



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
01.12.2010 Bulletin 2010/48

(51) Int Cl.:
E04H 15/08 (2006.01)

(21) Application number: **09388013.6**

(22) Date of filing: **29.05.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA RS

(72) Inventor: **Blaaholm, Torben**
6800 Varde (DK)

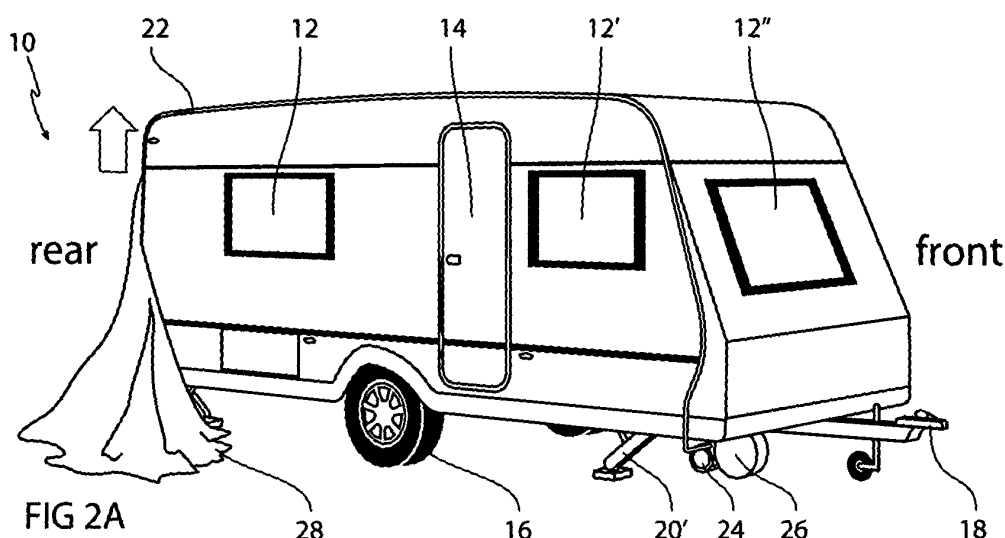
(74) Representative: **Nielsen, Henrik Sten et al**
Budde Schou A/S
Vester Søgade 10
1601 Copenhagen V (DK)

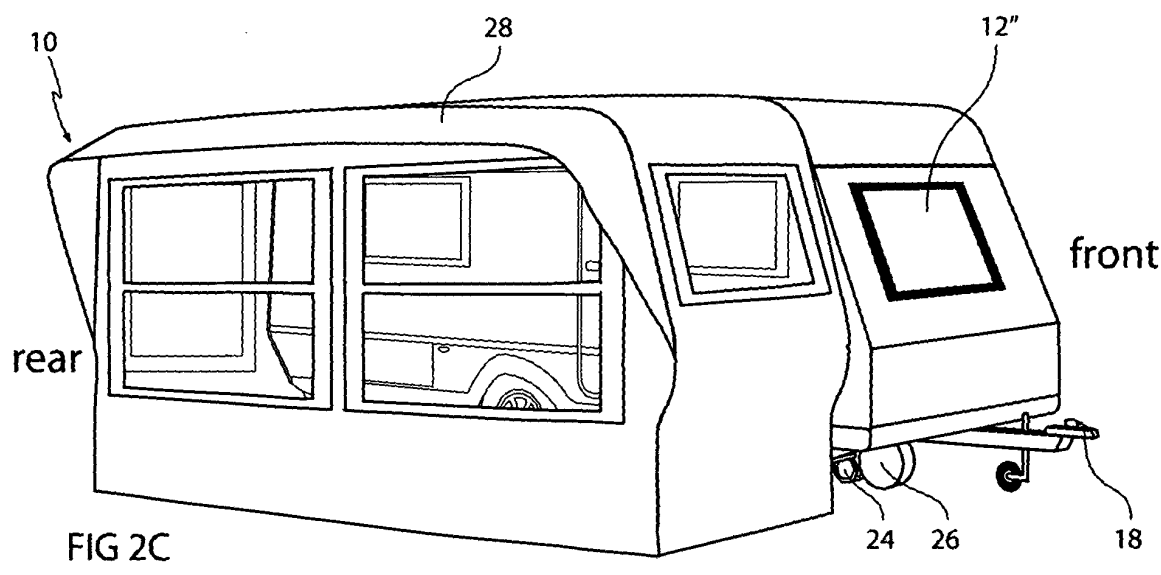
(71) Applicant: **Blaaholm Maskinteknik ApS**
6715 Esbjerg N (DK)

(54) **Assisting the installation and de-installation of an awning**

(57) A system for assisting the installation and de-installation of an awning (28) of a caravan (10), motor home or similar vehicle. The awning has an elongated bead for being received in and retained by a channel (22) and the channel extends along a side surface of the caravan, motor home or similar vehicle. The system comprises a line (34) for transmitting pulling and pushing forces to the elongated bead and the line defines a first end portion, a second end portion and a length there between exceeding the length of the channel and the first end portion is releasably connected to an end of the elongated bead of the awning. The system further comprises a dust proof housing (26) defining an inner space for accommo-

dating the line in a rolled-up state and a feed through aperture (40) for allowing the line to enter or leave the inner space in a substantially non-contaminated state. Furthermore, the system comprises a winch (24) for driving the line into or out of the inner space of the housing via the feed through aperture. The system defines an extension mode in which the first end portion of the line is driven through the channel by the winch in a direction away from the housing while the second end portion is accommodated in the inner space of the housing, and a retraction mode in which the first end portion of the line is driven through the channel by the winch in a direction towards the housing while the line is rolled-up in the inner space of the housing.





Description

[0001] The present invention relates to systems, methods and assemblies for assisting the installation and de-installation of an awning for a caravan, motor home or similar vehicle.

[0002] Caravans and motor homes constitute road vehicles being setup to internally resemble a small apartment providing accommodation for a small number of persons, such as a family. They are often used by campers and tourists wishing to have more flexibility than given by immobile accommodations such as hotels and the like. Caravans and motor homes typically include a table and a set of chairs, a small kitchen, a number of beds and in many cases some bathroom facilities for allowing a comfort level similar to that of a hotel. A caravan is built as a trailer for being towed by a motor vehicle such as a passenger car or pickup truck, while a motor home (known in the U.S. as a recreational vehicle) constitutes a powered vehicle.

