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(54) **VENETIAN TYPE BLINDS**

RAFFLAMELLENSTORE

STORES DE TYPE VENITIEN

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Description

FIELD OF INVENTION

[0001] The invention relates to a venetian type blind.

BACKGROUND OF THE INVENTION

[0002] Venetian type blinds have a series of slats hung on ladders which extend from a headrail to a bottomrail. In most Venetian blinds a pair of lift cords is provided each having one end attached to the bottomrail and then passing through elongated holes in the slats up to and through the headrail. A cord lock is usually provided in the headrail through which the lift cords pass. The cord lock allows the user to maintain the blind in any desired position from fully raised to fully lowered.

[0003] The slats rest on rungs between rails of the ladders. The blind is in an open position when the rungs are horizontal. To close the blind one lifts one rail while allowing the other to either remain in place or be lowered. This raises one end of each rung tilting the slats. Thus, when the blind is closed there is typically tension on one rail while the other rail of the ladder is not in tension.

[0004] The rails originally used for venetian blinds consisted of a fabric tape typically from one to two inches in width. The rungs were also made of fabric strips. Conventionally, the lift cords pass through holes in the slats which were aligned between the rails of the ladder. When the blind was closed, the fabric rails covered the holes. Consequently, there was no concern about light passing through the holes when the blind was in a closed position.

[0005] Walker in United States Patent No. 2,572,224 discloses slats for a Venetian type blind having a tape type ladder system and two lift cords. One lift cord passes through notches on the inside edges at one end of the slats. The second lift cord passes through notches on the outside edge of the other end of the slats. Each lift cord is positioned behind one of the tape-type ladders. Walker does not disclose any lift mechanism inferring that a standard lift mechanism could be used. In a blind made with Walker's slats the lift cords play no role in maintaining the slats in alignment when the blinds are closed. Rather, the tape-type rails of the ladders maintain the slats in alignment.

[0006] Very few tape type ladders are used in blinds today. Rather, the art has adopted ladders formed of cord rails having cord-type rungs between them. Typically, the rungs are multiple strands of cord. However, a single strand of cord has also been used. Frequently, a braided cord is used for the ladder rails. The conventional lift cord arrangement in which the lift cord passes through elongated holes in the slats is used. The lift cords are aligned to be between the rails of the ladders which are provided near opposite ends of the blind. When this type of blind is closed light can pass through

the holes in the blind slats. This is readily apparent to anyone looking at the closed blind.

[0007] In pleated shades efforts have been made to prevent light from passing through the cord holes by making the holes to be a diameter very close to the diameter of the cord. This is not possible in a venetian type blind where the holes must be elongated to allow the slats to tilt properly.

[0008] In the venetian blinds which utilize a cord-type ladder the blinds are opened and closed by lifting or lowering one of the ladder rails relative to the other. In most blinds the lateral position of the ladder rails relative to one another remains unchanged at the headrail. Thus, there will be slack at the top of one of the ladder rails and the center of gravity shifts forward or back when the blind is tilted.

[0009] Venetian blind slats are conventionally made of aluminium plastic or wood. Cord route holes are normally punched into the slat one at a time while the length is cut. Wood slats are usually cut to length by saws so that punching or machining of the holes is done one unit at a time. Moreover, punching of holes through wood slats sometimes causes splintering and the areas around the holes are very difficult to paint or seal. After the cord holes have been drilled, lift cords are passed from the bottom rail through the cord holes to the headrail to complete the assembled blind. After the blind has been assembled in this manner it is not possible to remove the slats from the blind without removing the lift cords making it very difficult to clean the slats in the area of the route holes. Thus, it is a major task to clean or paint the slats in this type of blind. Since the lift cords pass through each slat they prevent tight closure when the blind is tilted to a closed position. Further, the route holes weaken the slats dramatically so that bending more easily occurs at the route holes. United States Patent No. 5,060,709 discloses a venetian type blind having a headrail and bottomrail and an array of slats. At least one of the ladder cords which are used to adjust the angular orientation of the slats is received in notches formed in the edges of the slats. The lift cords used to raise and lower the array of slats run along the outer edges of the slats outside the ladder cords. The blind also has a tilt mechanism.

[0010] There is a need for a venetian type blind having no holes through the slots. The venetian must operate easily and the slats must maintain alignment when the blind is open and closed and most particularly when the blind is raised and lowered.

SUMMARY OF THE INVENTION

[0011] I provide a venetian type blind having a bottomrail, headrail and plurality of slats positioned therebetween. The slats are notched to form slots on their inside edge and outside edge to accommodate lift cords. At least four lift cords pass from the bottomrail to the headrail each passing through a slot on the inside edge

or outside edge of each slat. At least two preferably cord-type ladders are provided to hold the slats. The ladders are aligned such that the rails of the ladders are adjacent the lift cords and outside the slots cut in the slats.

[0012] A tilt mechanism to close the blind is provided within the headrail which preferably moves the rails together as the tilt mechanism lifts one rail and lowers the other rail relative to one another. Therefore, the center of gravity of the blind is in the same plane throughout the tilt range.

[0013] A tube lift may be provided for the lift cords or a cord lock can be provided within the headrail or on the cords outside of the headrail.

[0014] Other objects and advantages of the present invention will become apparent from a description of the present preferred embodiments shown in the drawings.

BRIEF DESCRIPTION OF THE FIGURES

[0015]

Figure 1 is a front view of the present preferred embodiment of my venetian type blind shown in a lowered open positioned.

Figure 2 is a front view similar to Figure 1 showing an upper portion of the blind when the blind in a raised position.

Figure 3 is a sectional view taken along the line III-III of Figure 1.

Figure 4 is a sectional view similar to Figure 3 taken along the line IV-IV of Figure 2.

Figure 5 is a perspective view of a portion of the embodiment shown in Figure 1 taken around the line V-V of Figure 1 to show the base of a pair of lift cords and adjacent ladder.

Figure 6 is a fragmentary view showing the right end of the portion of the raised blind shown in Figure 2 wherein the front panel of the headrail has been removed.

Figure 7 is a sectional view taken along the line VII-VII in Figure 1.

Figure 8 is a fragmentary view showing the front portion of the blind near the line VII-VII in Figure 1.

Figure 9 is a perspective view similar to Figure 5 showing an alternative routing for the lift cords.

Figure 10 is a rear view of one end of the headrail with the back panel removed to show the top portion of the alternative lift cord routing of Figure 9.

Figure 11 is a sectional view taken along the line XI-XI of Figure 1.

Figure 12 is a sectional view taken along the line XII-XII of Figure 1 with the lift cords removed.

Figure 13 is a sectional view similar to Figure 12 showing the blind in a closed position.

Figure 14 is a fragmentary view similar to Figure 6 showing a second preferred embodiment that utilizes a tube lift.

Figure 15 is a sectional view taken along the line XV-XV of Figure 14.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] The first present preferred embodiment is comprised of a headrail 2, two piece bottomrail 3 and 4 and set of slats 6 extending therebetween. If desired, a one piece bottomrail could be used. For purposes of illustration only six slats are shown. However, the blind could have any number of slats and likely would have many more slats than are shown. The slats of this embodiment are symmetrical to a horizontal plane passing through the front and back edges of the slat. Crowned slats may be used in place of these flat slats if desired. The slats are suspended on a cord type ladder 10. The ladder has a front rail 11, rear rail 12 and series of rungs 13 extending therebetween on which these slats rest. As shown most clearly in Figure 7, the bottom ends of the ladders are knotted within the bottomrails 4 and 5 and covered by plugs 42. Cord 40 is provided to tie the bottomrails 4 and 5 together and prevent them from flaring out. At least two front slots 7 are provided on the front edge of each slat 6. A corresponding set of rear slots 9 have been cut into the back edge of slat 6 opposite slots 7. I prefer to have the slots 7 and 9 directly opposite one another as shown in Figure 5. However, one slot could be to the left or right of the other slot. The slots are sized so that lift cords 81, 82, 83 and 84, which are generally identified by reference number 8, and ends of rungs 13 can loosely fit therein. Tilt ladders 10 are positioned near the ends of the blind so that the rails 11 and 12 are adjacent the lift cords. A third tilt ladder is provided at the center of the blind where no lift cords are needed. Slots 7 and 9 preferably have a depth such that only the lift cords 8 and ends of rungs 13 can completely fit therein. Thus, the rails 11 and 12 can never be fully within the slots. For purposes of illustration the lift cords 8 are shown in chain line in some of the figures so as to distinguish them from the adjacent rails of the tilt ladders or other structures. Because lift cords travel within slots 7 and 9 provided in the slats 6 there are no cord holes in the slats. As can be seen in Figure 3 the slats 6 rest on rungs 13 of the tilt ladder 10 and can easily be lifted from the rungs for cleaning or repainting.

