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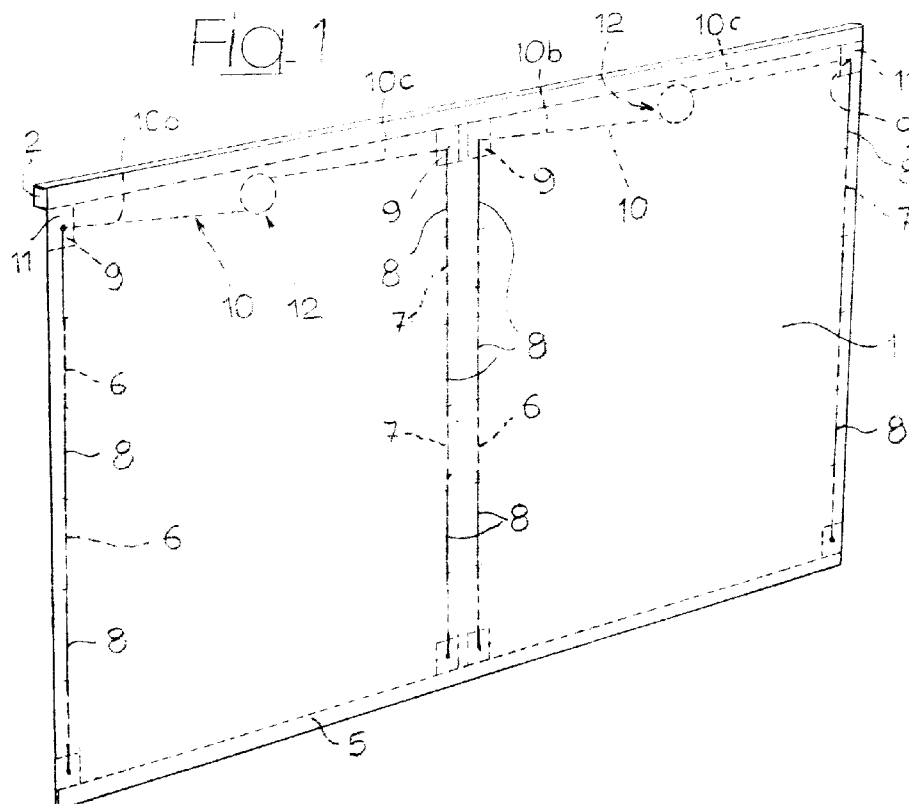
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10133 Torino (IT)(71) Applicant: **MOTTURA S.p.A.****I-10090 San Giusto Canavese (Torino) (IT)****(54) Device for supporting and driving a gather-up curtain**

(57) The vertical strips (6, 7) supporting the lower edge (5) of a gather-up curtain are connected in pairs by horizontal strip sections (10). The upper edge of the curtain (1) is removably connected to a supporting profile (2) and the central portion of each horizontal strip section (10) is received within a diametrical slot (21) of the front face (20) of a winding reel (12) which is driven

in rotation in order to wind thereon the two halves of each strip horizontal section (10) which are arranged at the two sides of the reel, so as to cause the raising of the lower edge of the curtain. The removal of the curtain may be obtained simply by disengaging the upper edge of the curtain (1) from the supporting profile (2) and disengaging each horizontal strip section (10) from the slot (21) of the respective winding reel (12).

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Description

The present invention relates to devices for supporting and driving curtains which can be gathered up along a vertical direction, of the type comprising:

- an upper horizontal supporting profile, provided with means for being secured to a wall,
- a curtain having its upper edge connected to the supporting profile and its lower edge supported by a plurality of pull strips which are passed through guiding passages of the curtain,
- a plurality of winding reels for winding said strips, rotatably supported by said profile, and
- a driving transmission for driving the rotation of said winding reels.

In the devices of the above indicated type there is the problem to provide the possibility of removing the curtain, along with the associated raising strips, for enabling it to be washed, and the subsequent mounting with simple and rapid operations, without the need of introducing again the strips through the guiding rings, which would involve a time consuming and troublesome operation, which is instead necessary in the conventional solutions.

