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(54) MACHINE FOR POSITIONING EYELETS

(57) Machine for positioning eyelets of the type which have a handle on top and are operated by pressing said handle downwards, thereby cutting a fabric and positioning an eyelet ring in a single movement, said machine, comprising a top sleeve (1) and a bottom sleeve (2), being **characterized in that** the top sleeve has in its centre a projection or punch (3), the free end of which has a double-lipped edge or profile (4) in the form of a half moon. Moreover, in the centre of the free end of the punch (3) of the top sleeve (1) the machine has an adjustable screw (6), and the top sleeve (1), at the point where it is joined to the punch (3), is provided with a thickened portion (5).

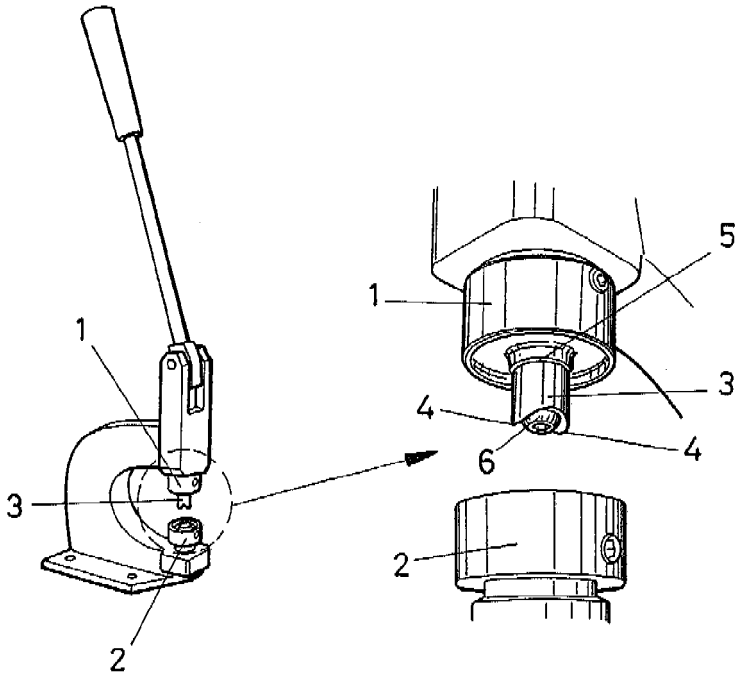

FIG.1

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Description

OBJECT OF THE INVENTION

[0001] The present invention, as title of the present specification states, is intended to provide a machine for positioning eyelets or eyelet rings that makes the cut and positioning the eyelet ring in a single movement, whereby it is provided with a special design for the sleeve system.

[0002] Another object of the present invention is to provide a simple and economical construction machine that minimizes the number of pieces involved.

TECHNICAL FIELD OF THE INVENTION

[0003] As seen in the previous section, the present invention finds application within the textile and clothing industries, as well as within leatherworks, footwear, awnings, tarps, sport bags, nautical clothing, etc.

[0004] In addition, it is particularly noteworthy its application in plastic tarps of the type used in advertising.

BACKGROUND TO THE INVENTION

[0005] Currently, in order to cut a fabric and positioning an eyelet ring in a single movement is necessary to have machines sleeve system of which is provided with a double shaft with an eccentric system that allows, depending on the position in which said eccentric system is, actuates on one or the other shaft. These systems require a number of pieces for functioning.

[0006] In addition, said machines have a top sleeve and a bottom sleeve and both have a central hole, so that through the central hole of the top sleeve a punch, which has been previously wrapped in a spring that will allow the operation of the punch.

[0007] The present invention has been developed to avoid using a number of pieces, so that it proposes simplifying the sleeve system and thus simplifying the machine to be used, reducing construction and maintenance costs.

DESCRIPTION OF THE INVENTION

[0008] The objective of the present invention is therefore to provide a machine for positioning eyelets that has a simplified sleeve system such that allows cutting a fabric or sheet and positioning a ring eyelet In a single movement, i.e. in a same function, while reducing the number of pieces involved.

[0009] This is a machine, preferably manual, of the type which has a handle at the top and is operated by pressing down said handle. Even though there has been represented a preferred embodiment of the machine that is manual and actuated by pressing down its handle, embodiments in which the machine may be actuated by automatic means for moving its elements, such as pneumatic cylinders or motor means, are not discarded.

[0010] In order to achieve the proposed objective, the machine described by the present invention has a top sleeve and a bottom sleeve, and is **characterized in that** the top sleeve has in its center has a bulge or projection, preferably with cylindrical shape, which will so-called punch, which has at its free end a double-lipped edge or profile, i.e. shaped like a half moon.

