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(54) **METHOD FOR PLACING A BAND ON A BOOKBINDING COVER AND MACHINE FOR THE IMPLEMENTATION OF SAID METHOD**

(57) A method for placing a band on a bookbinding cover, and a machine for implementing said method, characterised in that it comprises the steps of holding the band by a first point by means of a first clamp, leaving a first excess portion of band, holding the band by a second point by means of a second clamp, leaving a second excess portion of band, said first and second clamps hav-

ing the ability to move relative to each other, movement of the band to a position facing said cover, passage of said excess portions of band through two holes punched in said cover, placement of glue points on said book or notebook cover, and pressing of the excess portions of band on to the glue points, and pressing of the second excess portion of band on to the second glue point.

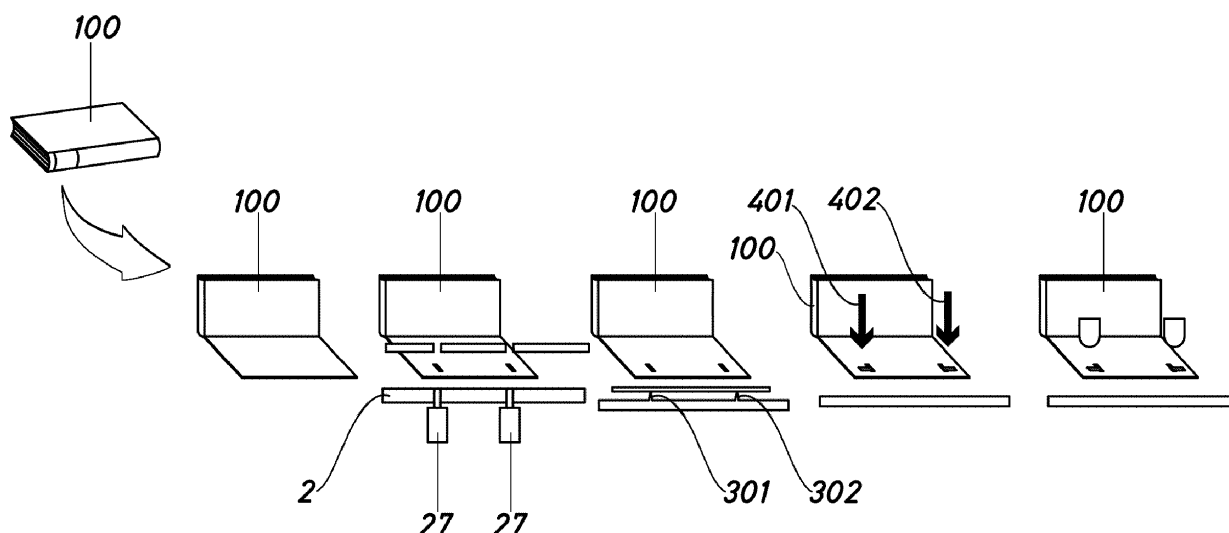


Fig.6

Description

[0001] The present invention relates to a procedure and a machine for placing a band, preferably elastic, on a bookbinding cover. More specifically, the present invention also relates to a procedure and a machine for placing an elastic band on the cover of a book, notebook or diary.

[0002] Currently, these processes are performed by hand or with significant labour, making it necessary to outsource the manufacturing to geographical areas with cheap labour, which increases costs relating to logistics. As an additional consequence, producing editions in small numbers is extremely expensive.

[0003] Moreover, the manual performance of the process makes it difficult to control the exact quantity of adhesive for the elastic band, resulting in a different finish for each book. Therefore, to ensure a favourable aesthetic it is common practice to insert an extra sheet that covers the connection between the band and the cover of the book.

[0004] The document ES2030520T3 discloses a machine for affixing an elastic band to a cardboard or similar surface of a folder. This is a machine that works on a surface, which already contains two perforations. The band is made to pass from one part of the surface to the other by means of suction, and is moved from one perforation to the other in the same manner. Finally, the band is passed through the second perforation by mechanical means and the suction is stopped. This method has the disadvantage that the machine that performs it does so is bulky, expensive and generates maintenance problems.

[0005] FR2503803 discloses a method for affixing an elastic band that is performed by means of pushing, unlike the document ES2030520T3. The method comprises the steps of placing the elastic or rubber band adjacent to a hole and pushing the band through the hole using a tapered cylindrical pusher, there being a closing rivet in the conical portion of the pusher. The rivet is placed in the hole, clamping the band against the walls of the hole. Subsequently, a die part having a central hole mating with the diameter of the pusher is actuated from the side opposite to the pusher action in such a way that it deforms the rivet, thus fixing the band in place.

[0006] This method has the disadvantages that it is not flexible and that it leaves the end of the band free. Moreover, the rivet is aesthetically undesirable and the band can escape by slippage with use.

[0007] The documents MX2012008151A and ES2428002T3 disclose different manual methods for affixing a rubber band to a cover of a book.

[0008] The document ES2428002T3 discloses a manual method wherein the band is placed between the cover and an intermediate cover that has a groove for receiving the band. The cover and the intermediate cover are glued together.

[0009] The document MX2012008151A discloses a

manual method wherein the band is made to pass through two holes of the cover, and once there the ends of the band are affixed to terminals of a size larger than the holes, which, since they cannot pass through the holes, prevent the band from escaping.

[0010] An aim of the present invention is to disclose a method and a machine that make it possible to automate the process of placing an elastic band on a surface of cellulose material, preferably the cover of a book, notebook or diary, and that simultaneously offer lower cost and greater flexibility than the known methods and machines.

