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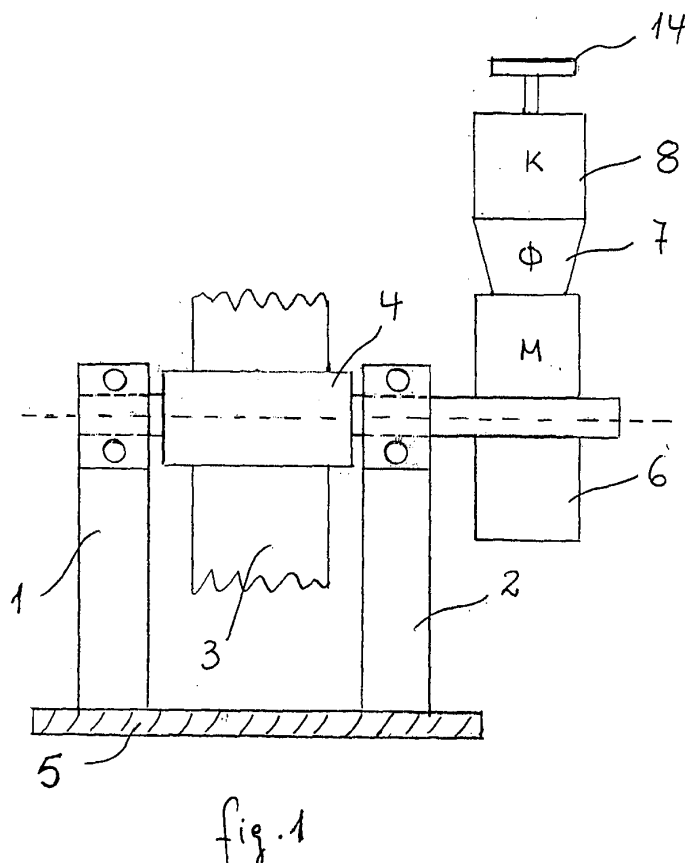
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(54) **Elevator machine with a hollow electric reducer of volutions which is strained only torsionally**

(57) The invention refers to a passenger lift arrangement where the traction pulley accepts movement from a hollow shaft reducer, which is only strained through torsion, avoiding any bending load. The bending loads remain outside the reducer because they are delivered from the two external supports (1) and (2) that are fitted

left and right. The shaft (4) is prolonged outside of any external support in corresponding length and diameter according to the hollow shaft reducer (6) mounting. For the torsion torque reaction the reducer can have a torque arm that connects the reducer to a fixed point or is mounted on a special base, depending on the type of the reducer.



Description

[0001] This invention refers to a passenger lift machine arrangement in which the traction pulley accepts movement from a hollow shaft reducer, which is only torsionally strained, avoiding any bending load.

[0002] The up-to-date layouts consist of brake reducers usually with worm-wheel on which the traction pulley is assembled on the output shaft.

[0003] In other cases with bigger suspension loads the output shaft is extended beyond the traction pulley, leading in an external support which accepts half of the suspension load. However, in both of the above cases the output shaft is strained both in torsion and in bending which is something that strains the reducer.

[0004] On the contrary, with the proposed invention, the bending loads remain outside the reducer because the two external supports (left and right) receive them, while the hollow shaft reducer is strained only through torsion.

[0005] In our arrangement the traction pulley is assembled on the output shaft between the two supports, calculated to accept the corresponding load. The external supports are assembled on a common steel frame.

[0006] The shaft is extended from the external support in a corresponding length and diameter depending on the fixation of the hollow shaft reducer. The hollow shaft reducer for the torsion reaction has a torque arm that connects the reducer to a fixed point or is pivoted on a special base according to the reducer type.

[0007] In this arrangement it is possible to adapt any hollow shaft reducer, which in this case carries only torsion torque. The torque is transmitted to the shaft through key-slot or a special lock system without key. The hollow shaft reducers type could be:

- A. Worm Shaft Reducer
- B. Parallel Shaft Gear
- C. Helical Angle Gear

[0008] A passenger lift machine with this arrangement provides a larger lifetime to the reducer, as well as, easy replacement in any case.

[0009] The hollow shaft reducer can be assembled in any position that is with a vertical, horizontal or under any angle motor position.

[0010] These and other characteristics, as well as, its ads of this invention will be fully understood in the detailed description that follows. The invention will be better understood in reference to the attached drawings, which depict a pilot effectuation.

[0011] In Drawing 1, we have a schematic arrangement with the traction pulley assembled on the shaft between the two external supports, with the shaft extension outside of any external support, corresponding in length and diameter with the hollow shaft dimensions of the reducer.

[0012] In Drawing 2, we have a schematic of an alter-

native arrangement with the shaft assembled on two bearings fitted in a hollow tube and on each side of the tube we fit respectively the traction pulley and the hollow reducer with the brake and the motor.

