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(54) **Precision-stitch sewing machine for applying a tubular welt to an edge of a knitted or woven fabric or the like**

Präzisionsnähmaschine zum Ansetzen eines schlauchförmigen Bundes an den Rand eines gestrickten oder gewebten Stoffes oder dgl.

Machine à coudre de précision pour le montage d'une bordure tubulaire au bord d'un tricot, un tissu ou analogue

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US-A- 3 658 020 **US-A- 3 811 391**

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Description

[0001] The present invention relates to a precision-stitch sewing machine for applying a tubular welt along a predetermined sewing line to an edge of a knitted or woven fabric or the like, according to the preamble of Claim 1.

[0002] The edges of a garment are generally finished in a so-called edging operation in which a knitted, woven or other welt is applied to the edge that is to be finished.

[0003] The edging operation can be performed on linking machines, which give a high-quality finish to the edge. However, these machines not only require specialist workers but also have the disadvantage that linking each welt takes a large amount of time. As a result it is uneconomical to use them except for higher-value garments.

[0004] The edging operation can also be carried out on precision-stitch sewing machines which pass a strip welt through a folding unit that folds the strip around the edge before it is sewn in place. This allows the strip welt to be applied to the edge quickly and cheaply as a simulation of the linked version.

[0005] The precision and quality of the finishes obtained with precision-stitch sewing machines is, however, poorer than the precision and quality of the finishes obtainable with linking machines, so there is resistance to the use of precision-stitch sewing machines for edging for the more expensive, higher-quality garments, on which even very small imperfections are unacceptable. In particular, the presence of imperfections is due to the difficulty of maintaining precise and constant positioning, with respect to the sewing line, of the edges of the strip welt that is folded during its advance towards the sewing area. The problem arises from the fact that even if these machines are carefully fitted with walls to guide and frontally press the edges of the folded welt into position, these edges are liable to shift relative to the sewing line as they advance towards the sewing area, and the only way of containing these shifts is to increase the tension at which the strip welt is pulled towards the sewing area. Clearly, this tension cannot be raised too high if the welt is not to be damaged.

[0006] Furthermore the need to conceal the edge of the strip welt inside the seam, at least on the outside of the garment, in order to improve the outward appearance of the trim, makes it necessary to use strip welts having one edge already turned in.

[0007] It is possible to solve the abovementioned problems by using a tubular type of welt rather than the strip type, as a tubular welt folded around the edge that is to be finished forms a firmer structure less likely to shift out of the sewing line than the kind of structure obtainable by folding a single strip welt, in which the edges are essentially independent of each other. The use of a tubular welt consequently means that the latter can be positioned relative to the sewing line and guided through the sewing area with greater precision.

[0008] However, the use of these tubular welts has not become widespread because the precision-stitch sewing machines currently used are unable to fold tubular welts satisfactorily around the fabric edge, and it would be absurd to consider applying them manually on conventional sewing machines in the context of industrial-scale production.

[0009] It should be emphasized, too, that trims for the edges of garments such as, for example, double-face garments or cardigans, where both the outside and inside of the article must have a finish of a high standard, there is a need to be able to use tubular-type welts.

[0010] Document US 3,811,391 discloses a sewing machine according to the preamble of claim 1, comprising a sewing guide apparatus particularly adapted for guiding the edge of a first fabric and the closed tubular end of a second fabric to the sewing needle in a manner such that the first fabric edge is overlapped on both sides thereof by double layers of the folded tubular end of the second fabric. The sewing guide apparatus comprises a first guide member having enlarged tapered head portion and a pair of rearwardly extending prongs defining an elongated opening therebetween.

[0011] The above mentioned sewing machine has the drawback that different sewing guide apparatus have to be used if tubular welt of different diameter are to be folded.

[0012] The problem upon which the present invention is based is that of devising a machine for carrying out the edging operation whose structural and functional characteristics are such as to satisfy the above need and at the same time to overcome all the problems mentioned with reference to the prior art.

[0013] This problem is solved by a precision-stitch sewing machine according to Claim 1.

[0014] Said parting means advantageously include a fork component, over which the tubular welt is fitted and advanced, having two rods that diverge in said direction, that is approximately perpendicular to the support plate, in the direction of advance of the tubular welt.

[0015] Other characteristics and advantages of the machine of the present invention will appear in the following description of a preferred example of an embodiment thereof. This description is provided for non-limiting illustrative purposes and refers to the accompanying figures, in which:

- Figure 1 is a perspective view of a perfect-stitch sewing machine of the invention,
- Figure 2 is a perspective view of an enlarged detail from Figure 1,
- Figure 3 is a simplified side view of a number of components of the machine shown in Figure 1,
- Figure 4 is a section on the plane marked IV-IV in Figure 3,
- Figure 5 is a section on the plane marked V-V in Figure 3,
- Figure 6 is a section on the plane marked VI-VI in

Figure 3, and

- Figure 7 is a perspective view of a component of the machine of Figure 1.

[0016] With reference to the attached figures, 1 is a general reference for a precision-stitch sewing machine in accordance with the invention for applying a tubular welt 2 to an edge 3, which may for example be the waste band of a sweater.