[0003] The size, and in particular the width, of a caravan or motor home is limited by the width of the road and the road regulations of the country where the caravan or motor home is going to be used and therefore a caravan or motor home is not capable of providing the interior spacing of a typical living room of an apartment. To compensate for the lack of space available in the caravan, campers typically install an awning adjacent to the side surface of the caravan at the location where the caravan door is situated. The awning is typically made of a rain proof fabric and may differ in size and constitution. Some awnings may be of an open construction for simply providing sun and rain cover while more advanced awnings may form a completely enclosed space by providing a top cover and three walls.

[0004] For providing a comfortable living space the awning must be attached to the caravan in a leakage-free manner to avoid any rain water from entering. Most commercially available caravans and motor homes provide a channel or track, such as a C profile, on its side surface for this purpose. The channel extending continuously from the lower rear portion of the caravan or motor home, upwardly towards the roof and along the roof and downwardly towards the lower front portion of the caravan or motor home. As stated above, the awning typically has a roof and three covered side surfaces. The fourth side which is open and intended to face the caravan has an edge having an elongated bead for being received in and retained by the C-profile. The awning may be installed by inserting the end of the bead into a rear opening of the C-profile and pushing the bead upwardly and sideways along the channel towards a front end of the C-profile. Simultaneously, in order to avoid the awning getting jammed in the channel it is required to pull the awning at the end of the bead along the channel from the opposite end. De-installation may be performed by reversing the above operation for the awning to collapse and allowing the caravan or motor home to be moved.

[0005] The above installation and de-installation operations are typically difficult to carry out by a single person since the awnings are made of rainproof and durable material and are therefore heavy and since the installation and de-installation require simultaneous application of a pulling force and a pushing force. The pulling force may be particular cumbersome since it has to be applied along the channel, i.e. also at an elevated position near the roof of the caravan when the awning is about half way installed. The pushing force must be applied near the opening of the channel for the elongated bead to correctly slide into the channel. Typically, the installation and de-installation is therefore a two-person job, where one person is inserting and feeding the elongated bead into the opening of the channel and the other person is pulling the awning from the opposite end along the channel of the caravan. There is thus a need for technologies for assisting the installation of an awning of a caravan for allowing a single person to install and de-install the awning.

[0006] The above problem has been partially identified in the prior art. EP 1 514 983 suggests a pull cord system and channel encircling the entire side of the caravan for allowing a single person to feed the elongated bead into the channel while at the same time pulling the elongated bead of the awning through the channel by operating the pull cord system. The above solution still requires a large amount of manual labour and may therefore be unsuitable for some people, e.g. elderly people or people having limited strength.

[0007] GB 2 341 351 suggests employing a motorized winch. For mounting the awning, a rope is used and wound up by means of the motorized winch. Thereby the heavy lifting of the awning may be avoided, however, two persons are still required for installing the awning: one person for operating the winch and another one for feeding the awning.

[0008] GB 2271 089 proposes employing a winch being operated remotely from the motor by a foot control, thereby allowing a single person to install the awning. However, the above publication remains silent about the de-installation of the awning.

[0009] Caravans are often positioned on camping grounds or in the terrain where the ground is not expected to be entirely firm and may include dust, dirt, mud, soil or sand. Rainwater and frequent movement of vehicles will additionally loosen the ground where the caravans are positioned. Dust and other foreign material may contaminate the ropes and enter the machinery of the winches and eventually be causing a jam or even a breakdown. Thus, it is an object of the present invention to provide systems, methods and assemblies for installing an awning while keeping the driving mechanism free from dust and other foreign material.

[0010] Areas where camping is preferred are typically crowded by families having young children and pets. Having an open and readily accessible rope and winch system may constitute a safety hazard for playing chil-

dren and pets, in particular since the adult family member may be occupied by the job of installing the awning and cannot be fully observant of the whereabouts of the children and the pets. It is therefore a further object of the present invention to provide a system being closed from access by unauthorized persons.

[0011] Further, the systems described above in the prior art only provide assistance for installing the awning, while the de-installation must be performed manually. However, the de-installation of the awning often involves almost as heavy work as the installation of the awning. It is therefore yet a further object of the present invention to provide a bidirectional system for assisting both the installation and the de-installation of the awning.

Summary of the invention

[0012] The above need and the above object together with numerous other needs and objects which will be evident from the below detailed description are according to a first aspect of the present invention obtained by a system for assisting the installation and de-installation of an awning of a caravan, motor home or similar vehicle, said awning having an elongated bead for being received in and retained by a channel, said channel extending along a side surface of said caravan, motor home or similar vehicle, said system comprising:

a line for transmitting pulling and pushing forces to said elongated bead, said line defining a first end portion, a second end portion and a length there between exceeding the length of said channel, said first end portion being releasably connected to an end of said elongated bead of said awning,
a dust proof housing defining an inner space for accommodating said line in a rolled-up state and a feed through aperture for allowing said line to enter or leave said inner space in a substantially non-contaminated state and,
a winch for driving said line into or out of said inner space of said housing via said feed through aperture, said system defining an extension mode in which said first end portion of said line is driven through said channel by said winch in a direction away from said housing while said second end portion being accommodated in said inner space of said housing, and a retraction mode in which said first end portion of said line is driven through said channel by said winch in a direction towards said housing while said line being rolled-up in said inner space of said housing.

[0013] The system according to the first aspect of the present invention is preferably used for installing an awning on a caravan, motor home or similar vehicles. The system according to the first aspect may further be used for mobile homes and even stationary homes and houses and other structures where a removable awning is de-

sired. The channel extending along the side surface of the caravan or motor home for the purpose of receiving and retaining an awning is well known to campers and other users of caravans and motor homes. The channel typically constitutes a C-profile following industrial standards and being made of rigid plastic or metal such as aluminium. In particular the gap should be having a standardised size. Manufactures of awnings provide an elongated bead along the edge of the awning intended to face the side surface of the caravan or motor home. The bead has a standardised shape for being retained by the above mentioned C-profile. The channel should have appropriate openings preferably at each end of the channel, in the present context referred to as the front and rear end of the channel, for allowing the elongated bead to be received in, retained by and removed from the channel. When the awning is installed, the elongated bead and the channel should cooperate tightly for avoiding any rain water from entering the awning. It is of course contemplated that the awning may be installed in either direction, i.e. either from the front in backward direction, or from the rear in forward direction. In the present context, front and rear refers to the intended towing or driving direction of the caravan or motor home.

