(12) STANDARD PATENT (11) Application No. **AU 2013260697 B2**
(19) AUSTRALIAN PATENT OFFICE

(54) Title
SHADE APPARATUS

(51) International Patent Classification(s)
E04H 15/44 (2006.01) ***E04H 15/28*** (2006.01)

(21) Application No: **2013260697** (22) Date of Filing: **2013.11.21**

(43) Publication Date: **2013.12.12**
(43) Publication Journal Date: **2013.12.12**
(44) Accepted Journal Date: **2016.08.11**

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(56) Related Art
US 5937882
US 2002/0079398
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US 4149553
US 5711333
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ABSTRACT

Shade apparatus including:

a hollow standpost;

one or more boom members mounted to said standpost for sliding movement therealong;

a connecting medium;

control means for controlling the movement of said one or more boom members along said standpost via said connecting medium operatively connecting said standpost and said one or more boom members to one another; and

wherein said control means is at least in part within said standpost.

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SHADE APPARATUS

This invention relates to shade apparatus. The invention has particular application to shade apparatus having a stowable canopy, but may be used in respect of shade apparatus having non-stowable canopies.

Canopies for shade or protection against inclement weather are described in my co-pending Australian Patent Application No. 2006207858 filed 6 September 2006. The shading apparatus described therein provides advantages over prior arrangements, particularly insofar as the provision of tracks along at least part of a standpost to which carriages may be mounted for travel therealong. Arrangements as described in my abovementioned co-pending patent application, as well as other mechanisms for the raising and lowering, folding and unfolding or otherwise manipulating a canopy, can involve the use of a ratchet and pawl mechanism, but such mechanisms are normally provided in an exposed disposition. It may be advantageous to provide an arrangement in which at least the ratchet and pawl mechanism are not so exposed, but to date, a combination of elements has not been provided in the prior art.

The present invention aims to provide 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.

With the foregoing in view, this invention in one aspect resides broadly in

shade apparatus including:

a hollow standpost;

one or more boom members mounted to said standpost for sliding movement therealong;

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control means for controlling the movement of said one or more boom members along said standpost by way of a connecting medium operatively connecting said standpost and said one or more boom members to one another; and

wherein said control means is at least in part within said standpost.

Preferably, the control means includes an actuation element and a control element, the actuation element including means such as a crank and handle in mechanical connection with the control element whereby a user may actuate the control element by way of the actuation element. In such form, the preferred arrangement is to encase substantially the entire control element within the standpost and minimise the extent of the actuation element not encased within the standpost. Preferably, the control means includes a ratchet and pawl assembly, the ratchet forming part thereof being substantially within the standpost. More preferably, both the ratchet and pawl are within the standpost. In such form, the ratchet and pawl assembly form at least in part the aforementioned control element. The ratchet is mounted to a ratchet shaft extending to the outside of the standpost for operative attachment of a crank handle thereto for actuation of the ratchet and pawl assembly. The pawl is operatively mounted to a pawl shaft which in turn extends to the outside of the standpost for operative attachment of a lever or the like to release the pawl from the ratchet when it is desired that the rotation of the ratchet shaft be reversed.

In another aspect, this invention resides broadly in shade apparatus including:

a hollow standpost;

one or more boom members mounted to said standpost for sliding movement therealong;

control means for controlling the movement of said one or more boom members along said standpost by way of a connecting medium operatively connecting said standpost and said one or more boom members to one another;

said control means including a ratchet and pawl assembly; and

wherein said ratchet and pawl assembly is at least in part within said standpost.

Preferably, the ratchet and pawl assembly has a shaft upon which the ratchet is mounted, at least one end of the shaft projecting outside the standpost for operative fixing of a crank handle or the like to the shaft to provide for the manual rotation of the shaft. In such form, it is preferred that the standpost include a channel for mounting the pawl in operative relationship with the ratchet whereby rotation of the shaft in a predetermined direction is prevented by engagement of the ratchet with the pawl.

In a preferred form, the standpost is a hollow extruded section of metal including the channel extending along internally of the extrusion. The channel is provided in order to substantially prevent the pawl from accidentally disengaging from the ratchet. More preferably, the ratchet extends partly into the channel, the width of the channel, ratchet and pawl being commensurate with the purpose of retaining the pawl in operative engagement with the ratchet.

Preferably, the connecting medium comprises substantially a belt or tape which may be wound onto and unwound from a spool operatively associated with the shaft of the ratchet. In a preferred form, the shaft upon which the ratchet is mounted also serves as the spool to which one end of the belt is attached and onto which the belt may be wound. The other end of the belt is operatively connected or attached to the one or more boom members. Such attachment of the belt to the one or

more boom members may be direct or through carriage means mountable to the standpost for movement therealong by operative engagement with tracking means externally formed into or onto the standpost.