[0017] The tubular welt 2 preferably includes an elasticized insert 2a extending axially along the full length of the welt and a border 2b positioned diametrically opposite the elasticized insert 2a.

[0018] The machine 1 includes a horizontal work surface 5 supported by a frame of the machine 1. The work surface 5 is fitted with: a sewing unit 6, a feed unit 7 for feeding the edge 3 to which the welt is to be applied, entrainment means 8 for the tubular welt 2 and a folding unit 9 for folding the tubular welt 2 around the edge 3.

[0019] The sewing unit 6 includes a vertical column from which extends an overhanging sewing head 10. A bar 11 projects from the free end of the sewing head 10 towards the work surface 5 in a vertical direction Z-Z. The bar 11 is made to reciprocate in the vertical direction Z-Z by an electric motor with which the machine 1 is equipped and to which the bar 11 is kinematically connected. Mounted in the bottom end of the bar 11 is a needle 12 pointing in the vertical direction Z-Z.

[0020] Below the sewing head 10, the work surface 5 supports, parallel with itself, a support plate 13 of a type known per se for supporting the tubular welt 2. A vertical through hole in the support plate 13 allows the needle 12 to descend during sewing.

[0021] Between the sewing head 10 and the support plate 13 is a sewing area 15 through which the tubular welt 2 advances following a sewing line X-X from the folding unit 9 towards the entrainment means 8 in order to be sewn onto the edge 3 by the needle 12, as will become clearer in the course of the description. The sewing line X-X is parallel to the support plate 13 and passes through the vertical line Z-Z on which the needle 12 lies.

[0022] Leading into the sewing area 15, the machine 1 includes means 14 known per se such as guides and walls for guiding the tubular welt 2 during its advance along the sewing line X-X.

[0023] The support plate 13 is basically rectangular and is oriented so as to present a first side parallel to the sewing line X-X at a limited predetermined distance therefrom.

[0024] The entrainment means 8 for the tubular welt 2 include a pair of contrarotating rollers 17 mounted in bearings in the frame on respective parallel axes of rotation extending in a direction Y-Y perpendicular to the sewing line X-X parallel to the support plate 13. With reference to the direction of advance of the tubular welt 2, the rollers 17 are positioned downstream of the sewing area 15, one above the other close to one side of

the support plate 13 running the direction Y-Y to allow the tubular welt 2 leaving the sewing area 15 to pass between them. Via a known type of mechanical drive, not illustrated in the figures, the rollers 17 are turned by the motor of the machine 1 in order to draw the tubular welt 2 from the folding unit 9 and advance it along the sewing line X-X.

[0025] The unit 7 that feeds the fabric edge 3 includes a flat belt 18 running around a plurality of drive rollers 4 in a closed path that includes a straight portion R parallel to the sewing line X-X and adjacent to the abovementioned first side of the support plate 13 so as to be coplanar with it. The drive rollers 4 of the flat belt 18 are mounted in bearings in the frame of the machine 1 and are turned by the latter's motor in order to advance the flat belt 18 along the abovementioned straight portion R in the same direction in which the tubular welt 2 advances along the sewing line X-X.

[0026] The folding unit 9 includes parting means for opening up the tubular welt 2 in a direction that is approximately perpendicular to the support plate during its advance and deflecting means for folding the opened tubular welt around the edge before it reaches the sewing area 15.

[0027] The abovementioned parting means preferably include a fork component 19, over which the tubular welt is fitted and advanced, having a head 16 to which there are connected, by a hinge connection, two rods 20 extending in the direction of advance of the tubular welt 2. A spring 21 fitted to the head 16 acts on the rods 20 of the fork component 19 to push them elastically apart.

[0028] The fork component 19 is inserted between and held in position between opposing upper and lower pressing and guiding components 22 forming part of the folding unit 9 and arranged symmetrically about the support plate 13. These pressing and guiding components 22 extend in the direction of advance of the tubular welt 2 and diverge from each other in the direction Z-Z perpendicular to the support plate 13, beginning at an entry point of the tubular welt 2 that is located between initial ends 23 of the pressing and guiding components 22.

[0029] At the initial ends 23, the pressing and guiding components 22 are supported by the frame of the machine 1 in such a way that the angle A at which they are inclined to the support plate 13 can be varied.

[0030] The fork component 19 is positioned between the pressing and guiding components 22 so that the rods 20 are pushed apart by the spring 21 in the vertical direction Z-Z so that they push against the pressing and guiding components 22 and the head 16 projects from the entry point situated between the initial ends 23 of the pressing and guiding components 22. Consequently in the vertical direction Z-Z, the fork component 19 is positioned with its centre line level with the support plate 13.

[0031] In order to ensure that the fork component 19 is not pulled along by the tubular welt 2 during its ad-

vance, the head 16 has a larger cross-section than the entry point.

[0032] In the zone of contact with the initial ends 23 of the pressing and guiding components 22, the head 16 of the fork component 19 includes rollers 24 mounted so as to rotate about an axis parallel to the direction Y-Y to facilitate the forwarding of the tubular welt 2.

[0033] It should be emphasized that by varying the angle of the pressing and guiding components 22 with respect to the support plate 13, it is possible to adjust the opening of the rods 20 of the fork component 19.

