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Description

The present invention relates to a slide fastener assembly having a net joining structure for use in joining together a pair of confronting edges of net structure.

A typical example of the net joining structures of the type described is disclosed in US—A—4,056,868 on which the preamble of claim 1 is based. The known structure includes a pair of warp-knitted net adapters each having a net transition region arranged for connection to one of the confronting edges of a net structure and a pair of web regions disposed at a common side of the net transition region and jointly supporting one of the stringers of a slide fastener. The net transition region comprises a mesh structure having a number of diamond-shaped meshes therein. The mesh structure includes adjoining regions of different mesh size arranged such that the smallest mesh size region adjoins one of said web regions and the largest mesh size region is that for connection to the edge of the net structure. The web region is composed of the warp chains of the net transition region extending transversely thereinto, and weft thread laid in the warp chains to fasten them together. Each of the stringers is sandwiched by the web regions and sewn thereto by sewing stitches.

The net joining structure thus arranged has been found unsatisfactory in that the slide fastener stringers are likely to become wavy, puckered or otherwise deformed, because the diamond shaped meshes vary in shape or deform when severe lateral tension is applied to the net structure. The stringers thus deformed hinder smooth sliding movement of a slider along rows of coupling elements secured to confronting edges of the stringers, and cause the rows of coupling elements to split open away from each other. Furthermore, the sewing stitches extending on and across the web regions are in danger of becoming frayed or sometimes broken upon abrasive contact with rigid foreign matter. The known adapter having such knit structure is not suitable for continuous production on a warp-knitting machine.

According to the present invention, there is provided a slide fastener assembly for joining together a pair of confronting edges of net structure, comprising a slide fastener having a pair of stringers; and a pair of warp-knitted net adapters having a number of meshes therein, each of the adapters including a net transition region arranged for connection to one of the confronting edges of the net structure, and a pair of superimposed web regions connected to a longitudinal edge of the net transition region and jointly supporting one of the stringers, said net transition region having a first portion disposed remotely from the longitudinal edge, at least one second portion extending adjacent to the web regions, and at least one third portion extending between the first and the second portions, the web regions having a mesh size smaller than that of the first, second and third portions, characterized in that said meshes in said warp-knitted net adapters are in the shape of a rectangle, and that said third portion has a mesh size larger than that of said first and second portions.

It is an object of the present invention to provide a slide fastener assembly including a pair of warp-knitted adapters having a structure strong enough to withstand severe external stresses applied thereto either in the longitudinal or in the transverse direction thereof, without deforming or otherwise damaging a slide fastener attached to the adapters.

Another object of the present invention is to provide a slide fastener assembly having an adapter which is connectable to one of the confronting edges of a net structure with utmost ease.

The present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying drawings in which certain preferred embodiments incorporating the principles of the present invention are shown by way of illustrative example.

Figure 1 is a fragmentary plan view of a slide fastener assembly according to the present invention;
Figure 2 is a schematic cross-sectional view taken along line II—II of Figure 1;
Figure 3 is an enlarged developmental or unfolded view of a portion of Figure 1;
Figure 4 is a cross-sectional view taken along line IV—IV of Figure 3;
Figure 5 is a point diagram for the warp-knitted net adapter of Figure 3;
Figure 6 is a point diagram showing lapping movements of the respective threads constituting the warp-knitted adapter of Figure 5;
Figure 7 is an enlarged fragmentary perspective view of a half of the slide fastener assembly as attached to an edge of net structure;
Figure 8 is a view similar to Figure 3 of another embodiment of the present invention;
Figure 9 is a cross-sectional view taken along line IX—IX of Figure 8;
Figure 10 is a point diagram for the warp-knitted net adapter of Figure 9;
Figure 11 is a view similar to Figure 3 of a further modified warp-knitted net adapter;
Figure 12 is a cross-sectional view taken along line XII—XII of Figure 11; and
Figure 13 is a fragmentary plan view of yet another modified slide fastener assembly according to the present invention.

As shown in Figure 1, a slide fastener assembly 15 for joining together a pair of confronting edges of net structure comprises a pair of warp-knitted net adapters 18, 18 (hereinafter referred to as "adapters") having a number of rectangular openings or meshes. Each of the adapters 18, 18 includes a net transition region 19 arranged for connection to one of the confronting edges of the net structure, and a pair of superimposed web regions 20, 20 connected to a longitudinal edge of the net transition region 19 and

jointly supporting one of the stringers 21 of a slide fastener 22. One such net structure 17 having a confronting edge 16 is shown in Figure 7.

As shown in Figure 1, the net transition region 19 has a first portion 23 (not including a core thread 46) extending along the opposite edge thereof remote from the slide fastener stringer 21. The net transition region 19 is folded over on itself and is shown in Figure 3 in an unfolded manner whereby the first portion 23 appears centrally. The region 19 further includes a pair of second portions 24, 24 extending adjacent to the web regions 20, 20, respectively, and a pair of third portions 25, 25 extending respectively between the first portion 23 and the second portions 24, 24. The third portions 25, 25 have a mesh size larger than that of the first and second portions 23, 24, 24. The first and second portions 23, 24, 24 have substantially a uniform mesh size. The net transition region 19 is composed of a plurality of warp cords 26—31 extending longitudinally thereof and a plurality of weft threads 32 which, as described below in connection with Figure 5, have longitudinal portions extending longitudinally of the warp cords 26—31 and transverse portions extending in pairs perpendicularly to and between the warp cords 26—31 to jointly define therebetween the meshes of the aforesaid sizes. The web regions 20, 20 are composed of a plurality of warp cords 33—36 extending longitudinally thereof in parallel relation to the warp cords 26—31 and a plurality of weft threads 37 extending substantially in parallel to the weft threads 32 to jointly define therebetween meshes much smaller than those of the net transition region 19. The weft threads 37 are thinner than the weft threads 32.

As shown in Figure 5, the warp cords 26—31 of the net transition region 19 include warp threads L1 knitted in pairs as chain stitches and longitudinal portions of a plurality of weft laid-in threads L2—L5 knitted with the chain stitches L1. Transverse portions of the respective weft laid-in threads L2—L5 extend in pairs between the warp cords 26—31 and jointly constitute the weft threads 32 of the transition region 19. The warp cords 33—35 of the web regions 20, 20 also include warp threads L1 knitted in pairs as chain stitches and longitudinal portions of a plurality of weft laid-in threads L8, L9 knitted with the chain stitches L1. The weft threads 37 of the web regions 20, 20 are constituted by transverse portions of the weft laid-in threads L8, L9, respectively. Although not shown in Figure 5, a plurality of threads L6, only one of which is shown in Figure 6, is laid warpwise in the warp cords 27—31, 33—36, respectively, and a plurality of warp threads L7, only one of which is shown in Figure 6, is also laid warpwise in the warp cords 26—30, 33—36. The threads L6, L7 have patterns symmetrical with each other as shown in Figure 6 whereby they cooperate together in tightly binding together the respective pairs of the warp threads L1 of the warp cords 26—31, 33—36.

As shown in Figure 6, the threads L1—L9 have respective patterns as follows:

Thread	Pattern
L1	= 0—1/1—0.
L2	= 5—5/3—3/5—5/3—3/5—5/3—3/5— 5/0—0/2—2/0—0/2—2/0—0/2—2/0—0.
L3	= 0—0/2—2/0—0/2—2/0—0/2—2/0— 0/5—5/3—3/5—5/3—3/6—5/3—3/5—5.
L4	= 8—8/6—6/8—8/6—6/8—8/6—6/8— 8/8—8/6—6/8—8/6—6/8—8/6—6/8— 8/0—0/2—2/0—0/2—2/0—0/2—2/0— 0/0—0/2—2/0—0/2—2/0—0/2—2/0—0.
L5	= 0—0/2—2/0—0/2—2/0—0/2—2/0— 0/0—0/2—2/0—0/2—2/0—0/2—2/0— 0/6—8/6—6/8—8/6—6/3—8/6—6/8— 8/8—8/6—6/8—8/6—6/3—8/6—6/8—8.
L6	= 2—2/0—0/2—2/0—0/2—2/0—0/2—2.
L7	= 0—0/2—2/0—0/2—2/0—0/2—2/0—0.
L8, L9	= 2—2/0—0.

