



(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification :
27.01.93 Bulletin 93/04

(51) Int. Cl.⁵ : **D03C 7/06**

(21) Application number : **89202776.4**

(22) Date of filing : **06.11.89**

(54) **Device for forming selvages on cloths.**

(30) Priority : **09.11.88 BE 8801276**

(43) Date of publication of application :
16.05.90 Bulletin 90/20

(45) Publication of the grant of the patent :
27.01.93 Bulletin 93/04

(84) Designated Contracting States :
CH DE FR IT LI

(56) References cited :
DE-A- 2 329 302
FR-A- 1 137 356
FR-A- 2 315 556

(73) Proprietor : **Picanol N.V.**
Polenlaan 3-7
B-8900 Ieper (BE)

(72) Inventor : **Meyns, Ignace**
Oostpoeselstraat 7
B-8981 Reninge (BE)
Inventor : **van Bogaert, Phillippe**
Av.E.Cambier 97
B-1030 Schaerbeek (BE)
Inventor : **VanRobaeys, Serge**
Bellestraat 60
B-8968 Ieper (BE)

(74) Representative : **Donné, Eddy**
Bureau M.F.J. Bockstael nv Arenbergstraat 13
B-2000 Antwerpen (BE)

EP 0 368 402 B1

Note : Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid (Art. 99(1) European patent convention).

Description

This invention concerns a device for forming selvages on cloths. In particular, the invention concerns a device for forming selvages on cloths where use is made of leno threads and needle threads.

The forming of a selvage on a cloth is common technology, and various selvages devices are known.

As far as their drive is concerned, selvage devices can mainly be divided into two types. The first type consists of selvage devices in which the movement of the components is obtained by means of drive mechanisms which are separate from or at least not directly connected to the harnesses, and which for example consist of a cam mechanism, as known from e.g. Swiss patent No. 564.114, or a mechanism which has a connection with the sley.

The second type consists of selvage devices in which the respective parts are mounted directly on the harnesses and which are driven by the movement of these harnesses, as known from e.g. FR-A-1 137 356 and FR-A-2 315 556.

Devices for forming selvages can further be divided according to the type of mechanism used for moving the leno threads, in other words to make them cross over. In order to obtain this movement, rocker devices, cam mechanisms or rotating parts are used.

The present invention has as its object a device for forming selvages of the second type mentioned above, in other words in which the device is driven by the harnesses themselves, and in which use is made of a rocker device in order to obtain the alternating sideways motion of the leno threads.

One aim of the invention is to obtain a device whose construction is as simple as possible, and which is therefore as inexpensive as possible.

Another aim of the invention is to offer a device in which the selvage binding is also controlled when the machine is reversed during pick-finding, in other words when the harness drive is reversed.

Further, the invention has as its aim a device which offers great reliability of operation, in particular a device which is little subject to wear phenomena, even at high weaving machine speeds.

For these purposes, the device for forming selvages on cloths according to the invention consists of: a part mounted on the first harness, formed by two swivel arms with their ends oriented towards each other, where said ends bear thread eyes which serve to guide the leno threads, such that the arms enable the thread eyes to move alternately and in opposite directions back and forth between two positions; means to connect the swivel arms to each other so that they are only able to move simultaneously; a locking mechanism which forces the swivel arms in their last position which they have reached; a thread guide element connected to the second harness, for the purpose of

guiding at least one needle thread, consisting of at least one needle which as a result of the motion of the two above-mentioned harnesses can be presented between the leno threads; and a rocker device formed by, on the one hand, a profiled section forming part of one of the swivel arms, consisting of a wedge with a supporting element on either side, and on the other a fixed-mounted, elastically-deformable stop which in one of the end-of-travel positions of the harnesses operates alternately with one of the supporting elements situated next to the wedge.

A particular feature of the invention is that in order to control the rocker device, use is made of a stop with a middle piece made of elastic material, so as to obtain not only the necessary flexibility of the stop in order to ensure the operation of the device, but also a shock absorbing action, so as to limit peak loads and the resulting wear phenomena when the stop comes in contact with the profiled section.

In order to better describe the characteristics of the invention, various preferred embodiments are now described, by way of example only and without being limitative in any way, with reference to the accompanying drawings, where:

fig. 1 is a schematic diagram of a weaving machine, in order to situate better the invention; fig. 2 shows the device according to the invention, where for the sake of clarity the harnesses have been drawn farther apart than they actually are; fig. 3 is a view in the direction of arrow F3 in fig. 2; fig. 4 is a rear view of the part shown in fig. 3; fig. 5 is a view in the direction of arrow F5 in fig. 2; fig. 6 shows the stop for the rocker device; fig. 7 is a cross-section along line VII-VII in fig. 6; fig. 8 shows a variant of the part shown in fig. 3; fig. 9 shows the binding for which the device according to the invention is intended; figs. 10-16 show the different steps of the operation of the device according to the invention; fig. 17 shows a device according to the invention, for simultaneously forming two selvages on two cloths being woven next to each other on the same weaving machine.

In order to situate the present invention, fig. 1 is a schematic diagram of the weaving process and the main components of the weaving machine, which as is known consist of a warp beam 1, a cloth beam 2, a drive mechanism 3 in order to drive both beams, the warp 4, the harnesses 5, of which two, 6 and 7 respectively, are shown here, the drive 8 for the harnesses, the sley 9, the sley drive 10, the shed 11 formed by the harnesses 5, the cloth fell line 12 and the cloth 13. The present invention concerns a device 14 for forming at least one selvage 15, which, as shown in fig. 2, is mounted on two of the above-mentioned harnesses 6 and 7.

As shown in figs. 2 to 5, this device 14 essentially consists of: a part 16, attached to a first harness 6, formed by two swivelling arms 17 and 18, whose ends 19 and 20 are oriented towards each other and which are provided with thread eyes 21 and 22 for guiding the leno threads 23 and 24; means 25 for connecting the swivel arms 17 and 18 to each other, together with a locking mechanism 26 which forces the swivel arms 17-18 in their last position; a thread guide element 27 connected to a second harness 7, for the purpose of guiding at least one needle thread 28; and a rocker device 29 formed by, on the one hand, a profiled section 30 forming part of the swivel arm 17, which consists of a wedge 31 with a supporting element, 32 and 33 respectively, on either side, and on the other a fixed-mounted, elastically-deformable stop 34.

The above-mentioned part 16 is mounted on a flat, base section 35 fastened at its ends to the heddle bars 37 of the first harness 6 by means of fastenings 36, which are only shown schematically. The fastenings 36 have the same form as the fastenings 38 by means of which the thread guide element 27 is attached to the heddle bar 39 of the second harness 7 (see fig. 5). In the middle, at the level of the thread eyes 21 and 22, the base section 35 is provided with an opening 40 which forms a passage for the leno threads 23 and 24. The above-mentioned arms 17 and 18 are swivel-mounted on the base section 35, respectively by means of a pivot 41 situated above the opening 40 and another pivot 42 situated under the opening 40. The arms 17 and 18, which essentially have the form of levers, are essentially located in the same plane, so that the space taken up by the device 14 is kept to a minimum.