[0034] In the example in question, each pressing and guiding component 22 comprises at said initial end 23 a collar 25 mounted coaxially on a sleeve 26 that is supported by the frame of the machine 1 parallel to the axis Y-Y. A screw clamp system, known per se, is used to fix the collar 25 relative to the sleeve 26 so that, while the machine 1 is in operation, the angle of inclination at which the pressing and guiding component 22 is set relative to the support plate 13 cannot change.

[0035] Each pressing and guiding component 22 comprises pulleys 27 at each of its ends. The axes of rotation of these pulleys are parallel to the direction Y-Y. Circular-sectioned feed belts 28 run around these pulleys and their purpose is to press against the rods 20 of the fork component 19. The pulley 27 at the initial end 23 of each pressing and guiding component 22 is fixed to the end of a shaft 29 supported coaxially inside the sleeve 26 and turned by the motor of the machine 1 via a mechanical drive which is not illustrated in the figure.

[0036] Along the surfaces of the rods 20 that face the belts 28 there are preferably recesses 30 in which the belts 28 fit.

[0037] The abovementioned deflecting means of the folding unit 9 include a rod 31 supported level with the support plate 13 by the frame of the machine 1 so that its position with respect to the sewing line X-X can be adjusted in the direction Y-Y. This rod 31 acts, parallel to the support plate 13, by means of one end 32 on the centre line of the tubular welt 2 fitted over the fork component 19, causing this tubular welt 2 to fold along the sewing line X-X in such a way as to produce a concavity pointing towards the straight portion R of the flat belt 18. This makes it possible to fold the tubular welt 2 with great precision around the edge 3 transported by the flat belt 18, as the rest of the description will demonstrate more clearly.

[0038] With reference to the accompanying figures, as the machine 1 operates, the tubular welt 2 emerging from the folding unit 9 is folded, by the action upon it of the rod 32, around the edge 3 carried by the flat belt 18 (Fig. 6), through the sewing area 15 and advancing along the sewing line X-X. After being sewn it passes between the contrarotating rollers 17 which draw it along.

[0039] Upstream of the folding unit 9 (Fig. 4) the tubular welt 2 is arranged so that its elasticized insert 2a is towards the flat belt 18.

[0040] In the folding unit 9 (Fig. 5) the tubular welt 2 is fitted over the fork component 19 in such a way as to pass between the rods 20 and the belts 28 of the pressing and guiding components 22, which are rotated so as to help in forwarding the tubular welt 2. As it advances along the fork component 19, the tubular welt 2 is opened up in the direction perpendicular to the support plate 13.

[0041] As stated earlier, the greater cross-section of the head 16 compared to the entry point situated between the initial ends 23 of the pressing and guiding components 22 prevents the fork component 19 from being drawn along with the tubular welt 2 towards the sewing area 15, while the rollers 24 of the head 16 facilitate the insertion of the tubular welt 2 between the fork component 19 and the pressing and guiding components 22.

[0042] By altering the angle of inclination of the pressing and guiding component 22 with respect to the support plate 13, it is possible to adjust the opening of the rods 20 of the fork component 19 in order to adapt it to the diameter of the tubular welt 2. The elasticized insert 2a advantageously protects the tubular welt 2 from damage should the fork component 19 exert an excessive parting action.

[0043] At the exit from the folding unit (Fig. 6), the end 32 of the rod 31 acts on the elasticized insert 2a of the tubular welt 2 in order to fold the tubular welt 2 around the edge 3. The elasticized insert 2a is advantageously thinner than the rest of the tubular welt 2 so that the lump formed by the part of the tubular welt 2 folded around the edge 3 is as small as possible.

[0044] As the description will have demonstrated, the precision-stitch sewing machine according to the invention satisfies the abovementioned need without having the problems presented by the machines of the prior art. Thus the folding unit of the sewing machine according to the invention is able to fold the tubular welt around the fabric edge with precision, making it possible to produce a quality finish of the welt. It should also be remembered that folding a tubular welt instead of a strip welt around the edge of the fabric produces a firmer structure that is not only easier to control as it is advanced towards the sewing area but also has less tendency to shift out of the sewing line.

[0045] Another advantage of the precision-stitch sewing machine according to the invention is its adjustability, which enables it to be adjusted to tubular welts of different measurements.

[0046] The precision-stitch sewing machine according to the present invention is capable of applying tubular welts to edges simply and quickly, while at the same time guaranteeing a high quality of the resulting finish on both sides of the join.

[0047] A further advantage of the precision-stitch sewing machine according to the invention is that it is structurally and functionally simple, making it reliable in operation.

[0048] Obviously, in order to satisfy any particular need, a person skilled in the art will be able to make many modifications to and variants of the precision-stitch sewing machine described above, all of which will however come within the scope of protection of the invention as defined by the following claims.

