

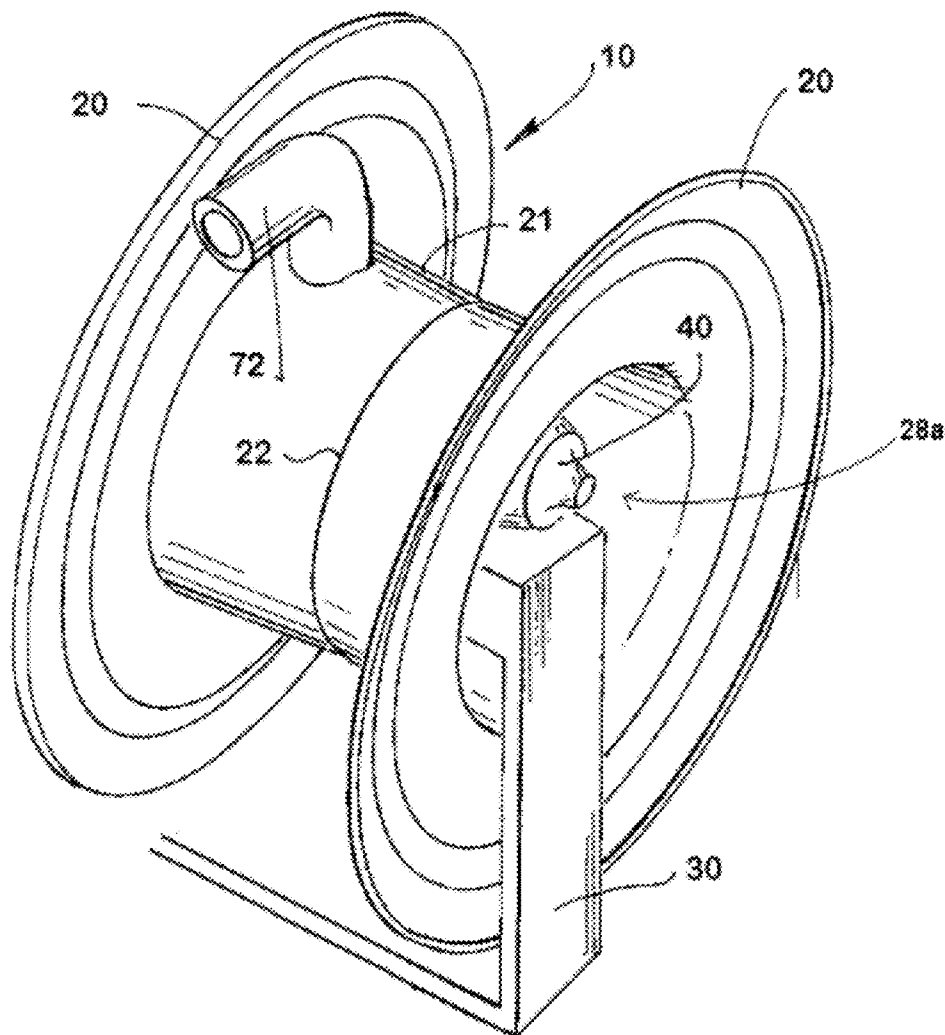


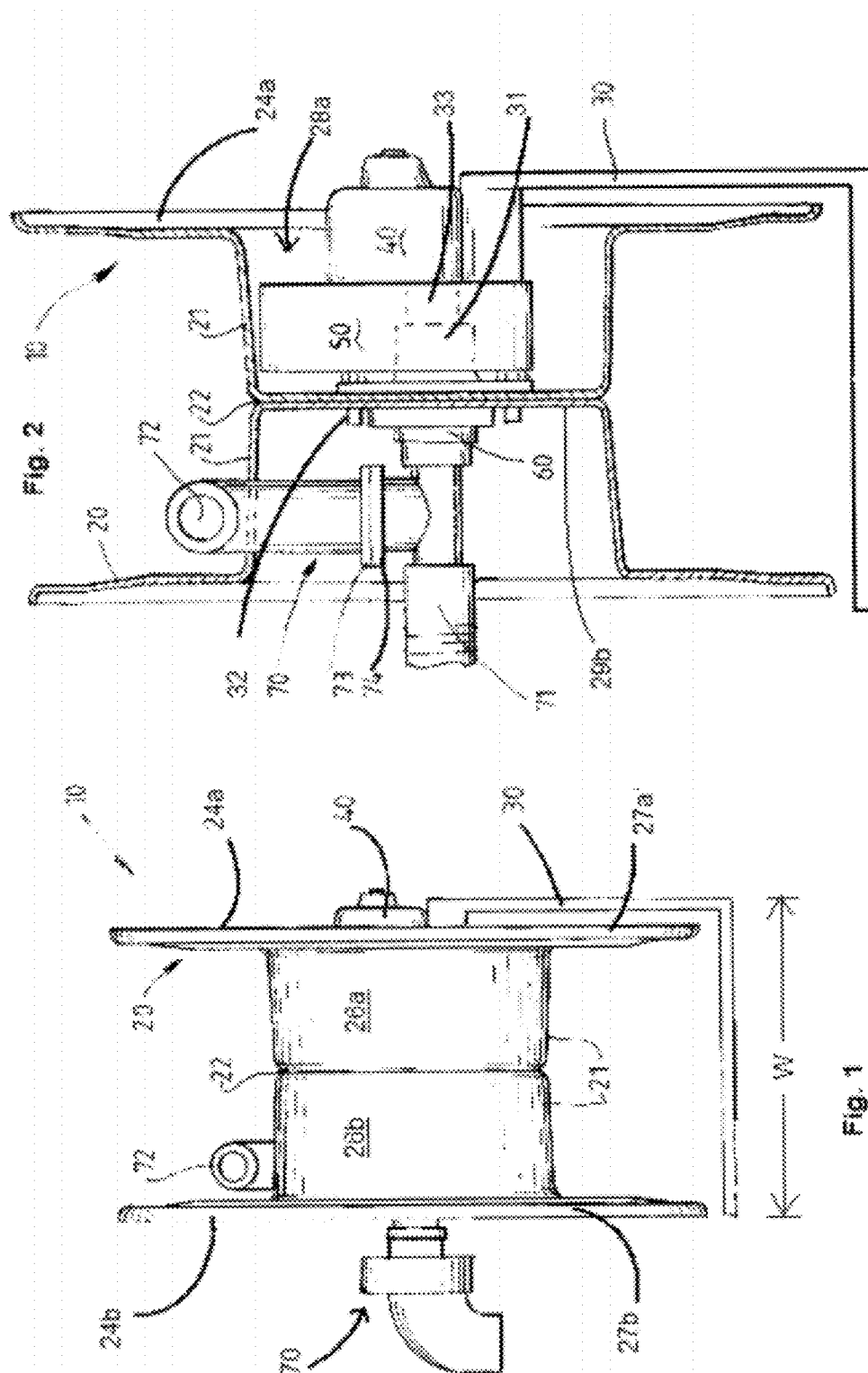
US 20120152373A1

(19) **United States**(12) **Patent Application Publication**
Morgan et al.(10) **Pub. No.: US 2012/0152373 A1**(43) **Pub. Date: Jun. 21, 2012**(54) **DIRECT DRIVE HOSE REEL ASSEMBLY****Publication Classification**(76) Inventors: **Stuart Morgan**, Cheltenham (AU);
Sean Morgan, Cheltenham (AU)(51) **Int. Cl.**
B65H 75/34 (2006.01)(52) **U.S. Cl.** 137/355.26(21) Appl. No.: **13/301,269**(57) **ABSTRACT**(22) Filed: **Nov. 21, 2011****Related U.S. Application Data**(63) Continuation-in-part of application No. 10/599,439,
filed on Dec. 9, 2006, now abandoned, filed as appli-
cation No. PCT/AU2005/000497 on Apr. 6, 2005.(30) **Foreign Application Priority Data**

