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(54) **Hoist system for display**

(57) A hoist system (2) is provided including support means (26,28) for supporting one or more objects in use and drive means (34) for driving movement of said support means (26,28) between two or more positions. The

support means (26,28) includes one or more lengths of tape, ribbon, webbing and/or strapping. The object being supported is a graphical, promotional and/or advertisement display.

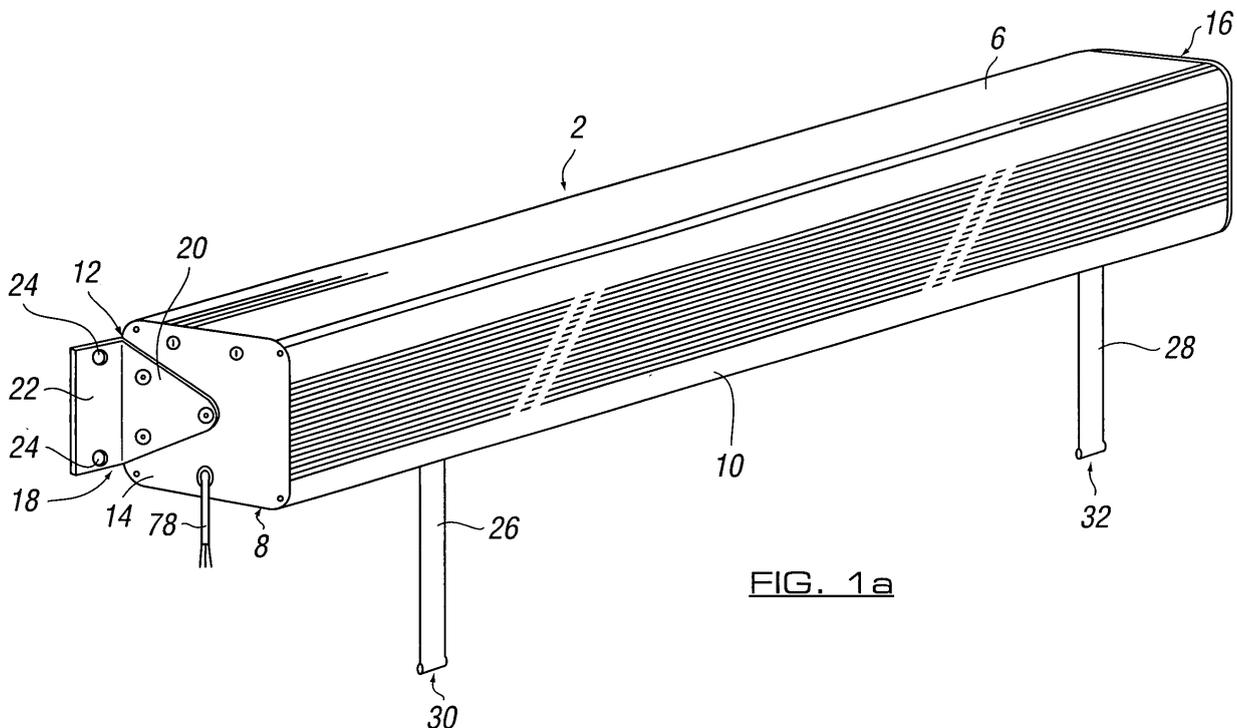


FIG. 1a

Description

[0001] This invention relates to a hoist system and a method of use thereof.

[0002] Although the following description refers almost exclusively to a hoist system for use in a retail outlet and method of use thereof, it will be appreciated by persons skilled in the art that the hoist system of the present application can be used in any suitable environment, such as a warehouse environment, in an office, in domestic premises and/or the like. The scale of the hoist system of the present application can be readily adapted according to its intended use. In addition, the hoist system can be used to move any or any combination of objects between two or more required positions in use.

[0003] Retail outlets often have large amounts of space available between the head height of customers walking on the floor surface of the outlet and the ceiling of the retail outlet. This space is often utilised to create suspended displays, such as to display promotional material, advertisements, hang merchandise and/or other items, such as Christmas decorations and/or the like. The manner in which the promotional material, merchandise and/or the like is displayed is of importance as it projects an initial impression of the retailer to the consumer and also informs the consumer of new and existing product lines and/or prices. Such displays are often required to be changed on a regular basis to allow a wide range of promotional offers and merchandise to be displayed and are also required to look neat and tidy.

[0004] Changing of suspended displays is often a time consuming process and in many modern retail outlets the displays can often be suspended at a significant height above the floor surface of the outlet. Movement of the suspended displays can often present a health and safety risk to the worker or workers responsible for changing the displays. For example, it is known that some retail outlets have suspended displays of up to 8m high above the ground surface. Conventionally, a display worker typically has to use access equipment, such as a ladder, steps and/or the like, to access the suspended displays that are out of their reach. The access equipment either requires the worker to climb up the same to the level of the suspended display or requires at least part of the access equipment to be raised off the ground and moved to the level of the suspended display. Use of access equipment could result in the worker injuring themselves, particularly if they are also trying to lift, carry and/or remove products on and/or off the suspended display at the same time. In addition, use and/or hire of access equipment is typically expensive, it requires a large amount of space to position the access equipment relative to the suspended display and often requires skilled workers to use the same.