Claims

1. Precision-stitch sewing machine (1) for applying a tubular welt (2) along a predetermined sewing line (X-X) to an edge (3) of a knitted or woven fabric or the like, of the type that includes:

- a sewing area (15) in which the tubular welt (2) is applied to the edge (3),
- a support plate (13) for supporting the tubular welt (2) in the sewing area (15), and
- entrainment means (8) for the tubular welt (2),
- a folding unit (9) comprising parting means (19) for opening up the tubular welt (2) in a direction (Z-Z) approximately perpendicular to the support plate (13) as it advances and deflecting means (31) for folding the opened tubular welt (2) around the edge (3),

wherein said parting means include a fork component (19), over which the tubular welt (2) is fitted and advanced, having two rods (20) extending in the direction of advance of the tubular welt (2) and diverging in said direction (Z-Z),

characterized in that:

- these entrainment means (8) are positioned downstream of the sewing area (15) with reference to the direction of advance of the tubular welt (2) along the sewing line (X-X),
- said fork component (19) includes a head (16) to which said rods (20) are connected by a hinge connection, and
- spring means (21) act on said rods (20) to push them apart in said direction (Z-Z) against opposing upper and lower pressing and guiding components (22) which are supported by the machine in such a way that the angle (A) at which they are inclined to the support plate (13) can be varied.

2. Machine (1) according to Claim 1, in which said folding unit (9) includes opposing upper and lower pressing and guiding components (22) that extend in the direction of advance of the tubular welt (2) and diverge from each other in said direction (Z-Z), that is approximately perpendicular to the support plate (13), from a tubular welt (2) entry point, the fork component (19) being inserted and held in position between said pressing and guiding compo-

nents (22) with the head (16) projecting from said entry point and the head (16) of the fork component (19) having a greater cross-section than said entry point in order to prevent the fork component (19) from being drawn in by the tubular welt (2) as it advances.

3. Machine (1) according to Claim 2, in which, at said entry point, each pressing and guiding component (22) has a first end (23) about which it is supported so as to be angularly adjustable with respect to the support plate (13).

4. Machine (1) according to Claim 2, in which each of said opposing pressing and guiding components (22) includes feed belts (28) driven round by respective pulleys (27) to assist in feeding the tubular welt (2) over the fork component (19).

5. Machine (1) according to Claim 4, in which said rods (20) of the fork component (19) include recesses (30) in which said belts fit and slide.

6. Machine (1) according to Claim 4, in which the head (16) of the fork component (19) includes rollers (24) able to revolve in order to assist the feeding of the tubular welt (2) through the zone of contact with the initial end (23) of each of said opposing pressing and guiding components (22).

7. Machine (1) according to Claim 1, in which said deflecting means include a rod (31) of which one end (32) acts on the opened tubular welt (2) parallel to the support plate (13) to fold the tubular welt (2) around the edge (3).

Patentansprüche

1. Präzisionsstich-Nähmaschine (1) zum Anbringen eines Schlauchsaums (2) entlang einer vorbestimmten Nählinie (X-X) an einer Kante (3) eines gewirkten bzw. gewebten Gewebes oder ähnlichem, des Typs, welcher umfaßt:

- einen Nähbereich (15), in welchem der Schlauchsaum (2) an der Kante (3) angebracht wird,
- eine Tragplatte (13) zum Tragen des Schlauchsaums (2) in dem Nähbereich (15), und
- eine Mitnahmeeinrichtung (8) für den Schlauchsaum (2),
- eine Falteinheit (9), umfassend eine Trenneinrichtung (19) zum Öffnen des Schlauchsaums (2) in einer Richtung (Z-Z), welche etwa lotrecht

zu der Tragplatte (13) verläuft, wenn dieser vorrückt, und eine Ablenkeinrichtung (31) zum Falten des geöffneten Schlauchsaums (2) um die Kante (3),

wobei die Trenneinrichtung ein Gabelement (19) umfaßt, über welches der Schlauchsaum (2) gelegt und vorgerückt wird, welches zwei Stangen (20) aufweist, welche in der Förderrichtung des Schlauchsaums (2) verlaufen und in der Richtung (Z-Z) auseinanderstrebend verlaufen, **dadurch gekennzeichnet, daß:**

- diese Mitnahmeeinrichtung (8) in der Förderrichtung des Schlauchsaums (2) entlang der Nählinie (X-X) hinter dem Nähbereich (15) angeordnet ist,
- das Gabelement (19) einen Kopf (16) umfaßt, mit welchem die Stangen (20) durch eine Gelenkverbindung verbunden sind, und
- eine Federeinrichtung (21) auf die Stangen (20) wirkt, um diese in der Richtung (Z-Z) gegen ein oberes und ein unteres Druck- und Führungselement (22), welche gegenüberliegend angeordnet sind, auseinander zu drücken, welche durch die Maschine in einer derartigen Weise gehalten werden, daß der Winkel (A), in welchem diese gegen die Tragplatte (13) geneigt sind, geändert werden kann.

2. Maschine (1) nach Anspruch 1, wobei die Falteinheit (9) ein oberes und ein unteres Druck- und Führungselement (22), welche gegenüberliegend angeordnet sind, umfaßt, welche von einem Eintrittspunkt des Schlauchsaums (2) ausgehend in der Förderrichtung des Schlauchsaums (2) verlaufen und in der Richtung (Z-Z), welche etwa lotrecht zu der Tragplatte (13) verläuft, auseinanderstrebend verlaufen, wobei das Gabelement (19) zwischen den Druck- und Führungselementen (22) eingefügt und in Position gehalten wird, wobei der Kopf (16) von dem Eintrittspunkt hervorsteht und der Kopf (16) des Gabelements (19) einen größeren Querschnitt als der Eintrittspunkt aufweist, um zu verhindern, daß das Gabelement (19) durch den Schlauchsaum (2) hineingezogen wird, wenn dieser vorrückt.