Apr. 6, 2004 (AU) 2004901861

A hose reel assembly includes a reel spool having a pair of inner and outer halves. The spool is supported on a hub of a support member or mounting frame having a single stub axle, bearing and multiple stud hub assembly. By this arrangement, simplicity of servicing is provided and ease of assembly and disassembly of the reel is accomplished, because access for servicing involves simply removing the outer spool half. Full access to a riser assembly is accomplished without any disassembly as the riser assembly sits exposed in use in the hollow of the outer core. If removal of the riser assembly is required for servicing, access is immediate and easy for the operator.





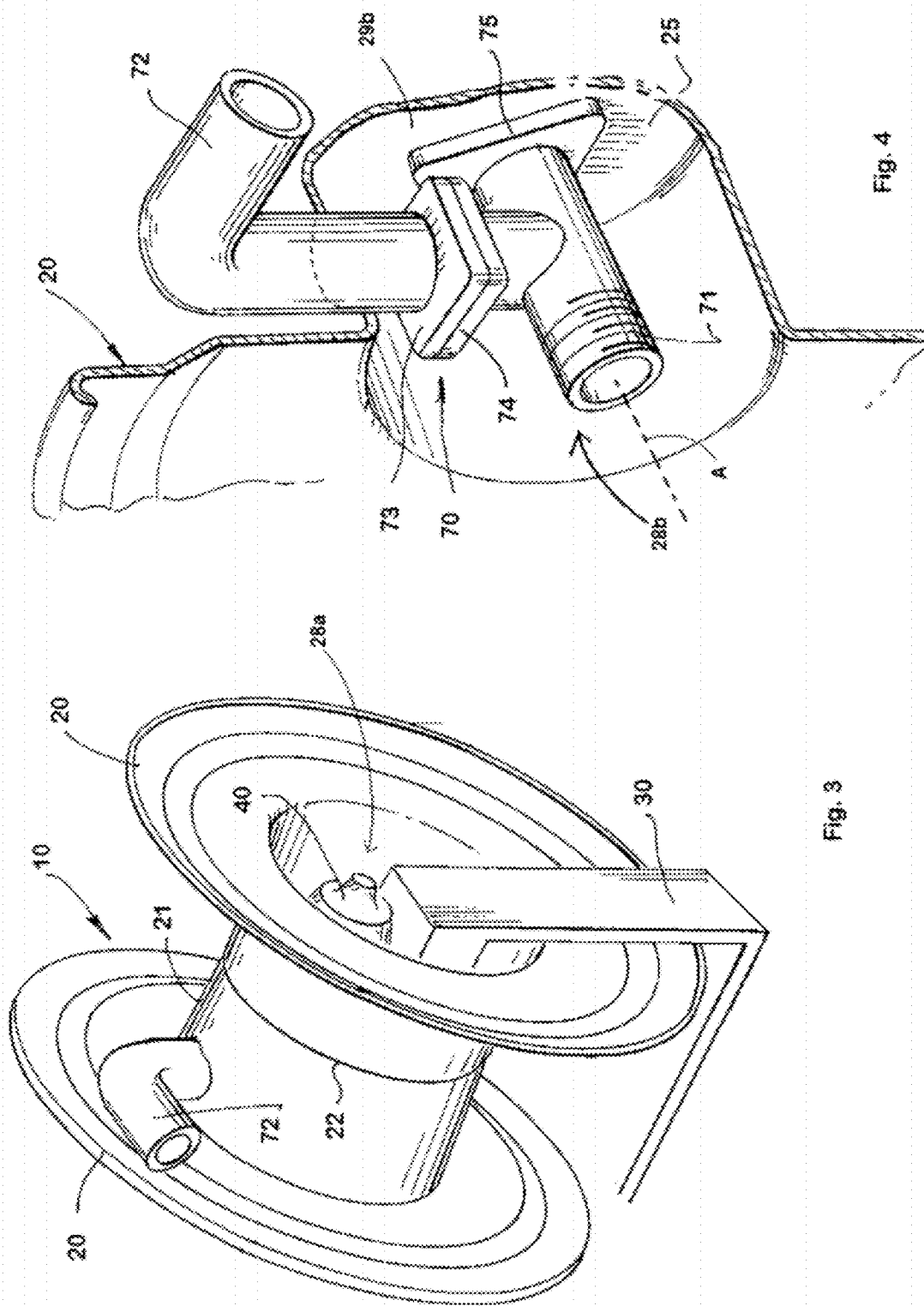
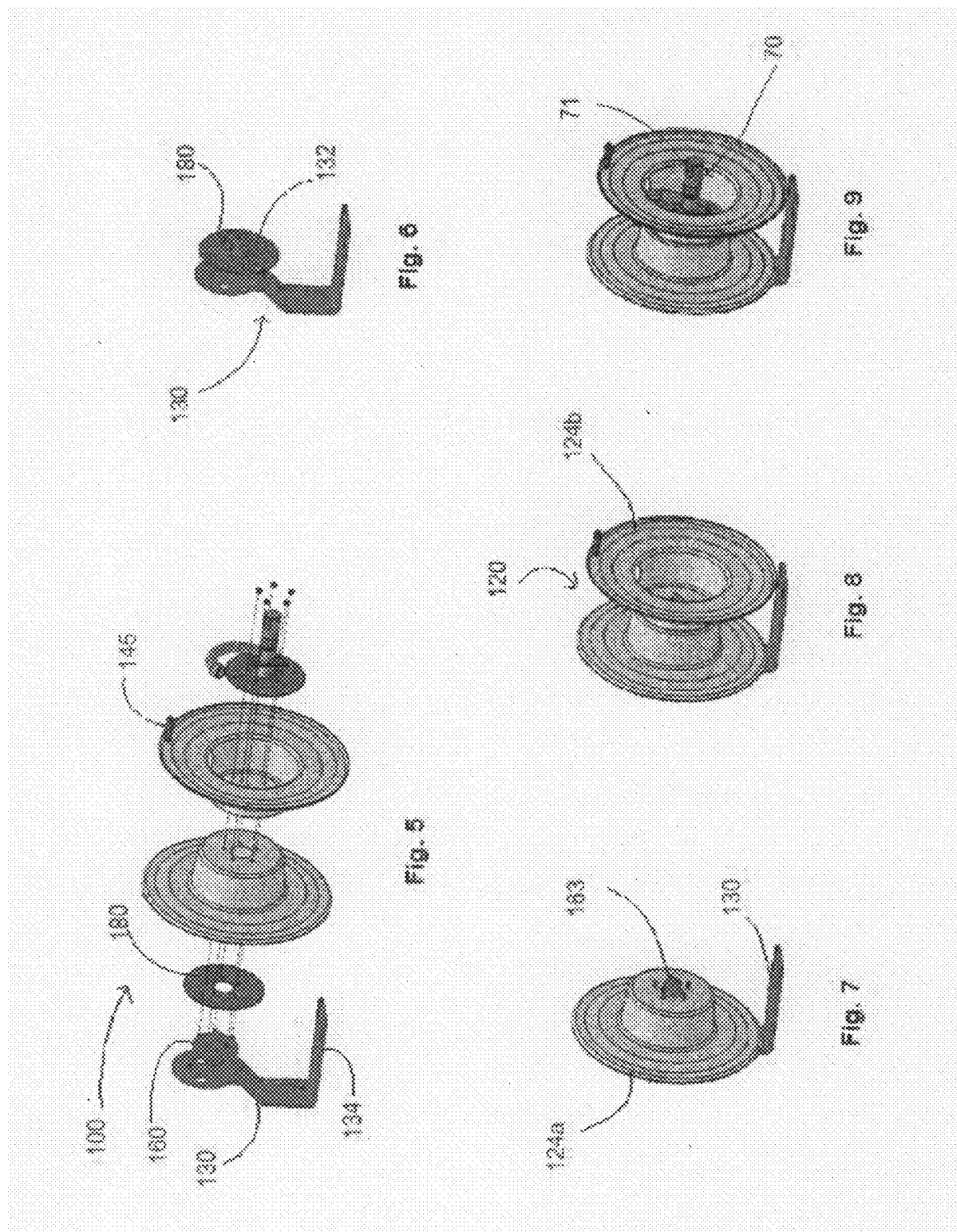