[0014] The line should be capable of transmitting both pulling and pushing forces, i.e. it should be sufficiently rigid for allowing the elongated bead and the awning to be pulled during installation and pushed during de-installation. The line should be longer than the channel to be able to be fed through the entire length of the channel. The first end portion of the line should have a mechanism for being able to releasably attach to the end of the bead of the awning. The opposite second end portion of the line should always be in contact with the winch, and possibly fixedly attached to the winch. When the awning is being installed, the line is entering the housing through an aperture and rolled-up inside the housing. In this way the line remains protected from dust and sand while being operated.

[0015] The housing protects the line from dust by being sufficiently sealed from the environment. The line enters the housing via an aperture for avoiding foreign materials from entering the housing. The housing also protects minors and other family members from injury by the line.

[0016] According to a further embodiment, said winch is driven by an electrical motor, preferably a 12 Volt DC motor. The 12 Volt DC motor is particular advantageous, since it may be connected directly to the on-board power system of the caravan, motor home or towing vehicle for allowing the winch to operate in places out of range of a 115/230 VAC mains power outlet. Various adapters and converters exist for allowing 12 V DC motors to operate with a 115/230 VAC mains power outlet when available e.g. on a well equipped camping ground.

[0017] According to a further embodiment, said winch is being remote controlled, preferably via radio or infrared signals. By remote control of the winch the person installing the awning may selectively move the winch in either

direction while ensuring the elongated bead being correctly received and retained by the channel. The remote control communicates with the winch by transmitting control signals using wireless technology for allowing a maximum amount of flexibility for the user. In the present context the control signals may preferably be electromagnetic radiation of either radio or infrared frequency. It is further contemplated that digital signals may be used for avoiding any interference with other equipment and allowing for more advanced signals to be transmitted. Advance signals may e.g. allow a user-defined and variable velocity when extending and retracting the line.

[0018] According to a further embodiment, said winch is integrated in said housing. In one embodiment the winch is integrated in the housing for allowing the line to be rolled-up on the winch. Alternatively, a sufficiently large housing is provided for allowing the line to be rolled-up separately from the winch.

[0019] According to a further embodiment, said channel and said housing are interconnected by a guide tube. For further preventing any dust from entering the housing and for additional safety, the line may be completely enclosed by the guide tube in which the line is allowed to run separately from the exterior.

[0020] According to a further embodiment, said winch is accommodated in a dust proof enclosure being separated from said housing. In another embodiment the winch is located in a separate enclosure being connected to the housing by e.g. a guide tube. The housing is thereby merely used for accommodating the line and may thus be having a smaller size. For convenience, the housing and the enclosure may form a unitary body.

[0021] According to a further embodiment, said channel and said enclosure and/or said enclosure and said housing are interconnected by further guide tube(s). Additional guide tubes may be provided for enclosing the line for the reasons stated above.

[0022] According to a further embodiment, said winch and/or said housing are removable. A removable system may be preferred for avoiding accidental removal of the system at an inconvenient situation. When the system is not in use, i.e. when the awning is not either installed or de-installed, the system may be removed and stowed away. In this way theft of the system may be avoided. As a further benefit, the system cannot fall off when travelling at high speed. For convenience upon removal, the complete system may constitute a unitary device.

[0023] According to a further embodiment, said winch and/or said housing are positioned below said caravan. Preferably, the system is fitted to the floor of said caravan or motor home for allowing the awning to be pulled as far as possible by the winch. The winch and the housing are further preferably located as close to the front end of the channel as possible.

[0024] According to a further embodiment, said line constitutes an entwined metal wire. For allowing the winch to transmit both pulling and pushing forces and for achieving a superior durability, preferably an entwined

metal wire is used as the line.

[0025] According to a further embodiment, said winch comprise a cog-wheel and said line comprise corresponding beads, bulges or chain structures for cooperating with said cog-wheel. By including a winch having a cog-wheel and a line having corresponding beads, bulges or chain structures, any slippage between the winch and line may be avoided. The line may for this purpose be made of metal or polymeric material.

[0026] The above need and the above object together with numerous other needs and objects which will be evident from the below detailed description are according to a second aspect of the present invention obtained by an assembly comprising:

an awning for a caravan, motor home or similar vehicle, said awning having an elongated bead for being received in and retained by a channel, said channel extending along a side surface of said caravan, motor home or similar vehicle,
a line for transmitting pulling and pushing forces to said elongated bead, said line defining a first end portion, a second end portion and a length there between exceeding the length of said caravan, said first end portion being releasably connected to an end of said elongated bead of said awning,
a dust proof housing defining an inner space for accommodating said line in a rolled-up state and a feed through aperture for allowing said line to enter or leave said inner space in a substantially non-contaminated state and,
a winch for driving said line into or out of said inner space of said housing via said feed through aperture.

[0027] The system according to the first aspect of the present invention is preferably supplied together with a suitable awning in the assembly according to the second aspect.

[0028] The above need and the above object together with numerous other needs and objects which will be evident from the below detailed description are according to a third aspect of the present invention obtained by a method of assisting the installation and de-installation of an awning of a caravan, motor home or similar vehicle, said awning having an elongated bead for being received in and retained by a channel, said channel extending along a side surface of said caravan, motor home or similar vehicle, said method comprising providing:

a line for transmitting pulling and pushing forces to said elongated bead, said line defining a first end portion, a second end portion and a length there between exceeding the length of said caravan, said first end portion being releasably connected to an end of said elongated bead of said awning,
a dust proof housing defining an inner space for accommodating said line in a rolled-up state and a feed through aperture for allowing said line to enter or

leave said inner space in a substantially non-contaminated state and,
a winch for driving said line into or out of said inner space of said housing via said feed through aperture,

said method comprising the step of installing said awning by:

driving said first end portion of said line through said channel in a direction away from said housing by using said winch while said second end portion remaining in said inner space of said housing, connecting said end of said elongated bead to said first end portion of said line, and
driving said first end portion of said line through said channel in a direction towards said housing by said winch while said line being rolled-up in said inner space of said housing,

said method further comprising the steps of de-installing said awning by:

driving said first end portion of said line through said channel in a direction away from said housing by using said winch while said second end portion remaining in said inner space of said housing, disconnecting said end of said elongated bead from said first end portion of said line, and
driving said first end portion of said line through said channel in a direction towards said housing by said winch while said line being rolled-up in said inner space of said housing.