3. Maschine (1) nach Anspruch 2, wobei jedes Druck- und Führungselement (22) bei dem Eintrittspunkt ein erstes Ende (23) aufweist, an welchem dieses derart angebracht ist, daß es bezüglich der Tragplatte (13) winkeleinstellbar ist.

4. Maschine (1) nach Anspruch 2, wobei jedes der gegenüberliegenden Druck- und Führungselemente

(22) Zuführbänder (28) umfaßt, welche durch jeweilige Laufrollen (27) umlaufend angetrieben werden, um das Führen des Schlauchsaums (2) über das Gabelement (19) zu unterstützen.

5. Maschine (1) nach Anspruch 4, wobei die Stangen (20) des Gabelements (19) Vertiefungen (30) umfassen, in welche die Bänder eingepaßt sind und darin gleiten.

6. Maschine (1) nach Anspruch 4, wobei der Kopf (16) der Gabelkomponente (19) Rollen (24) umfaßt, welche in der Lage sind, sich zu drehen, um das Vorrücken des Schlauchsaums (2) durch den Berührungsbereich mit dem Anfangsende (23) jedes der gegenüberliegenden Druck- und Führungselemente (22) zu unterstützen.

7. Maschine (1) nach Anspruch 1, wobei die Ablenkeinrichtung eine Stange (31) umfaßt, wovon ein Ende (32) auf den geöffneten Schlauchsaum (2) wirkt, welche parallel zu der Tragplatte (13) verläuft, um den Schlauchsaum (2) um die Kante (3) zu falten.

Revendications

1. Machine à coudre de précision (1) pour appliquer une bordure tubulaire (2) le long d'une ligne de couture prédéterminée (X-X) sur un bord (3) d'une étoffe tricotée ou tissée ou analogue, du type qui comprend :

- une zone de couture (15) dans laquelle la bordure tubulaire (2) est appliquée sur le bord (3),
- une plaque d'appui (13) pour supporter la bordure tubulaire (2) dans la zone de couture (15), et
- un moyen d'entraînement (8) pour la bordure tubulaire (2),
- une unité de pliage (9) comprenant un moyen de séparation (19) pour ouvrir la bordure tubulaire (2) dans une direction (Z-Z) sensiblement perpendiculaire à la plaque d'appui (13) au fur et à mesure qu'elle avance et un moyen de déviation (31) pour plier la bordure tubulaire ouverte (2) autour du bord (3),

dans laquelle ledit moyen de séparation comprend une fourche (19), sur laquelle la bordure tubulaire (2) est ajustée et avancée, comportant deux tiges (20) s'étendant dans la direction de progression de la bordure tubulaire (2) et divergeant dans ladite direction (Z-Z),

caractérisée en ce que :

- le moyen d'entraînement (8) est positionné en aval de la zone de couture (15) en référence à

- la direction de progression de la bordure tubulaire (2) le long de la ligne de couture (X-X),
- ladite fourche (19) comprend une tête (16) à laquelle lesdites tiges (20) sont reliées par une articulation, et 5
 - un moyen de ressort (21) agit sur lesdites tiges (20) pour les écarter par poussée dans ladite direction (Z-Z) contre des éléments de pression et de guidage supérieur et inférieur opposés (22) qui sont supportés par la machine de manière que l'angle (A) auquel ils sont inclinés par rapport à la plaque d'appui (13) puisse être varié. 10
2. Machine (1) selon la revendication 1, dans laquelle ladite unité de pliage (9) comprend des éléments de pression et de guidage supérieur et inférieur opposés (22) qui s'étendent dans la direction de progression de la bordure tubulaire (2) et divergent l'un de l'autre dans ladite direction (Z-Z), qui est sensiblement perpendiculaire à la plaque d'appui (13), depuis un point d'entrée de bordure tubulaire (2), la fourche (19) étant insérée et maintenue en position entre lesdits éléments de pression et de guidage (22) avec la tête (16) faisant saillie depuis ledit point d'entrée et la tête (16) de la fourche (19) ayant une plus grande section transversale que ledit point d'entrée afin d'empêcher que la fourche (19) soit attirée par la bordure tubulaire (2) au fur et à mesure de sa progression. 15 20 25 30
3. Machine (1) selon la revendication 2, dans laquelle audit point d'entrée, chaque élément de pression et de guidage (22) comporte une première extrémité (23) autour de laquelle il est supporté de manière à être réglable angulairement par rapport à la plaque d'appui (13). 35
4. Machine (1) selon la revendication 2, dans laquelle chacun desdits éléments de pression et de guidage opposés (22) comprend des courroies de distribution (28) entraînées en rotation par des poulies respectives (27) pour aider à distribuer la bordure tubulaire (2) sur la fourche (19); 40 45
5. Machine (1) selon la revendication 4, dans laquelle lesdites tiges (20) de la fourche (19) comprennent des évidements (30) dans lesquels lesdites courroies s'ajustent et glissent. 50
6. Machine (1) selon la revendication 4, dans laquelle la tête (16) de la fourche (19) comprend des galets (24) adaptés à tourner afin d'aider à distribuer la bordure tubulaire (2) à travers la zone de contact avec l'extrémité initiale (23) de chacun desdits éléments de pression et de guidage opposés (22). 55
7. Machine (1) selon la revendication 1, dans laquelle

ledit moyen de déviation comprend une tige (31) dont une extrémité (32) agit sur la bordure tubulaire ouverte (2) parallèlement à la plaque d'appui (13) pour plier la bordure tubulaire (2) autour du bord (3).