As best shown in Figure 4, the adapter 18 thus knitted has the warp cords 26—31, 33—36 thicker than the weft threads 32, 37 so that a pair of longitudinal grooves 38, 38 is defined between every adjacent pair of warp cords 26—31, 33—36 at the opposite sides of the adapter 18. The threads L1, L6, L7 may comprise multifilament yarns made of polyester and the threads L2, L3, L4, L5, L8 may comprise twisted yarns made of polyester. Each thread L9 serves as a connecting thread for connecting two adjacent adapters 18 along

their confronting edges, thereby enabling the production of a plurality of laterally connected adapters simultaneously. The connecting threads L9 are made preferably of water-soluble synthetic resin fibers, so that the adapters 18 can be separated by being dipped into water after having been knitted.

The adapter 18 can be produced easily on a warp-knitting machine (not shown) in a substantially endless, continuous length which may be severed into pieces of desired lengths by a hot cutting blade or another suitable cutting means (not shown). The cut ends of the respective adapter pieces are prevented from fraying by fusion together of the synthetic resin yarn ends. As the warp cords 26—31, 33—36 are composed of the warp threads L1 knitted in pairs as chain stitches and the longitudinal portions of the weft laid-in threads L2—L5, L8, L9 knitted with the chain stitches, the adapter 18 is made per se stable in structure and rigid in construction.

The adapters 18, 18 are then attached respectively to the stringers 21, 21 of the slide fastener 22 to thereby constitute the slide fastener assembly 15 shown in Figures 1 and 2. To make the attachment, each adapter 18 is folded over on itself about the first portion 23 of the net transition region 19 with the reinforcing core thread 46 being held firmly by and between the warp cords 28, 29 of the first portion 23. Each stringer 21 is sandwiched between the web regions 20, 20 of the adapter 18 and then is sewn to the same by two pairs of rows of sewing stitches 44*a*, 44*b*, such as lock stitches or double chain stitches, each pair of rows of sewing 44*a*, 44*b* extending in and along one longitudinal groove 38, which is devoid of warp cords, across the weft threads 37 of each web region 20. In order to increase the binding strength of the sewing stitches 44*a*, 44*b* and to distribute such increased binding strength uniformly over the web regions 20, 20, the sewing stitches 44*a*, 44*b* are formed by driving a pair of sewing needles (not shown) through each stringer 21 from opposite sides thereof such that a needle thread of the stitches 44*a* and a looper thread of the stitches 44*b* appear in each longitudinal groove 38. The warp cords 26, 31, 33—36 serve, in adjacent pairs, to prevent the sewing stitches 44*a*, 44*b* from displacing outside the grooves 38 and from being worn out or damaged upon engagement with rigid foreign matter such as rocks, stones and the like. The warp cords 26, 31, 33—36 further serve to grip the stringers 21, 21 stably in position. At least the sewing stitches 44*a*, 44*b* in each groove 38 are covered with a layer of synthetic resin 45, and more preferably the groove 38 is filled with the synthetic resin layer 45, as shown in Figure 2. With this arrangement, the sewing stitches 44*a*, 44*b* are completely protected from any degree of damage, such as loosening, fraying, abrasive wear or the like.

The slide fastener 22 shown in Figure 1 has a pair of rows of coupling elements 39, 39 mounted on and along a pair of confronting edges of the stringers 21, 21, respectively. A pair of top end stops 40, 41 is mounted at the upper end of the slide fastener 22 adjacent to a pair of uppermost ones of the coupling elements 39, 39, respectively. The slide fastener 22 further has a bottom end stop 42 mounted at the lower end thereof transversely across the confronting edges of the stringers 21, 21. A slider 43 is slidably mounted on the rows of coupling elements 39, 39 for bringing them into and out of interdigitating engagement with each other to close and open the slide fastener 22 in a well known manner.

As shown in Figure 7, each adapter 18 of the slide fastener assembly 15 is attached to one of the confronting edges or endmost threads 16 of the net structure 17 by a connecting rope or cord 47. The connecting cord 47 extends successively through the mesh openings in the adapter's third portions 25 and the mesh openings in the net structure's longitudinal edge 16 spirally over and around the warp cords 28, 29, the reinforcing core thread 46 and the endmost threads 16 of the net structure 17. The third portions 25 with the meshes of the largest size allow the connecting cord 47 to pass therethrough with utmost ease, with the result that a simple and time-saving connection is achieved.

With the slide fastener assembly 15 thus constructed, the slide fastener 22 can be protected against deformation or damage under the influence of severe external stresses because such stresses, when applied on the net structure 17 in the transverse direction of the adapters 18, 18, are taken up and distributed uniformly over the entire length of the slide fastener stringers 21, 21 by means of the net transition region 19, 19 having rectangular meshes of varying sizes defined by the thick warp cords 26—31 and the weft thread pairs 32. The warp cords 26—31, 33—36 have a strength enough to withstand severe external stresses applied to the adapters 18, 18 in the longitudinal direction thereof. Furthermore, the web regions 20, 20 having the smallest meshes, and made compact, permit the fastener stringers 21, 21 to be sewn thereto with stability and to a nicety. The adapter's first portion 23, having the thick warp cords 28, 29 and the reinforcing core thread 46 disposed between the warp threads 28, 29, provides a positive connection to each edge 16 of the net structure 17 during a long period of use.

Figures 8 and 9 show a modified adapter 50 including a net transition region 51 and a pair of web regions 52, 52 disposed at opposite sides of the net transition region 51. The adapter 50 is substantially the same as the adapter 18 of the foregoing embodiment with the exception that the net transition region 51 includes a pair of second portions 53, 53 each having a pair of rows of rectangular meshes of uniform size. Each of the second portions 53 includes three warp cords 54, 55, 56 and 57, 58, 59 extending longitudinally thereof and a plurality of weft threads 60 which, as described below in connection with Figure 10, have longitudinal portions extending longitudinally of the warp cords 54—56, 57—59 and transverse portions extending in pairs perpendicularly to and between the warp cords 54—56, 57—59 to jointly define therebetween the rectangular meshes. As shown in Figure 10, the adapter 50 is composed of a plurality of threads L1—L8 each having the same pattern as a corresponding one of the threads L1—L8 shown in Figure 6. Each of the central warp cords 55, 58 includes two of the threads L1 knitted as chain stitches and

longitudinal portions of the threads L2, L3 laid weftwise in the chain stitches L1. The weft threads 60 are constituted by transverse portions of the weft laid-in threads L2, L3 extending in pairs between the warp cords 54—56, 57—59. The threads L6, L7 are laid warpwise in the cord 55, 58 to tightly bind the threads L1, L1 of the chain stitches. The warp cords 54, 56, 57, 59 are structurally the same as a corresponding one of the warp cords 26, 27, 30, 31 of the adapter 18 shown in Figure 5. The adapter 50 is attached to one of the confronting edges of a net structure (not shown) after having been assembled with a slide fastener stringer and a reinforcing core thread, in the same manner as described with respect to the foregoing embodiment. The adapter 50 thus arranged is further advantageous in that lateral tension applied to the net structure is taken up more efficiently and distributed more uniformly through the second portions 53, 53 over the length of the slide fastener stringer than in the case of the adapter 18.

