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ADJUSTABLE SHADE APPARATUS

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(56) Related Art
US 6196242 B1
US 6321763 B1
US 2007/0209688 A1
US 6923193 B2

2014200666 07 Feb 2014

ABSTRACT

Shade apparatus (10, 50) providing a canopy which can be raised and lowered in its deployed attitude including: a hollow standpost (11); a boom (14) mounted to said standpost for sliding movement therealong; a strut (16) mounted to said standpost in spaced disposition from said boom for sliding movement therealong and mounted to said boom for pivotal movement with respect thereto; fixing means for selectively fixing said strut to a fixed position along said standpost; a connecting medium (20) connected to said boom remote from its mounting to said standpost; a spindle (13) to which said connecting medium is connected for movement of said boom along said standpost and for selectively movement of said strut along said standpost by winding and unwinding of said connecting medium onto and from said spindle; and wherein the spaced disposition between said strut and said boom is substantially maintained upon winding and unwinding of said connecting medium when the fixing means is not selected for fixing said boom to said standpost.

2014200666 07 Feb 2014

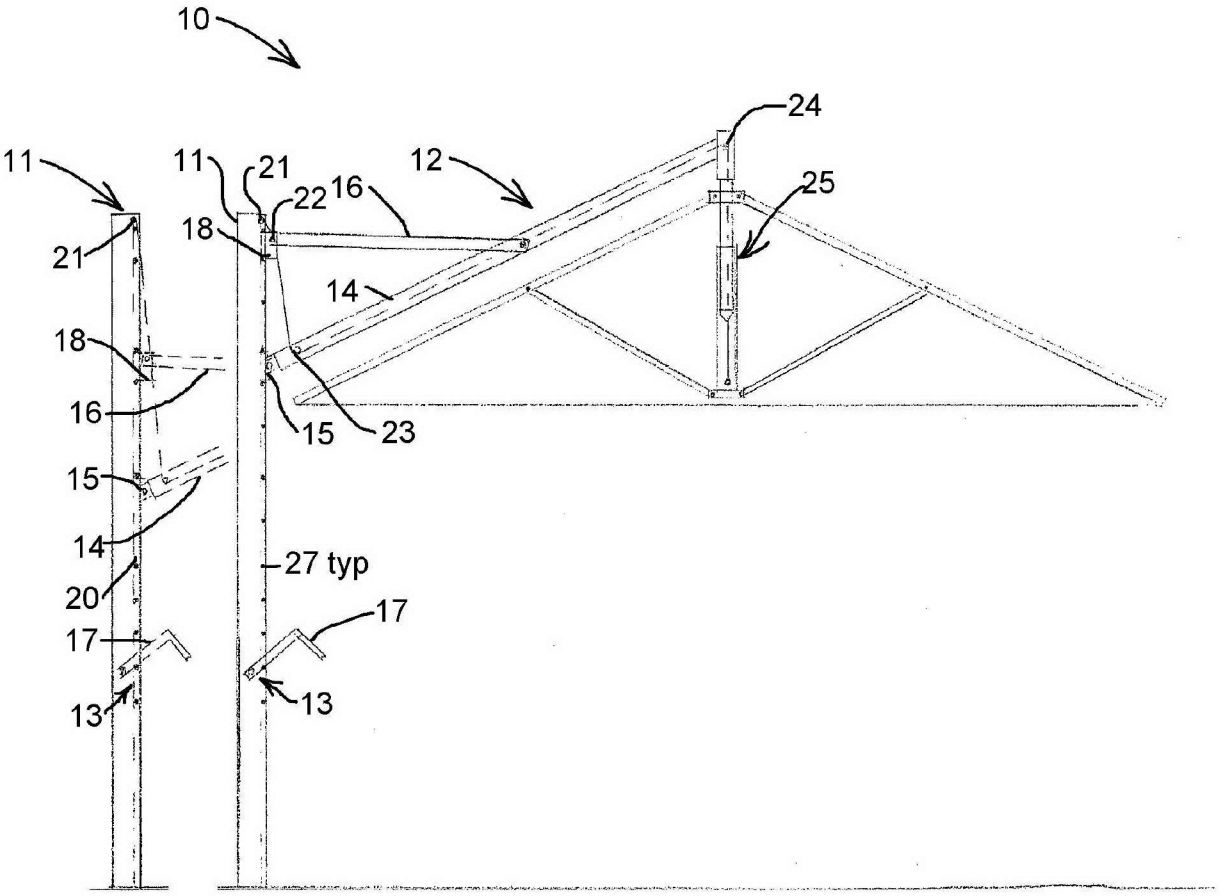


Fig. 2

Fig. 1

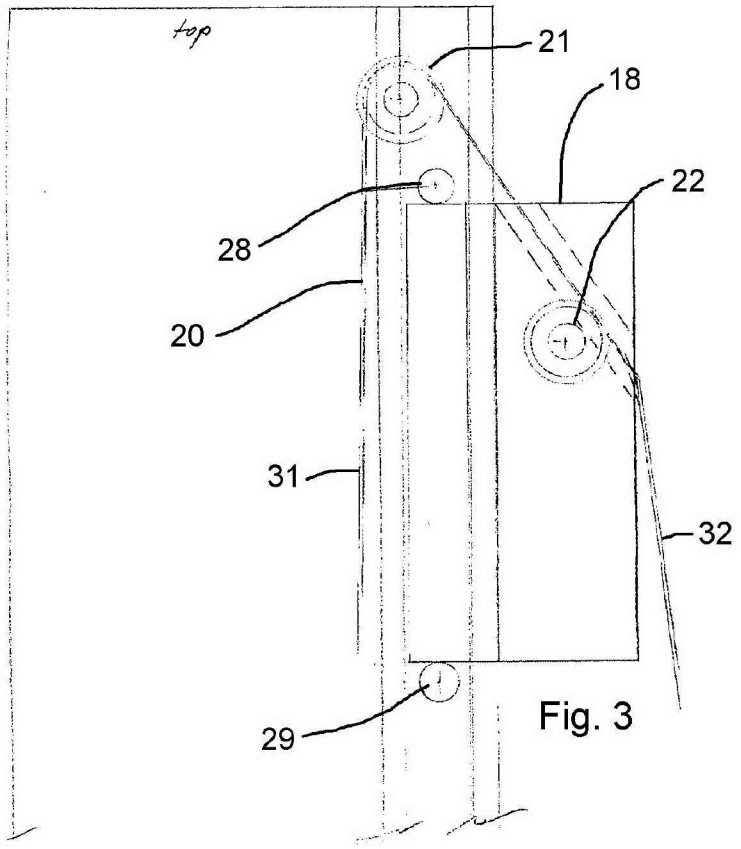


Fig. 3

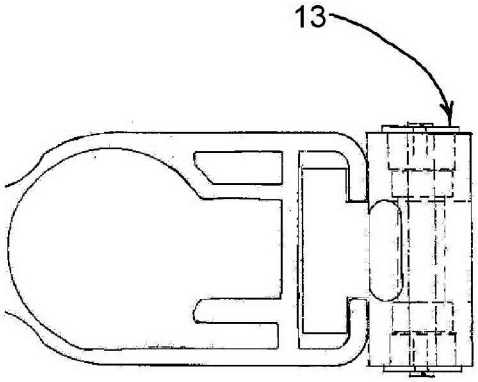


Fig. 4

2014200666 07 Feb 2014

ADJUSTABLE SHADE APPARATUS

The following statement is a full description of this invention, including the best method of performing the invention known to me.

FIELD OF INVENTION

THIS INVENTION relates to adjustable shade apparatus. The invention has particular application to shade apparatus described in my Australian Innovation Patent No. 2012100717. However, the invention is not limited to such shade apparatus.

BACKGROUND ART

Canopies for shade or protection against inclement weather such as that described in my Australian Innovation Patent No. 2012100717 are satisfactory in most situations. However, it is sometimes necessary or desirable to raise or lower the deployed canopy. For example, a canopy over a swimming pool may be more useful if it could be raised lowered so that bathers can be better protected from the sun. There are some arrangements which permit raising or lowering of the canopy, but not when the canopy is deployed. A separate raising mechanism is often provide, or the assembly by which the canopy is supported by a standpost is required to be raised or lowered by loosening its fastening to the standpost by which it is supported.