[0017] The number of lift cords that are used will vary according to the size of the blind and the cording arrangement. In every embodiment lift cords 8 should be positioned near either end of the blind in slots on both the front and rear edges of the slats. In the embodiment of Figure 1 four lift cords extend from the bottomrail through the headrail. As shown most clearly in Figures 1 through 6, lift cords 81 and 83 extend from the front bottomrail 4 through slots 7 in the front edge of slats 6. Lift cords 82 and 84 extend from the rear bottomrail 5 through slots 9 in the rear edge of slats 6. The lift cords 81, 82, 83 and 84 pass through the headrail 2 exiting on

the front right side as shown in Figures 1 and 2. The lift cords 81, 82, 83 and 84 are threaded through the headrail over pulley 38 and into a cord lock 26 provided in the headrail 2. Support plate 36 is provided to attach the cord lock 26 to the headrail 2. The pulley 38 is held in place by support 37. The cords extend through the cord lock to a position outside and at one end of the blinds. Preferably, the cord lock is always engaging the lift cords unless the blind is being raised or lowered. The distal end of the lift cords may be tied together in a ball connector 33. If desired a pull cord 34 having a tassel 35 may be connected to the ball connector 33. If the bottomrail is supported by the tilt ladders, as in the embodiment of Figure 1, the weight of the lift cords extending out of the headrail and the attached tassel can provide sufficient tension to hold the slats in place. Moreover, a weight can be placed in the tassel 35 or connector 33 if needed. If the bottomrail is supported only by the lift cords, the weight of the bottomrail maintains the lift cords in tension. Tension in the lift cord prevents lateral motion of the slats.

[0018] An alternative cording arrangement shown in Figures 9 and 10 utilizes two lift cords and pulleys in the bottomrail 14. The distal end of each lift cord 85 and 86 is attached to the headrail via the tilt disk 18 through hole 17. (See Figure 4) The lift cord 85 and 86 is routed from the headrail down the front of the blind, through the front slats 7, over pulleys 88, across the bottomrails 3, 4, under pulley 89 and up the back of the blind through back slots 9 to the headrail. The lift cords can be threaded through the ladder rungs 13 as shown or be alternately laced with the ladder rungs. The cords 85, 86 pass through a cord lock 90 and out of the headrail as shown in Figure 10. One could also provide a pulley arrangement in which four cords are used and each cord goes up and down in the same set of slots. Yet another arrangement would affix one lift cord at the disk away from the cord lock and route it down the front of the blind through the front bottomrail to the other end of the bottomrail, up the front of the blind, and through a cord lock at the other end of the headrail. A second lift cord would start at the disk near the cord lock and pass through the headrail to the disk at the opposite end and follow a similar path as the first cord back to the disk near the cord lock where it is affixed. A comparable pair of cords travels through the backside of the blind. In all of those cord routing patterns the lift cords are in tension at all times preventing lateral motion of the slats.

[0019] While the lift cords are always in tension, the rails of the tilt ladders are only in tension when the blind is fully lowered. Since the rails are on the outside edges of the slats they can fold neatly across the front of the blind when the blind is raised to the position shown in Figure 2. Although such neat folding generally occurs, I prefer to assure that such neat folding always occurs by treating the rails with a permanent pleating or other treatment to provide a memory in the rails so that they will fold in the desired manner.

[0020] A tilt mechanism 16 is provided to move the rails 11 and 12 of the tilt ladder 10 relative to one another to open and close the blind and also moves the lift cords at the same time. The present preferred tilt mechanism can be seen most clearly by referring to Figures 4, 3, 7, 8, 11, 12 and 13. The tilt mechanism in the preferred embodiment is comprised of a disk 18 to which the rails 11 and 12 of the tilt ladder 10 are connected. There is one disk for each tilt ladder 10. The disks 18 are mounted on tilt rod 19 so that rotation of the tilt rod will turn the disks in unison. The tilt rod is suspended above the base 20 of the headrail by cradles 22. I prefer to provide a bridge 23 on each cradle to prevent the lift cords from getting caught on the cradles. As shown in Figure 14, a right angle drive or worm gear drive 24 is provided at one end of tilt rod 19. The drive extends through the headrail 2 to provide a handle 25 which is turned to open and close the blind. Rotation of the disk 18 in either direction lifts one rail 11 or 12 and associated lift cords relative to the other and moves the rails 11 and 12 toward one another. If a two piece bottomrail is used, the front bottomrail will move relative to the rear bottomrail. The same center of gravity should be maintained for the blind through the tilt cycle.. The disks can be rotated 100 degrees. As can be seen in Figures 12 and 13, the blind slats 6 will be in a nearly closed position after the disks 18 have been rotated through approximately 90 degrees. As disks 18 are rotated the lift cords 8 and the rails 11 and 12 of the tilt ladders 10 are constantly in tension. This contains the slats and prevents them from slipping laterally.. The number of tilt ladders which are used will vary according to the width of the blind.

[0021] As can be most clearly seen in Figures 3, 4 and 6 the lift cords are routed through pivot holes 17 in the disks 18 located at the point of attachment of the ladder rails 11 and 12. Consequently, rotation of the disk shifts the lift cords transversely and vertically in tandem with the ladder rails and keeps the lift cords under tension. An alignment arm 27 extends from tilt rod 19 through which the lift cords pass to prevent the lift cords from getting caught on the cradles and to present the cords for a uniform entry into the cord lock independent of the tilt angle of the slats.

[0022] In the first preferred embodiment the lift cords 8 pass through the headrail. An alternative is shown in Figures 14 and 15 wherein the lift cords are wound about a tubular drive mechanism 30. The drive mechanism includes an axle 29 around which the lift cords 8 are wound. Winding is done such that the lift cord extending from the front is wound in one direction whereas the lift cord extending from the rear is wound in the opposite direction as shown in Figure 15. Thus, turning of the drive axle 29 will raise or lower the lift cords in the front and back at the same time. A tube lift mechanism such as is disclosed in United States Patent No. 5,184,660 can be adopted for the venetian blind shown in Figures 14 and 15.

[0023] There are many hardware systems by which

the lift cords can be tilted in tandem with the rails of the tilt ladder 10. For example, a set of parallel cradles can be combined with straps or cables and cord locks to form a parallelogram that moves in tandem with the tilt ladder. In another possible arrangement, the disks could be combined with a tilting bar or rotating beam. Although I have shown and described certain present preferred embodiments of my venetian blind it should be distinctly understood that the invention is not limited thereto but may be variously embodied within the scope of the following claims.

Claims

1. A venetian blind comprising:

a headrail (2);
 a bottomrail (4,5,14);
 at least two cord ladders (10) each having substantially parallel rails (11,12);
 lift cords (8,81-82) extending between the headrail (2) and the bottomrail (4,5) and comprising a first pair of lift cords (81,82) adjacent to the first ladder (10) and connected to the bottomrail (4,5), and a second pair of lift cords (83,84) adjacent to the second ladder (10);
 a plurality of slats (6) carried on the ladders, each slat (6) having a first end and a second end and an inside edge and an outside edge, and at least a first slot (7) on the outside edge or the inside edge proximate the first end of the slat, the first slots forming a first vertically arrayed set of slots, and a second slot (7) on the inside edge or the outside edge proximate the second end of the slat and laterally spaced from the first slot, the second slots forming a second vertically arrayed set of slots such that a first ladder (10) is positioned proximate the first ends of the slats so that one ladder rail (11) is positioned near the first set of slots, and a second ladder (10) is positioned proximate the second ends of the slats so that one ladder rail (11) is positioned near the second set of slots; and
 a tilt mechanism (16) attached to the headrail (2) to which the first and second ladders (10) are attached, such that when the blind is changed from an open position to a closed position the rails (11,12) of each of the ladders will move relative to one another;

characterised by:

one of the first pair of lift cords (82) running through the first set of slots (7) and one of the second pair of lift cords (84) running through the second set of slots (7); and
 the first pair of lift cords (81,82) being engaged

with substantially each of the rungs (13) of the first ladder (10) and the second pair of lift cords (83,84) being engaged with substantially each of the rungs (13) of the second ladder (10), such that the rails (11,12) of the ladders (10) fold substantially in a plane parallel to the edges of the slats (6) when the lift cords (81-84) draw the slats (6) together.

2. The venetian blind of claim 1 wherein each slat has a third slot (9) opposite the first slot (7) and a fourth slot (9) opposite the second slot (7), a second one (81) of the first pair of lift cords (81,82) runs through the third slot (9) of each slat (6) and a second one (83) of the second pair of lift cords (83,84) runs through the fourth slot (9) of each slat (6).

3. The venetian blind of any previous claim wherein the ladder rails (11,12) have a dimension greater than the opening of the slots (7,9).

4. The venetian blind of any previous claim wherein the engagement of the lift cords (8,81-84) with the ladder rungs (13) comprises the alternate lacing of lift cords with the ladder rungs.

5. The venetian blind of any previous claim wherein the engagement of the lift cords (8,81-84) with the ladder rungs (13) comprises each of the lift cords passing through at least one of the ladder rungs.