[0005] It is known to provide a basic type of hoist system for use in a retail outlet for suspended displays of a type used to display lightweight promotional material, such as advertisements printed onto paper or lightweight

cardboard. Such hoist systems typically comprise a frame attached to a ceiling of the outlet to which a tubular motor is attached. The tubular motor is used to drive movement of two spaced apart wires between extended and retracted positions. Promotional material can be detachably attached between the free ends of the wires. This type of hoist system is generally suited to lightweight applications only. A problem with this type of system is that the wires often become tangled, can be deformed and often move out of synchrony, thereby resulting in the promotional material being suspended in an uneven manner which is unsightly and creates a bad impression to a customer of the retail outlet.

[0006] It is therefore an aim of the present invention to provide a hoist system which overcomes the abovementioned problems.

[0007] It is a further aim of the present invention to provide a method of using a hoist system which overcomes the abovementioned problems.

[0008] According to a first aspect of the present invention there is provided a hoist system, said system including support means for supporting one or more objects in use and drive means for driving movement of said support means between two or more positions, **characterised in that** said support means includes one or more lengths of tape, ribbon, webbing and/or strapping.

[0009] By using one or more lengths of tape, webbing, ribbon or strapping which is substantially strong and flexible, and is also substantially flat (i.e. is formed from a sheet like material) with a reasonable pre-determined width, this has been found to remove the problem associated with tangling, snagging or uneven movement. The movement of the support means is maintained in an even manner even when the weight of the one or more objects is removed from the support means. The flexibility of the support means allows the support means to be wound onto a drum, reel, object or other suitable recoiling system to allow the support means to be moved between extended and retracted positions in use. In addition, sufficient tension can be maintained during winding the support means onto and from the drum or reel to ensure even movement of the support means in use. The tape, webbing, ribbon and/or strapping can be wound in a substantially overlapping manner to form a substantially even stack of material when fully wound, with the width of an intermediate part of the support means covering substantially the entire width of the support means directly above and/or below the same when fully wound. This is in contrast to the prior art wire system wherein the wire is not flat and so contacts different parts of adjacent wires at different levels when fully wound and cannot be wound with each layer of wound wire comprising a single wire substantially covering an adjacent wire directly above and below the layer.

[0010] Preferably the support means includes at least two lengths, and preferably two lengths of tape, webbing, ribbon and/or strapping. Thus, if one length of tape, webbing or strapping breaks, at least one other length of tape,

webbing or strapping can be used to support the one or more objects, thereby preventing injury to a person below the hoist system. Preferably the tape, webbing or strapping is provided at or adjacent either end of the one or more objects being supported in use.

[0011] The at least two lengths of tape, webbing, ribbon and/or strapping are preferably arranged a spaced distance apart in the system.

[0012] The one or more lengths of tape, ribbon, webbing and/or strapping can be formed from any or any combination of suitable material, such as fabric, woven or non-woven fabric, plastic, nylon, polypropylene plastic and/or the like.

[0013] Preferably the support means are movable between at least first and second positions in use. The first position is typically a raised, retracted, wound, suspended or display position and the second position is typically a lowered, extended, unwound or loadable position. Control means can be provided with or associated with the systems to allow intermediate positions to be provided between said at least first and second positions. Preferably the hoist system is capable of moving said at least one object between substantially vertically spaced apart positions. The hoist system allows the at least one object to undergo substantially linear and/or reciprocal movement in use.

[0014] Preferably the substantially vertical positions between which the at least first object can be moved are co-axially arranged.

[0015] Preferably the drive means includes powered drive means, such as for example a motor for driving movement of the support means in use. The drive means can be powered by mains power, rechargeable power source and/or the like.

[0016] In one embodiment the motor is in the form of a tubular motor.

[0017] Preferably the hoist system includes movement means for aiding movement of the support means in use. The movement means can include any or any combination of one or more pulleys, rotatable members, drums, channelled member and/or the like around which the tape, ribbon, webbing or strapping is wound and/or unwound from in use to form the retracted and extended positions.

[0018] Preferably the movement means are attached to or are associated with the motor or drive means, such that said motor drives rotation of said movement means and thus drives the winding or unwinding of the tape, ribbon, webbing or strapping thereon. Thus, in one example, the movement means are not capable of free movement but move as a result of movement of the drive means.

[0019] In one embodiment the movement means has an aperture or channel defined therein and said aperture is used to fit said movement means to said tubular motor (i.e. at least part of the tubular motor is located through said aperture. The movement means therefore moves as a result of movement of the tubular motor or drive

shaft which the tubular motor drives).

[0020] The movement means and/or support means is provided with engagement means for allowing engagement of at least part of the support means and movement means together in use. Preferably an end of the support means is engaged with the movement means in use.

[0021] Preferably a slot is defined in a surface of the movement means and a pin is locatable in said slot. The pin is locatable through a loop defined in an end of the support means when assembled, thereby engaging the end of the support means within the slot. The remainder of the support means passes out the opening of to the slot and is wound onto a winding surface of the movement means.

[0022] Preferably the movement means includes an upwardly protruding flange or lip located on one or both sides of the winding surface thereof. The upwardly protruding flange acts as a guide to guide winding or unwinding of the support means onto/from the winding surface in use. For example, the movement means could be in the form of a spool with an upwardly protruding flange extending from a winding surface thereof.

[0023] The winding surface of the movement means is preferably an outer circumferential edge thereof. The width of the winding surface is preferably slightly wider than the width of the support means being located thereon. This allows a single layer of support means to be provided in each layer of the fully wound support means.