[0029] The method according to the third aspect of the present invention is preferably employed together with the system according to the first aspect or the assembly according to the second aspect. In-between the installation and de-installation of the awning, the line, housing and winch are preferably disconnected and stowed away. The connecting and disconnecting of the awning to/from the line is preferably made using quick connectors such as carabineer connectors.

Brief description of the figures.

[0030]

Fig. 1 is a typically sized caravan having the system according to the present invention.

Fig. 2 is a series describing the installation of an awning onto the caravan of Fig. 1.

Fig. 3 is a detailed view of the system for assisting the installation of an awning onto the caravan.

Detailed description of the figures.

[0031] Fig. 1 shows an exterior side view of a caravan 10. The caravan 10 has two windows 12 and 12' and a

door 14 situated between the windows 12 and 12'. The caravan 10 further has a centrally located pair of wheels 16 and two pairs of oppositely located jacks 20 and 20' at the respective rear and front end of the caravan 10.

5 The designated front and rear parts of the caravan 10 have been indicated in the figure and refers to the intended towing direction. The jacks 20 and 20' are lowered for providing stability when the caravan 10 is stationary and raised when the caravan 10 is moving. At the front end 10 the caravan 10 has a coupling 18, which is connectable to a towing vehicle, such as a passenger car or a pickup truck (not shown). The caravan 10 comprises a channel 22 extending continuously along the side surface of the caravan 10 beginning at a front location near the front 15 jack 20' at the lower front portion of the caravan 10, continuing upwardly to the roof of the caravan 10, rearwards along the roof of the caravan 10, above the door 14 and windows 12 and 12' towards the rear end of the caravan 10 and downwardly towards the lower rear end and ending near the jack 20. The channel 22 constitutes a C-profile measured for receiving and retaining a bead of an awning (not shown) and accommodating a line (not shown). The channel 22 has a respective opening at rear and front end of the channel 22 for allowing the elongated 20 bead to be introduced and removed.

[0032] The line is fed via a winch 24 into a housing 26. When the caravan 10 is moving, the line is stored in a rolled-up state inside the housing 26. Preferably, the housing 26 and the winch 24 are removable for being stowed away when driving to and from a camping location. When arriving at a camping location, the installation of the awning may be prepared by performing the initial steps of attaching the winch 24 and housing 26 to the caravan 10, connecting the winch 24 to a power source and extending the line through the channel 22. Presently, 35 the winch 24 and housing 26 are located at the front end of the channel 22, however, it is equally feasible to have the winch 24 and housing 26 located at the rear end of the channel 22. Since the walls of the caravan 10 may be weak, the winch 24 and the housing 26 is preferably 40 attached onto the chassis or framework of the caravan 10 for allowing a suitable stability and for handling the forces of winching.

[0033] The line should have a sufficient stiffness for being fed through the channel 22 and a sufficient flexibility 45 for allowing it to be rolled-up inside the housing 26. The line preferably is a wire such as a multi stranded and entwined metal wire. Such wires are durable and have the capability of transmitting both pulling and pushing forces. In this way the line may be moved and apply forces 50 bidirectional along the channel 22 when extending and retracting the line. The line should be longer than the channel 22 so that when the line is fully extended a first end of the line should be able to extend at the opening at the rear end of the channel 22 and a second end should 55 remain inside the housing 26 or at least in contact with the winch 24.

[0034] Fig. 2 shows a series of figures illustrating the

steps of installing an awning 28 onto a caravan by using the system according to the present invention.

[0035] Fig. 2a shows the first step of installing the awning 28 to the caravan 10. The end of the bead of the awning 28 is connected to the first end of the line. The first end of the line should have a connector such as a carabineer for cooperating with the awning 28. When the line has been connected to the elongate bead of the awning 26, the elongated bead is inserted into the channel 22 at the rear opening of the channel 22. The elongated bead of the awning 28 is connected to the line and both the line and the elongated bead of the awning 28 are received and retained within the channel 22 allowing the elongated bead to slide along the channel. By using the winch 24, the first end of the line may be retracted towards the front end of the channel while the line is fed into the housing 26 and stored in a rolled-up state therein. The line may be retracted by the user while at the same time the user feeds the elongated bead into the opening of the channel 22 at the rear end of the channel for avoiding the elongated bead to be misaligned or jammed in the channel 22. The winch 24 is motor-driven by a 12 V DC motor compatible with the onboard power source of either the caravan or the towing vehicle. Alternatively, a 115/230 V AC motor connectable to a normal household mains outlet may be used. The winch 24 is further remote controlled so that the installation and de-installation of the awning 28 may be performed by a single person. The remote control (not shown) may be of simple design having one button for retracting the line and another button for extending the line. Alternatively, a more complex design including buttons for varying the velocity of the line etc. may be used. The remote control is preferably operated wireless by radio or infrared signals. As a backup the winch 24 may be driven manually by a hand crank.

[0036] The heavy work of lifting and pulling the awning 28 is performed by the winch 24, while the user assists the installation by introducing the elongated bead of the awning 28 into the opening of the channel 22. In most cases the user workload will be very limited allowing elderly and weak persons to carry out the installation. In case the user positions the awning in a suitably folded state below the channel, it is contemplated that the elongated bead may fit into the channel without user assistance, and in such cases the user merely has to control the winch and observe the installation. The winch 24 is powered by an electrical motor, which in turn may be powered either via a 12 Volt outlet from the onboard power source of the caravan, the towing car battery or via a 115/230 VAC mains power outlet, provided a suitable adapter and power converter is provided. In this way the camper may select the most appropriate power source with regard to the circumstances.

[0037] Fig. 2b shows the caravan 10 having an awning 28, which is half way installed onto the channel 22. The single person performing the installation of the awning 28 may still be positioned near the rear opening of channel 22 for ensuring the correct alignment of the awning

28. The arrows show the direction of installing the awning.

[0038] Fig. 2c shows the final installed state of the awning 28 covering the side surface of the caravan 10. When the elongated bead reaches the front opening of the channel 22, the greater part of the line is accommodated within the housing 26 and the winch 24 may be stopped. If desired, the first portion of the line may then be disconnected from the awning 28 and the winch 24 and housing 26 may be stowed away.