Fig. 3

Fig. 4



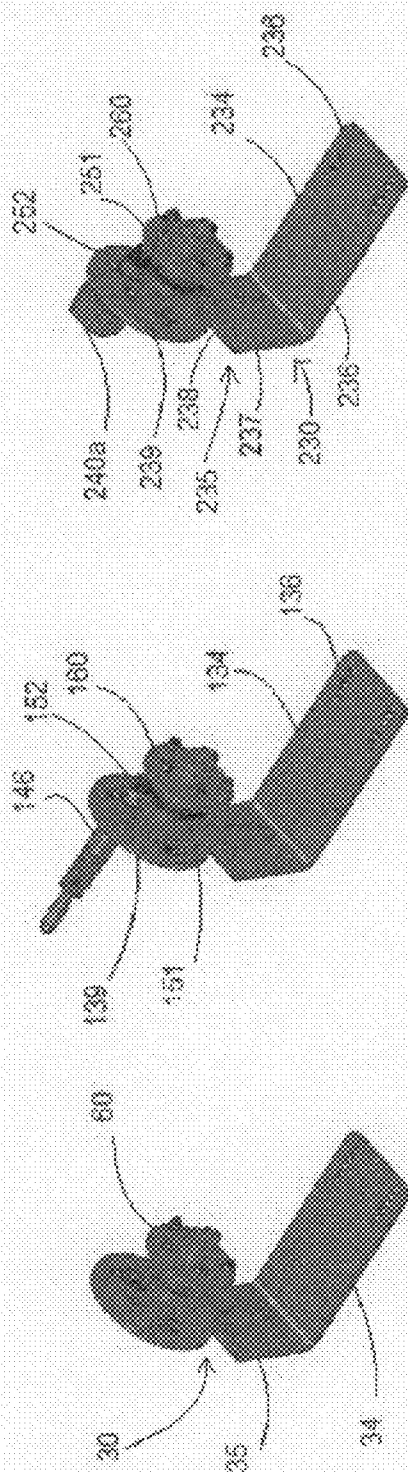


Fig. 10

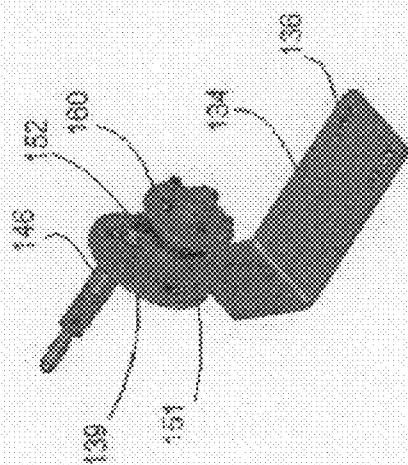


Fig. 11

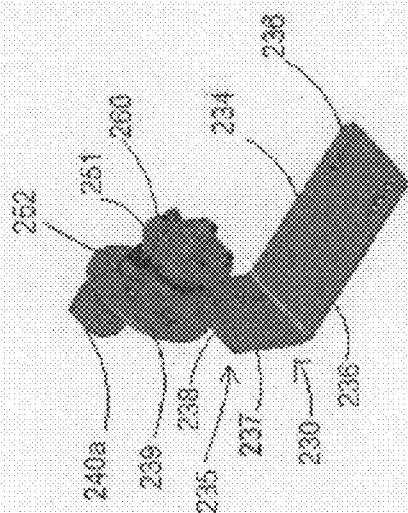


Fig. 12

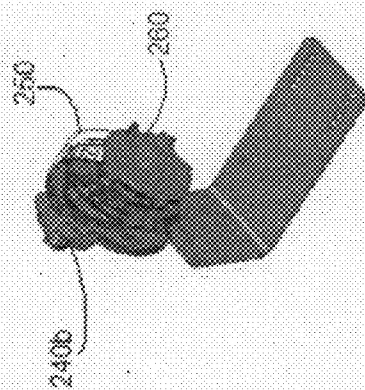


Fig. 13

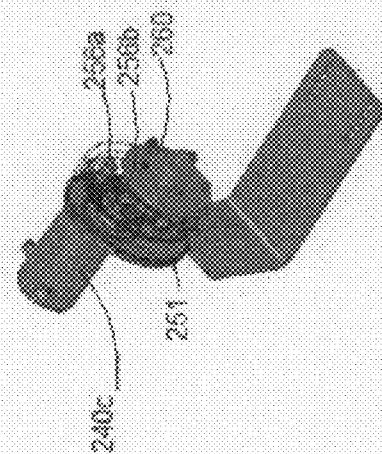


Fig. 14

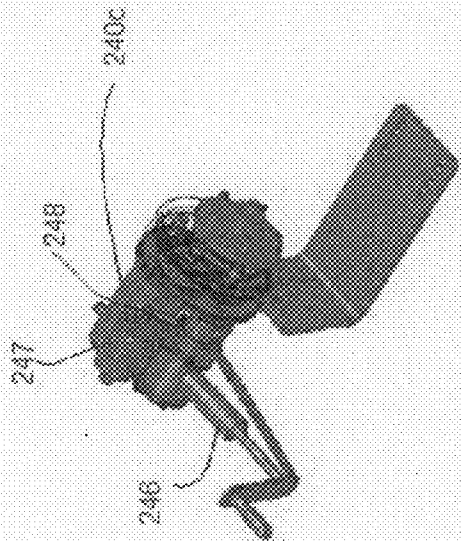


Fig. 15

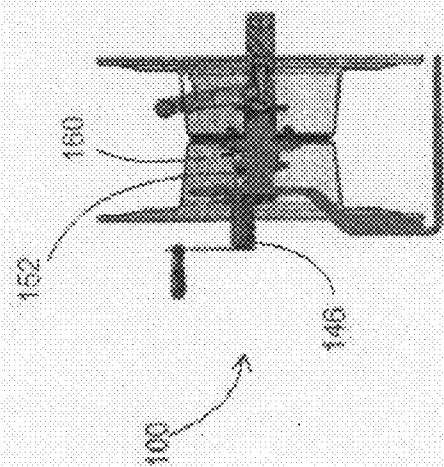


Fig. 15

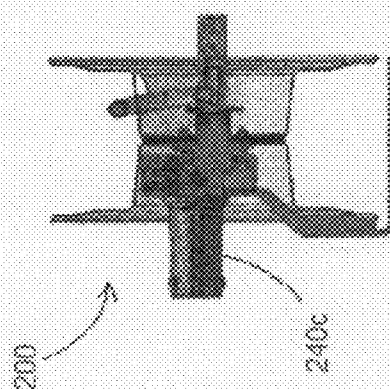


Fig. 16

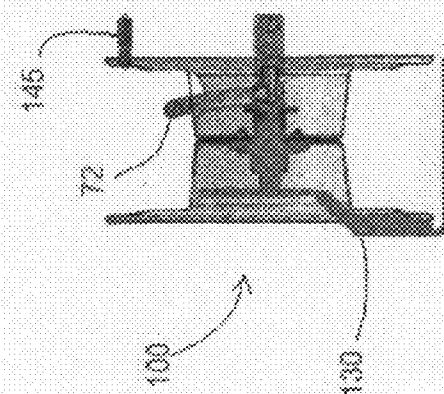


Fig. 17

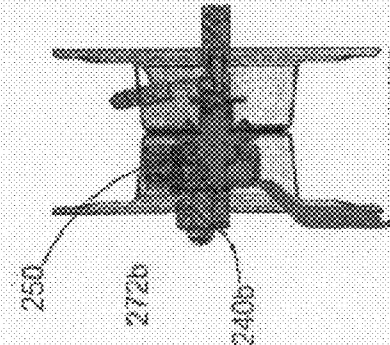