The above-mentioned means 25 which connects the swivel arms 17 and 18 to each other ensure that the arms are only able to move simultaneously, so that when one arm swivels the other arm automatically swivels in the opposite direction. Said means 25 consists, in the embodiment shown in figs. 2 to 5, of elements 43 and 44 which swivel together with the arms 17 and 18 and which at a particular radius from the pivots 41 and 42 are connected by means of rods 45, such that the swivelling of the element 43 automatically results in the swivelling of the element 44 and the arm 18 connected to it. As can be seen in figs. 4 and 5, the elements 43 and 44 and the rods 45 are preferably situated on the rear of the base section 35.

The locking mechanism 26 preferably operates on the end 46 of the arm 18 located opposite the end 20 with the thread eye 22. The locking mechanism 26 forces the arm 18, and thus also the arm 17 connected to it, either in one or the other of the end-of-travel positions. The end-of-travel positions of the arms 17 and 18 are determined by one or more stops, for which, in the embodiments shown, as can be seen in figs. 3 to 5, use is made of a pin 47 fixed in the second arm 18, where said pin 47 fits with a certain amount

of play S in an opening 48 in the base section 35, where said opening 48 has a greater diameter than the pin 47. It is clear that the angular displacement carried out by the arms 17 and 18 is dependent on the above-mentioned play.

As shown in figs. 2, 3 and 5, the locking mechanisms 26 consist of a pressure mechanism consisting of two supporting elements 50 kept as far apart as possible by means of a pressure spring 51, where said locking mechanism is mounted between the above-mentioned end 46 of the arm 18 and a pivot 49 mounted on the base section 35.

The above-mentioned profiled section 30 is preferably formed by the lever end 52 of the first arm 17 located opposite the above-mentioned end 19 which bears the thread eye 21. By having the profiled section 30 on one arm 17 and having the locking mechanism 26 operating on the other arm 18, nearly all the parts mounted on the base section 35 are situated in the same plane, so that the part 16 takes up little space in the direction perpendicular to the harnesses. As a result, the harnesses 6 and 7 can be mounted immediately beside each other.

The above-mentioned stop 34 is preferably fixed-mounted on a part 53 of the weaving machine frame located above the harnesses 6 and 7. The stop 34 is mounted such that the profiled section 30 comes in contact with it when the first harness 6 is in its highest position.

As shown in figs. 2, 5 and 6, the stop 34 has a contact part 54 which as a result of the motion of the first harness 6 comes in contact alternately with the sides 55 and 56 of the wedge 31 and the supporting elements 32 and 33. The stop 34 further has a means which permits sideways flexing and elastic compression, where said means preferably consists of an elastic middle piece 57 mounted between a top part 58 and a bottom part 59 of the stop 34, as shown in figs. 6 and 7. The elastic middle piece 57 preferably consists of a small rubber block fixed on two support plates 60 and 61 which in turn are fitted with threaded pins 62, 63 which can screw into the opposite ends of the above-mentioned parts 58 and 59.

In a variant, the above-mentioned rubber block can be fixed by means of adhesive directly between the above-mentioned parts 58 and 59.

The simple construction of the stop 34 enables it to be presented through the second harness 7 into the path of the profiled section 30, without interfering with the motion of the harnesses 6 and 7. As a result, the harnesses 6 and 7 can also be mounted immediately beside each other.

As can be seen from figs. 2 and 5, the thread guide element 27 consists of a needle 64 with at its top end a thread eye 65 for the purpose of guiding a needle thread 28. The thread guide element 27 is attached to the heddle bar 39 of the second harness 7 by means of a fastening 38, such that the needle 64

can be presented between the leno threads 23 and 24. The needle 64 can be presented between the leno threads by means of the motion of the above-mentioned harnesses 6 and 7. The needle 64 is located between the leno threads 23 and 24 as the first harness 6 is in its bottom position and the second harness 7 is in its top position. In order to guide the needle thread 28 so that it does not come in contact with the first part 16, i.e. so that it does not come in contact with the leno threads 23 and 24, the thread guide element 27 is provided with a thread guide formed by an opening of the thread eye 66 located in the base of the thread guide element 27, together with a second needle-shaped element 67 with a thread eye 68 at the same height as the thread eye 65 but which moves sideways relative to it. The needle thread 28 is led in turn through the thread eye 68, down along the needle-shaped element 67, through the thread eye 66 and then back up along the needle 64 and finally through the thread eye 65 to the cloth 13.

Fig. 8 shows a variant of the above-mentioned means 25, together with the locking mechanism 26. The connection between the two arms 17 and 18 is formed by rods 70 on either side of these arms and which move in slots 69 between stops 71 and 72 on the sides of the arms 17 and 18. The locking mechanism 26 consists of a small ball 74 held by spring pressure in a seating 73 at the end 46 of arm 18, which when the arms are in their extreme position is pressed into suitable recesses 75 in a support 76 connected to the base section 35.

The device described above enables a binding for a selvage 15 to be formed as shown in fig. 9. The operation of this device is now described step by step with the help of figs. 10 to 16, in which for the sake of clarity only the most important components are shown in the positions illustrated. In this arrangement the harnesses 6 and 7 are driven alternately up and down in opposite directions between their highest and lowest positions by means of the harness drive 8.

In fig. 10, the first harness 6 is in its lowest position, while the second harness 7 is in the highest position. In this position the needle 64 projects between the leno threads 23 and 24. After a weft thread 77A has been inserted between the needle thread 28 and the leno threads 23 and 24, and after said weft thread has been beaten up, it takes the position shown in fig. 10. In order to weave in the weft thread 77A, the harnesses change position, giving the situation as shown in fig. 11. Naturally, at the suitable moment another weft thread 77B is inserted into the shed 11, where this insertion, as is known, can begin as soon as the shed 11 is sufficiently wide open, i.e. before the harnesses 6 and 7 have reached their end-of-travel positions.

When the first harness 6 approaches its highest position, the arms 17 and 18 are tipped by the rocker device which is activated, as shown in figs. 12 to 15.

When the first harness 6 is raised, as shown in figs. 12 and 13 the contact part 54 of the stop 34 comes up against the left-hand side 55 of the wedge 31. The elastic middle piece 57 bends, and the bottom part 59 is moved sideways. When the contact part 54 comes in contact with the supporting element 32 and exercises a pressure on it, as shown in fig. 14, the arms 17 and 18 tilt against the operation of the locking mechanism 26, so that finally a situation as shown in fig. 15 is reached.

It is clear that using an elastic middle piece 57 which can also be compressed in the vertical sense offers the advantage that said middle piece also has a damping effect, so that wear phenomena and vibrations remain small, and furthermore the precision with which the contact part 54 has to be positioned with respect to the supporting elements 32 and 33 has a relatively great tolerance.