The present invention aims to provide adjustable shade apparatus which alleviates one or more aforesaid problems of the prior art, or at least to provide an alternative to existing arrangements. Other aims and advantages of the invention may become apparent from the following description.

DISCLOSURE OF THE INVENTION

With the foregoing in view, this invention in one aspect resides broadly in adjustable shade apparatus including:

a hollow standpost;

2014200666 17 Jul 2018

a boom mounted to said standpost for sliding movement therealong;

a strut mounted to said standpost in spaced disposition from said boom for sliding movement therealong and mounted to said boom for pivotal movement with respect thereto;

fixing means for selectively fixing said strut to a fixed position along said standpost;

a connecting medium connected to said boom remote from its mounting to said standpost;

a spindle to which said connecting medium is connected for movement of said boom along said standpost and for selective movement of said strut along said standpost by winding and unwinding of said connecting medium onto and from said spindle; and

wherein the spaced disposition between said strut and said boom is substantially maintained upon winding and unwinding of said connecting medium when the fixing means is not selected for fixing said strut to said standpost.

The spindle may constitute a control element substantially encased within the standpost and may include an actuation element not encased within the standpost. The control means preferably includes a ratchet and pawl assembly. More preferably, the ratchet forming part of the control means is provided substantially within the standpost. More preferably, both the ratchet and pawl are within the standpost. In a preferred form, the ratchet and pawl assembly are of a form substantially described in my aforementioned Australian Innovation Patent No. 2012100717, the specification of which is incorporated herein by reference.

Preferably, the standpost is in the form of an extrusion having two spaced apart first wall portions, a second wall portion extending between said spaced apart first wall portions to define a hollow on one side and a cavity on the

2014200666 07 Feb 2014

other side opening along the length of the extrusion and a partition extending from said second wall portion into said hollow to define a first channel on one side thereof and a second channel on the other side thereof extending along the length of the extrusion.

Preferably, the strut is pivotally mounted to a strut carriage which can slide along the standpost. Preferably, the boom is pivotally mounted to a boom carriage which can slide along the standpost. In a preferred form the strut carriage and boom carriage may be linked to one another in a selectively fixed spaced relationship. For example, a bar or rod may be attached to the boom carriage and extend downwardly to the strut carriage. Alternatively, the strut carriage and boom carriage are provided as a combined carriage to which both the boom and strut are pivotally mounted. However, the linkage between the strut and boom may be disconnected to allow independent movement for stowing and deploying the umbrella.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention may be more readily understood and put into practical effect, reference will now be made to the accompanying drawings which illustrate a preferred embodiment of the invention, wherein:-

Fig. 1 is a side view of adjustable shade apparatus according to the invention;

Fig. 2 is a diagrammatic internal view of a standpost for the adjustable shade apparatus of Fig. 1;

Fig. 3 is a cross-section of the standpost of Fig. 2;

Fig. 4 is a diagrammatic internal view showing detail of the strut connection to the standpost for the adjustable shade apparatus of Fig. 1;

Fig. 5 is a side view of an alternative adjustable shade apparatus according to the invention;

2014200666 07 Feb 2014

Fig. 6 is a diagrammatic internal view of a standpost for the alternative adjustable shade apparatus of Fig. 5;

Fig. 7 is a cross-section of the standpost of Fig. 6; and

Fig. 8 is a diagrammatic internal view showing detail of the strut connection to the standpost for the alternative shaded apparatus of Fig. 4.

DETAILED DESCRIPTION OF THE DRAWINGS

The adjustable shade apparatus 10 illustrated in Figs. 1 to 4 includes a standpost 11 to which a shade assembly 12 is mounted. The shade assembly is manipulated by a winding a crank handle 17 of a winding mechanism 13, the detail of which is illustrated in Fig. 3. A boom 14 is pivotally mounted to a boom carriage 15 which is slideably mounted to the standpost. A strut 16 is pivotally mounted to a strut carriage 18 which is slideably mounted to the standpost.