In order to achieve this object, the invention provides a device of the type indicated at the beginning, characterized in that there is provided at least one pair of strips for raising the curtain, which are connected to each other by a horizontal section of the strip, so as to form a single upturned U-shaped strip structure, and in that for each of said upturned U-shaped strip structure there is provided one of said reels, each reel having a front face formed with a diametrical slot which is for receiving a central portion of the respective horizontal section of the strip, so that a rotation of the reel causes the simultaneous winding of the two halves of said horizontal strip section arranged at the two sides of said central portion.

Due to the above described structure and arrangement, the removal of the curtain is an extremely simple and rapid operation. It is indeed sufficient to remove the upper edge of the curtain from the supporting profile, and disengage each horizontal strip section from the front slot of the respective reel. Once this operation has been carried out, the vertical strips can not slip out of the respective guiding passages in the curtain, since they are connected in pairs by the respective horizontal strip sections.

Each winding reel is rotatably mounted around an axis perpendicular to the plane of the curtain and the associated driving transmission includes a pair of conical gears and an actuating shaft having its axis parallel to the curtain supporting profile and connected at one end to a pulley which can be actuated in any known way, for example by means of a driving

The present invention will be now described with

reference to the annexed drawings, given purely by way of non-limiting example, in which:

figure 1 is a diagrammatic perspective view of a curtain according to the invention in the non-gathered condition,

figure 3 is a diagrammatic perspective view of the curtain of figure 1 in the gathered-up condition,

figure 3 is a partial perspective view, at an enlarged scale, of the upper part of the curtain, which shows the curtain while being removed,

figure 4 is a perspective view at an enlarged scale of the curtain of figure 1, seen from the side opposite to that of figure 1,

figure 5 is a cross-sectional view taken along line V-V of figure 4, and

figure 6 is a perspective view of the detail indicated by arrow VI in figure 4, from the side opposite to that of figure 4.

With reference to figure 1, numeral 1 designates a gather-up curtain, having an upper edge connected to a supporting metal profile 2 which can be fixed by any known means, for example by screws, to a wall. In the illustrated example, the supporting profile 2 is made of light alloy and has a cross-section with the shape clearly shown in figures 5, 6. Preferably, the upper edge of curtain 1 is connected to the supporting profile 2 by quick-coupling means, in the case of the illustrated example by a Velcro (registered trademark) figures 3, 6) of the type with micro-eyelets and micro-hooks, respectively secured to the profile 2 and to the upper edge of curtain 1. The lower edge of curtain 1 is rendered heavier by a metal leaf 5 and is supported by two pairs of vertical supporting strips 6, 7. Each pair of vertical strips 6, 7 has the lower ends rigidly connected to the curtain adjacent to the lower edge thereof and is guided through guiding passages 8 formed in the curtain 1. The two vertical sections 6, 7 of each pair are directed at the top through guiding passages 9 also formed in curtain 1 and are connected to each other by a horizontal strip section 10, so that the vertical sections 6, 7 and the horizontal section 10 form a single upturned U-shaped strip structure. The guiding passages 9 are formed in supporting elements 11 which are relatively rigid.

For each horizontal strip section 10 there is provided a winding reel 12.

Each reel 12 is rotatably mounted around an axis 12a perpendicular to the plane of curtain 1 (figures 5, 6) by means of a supporting bracket 13 fixed to the supporting profile 2. Each reel 12 may be driven in rotation by means of a respective pair of conical gears 14, 15 meshing with each other, which are respectively connected to the reel 12 and a shaft 16 with a square cross-section and having its axis parallel to the supporting profile 2 and rotatably supported by the brackets 13 which also support the reels 12, as well as by two end brackets 17, one of which is visible in driving pulley contained

within a housing 18 which can be driven in rotation by means of a ball chain 19 (figure 4) which drops from top up to a height which can be easily reached by the user. By pulling one section or the other of the endless chain 19, the user causes a rotation in one direction or the other of shaft 16 and then of reels 12.