[0024] The movement means and/or drive means can be located in a housing or frame and one or more slots can be defined in the housing or frame to allow the support means to move into and out of the housing or frame. This provides an improved aesthetic appearance to the system in one embodiment since the movement means and/or drive means are hidden from view.

[0025] The housing, frame, movement means and/or drive means can be connected to a suitable surface in use via connection means. The suitable surface can be a ceiling, roof, wall and/or the like.

[0026] In one embodiment the connection means is pivotably mounted to said housing, frame, movement means and/or drive means, thereby allowing the orientation of the connection means to be adjustable. For example, depending on whether the housing is to be attached to a wall or substantially vertical surface, or a ceiling or substantially horizontal surface.

[0027] In one example the connection means includes a plate portion and a flange portion. The flange portion is typically provided substantially perpendicularly to the plate portion to provide a substantially L-shaped bracket.

[0028] The plate portion can be pivotably mounted to the housing, such as an end wall of the housing for example. The flange portion can be used to fix the connection means to the wall or ceiling surface in use. One or more apertures can be defined in the flange portion to allowing fixing screws and/or other suitable fixing means to be located therethrough in use.

[0029] Preferably the support means are integral with,

attached to or detachably attached to the one or more objects via attachment means. The attachment means can include any or any combination of one or more hooks, loops, clips, ties, screws, nuts and bolts, adhesive, inter-engaging members, Velcro® (hook and loop fastening), friction fit and/or the like.

[0030] One or more loops can be provided at the end of the support means to allow attachment to the attachment means or the one or more objects.

[0031] The one or more objects can include any sized, shaped and/or design of item or items.

[0032] Preferably the one or more objects are substantially lightweight, such as a cardboard or paper type product. For example the one or more objects can include graphical display or promotional material or advertisement that is suspended between the support means of the hoist system.

[0033] In a preferred embodiment the one or more objects is in the form of a graphic rail for allowing some form of graphic or promotional material to be attached to detachably attached thereto. The support means are attached to the graphic rail in use.

[0034] The graphic rail in one example can include a channel defined therein and an end or edge of a graphic work can be slidably mounted in said channel.

[0035] In one embodiment the hoist system is remote controlled using remote control means. Alternatively, or in addition, wired control means can be provided for operation of the system.

[0036] In one embodiment the one or more objects include illumination means, such as for example one or more lights. The illumination means can be used alone or can be used to illuminate one or more other objects supported by the hoist system. The illumination means can be powered by suitable power means and an electrical cable recoil system can be associated with the hoist system to allow electrical cable for the illumination means to move between extended and retracted positions with the support means.

[0037] An electrical cable recoil or housing system can be provided with the hoist system for allowing electrical power to be supplied to any or any part of said one or more objects.

[0038] According to a second aspect of the present invention there is provided a method of using a hoist system, said system including support means for supporting one or more objects in use and wherein said method includes the steps of moving the support means using drive means between two or more spaced apart positions, **characterised in that** said support means includes one or more lengths of tape, ribbon, webbing and/or strapping.

[0039] According to a further aspect of the present invention there is provided a suspended or graphic display apparatus. The apparatus typically includes a hoist system as hereinbefore described.

[0040] An embodiment of the present invention will now be described with reference to the accompanying

figures, wherein:

Figures 1a and 1b show a perspective view and an end view of a hoist system according to an embodiment of the present invention;

Figure 2 is a cross sectional view taken through the hoist system in figures 1a-1b.

Figure 3a is a cross sectional view taken through the housing only of the hoist system in figures 1a-1b;

Figure 3b is an enlarged view of housing engagement means in figure 3a;

Figures 4a and 4b show a side view and an end view respectively of a pulley used in the hoist system in figures 1a-1b;

Figure 5a shows the support means in one embodiment;

Figures 5b and 5c illustrate engagement pins for use with the support means in figure 5a; and

Figure 5d shows the support means in figure 5a assembled with the engagement pins in figures 5b and 5c.

[0041] Referring to the figures, there is illustrate a hoist system 2 for use in a retail outlet for allowing graphic display material to be loaded onto the apparatus in a first lowered position, and for the display material to be raised to a suitable position between the floor and ceiling of the retail outlet in a second raised or suspended position. By allowing at least part of the system to be moved between the lowered and raised positions, this allows retail staff to load the graphic display material onto the display without having to use access equipment, ladders and/or the like.

[0042] The hoist system 2 includes an elongate housing 4 comprising a top 6, base 8, front wall 10, rear wall 12 and end walls 14, 16. Screw ports 17 are provided on the interior surface of the housing 4 to allow the end walls 14, 16 to be attached to the housing 4. The outer surface of end walls 14, 16 are each provided with L-shaped fixing brackets 18 including a plate portion 20 and a flange portion 22. The flange portion 22 is substantially perpendicular to the plate portion and includes a plurality of fixing apertures 24 through which fixing screws can be located to allow the flange portion and thus the housing to be fixed to a wall surface in use. Plate portion can be pivotally attached to end wall 14 to allow the orientation of the plate portion to be changed, such as for example between a ceiling mounting position, wherein the plate portion is substantially vertical and the flange portion is substantially horizontal, as shown by the solid line in figure 1b, to a wall mounting position, wherein the plate portion is

substantially horizontal and the flange portion is substantially vertical, as shown by the dotted line in figure 1b.