Fig. 18

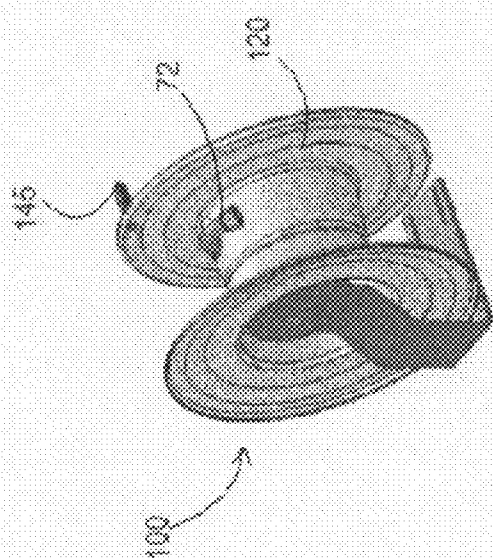


Fig. 19

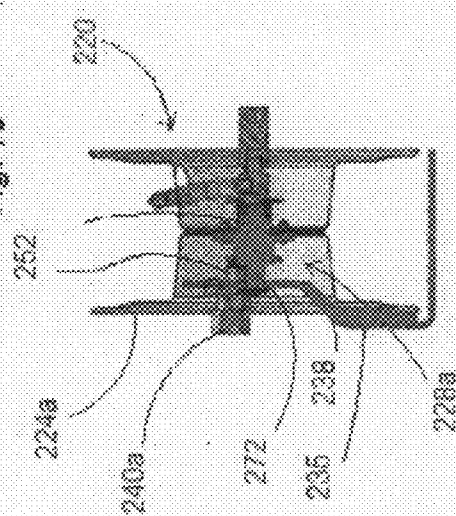


Fig. 20

DIRECT DRIVE HOSE REEL ASSEMBLY**CROSS-REFERENCE TO PRIOR APPLICATION**

[0001] This is a continuation-in-part of U.S. patent application Ser. No. 10/599,439, filed Dec. 9, 2006, which represents the U.S. National Phase application of P.C.T. Application No. PCT/AU2005/000497, filed Apr. 6, 2005, the entire disclosure of which shall be deemed to be incorporated by reference herein.

