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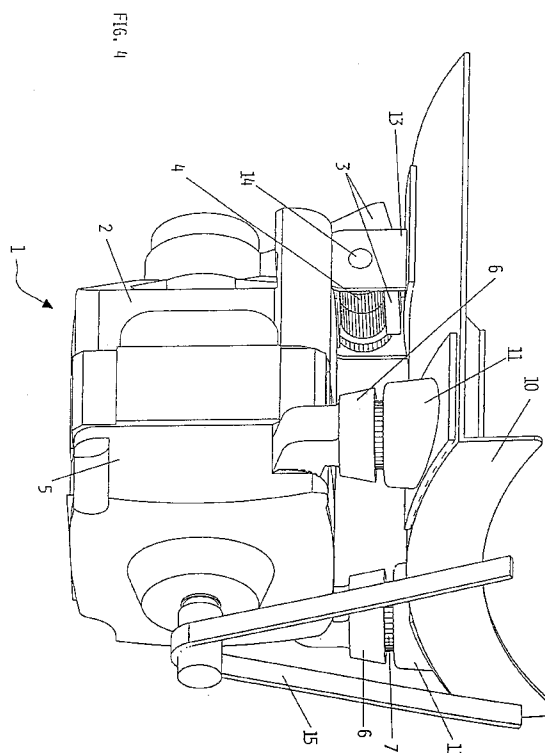
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54 **Washing machine with quick assembly motor.**

57 It is disclosed a washing-machine, specifically a laundry washer comprising an electric motor.

The main feature of the appliance described herein consists in providing constructive and functional means (11,12,15) for motor (1) assembly or disassembly on the machine (10) without the use of screws, rivets or other equivalent fastening means, so that said operations will result particularly fast.



This invention refers to a washing machine, specifically a laundry washer comprising an electric motor.

It is conventional practice to fasten a motor to the body of a laundry machine having both motor caps provided with supports on which rubber pads are assembled to absorb the vibrations caused by the motor during operation; thereafter, spacers will be inserted into the rubber pads to avoid excessive compression when tightening the bolts to fasten the motor to the machine (generally to the tub).

Subsequently the transmission belt is assembled and as a final step belt tension adjusted by positioning the motor correctly, generally using proper slots in the supports.

Purpose of this invention is to provide a washing-machine, specifically a laundry washer allowing a easier and faster motor assembly, thus reducing the number of parts required and of operations to be carried out.

This invention will concretise such a scope by providing a washing machine, specifically a laundry washer comprising an electric motor, characterised in that constructive and functional means are provided for motor assembly or disassembly on the machine without the use of screws, rivets or other equivalent fastening means, so that said operations will result particularly fast.

Another embodiment of the present invention provides a washing machine, specifically a laundry washer comprising an electric motor, characterised in that constructive and functional means are provided for motor assembly or disassembly on the machine without the use of tools. A preferred embodiment of the present invention provides a washing machine, specifically a laundry washer comprising an electric motor, characterised in that constructive and functional means are provided for motor assembly on the machine where the motor is hooked on one side and held on the other by the transmission belt transferring the motion from the motor to the machine drum sheave.

The features and advantages of the machine according to the invention are detailed in the following description with reference to the annexed drawings, which are supplied only by way of non limiting example, where :

- Fig. 1 shows a schematic front view (A) and a side view (B) of the motor for a laundry washer according to the invention;
- Fig. 2 shows a schematic front view (A) and a side view (B) of the tub lower section in a laundry washer according to the invention;
- Fig. 3 is a schematic view of the motor assembly method of the laundry washer according to the invention;
- Fig. 4 is a perspective view of the assembled motor of the laundry washer according to the

invention.

In fig. 1 reference no. 1 refers to the laundry washer motor as a whole according to the invention; no. 2 refers to the rear cap of motor 1, whereas no. 3 shows a support integral to cap 2; said support 3 is used to hook and hold the motor 1 from the rear side through a pin (14 - fig. 2) fastened to the machine tub.

The support 3 has a shaped section to accommodate a cylindrical rubber pad 4 for motor 1 vibrations absorption.

No. 5 refers to the front cap of motor 1; said cap 5 is provided with two side supports 6.

No. 7 refers to rubber pads inside the side supports 6 for motor stabilisation against static, reverse and operating torques.