[0011] More specifically, the present invention discloses a method for placing a band, preferably elastic, on a bookbinding cover, said method comprising the following steps:

- Holding the band by a first point by means of a first clamp, in such a way that there is a first excess portion of band between a first free end of the band and the first clamp;
- Holding the band by a second point by means of a second clamp, in such a way that there is a second excess portion of band between a second free end of the band and the second clamp, said first and second clamps having the ability to move relative to each other;
- Moving the band to a position facing said cover;
- Passing said first and second excess portions of band through two holes punched in said book or notebook cover;
- Placing a first and a second glue point on said book or notebook cover;
- Pressing the first excess portion of band on to the first glue point and the cover, and pressing the excess portion of band on to the second glue point and the cover.

[0012] By using two clamps with the ability to move relative to each other, it is possible to provide the machine with flexibility for placing bands, preferably elastic, on books, notebooks or diaries of different sizes, in a simple manner.

[0013] Preferably, the method comprises a step of measuring and cutting the band.

[0014] This means that the machine can be fed continuously from reels of band, with no necessity to have bands of different measurements.

[0015] Preferably, the method comprises a step of measuring the cover to which the band must be added, determining the length of band to be cut according to said measurement.

[0016] This feature allows the method and the machine that performs the same to be used for different sizes, including non-standard sizes. The measurement of the cover may be carried out directly (by measuring the cover directly) or indirectly (by measuring the spine or another dimension of the book, notebook or diary).

[0017] Preferably, the method comprises a step of punching said punched holes.

[0018] Alternatively, the holes may be created at the start of the method. However, greater flexibility is achieved when the punching is carried out within the method.

[0019] Preferably, the passage of said first and second excess portions is performed without the first and second clamps releasing the band.

[0020] This feature is advantageous because it simplifies the machine and possible due to the fact that said first and second excess portions are between the clamps and the respective free ends of the band, allowing the excess portions to pass freely through the holes.

[0021] More preferably, the passage of said first and second excess portions is carried out by means of two pins that push said first and second portions. Still more preferably, both pins act simultaneously.

[0022] Preferably, the placement of said first and second glue points is carried out by means of a single movable applicator.

[0023] This feature makes it possible to vary the points of application at will, for example according to the measurements of the cover.

[0024] The present invention allows the band to be applied to the cover of a previously bound book, notebook or diary.

[0025] The present invention also comprises a machine for the implementation of the method forming the subject of the present invention, said machine comprising a station for placing a band, preferably elastic, on a bookbinding cover, said station comprising two clamps for holding the band to be put in place, said clamps having the ability to move relative to each other, preferably in the direction of advance, and more preferably both having the ability to move in the direction of advance of the band, said station further comprising a device for effecting the passage of said first and second excess portions, preferably two pushers with a parallel action in the same direction, a movable glue applicator, so that it is capable of placing adhesive points at different locations on the cover, and a press for pressing said excess portions against the cover.

[0026] Preferably, the machine further comprises a station for measuring and cutting the band.

[0027] More preferably, the machine further comprises a station for measuring the cover on to which the band is to be applied, and still more preferably automatic means for varying the length of band to be cut according to the measurement of the cover. Still more preferably, the measuring station is located in a receptacle intended to receive a book, notebook or diary.

[0028] Preferably, said station comprises a punch for creating said holes in the cover.

[0029] Preferably, the adhesive applicator is single and movable.

[0030] Advantageously, said machine further comprises a station for feeding bookbinding products such as

books, notebooks or diaries, and/or a station for placing an envelope or pocket on the cover, and/or a station for placing a loop of band on the cover. Still more preferably, the machine may comprise one or more of the following stations: printing of the cover, heat engraving of the cover, affixing of labels.

[0031] To allow a clearer understanding, there follows a description of an embodiment of the present invention, based on some illustrative but non-limitative drawings of the present invention.

Figure 1 shows a perspective view of a machine for the implementation of the method of placing an elastic band on a bookbinding cover, in this case made of a cellulose material.

Figures 2 and 3 show two views of the station for placing an elastic band on a bookbinding cover, in this case made of a cellulose material.

Figure 4 shows a perspective view of the station for placing a loop of band on a bookbinding cover, in this case made of a cellulose material.

Figure 5 shows a perspective view of the station for placing an envelope or pocket in the bookbinding cover, in this case made of a cellulose material.

Figure 6 shows schematically the different steps of the method for placing an elastic band on a bookbinding cover, in this case made of a cellulose material, according to the present invention.

Figure 7 shows schematically the different steps of the method for placing a loop of elastic band on a bookbinding cover, in this case made of a cellulose material.

[0032] In the embodiment of Figure 1, the machine comprises four different stations, each intended for the performance of a specific process on the cover, in this case of a previously bound diary. The machine comprises:

- a feeding station -1-, in which the previously bound diaries are placed,
- a station for placing an elastic band -2- on the cover of the diary,
- a station for placing a loop of band -3- on the cover of the diary, and
- a station for placing an elastic band -4- on the cover of the diary,

[0033] The feeding station -1- receives the bound diaries in readiness for their subsequent movement to the other stations.

[0034] The station for placing an elastic band -2- comprises a station for measuring the cover on to which the

band is to be applied, located in a receptacle that receives the diaries -100-. The station comprises an elastic band measuring and cutting unit -22- for varying the length of band to be cut according to the measurement of the cover of the diary -100-. In parallel with the measuring and cutting of the band, a punch -23- creates two holes in the cover of the diary -100- for passing the elastic band through said holes.

[0035] In the elastic band placement station -2-, the band is held by two clamps -27- (see Figure 3) that have the ability to move relative to each other. Both clamps also have the ability to move in the direction of advance of the band (see arrow in Figure 2), which is delivered from a feeder -21- (see Figure 2). Said clamps -27- do not hold the cut section of band by the endmost portions of the section, so that there is an excess portion of band between each clamp and each end of the cut band. The elastic band placement station -2- comprises a system -24- for positioning the band on the cover and parallel-acting supports -251- that push the excess portions of band through the punched holes in the cover of the diary -100-.