In another aspect, this invention resides broadly in shade apparatus including:

a standpost;

one or more boom members mounted to said standpost for sliding movement therealong;

a connecting medium operatively connecting said standpost and said one or more boom members;

control means for controlling the movement of said one or more boom members along said standpost;

said connecting medium being encased within said standpost;

wherein during movement of said one or more boom members said connecting medium at least partially collects within or deploys from, a guide channel encased within the standpost formed from a pair of internal spaced apart walls that extend from an internal wall of the standpost.

In another aspect, this invention resides broadly in shade apparatus including:

a hollow standpost having guide means therein;

one or more boom members mounted to said standpost for sliding movement therealong;

a shaft mounted to said standpost for rotation relative to said guide means;

actuation means operatively connected to said shaft for moving said boom members along said standpost upon rotation of said shaft;

said guide means being adapted to guide said actuation means to a predetermined position on said shaft.

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In a preferred form, the connecting medium is a belt, the arrangement between said belt and said guide channel being such that the width of the channel is slightly greater than the width of the belt.

Preferably, the apparatus includes a ratchet and pawl assembly wherein both the ratchet and pawl are within the standpost.

Preferably, the ratchet and pawl assembly are mounted on the shaft and at least one end portion of the shaft projects outside the standpost for operative fixing of a crank handle or the like to provide for manual rotation of the shaft. In a preferred form, the belt is directly connected to the shaft.

In another aspect this invention resides broadly in 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 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.

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 diagrammatic side view of shade apparatus according to the invention;

Fig. 2 is an elongate sectional along line 2-2 of Fig. 3 showing detail of a ratchet and pawl assembly encased within a standpost of the shade apparatus of Fig.1;

Fig. 3 is a cross-sectional plan of the standpost of the shade apparatus of Fig. 1.

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Fig. 4 is an elongate sectional along line 2-2 of Fig. 3 showing detail of a ratchet and pawl assembly encased within a standpost of the shade apparatus of Fig.1 showing diagrammatically belt partially wound onto shaft.

Fig. 5 is a cross-sectional plan of the standpost of the shade apparatus of Fig. 1 showing diagrammatically belt partially wound onto shaft.

The shade apparatus 10 illustrated in Fig.1 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 control means 13, the crank handle extending externally of the standpost and substantially the remainder of the control means being contained within the standpost as will be described further in relation to Figs. 2 and 3. The control means shown in Figs. 2 and 3 includes a ratchet 21 mounted to a ratchet shaft 20 extending through the sidewalls 23 of the standpost. The standpost has a hollow interior 29 within which a pair of spaced apart parallel internal walls 24, 32 project inwards to define a guide channel 33. Internal wall 24 also forms part of channel 25.

A peripheral portion of the ratchet extends part way into channel 25 to substantially prevent axial movement thereof along the ratchet shaft. The ratchet shaft can be used to wind up a belt 34 which can be arranged to pass through an intermediate wall 28 and into a belt passage 27 enclosed by the intermediate wall and two angle wall portions 26 extending from the external walls 23 of the remainder of the standpost. The guide channel assists in keeping the seat belt webbing being kept straight when wound onto the ratchet shaft 20, the width of the belt being only slightly less than the internal width of the guide channel. This arrangement tends to minimise lateral movement of the belt during its deployment or gathering around the shaft. A pawl 30 engages with the teeth

of the ratchet, the pawl being mounted to a pawl shaft 31 also extending through the standpost.

In use, the shade apparatus of the present invention can be manipulated by winding the crank arm of the control means to wind up the belt onto the ratchet shaft. And rotating the pawl about the pawl shaft allows the belt to be unwound. A series of pulleys or rollers is provided at predetermined locations along a cable path in accordance with that described in my co-pending Australian Patent Application No. 2006207858 filed 6 September 2006. Internalising the ratchet and pawl assembly of the standpipe affords the shade apparatus of the present invention more aesthetic appeal. It will also be seen that the mechanical elements of the control means are removed from view and from exposure to the weather. Additionally, control of the shade apparatus would be safer with the ratchet and pall assembly encased within the standpost because the possibility of getting objects caught between the ratchet and the pawl is substantially removed. Other advantages may accrue to the combination of elements described herein.

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.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Shade apparatus including:

a hollow standpost;

one or more boom members mounted to said standpost for sliding movement therealong;

control means for controlling the movement of said one or more boom members along said standpost by way of a connecting medium operatively connecting said standpost and said one or more boom members to each other;

said control means including a ratchet and pawl assembly mounted to said standpost;

said ratchet having a shaft extending transverse to and at least in part within said standpost; and

wherein the connecting medium includes a belt which may be wound onto and unwound from a spool operatively associated with the shaft of the ratchet for rotation therewith;

wherein said ratchet and pawl are both within said standpost.