An adapter shown in Figures 11 and 12 has a net transition region 62 and a pair of web regions 63, 63. A first portion 64 of the net transition region 62 has a pair of warp cords 66, 67 between which a reinforcing core thread 65 extends. Differing from the foregoing embodiments, the core thread 65 is held by and between pairs of weft threads 68 extending transversely between the warp cords 66, 67 at longitudinal intervals. Such arrangement is realized by knitting the core thread 65 into the first portion 64 of the adapter 61 as the latter is knitted. The adapter 61 with the core thread 64 knitted therein can be attached to a net structure (not shown) with utmost ease.

Figure 13 shows a modified slide fastener assembly 70 comprising a pair of adapters 71, 71 each having a net transition region 72 and a pair of web regions 73, 73 disposed at a common edge of the net transition region 72. A slide fastener 74 includes a pair of stringers 75, 75 secured to the adapters 71, 71 by rows of sewing stitches 76 in sandwiched relation to each pair of the web regions 73, 73, respectively. The slide fastener 74 has a pair of rows of coupling elements 77, 77 mounted on the respective stringers 75, 75 along their confronting edges and a separable bottom end stop 78 so that the stringers 75, 75 can be completely separated from each other when a slider (not shown) is located at the lowermost position adjacent to the separable bottom end stop 78. A pair of core threads 79, 79 reinforces the respective net transition regions 72, 72 arranged for connection to a pair of confronting edges of net structure (not shown).

Claims

1. A slide fastener assembly for joining together a pair of confronting edges of net structure, comprising a slide fastener (22; 74) having a pair of stringers (21, 21; 75, 75); and a pair of warp-knitted net adapters (18, 18; 50; 61; 71) having a number of meshes therein, each of the adapters including a net transition region (19; 51; 62; 72) arranged for connection to one of the confronting edges (16) of the net structure (17), and a pair of superimposed web regions (20, 20; 52, 52; 63, 63; 73, 73) connected to a longitudinal edge of the net transition region and jointly supporting one of the stringers, said net transition region having a first portion (23; 64) disposed remotely from the longitudinal edge, a pair of second portions (24) extending adjacent to the web regions, and a pair of third portions (25) extending between the first and the second portions, the web regions having a mesh size smaller than that of the first, second and third portions, characterized in that said meshes in said warp-knitted net adapters (18, 18; 50; 61; 71) are in the shape of a rectangle, and that said third portions (25) have a mesh size larger than that of said first (23; 64) and second portions (24).

2. An assembly according to claim 1, said first portion (64) including a reinforcing core thread (65) extending longitudinally thereof.

3. An assembly according to claim 1, each of said second portions (53) having a pair of juxtaposed rows of rectangular meshes having a uniform mesh size.

4. An assembly according to claim 1, each said adapter (18, 18; 50; 61; 71) including a plurality of warp cords (26—31, 33—36; 54—59; 66, 67) and a plurality of weft threads (L2, L3, L4, L5) knitted with said warp cords and jointly defining therebetween said rectangular meshes, each said warp cord having a plurality of warp threads (L1, L6, L7).

5. An assembly according to claim 4, each said warp cord comprising two of said warp threads knitted as chain stitches (L1), and each said weft thread (L2—L5) having portions extending longitudinally in and along said chain stitches.

6. An assembly according to claim 5, each said warp cord further having two of said warp threads (L6, L7) laid warpwise in symmetrical patterns in said chain stitches (L1) and binding the same tightly together.

7. An assembly according to claim 4, said weft threads (32, 37; 60; 68) having longitudinal portions extending longitudinally of the warp cords (26—31, 33—36; 54—56; 66, 67) and transverse portions extending in pairs perpendicularly to and between the warp cords (26—31, 33—36; 54—56; 66, 67).

8. An assembly according to claim 4, said warp threads (L1, L6, L7) comprising a polyester multifilament yarn and said weft threads comprising a polyester twisted yarn.

9. An assembly according to claim 1, said web regions (20, 20) each having at least one groove (38) extending longitudinally thereof and opening remotely from the general plane of said stringer (21), said stringer being sewn to said web regions by at least one row of sewing stitches (44a, 44b) extending into and along said groove.

10. An assembly according to claim 9, said row of sewing stitches (44a, 44b) being covered with a layer of synthetic resin (45) also extending into and along said groove (38).

11. An assembly according to claim 9, said groove (38) being filled with a layer of synthetic resin (45).

12. An assembly according to claim 9, a pair of rows of double chain sewing stitches (44a, 44b) extending in symmetrical patterns in said groove such that a needle thread of one row of sewing stitches (44a) and a looper thread of the other row of sewing stitches (44b) appear in said groove.

13. An assembly according to claim 2, said reinforcing core thread (65) being knitted in the first portion (64).

Patentansprüche

1. Reißverschlußanordnung zum Verbinden zweier gegenüberliegender Ränder einer Netzstruktur, bestehend aus einem Reißverschluß (22; 74) mit zwei Reißverschlußbändern (21, 21; 75, 75) und aus zwei kettengewirkten Netzanschlußteilen (18, 18; 50; 61; 71), die eine Anzahl Maschen aufweisen, wobei jedes Anschlußteil einen Netzübergangsbereich (19; 51; 62; 72) zur Verbindung mit einem der gegenüberliegenden Ränder (16) der Netzstruktur (17) und zwei übereinanderliegende Bandbereiche (20, 20; 52, 52; 63, 63; 73, 73) umfaßt, die mit einem Längsrand des Netzübergangsbereichs verbunden sind und gemeinsam eines der Reißverschlußbänder tragen, wobei der Netzübergangsbereich einen vom Längsrand abliegenden ersten Bereich (23; 64), zwei sich neben den Bandbereichen erstreckende zweite Bereiche (24) und zwei sich zwischen den ersten und zweiten Bereichen erstreckende dritte Bereiche (25) umfaßt, wobei die Bandbereiche eine kleinere Maschengröße aufweisen als die ersten, zweiten und dritten Bereiche, dadurch gekennzeichnet, daß die Maschen der kettengewirkten Netzanschlußteile (18, 18; 50; 61; 71) rechteckig sind und daß die Maschen der dritten Bereiche (25) grösser sind als diejenigen der ersten (23; 64) und zweiten Bereiche (24).

2. Reißverschlußanordnung nach Anspruch 1, dadurch gekennzeichnet, daß der erste Bereich (64) einen sich in Längsrichtung desselben erstreckenden Verstärkungskernfaden (65) umfaßt.

3. Reißverschlußanordnung nach Anspruch 1, dadurch gekennzeichnet, daß jeder zweite Bereich (53) zwei nebeneinanderliegende Reihen rechteckiger Maschen mit einheitlicher Maschengröße umfaßt.

4. Reißverschlußanordnung nach Anspruch 1, dadurch gekennzeichnet, daß jedes Anschlußteil (18, 18; 50; 61; 71) zahlreiche Kettschnüre (26—31, 33—36; 54—59; 66—67) und zahlreiche Schußfäden (L2, L3, L4, L5) umfaßt, die mit den Kettschnüren abgebunden sind und gemeinsam mit diesen die rechteckigen Maschen begrenzen, wobei jede Kettschnur zahlreiche Kettfäden (L1, L6, L7) aufweist.

5. Reißverschlußanordnung nach Anspruch 4, dadurch gekennzeichnet, daß jede Kettschnur aus zwei der Schußfäden besteht, die als Fransen (L1) gewirkt sind, und daß jeder Schußfaden (L2—L5) Bereiche aufweist, die sich in Längsrichtung entlang dieser Fransen erstrecken.