A web-like belt 20 extends from the winding mechanism about a top spindle 21 mounted within the spindle at or near the top thereof, and then proceeds to a strut spindle 22 mounted to the strut near its attachment to the strut carriage, to a lower boom spindle 23 mounted to the boom near its attachment to the boom carriage, to an upper boom spindle 24 mounted to the boom near the distal end thereof remote from its attachment to the boom carriage, to a deployment mechanism 25 associated with the remainder of the shade assembly whereat the belt terminates.

The top carriage is constrained against sliding movement by a fixed pin 28 mounted to the standpost close to, but below, the top spindle. A removable pin 29 is inserted through an aperture penetrating the standpost spaced downward from the fixed pin by the vertical dimension of the strut carriage in the disposition illustrated in Fig. 3. However, being removable, the pin maybe removed and inserted through any one of a plurality of apertures shown typically at 27 and

2014200666 07 Feb 2014

penetrating the standpost at regularly spaced intervals along part of its length. The belt extends from the spool to the top of the post as indicated at 31, over the top roller and down to the top beam as indicated at 32.

The alternative adjustable shade apparatus 50 illustrated in Figs. 5 to 8 is the same in every respect as that described above and illustrated in Figs. 1 to 4, with the exception that strut and boom may be fixed in respect of their spaced apart dispositions along the support post by a solid bar 51, thereby removing the need for the loose pin. The distance between the boom and the strut can be selected for the deployment of the umbrella, and then the height adjusted once the spacing of the boom and strut are fixed. The bar is held in place by a threaded joiner 52 interposed between the boom and the solid bar. It will be appreciated that mechanical equivalents to the solid bar may be provided.

In use, the adjustable shade apparatus of the present invention can be manipulated by winding the crank arm of the winding mechanism to wind up the belt onto a ratchet shaft associated with a pawl by which winding mechanism may be operated to hold the belt in place once the shade assembly is at the desired position. When the strut is fixed in position, operation of the winding mechanism operates the deployment mechanism of the shade assembly. When the strut carriage is permitted to slide, operation of the winding mechanism results in the upward or downward movement of the strut carriage and the boom carriage substantially maintaining the spacing therebetween.

In the form having a combined carriage for both the boom and the strut, the strut and boom move together when not retrained by the removable pin. The preferential movement of the carriage or carriages occurs because the forces required

2014200666 07 Feb 2014

for their movement are smaller than the forces required for deploying or stowing the shade assembly.

It will be seen that the adjustable shade apparatus of the present invention provides a useful solution to the problem of positioning a shade assembly where needed or required, adding to the utility of shade apparatus in general.

Although the invention has been described with reference to a specific example, it will be appreciated by persons skilled in the art that the invention may be embodied in other forms within the broad scope and ambit of the invention as herein set forth and defined by the following claims.

2014200666 17 Jul 2018

The claims defining the invention are as follows:

1. Adjustable shade apparatus including:

a hollow standpost;

a boom mounted to said standpost for sliding movement therealong;

a strut mounted to said standpost in spaced disposition from said boom for sliding movement therealong and mounted to said boom for pivotal movement with respect thereto;

fixing means for selectively fixing said strut to a fixed position along said standpost;

a connecting medium connected to said boom remote from its mounting to said standpost;

a spindle to which said connecting medium is connected for movement of said boom along said standpost and for selective movement of said strut along said standpost by winding and unwinding of said connecting medium onto and from said spindle; and

wherein the spaced disposition between said strut and said boom is substantially maintained upon winding and unwinding of said connecting medium when the fixing means is not selected for fixing said strut to said standpost.

2. Shade apparatus according to Claim 1, wherein the spindle constitutes a control element substantially encased within the standpost.

3. Shade apparatus according to Claim 1 or Claim 2, wherein the control element includes a ratchet and pawl assembly.

4. Shade apparatus according to Claim 3, wherein the ratchet and pawl assembly is provided substantially within the standpost.

2014200666 17 Jul 2018

5. Shade apparatus according to Claim 3 or Claim 4, wherein both the ratchet and pawl are within the standpost.

6. Shade apparatus according to Claim 3, wherein the ratchet and pawl are external to the standpost.

7. Shade apparatus according to any one of the preceding claims, wherein the strut is pivotally mounted to a strut carriage which can slide along the standpost.