[0013] Referring to the attached drawings we will describe an indicative preferred application of the invention. In Drawing 1 arrangement the traction pulley (3) is mounted on the shaft (4) between the two external supports (1) and (2). The external supports are calculated for the demanded suspension and traction loads. The shaft (4) is extended beyond the external support (2) with corresponding length and diameter to the hollow shaft of the reducer (6), which accepts, with the brake (7) and the motor (8). The two external supports (1) and (2) are fixed on a suitable metal base (5) of corresponding strength.

[0014] The reducer (6) can be mounted on any position in relation to the input shaft-horizontal, vertical, or in an angle, in a left or right arrangement of the pulley, seeing the passenger lift machine from the flywheel (14). For example, for a ten persons passenger lift machine with vertical input shaft, we need for the installation min space dimensions of about 0,5m x 0,5m x 1,0m.

[0015] In any case the reducer carries only torsion torque. The torque reaction is contained, either through external torque arm of proper strength and length, which is secured through a knuckle pin or through a suitable base.

[0016] According to another alternative application of the invention Drawing 2, the shaft (4) is mounted on two bearings (9) and (10) inserted into a hollow tube (11) of proper length and diameter, so that they can support the corresponding loads, the shaft (4) is prolonged outside of the tube (11) in both sides.

[0017] On the extension (12) we mount the traction pulley (3), while in the extension (13) we mount the hollow shaft reducer (6) with the brake (7), the motor (8) and the flywheel (14).

[0018] This arrangement allows to the motive arrangement to be fixed in any position, which is vertical or horizontal or under angle, depending on the installation.

[0019] The torsion torque reaction is carried through a torque arm from the reducer to a single stable pin or with any other suitable mounting base.

[0020] We have to note that the description of the invention was made with indicative examples to which it is not limited. Any change or modification regarding shapes, sizes, materials and manufacturing, as well as, assembling parts, if they are not new inventions, they are considered to be part of this invention.

Claims

1. Passenger lift machine with hollow shaft reducer, which is strained only through torsion, characterized from traction pulley (3) mounted on the shaft (4) between two external supports (1) and (2) calculated for the demanded suspension and traction loads,

with the shaft (4) prolonged beyond the external supports (2) in corresponding length and diameter with the hollow shaft of the reducer (6) that can accept and where the reducer (6) can be installed in any position, in relation to the input shaft, which is horizontal, vertical or in left or right pulley arrangement, seeing the passenger lift machine from the flywheel (14), with the reducer carrying only torsion torque, avoiding any bending torque. The torque reaction is restrained either through external torque arm of proper strength and length or through a suitable metal base. With this passenger lift machine arrangement the reducer has a bigger life span, as well as, easy replacement.

2. Passenger lift machine with hollow shaft reducer, which is strained only through torsion, characterized from shaft (4) which is mounted on two bearings (9) and (10) fitted within the hollow tube (11), so that the loads are on either side of the tube (11), the traction pulley (3) is mounted on the extension (12) of the shaft, while at the extension (13) is fitted the hollow shaft reducer (6) with the brake (7) and the motor (8).