6. Reißverschlußanordnung nach Anspruch 5, dadurch gekennzeichnet, daß jede Kettschnur ferner zwei der Kettfäden (L6, L7) umfaßt, die mit einem symmetrischen Muster in Kettrichtung in die Fransen (L1) eingelegt sind und diese eng miteinander abbinden.

7. Reißverschlußanordnung nach Anspruch 4, dadurch gekennzeichnet, daß die Schußfäden (32, 37; 60; 68) Längsabschnitte haben, die sich in Längsrichtung der Kettschnüre (26—31, 33—36; 54—56; 66, 67) erstrecken und Querbereiche haben, die sich paarweise zwischen und rechtwinklig zu den Kettschnüren (26—31, 33—36; 54—56; 66, 67) erstrecken.

8. Reißverschlußanordnung nach Anspruch 4, dadurch gekennzeichnet, daß die Kettfäden (L1, L6, L7) aus einem Polyestermultifilamentgarn bestehen und daß die Schußfäden aus einem verdrillten Polyestergarn bestehen.

9. Reißverschlußanordnung nach Anspruch 1, dadurch gekennzeichnet, daß die Bandbereiche (20, 20) jeweils mindestens eine Rille (38) aufweisen, die sich in Längsrichtung derselben erstreckt und von der Hauptebene des Reißverschlußbandes (21) weg offen ist, wobei das Reißverschlußband an den Bandbereichen mit mindestens einer Reihe von Nahtstichen (44a, 44b) angenäht ist, die sich in und entlang der Rille (38) erstrecken.

10. Reißverschlußanordnung nach Anspruch 9, dadurch gekennzeichnet, daß die Reihe von Nahtstichen (44a, 44b) mit einer Schicht aus Kunstharz (45) abgedeckt ist, die sich auch in und längs der Rille (38) erstreckt.

11. Reißverschlußanordnung nach Anspruch 9, dadurch gekennzeichnet, daß die Rille (38) mit einer Schicht aus Kunstharz (45) gefüllt ist.

12. Reißverschlußanordnung nach Anspruch 9, dadurch gekennzeichnet, daß sich zwei Reihen von Doppelfransennahtstichen (44a, 44b) mit symmetrischen Mustern in der Rille erstrecken, so daß ein Nadelfaden der einen Reihe von Nahtstichen (44a) und ein Schlingenfaden der anderen Reihe von Nahtstichen (44b) in der Rille erscheinen.

13. Reißverschlußanordnung nach Anspruch 2, dadurch gekennzeichnet, daß der Verstärkungskernfaden (65) im ersten Bereich (64) abgebunden ist.

Revendications

1. Un agencement de fermeture à glissière pour accoupler mutuellement une paire de bords en regard

l'un de l'autre d'une structure réticulaire, comprenant une fermeture à glissière (22; 74) comportant une paire de bandes-supports (21, 21; 75, 75); et une paire d'éléments de raccordement réticulaires tricotés-chaîne (18, 18; 50; 61; 71) comportant un grand nombre de mailles, chacun des éléments de raccordement comprenant une région de transition réticulaire (19; 51; 62; 72) agencée en vue d'être raccordée à l'un des bords (16) en regard l'un de l'autre de la structure réticulaire (17), et une paire de régions d'âmes superposées (20, 20; 52, 52; 63, 63; 73, 73) reliées à un bord longitudinal de la région de transition réticulaire et supportant conjointement l'une des bandes-supports, ladite région de transition réticulaire comportant une première partie (23; 64) disposée à distance du bord longitudinal, une paire de secondes parties (24) s'étendant de façon adjacente aux régions d'âmes, et une paire de troisièmes parties (25) s'étendant entre les première et seconde parties, les régions d'âmes présentant une taille de maille plus petite que celle des première, seconde et troisième parties, caractérisé en ce que lesdites mailles desdits éléments de raccordement réticulaires tricotés-chaîne (18, 18; 50; 61; 71) ont la forme d'un rectangle et que lesdites troisièmes parties (25) présentent une taille de maille plus grande que celle desdites première (23; 64) et secondes parties (24).

2. Un agencement suivant la revendication 1, ladite première partie (64) comprenant un fil d'âme de renforcement (65) s'étendant dans le sens longitudinal de cette partie.

3. Un agencement suivant la revendication 1, chacune desdites secondes parties (53) comportant une paire de rangées juxtaposées de mailles rectangulaires présentant une taille de maille uniforme.

4. Un agencement suivant la revendication 1, chaque élément de raccordement précité (18, 18; 50; 61; 71) comprenant une pluralité de cordons (26—31, 33—36; 54—59; 66, 67) de chaîne et une pluralité de fils (L2, L3, L4, L5) de trame tricotés avec lesdits cordons de chaîne et formant conjointement entre eux lesdites mailles rectangulaires, chaque cordon de chaîne précité comportant une pluralité de fils de chaîne (L1, L6, L7).

5. Un agencement suivant la revendication 4, chaque cordon de chaîne précité comprenant deux desdits fils de chaîne tricotés sous forme de points de chaînette (L1), et chaque fil de trame précité (L2—L5) comportant des parties s'étendant longitudinalement dans et le long desdits points de chaînette.

6. Un agencement suivant la revendication 5, chaque cordon de chaîne précité comportant en outre deux desdits fils de chaîne (L6, L7) disposés dans le sens de la chaîne suivant un dessin symétrique dans lesdits points de chaînette (L1) et reliant ceux-ci les uns aux autres de façon serrée.

7. Un agencement suivant la revendication 4, lesdits fils de trame (32, 37; 60; 68) comportant des parties longitudinales s'étendant dans le sens longitudinal des cordons de chaîne (26—31, 33—36; 54—56; 66, 67) et des parties transversales s'étendant par paires perpendiculairement aux cordons de chaîne et entre ces cordons de chaîne (26—31, 33—36; 54—56; 66, 67).

8. Un agencement suivant la revendication 4, lesdits fils de chaîne (L1, L6, L7) comprenant un filé multifilaments en polyester et lesdits fils de trame comprenant un filé tordu en polyester.

9. Un agencement suivant la revendication 1, lesdites régions d'âmes (20, 20) comportant chacune au moins une rainure (38) s'étendant dans le sens longitudinal de ces régions et s'ouvrant en sens opposé du plan général de ladite bande-support (21), ladite bande-support étant cousue auxdites régions d'âmes par au moins une rangée de points de couture (44a, 44b) s'étendant jusque dans ladite rainure et le long de celle-ci.

10. Un agencement suivant la revendication 9, ladite rangée de points de couture (44a, 44b) étant recouverte par une couche de résine synthétique (45) s'étendant également jusque dans ladite rainure (38) et le long de celle-ci.

11. Un agencement suivant la revendication 9, ladite rainure (38) étant remplie d'une couche de résine synthétique (45).

12. Un agencement suivant la revendication 9, une paire de rangées de doubles points de couture de chaînette (44a, 44b) s'étendant suivant des dessins symétriques dans ladite rainure de telle sorte qu'un fil d'aiguille d'une des rangées de points de couture (44a) et un fil de remailleuse de l'autre rangée de points de couture (44b) apparaissent dans ladite rainure.

13. Un agencement suivant la revendication 2, ledit fil d'âme de renforcement (65) étant tricoté dans la première partie (64).