The rubber pads 7 are dimensioned and their relevant material selected not only to absorb vibrations but also keep the sheave-motor axle-distance within a range to ensure motion transmission by the belt (15 - figs. 3 and 4); said belt is flexible to balance small deviations from the nominal value.

In fig. 2, no. 10 shows the machine tub lower section according to the present invention, e.g. in stainless steel, on which supports 11 and a support 12 for motor 1 are provided; as best seen in the partial section of A in Fig. 2 the supports 11 are shaped and have cylindrical indentations to accommodate the upper part of the rubber pads 7 to hinder motion.

Support 12 has two side brackets 13, between which is located the cylindrical rubber pad 4 through a supporting pin 14 fastened between the two brackets 13. Fig. 3 illustrates schematically through a step sequence the assembly system on the tub 10 of motor 1; showing in particular the following four steps :

- Cycle F1 : motor alignment - during this step the shaped part of support 3 on cap 2 is aligned with the supporting pin 14 bearing the rubber pad 4;
- Cycle F2 : motor insertion - during this step the support 3 is hooked through its shaped section onto the rubber pad 4 supported by pin 14;
- Cycle F3 : front rubber pads assembly - during this step the rubber pads 7 are assembled in the supports 6 of cap 5; this assembly step is simplified as motor 1 - already supported - can rotate constrained around the pin 14;
- Cycle F4 : transmission belt assembly - during this step where final motor positioning is reached, a flexible belt 15 is assembled between the motor and the drum sheave (not shown) of the laundry washer.

Following the above described assembly, the machine motor according to the present invention will appear as shown in Fig. 4.

It should still be mentioned that rotation around pin 14 is constrained to have motor 1 in an easy position during assembly; in other words, the shape of the support 3 upper surface is suitably selected for the

motor to be supported with an inclination allowing e.g. an easy assembly of the rubber pads 7 (Fig. 3 - part F3).

According to a further feature the special shape of the support 3 allowing said constrained rotation, practically forms a sort of stop element hindering the motor 1 from falling down and/or striking the floor should the transmission belt 15 break.

According to the above description the features and advantages of the washing machine with simplified motor assembly disclosed by the present invention appear quite evident.

As it results from said description, the washing machine according to the present invention offers the essential advantage of a particularly fast motor assembly and disassembly, without the use of tools.

Obviously, the inventive principle unaffected, many modifications may be made to the constructive features of the machine described by way of example without departing from the innovative criteria of the invention; the same as it is also obvious that in the practical execution of the invention both the shape and dimensions of the components may vary and be replaced by technically equivalent elements.

As an example, in case of wash tubs in plastic material the supports 11 and support 12 may be shaped or moulded.

Claims

1. Washing-machine, specifically a laundry washer comprising an electric motor, characterised in that constructive means (11, 12) and functional means (15) are provided for motor (1) assembly or disassembly on the machine (10) without using screws, rivets or other equivalent fastening means so that these operations will result particularly fast.
2. Washing-machine, specifically a laundry washer comprising an electric motor, characterised in that constructive means (11, 12) and functional means (15) are provided for motor (1) assembly or disassembly on the machine (10) without the use of tools.
3. Washing-machine, specifically a laundry washer comprising an electric motor, characterised in that constructive means (11, 12) and functional means (15) are provided for motor (1) assembly on the machine (10) where the motor is hooked on one side (2) and supported on the other side (5) by the transmission belt (15) transferring the motion from the motor to the machine drum sheave.
4. Washing-machine, specifically a laundry washer

according to one of the previous claims, characterised in that the motor (1) rear cap has a support (3) to hook the motor (1) from the rear side to a pin (3, 14) fastened to the washing tub (10), said pin (14) being in particular fastened between two brackets (13) integrally with the wash tub (10).

