA MINING & MFG) 09/01/1997, page 1, line 1 - page 5, line 15; page 6, lines 9 - 20;	1-5,7,9
Y	figures 1 - 2.	6
Y	US 2008234127 A1 (NAVAZO JUAN MANUEL VALERO ET AL.) 25/09/2008, paragraphs [0020 - 0027]; figures.	6

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

* Special categories of cited documents:
"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)
"O" document referring to an oral disclosure use, exhibition, or other means.
"P" document published prior to the international filing date but later than the priority date claimed

"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
"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
"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
30/06/2015	**(30/06/2015)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer A. Hoces Diez Telephone No. 91 3495371

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/ES2015/070263

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Form PCT/ISA/210 (patent family annex) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2015/070263

CLASSIFICATION OF SUBJECT MATTER

B42F11/00 (2006.01)
B42F3/00 (2006.01)
B41J11/00 (2006.01)
B41J13/00 (2006.01)

Form PCT/ISA/210 (extra sheet) (July 2009)