FIG.1

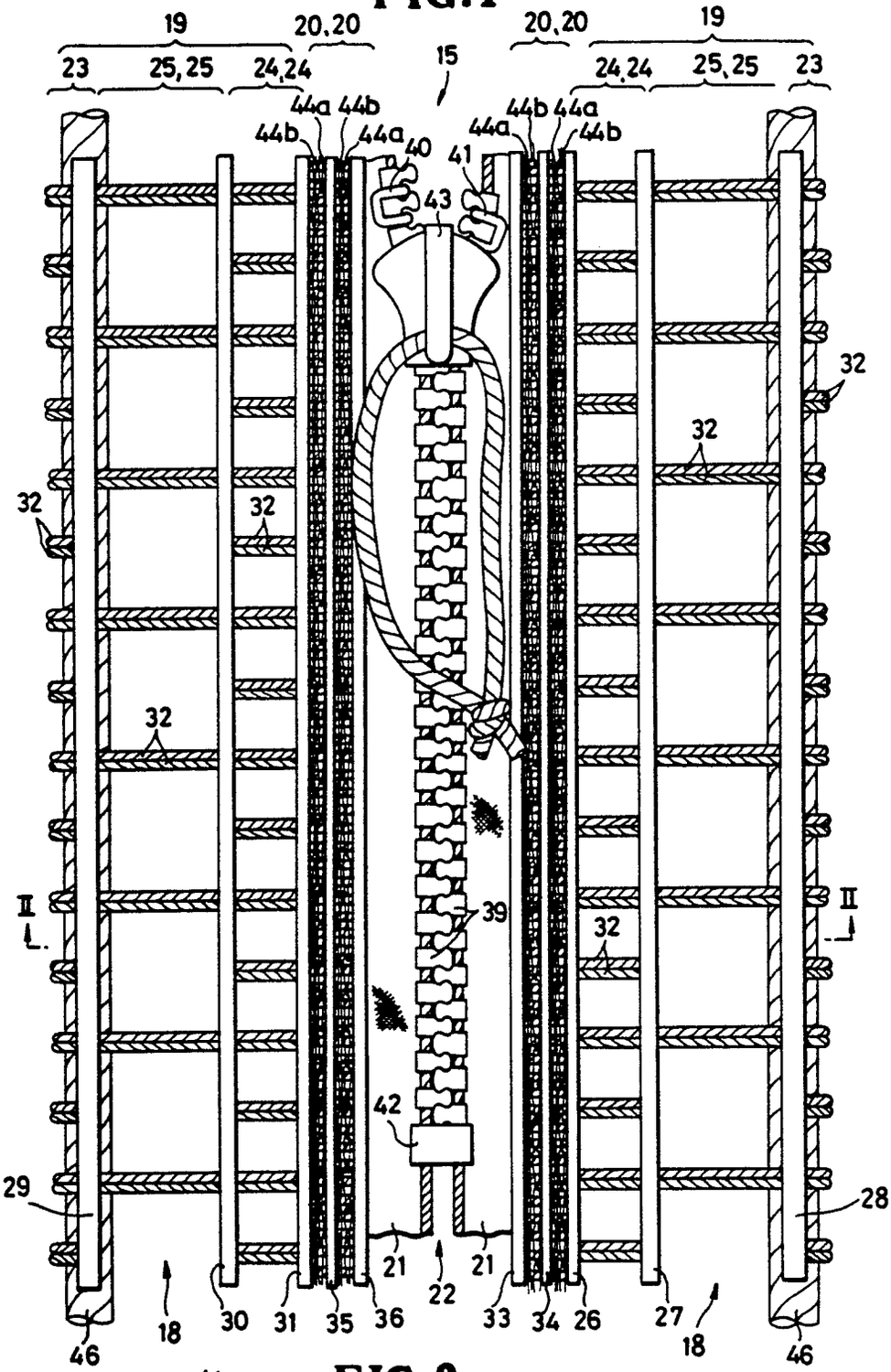

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20,20
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25,25
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44a
44b
44b
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44b
44b
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FIG.2

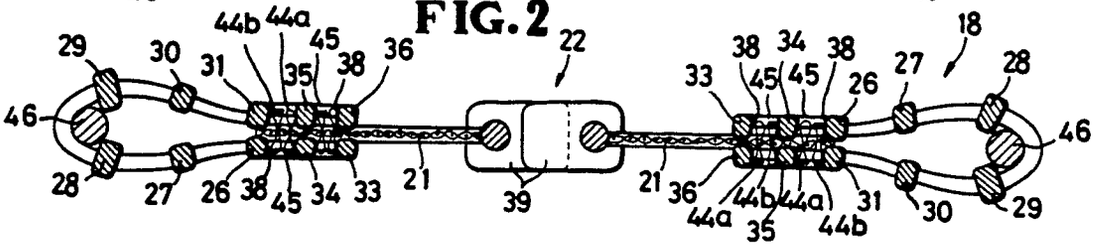

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44b
44a
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44a
44b
44a
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44b
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FIG. 3