5. Washing-machine, specifically a laundry washer according to Claim 4, characterised in that the support (3) is shaped to accommodate a cylindrical rubber pad (4) to absorb motor vibrations.
6. Washing-machine, specifically a laundry washer according to any of the previous claims, characterised in that the motor (1) front cap (5) has two side supports (6), which are provided with suitable rubber pads (7).
7. Washing-machine, specifically a laundry washer according to Claim 6, characterised in that said rubber pads (7) mate with special resting seats (11) fastened to the wash tub (10), which have specifically cylindrical indentations to contain the upper section of the rubber pads (7) to hinder any motion.
8. Washing-machine, specifically a laundry washer according to at least one of the previous claims, characterised in that said resting seats (11) and said support (12) are shaped or moulded should the wash tub be manufactured in plastic material.
9. Washing-machine, specifically a laundry washer according to Claim 3, characterised in that the motor (1) assembly system foresees the following steps :
 - motor (1) alignment with a supporting pin (12)
 - motor (1) insertion by hooking (3) a motor support to a supporting pin (12) of the tub (10)
 - assembly of the front rubber pads (7) in the corresponding motor (1) supports (6)
 - flexible belt (15) assembly.
10. Washing-machine, specifically a laundry washer according to at least one of the previous claims, characterised in that said supporting hook (3) is shaped for constrained rotation of said motor (1) around said supporting pin (12) during assembly, said rotation being in particular so constrained that during its assembly the motor (1) is supported in a suitable position to permit assembly of said rubber pads (7 - fig. 3).
11. Washing-machine, specifically a laundry washer according to at least one of the previous claims, characterised in that said hook (3) and said sup-

porting pin (12) are so shaped that the motor (1) will not fall down and/or strike the floor should the transmission belt (15) fail.

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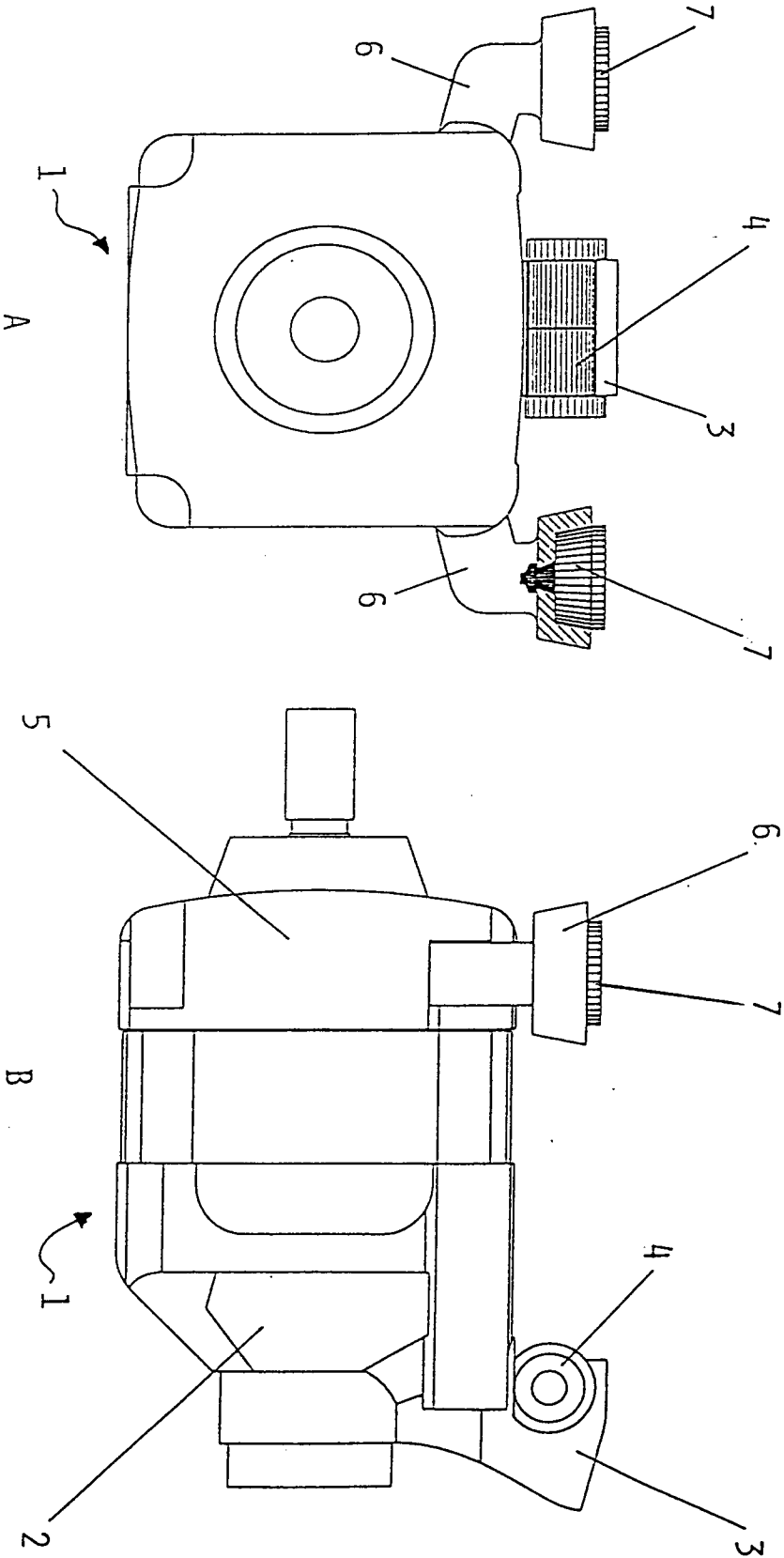