BACKGROUND OF THE INVENTION

[0002] 1. Technical Field of the Invention

[0003] This invention relates to reels for storing tubing and, in particular, to hose reels.

[0004] 2. Description of the Prior Art

[0005] The following references to, and descriptions of, prior proposals or products are not intended to be, and are not to be construed as, statements or admissions of common general knowledge in the art. In particular, the following prior art discussion does not relate to what is commonly or well known by the person skilled in the art, but assists in the understanding of the inventive step of the present invention of which the identification of pertinent prior art proposals is but one part.

[0006] Traditional mechanical hose reels, even for industrial applications, include direct hand cranked systems to assist in the rewind, the axial shaft supported by bearings at either end. These systems include spools for housing the hose. The spools are mounted on a U-shaped frame supported between two axial bearing assemblies with a crank means located at one end. Access to the spool core in such arrangements is obstructed by the bearing mounts on both sides and is time-consuming to service.

[0007] To assist in the rewind process existing hose reels may be provided with either an electric, compressed air or hydraulic motor. Such systems may or may not be geared but all feature a spool type housing of some type mounted inside a support frame which is adapted to both support and drive a specific spool. The drive mechanisms of such reels have conventionally included chain and sprocket type drives and the like which have inherent safety problems.

[0008] Hose reels used before the invention (that was first described in the inventors' parent application, U.S. application Ser. No. 10/599,439) comprised some of the following alternatives:

[0009] 1. A fully supported spool hub shaft mounted using a keyed shaft coupling and a base-mounted gearbox which fully supported the spool mass entirely; or

[0010] 2. An external gearbox coupled system that was mated to a shaft supported by frame bearings at either side of this spool hub shaft; or

[0011] 3. An arrangement providing partial support for the spool hub from a gearbox requiring its own drive system to share the load of the spool with a single opposed frame mounted bearing system on the other side of the hub.

[0012] Such reels supported from one side do not allow for access to the inner components of the spool hub for servicing. For example, access is not allowed to remove a complete riser assembly swivel from the reel at the main hub flange without first disturbing the fluid path. In addition, the riser assembly and spool parts of such prior art devices are not adapted to easily fit to the hub.

[0013] Furthermore, the inventors are not aware of prior art single support variants that allow for the inclusion of reduction drive gears to facilitate a powered rewind. All of the powered reels are of the double bearing support variety. Such single arm type frames cannot support heavy hose masses, the double support of types 1 and 2 on both sides of the shaft being preferable amongst prior art reel types where heavy hose support is required.

[0014] It is an object of this invention to provide an improved hose reel which addresses one or more of the disadvantages of the prior art or at least provides a useful alternative thereto.

SUMMARY OF THE INVENTION

[0015] The invention in one aspect relates to a hose reel assembly having a unitary support member associated with a hose reel spool having a riser. The riser may be connected through the spool to provide a fluid path. The support member may include an axle, a bearing and hub assembly. The arrangement may be such that an integrated frame, bearing assembly, gearbox and drive unit housing is provided.

[0016] In a preferred aspect, there is provided a hose reel assembly, comprising:

[0017] a spool comprising an outer core from which a riser extends, and a pair of opposed side disc walls combining to form the spool;

[0018] a support frame having an upright support member including a hub assembly housable within a cavity defined by an inner spool core;

[0019] the spool mounted to the hub assembly on an inner side of the spool only; and

[0020] an outer side of the spool housing fluid path components of the riser;

[0021] wherein the support member supports the static load of the spool.

[0022] The hose reel assembly may further comprise a gear assembly that comprises one or more ring gears surrounding a hub shaft that is contiguous with the hub and cooperates with a drive unit to multiply torque from the drive unit to the hub.

[0023] The hose reel assembly may further comprise a drum-shaped gearbox within a core cavity defined by an inner spool core surrounding a hub shaft that is contiguous with the hub and cooperates with a drive unit to multiply torque from the drive unit to the hub. The hub may be part of the gearbox assembly. The gearbox may comprise a rewind speed controller and torque multiplier which houses a gear reduction set which is located within the inner spool core.

[0024] The drive unit may be a manual crank rotatably mounted to a static upper part of the support member. The drive unit may be a sprung or motorised unit. The drive unit may directly drive the gear assembly and may be partially housed in the inner spool core.

[0025] The support frame may comprise a base extending underneath the spool for mounting the support member to a sub-structure and the upright support member comprises a lower upright section, an intermediate section angled towards the spool and an upper static disc section to which is mounted the drive unit.

[0026] An interior portion of the hub may bear a ring gear to engage with other gears in a drive train operatively connected to the drive unit.

[0027] The hub comprises spigot bolts extending from a hub stub axle that may be adapted to cooperate with corre-

sponding apertures in the spool core inner faces of the inner and outer cores to mount the spool and the riser to the hub stub axle.

[0028] The spool may be formed from two opposing inner and outer spool disc components which abut one and other face to face at inner walls substantially lying in a plane transverse to the stub axle axis.

[0029] The core of the spool may have an exterior surface concentric with the stub axle axis about which a hose can be wound, the exterior surface tapering concentrically towards the center of the spool. It is further preferred that the spool have an interior surface about which a hose can be wound said interior surface tapering towards the centre of the spool to facilitate both hose winding and stacking of spool components when required.

[0030] The riser may have fluid pathway components into and out of the spool which components can be readily attached and detached from the spool without first removing the spool from the hub.

[0031] It is preferred that a 5 stud hub construction be used such that assembly and disassembly of the reel is effected in a similar manner to a wheel change on a vehicle although any multiple stud hub may be used.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0032] Possible and preferred features of the present features of the present invention will now be described with particular reference to the accompanying drawings. However, it is to be understood that the features illustrated in and described with reference to the drawings are not to be construed as limiting on the scope of the invention. In the drawings:

[0033] FIG. 1 shows a side view of a hose reel assembly according to a first embodiment of the invention;

[0034] FIG. 2 shows a partial schematic cross-sectional view through the hose reel assembly shown in FIG. 1;

[0035] FIG. 3 shows a perspective view of the hose reel assembly shown in FIG. 1;

[0036] FIG. 4 is a schematic partial sectional view showing details of riser components, but not the hub and multiple stud assembly, according to the first embodiment;

[0037] FIG. 5 is an exploded perspective view of a hose reel assembly according to a second embodiment;

[0038] FIG. 6 is a perspective view of a support frame and hub plate according to the second embodiment;

[0039] FIG. 7 is a perspective view of a first half of the spool mounted on to the hub of the support member according to the second embodiment;