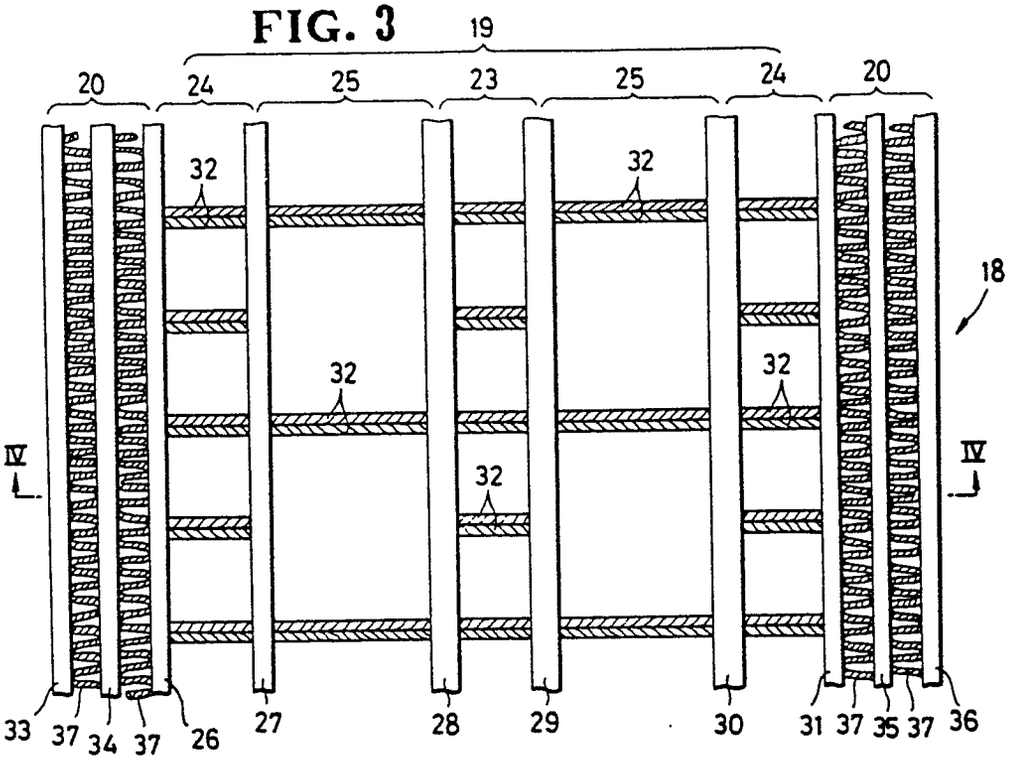

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FIG. 4

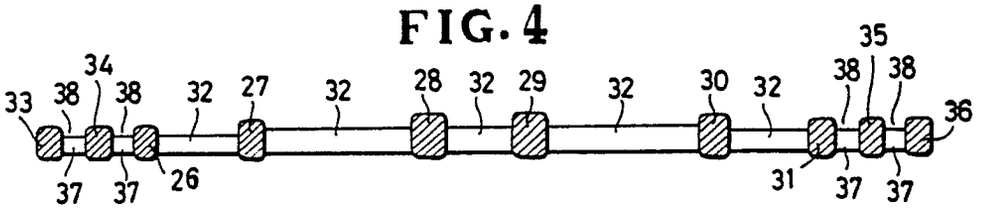

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FIG. 5

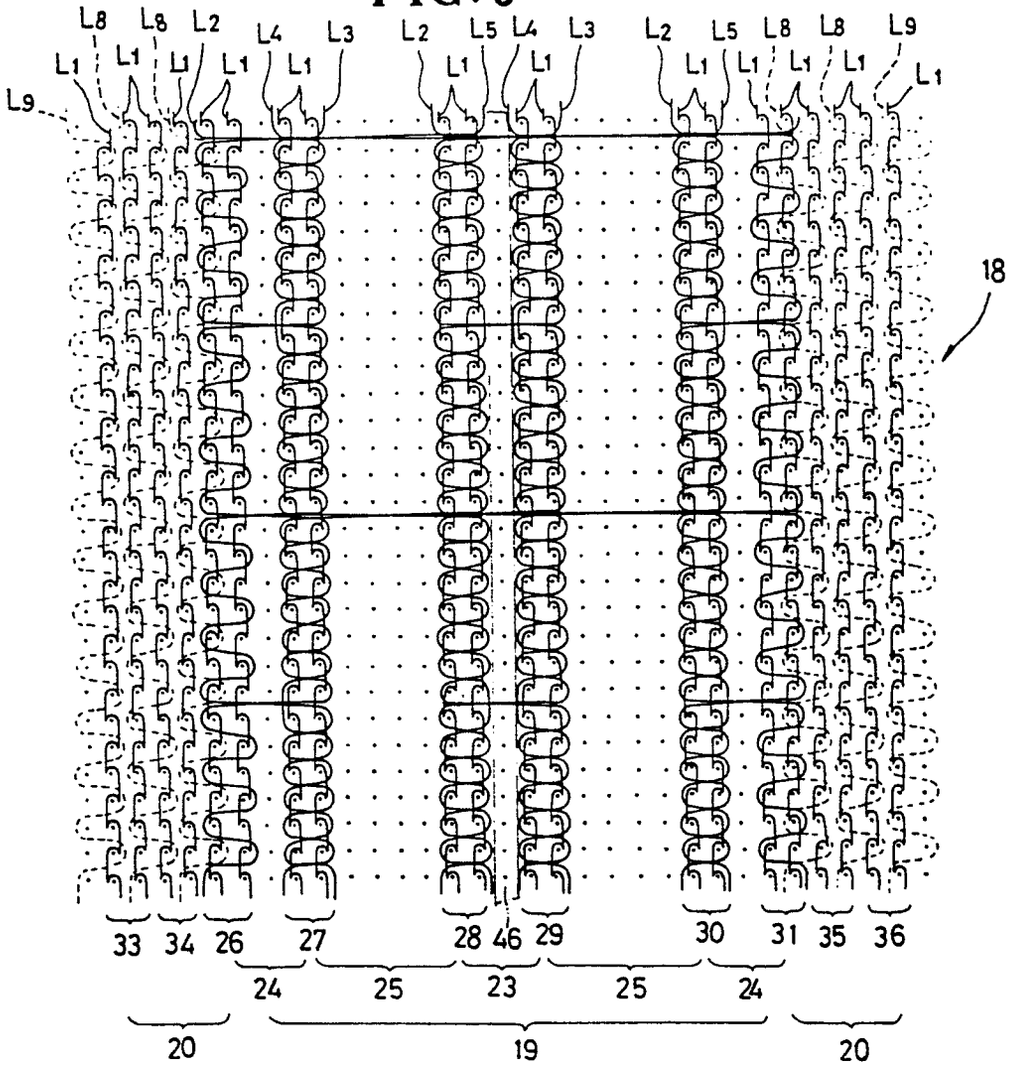

L8
L8
L2
L4
L3
L2
L5
L4
L3
L2
L5
L8
L8
L9
L1
L9
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FIG.6