[0036] To attach the elastic band to the cover, the elastic band placement station -2- comprises a movable glue applicator -25-, capable of placing adhesive points at different locations on the cover. A press -26- presses the excess portions of the band against the cover so that they are fixed to the diary.

[0037] The machine further comprises a station for placing a loop of elastic band -3- (see Figure 4) on the cover of, in this case, a previously bound diary. This station comprises a band feeding, measuring and cutting station -30-, which feeds a section of band, held by a clamp -32-, to two handling spatulas -31-, -33- for handling each end of the band. A movable glue applicator -34-, capable of placing adhesive points at different locations on the cover, and the spatulas -31-, -33- place the band on the glue points. The station for placing a loop of elastic band -3- further comprises a press -35- for pressing the band against the cover in order to attach it.

[0038] The station further comprises a station for placing an envelope or pocket -4- on the cover of, in this case, a previously bound diary -100- (see Figure 5). The station comprises a feeder for envelopes -41-, which are picked up by an envelope handler -42- for their placement on the cover of the diary -100-. Prior to the placement of the envelope, a movable glue applicator -43- places a trace of adhesive around the area of the cover.

[0039] The process of placing a preferably elastic band on a bookbinding cover according to the present invention is carried out in the elastic band placement station -2-. Figure 6 shows schematically the method applied to a previously bound diary. Once the diary has been placed in the station -2-, the cover to which the band must be added is measured in order to determine the length of band to be cut according to said measurement. In parallel with this step, two holes are punched in the cover of the diary. Next, the elastic band is cut to the appropriate

length according to the measurement of the cover, and the band is then held by two clamps -27-. A first clamp holds the band by a first point in such a way that there is a first excess portion of band between a first free end of the band and the first clamp. Next, a second clamp holds the band by a second point in such a way that there is a second excess portion of band between a second free end of the band and the second clamp. Once the band has been clamped at two points, it is moved to a position facing said cover.

[0040] The clamps -27- have the ability to move relative to each other in order to adapt to the length of the band, resulting in the ability to adapt to different sizes of diaries.

[0041] Once the band has been placed facing the cover, said first and second excess portions of belt are passed through the holes punched in said book or notebook cover, without the clamps releasing the band (for reasons of clarity, this has not been represented in Figure 6). This is achieved by means of two pins -301-, -302- which simultaneously push the excess portions of band. Next, a first glue point -401- and a second glue point -402- are placed on said book or notebook cover by means of a movable applicator. The application has been represented schematically by two arrows in Figure 6. Finally, the excess portions of band are pressed against the glue and the cover, so that the excess portions are fixed to the cover.

[0042] The process of placing a loop of preferably elastic band on a bookbinding cover is carried out in the elastic band loop placement station -3-. Figure 7 shows schematically the method applied to a previously bound diary. First, the band is fed into the machine, where it is measured and cut. The band is held by means of a clamp while it is cut. Next, the band is fixed to the cover, beginning with one of its ends. A first adhesive point is placed -600- on the cover by means of an automatic applicator, and subsequently -700- a first end of the band -2- is moved by means of a spatula -31- and placed on the first adhesive point. Next, a press presses the band against the adhesive and the cover in order to fix it in place. For the second end of the band, the procedure is repeated, i.e. an adhesive point is placed -800-, a spatula -32- places the second end on the adhesive point, and a press presses the second end of the band against the adhesive and the cover.

[0043] Although the invention has been presented and described with reference to embodiments of the same, it will be understood that these embodiments are not limitative of the invention, since there could be multiple variables in terms of manufacturing or other details that will be evident to a person skilled in the art after interpreting the subject matter disclosed in the present invention, claims and drawings. Consequently, all variants or equivalents will be included in the scope of the present invention if they can be considered to fall within the broadest scope of the following claims.

Claims

1. Method for placing a band on a bookbinding cover, **characterised in that** it comprises the following steps:
 - Holding the band by a first point by means of a first clamp, in such a way that there is a first excess portion of band between a first free end of the band and the first clamp;
 - Holding the band by a second point by means of a second clamp, in such a way that there is a second excess portion of band between a second free end of the band and the second clamp, said first and second clamps having the ability to move relative to each other;
 - Moving the band to a position facing said cover;
 - Passing said first and second excess portions of band through two holes punched in said book or notebook cover;
 - Placing a first and a second glue point on said book or notebook cover;
 - Pressing the first excess portion of band on to the first glue point and the cover, and pressing the excess portion of band on to the second glue point and the cover.
2. Method according to claim 1, **characterised in that** it comprises a step of measuring and cutting the band.
3. Method according to claim 1 or 2, **characterised in that** it comprises a step of measuring the cover to which the band must be added, determining the length of band to be cut according to said measurement.
4. Method according to any one of the preceding claims, **characterised in that** it comprises a step of punching said punched holes.
5. Method according to claim 4, **characterised in that** the holes are punched at the start of the method.
6. Method according to any one of the preceding claims, **characterised in that** the passage of said first and second excess portions is performed without the first and second clamps releasing the band.
7. Method according to any one of the preceding claims, **characterised in that** the passage of said first and second excess portions is carried out by means of two pins that push said first and second portions.
8. Method according to claim 7, **characterised in that** both pins act simultaneously.
9. Method according to any one of the preceding claims, **characterised in that** the placement of said first and second glue points is carried out by means of a single movable applicator.
10. Machine for the implementation of the method of claims 1 to 9, **characterised in that** it comprises a station for placing a band on a bookbinding cover, said station comprising two clamps for holding the band to be put in place, said clamps having the ability to move relative to each other, preferably in the direction of advance, and more preferably both having the ability to move in the direction of advance of the band, said station further comprising a device for effecting the passage of said first and second excess portions, a movable glue applicator, so that it is capable of placing adhesive points at different locations on the cover, and a press for pressing said excess portions against the cover.
11. Machine according to claim 10, **characterised in that** said clamps have the ability to move in the direction of advance of the band.
12. Machine according to claim 10 or 11, **characterised in that** said device for effecting the passage of said first and second excess portions comprises two pushers acting in parallel and in the same direction.
13. Machine according to any one of claims 10 to 12, **characterised in that** it comprises a station for measuring and cutting the band.
14. Machine according to any one of claims 10 to 13, **characterised in that** it comprises a station for measuring the cover to which the band must be applied.
15. Machine according to claim 14, **characterised in that** it comprises automatic means for varying the length of band to be cut according to said measurement of the cover.
16. Machine according to claim 15, **characterised in that** said cover measuring station is located in a receptacle intended to receive a book, notebook or diary.
17. Machine according to any one of claims 14 to 16, **characterised in that** said cover measuring station comprises a punch for creating said holes in the cover.
18. Machine according to any one of claims 10 to 17, **characterised in that** the adhesive applicator is single and movable.
19. Machine according to any one of claims 10 to 18,