As clearly visible in figure 6, each reel 12 has a front face 20 which is fully crossed by a diametrical slot 21, which is able to receive a central portion of the respective horizontal strip section 10. In this manner, when reel 12 (figure 6) is rotated, the two halves 10b, 10c of the horizontal section 10 arranged at the two sides of the central portion 10a are wound on reel 12. The rigid supports 11 (figure 1) prevent the curtain 1 from becoming wrinkled and causing a movement of the two guiding passages 9 towards each other, these passages remaining instead at a constant distance. As a result of this, the winding of the two halves 10b, 10c of the horizontal section 10 on the respective reel 12 causes an upward movement of the lower edge 5 of the curtain which is thus gathered up until it reaches the end condition shown in figure 2. By driving the shaft 16 in an opposite direction, the return of the curtain to the non-gathered condition is obtained.

If the curtain must be removed for washing, it is sufficient to disengage each horizontal section 10 from the respective reel 12 by simply taking the central slot 21. Then, by separating the upper edge of the curtain 1 from the supporting profile 2 (figure 3), it is possible to remove the curtain completely, without that the vertical supporting strips 6, 7 slip out of the guiding passages 8, since they are held by the respective horizontal sections 10.

From the foregoing, it clearly appears that the invention solves the problem of an easy and rapid removal of the gather-up curtain in an extremely and inexpensive way.

Naturally, while the principle of the invention remains the same, the details of construction and the embodiments may widely vary with respect to what has been described and illustrated purely by way of example, without departing from the scope of the present invention.

For instance, the structure and arrangement of the supporting strips may be different from that shown by way of example in the annexed drawings, since it is theoretically possible to adopt also cords. Therefore, in the present description and in the following claims, the term "strip" is intended to cover also the case of a cord or any other equivalent pull member. Similarly, also the shape of the winding reels and the driving transmission for rotation thereof may be totally different from that shown in the annexed drawings. For instance, this transmission may comprise an endless transmission member, such as for example a ball chain or similar, guided within a curtain meshes with a plurality of driven wheels each connected in rotation to a respective winding reel, as shown in the previous Italian patent application No.

TO94A000840 of the same Applicant, which has been laid open to public inspection on 20 April 1996.