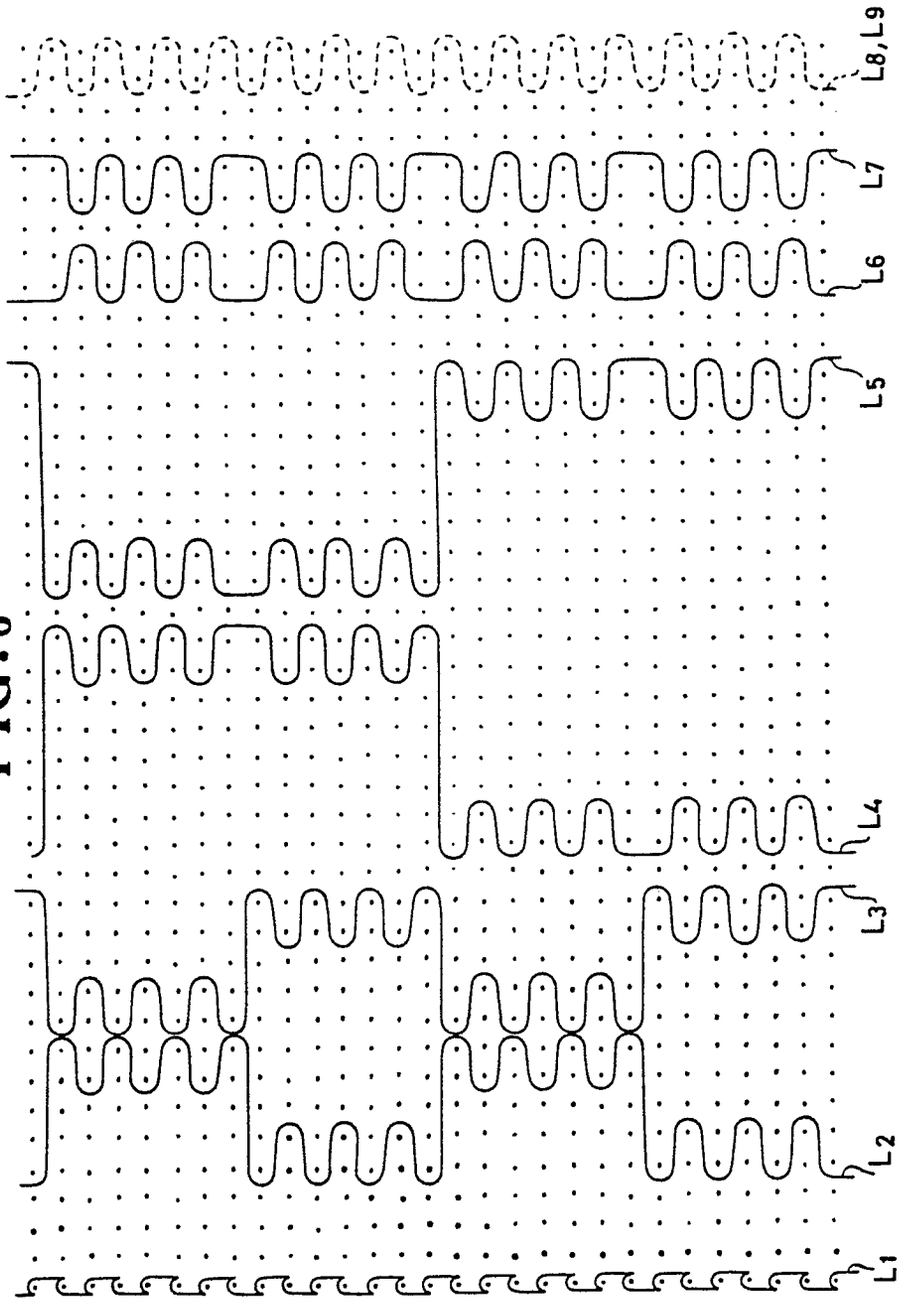


FIG. 7

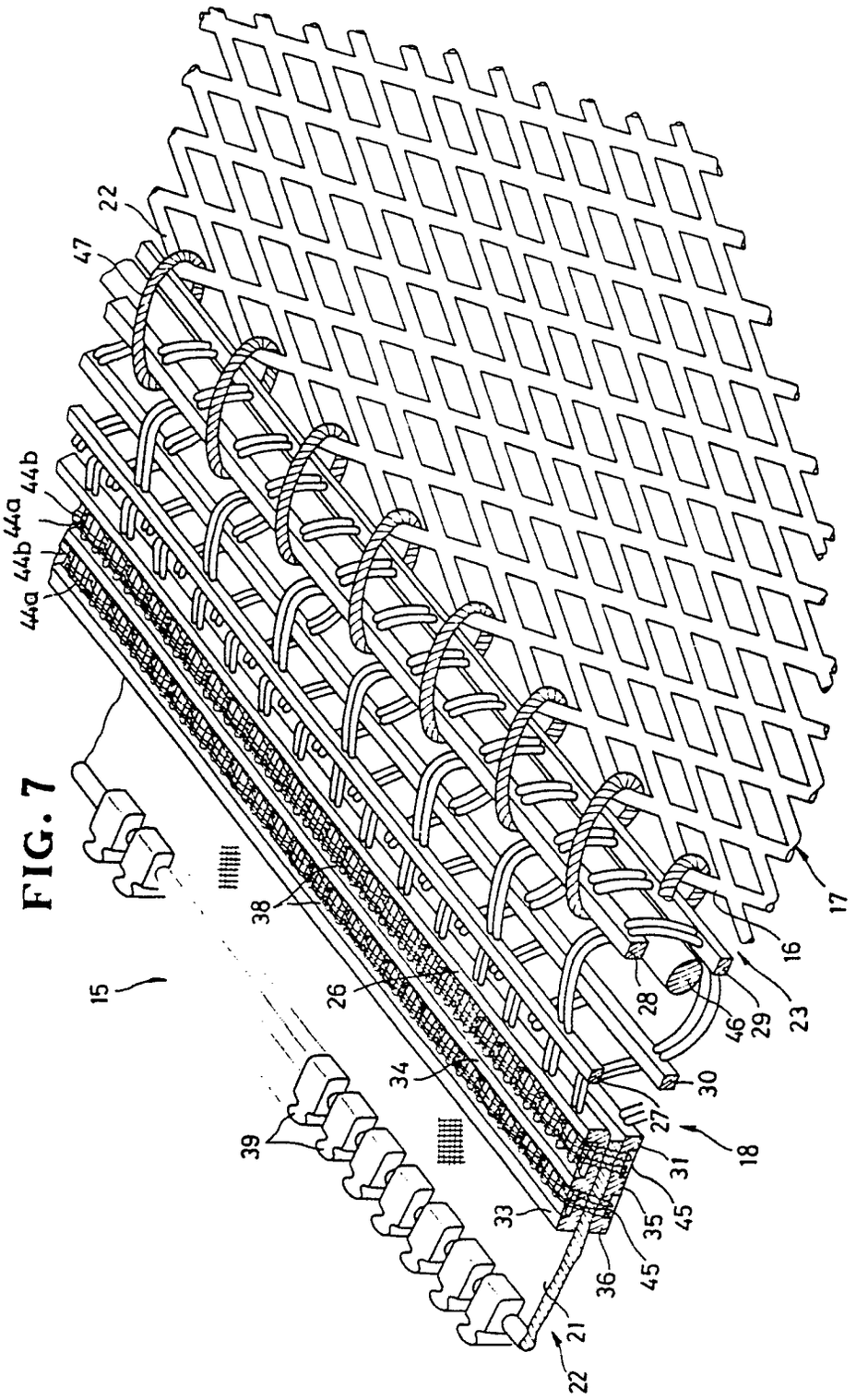

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44b
44a
44b
44a
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FIG. 8