FIG. 1

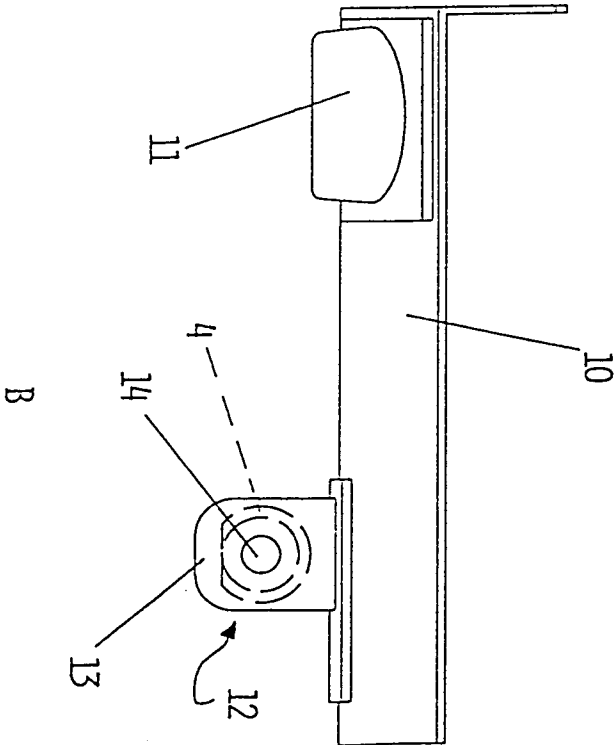
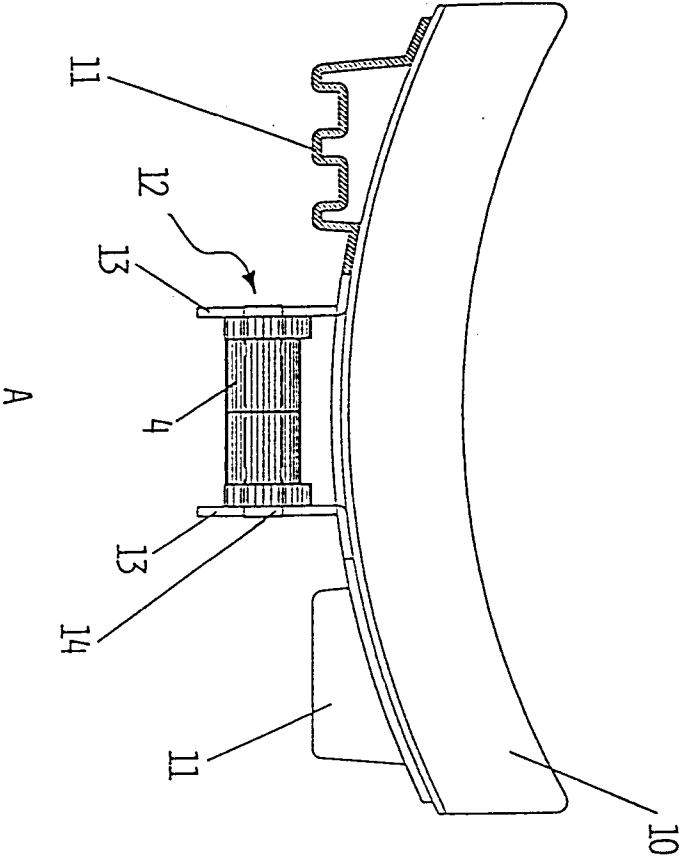