6. The venetian blind of any previous claim wherein the bottomrail is comprised of two spaced apart parallel rails (4,5) and where one lift cord (81,83) of each pair of lift cords is attached to one rail (5) and a second lift cord (82,84) of each pair of lift cords is attached to the other rail (4).

7. The venetian blind of any previous claim also comprising a tube lift (30) attached to the headrail (2) and to which the lift cords (8) are connected.

8. The venetian blind of any previous claim also comprising four pulleys (88,89) within the bottomrail and positioned so that one lift cord (85) passes over each pulley.

9. The venetian blind of any previous claim also comprising a cord lock (26) through which the lift cords (8,81-84) pass wherein the cord lock is always engaged unless the lift cords are being operated.

10. The venetian blind of any previous claim wherein the tilt mechanism is comprised of a first cylindrical member (18) to which the rails (11,12) of the first ladder (10) are attached; a second cylindrical member (18) to which the rails (11,12) of the second ladder (10) are attached; an axle (19) attached be-

tween the first cylindrical member and the second cylindrical member, and means (24) for rotating the axle (19) and attached cylindrical members (18).

11. The venetian blind of claim 10, wherein at least one of the lift cords passes through at least one of the cylindrical members (18). 5
12. The venetian blind of claim 10 wherein the means (24) for rotating the axle and attached cylindrical members is one of a right angle drive and a worm drive. 10
13. The venetian blind of any of claims 1 through 10 wherein the tilt mechanism is comprised of: 15
 - a first disk (16) to which the rails (11,12) of the first ladder (10) are attached;
 - a second disk (18) to which the rails (11,12) of the second ladder (10) are attached; 20
 - an axle (19) attached between the first disk (18) and the second disk (18); and
 - means (24) for rotating the axle and attached disks. 25
14. The venetian blind of claim 13 wherein at least one of the lift cords (8) passes through at least one of the first disk and the second disk (18). 30

Patentansprüche

1. Jalousie, mit
 - einer oberen Schiene (2);
 - einer unteren Schiene (4, 5, 14); 35
 - mindestens zwei Seilleitern (10), wovon jede im Wesentlichen parallele Seilführungen (11, 12) aufweist;
 - Zugseilen (8, 81-82), die sich zwischen der oberen Schiene (2) und der unteren Schiene (4, 5) erstrecken und ein erstes Paar Zugseile (81, 82) nahe der ersten Leiter (10) aufweisen, das mit der unteren Schiene (4, 5) verbunden ist, sowie ein zweites Paar Zugseile (83, 84) nahe der zweiten Leiter (10); 40
 - mehreren Lamellen (6), die auf den Leitern ruhen, wobei jede Lamelle ein erstes Ende und ein zweites Ende sowie eine Innenkante und eine Außenkante aufweist, sowie einen ersten Schlitz (7) an der Außenkante oder der Innenkante nahe dem ersten Ende der Lamelle, wobei die ersten Schlitzte einen ersten Satz vertikal aufgereihter Schlitzte bilden, und einen zweiten Schlitz (7) an der Innenkante oder der Außenkante nahe dem zweiten Ende der Lamelle, seitlich von dem ersten Schlitz beabstandet, wobei die zweiten Schlitzte einen zweiten Satz vertikal aufgereihter Schlitzte bilden, so dass eine erste Leiter (10) nahe den ersten Enden der Lamellen so positioniert ist, dass eine Seilführung (11) der Leiter 45

nahe dem ersten Satz von Schlitzten positioniert ist, und eine zweite Leiter (10) ist nahe den zweiten Enden der Lamellen so positioniert, dass eine Seilführung (11) der Leiter nahe dem zweiten Satz von Schlitzten positioniert ist; und

einen Kippmechanismus (16), der an der oberen Schiene (2) befestigt ist, an dem die ersten und zweiten Leitern (10) befestigt sind, so dass bei Änderung der Position der Jalousie von einer offenen in eine geschlossene Position die Seilführungen (11, 12) jeder der Leitern sich relativ zueinander bewegen;

dadurch gekennzeichnet, dass

eines der beiden ersten Zugseile (82) durch den ersten Satz von Schlitzten (7) verläuft und eines der beiden zweiten Zugseile (84) durch den zweiten Satz von Schlitzten (7) verläuft; und dass das erste Paar von Zugseilen (81, 82) mit im Wesentlichen jeder der Sprossen (13) der ersten Leiter (10) und das zweite Paar von Zugseilen (83, 84) mit im Wesentlichen jeder der Sprossen (13) der zweiten Leiter (10) in Eingriff ist, so dass die Seilführungen (11, 12) der Leitern (10) sich im Wesentlichen in einer Ebene zusammenfallen, die parallel zu den Kanten der Lamellen ist (6), wenn die Zugseile (81-84) die Lamellen (6) zusammenziehen.

2. Jalousie nach Anspruch 1, bei der jede Lamelle einen dritten Schlitz (9) aufweist, der dem ersten Schlitz (7) gegenüberliegt, und einen vierten Schlitz (9), der dem zweiten Schlitz (7) gegenüberliegt, wobei ein zweites (81) des ersten Paares von Zugseilen (81, 82) durch den dritten Schlitz (9) jeder Lamelle (6) verläuft und ein zweites (83) des zweiten Paares von Zugseilen (83, 84) durch den vierten Schlitz (9) jeder Lamelle (6) verläuft. 30
3. Jalousie nach einem der vorhergehenden Ansprüche, bei der die Leiterseilführungen (11, 12) größere Abmessungen haben als die Öffnung der Schlitzte (7, 9). 35
4. Jalousie nach einem der vorhergehenden Ansprüche, bei der das In-Eingriff-Stehen der Zugseile (8, 81-84) mit den Leitersprossen (13) in dem abwechselnden Verbinden (Einfädeln) der Zugseile mit den Leitersprossen besteht. 40
5. Jalousie nach einem der vorhergehenden Ansprüche, bei der das In-Eingriff-Stehen der Zugseile (8, 81-84) mit den Leitersprossen darin besteht, dass jedes der Zugseile durch mindestens eine der Leitersprossen verläuft. 45
6. Jalousie nach einem der vorhergehenden Ansprüche, bei dem die untere Schiene aus zwei voneinander beabstandeten, parallelen Schienen (4, 5) besteht, wobei ein Zugseil (81, 83) jedes Paares von 50

Zugseilen an einer Schiene (5) und ein zweites Zugseil (82, 84) jedes Paars von Zugseilen an der anderen Schiene (4) befestigt ist.

7. Jalousie nach einem der vorhergehenden Ansprüche, die auch eine Aufwickelvorrichtung (30) aufweist, die an der oberen Schiene (2) befestigt ist, und mit der die Zugseile (8) verbunden sind. 5
8. Jalousie nach einem der vorhergehenden Ansprüche, die auch vier Riemenscheiben (88, 89) in der unteren Schiene aufweist, die so angeordnet sind, dass ein Zugseil (85) über jede Riemenscheibe läuft. 10
9. Jalousie nach einem der vorhergehenden Ansprüche, die auch eine Seilverriegelung (26) aufweist, durch die die Zugseile (8, 81-84) laufen, wobei die Seilverriegelung immer in Verriegelungsposition ist, außer wenn die Zugseile in Betrieb sind. 15
10. Jalousie nach einem der vorhergehenden Ansprüche, bei der der Kippmechanismus aus einem ersten zylindrischen Element (18) besteht, an dem die Seilführungen (11, 12) der ersten Leiter (10) befestigt sind; einem zweiten zylindrischen Element (18), an dem die Seilführungen (11, 12) der zweiten Leiter (10) befestigt sind; einer Achse (19), die zwischen dem ersten zylindrischen Element und dem zweiten zylindrischen Element befestigt ist; und Mitteln (24), um die Achse (19) und die daran befestigten zylindrischen Elemente (18) in Drehung zu versetzen. 20
11. Jalousie nach Anspruch 10, bei der mindestens eines der Zugseile durch mindestens eines der zylindrischen Elemente (18) läuft. 25
12. Jalousie nach Anspruch 10, bei der die Mittel (24), mit denen die Achse und die daran befestigten zylindrischen Elemente in Drehung versetzt werden, entweder ein Winkeltrieb oder ein Schneckenantrieb sind. 30
13. Jalousie nach einem der Ansprüche 1 bis 10, bei der der Kippmechanismus Folgendes aufweist: 35
 - eine erste Scheibe (16), an der die Seilführungen (11, 12) der ersten Leiter (10) befestigt sind; 40
 - eine zweite Scheibe (18), an der die Seilführungen (11, 12) der zweiten Leiter (10) befestigt sind; 45
 - eine Achse (19), die zwischen der ersten Scheibe (18) und der zweiten Scheibe (18) befestigt ist; und 50
 - Mitteln (24), um die Achse und die daran befestigten Scheiben in Drehung zu versetzen. 55

14. Jalousie nach Anspruch 13, bei der mindestens eines der Zugseile (8) durch mindestens eine der ersten und der zweiten Scheiben (18) läuft.