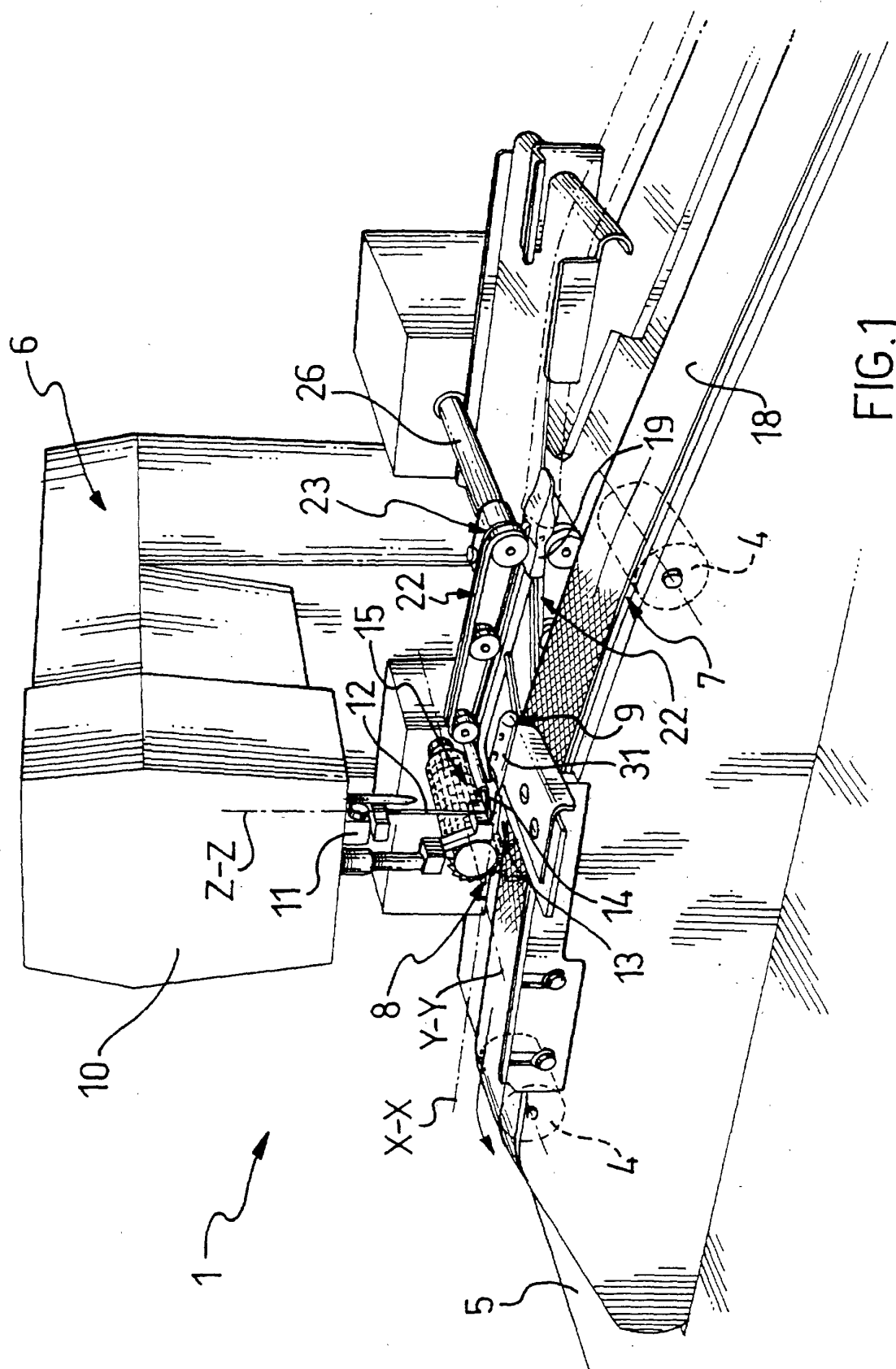
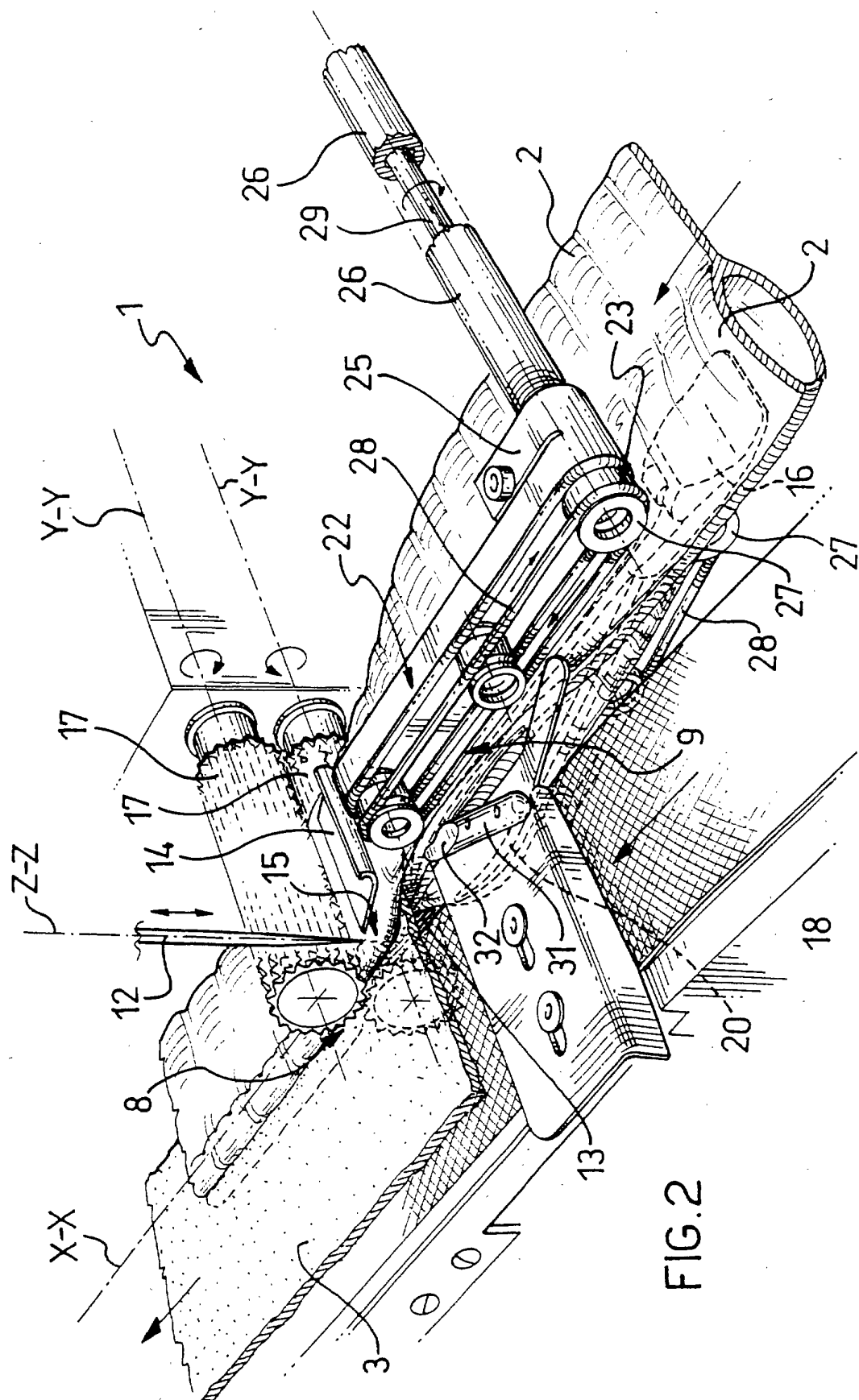