8. Shade apparatus according to any one of the preceding claims, wherein the boom is pivotally mounted to a boom carriage which can slide along the standpost.

9. Shade apparatus according to any one of the preceding claims, wherein the strut carriage and boom carriage may be linked to one another in a selectively fixed spaced relationship.

2014200666 07 Feb 2014

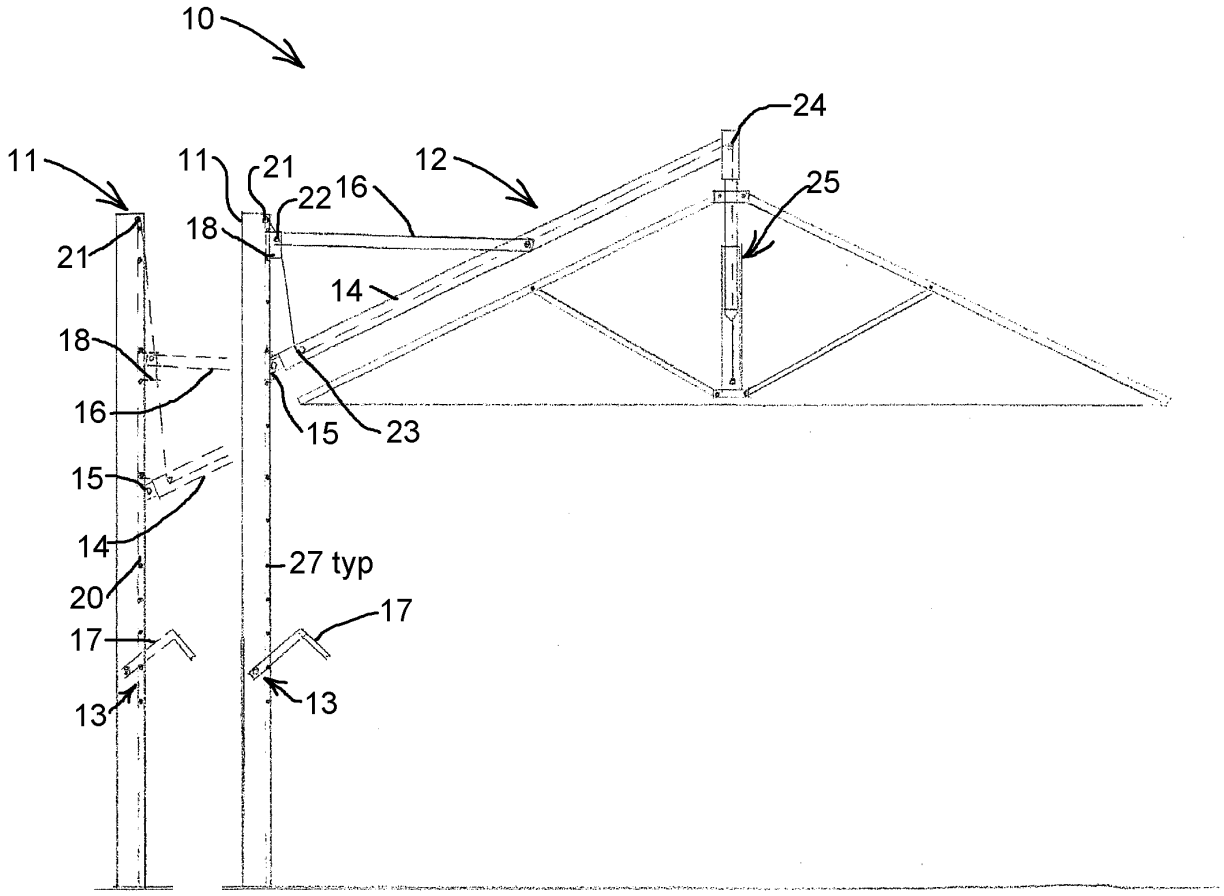


Fig. 2

Fig. 1

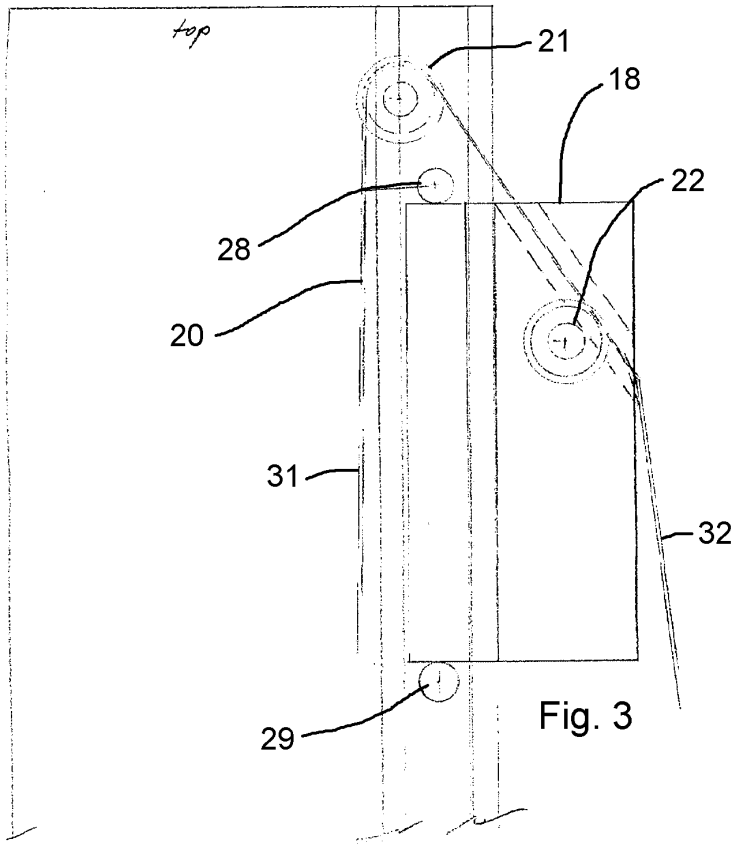


Fig. 3

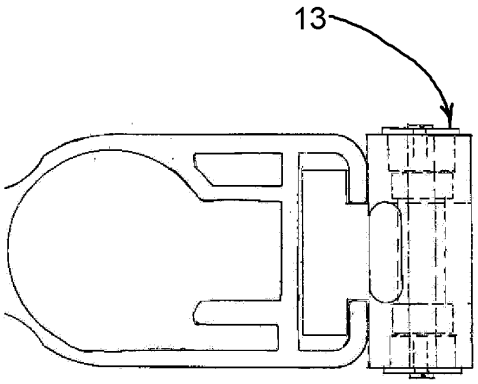