Revendications

1. Store vénitien comprenant :

un rail supérieur (2) ;
 un rail inférieur (4, 5, 14) ;
 au moins deux échelles de cordons (10) comportant chacune des rails sensiblement parallèles (11, 12) ;
 des cordons de levage (8, 81 à 82) s'étendant entre le rail supérieur (2) et le rail inférieur (4, 5), et comprenant une paire de cordons de levage (81, 82) adjacents à la première échelle (10) et reliés au rail inférieur (4, 5), et une deuxième paire de cordons de levage (83, 84) adjacents à la deuxième échelle (10) ;
 une pluralité de lames (6) supportées sur les échelles, chaque lame (6) comportant une première extrémité et une deuxième extrémité et un bord intérieur et un bord extérieur, et au moins une première encoche (7) sur le bord extérieur ou le bord intérieur à proximité de la première extrémité de la lame, les premières encoches formant un premier jeu d'encoches groupées verticalement, et une deuxième encoche (7) sur le bord intérieur ou le bord extérieur à proximité de la deuxième extrémité de la lame et latéralement espacée de la première encoche, les deuxièmes encoches formant un deuxième jeu d'encoches groupées verticalement, de telle sorte qu'une première échelle (10) soit positionnée à proximité des premières extrémités des lames de telle sorte qu'un rail d'échelle (11) soit positionné à proximité du premier jeu d'encoches, et qu'une deuxième échelle (10) soit positionnée à proximité des deuxièmes extrémités des lames de telle sorte qu'un rail d'échelle (11) soit positionné à proximité du deuxième jeu d'encoches ; et
 un mécanisme d'inclinaison (16) fixé au rail supérieur (2) auquel sont fixées les première et deuxième échelles (10), de telle sorte que, lorsque le store passe d'une position ouverte à une position fermée, les rails (11, 12) de chacune des échelles se déplacent l'un par rapport à l'autre ;

caractérisé par le fait que :

l'un de la première paire de cordons de levage (82) s'étend à travers le premier jeu d'encoches (7) et l'un de la deuxième paire de cordons de levage (84) s'étend à travers le deuxième jeu

d'encoches (7) ; et

la première paire de cordons de levage (81, 82) s'engage avec sensiblement chacun des échelons (13) de la première échelle (10) et la deuxième paire de cordons de levage (83, 84) s'engage avec sensiblement chacun des échelons (13) de la deuxième échelle (10), de telle sorte que les rails (11, 12) des échelles (10) se plient sensiblement dans un plan parallèle aux bords des lames (6) lorsque les cordons de levage (81 à 84) tirent les lames (6) les unes vers les autres.

2. Store vénitien selon la revendication 1, dans lequel chaque lame comporte une troisième encoche (9) opposée à la première encoche (7), et une quatrième encoche (9) opposée à la deuxième encoche (7), un deuxième cordon (81) de la première paire de cordons de levage (81, 82) s'étendant à travers la troisième encoche (9) de chaque lame (6), et un deuxième cordon (83) de la deuxième paire de cordons de levage (83, 84) s'étendant à travers la quatrième encoche (9) de chaque lame (6). 15
3. Store vénitien selon l'une quelconque des revendications précédentes, dans lequel les rails d'échelle (11, 12) ont une dimension supérieure à l'ouverture des encoches (7, 9). 20
4. Store vénitien selon l'une quelconque des revendications précédentes, dans lequel l'engagement des cordons de levage (8, 81 à 84) avec les échelons d'échelle (13) comprend le laçage alterné de cordons de levage avec les échelons d'échelle. 25
5. Store vénitien selon l'une quelconque des revendications précédentes, dans lequel l'engagement des cordons de levage (8, 81 à 84) avec les échelons d'échelle (13) comprend le fait que chacun des cordons de levage passe à travers au moins l'un des échelons d'échelle. 30
6. Store vénitien selon l'une quelconque des revendications précédentes, dans lequel le rail inférieur se compose de deux rails parallèles espacés l'un de l'autre (4, 5), et dans lequel un cordon de levage (81, 83) de chaque paire de cordons de levage est fixé à un rail (5) et un deuxième cordon de levage (82, 84) de chaque paire de cordons de levage est fixé à l'autre rail (4). 35
7. Store vénitien selon l'une quelconque des revendications précédentes, comprenant également un élément de levage à tube (30) fixé au rail supérieur (2), et auquel sont reliés les cordons de levage (8). 40
8. Store vénitien selon l'une quelconque des revendications précédentes, comprenant également qua- 45

tre poulies (88, 89) à l'intérieur du rail inférieur, et positionnées de telle sorte qu'un cordon de levage (85) passe sur chaque poulie.

9. Store vénitien selon l'une quelconque des revendications précédentes, comprenant également un élément de verrouillage de cordon (26) à travers lequel passent les cordons de levage (8, 81 à 84), l'élément de verrouillage de cordon étant toujours engagé sauf si les cordons de levage sont actionnés. 50
10. Store vénitien selon l'une quelconque des revendications précédentes, dans lequel le mécanisme d'inclinaison se compose d'un premier élément cylindrique (18) auquel sont fixés les rails (11, 12) de la première échelle (10) ; un deuxième élément cylindrique (18) auquel sont fixés les rails (11, 12) de la deuxième échelle (10) ; un axe (19) fixé entre le premier élément cylindrique et le deuxième élément cylindrique ; et des moyens (24) pour faire tourner l'axe (19) et les éléments cylindriques fixés à lui (18). 55
11. Store vénitien selon la revendication 10, dans lequel au moins l'un des cordons de levage passe à travers au moins l'un des éléments cylindriques (18).
12. Store vénitien selon la revendication 10, dans lequel les moyens (24) pour faire tourner l'axe et les éléments cylindriques fixés à lui est l'un parmi un entraînement à angle droit et un entraînement à vis sans fin.
13. Store vénitien selon l'une quelconque des revendications 1 à 10, dans lequel le mécanisme d'inclinaison comprend :
 - un premier disque (16) auquel les rails (11, 12) de la première échelle (10) sont fixés ;
 - un deuxième disque (18) auquel les rails (11, 12) de la deuxième échelle (10) sont fixés ;
 - un axe (19) fixé entre le premier disque (18) et le deuxième disque (18) ; et
 - des moyens (24) pour faire tourner l'axe et les disques fixés.
14. Store vénitien selon la revendication 13, dans lequel au moins l'un des cordons de levage (8) passe à travers au moins l'un parmi le premier disque et le deuxième disque (18).

Fig.2.