2. Shade apparatus according to Claim 1 wherein the shaft upon which the ratchet is mounted also serves as the spool to which one end of the belt is attached and onto which the belt may be wound.

3. Shade apparatus according to claim 1 or claim 2, wherein said hollow standpost includes guide means and a channel therein;

said guide means being adapted to guide said belt to a predetermined position on said shaft.

4. Shade apparatus according to Claim 3, wherein the width of the channel is slightly greater than the width of the belt.

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5. Shade apparatus according to any one of the preceding claims, wherein the ratchet and pawl assembly are mounted on the shaft and at least one end portion of the shaft projects outside the standpost for operative fixing of a crank handle or the like to provide for manual rotation of the shaft.

6. Shade apparatus according to any one of the preceding claims, wherein the belt is directly connected to the shaft.

7. Shade apparatus according to any one of Claims 3 to 6, wherein the ratchet is mounted for rotation on the shaft axially spaced from the predetermined position within a channel separated and separated therefrom by an internal wall.

Fig. 1

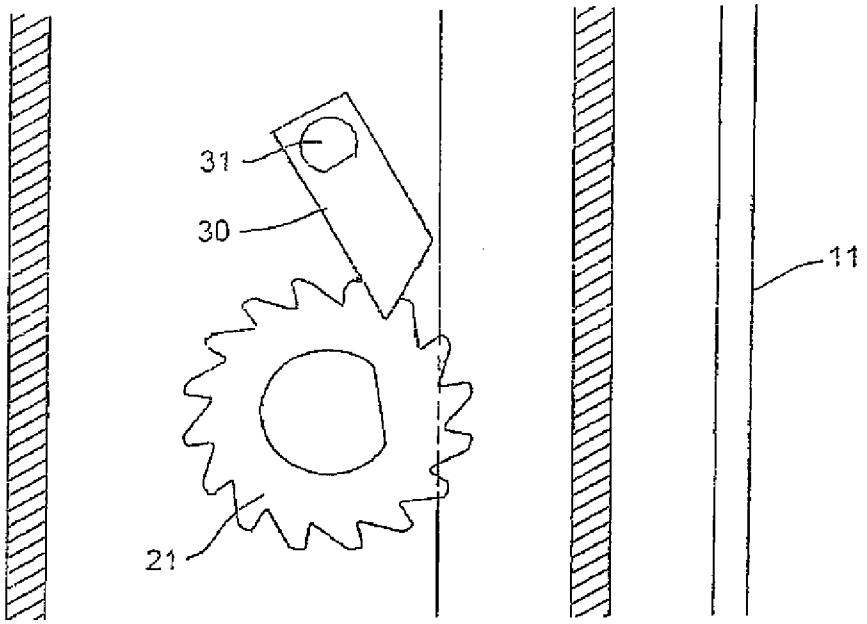

Fig. 2

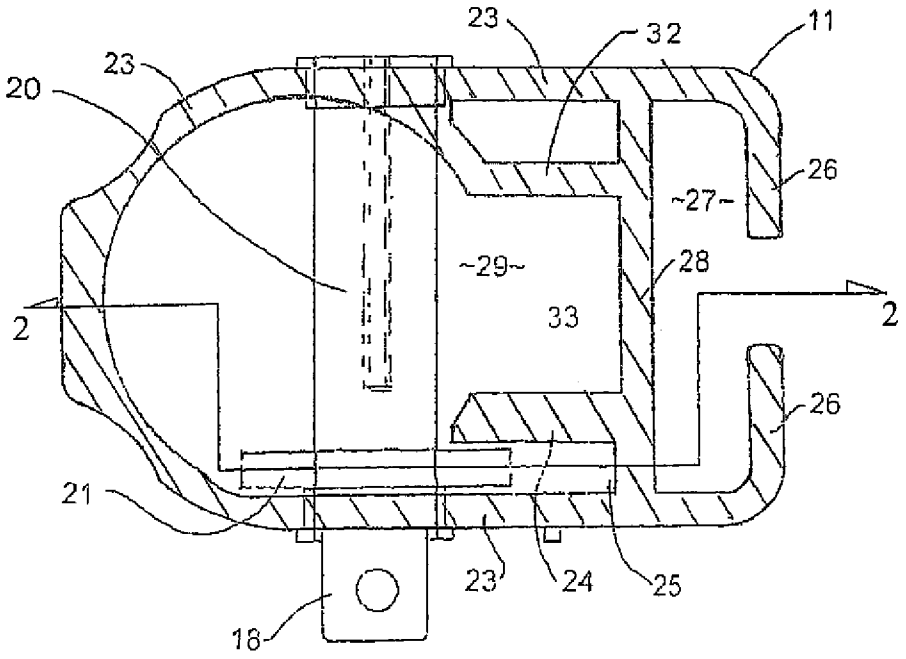

Fig. 3

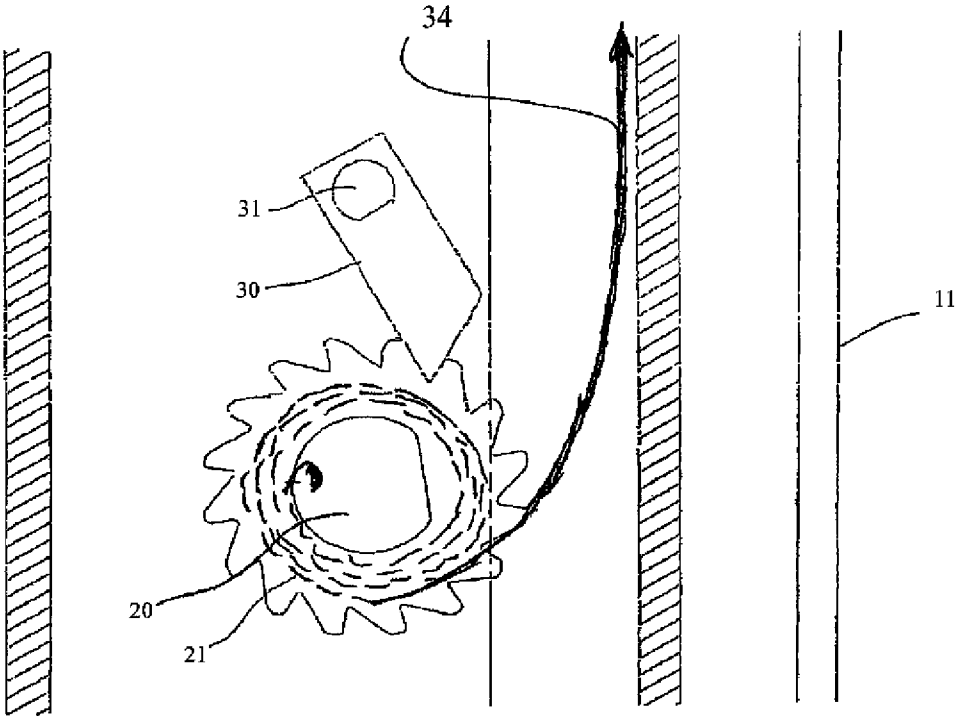
34
31
30
11
20
21

Fig. 4

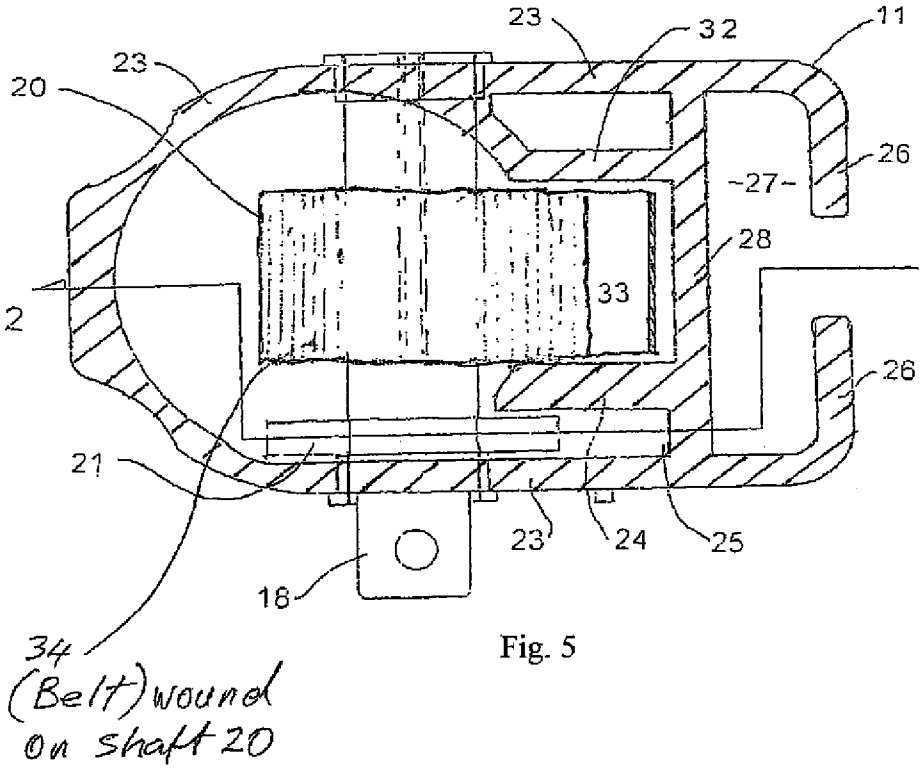
23
32
11
23
20
26
-27-
28
33
2
26
21
23
24
25
18
34
(Belt) wound
on shaft 20

Fig. 5