[0043] Support means in the form of two elongate flexible tapes 26, 28 pass through two spaced apart slots 29 defined in base 8 of the housing. The free ends 30, 32 of the tapes 26, 28 are used to support the graphic display material therebetween in use.

[0044] Drive means in the form of a tubular motor 34 is used to drive movement of the support means between the extended and retracted positions. More particularly, the tubular motor 34 includes a motor 36 located in an elongate hollow tube 38. A drive adaptor 40 located at an end of motor 36 is used to drive rotation of elongate tube 38 in use. Rotation of said tube 38 is about a substantially horizontal axis or an axis substantially parallel to the longitudinal axis of tube 38, as shown by line 42. A motor end bracket 44 is provided at one end of tube 38 and bearings 46 are provided at the opposite end to support the tube within the housing during rotation.

[0045] Movement means in the form of two spaced apart pulleys 48 are provided on which the tape 26, 28 is wound and unwound from in moving between the extended and retracted positions. Each pulley 48 has a circular circumference to form the winding surface 50. The width 'w' of the winding surface is slightly larger than then width of the tape 26, 28. Side flanges 52 are provided on each side of winding surface 50 and protrude upwardly therefrom to act as guide means or a channel to retain the tape between the same. At least the free end 54 of the side flanges is angled θ° slightly outwardly from the vertical, (for example at 5 degrees to the vertical) to increase the ease with which the tape 26, 28 can be guided onto the winding surface 50. A single width of tape is provided on each layer of the fully wound tape stack.

[0046] An aperture 56 is defined substantially centrally of pulley 48 to allow the tube 38 to pass therethrough. Locator apertures 58 are provided adjacent and open into the aperture 56 to allow a locator screw to join the tube 38 to the pulleys 48. A corresponding locator aperture 60 is defined in tube 38.

[0047] An end 62 of tapes 26, 28 is provided with a loop 63. This loop is formed by overlapping the free end of the tape with an adjacent section of the tape and stitching the same (as shown by stitching zone 64 in figures 5a and 5d). The loop 63 is sufficiently large enough to allow a pin 66 to be located therein and to form a snug fit. The pin 66 is slightly longer than the width w' of the tape 26 so that the free ends of the pin 66 protrude slightly therefrom.

[0048] A slot 68 is defined radially inwardly of pulley 48 from the winding surface 50 and has an opening 69 defined in winding surface 50. A cylindrical shaped recess 70 is formed at the end of slot 68 opposite to opening 69 and is substantially parallel to the width w of the winding surface. With the tape 26, 28 assembled onto the pulleys 48, pin 66 is located through loop 63 of tape 26 and is located in recess 70, thereby engaging the end 62 of tape 26, 28 to the pulley.

[0049] Ends 30, 32 of tape 26, 28 is provided with a similar loop 72 formed by overlapping the free end of tape 26, 28 and stitching the same in stitching zone 74. A further engagement pin 76 can be located through loop 72 for use in connection to a graphic rail or similar (not shown).

[0050] The length of tapes 26, 28 are substantially the same to allow even movement of a graphic item attached to the free ends thereof. The tapes 26, 28 and pulleys 48 can be any suitable spaced distance apart to allow adequate support for the graphic item.

[0051] Pre-determined lengths of tape 26, 28 are used to ensure the tapes are only movable within a pre-determined distance range. For example 14m of tape can be provided. The tapes can be formed from any suitable material, such as for example polypropylene nylon webbing, which provides sufficient flexibility to allow the tape is be wrapped around the pulley and to be sufficiently thin (such as for example 0.4mm) so that a sufficient amount of tape can be wound in an overlapping arrangement on the pulley winding surface in the most retracted position of the hoist system. The width is typically sufficiently wide so that it does not snag or become tangled during the winding or unwinding process, such as for example 25mm wide.

[0052] The motor 36 can be powered by mains electrical supply and an electrical cable 78 can pass through an aperture in the end 14 of the housing 4 to power the motor.

[0053] The tape moves between wound and unwound positions in a direction substantially perpendicular to the rotational axis of the tubular motor or drive shaft which the tubular motor drives in use.

Claims

1. A hoist system, said system including support means for supporting one or more objects in use and drive means for driving movement of said support means between two or more positions, **characterised in that** said support means includes one or more lengths of tape, ribbon, webbing and/or strapping.
2. A hoist system according to claim 1 **characterised in that** the tape, ribbon, webbing and/or strapping is flexible and is movable between a wound position, wherein it is wound around a drum, reel or object, and an unwound position, wherein it is unwound from the drum, reel or object.
3. A hoist system according to claim 2 **characterised in that** in the wound position, the tape, webbing, ribbon and/or strapping is substantially overlapping with a width of an intermediate part of the tape, webbing, ribbon and/or strapping covering substantially the entire width of the tape, webbing, ribbon and/or strapping above and/or below the same.