It is also clear that arranging the stop 34 so that tipping of the swivel arms 17 and 18 occurs in one of the end-of-travel positions of the weaving harnesses 6 and 7 offers the advantage that the supporting elements 32 and 33 of the wedge 31 come in contact with the stop 34 at a low speed, since in their end-of-travel positions the harnesses have a speed of zero. As a result, the device is little subject to wear phenomena, even at high weaving machine speeds.

Whenever the leno threads change position, a situation is produced as shown in fig. 16, in which for the sake of clarity the crossover 78 is shown close to the fell line 12. The weft thread 77B is beaten up by the reed 79 as a result of the forward motion of the sley, as shown in fig. 2, whereupon the cycle just described can begin again.

When the harness 6 moves down again, the contact part 54 first slides along the side 55. The elasticity of the middle piece 57 and the force exerted by the pressure spring 51 are of course chosen so that the sideways force exerted by the contact part 54 on the side 55 or 56 is not sufficient to actuate the rocker mechanism.

It is clear that the supply of leno threads 23 and 24 and of the needle thread 28 can either be from the warp beam or from bobbins specially for the purpose, not shown in the figures.

In fig. 17 another part of the device according to the invention is shown, which can form simultaneously two selvages 15 and 80 on cloths being produced side by side. The only differences from the embodiment explained with reference to figs. 2 to 5 are that the thread guide element 27 has two needles 81 and 82, and that the arms 17 and 18 each have at their ends two thread eyes situated beside each other, respectively 83-84 and 85-86, for guiding the leno threads 87 to 90. Each needle 81 and 82 has a thread eye 91 and 92 to guide the respective needle threads 93 and 94. The two needle threads 93 and 94 are both led via a common needle-shaped element 95.

The position of the thread eyes 91 and 92 of the thread guide element 27 in fig. 17 with respect to the point which the thread eyes 83 to 86 of the above-mentioned part 16 can occupy can be simply deduced from the figure, and the operation is similar to that of the device in fig. 2. Here, the needles 81 and 82 are located between the respective leno threads 87 to 90, more precisely the needle 81 is located between the leno threads 87 and 89, and the needle 82 is located between the leno threads 88 and 90.

Claims

1. Device for forming selvages on cloths, characterized in that it consists of; a part (16) mounted on a first harness (6), formed by two swivel arms (17, 18) whose ends (19, 20) are oriented towards each other, where said ends bear thread eyes (21, 22; 83, 84, 85, 86) for the purpose of guiding leno threads (23, 24; 87, 88, 89, 90), where the arms (17, 18) enable the thread eyes (21, 22; 83, 84, 85, 86) to move alternately and in opposite directions back and forth between two positions, means (25) which connect the swivel arms (17, 18) to each other, such that they are only able to move simultaneously, and a locking mechanism (26) which forces the swivel arms (17, 18) in their last position which they have taken up; a thread guide element (27) mounted on a second harness (7), for the purpose of guiding at least one needle thread (28; 93, 94), consisting of at least one needle (64-81, 82) which can be presented between the respective leno threads (23, 24; 87, 88, 89, 90); and a rocker device (29) formed by a profiled section (30) which forms part of one of the swivel arms (17) and consists of a wedge (31) which has a supporting element (32, 33) at either side, together with a fixed-mounted, elastically deformable stop (34) which in one of the end-of-travel position of the harnesses (6, 7) operates alternately with one of the supporting elements (32, 33) situated on either side of the wedge.
2. Device according to claim 1, characterized in that the stop (34) has a means which permits an elastic flexing of at least a part (54) of the stop (34) which part makes contact with the support elements (32, 33).
3. Device according to claim 2, characterized in that the stop (34) has a middle piece (57) made of an elastic material.
4. Device according to claim 3, characterized in that the elastic material consists of rubber.
5. Device according to any of the above claims,

characterized in that the stop (34) is presented through the above-mentioned second harness (7) into the path followed by the above-mentioned profiled section (30) as a result of the harness movement.

6. Device according to any of the above claims, characterized in that the two arms (17, 18) swivel in the same plane.
7. Device according to any of the above claims, characterized in that the means (25) which connect the swivel arms (17, 18) to each other consist of swivel elements (43, 44), which can swivel together with the arms (17, 18) and which are connected to each other at a certain radius from their pivots (41, 42) by means of at least a rod (45) attached between them and hinged at its ends.
8. Device according to any of the above claims, characterized in that the two arms (17, 18) are mounted on a base section (35) attached at its ends to the heddle bars (37,) of the first harness (6), with in its middle an opening (40) which provides a passage for the leno threads (23, 24; 87, 88, 89, 90).
9. Device according to claim 8, characterized in that at least one of the arms (17, 18) operates with stops (47, 48) which limit the movements of the arms (17, 18).
10. Device according to any of the above claims, characterized in that the arms (17, 18) are made in the form of levers which swivel around pivots (41, 42), such that one of the farthest apart ends (52, 46) of the arms (17, 18) is fitted with the above-mentioned profiled section (30).
11. Device according to claim 10, characterized in that the locking mechanism (26) consists of a tensioning device which forces the arms (17, 18) in one or the other of their extreme positions, where said tensioning device operates on one of the two farthest apart ends (46, 52) of the arms (17, 18), more particularly the end (46) farthest away from the profiled section (30).
12. Device according to any of the above claims, characterized in that each of the two arms (17, 18) has a thread eye (21, 22), while the thread guide element (27) connected to the second harness (7) has a needle (64) with a thread eye (65) which is meant to be moved between the leno threads (23, 24).
13. Device according to any of claims 1 to 11, characterized in that each of the two arms (17, 18) has

two thread eyes (83, 84, 85, 86), while the thread guide element (27) has two parallel needles (81, 82), each with a thread eye (91, 92), where said parallel needles can be moved between the leno threads (87, 88, 89, 90) which are led through the thread eyes of the arms.

Patentansprüche

1. Gerät zur Bildung von Säumen an Tuch, dadurch gekennzeichnet, daß es besteht aus: einem Teil (16) montiert auf einem ersten Harnisch (6), gebildet von zwei Schwenkarmen (17, 18) deren Ende (19, 20) auf einander gerichtet sind, wo die genannten Ende Fadenösen (21, 22, 83, 84, 85, 86) tragen zum Zweck der Führung von Lenofäden (23, 24, 87, 88, 89, 90), wo die Arme (17, 18) die Fadenösen (21, 22, 83, 84, 85, 86) erlauben abwechselnd und in entgegengesetzten Richtungen hin und her zu bewegen zwischen zwei Positionen, Vorrichtungen (25) die die Schwenkarme (17, 18) mit einander verbinden, sodaß sie nur imstande sind gleichzeitig zu bewegen, und einer Sperrvorrichtung (26) die die Schwenkarme (17, 18) in die zuletzt von ihnen besetzte Lage zwingt; einer Fadenführung (27) montiert auf einem zweiten Harnisch (7), zum Zweck der Führung mindestens eines Nadelfadens (28, 93, 94), bestehend aus mindestens einer Nadel (64-81, 82) die zwischen die respektiven Lenofäden (23, 24, 87, 88, 89, 90) geführt werden kann; und einem Schaukelgerät (29) gebildet von einem Profilteil (30) der einen Teil bildet der Schwenkarme (17) und besteht aus einem Keil (31) der eine Unterstützungsvorrichtung (32,33) an beiden Seiten hat, zusammen mit einer festmontierten elastisch deformierbaren Sperre (34) die in der Endlage der Bewegung der Harnischen (6, 7) abwechselnd wirkt mit einer der Unterstützungen (32, 33) die sich an beiden Seiten des Keils befinden.
2. Gerät nach Anspruch 1, dadurch gekennzeichnet, daß die Sperre (34) eine Vorrichtung hat die eine elastische Biegung erlaubt von mindestens einem Teil (54) der Sperre (34) welcher Teil Verbindung macht mit den Unterstützungen (32, 33)
3. Gerät nach Anspruch 2, dadurch gekennzeichnet, daß die Sperre (34) ein Mittelstück (57) hat hergestellt aus einem elastischen Werkstoff.
4. Gerät nach Anspruch 3, dadurch gekennzeichnet, daß der elastische Werkstoff aus Gummi besteht.
5. Gerät nach einem beliebigen der obengenannten