[0039] The de-installation of the awning may be performed in the reverse order. As the system provides a bi-directional force, the user merely has to reverse the direction of the line and fold the awning 28 together as it is being fed out of the channel 22. In this way the very heavy work of de-installing the awning 28 is simplified, allowing it to be performed as easy as the installation even by elderly and weak persons.

[0040] Fig. 3a shows a cross sectional view of the system including the housing 26 and the winch 24. The housing constitutes a cylindrical dust proof container and defines an inner space 30. The inner space 30 comprises a spool 32 onto which the line 34 is being rolled-up. As previously discussed, the line 34 should be sufficiently flexible for being rolled-up on the spool 32 and sufficiently rigid for being able to apply a bidirectional, push and pull, force onto the awning when driven through the channel 22. Dust-proof should in the present context be understood as the inner space being sufficiently sealed off from the external environment for avoiding any dust, dirt or sand particles from contaminating the line, housing and winch mechanics.

[0041] The winch 24 is in the present embodiment located outside the housing 26 in a separate dust proof casing 50, however, it would be feasible to include the winch into the housing 26 and even being a part of the spool 32 of the housing 26. The benefit by the present embodiment is that the housing 26 may be constructed without any moving parts. The winch 24 comprises a drive cylinder, described in more detail in connection with fig. 3b, around which the line 34 is being driven. The drive cylinder of the winch 24 is driven by a drive axle 36, which in turn is driven by an electrical motor 38. The line is introduced from the outside into the casing 50 of the winch 24 through an aperture 40 and a guide tube 42 both having a cross section slightly larger than the diameter of the line for avoiding any larger particles entering the guide tube via the line 34. A further guide tube 42' guides the line 34 from the casing 50 of the winch 24 to the housing 26. The aperture 40 of the guide tube 42 is preferably connected to or positioned adjacent to the opening of the channel of the caravan (not shown) for allowing a seamless protection of the line from the channel to the housing. In this way the line is completely enclosed for offering maximum protection to the line, as well as a maximum amount of safety for the bystanders. The arrows show the direction of the line 34 when the line is retracting when the awning is being installed.

[0042] Fig. 3b shows an exploded view of the system

including the housing 26 and the winch 24. The winch 24 comprises the drive cylinder 44 for driving the line in a user-defined forward and backward direction. The drive cylinder 44 is attached to a pin 52, which is rotatable fixated to the lower part of the casing 50'. The pin 52 is further connected to the axle 38 for allowing the pin 52 and the drive cylinder 44 to rotate when the electrical motor 36 is activated. It is contemplated that the line 34 should be encircling the drive cylinder 44 by at least half a turn for achieving a sufficient amount of friction to avoid slippage between the wire and the driving cylinder when extending or retracting the line. Since the line might be slightly wet and thereby slippery when being driven through the channel of the caravan additional contact pressure is supplied by additionally pinching the wire onto the drive cylinder 44 by a pair of fixation cylinders 46. The fixation cylinders are mounted on a fixation part 48, which is in turn fixated to the casing 50. A top cylinder 54 is attached to the pin 52 for keeping the drive cylinder 44 in place and preventing dust from contacting the drive cylinder 44.

[0043] It is contemplated that the drive cylinder 44 may constitute a cog-wheel and the line 34 may have corresponding beads, bulges or chain structures for cooperating with the cog-wheel for avoiding any slippage between the line 34 and the drive cylinder 44. It is further contemplated that the line 34 and the bead of the awning 28 may be accommodated in two separate and substantially parallel channels instead of a single common channel 22.

[0044] In the above example, reference is made to caravan, however, the systems, methods and assemblies according to the present invention are equally applicable on similar vehicles, such as e.g. motor homes. It is of course contemplated that the above system may include numerous additional safety features such as emergency stop button, automatic stop when the line reaches its fully extended or fully retracted position or automatic stop in case of an excessive load e.g. due to the awning being jammed in the channel.

[0045] Although the present invention has been described above with reference to specific embodiments, it is of course contemplated that numerous modifications may be deduced by a person having ordinary skill in the art and modifications readily perceivable by a person having ordinary skill in the art are consequently to be construed as being part of the present invention as being defined in the appended claims.

List of parts with reference to the figures

[0046]

- 10. Caravan
- 12. Window
- 14. Door

- 16. Wheels
- 18. Coupling
- 20. Jack
- 22. Channel
- 24. Winch
- 26. Housing
- 28. Awning
- 30. Inner space
- 32. Spool
- 34. Wire
- 36. Drive axle
- 38. Electrical motor
- 40. Aperture
- 42. Guide tube
- 44. Drive cylinder
- 46. Fixation cylinder
- 48. Fixation part
- 50. Dust-proof casing
- 52. Pin
- 54. Top cylinder

Claims

1. A system for assisting the installation and de-installation of an awning of a caravan, motor home or similar vehicle, said awning having an elongated bead for being received in and retained by a channel, said channel extending along a side surface of said caravan, motor home or similar vehicle, said system comprising:

a line for transmitting pulling and pushing forces to said elongated bead, said line defining a first end portion, a second end portion and a length there between exceeding the length of said channel, said first end portion being releasably connected to an end of said elongated bead of said awning,

- a dust proof housing defining an inner space for accommodating said line in a rolled-up state and a feed through aperture for allowing said line to enter or leave said inner space in a substantially non-contaminated state and,
 a winch for driving said line into or out of said inner space of said housing via said feed through aperture,
 said system defining an extension mode in which said first end portion of said line is driven through said channel by said winch in a direction away from said housing while said second end portion being accommodated in said inner space of said housing, and a retraction mode in which said first end portion of said line is driven through said channel by said winch in a direction towards said housing while said line being rolled-up in said inner space of said housing.
2. The system according to claim 1, wherein said winch is driven by an electrical motor, preferably a 12 Volt DC motor.
 3. The system according to any of the preceding claims, wherein said winch is being remote controlled, preferably via radio or infrared signals.
 4. The system according to any of the preceding claims, wherein said winch is integrated in said housing.
 5. The system according to claim 4, wherein said channel and said housing are interconnected by a guide tube.
 6. The system according to any of the claims 1-3, wherein said winch is accommodated in a dust proof enclosure being separated from said housing.
 7. The system according to claim 6, wherein said channel and said enclosure and/or said enclosure and said housing are interconnected by further guide tube(s).
 8. The system according to any of the preceding claims, wherein said winch and/or said housing is removable.
 9. The system according to any of the preceding claims, wherein said winch and/or said housing is positioned below said caravan.
 10. The system according to any of the preceding claims, wherein said line constitutes a entwined metal wire.
 11. The system according to any of the preceding claims, wherein said winch comprise a cog-wheel and said line comprise corresponding beads, bulges or chain structures for cooperating with said cog-wheel.