4. A hoist system according to claim 1 **characterised in that** two lengths of tape, ribbon, webbing and/or strapping are provided and each length is provided at or adjacent an end of an object being supported in use. 5
5. A hoist system according to claim 1 **characterised in that** the support means are movable between a first raised position and a second lowered position, thereby allowing an object being supported to be moved between substantially vertically spaced apart positions. 10
6. A hoist system according to claim 1 **characterised in that** the drive means includes a tubular motor. 15
7. A hoist system according to claim 1 **characterised in that** movement means are provided for aiding movement of the support means in use and the movement means include any or any combination of one or more pulleys, rotatable members, drums or channelled members. 20
8. A hoist system according to a preceding claim **characterised in that** movement means has an aperture or channel defined therein and the tubular motor is located in or through said aperture or channel. 25
9. A hoist system according to claim 7 **characterised in that** engagement means are provided on the movement means and/or support means for allowing engagement of at least part of the support means and movement means in use. 30
10. A hoist system according to claim 9 **characterised in that** the engagement means includes a slot defined in a surface of the movement means and a pin is locatable in said slot, said pin also locatable through a loop defined in an end of the support means when assembled. 35 40
11. A hoist system according to claim 7 **characterised in that** the movement means includes an upwardly protruding flange or lip located on one or both sides of a winding surface onto or from which the support means is wound or unwound in use. 45
12. A hoist system according to any preceding claim **characterised in that** a housing or frame of the system, the movement means and/or drive means are connectable to a suitable surface in use via connection means, said connection means being pivotably mounted to said housing to allow orientation of the system to be adjustable. 50 55
13. A hoist system according to any preceding claim **characterised in that** the object being supported is a graphical, promotional and/or advertisement display. 5
14. A hoist system according to any preceding claim **characterised in that** the system includes an electrical cable recoil or housing system for allowing electrical power to be supplied to the one or more objects and for allowing said electrical cable to be moved between extended and retracted positions with the support means. 10
15. A method of using a hoist system, said system including support means for supporting one or more objects in use and wherein said method includes the steps of moving the support means using drive means between two or more spaced apart positions, **characterised in that** said support means includes one or more lengths of tape, ribbon, webbing and/or strapping. 15