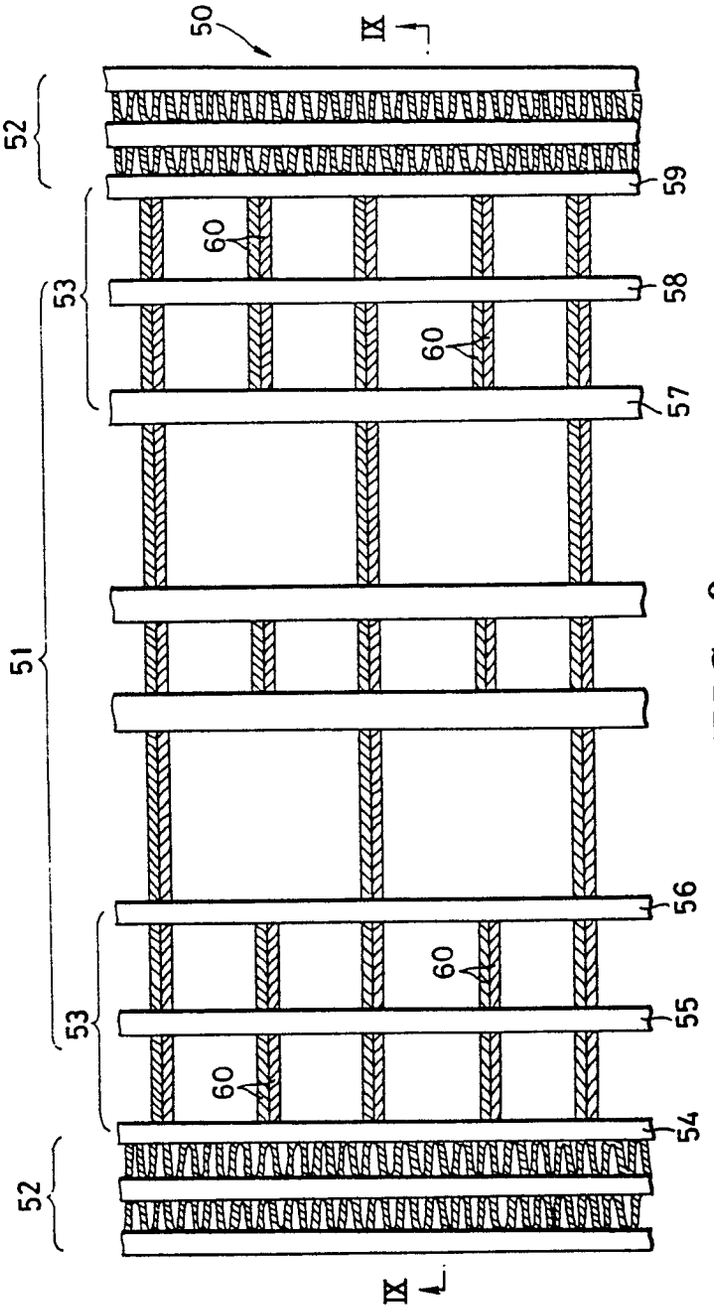


FIG. 9

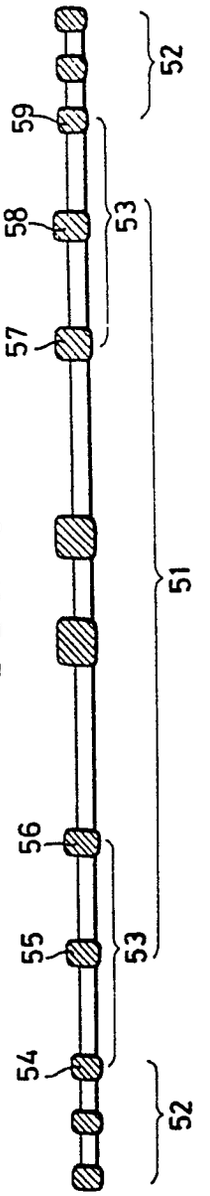


FIG.10

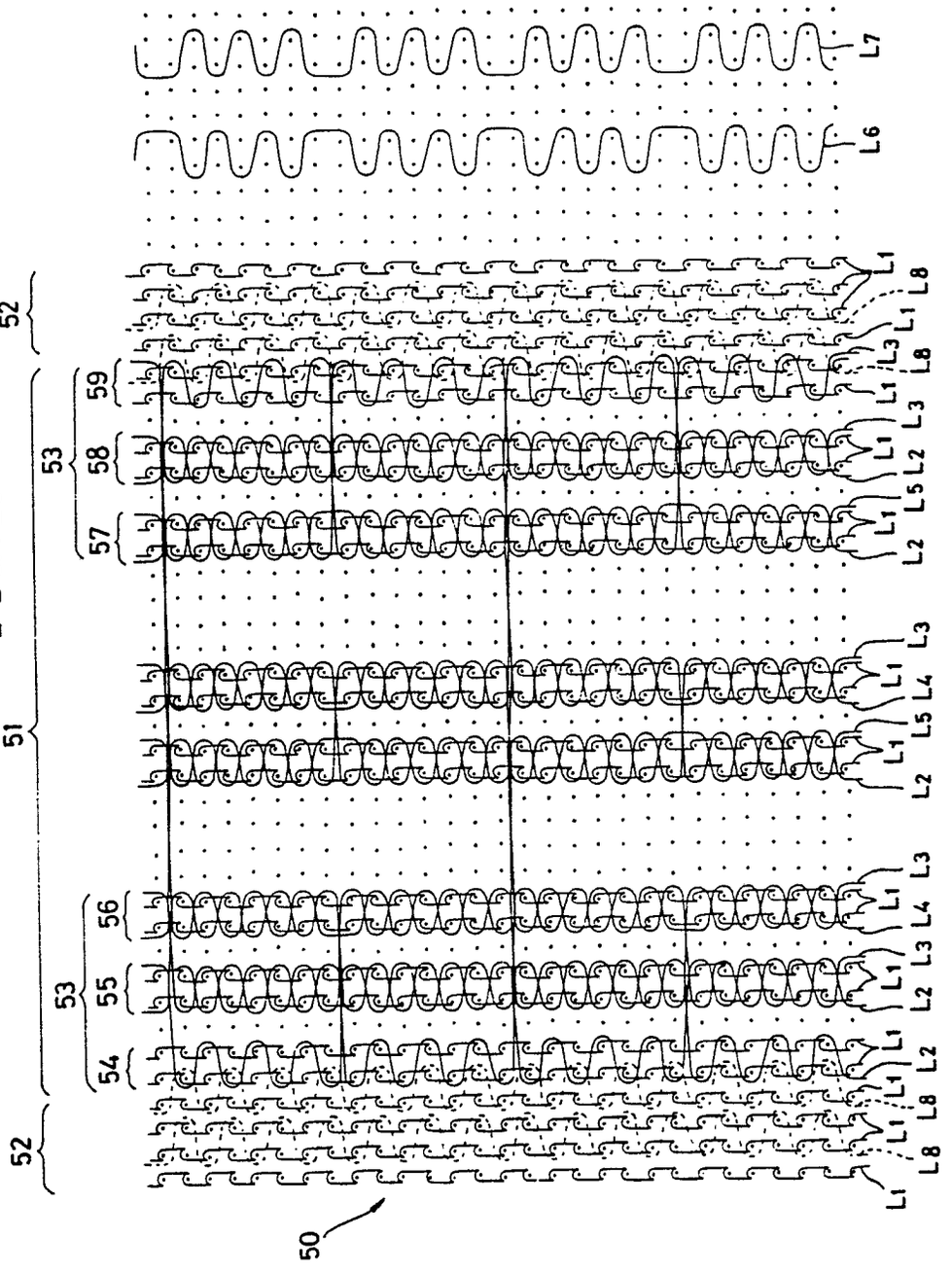


FIG. 11

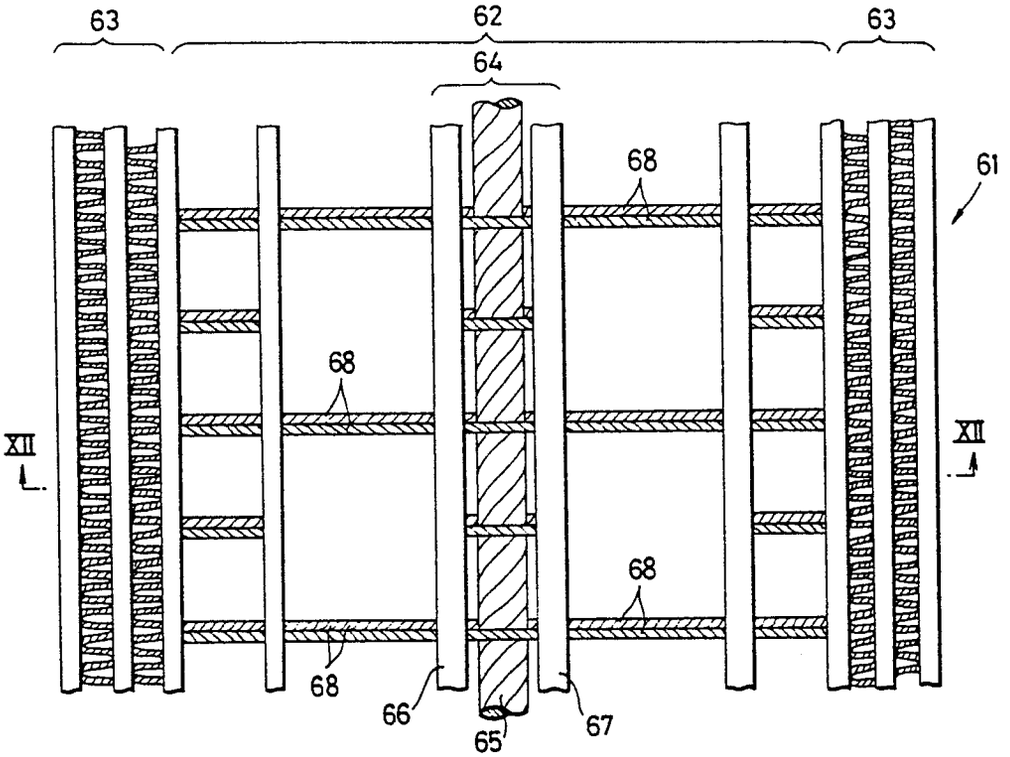

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XII
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FIG. 12

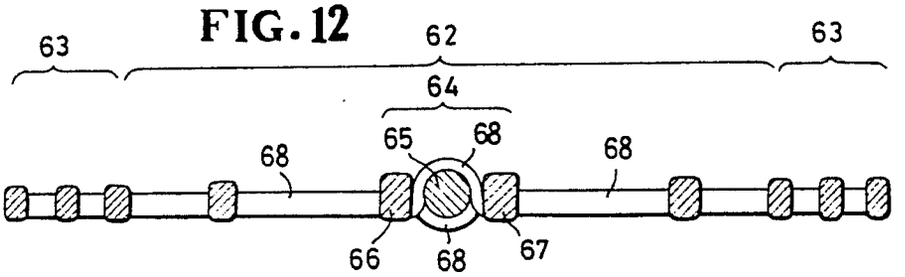

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FIG. 13