[0011] Also, said punch is provided, in the center of the free end, with an adjustable screw that allows improving the attack on the surface to be cut, when contacting with said surface, thus allowing it to be curved downwards achieving larger circular cut.

[0012] In turn, the bottom sleeve has a hole in its center, exterior of which is finished in a curve.

[0013] In addition, the top sleeve is provided with a thickened portion at the point where is joined to the punch, which allows the setting of the piece that will form the eyelet.

[0014] Thus, it is achieved that, with the same downward movement of the machine handle, the punch of the top sleeve penetrates into the hole of the bottom sleeve so as to cause the cutting of fabric or sheet to be eyeleted, while the contact with the piece that will form the eyelet, previously arranged in the thickened portion of the top sleeve, with the hole of the bottom sleeve finished as a curve, causing the eyelet positioning.

[0015] The number of pieces involved in the sleeve system is thus reduced. This reduction results in lower production and maintenance costs.

[0016] It should be noted that although the present invention describes the cylindrical punch, alternative embodiments showing various forms of the punch, of the top sleeve are not discarded. However, the hole of the bottom sleeve should have a shape such that the punch of the top sleeve can pass through it.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The present invention will be fully understood on the basis of the brief description below and the accompanying drawings, which are presented only by way of example, and thus are not restrictive in the present invention and wherein:

Figure 1 is a perspective view of the machine of the present invention, in which the detail of the claimed sleeve system has been enlarged,

Figure 2 shows an enlarged perspective view of the sleeve system of the present invention, in which the top sleeve has been slightly rotated to allow a perspective view from below and the bottom sleeve has been rotated to allow a perspective view from above;

Figure 3 represents a sectional view of the cut A-A of the previous figure 2; and

Figure 4 shows an exploded perspective view of the sleeve system of a traditional machine existing in the state of the art.

[0018] In these figures are reference numbers that identify the following elements:

1: top sleeve
2: bottom sleeve
3: projection o punch of the top sleeve
4: double-lipped edge or profile
5: thickened portion of the top sleeve
6: adjustable screw
7: curved finishing of the hole of the bottom sleeve
8: hole of the bottom sleeve
1': top sleeve of the prior art
2': bottom sleeve of the prior art
3': punch of the prior art that enters into the top sleeve
9: spring of the prior art surrounding the punch that enters into the top sleeve
10: surface to be cut and eyeleted
11: eyelet ring to be positioned.

DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0019] In order to obtain a better understanding of the purpose and functionality of this patent, and without being construed as restrictive solutions, a description of an embodiment of the invention is made bellow based on the figures previously mentioned.

[0020] Thus, Figure 1 shows a perspective view of the machine for positioning eyelets of those of manual type, which have a handle at the top and are operated by pressing said handle down. Thus, the machine can cut a fabric or sheet and position an eyelet ring in a single movement.

[0021] Said machine comprises a sleeve system, expanded in Figure 1 and also depicted in Figure 2 consisting of a top sleeve (1) and a bottom sleeve (2), and is **characterized in that** the top sleeve (1) has in its center a projection or punch (3) the free end of which has a double-lipped edge or profile (4), i.e. which profile has a half moon shape that is clearly seen in Figure 3, which represents a sectional view of the sleeve system.

[0022] Also in Figure 3 can be clearly distinguished that in the center of the free end of the punch (3) of the top sleeve (1) an adjustable screw (6) is provided, it is used so as to make the surface to be cut and eyeleted (10) to curve downward during the downward movement of the machine handle, so as to achieve a larger circular cut.

[0023] Furthermore, the same figure shows that in the top sleeve (1), at the point where is joined to the punch (3), a thickened portion (5) that allows setting the piece that will form the eyelet is practiced, so that, with the same downward movement of the machine handle, the cut of the surface to be cut and eyeleted (10) is achieved while achieving to position the eyelet.

[0024] Figure 3 also shows that the bottom sleeve (2) has in its center a hole (8) exterior of which is finished in a curve (7), which finishing will make contact with the piece that will form the eyelet, previously arranged in the thickened portion (5) of the top sleeve (1), thus allowing the positioning of the eyelet. Finally, in Figure 3, has been hinted in a discontinued line an example for positioning a ring eyelet (11), retained in the thickened portion (5) of the top sleeve (1).

[0025] Figure 4 is an exploded perspective of a traditional sleeve system provided with a top sleeve (1'), a bottom sleeve (2'), a punch (3') as a separate part of the top sleeve (1') that is positioned within said top sleeve (1') and free end of which has a substantially straight finishing. In addition, the system is provided with a spring (9) surrounding the punch (3') prior to the positioning of the punch (3') in the top sleeve (1').