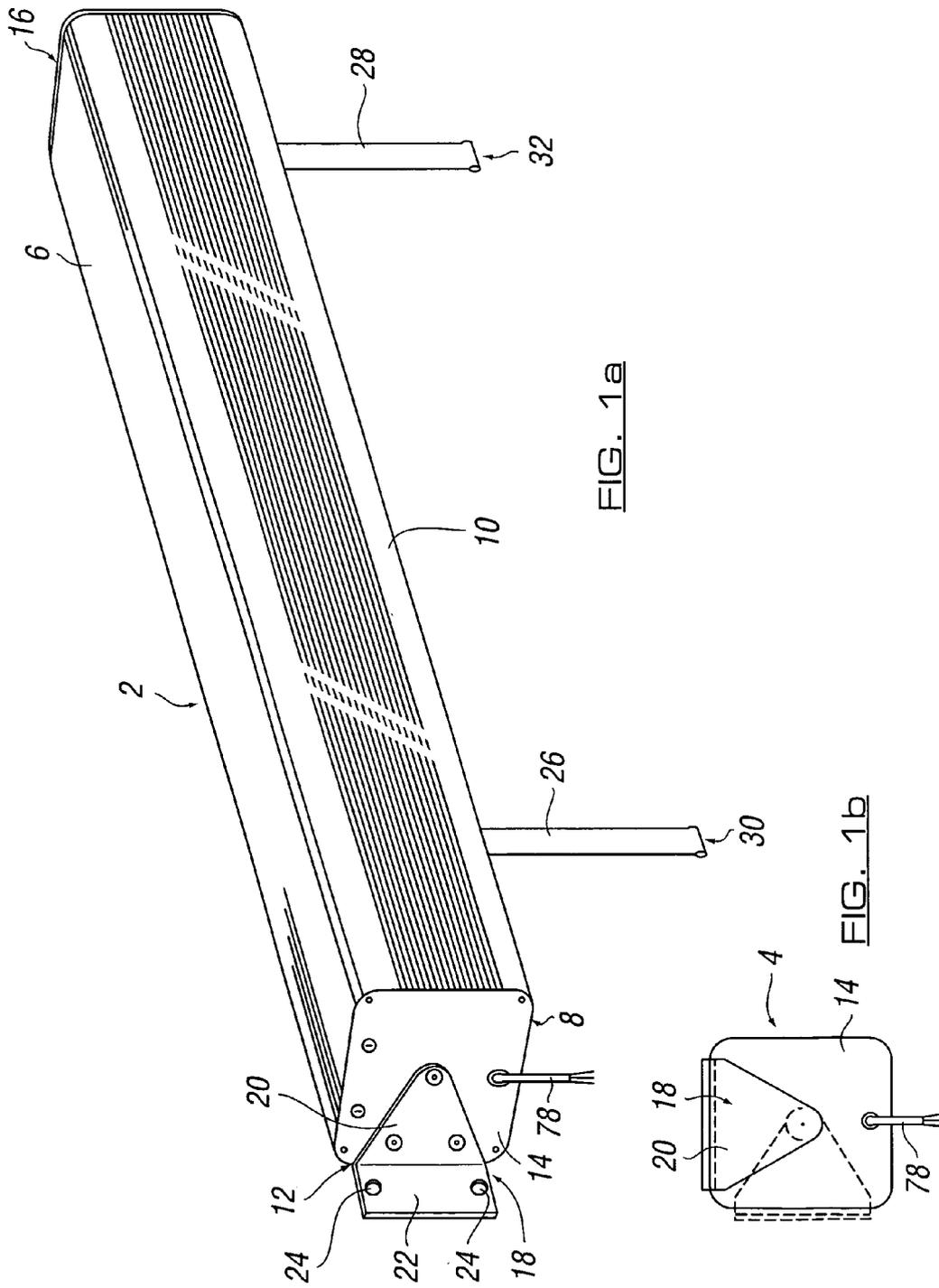
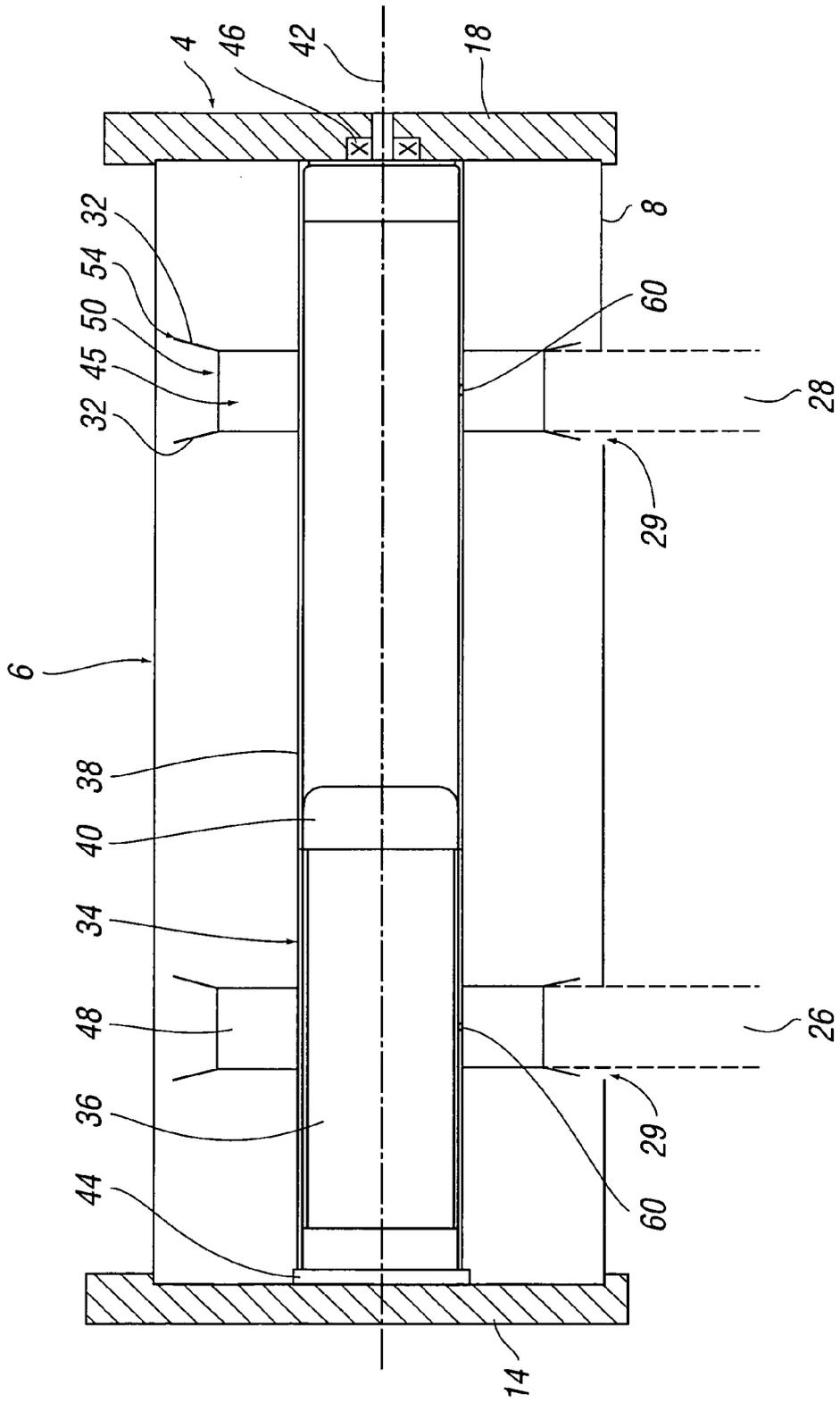