12. An assembly comprising:

an awning for a caravan, motor home or similar vehicle, said awning having an elongated bead for being received in and retained by a channel, said channel extending along a side surface of said caravan, motor home or similar vehicle, a line for transmitting pulling and pushing forces to said elongated bead, said line defining a first end portion, a second end portion and a length there between exceeding the length of said caravan, said first end portion being releasably connected to an end of said elongated bead of said awning,
 a dust proof housing defining an inner space for accommodating said line in a rolled-up state and a feed through aperture for allowing said line to enter or leave said inner space in a substantially non-contaminated state and,
 a winch for driving said line into or out of said inner space of said housing via said feed through aperture.

13. An assembly according to claim 12, further comprising any of the features of claim 1-11.

14. A method of assisting the installation and de-installation of an awning of a caravan, motor home or similar vehicle, said awning having an elongated bead for being received in and retained by a channel, said channel extending along a side surface of said caravan, motor home or similar vehicle, said method comprising providing:

a line for transmitting pulling and pushing forces to said elongated bead, said line defining a first end portion, a second end portion and a length there between exceeding the length of said caravan, said first end portion being releasably connected to an end of said elongated bead of said awning,
 a dust proof housing defining an inner space for accommodating said line in a rolled-up state and a feed through aperture for allowing said line to enter or leave said inner space in a substantially non-contaminated state and,
 a winch for driving said line into or out of said inner space of said housing via said feed through aperture,

said method comprising the step of installing said awning by:

driving said first end portion of said line through said channel in a direction away from said housing by using said winch while said second end portion remaining in said inner space of said housing,

connecting said end of said elongated bead to
said first end portion of said line, and
driving said first end portion of said line through
said channel in a direction towards said housing
by said winch while said line being rolled-up in
said inner space of said housing, 5

said method further comprising the steps of de-in-
stalling said awning by:

10
driving said first end portion of said line through
said channel in a direction away from said hous-
ing by using said winch while said second end
portion remaining in said inner space of said
housing, 15
disconnecting said end of said elongated bead
from said first end portion of said line, and
driving said first end portion of said line through
said channel in a direction towards said housing
by said winch while said line being rolled-up in
said inner space of said housing. 20