5 Claims

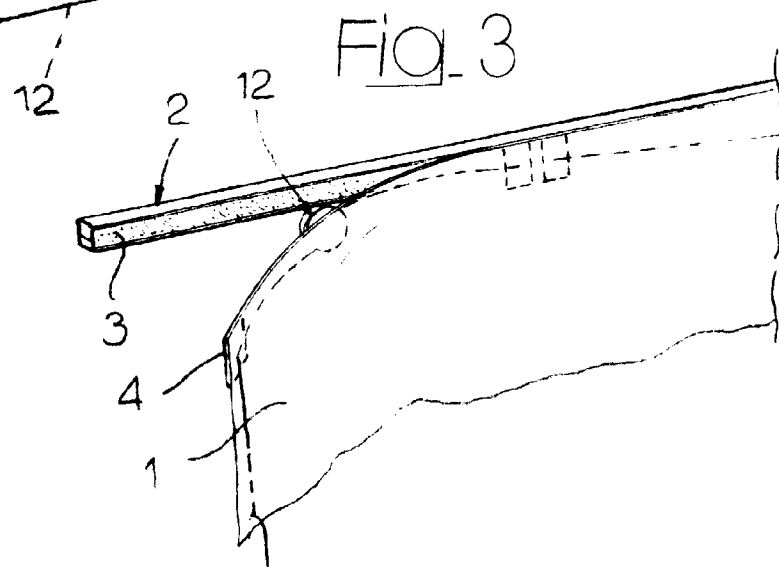
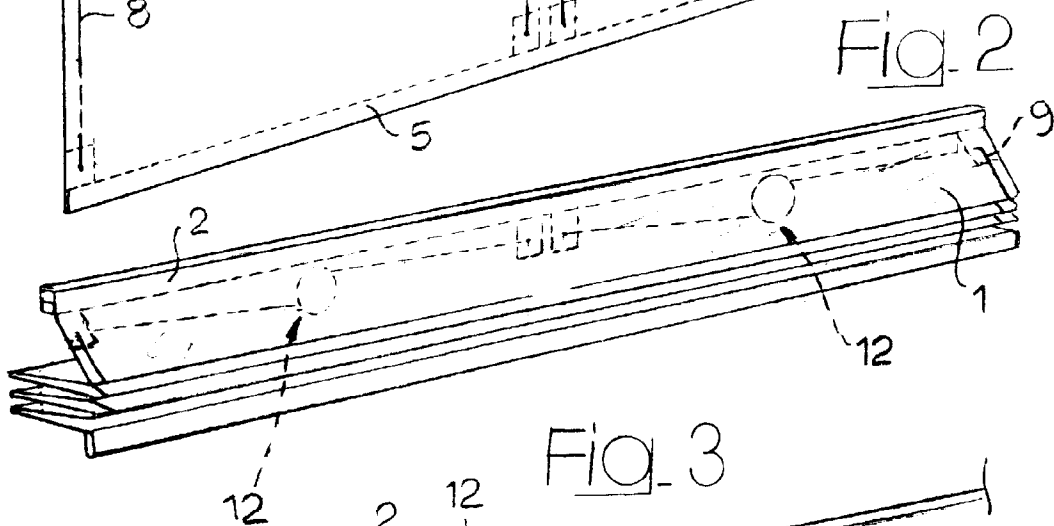
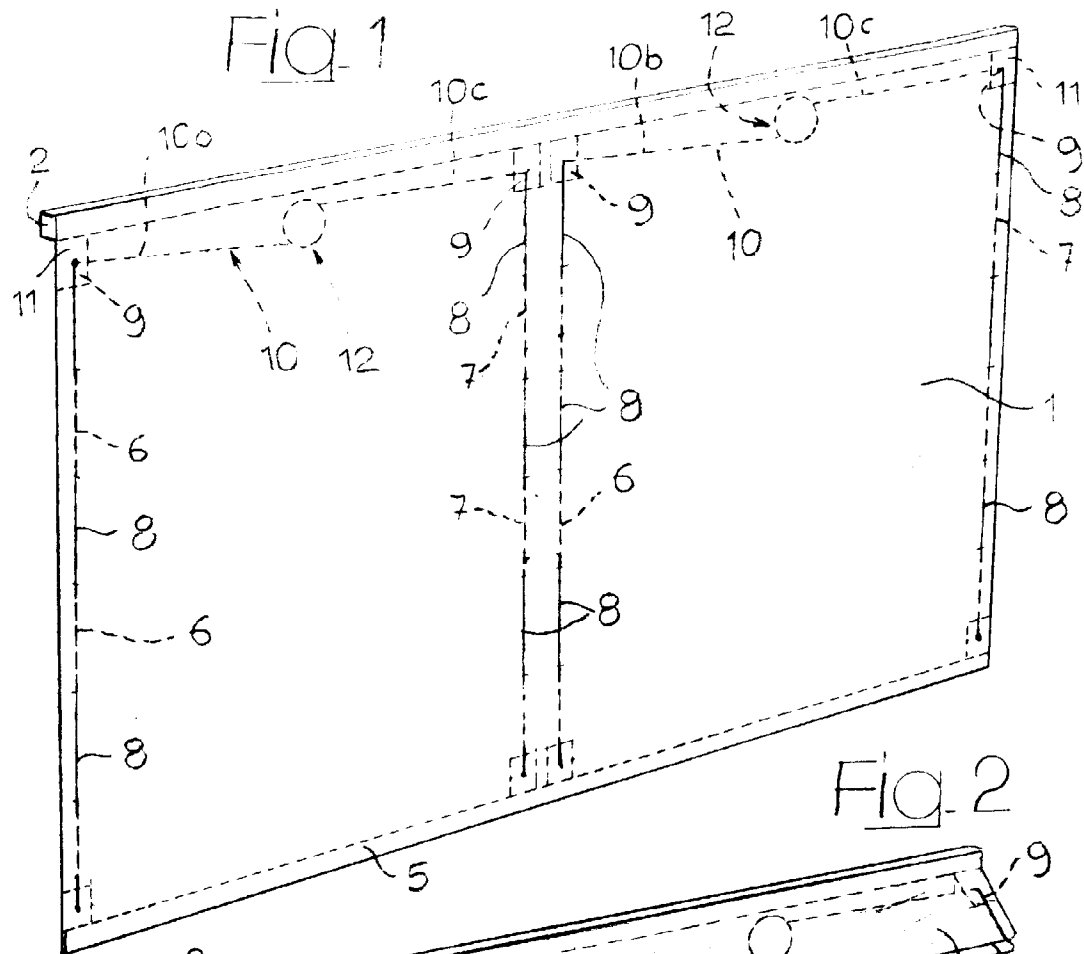
1. Device for supporting and driving a curtain which can be gathered up along a vertical direction, comprising:

- an upper horizontal supporting profile (2), provided with means for being secured to a wall,
- a curtain (1) having its upper edge connected to the supporting profile (2) and the lower edge supported by a plurality of strips (6, 7) which are passed through guiding passages (8) of the curtain (1),
- a plurality of winding reels (12) for winding said strips (6, 7), rotatably supported by said profile (2), and
- a driving transmission (14-16) for driving the rotation of said winding reels (12),

characterized in that there is provided at least one pair (6, 7) of said vertical supporting strips which have their upper ends directed through respective guiding passages (9) of the curtain (1) and connected to each other by a horizontal section (10), so as to form a single upturned U-shaped strip structure, and in that for each of said upturned U-shaped strip structures there is provided one of said winding reels (12), each reel (12) having a front face (20) crossed by a diametrical slot (21) adapted to receive a central portion (10a) of the respective horizontal strip section (10), so that a rotation of the reel (12) causes the simultaneous winding of the two halves (10b, 10c) of said horizontal strip section (10) arranged at the two sides of said central portion (10a).

2. Device according to claim 1, characterized in that each winding reel (12) is rotatably supported around an axis (12a) perpendicular to the plane of the curtain (1) by a supporting bracket (13) fixed to the supporting profile (2) and in that said driving transmission includes a driving shaft (16) rotatably supported around an axis parallel to said supporting profile (2) by said supporting profile (2) and a pair of conical gears (14, 15) for connecting each winding reel (12) in rotation to said shaft (16), means (18, 19) being provided for driving a rotation of said shaft (16).

3. Device according to claim 1, characterized in that the upper edge of the curtain (1) is connected to the supporting profile (2) by means of a Velcro (registered trademark) type coupling.