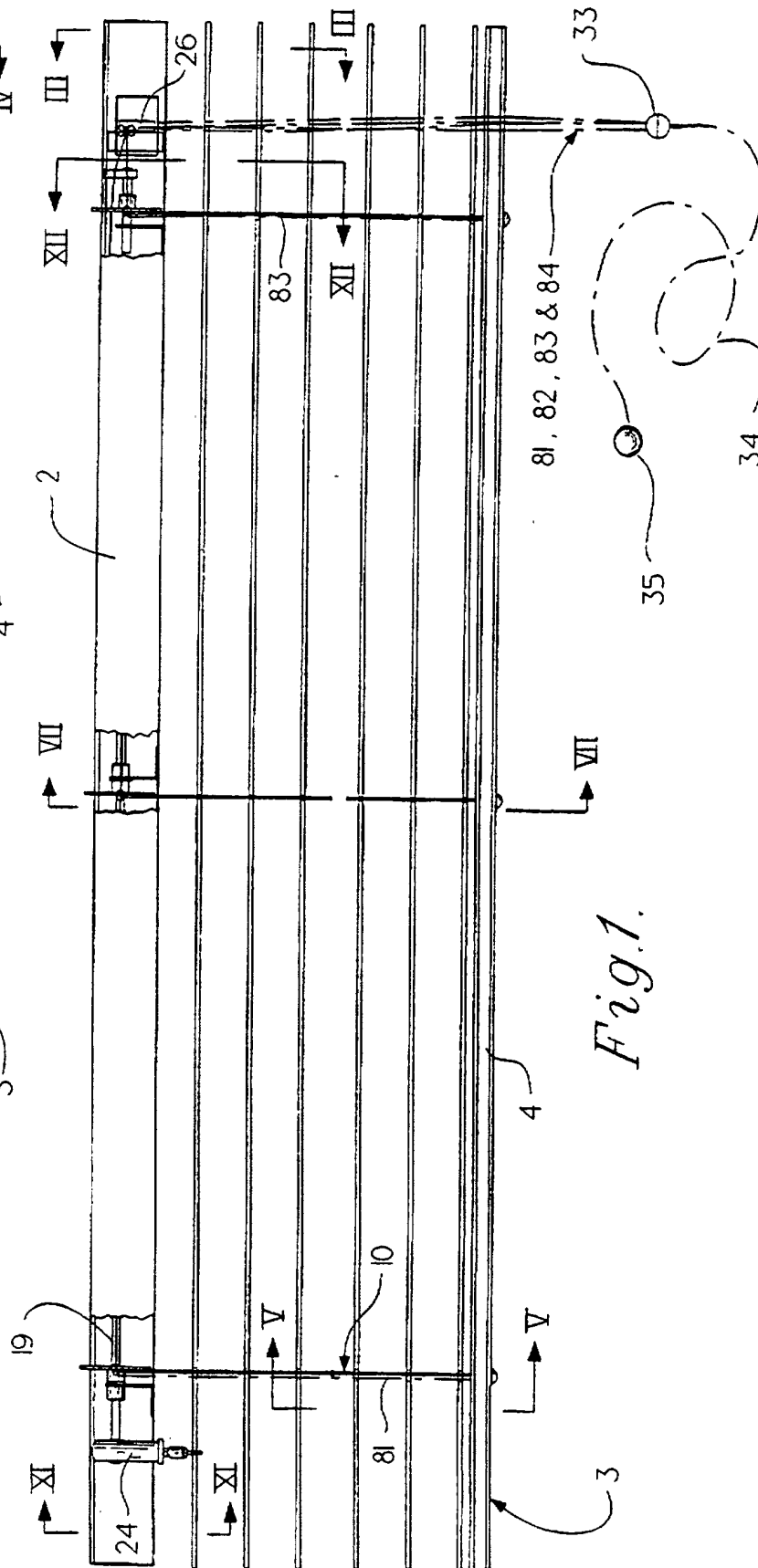
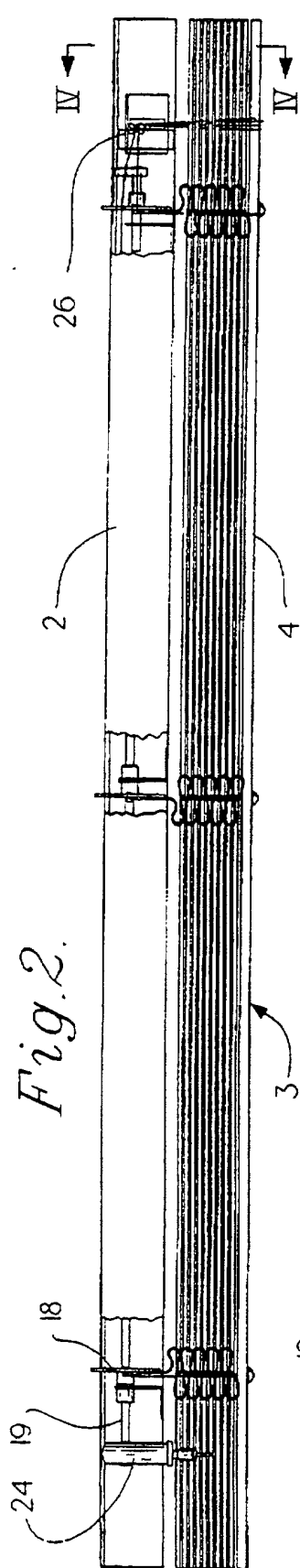


Fig.1.

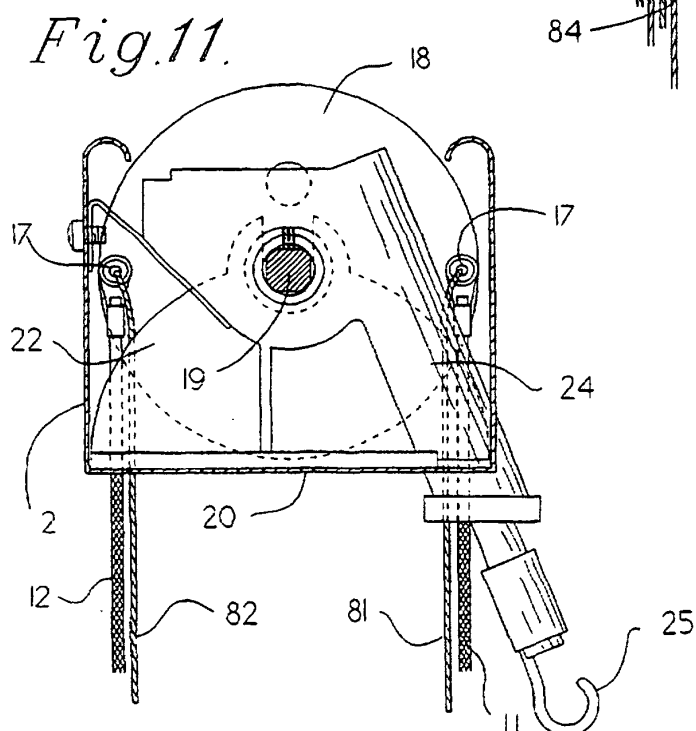
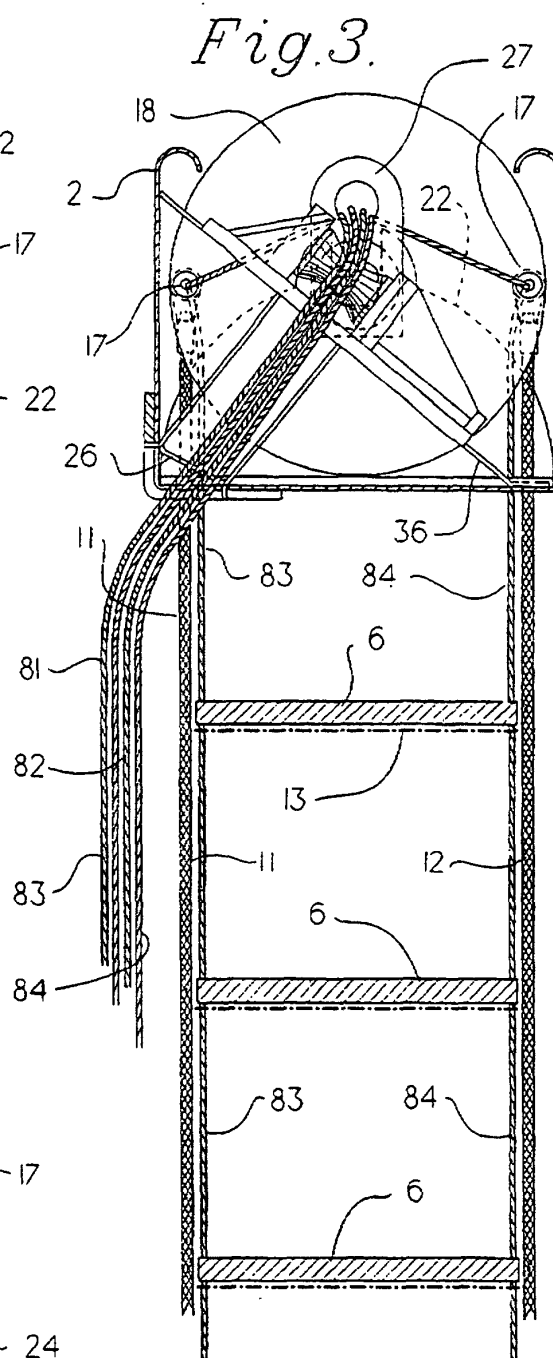
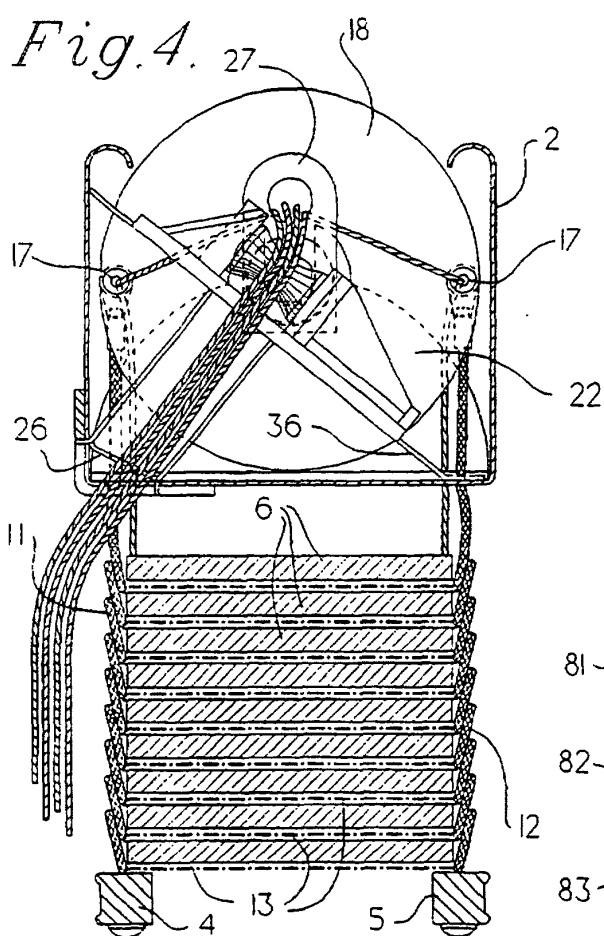


Fig.5.