Claims

1. Machine for positioning eyelets, of the type which have a handle on top and are operated by pressing said handle downwards, which allows cutting a fabric and positioning an eyelet ring in a single movement, said machine, comprising a top sleeve (1) and a bottom sleeve (2), being **characterized in that** the top sleeve (1) has in its centre a projection or punch (3), the free end of which has a double-lipped edge or profile (4) in the form of a half moon.

2. Machine for positioning eyelets, according to claim 1, **characterized in that** in the center of the free end of the punch (3) of the top sleeve (1) an adjustable screw (6) is arranged.

3. Machine for positioning eyelets, according to claim 2, **characterized in that** in the top sleeve (1), at the point where It is joined to the punch (3), a thickened portion (5) is provided.

4. Machine for positioning eyelets, according to claim 3, **characterized in that** the bottom sleeve (2) has in its center a hole (8) capable to house the punch (3) of the top sleeve (1), exterior of which is finished in a curve (7).

5. Machine for positioning eyelets, according to any one of the preceding claims, **characterized in that** it is actuated by automatic means.

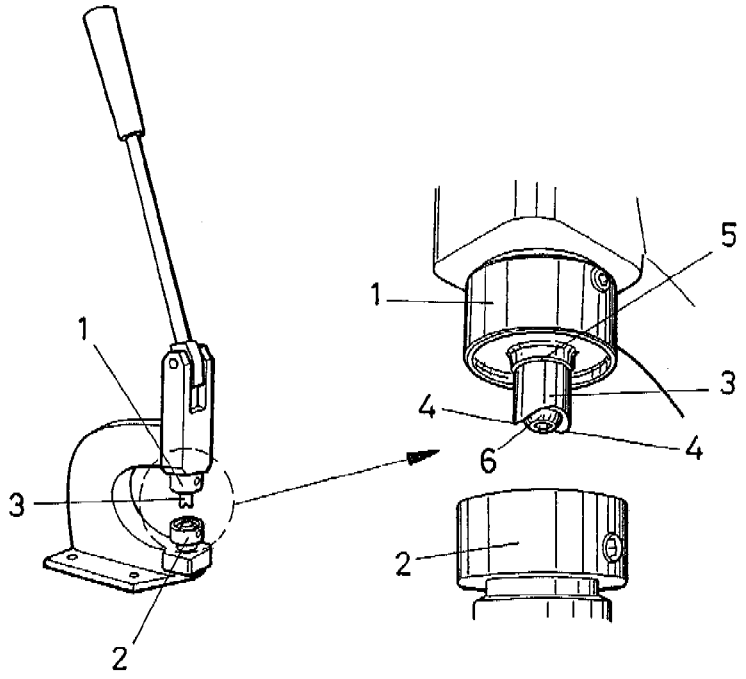


FIG.1

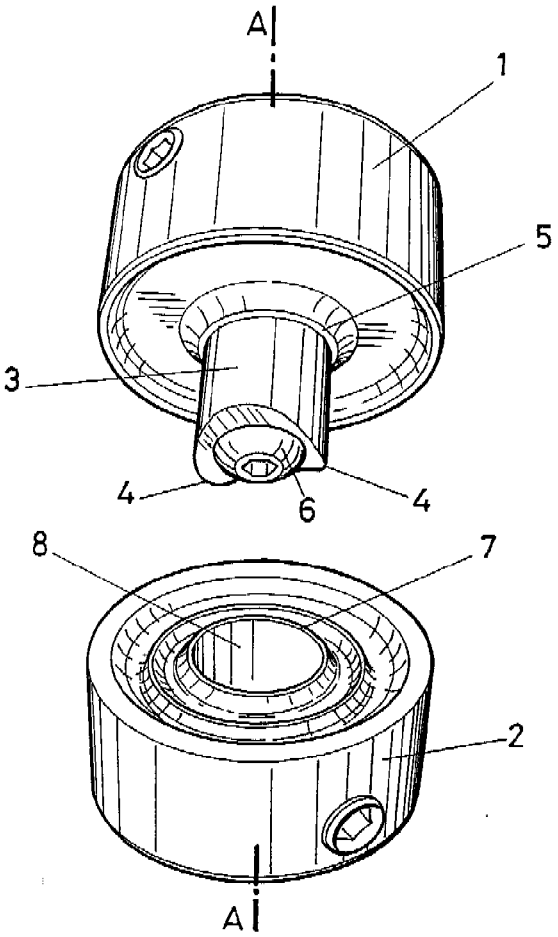
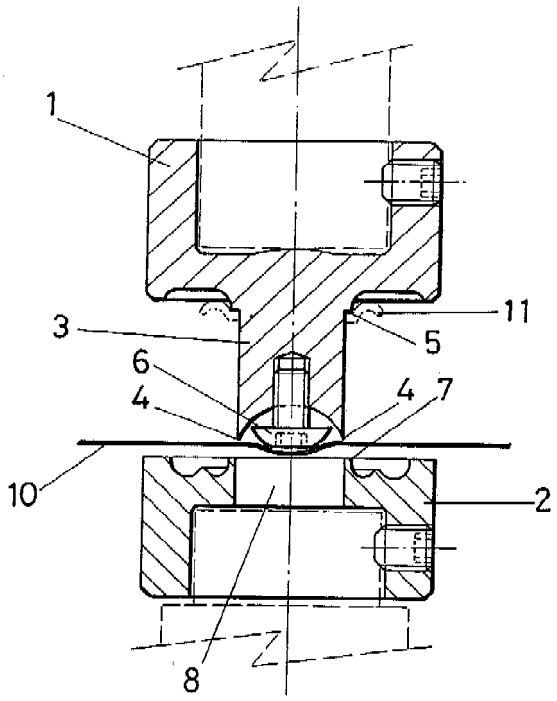