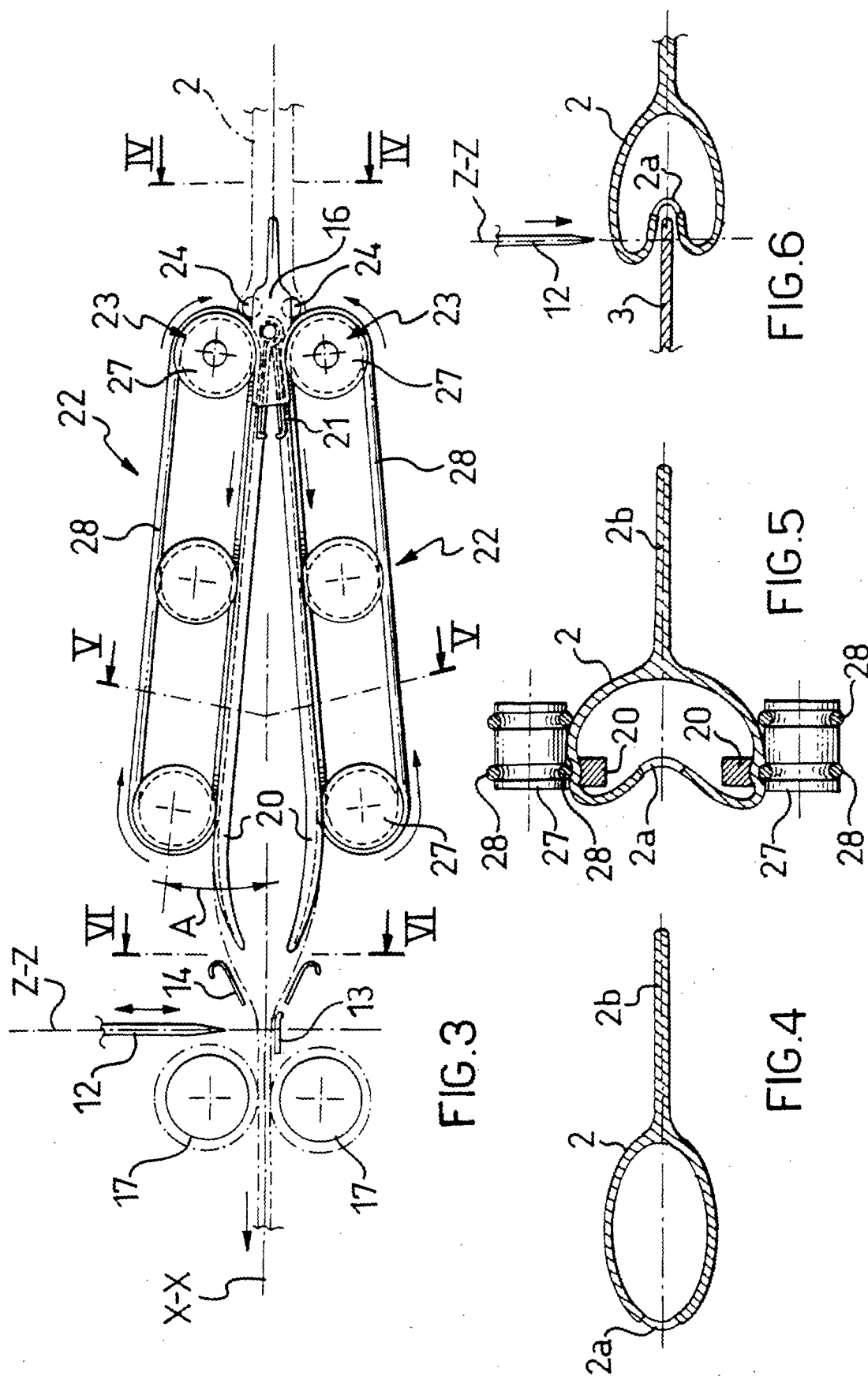