FIG. 2

FIG. 3

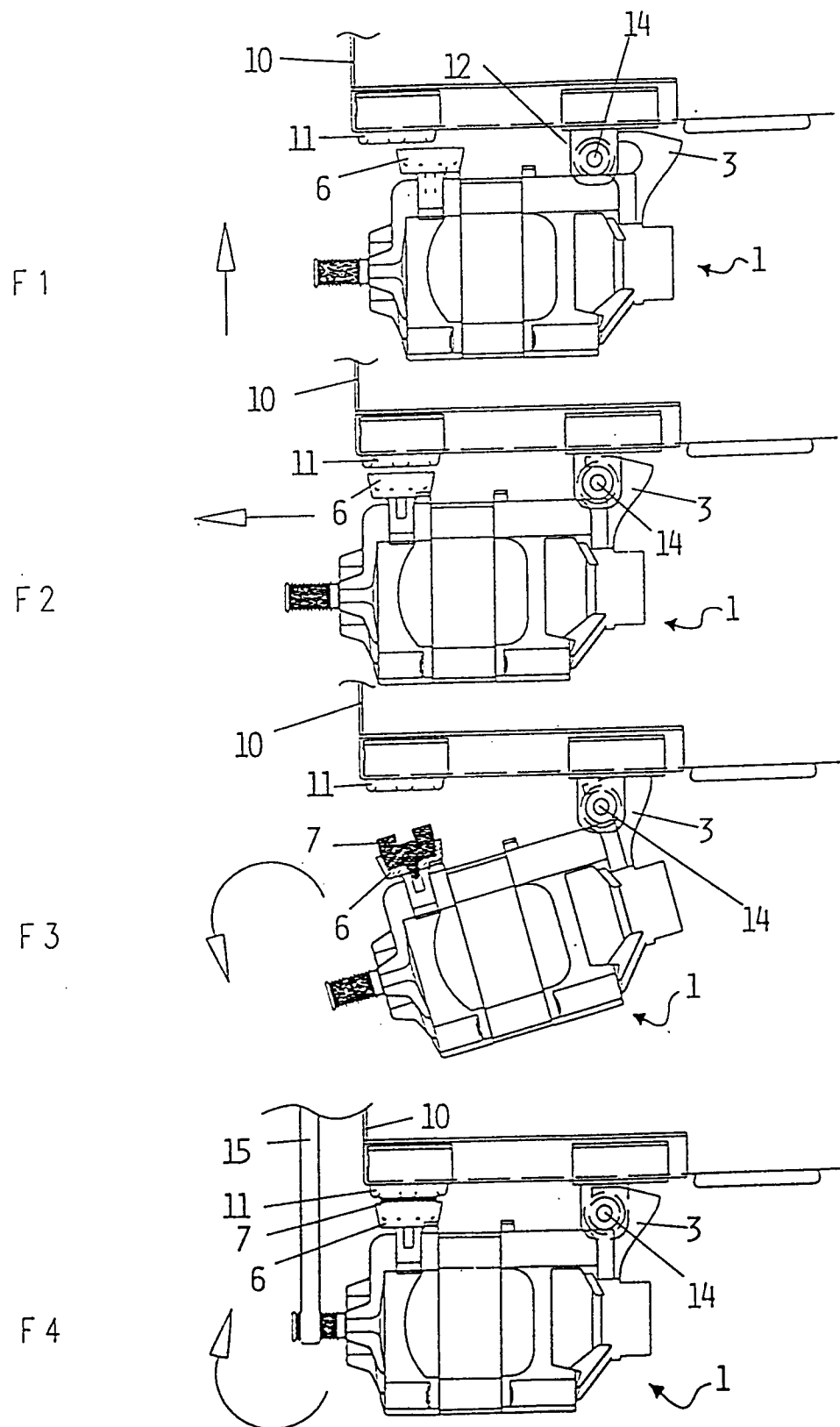
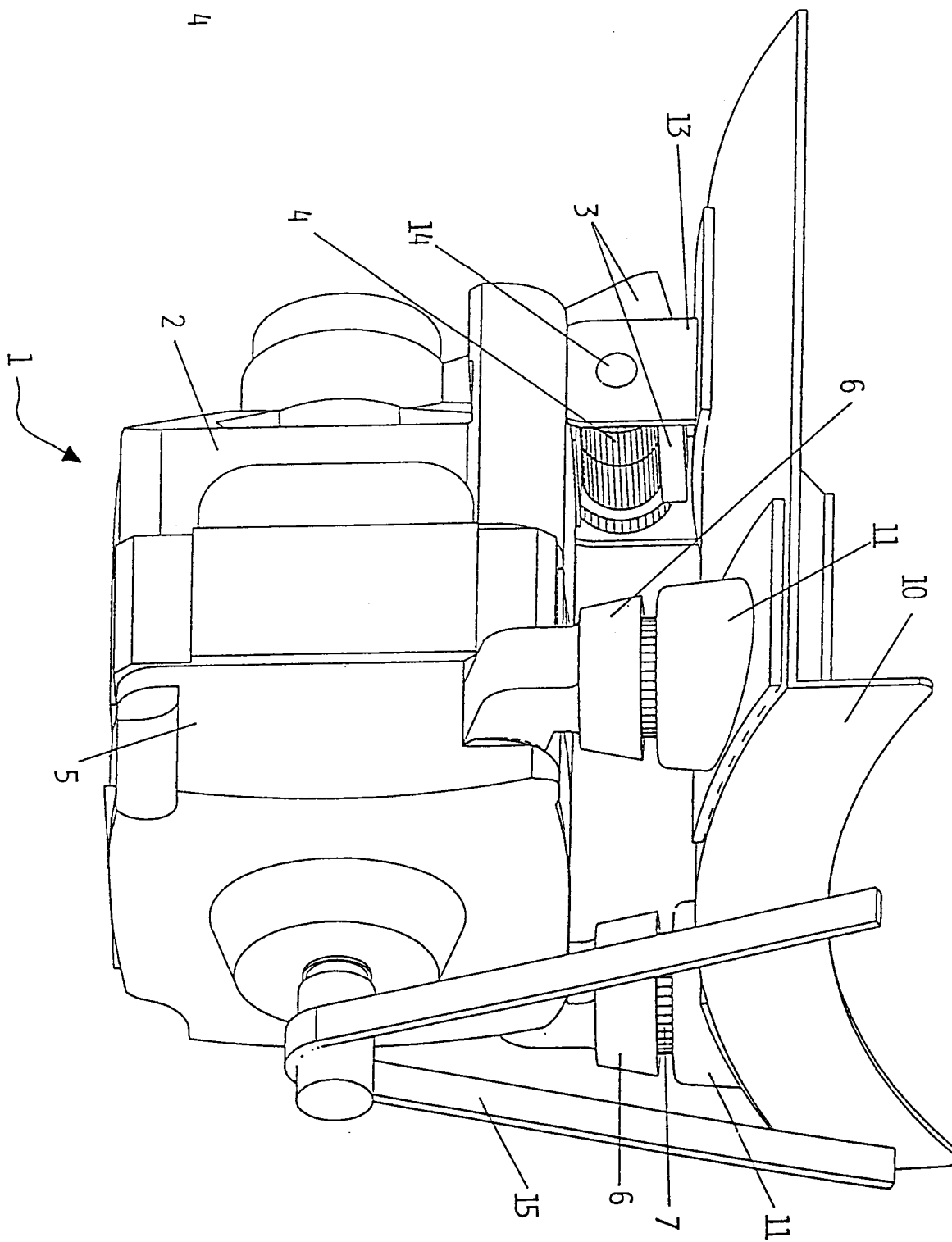


FIG. 4





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 94 10 1094

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X A	FR-A-2 201 366 (SIEMENS AG.) * page 4, line 10 - line 17; claims; figures * ---	1-3,8,11 4,5,9,10	D06F37/20
X A	DE-A-40 26 549 (BOSCH-SIEMENS HAUSGERÄTE GMBH) * column 2, line 9 - line 15; claims 1-5; figures * ---	1,2 3,8,9	
A	DE-B-15 85 611 (CONSTRUCTA-WERKE GMBH) * figures * -----	5,6	
			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			D06F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 May 1994	Examiner Courrier, G
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			

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