Ansprüche, dadurch gekennzeichnet, daß die Sperre (34) durch das obengenannte zweite Harnisch (7) geführt wird in den Lauf des obengenannten Profilteils (30) infolge der Harnischbewegung.

6. Gerät nach einem beliebigen der obengenannten Ansprüche, dadurch gekennzeichnet, daß die zwei Arme (17, 18) in der gleichen Ebene schwenken.
7. Gerät nach einem beliebigen der obengenannten Ansprüche, dadurch gekennzeichnet, daß die Vorrichtung (25) die die Schwenkarme (17, 18) mit einander verbindet besteht aus Schwenkvorrichtungen (43, 44) die mit den Armen (17, 18) zusammen in einem bestimmten Radius von der Achse (41, 42) entfernt schwenken können mittels mindesten einer Stange (45) die dazwischen montiert worden ist und an den Enden aufklappbar.
8. Gerät nach einem beliebigen der obengenannten Ansprüche, dadurch gekennzeichnet, daß die zwei Arme (17, 18) angeordnet sind auf einem Grundteil (35) an seinen Enden verbunden mit den Hebeln (37) des ersten Harnisches (6), mit in der Mitte eine Öffnung (40) die einen Durchgang bildet für die Lenofäden (23, 24, 87, 88, 89, 90).
9. Gerät nach Anspruch 8, dadurch gekennzeichnet, daß mindestens einer der Arme (17, 18) arbeitet mit den Sperren (47, 48) die die Bewegung der Arme (17, 18) beschränken.
10. Gerät nach einem beliebigen der obengenannten Ansprüche, dadurch gekennzeichnet, daß die Arme (17, 18) gebildet sind in Hebelform, die um Achsen (41, 42) drehen, sodaß einer der am weitesten auseinander liegenden Teile (52, 46) der Arme (17, 18) paßt mit dem obengenannten Profilteil (30).
11. Gerät nach Anspruch 10, dadurch gekennzeichnet, daß die Sperrvorrichtung (26) besteht aus einem Spanngerät das die Arme (17,18) in eine oder die andere der extremen Positionen zwingt, wo das genannte Spanngerät auf einem der am weitesten auseinander liegenden Teile (46, 52) der Arme (17,18) einwirkt, besonders dem Ende (46) am weitesten von dem Profilteil (30) entfernt.
12. Gerät nach einem beliebigen der obengenannten Ansprüche, dadurch gekennzeichnet, daß jeder der zwei Arme (17, 18) eine Fadenöse (21,22) hat, während die Fadenführung (27) verbunden mit dem zweiten Harnisch (7) eine Nadel (64) hat mit einer Fadenöse (65) die dazu bestimmt ist

zwischen den Lenofäden (23, 24) bewegt zu werden.

13. Gerät nach einem beliebigen der Ansprüche 1 bis 11, dadurch gekennzeichnet, daß jede der zwei Arme (17, 18) zwei Fadenösen (83, 84, 85, 86) hat, während die Fadenführung (27) zwei parallele Nadel (81, 82) hat, jede mit einer Fadenöse (91, 92), wo die genannten parallelen Nadel hin und her bewegt werden können zwischen den Lenofäden (87, 88, 89, 90) die durch die Fadenösen der Arme geführt werden.

Revendications

1. Dispositif pour former des lisières sur des tissus, caractérisé en ce qu'il consiste en : un élément (16) monté sur un premier harnais (6) formé par deux bras oscillants (17, 18) dont les extrémités (19, 20) sont orientées l'une vers l'autre, dans lequel lesdites extrémités portent des oeilletons (21, 22; 83, 84, 85, 86) à des fins de guidage de fils leno (23, 24; 87, 88, 89, 90), dans lequel les bras (17, 18) permettent aux oeilletons (21, 22; 83, 84, 85, 86) de se déplacer en alternance et dans des directions opposées de va et vient entre deux positions ; un moyen (25) qui relie les bras oscillants (17, 18) l'un à l'autre, de telle sorte qu'ils ne peuvent se déplacer que simultanément ; ainsi qu'un mécanisme de blocage (26) qui force les bras oscillants (17, 18) dans la dernière position qu'ils ont adoptée; un élément de guidage de fil (27) monté sur un second harnais (7) dans le but de guider au moins un fil d'aiguille (28; 93, 94), consistant en au moins une aiguille (64; 81, 82) qui peut être présentée entre les fils leno respectifs (23, 24; 87, 88, 89, 90); ainsi qu'un dispositif à bascule (29) formé par un profilé (30) qui fait partie d'un des bras oscillants (17) et consistant en un coin (31) qui possède un élément de support (32, 33) de chaque côté, conjointement avec un arrêt élastiquement déformable (34) monté à demeure qui, dans une des positions de fin de parcours des harnais (6, 7) est mis en service en alternance avec un des éléments de support (32, 33) situés de chaque côté du coin.
2. Dispositif selon la revendication 1, caractérisé en ce que l'arrêt (34) possède un moyen qui permet un fléchissement élastique d'au moins une partie (54) de l'arrêt (34), ladite partie établissant le contact avec les éléments de support (32, 33).
3. Dispositif selon la revendication 2, caractérisé en ce que l'arrêt (34) possède un élément médian (57) réalisé en une matière élastique.

4. Dispositif selon la revendication 3, caractérisé en ce que la matière élastique est constituée de caoutchouc.

5. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que l'arrêt (34) est présenté à travers le second harnais susmentionné (7) dans la voie empruntée par le profilé susmentionné (30) suite au mouvement du harnais.

6. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que les deux bras (17, 18) oscillent dans le même plan.

7. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que le moyen (25) qui relie les bras oscillants (17, 18) l'un à l'autre consiste en éléments d'oscillation (43, 44) qui peuvent osciller conjointement avec les bras (17, 18) et qui sont reliés l'un à l'autre en formant un certain rayon par rapport à leurs pivots (41, 42) au moyen d'au moins une tige (45) fixée entre eux et articulée à ses extrémités.

8. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que les deux bras (17, 18) sont montés sur un profilé de base (35) fixé à ses extrémités aux barres de lisse (37) du premier harnais (6), une ouverture (40) pratiquée en son milieu procurant un passage pour les fils leno (23, 24; 87, 88, 89, 90).

9. Dispositif selon la revendication 8, caractérisé en ce qu'au moins un des bras (17, 18) est mis en service avec des arrêts (47, 48) qui limitent le mouvement des bras (17, 18).

10. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que les bras (17, 18) sont réalisés sous la forme de leviers qui oscillent autour de pivots (41, 42) de telle sorte qu'une des extrémités les plus éloignées (52, 46) des bras (17, 18) est équipée du profilé susmentionné (30).

11. Dispositif selon la revendication 10, caractérisé en ce que le mécanisme de blocage (26) consiste en un dispositif provoquant une tension, qui force les bras (17, 18) dans l'une ou l'autre de leurs positions extrêmes, dans lequel ledit dispositif provoquant une tension agit sur une des deux extrémités les plus éloignées (46, 52) des bras (17, 18), plus particulièrement sur l'extrémité (46) la plus éloignée du profilé (30).

12. Dispositif selon l'une quelconque des revendications précédentes, caractérisé en ce que chacun

des deux bras (17, 18) possède un oeillet (21, 22), tandis que l'élément de guidage de fil (27) relié au second harnais (7) possède une aiguille (64) munie d'un chas (65) qui est destiné à se déplacer entre les fils leno (23, 24).

5

13. Dispositif selon les revendications 1 à 11, caractérisé en ce que chacun des deux bras (17, 18) possède deux oeillets (83, 84, 85, 86), tandis que l'élément de guidage de fil (27) possède deux aiguilles parallèles (81, 82), chacune avec un chas (91, 92), dans lequel lesdites aiguilles parallèles peuvent se déplacer entre les fils leno (87, 88, 89, 90) qui sont guidés à travers les oeillets des bras.