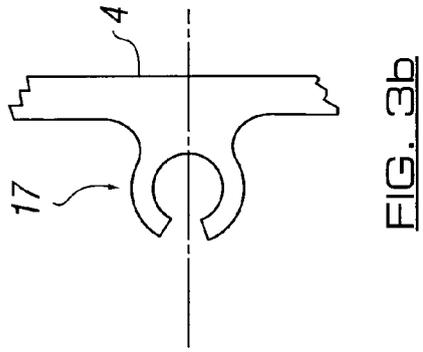
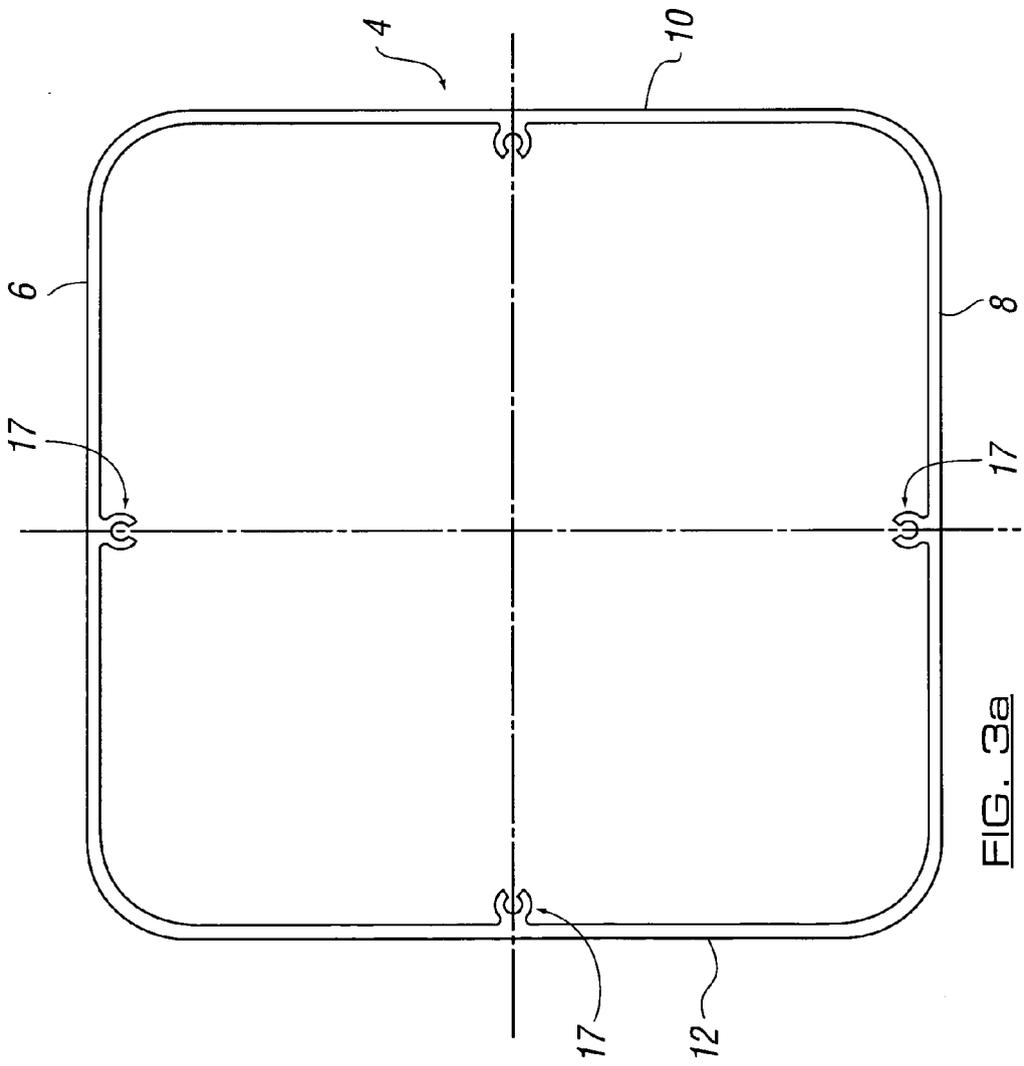