characterised in that it further comprises a station for feeding books, notebooks or diaries, and/or a station for placing an envelope or pocket on the cover, and/or a station for placing a loop of band on the cover.

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20. Machine according to any one of claims 10 to 19, **characterised in that** it comprises one or more of the following stations: printing of the cover, heat engraving of the cover, affixing of labels.

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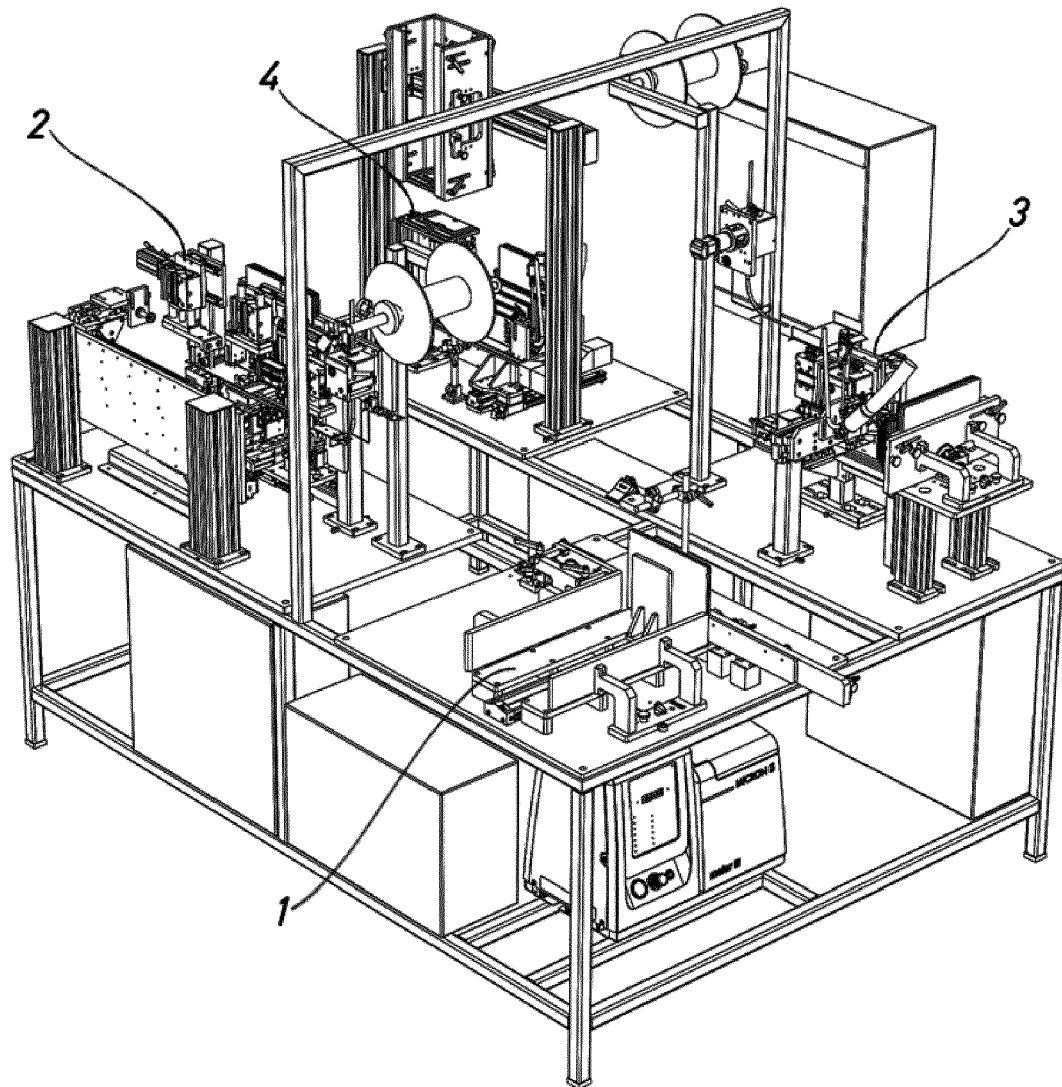