10

15

20

25

30

35

40

45

50

55

Fig. 1

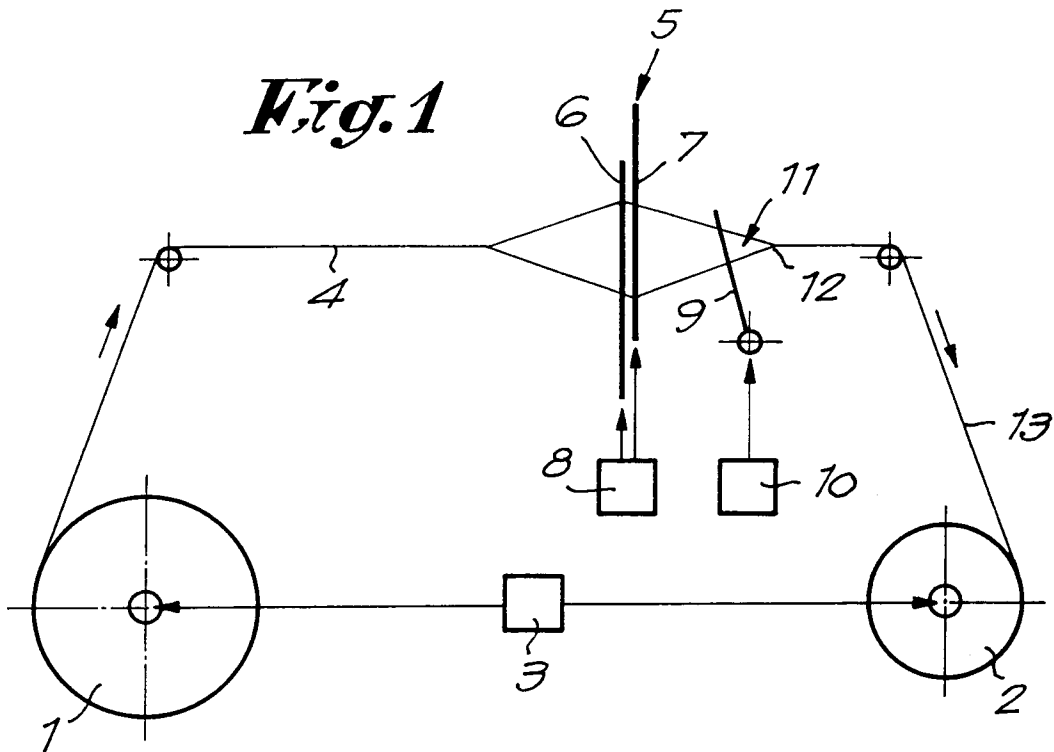


Fig. 17

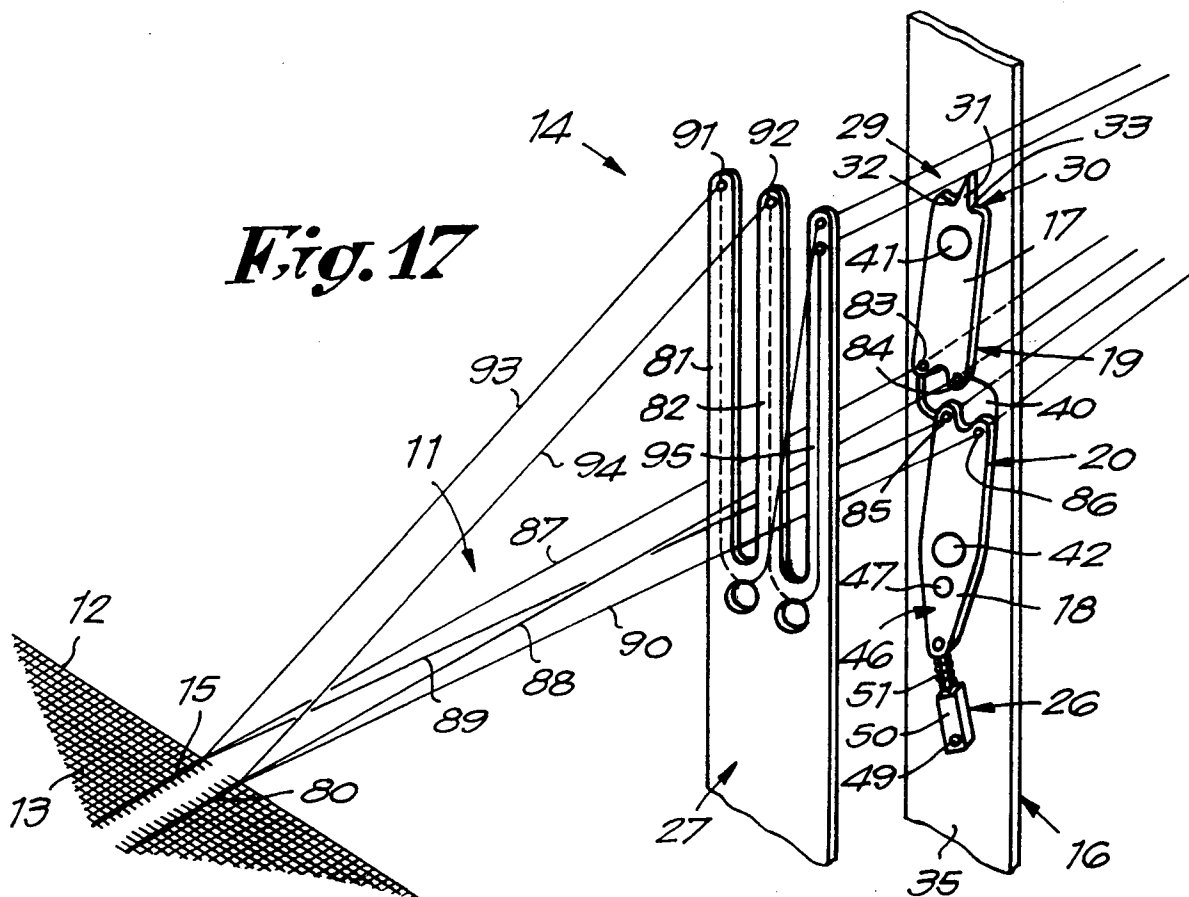
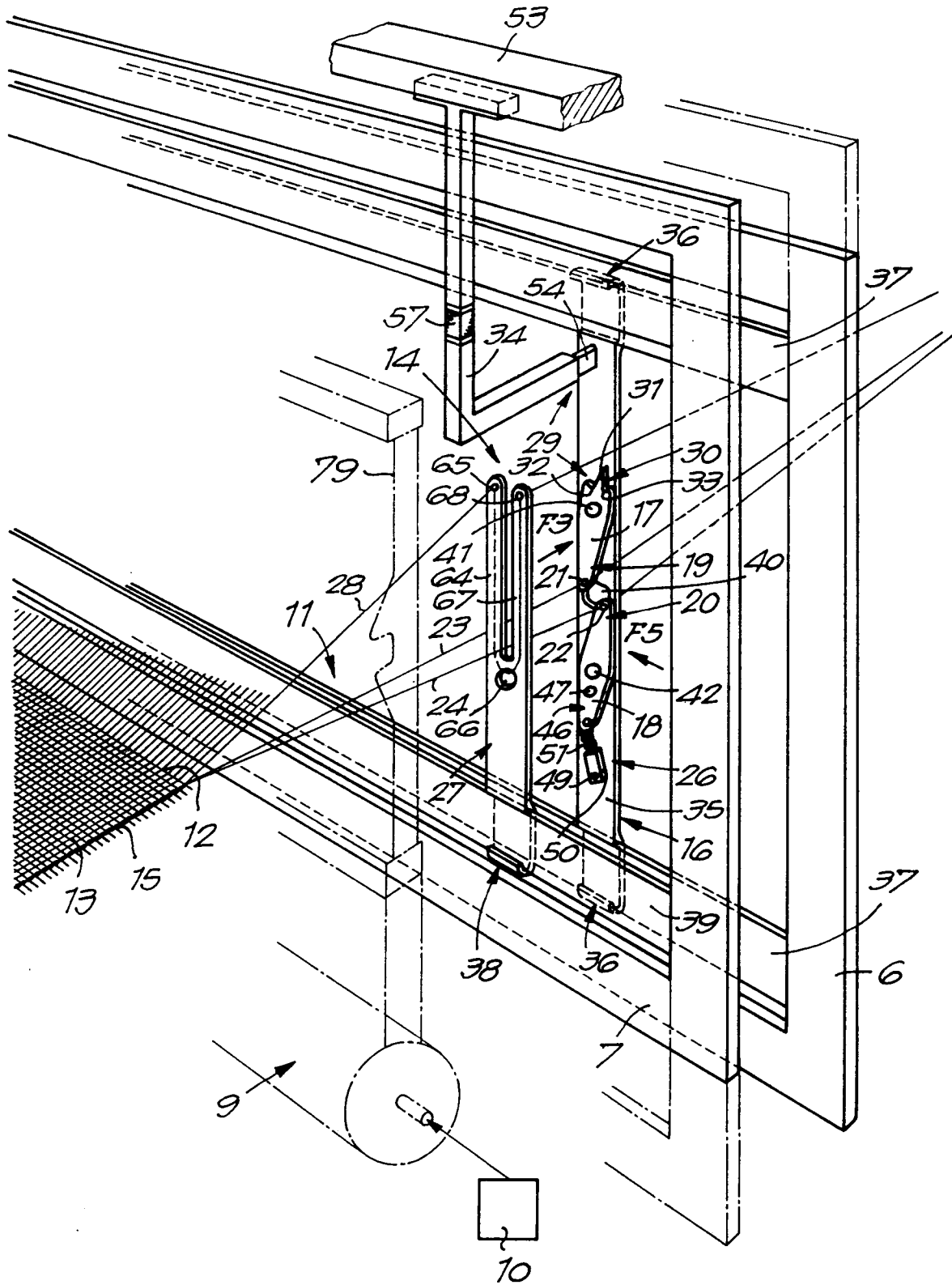