FIG. 1a

FIG. 1b





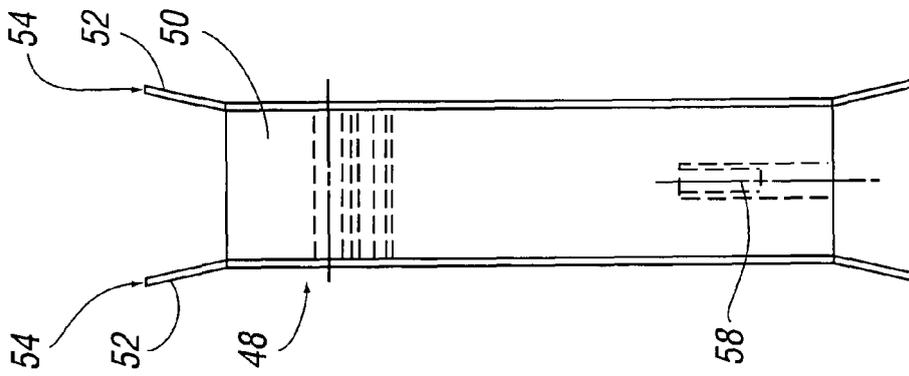


FIG. 4b

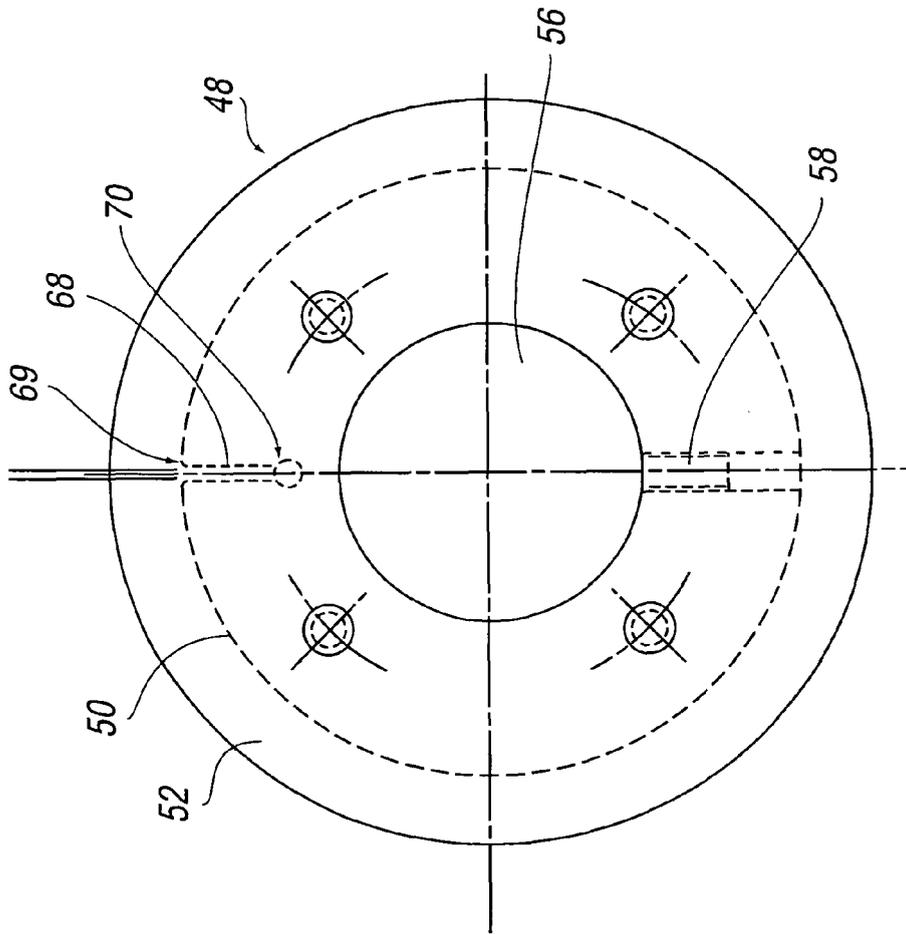
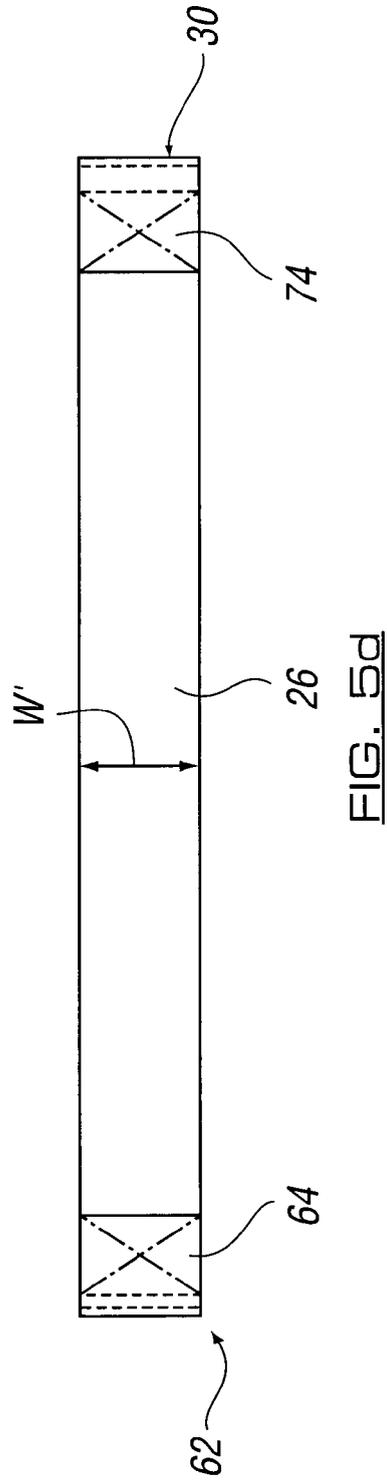
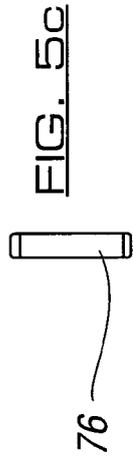
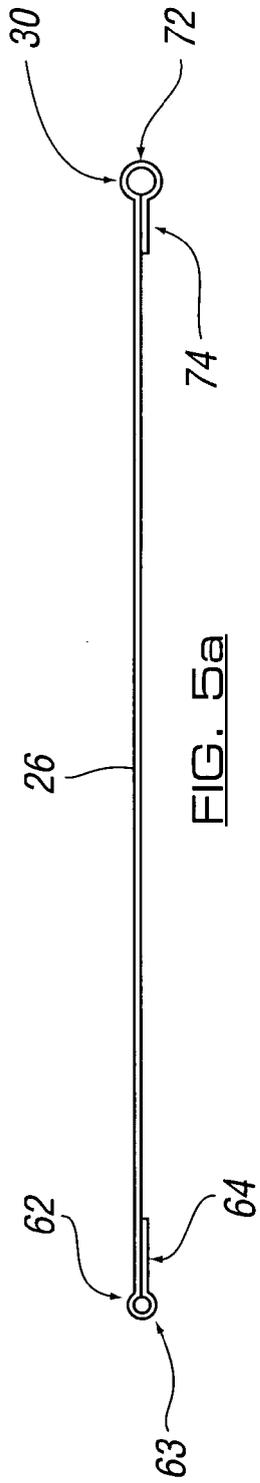


FIG. 4a





EUROPEAN SEARCH REPORT

 Application Number
 EP 10 16 4088

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 3 September 2010	Examiner Rupcic, Zoran
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ANNEX TO THE EUROPEAN SEARCH REPORT
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