15. The method of claim 14, further comprising any of
the features of claims 1-11.

25

30

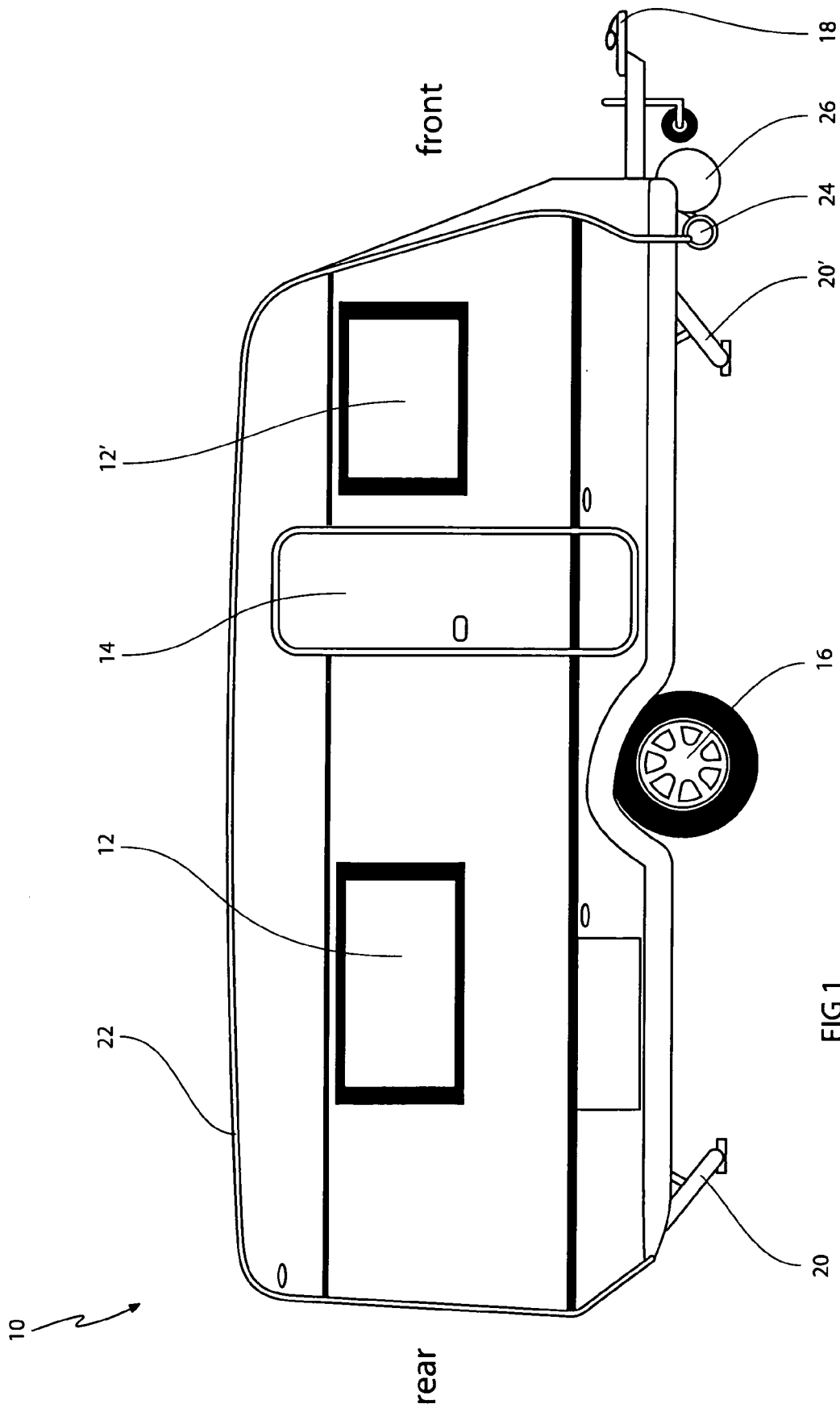
35

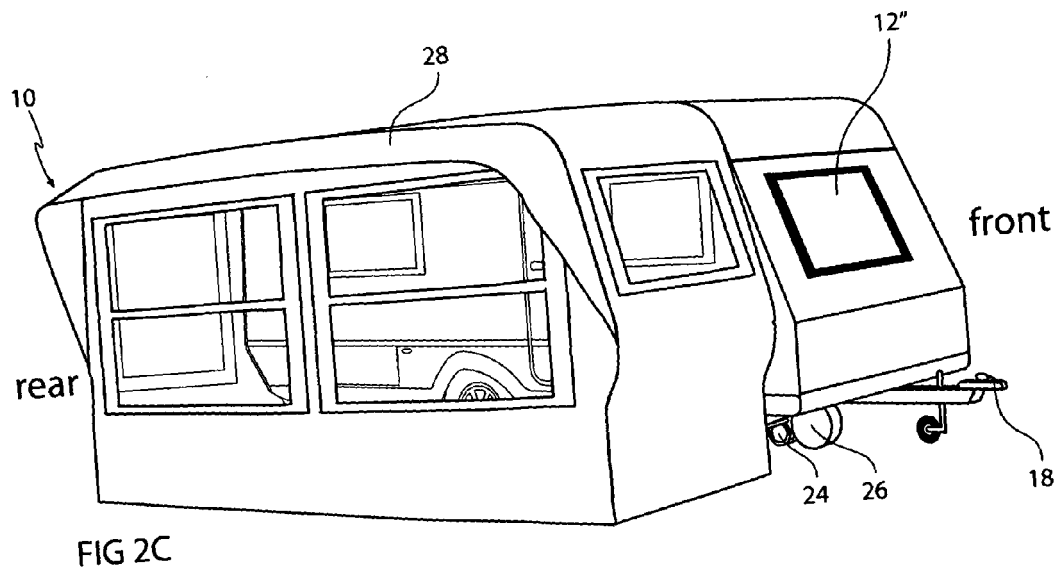
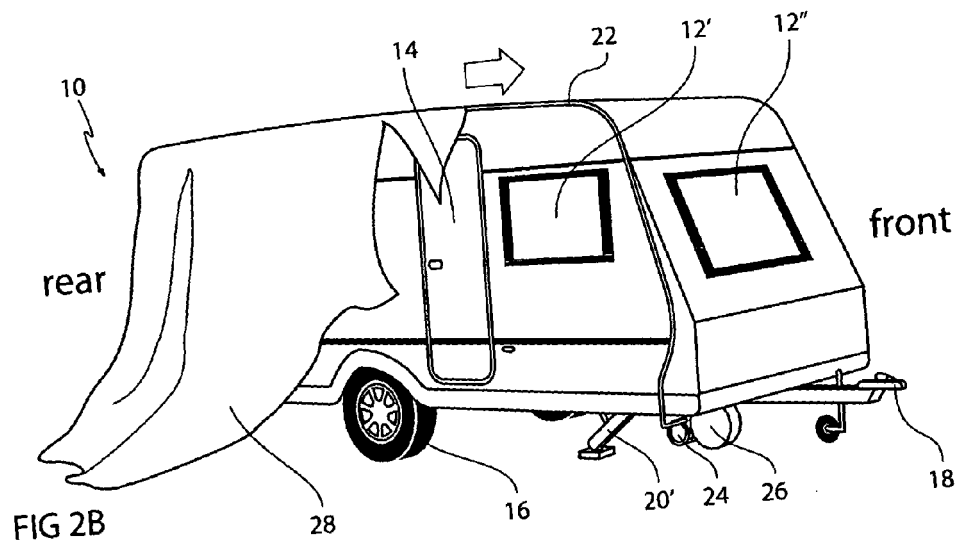
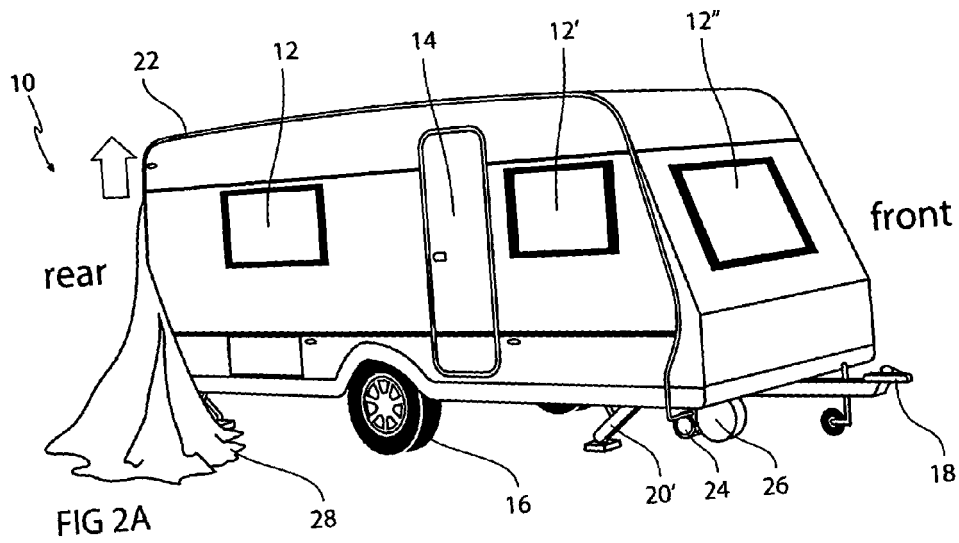
40