Fig. 2



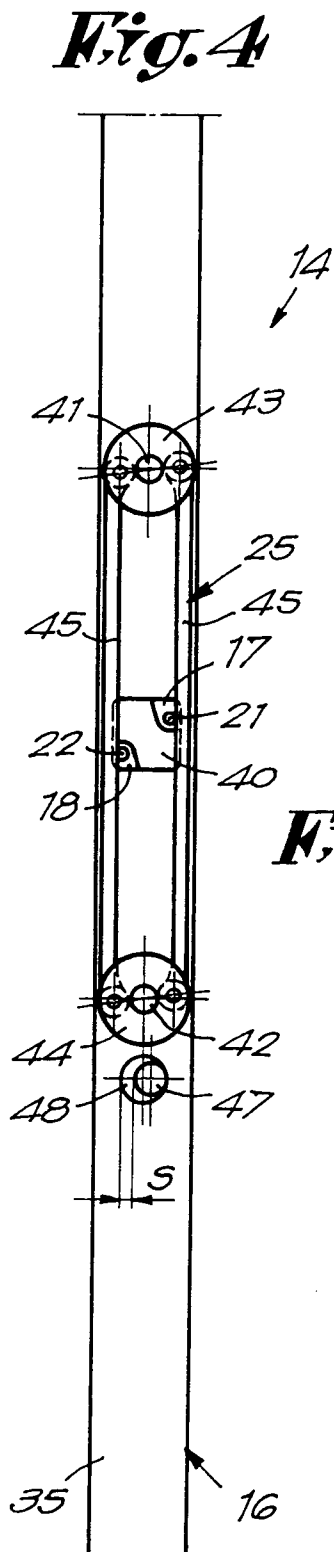
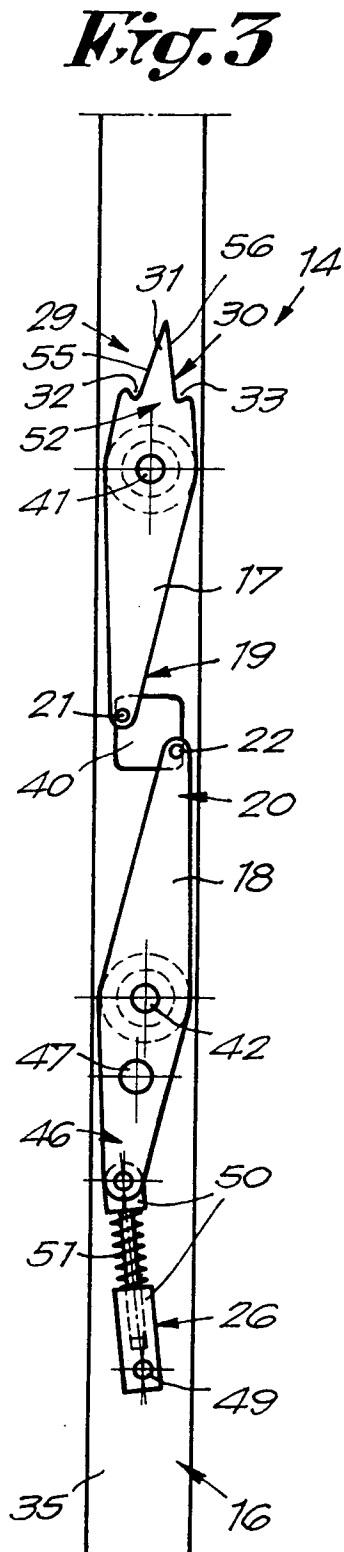
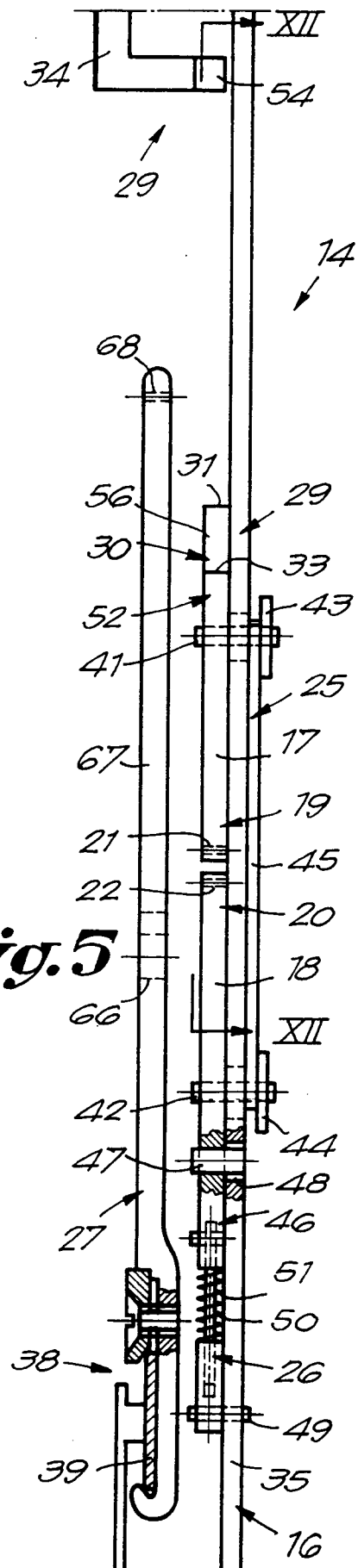