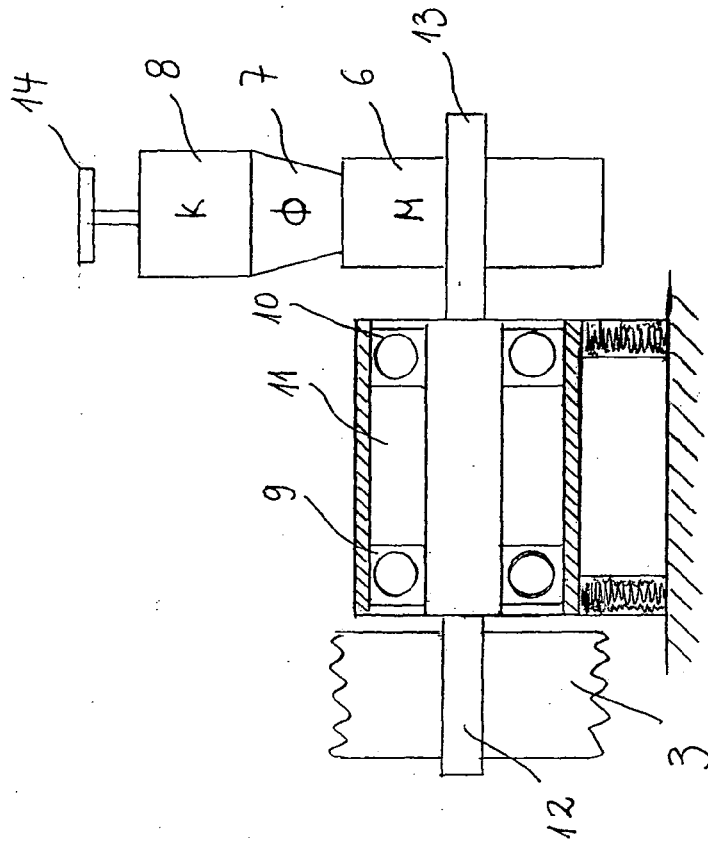


fig. 1

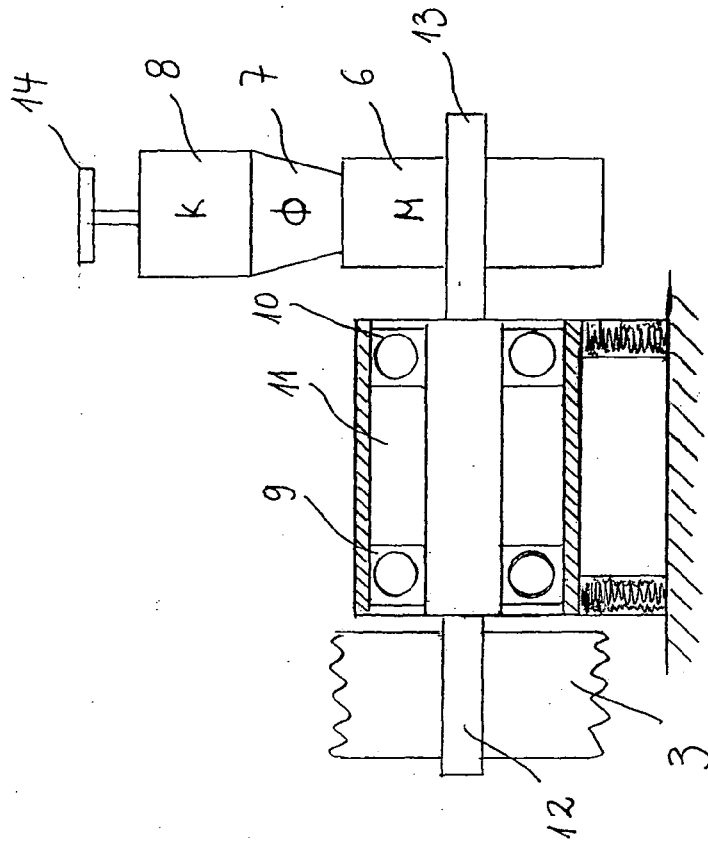


fig. 2



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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	GB 2 163 127 A (DOVER CORP) 19 February 1986 (1986-02-19) * abstract * * page 3, line 23 - line 107 * * figures 1-3 *	1	INV. B66B11/04
X	JP 2002 255469 A (MATSUSHITA ELECTRIC WORKS LTD) 11 September 2002 (2002-09-11) * abstract * * paragraphs [0011], [0012] * * figure 1 *	1	
X	US 2002/100902 A1 (STRBUNCLEJ ZLATKO [US] ET AL) 1 August 2002 (2002-08-01) * abstract * * paragraph [0023] - paragraph [0038] * * figures 1,2 *	1	
X	DE 10 2004 047431 A1 (LOGOS INNOVATIONEN GMBH [DE]) 21 April 2005 (2005-04-21) * abstract * * paragraphs [0026], [0065], [0090] - [0097] * * figure 1 *	1	TECHNICAL FIELDS SEARCHED (IPC) B66B
P,X	DE 10 2006 046756 A1 (SHI FENGMING [CN]) 9 August 2007 (2007-08-09) * the whole document *	1	
X	CH 380 913 A (A K GEBAUER & CIE [CH]) 15 August 1964 (1964-08-15) * the whole document *	2	
A	GB 2 118 130 A (MITSUBISHI ELECTRIC CORP) 26 October 1983 (1983-10-26) * abstract * * page 1, line 14 - line 63 * * figures 1,2 *	1	
		-/--	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 26 February 2008	Examiner Oosterom, Marcel
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	FR 444 763 A (THE THOMAS FOREIGN PATENTS LIMITED) 25 October 1912 (1912-10-25) * the whole document * -----	1	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 26 February 2008	Examiner Oosterom, Marcel
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ON EUROPEAN PATENT APPLICATION NO.**

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26-02-2008

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2163127 A	19-02-1986	CA 1244783 A1	15-11-1988
JP 2002255469 A	11-09-2002	JP 3757805 B2	22-03-2006
US 2002100902 A1	01-08-2002	NONE	
DE 102004047431 A1	21-04-2005	CN 1886324 A	27-12-2006
		WO 2005032993 A2	14-04-2005
		EP 1667930 A2	14-06-2006
		JP 2007507402 T	29-03-2007
		US 2007056804 A1	15-03-2007
DE 102006046756 A1	09-08-2007	CN 101007614 A	01-08-2007
		JP 2007197217 A	09-08-2007
CH 380913 A	15-08-1964	DE 1864448 U	27-12-1962
GB 2118130 A	26-10-1983	CA 1221479 A1	05-05-1987
		HK 82785 A	01-11-1985
		JP 58130874 A	04-08-1983
		MY 26886 A	31-12-1986
		SG 60185 G	02-05-1986
FR 444763 A		NONE	