[0040] FIG. 8 is a perspective view of a second half of the spool mounted on to the hub of the support member together with the first half of the spool according to the second embodiment;

[0041] FIG. 9 is a perspective view of a riser assembly mounted on to the hub of the support member together with the spool according to the second embodiment;

[0042] FIG. 10 is a perspective view of a support member according to the second embodiment;

[0043] FIG. 11 is a perspective view of a support member according to a third embodiment;

[0044] FIG. 12 is a perspective view of a support member according to a fourth embodiment;

[0045] FIG. 13 is a perspective view of a support member, drive motor and gear mechanism according to a fifth embodiment;

[0046] FIG. 14 is a perspective view of a support member, drive motor and gear mechanism according to a sixth embodiment;

[0047] FIG. 15 is a perspective view of a support member, drive motor, manual hand crank and gear mechanism according to a seventh embodiment;

[0048] FIG. 16 is a perspective view of the assembled hose reel according to the second embodiment shown in FIG. 5;

[0049] FIG. 17 is a partially cut-away end view of the assembled hose reel according to the second embodiment;

[0050] FIG. 18 is a partially cut-away end view of an assembled hose reel according to the third embodiment showing a manual handcrank cooperable with simple reduction gearing;

[0051] FIG. 19 is a partially cut-away end view of an assembled hose reel according to the fourth embodiment showing a small capacity drive motor cooperable with simple reduction gearing;

[0052] FIG. 20 is a partially cut-away end view of an assembled hose reel according to the fifth embodiment showing a medium capacity drive motor cooperable with driven reduction gearing;

[0053] FIG. 21 is a partially cut-away end view of an assembled hose reel according to the sixth embodiment showing a large capacity drive motor cooperable with driven reduction gearing;

DETAILED DESCRIPTION OF THE DRAWING FIGURES AND PREFERRED EMBODIMENTS

[0054] In a first embodiment of the invention a hose reel assembly **10** shown in FIGS. 1-4 includes a reel spool **20** comprising a pair of inner and outer halves **24a, b**. Each spool half **24a, b** comprises a slightly frusto-conical cylindrical core **26a, b** (in which the core surfaces **21** concentrically converge towards the center **22** at a shallow angle to the cores' **26a, b** axis A) and an outer disc wall **27a, b**. The spool **20** is supported on a hub **60** of a support member or mounting frame **30** having a single stub axle **31**, bearing and multiple stud hub assembly **32**. By this means, simplicity of servicing is provided and ease of assembly and disassembly of the reel is accomplished because access for servicing involves simply removing the outer spool half **24b**. It is noted that full access to a riser assembly **70** is accomplished without any disassembly as the riser assembly **70** sits exposed in use in the hollow of the outer core **26b**. If removal of the riser assembly **70** is required for servicing, access is immediate and easy for the operator.

[0055] In addition, the factory assembly of this reel assembly **10** is time effective due to the use of the multiple stud hub construction **32**. Many previous reels have used two bearing blocks on each side of the hub shaft **33** that require general axial alignment and add to the width of the assembly **10**. The design of the present invention eliminates this requirement.

[0056] Additionally other reels rely on a bearing assembly within a drive unit to support a spool, whereas the hub loads in the present reel system **10** are taken up by the support member **30** and are not transmitted to the bearings of the drive unit, thereby increasing the life of the gear box bearings and components of the present reel system **10**.

[0057] The mounting system of the invention involves a fully integrated frame **30**, bearing assembly and gearbox **50**, and a drive unit **40**, combining all in a single assembly. This

allows for an extremely compact and strong unit **30**, **40**, **50** which keeps the overall width *W* to a minimum. This is clearly superior to previous hose reel assemblies which rely on plate bracket type systems to support hub bearings, thereby requiring a larger overall width or a smaller spool width (core axial length).

[0058] The hose reel system **10** also includes a uniquely shaped rewind speed controller and torque multiplier gearbox housing **50** which houses a gear reduction set that, due to its short axial length and drum shape, allows it to be located within a spool cavity **28a** defined by the inner spool core **26a**. This also keeps width to a minimum.

[0059] This gearbox housing **50** is cylindrically shaped to fit within the cavity **28a** and is designed to allow retro fitting of various drive mechanisms **40** via a special slimline mounting adapter that can be changed to suit the drive system. These can include air, hydraulic electric and spring drive means. In this first embodiment of the invention, the gear box housed in the housing **50** is a drum type gearbox and the hub **60** is part of the gearbox assembly. The arrangement is that the interior of the hub **60** is adapted to receive a ring gear to engage with other gears in the drive train housed in the housing **50**.

[0060] Another feature of the first embodiment is that gear set in the housing **50** includes a reduction gear box having torque multiplying characteristics that permit the use of smaller style spring cartridges whilst achieving a greater number of turns of the spool **20** for the size of each cartridge, with reduced torque, allowing cheaper and smaller springs to be used.

[0061] Another benefit of the hose reel system **10** of the first embodiment is that, because the spool **20** is hub **60** mounted, access is provided at one side to the fluid path and riser **70**, unlike previous reels. Previous reels have required significant labour in disassembly to remove the fluid path for servicing, etc. As a result, a variety of risers and fluid paths may be interchangeably used as part of the reel assembly **10**, with easy substitution permitted by the easy access to the riser assembly **70**.

[0062] In this embodiment of the invention, the reel **10** components are fully integrated. This is by virtue of the integration of the frame **30**, gearbox **50** and drive unit **40**. The frame **30** supports the reel spool **20** from one side only (the side corresponding to spool half **24a**), via the L-frame support **30** unit. This frame **30** has a unique integrated bearing hub **60** affixed to the frame **30** structure, which simply supports the spool **20** assembly formed by the two abutting spool halves **24a, b**. The riser assembly **70** and fluid path **71, 72** follows, all fitted by starting from one side. This, in itself, is the means by which the reel halves **24a, b** and all of the mass of the hose is supported from the frame **30** bearing system via the hub **60** and single sided stub axle **33**. This is unique compared to prior art reel systems, in that the essential components can all be removed easily and quickly. Many reels use two bearing blocks on each side of the hub shaft that require general axial alignment and this adds to the overall width of the assembly. Our design eliminates this requirement. Other reels rely upon the bearing assembly within the drive unit to support the spool. The hub loads on the reels **20, 120, 220** are taken up by the single-sided support frame **30, 130, 230** and are not transmitted to the bearings of the drive unit **40, 140, 240a, b, c**, thus increasing the life of the gear box **50, 150, 250** bearings and components.