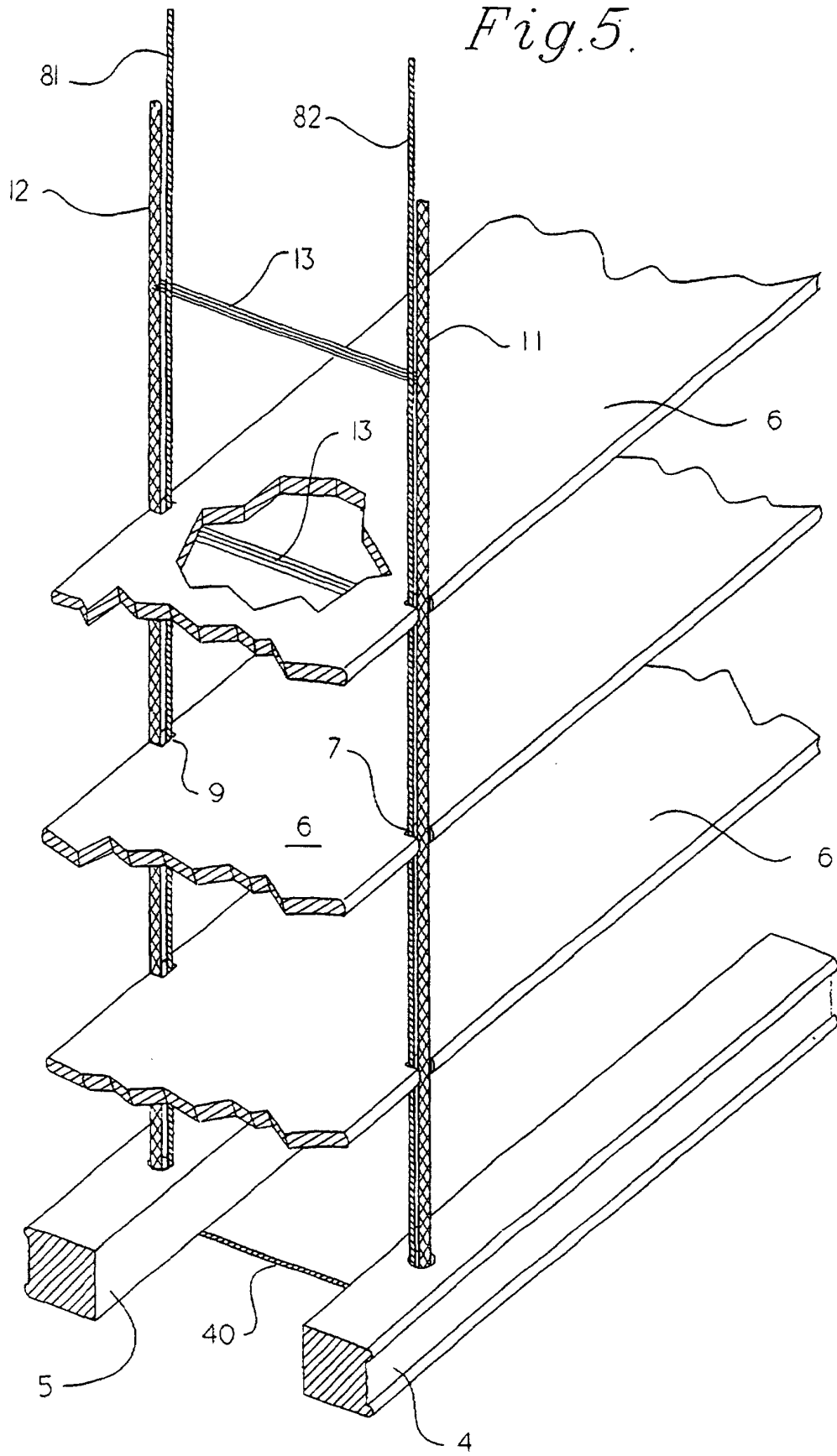
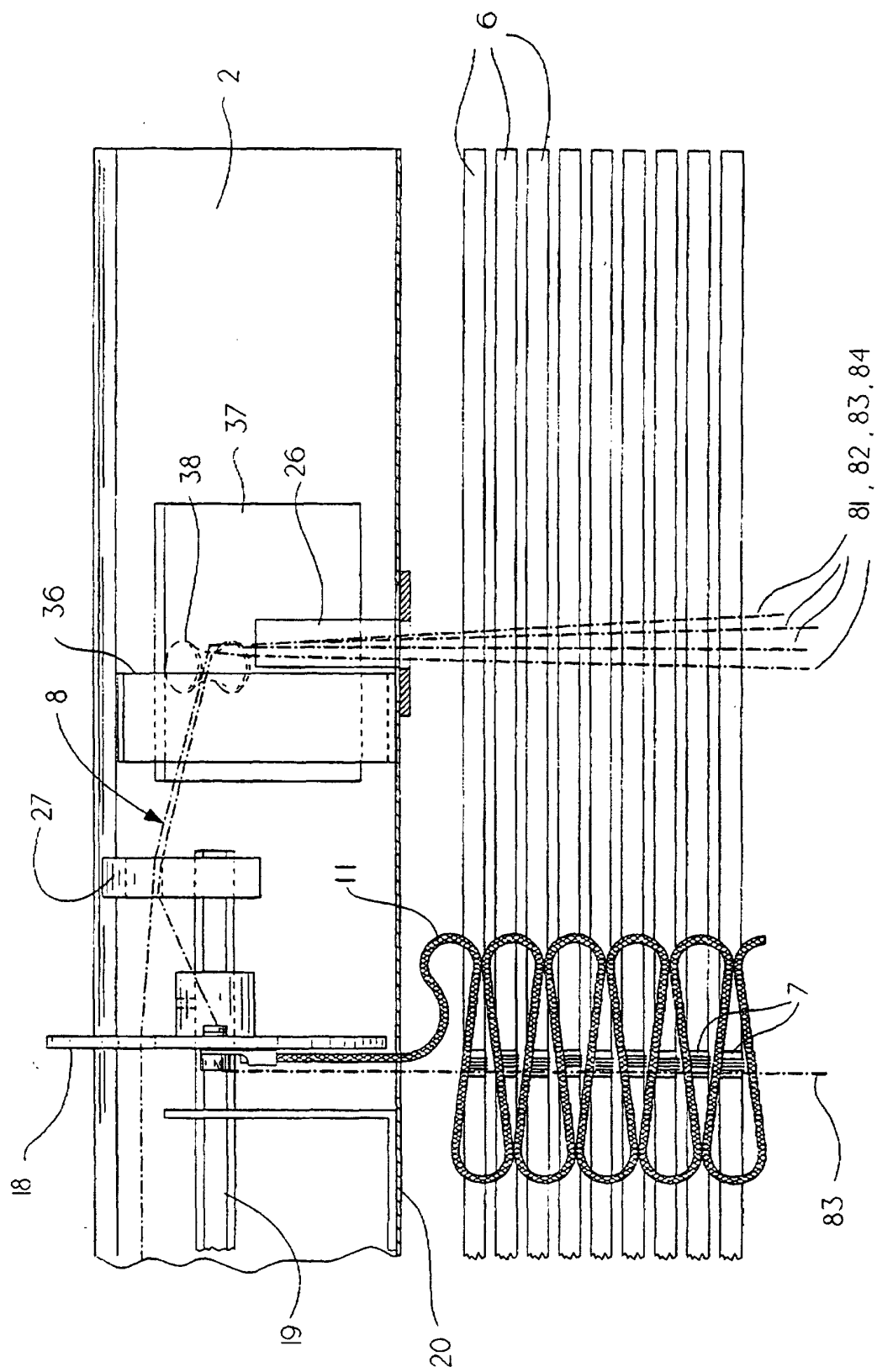
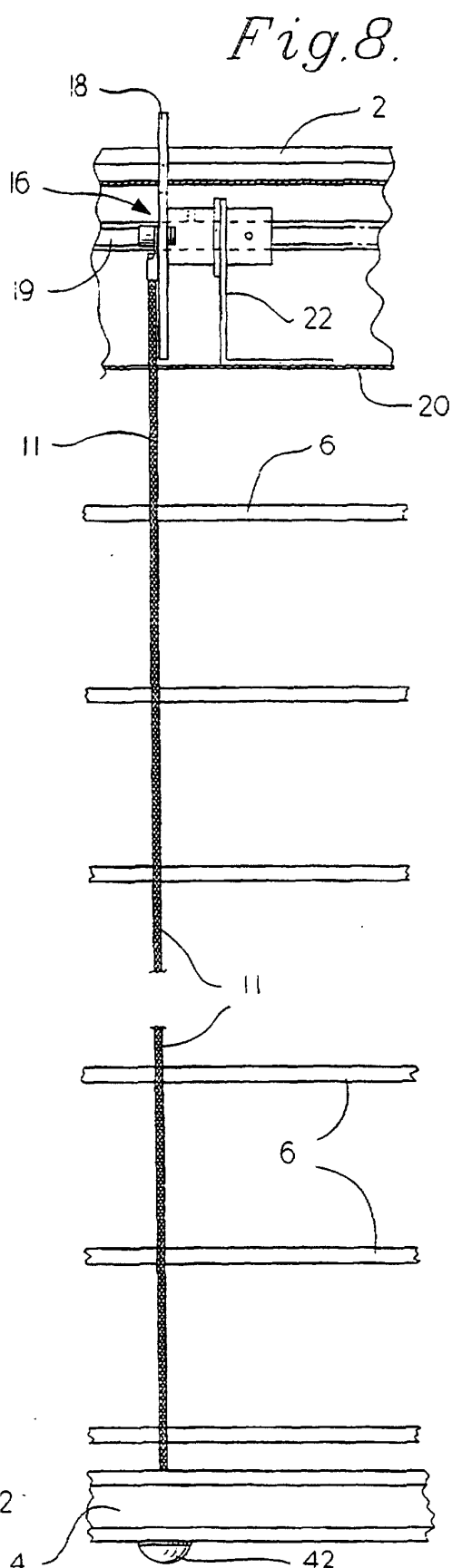
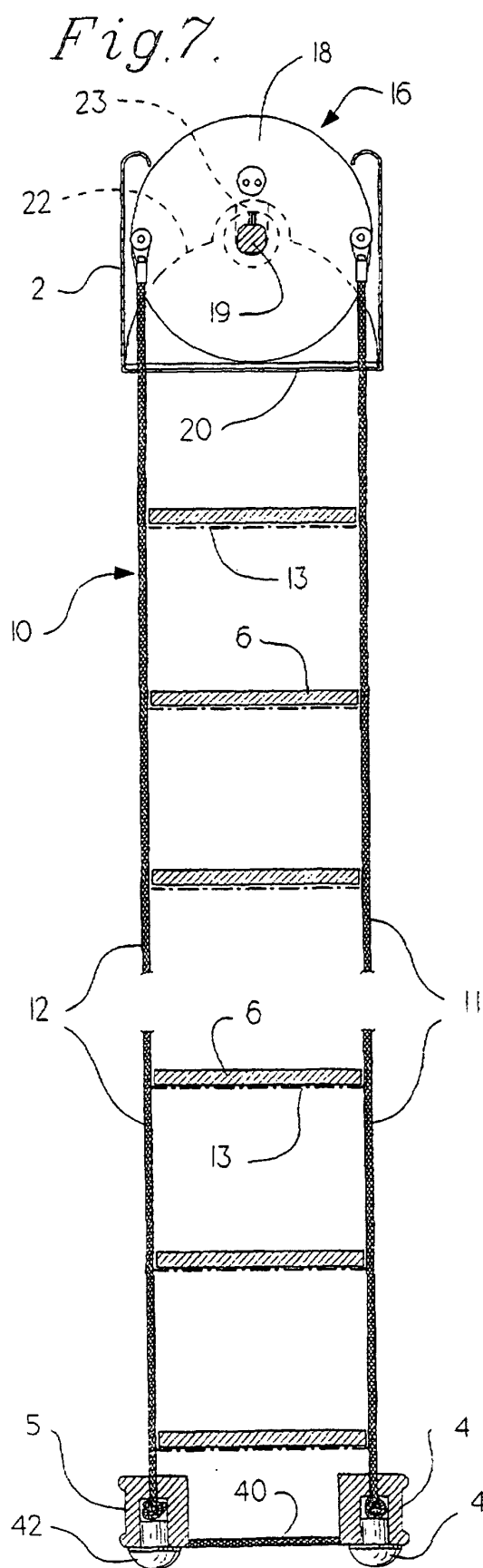