Fig. 4

2014200666 07 Feb 2014

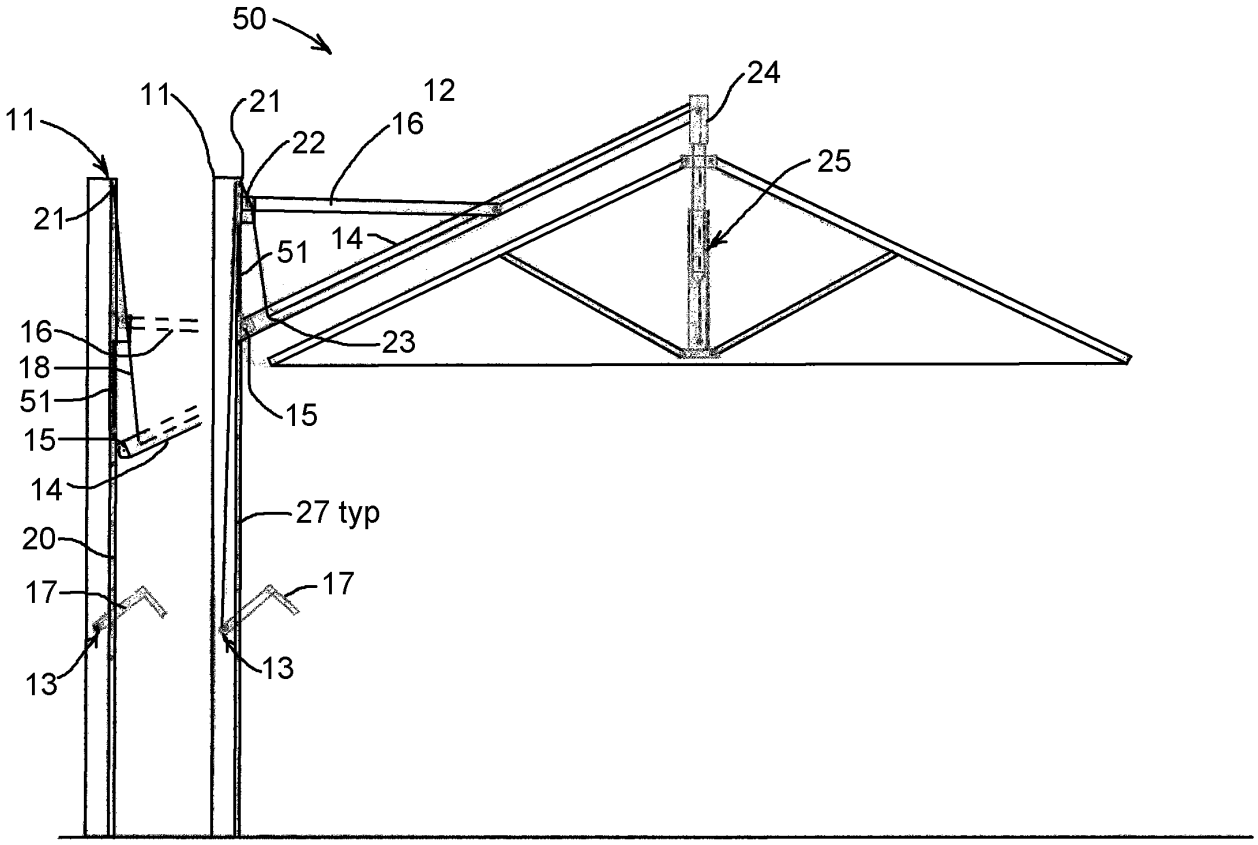
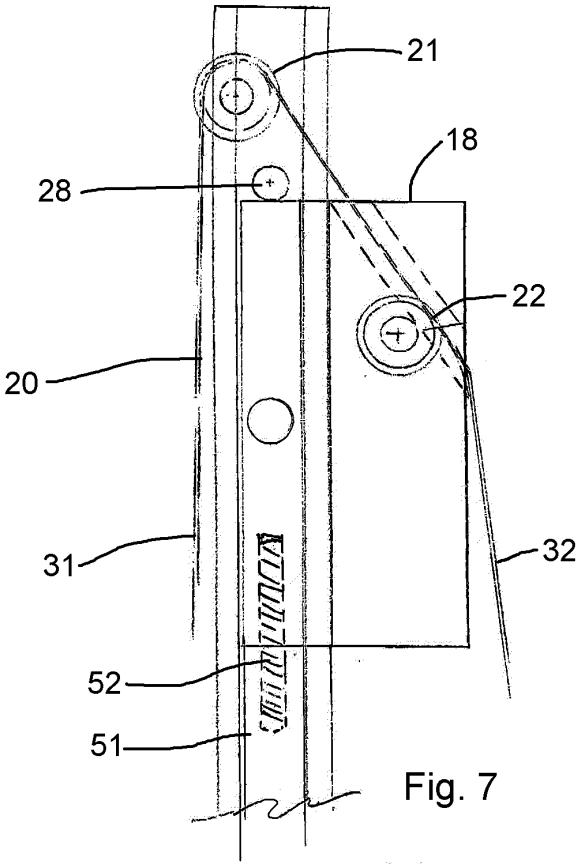


Fig. 5



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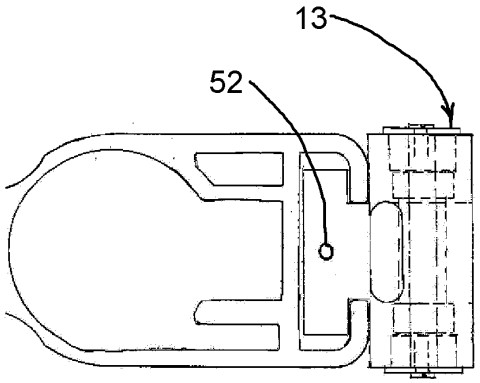

Fig. 8

Fig. 6