[0063] As can be seen in FIGS. **1** and **4**, the spool **20** has, associated with it, the quick change riser assembly **70** con-

sisting of fluid path components **71** and **72**, which are connected together through base plates **73** and **74**. The fluid path component **71** is attached by means of a plate **75** to a face **25** of an internal wall **29b** of a cavity **28b** lying in a plane generally transverse to the core **26a, b** axis *A*. For the sake of simplicity, FIG. **4** does not show the hub **60** or studs **32** shown in FIG. **2**.

[0064] As the riser **70** components can be readily detached, it is a feature of the invention that a wide range of different sized risers can be attached or removed from the hub **60** without the necessity of detaching the hose reel spool **20** from the frame **30** and hub **60** assembly.

[0065] Another feature of the invention is that the spool **20** may be provided in modular designs which allow easy width *W* changes by the simple addition of axle shaft **33** and drum **50** extensions on standard reels **20**, which components may simply be bolted on to the frame **30**. Thus, quick and easy reel **20** component swaps are made possible without need to dismantle reel **20**. The reel **20** can be interchanged to fit a range of sizes by simply changing the flanged riser assembly **70**. Extension axle components and drum extensions on standard reels permits wide variation in spool sizes.

[0066] A further feature is that the hose reel spool **20** comprises the two components **24a, b** having frusto-conical surfaces **21** which shallowly taper down in diameter towards the middle **22** of the spool **20**. This permits a hose to wind neatly onto the spool **20**. This tapering also allows for more efficient stacking of the spool components **24a, b** inside each other for storage and transport when the spool **20** arrangement is dismounted from the frame **30**.

[0067] The drive unit **40** optionally can be disengaged from the driven gear housed in the housing **50** to permit the spool **20** to freewheel when hose is being withdrawn (paid out) from it.

[0068] This is effected by a drive motor plate having a pivot option along a mounting face plane and being allowed to slide up slightly and to disengage the drive gear. The drive motor **40** is optionally sprung and normally disengaged so that the air or hydraulic drive **40** can initiate an actuator rod to engage the motor drive gear when motive force is required.

[0069] Turning to FIGS. **5-11** and **16-18**, a reel assembly **100** may operate without a drive unit such as the drive unit **40** included in the first embodiment, and is manually operable. The L-frame **30** of the first embodiment is substituted with a generally L-shaped frame **130** having a generally horizontal base plate **134** mountable in installation to a building structure, rigid column or the like. However, the skilled artisan will appreciate that the base **134** may extend in a variety of directions and be formed from a variety of shapes to allow the reel assembly **100** to be installed on or affixed to a horizontal, vertical, curved or other shaped and oriented supporting structure (not shown) typically by fasteners such as bolts extending through a series of apertures **136**.

[0070] With reference to FIGS. **12-15** and **19-21**, a reel assembly **200** similar to the reel assembly **100**, may be fitted with one of a variety of direct mount drive motor arrangements **240a, b, c**, which cooperate with a hub **260** on a frame **230** through a ring gear **151** fitted to the hub **260** and a planetary gear **239** mounted to the support member **235**. The frame **230** further has a substantially upright support member **235** comprising a lower generally vertical section **237**, an intermediate section **238** angled to extend an upper substantially vertically aligned disc section **239** inwardly towards a cavity **228a** defined by an inner half **224a** of a spool **220**.

[0071] The configuration of the frame 230 allows for the inclusion at various points about its structure of variety of gear reduction shafts 272, along with various meshing gear sets 250, which deliver power from a motor unit 240a,b,c with multiplied torque and reduced speed for better control and safety. The motor unit 240a,b,c may be electric, air or hydraulic and be fitted with the drive gear 250 mounted directly to the frame structure 230. Thus, higher torque and lower speed is transferred from the motor 240a,b,c via the surrounding gear 250 and shaft 272 sets to a large hub ring gear 251 which is uniquely affixed directly to the vehicle hub 260.

[0072] The vehicle hub 260 affixed to the L frame 230 supports all of the load of the reel spool 220. The associated drive system 240a,b,c, 250 comprising these various shafts & gears fitted to the L-frame 230 carries no structural or spool 220 mass.

[0073] Therefore all of the embodiments shown in the drawings utilize the one-sided hub 60, 160, 260. The frame 30, 130, 230 is a static mass supporting structure, whether in the hose reel assemblies' most basic hand crank form 100, through to the driven torque reduction iterations 10, 200, the basic static mass support features are unchanged. Static reel loads are borne by the frame 30, and the dynamic loads of operation that may be transferred to the drive system are generally far smaller than the static loads. This is different to prior art reel gearbox drive systems which bear the static loads of the reel 20 to a greater degree, whether of the single or double pedestal type. They rely upon the bearing systems and housing strength of the gearbox itself, or in an arrangement. Where prior art gearbox drive systems are spared the static load, this only in a dual pedestal configuration where the static load is distributed over two load bearings at each end of the spool shaft.

[0074] A number of differing reduction ratio and drive options are progressively depicted through FIGS. 11-15 and 16-21, all of which include simple bolt-on options, with the ring gear 251 addition to the frame hub 160, 260 beginning with a 5:1 reduction onward. As the additions become more complex with increasing reduction possibilities and varied drive options, at no time do any of these additions pick up any of the primary static load of the reel spool 20, 120, 220 and hose. These progressive additions of varying reduction combinations and additional components at no time can form in their own right a stand alone or proprietary style add-on gearbox or drive system. They are all wholly reliant upon being fully integrated with the special single support frame 30, 130, 230. These components are unique to the reel 10, 100, 200 design of the present invention and their function is dependent upon their integration with this system. This is radically different to prior art reels which typically incorporate twin or single pedestal reels with add on gearbox reduction drive systems etc.

[0075] Furthermore, the ability to simply add the primary components of the spool 20, 120, 220 and the riser assembly 70 makes assembly, disassembly and/or access for servicing significantly easier than prior art forms. One unique aspect of this is that one can remove the riser assembly 70 without disturbing the spool 20, 120, 220, along with the possibility of totally dismantling the spool assembly 70 without interfering with the fluid paths 71, 72 of the riser assembly 70 nor requiring the removal of any of the supply or delivery hoses.

[0076] Many reels use two bearing blocks on each side of the hub shaft that require general axial alignment and this adds to the overall width of the assembly. Our design elimi-

nates this requirement. Other reels rely upon the bearing assembly within the drive unit to support the spool. The hub loads on the reels 20, 120, 220 are taken up by the single-sided support frame 30, 130, 230 and are not transmitted to the bearings of the drive unit 40, 140, 240a,b,c, thus increasing the life of the gear box 50, 150, 250 bearings and components.