Fig. 6.





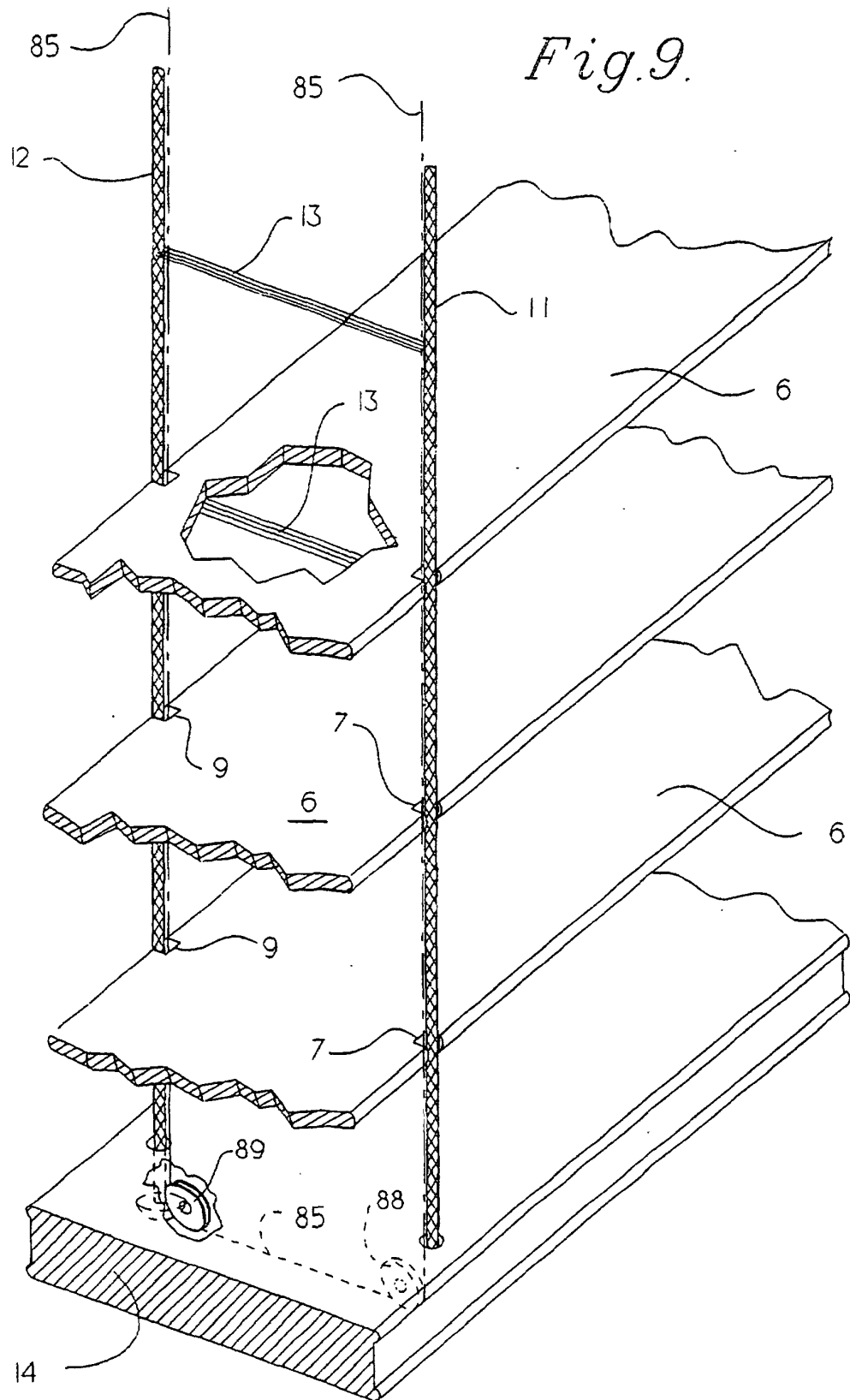


Fig.10.