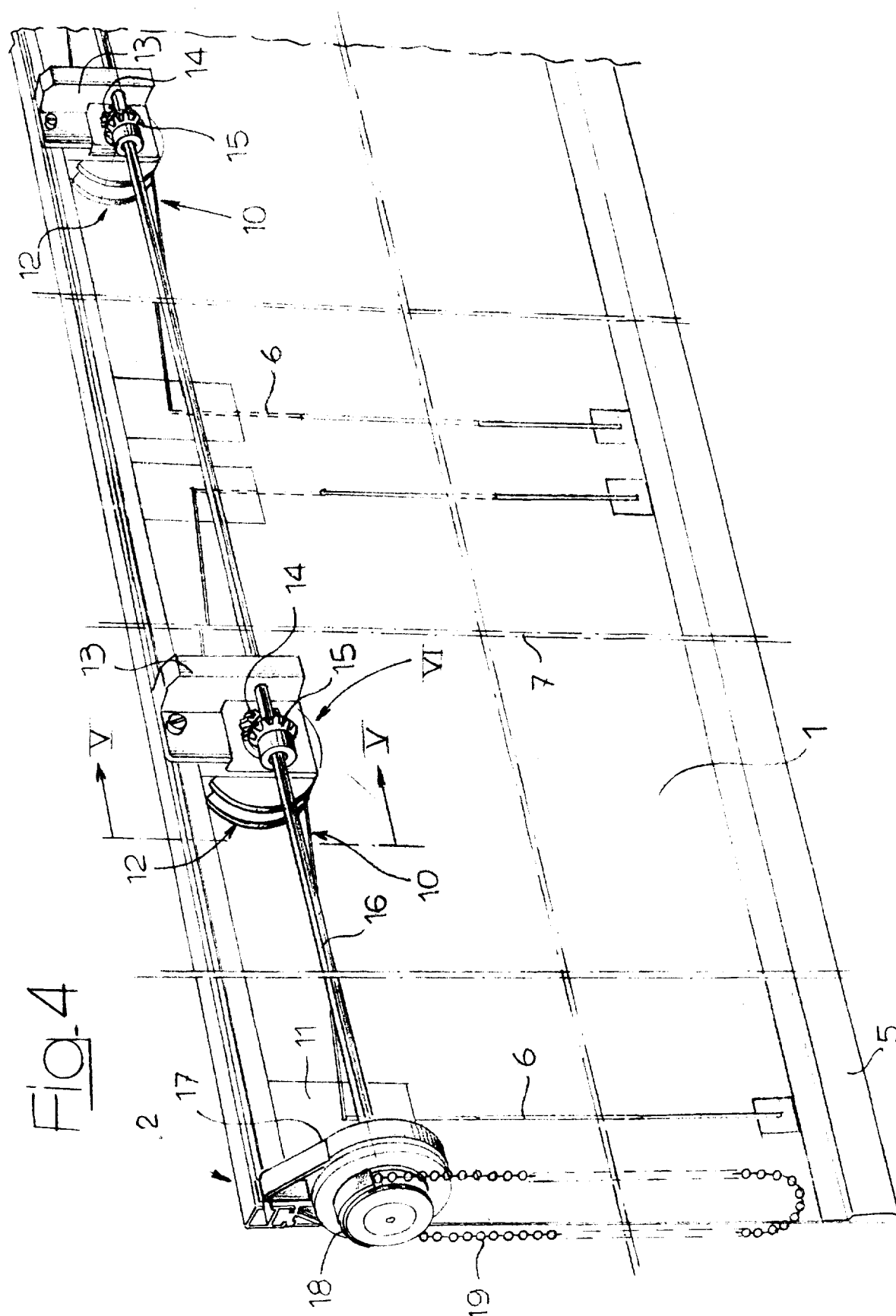


Fig. 5

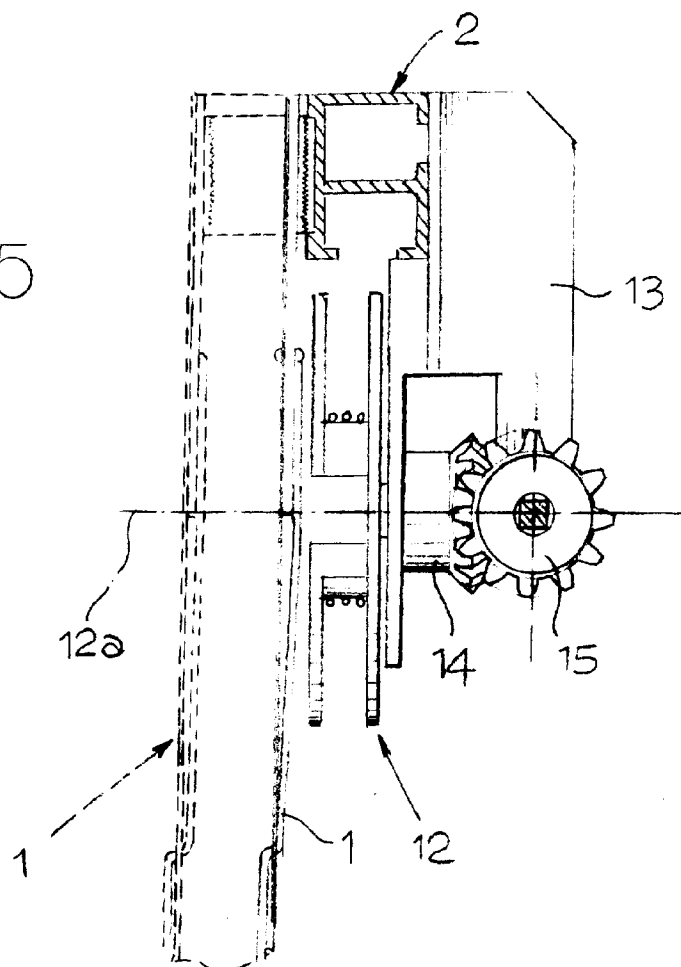


Fig. 6