FIG.2



A-A

FIG.3

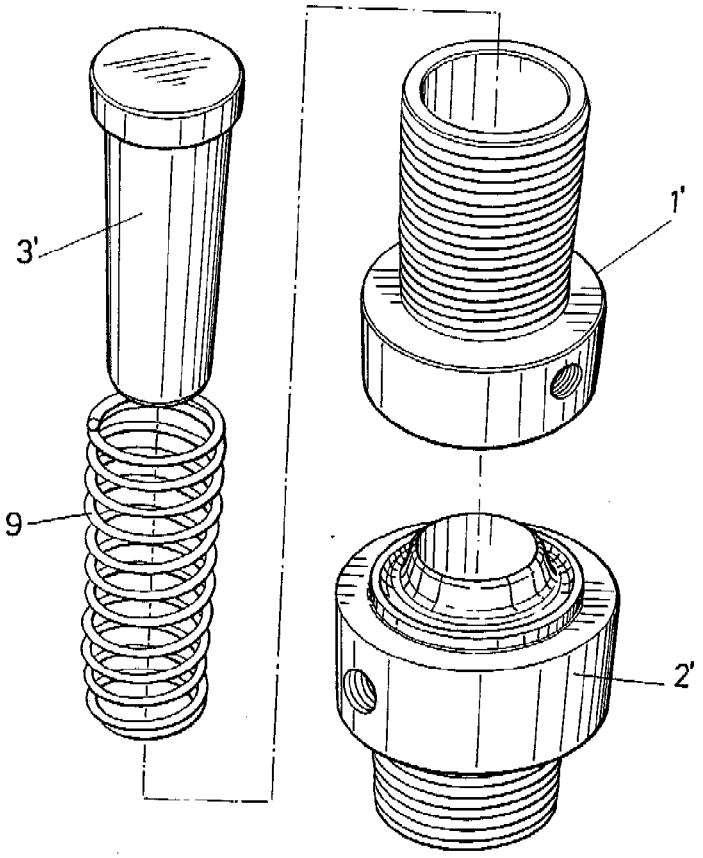


FIG.4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ ES 2008/000815

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)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 9078328 A (YAMANA CO) 25.03.1997, abstract; figures.	1-5
X	JP 60004536 U 14.01.1985, figures.	1-5
X	JP 60020533 U 13.02.1985, figures.	1-5
X A	US 2445761 A (CASTLE et al.) 27.07.1948, the whole document.	1,5 3,4
A	ES 460510 A1 (USM CORP) 16.05.1978, page 9, line 12 - page 13, line 26; figures.	1,3-5

☐ 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
08 May 2009 (08.05.2009)	**(12/05/2009)**
Name and mailing address of the ISA/ O.E.P.M. Paseo de la Castellana, 75 28071 Madrid, España. Facsimile No. 34 91 3495304	Authorized officer A. Hoces Diez Telephone No. +34 91 349 53 71

Form PCT/ISA/210 (second sheet) (July 2008)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/ ES 2008/000815

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
JP 9078328 A	25.03.1997	NONE	----------
JP 60004536 A	11.01.1985	NONE	----------
JP 60020533 A	01.02.1985	NONE	----------
US 2445761 A	27.07.1948	NONE	----------
ES 460510 A	16.05.1978	FR 2356386 A IT 1084378 B	27.01.1978 25.05.1985

Form PCT/ISA/210 (patent family annex) (July 2008)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ ES 2008/000815

CLASSIFICATION OF SUBJECT MATTER

A41H 37/02 (2006.01)
A43D 100/02 (2006.01)

Form PCT/ISA/210 (extra sheeet) (July 2008)