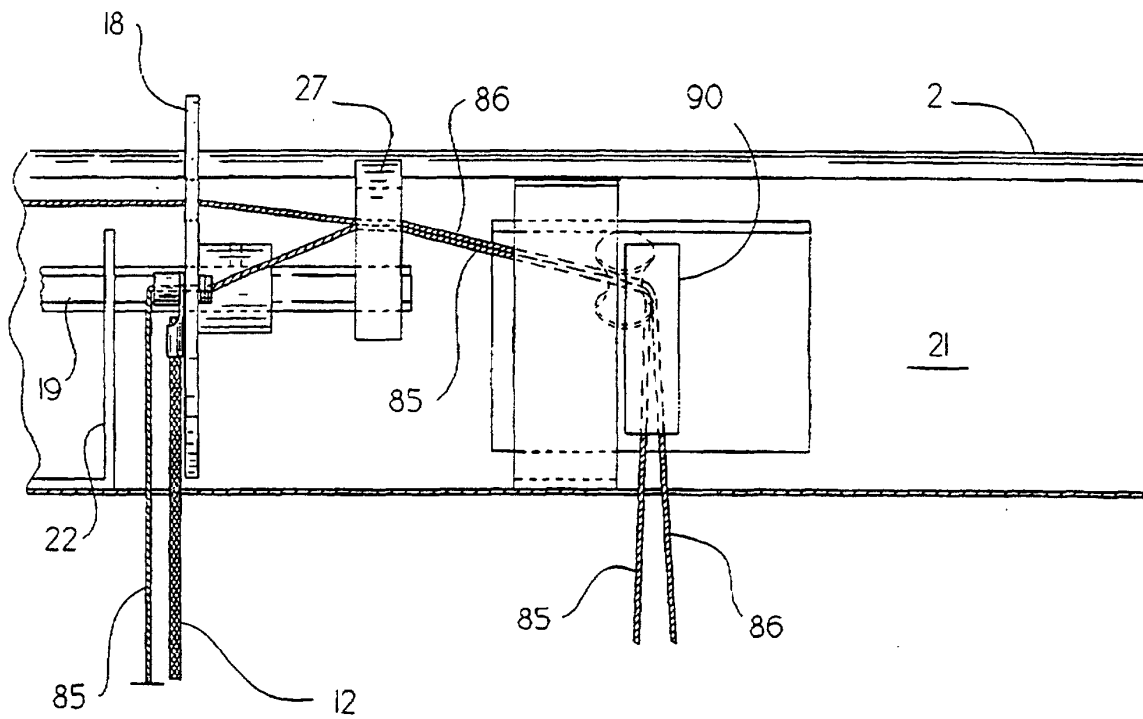


Fig.12.

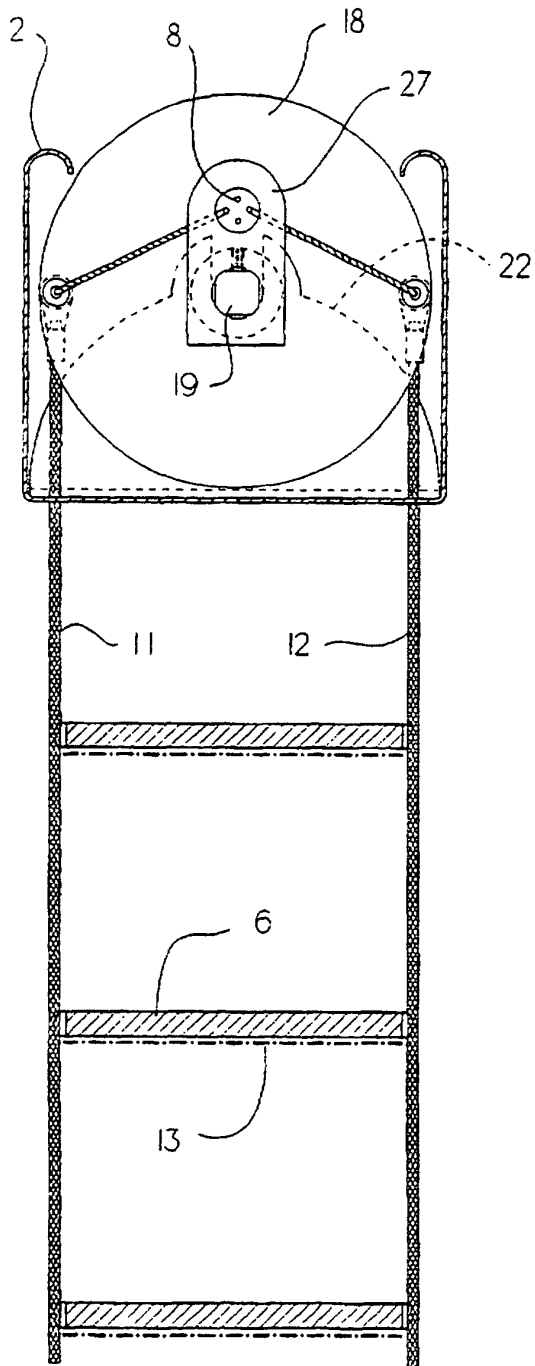


Fig.13.

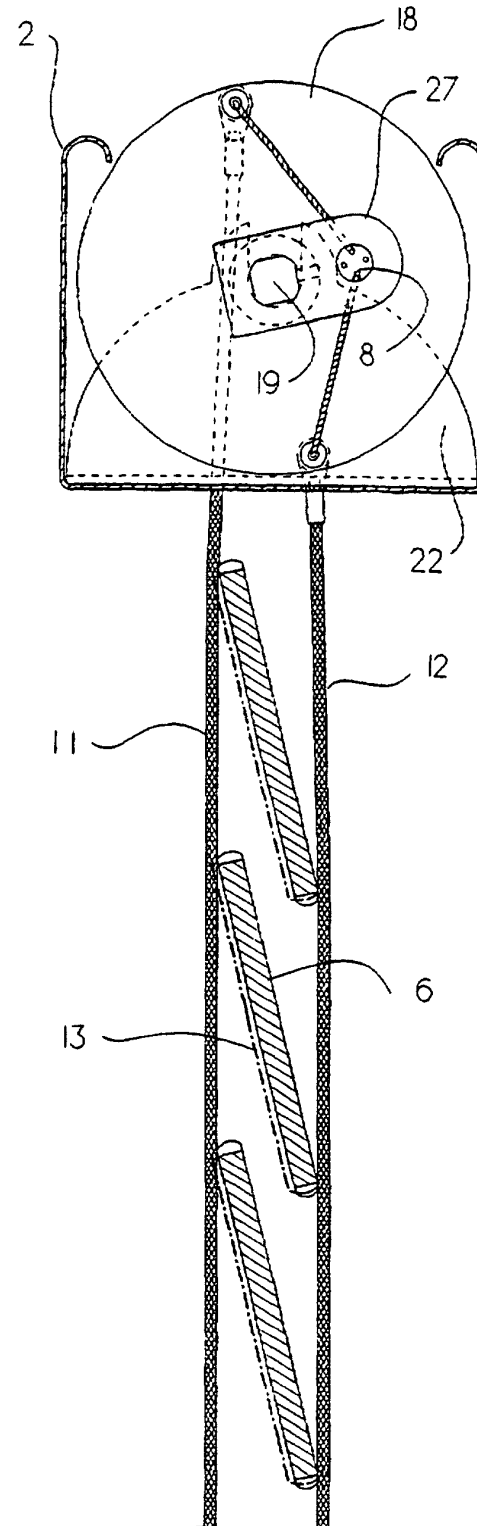


Fig.14.

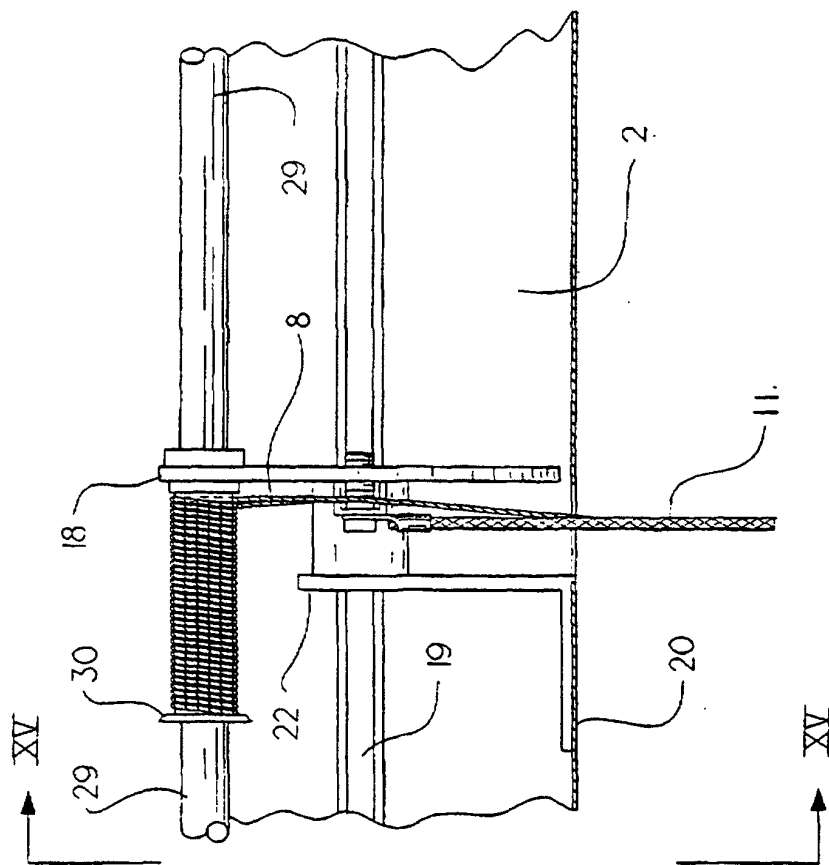


Fig.15.