45

50

55





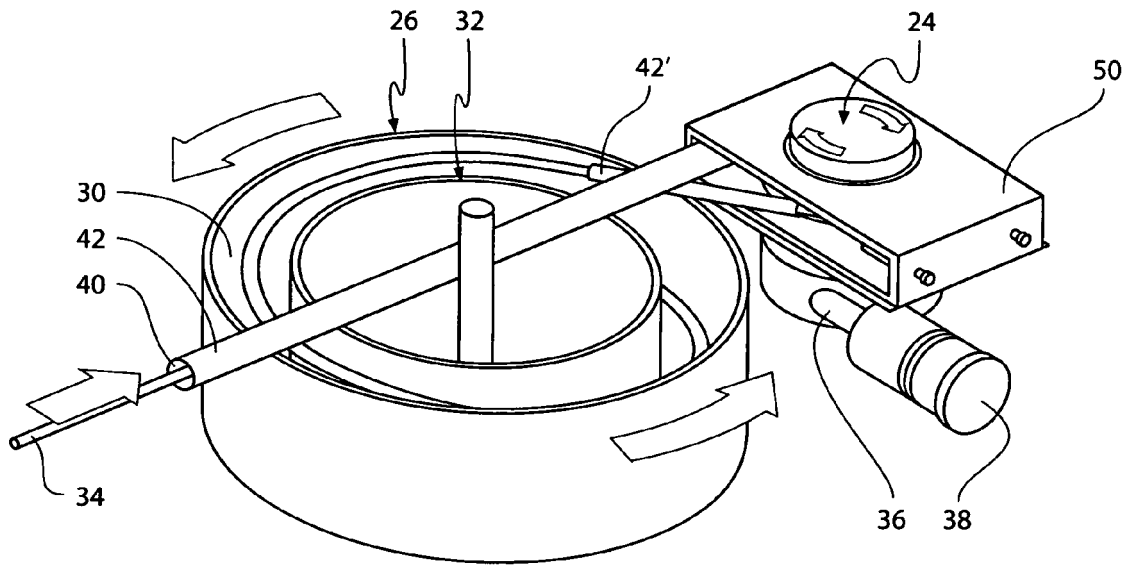


FIG 3A

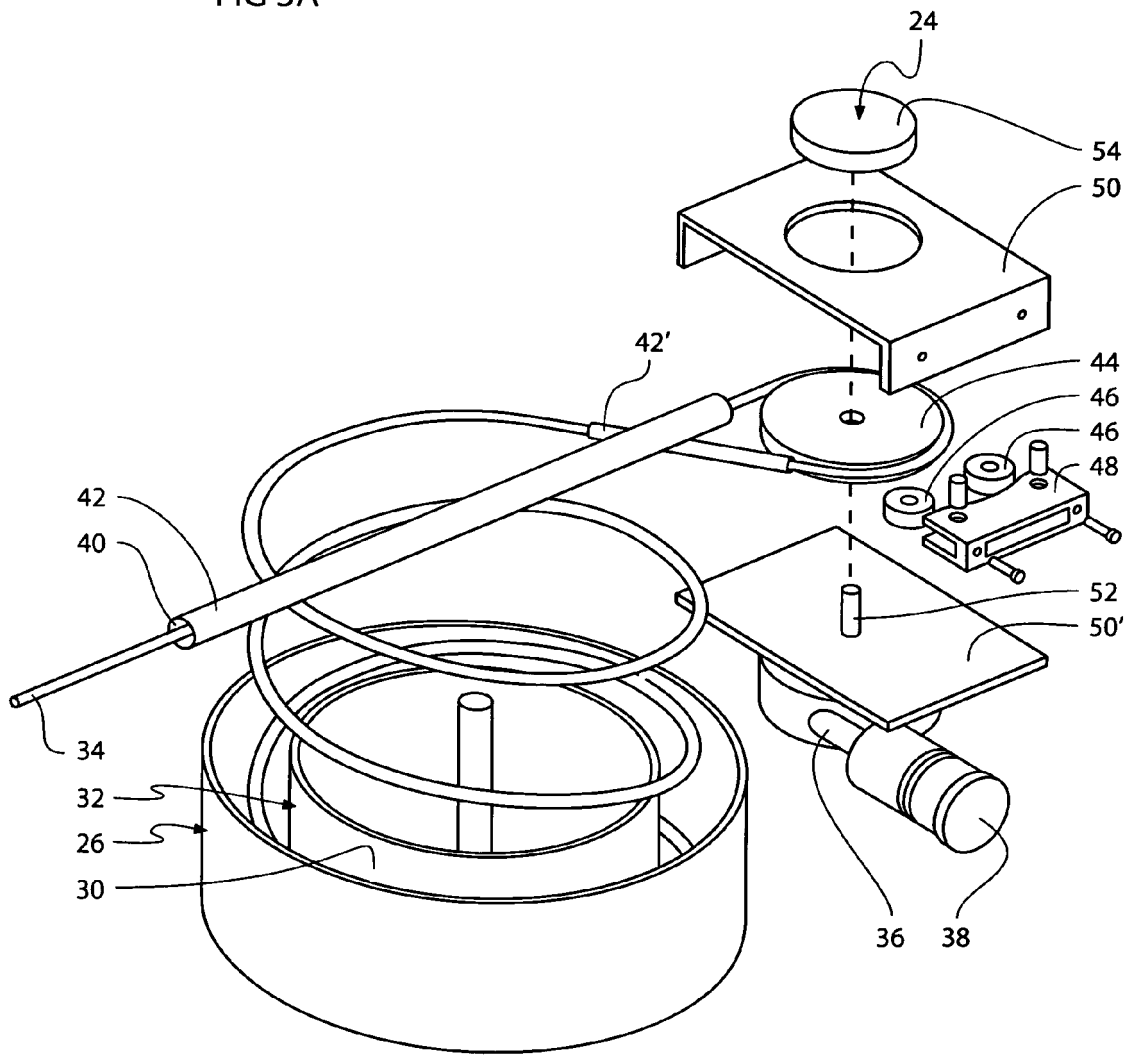


FIG 3B



EUROPEAN SEARCH REPORT

Application Number
EP 09 38 8013

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X,D	GB 2 271 089 A (TEASDALE JEFFREY ALAN [GB]) 6 April 1994 (1994-04-06) * the whole document *	1-15	INV. E04H15/08
A,D	GB 2 341 351 A (TROUGHTON ROBERT JOSEPH DESMON [GB]) 15 March 2000 (2000-03-15) * the whole document *	1,12,14	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04H
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20 November 2009	Examiner Clasing, Martina
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

 2
EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 38 8013

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-11-2009

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2271089	A	06-04-1994	NONE	

GB 2341351	A	15-03-2000	NONE	

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 1514983 A [0006]
- GB 2341351 A [0007]
- GB 2271089 A [0008]