FIG. 1





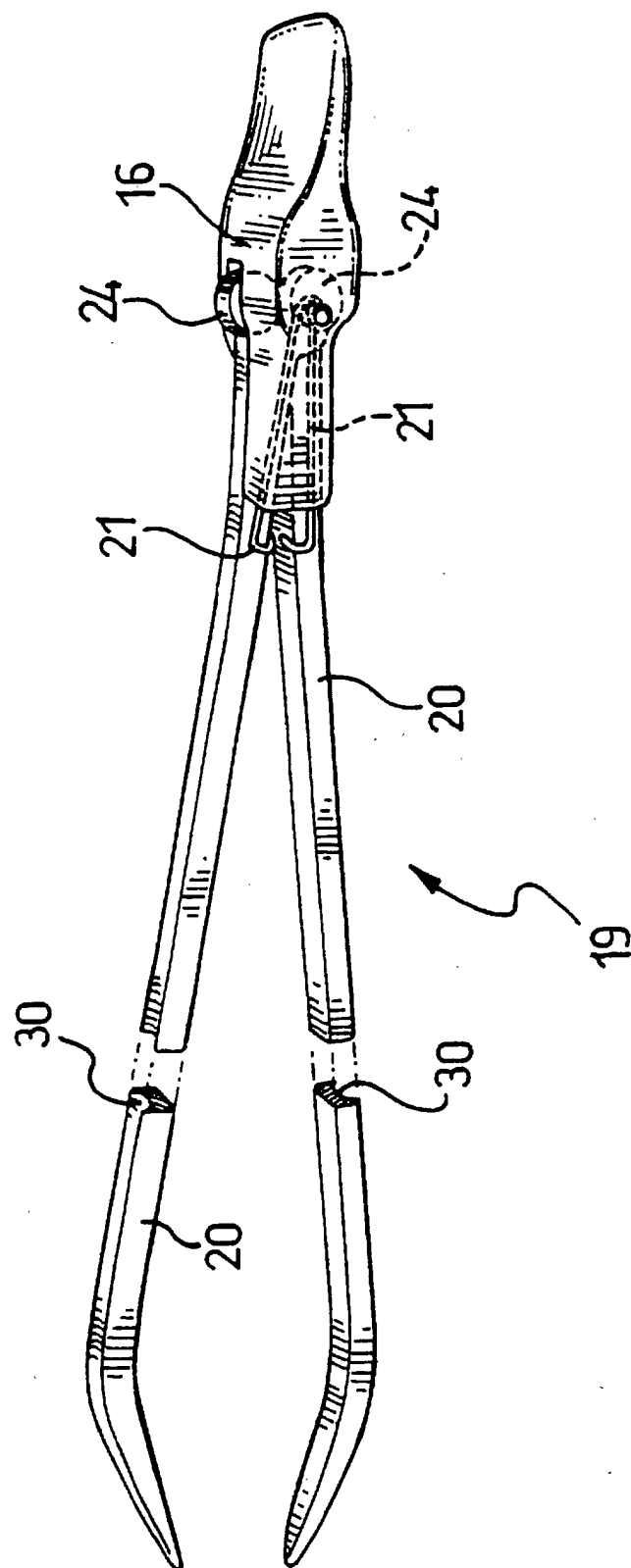


FIG. 7