Fig.1

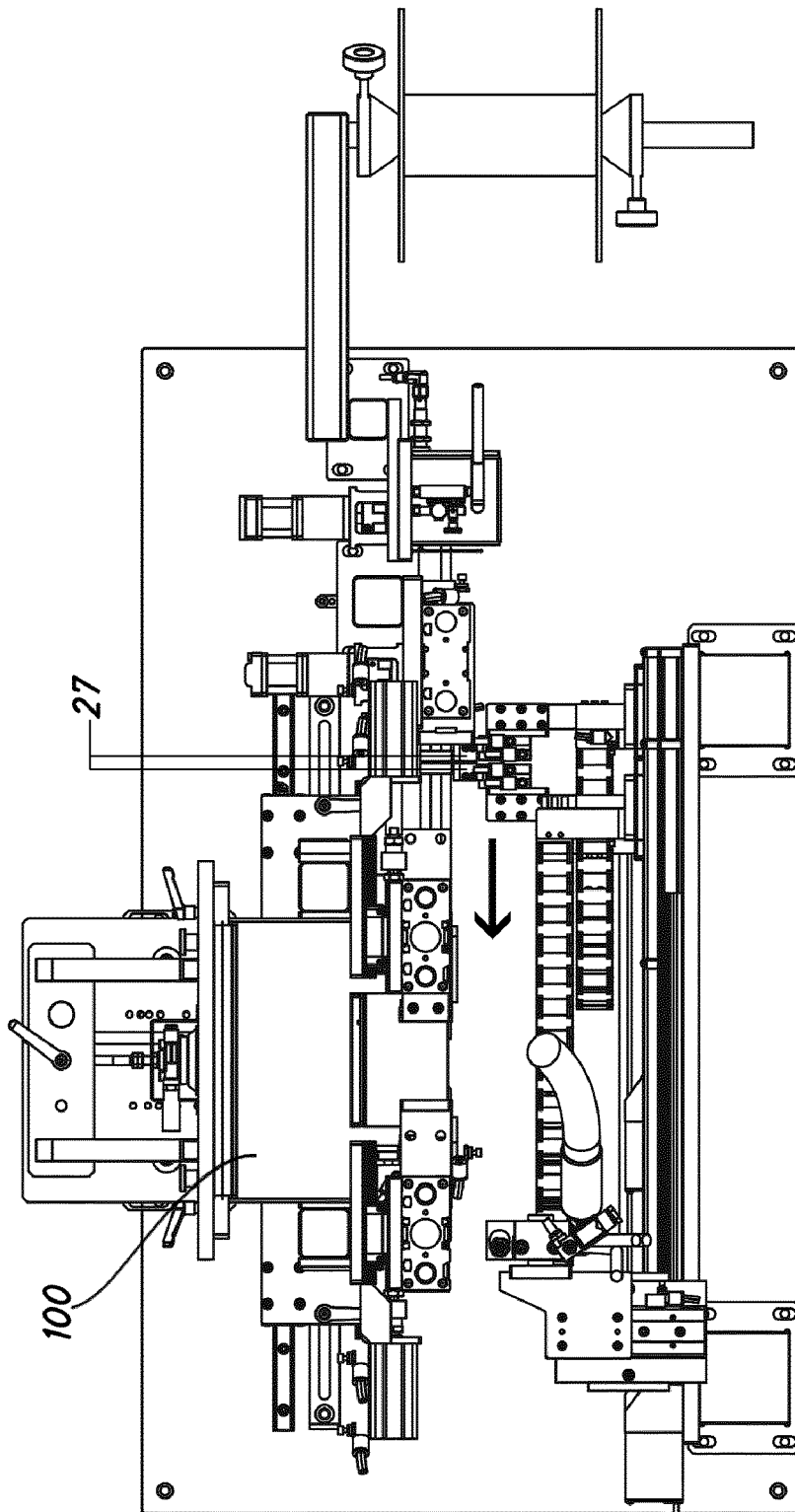


Fig.2

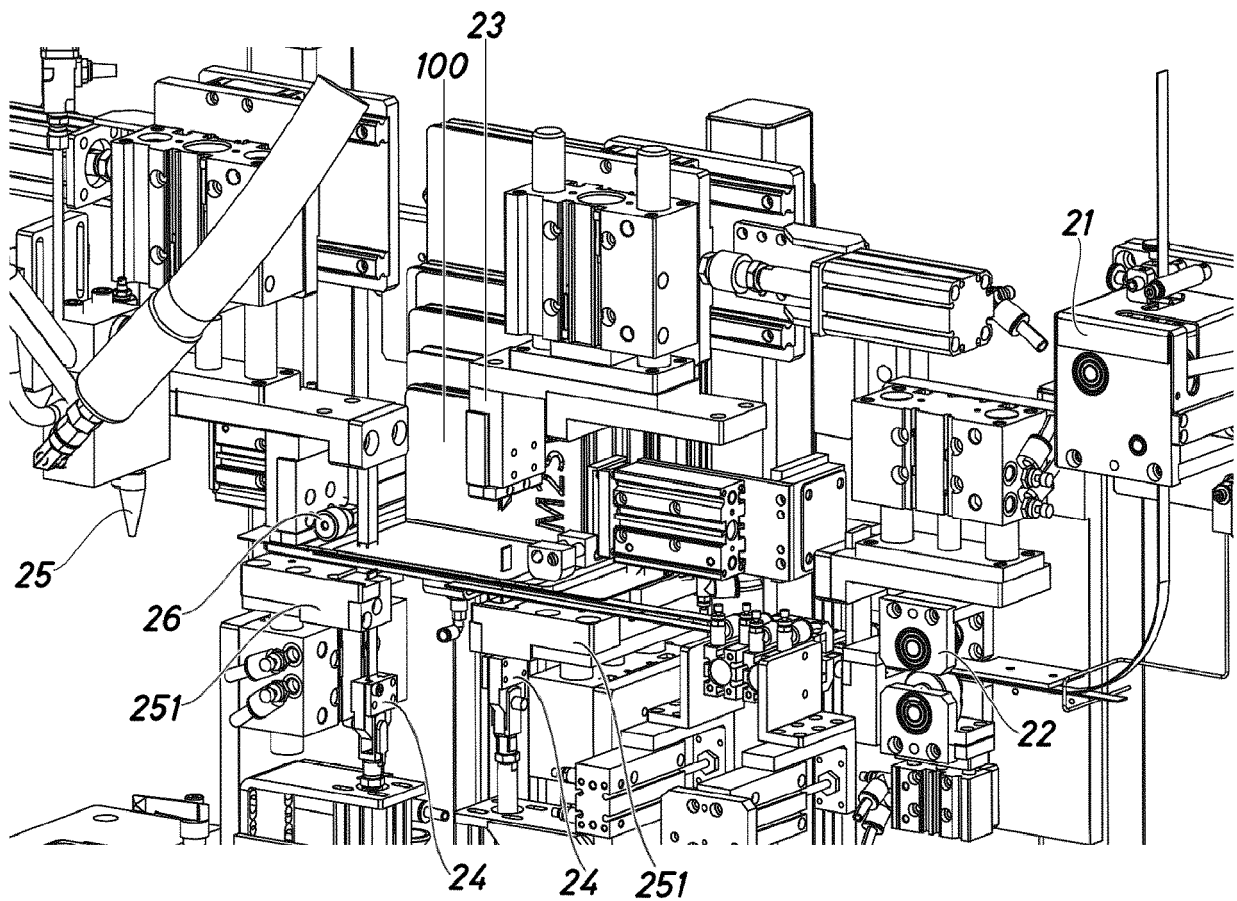


Fig.3

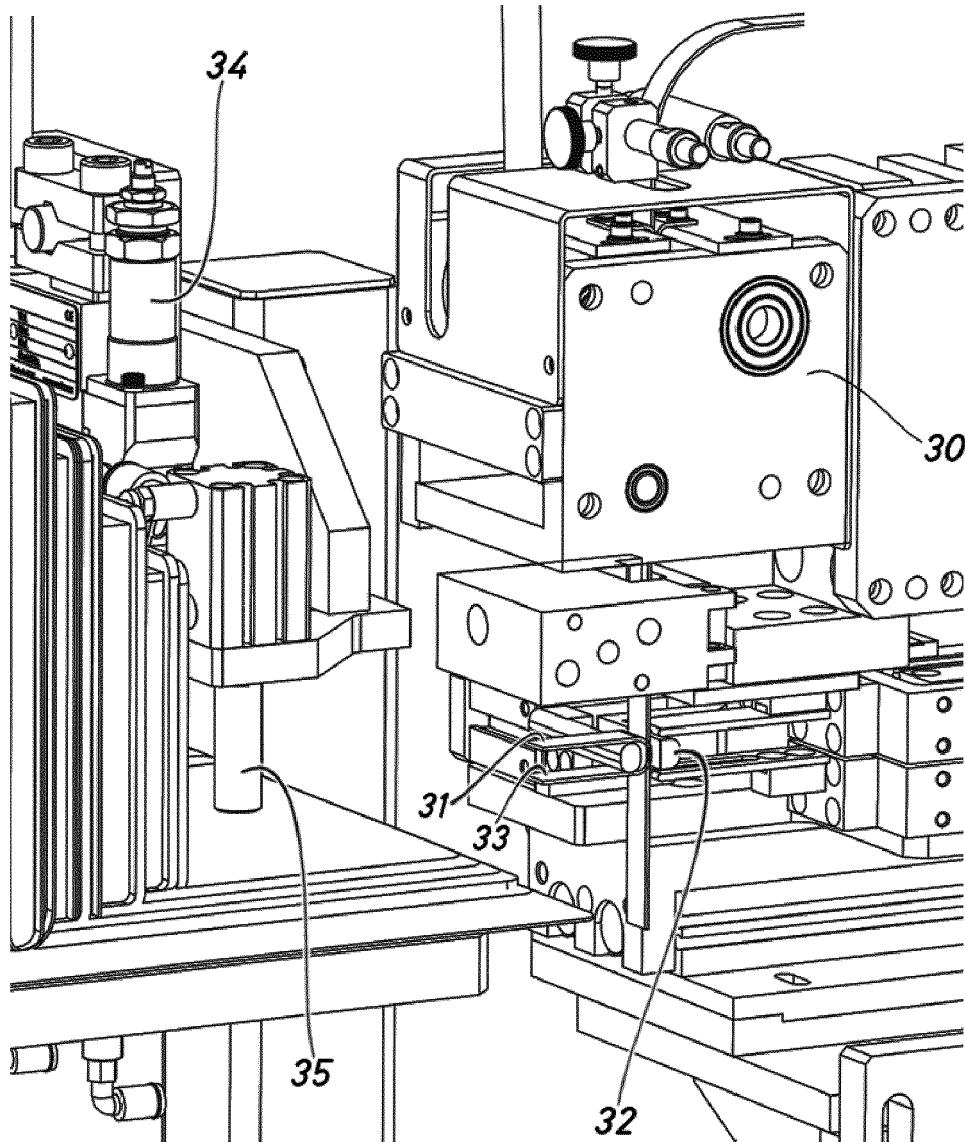


Fig.4

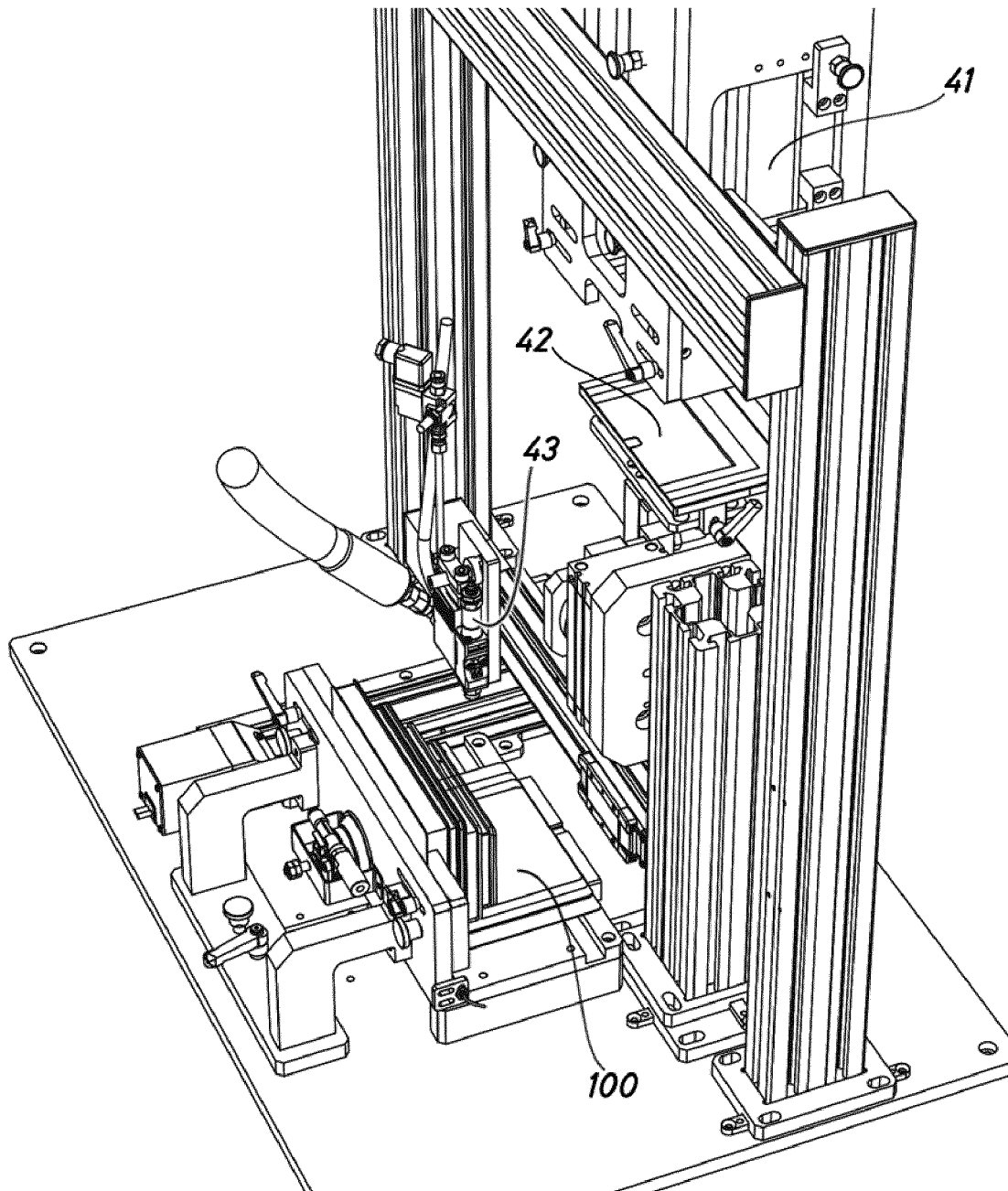


Fig.5

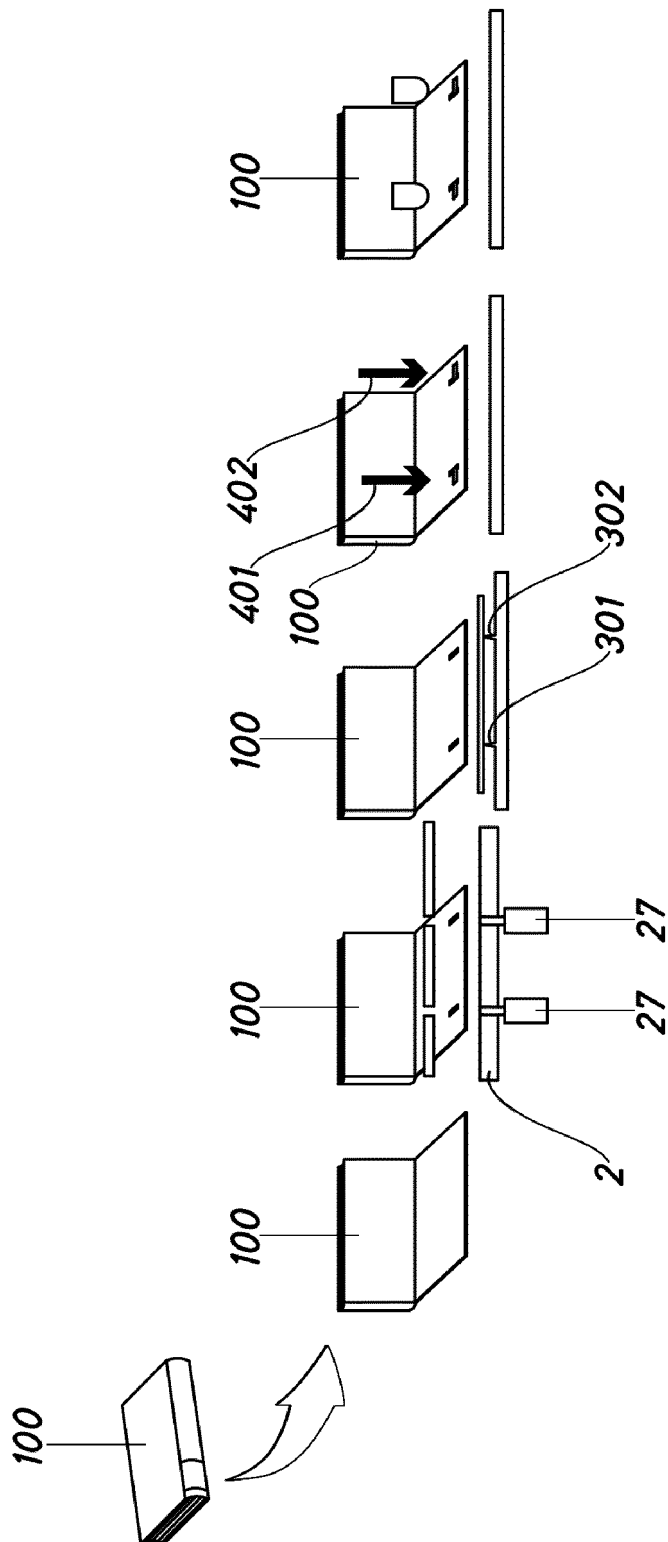


Fig.6

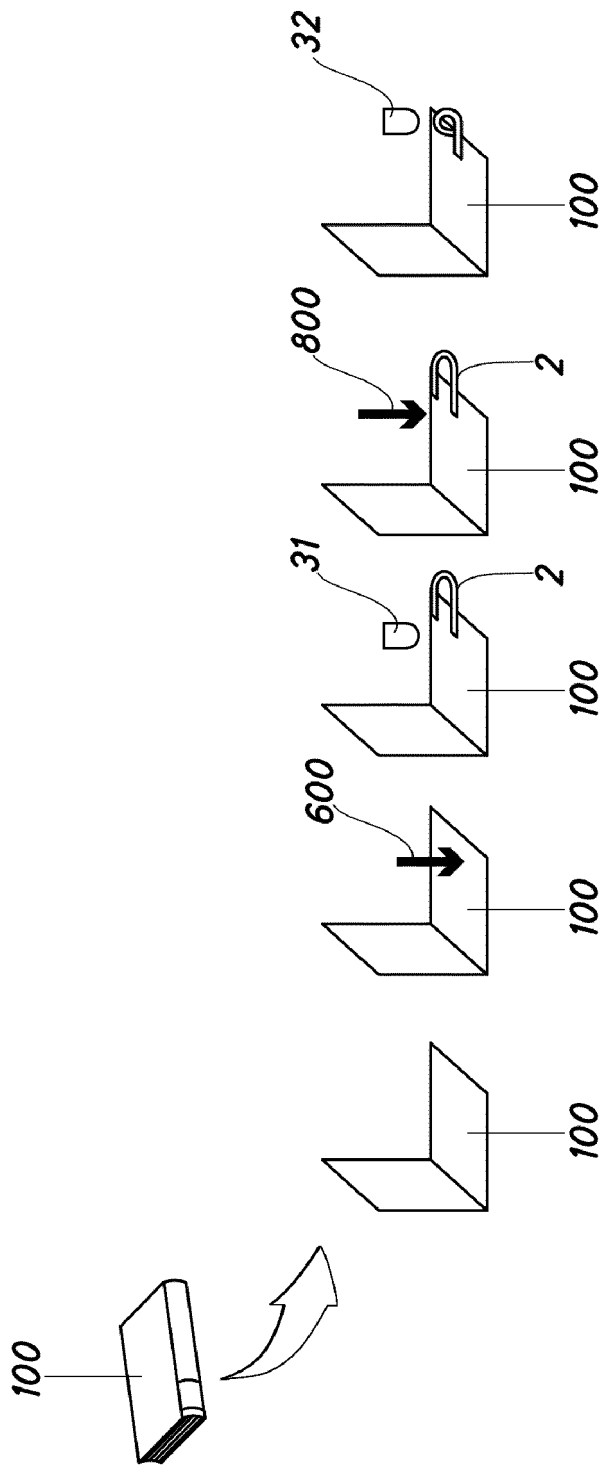


Fig.7



EUROPEAN SEARCH REPORT

 Application Number
 EP 16 38 2171

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EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y,D	WO 2011/085972 A1 (QUEHL ALEXANDER [DE]) 21 July 2011 (2011-07-21) * page 5, line 4 - page 9, line 29; claims 1-15; figures 1-4 *	1-6,9	INV. B42C7/00 B42C9/02
Y	DE 19 22 432 A1 (MAISON MAME S A D) 5 November 1970 (1970-11-05) * page 2, line 28 - page 9, line 37; claim 1; figures 1-3 *	1-6,9	
Y,D	WO 2010/136226 A2 (QUEHL ALEXANDER [DE]) 2 December 2010 (2010-12-02) * page 10, line 18 - page 11, line 27; claims 1,17,19; figures 1-2 *	1-6,9	
A	FR 2 767 745 A1 (LIEUTARD MARIE FRANCE [FR]) 5 March 1999 (1999-03-05) * the whole document *	1-20	
			TECHNICAL FIELDS SEARCHED (IPC)
			B42C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 14 October 2016	Examiner Seiler, Reinhold
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ON EUROPEAN PATENT APPLICATION NO.**

EP 16 38 2171

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14-10-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2011085972 A1	21-07-2011	CA 2781847 A1	21-07-2011
		EP 2343197 A1	13-07-2011
		RU 2012134325 A	20-02-2014
		US 2013099472 A1	25-04-2013
		WO 2011085972 A1	21-07-2011
DE 1922432 A1	05-11-1970	NONE	
WO 2010136226 A2	02-12-2010	BR PI1015072 A2	19-04-2016
		CA 2759024 A1	02-12-2010
		DK 2255974 T3	30-09-2013
		EP 2255974 A1	01-12-2010
		EP 2626214 A1	14-08-2013
		ES 2428002 T3	05-11-2013
		RU 2011153774 A	10-09-2014
		US 2012067942 A1	22-03-2012
		WO 2010136226 A2	02-12-2010
FR 2767745 A1	05-03-1999	NONE	

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- ES 2030520 T3 [0004] [0005]
- FR 2503803 [0005]
- MX 2012008151 A [0007] [0009]
- ES 2428002 T3 [0007] [0008]