Fig. 5



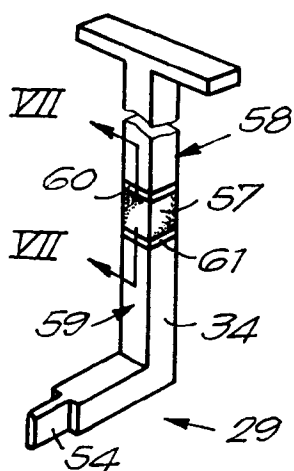


Fig. 6

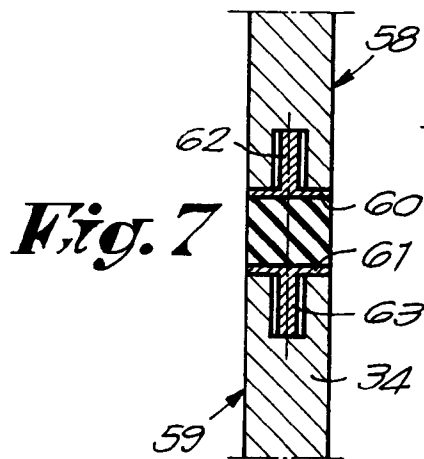


Fig. 7

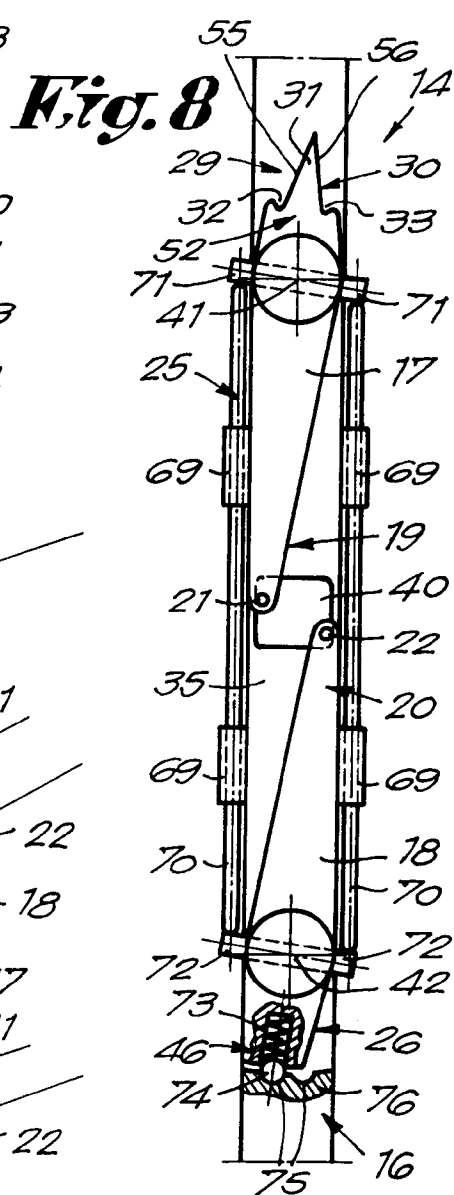


Fig. 8

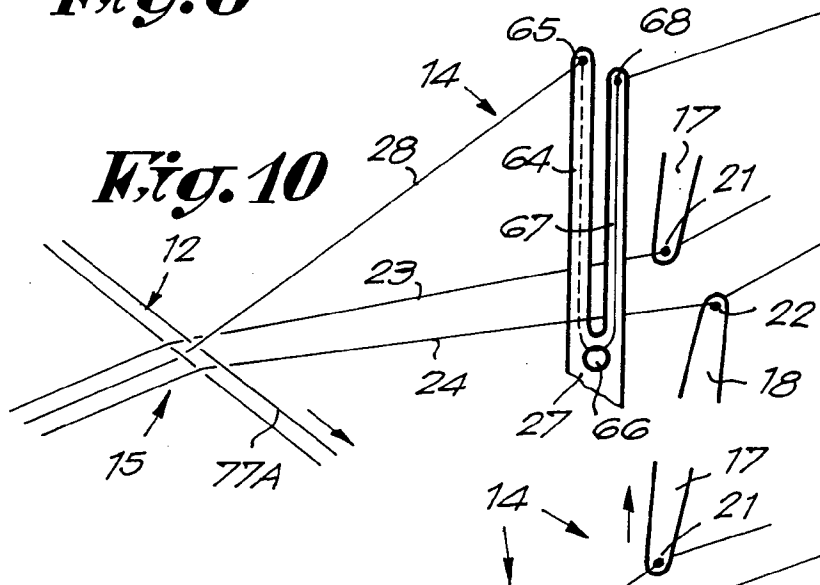


Fig. 10

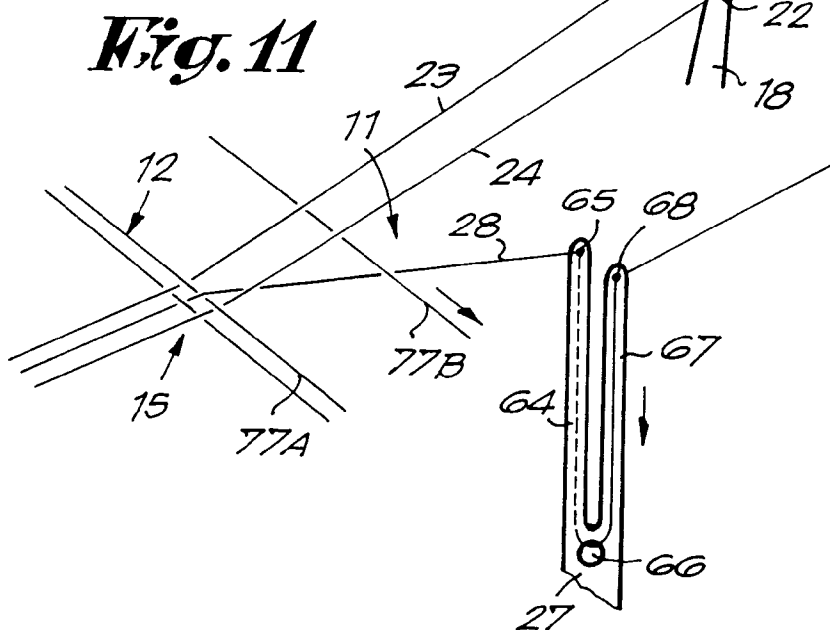


Fig. 11

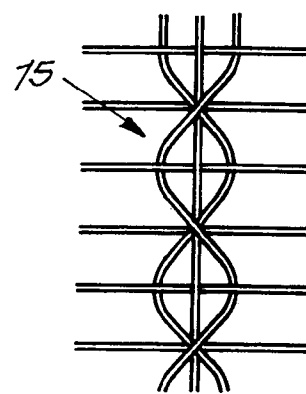


Fig. 9

Fig. 12 **Fig. 13** **Fig. 14** **Fig. 15**

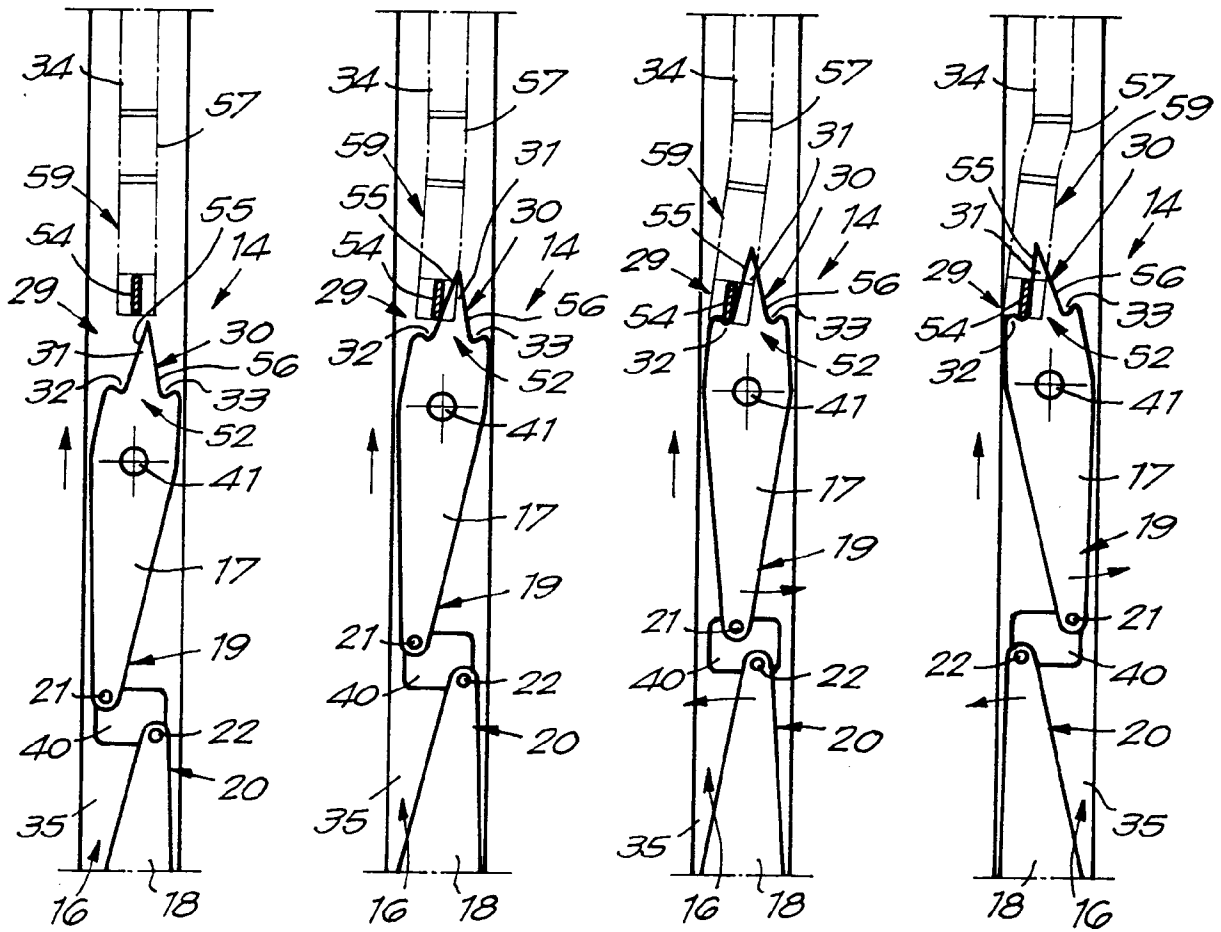


Fig. 16