[0077] Turning to FIGS. 5-9 in greater detail, there is shown a manual drive reel assembly 100 with a manual spigot handle 145. The simple assembly of the reel assembly 100 is demonstrated. Firstly, an optional hub plate 180 is mounted coaxially on the hub stub axle 163, the hub plate 180 have multiple apertures corresponding to the bolt spigots 132 of the hub 160. Next the inside spool half 124a is mounted in similar fashion by locating corresponding apertures on the bolt spigots 132. Face to face, the outer spool half 124b is then mounted in the same way to form the spool 120. Finally, the riser assembly 70 is mounted onto the hub stub axle 163. Thus, in its most rudimentary form, the present invention does not include motorised or powered drive means, nor gear reductions, but benefits from the inventive compact design and ease of assembly and disassembly.

[0078] Turning to FIGS. 10-15 in greater detail, the progressive additions of drive and gear means to the basic frame 30, 130, 230 are shown, starting in FIG. 10 with the stand-alone frame 30 suitable for manual operation shown in FIGS. 5-9. In FIG. 11, a simple ring gear 151 is added to the hub 160 and this cooperates with a planetary gear 152 extending from the terminal end of a manual crankshaft 146 rotatably mounted to a fixed upper disc plate 139. The gear ratio of 5:1 allows a manual operator to wind in the hose using the low speed, high torque gear assembly 151, 152. In FIG. 12, the handcrank 146 is replaced with a small motor 240a. In FIG. 13, the small motor is replaced with a moderately powered motor 240b and compact drum gearbox 250 is added to provide a more sophisticated gearing assembly. In FIG. 14, a high capacity motor 240c is included with alternative gearing selections 256a,b available for, for example, payout and winding in. In FIG. 15, a drive unit is provided having, as an alternative for the operator, a manual handcrank 246, and the high capacity drive unit 240c with alternate gear settings available as for the drive unit 240b. The drive unit further includes a disengagement box 247 having an actuating rod 248 adapted to disengage the gearing and permit the hub 260 to freewheel, for example for a quick payout.

[0079] In FIGS. 16-18, the manually operated hose reel assembly 100 is shown having either the spigot handle 145 or handcrank 146. In FIG. 18, the hand crank 146 drives the hub 160 via a ring gear 151 on the hub 160 and planetary gear 152 at the terminal end of the handcrank shaft 146. FIG. 19 shows the reel 220 driven by the small motor 240a. FIG. 20 shows the reel 220 driven by the intermediate motor 240b, with a gearbox 250 providing greater control over payout and winding in operations. FIG. 21 shows a high capacity motor 240c directly driving gear mechanisms in gearbox 250 for high load, heavy hose applications.

[0080] Comprising

[0081] Throughout the specification and claims the word "comprise" and its derivatives are intended to have an inclusive rather than exclusive meaning unless the contrary is expressly stated or the context requires otherwise. That is, the word "comprise" and its derivatives will be taken to indicate the inclusion of not only the listed components, steps or features that it directly references, but also other components,

steps or features not specifically listed, unless the contrary is expressly stated or the context requires otherwise.

[0082] Orientational Terms:

[0083] Orientational terms used in the specification and claims such as vertical, horizontal, top, bottom, upper and lower are to be interpreted as relational and are based on the premise that the component, item, article, apparatus, device or instrument will usually be considered in a particular orientation, typically with the frame section supporting the hub in an upright position.

[0084] Variations

[0085] Many variations as described can be made within the framework of the invention and it is not restricted as to size of and type of components. The invention lies in the provision of a hose reel assembly having an automobile type hub mounting such that an integrated frame, bearing assembly and gearbox drive unit housing is provided.

[0086] While we have described herein one specific embodiment of the invention it is envisaged that other embodiments of the invention will exhibit any number of and any combination of the features of those previously described and it is to be understood that variations and modifications in this can be made without departing from the spirit and scope of the invention.

What is claimed is:

1. A hose reel assembly, comprising:
 - a spool comprising an outer core from which a riser extends, and a pair of opposed side disc walls combining to form the spool;
 - a support frame having an upright support member including a hub assembly housable within a cavity defined by an inner spool core;
 - the spool mounted to the hub assembly on an inner side of the spool only; and
 - an outer side of the spool housing fluid path components of the riser,
 wherein the support member supports the static load of the spool.
2. The hose reel assembly of claim 1, further comprising a gear assembly that comprises one or more ring gears surrounding a hub shaft that is contiguous with the hub and cooperates with a drive unit to multiply torque from the drive unit to the hub.
3. The hose reel assembly of claim 1, further comprising a drum-shaped gearbox within a core cavity defined by an inner

spool core surrounding a hub shaft that is contiguous with the hub and cooperates with a drive unit to multiply torque from the drive unit to the hub.

4. The hose reel assembly of claim 2, wherein the drive unit is a manual crank rotatably mounted to a static upper part of the support member.

5. The hose reel assembly of claim 2, wherein the drive unit is a sprung or motorised unit.

6. The hose reel assembly of claim 5, wherein the drive unit directly drives the gear assembly and is partially housed in the inner spool core.

7. The hose reel assembly of claim 2, wherein the support frame comprises a base extending underneath the spool for mounting the support member to a sub-structure and the upright support member comprises a lower upright section, an intermediate section angled towards the spool and an upper static disc section to which is mounted the drive unit.

8. The hose reel assembly of claim 2, wherein the hub is part of the gearbox assembly.

9. The hose reel assembly of claim 2, wherein an interior portion of the hub bears a ring gear to engage with other gears in a drive train operatively connected to the drive unit.

10. The hose reel assembly of claim 1, wherein the hub comprises spigot bolts extending from a hub stub axle that are adapted to cooperate with corresponding apertures in the spool core inner faces of the inner and outer cores to mount the spool and the riser to the hub stub axle.

11. The hose reel assembly of claim 3, wherein the gearbox comprises a rewind speed controller and torque multiplier which houses a gear reduction set which is located within the inner spool core.

12. The hose reel assembly of claim 1, wherein the spool is formed from two opposing inner and outer spool disc components which abut one and other face to face at inner walls substantially lying in a plane transverse to the stub axle axis.

13. The hose reel assembly of claim 12, wherein the core of the spool has an exterior surface concentric with the stub axle axis about which a hose can be wound, the exterior surface tapering concentrically towards the centre of the spool.

14. The hose reel assembly of claim 1, wherein the riser has fluid pathway components into and out of the spool which components can be readily attached and detached from the spool without first removing the spool from the hub.

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