

"A TRACTION MACHINE FOR AN ELEVATOR"

The present invention relates to a traction machine for an elevator.

In a conventional traction machine for an elevator, as shown in Figures 1 and 2 of the accompanying drawings, a reduction gear 3 of the traction machine for an elevator is installed on the floor of a machine room 2 which is erected on the top of a hoist way 1 of the elevator, the reduction gear 3 principally comprising spur gears. An electric motor 4 is mounted to one side of the reduction gear 3 and is connected to an input shaft 3a of the reduction gear 3 to drive the input shaft, a brake gear 5 being mounted on the electric motor 4 at its end remote from the reduction gear 3. A traction sheave 6 is connected to an output shaft 3b of the reduction gear 3 on the opposite side from the electric motor 4. Main hoisting wire ropes 7 are wound around the traction sheave 6 and are suspended through the hoist way 1, one of the ends of the ropes 7 being connected to a cage 8 guided by guide rails 10 and the other ends being connected to a counter weight 9 guided by guide rails 11.

Thus, in the conventional traction machine, since the electric motor 4 and the traction sheave 6 are arranged on opposite sides of the reduction gear 3, the machine room 2 is required to be large. Furthermore,

as it has been usual for the traction sheave 6 to be arranged on substantially the center line of the joist way 1 in the plan view, as shown in Figures 1 and 2, the machine room 2 is required to be erected on the top end
5 of the hoist way 1 such that a portion of the room 2 projects outwards from the corresponding upper end part of the hoist way 1, making far less efficient utilization of the space in the building.

The present invention seeks to provide a traction
10 machine for an elevator which mitigates the defects described above inherent in a conventional machine, and can be installed within a relatively narrow machine room, increasing the utilization efficiency of the building space.

15 In accordance with the present invention, there is provided a traction machine for an elevator, the traction machine being installed on the floor of an elevator machine room in a building and comprising a reduction gear, an electric motor disposed to one side
20 of the reduction gear and connected to drive an input shaft of the reduction gear, traction sheave means disposed on the same side of the reduction gear as the electric motor and connected to be driven by an output shaft of the reduction gear, the traction sheave means

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having a width which is less than the axial length of the electric motor, the reduction gear and the end of the electric motor remote from the reduction gear being disposed on opposite sides of the traction sheave and the input shaft being disposed beneath the output shaft with the two runs of a main hoisting wire rope for supporting respectively a cage and a counter weight of the elevator on opposite sides of the centre line of the electric motor.

10 The invention will now be described further, by way of example, with reference to the accompanying drawings, in which: _____

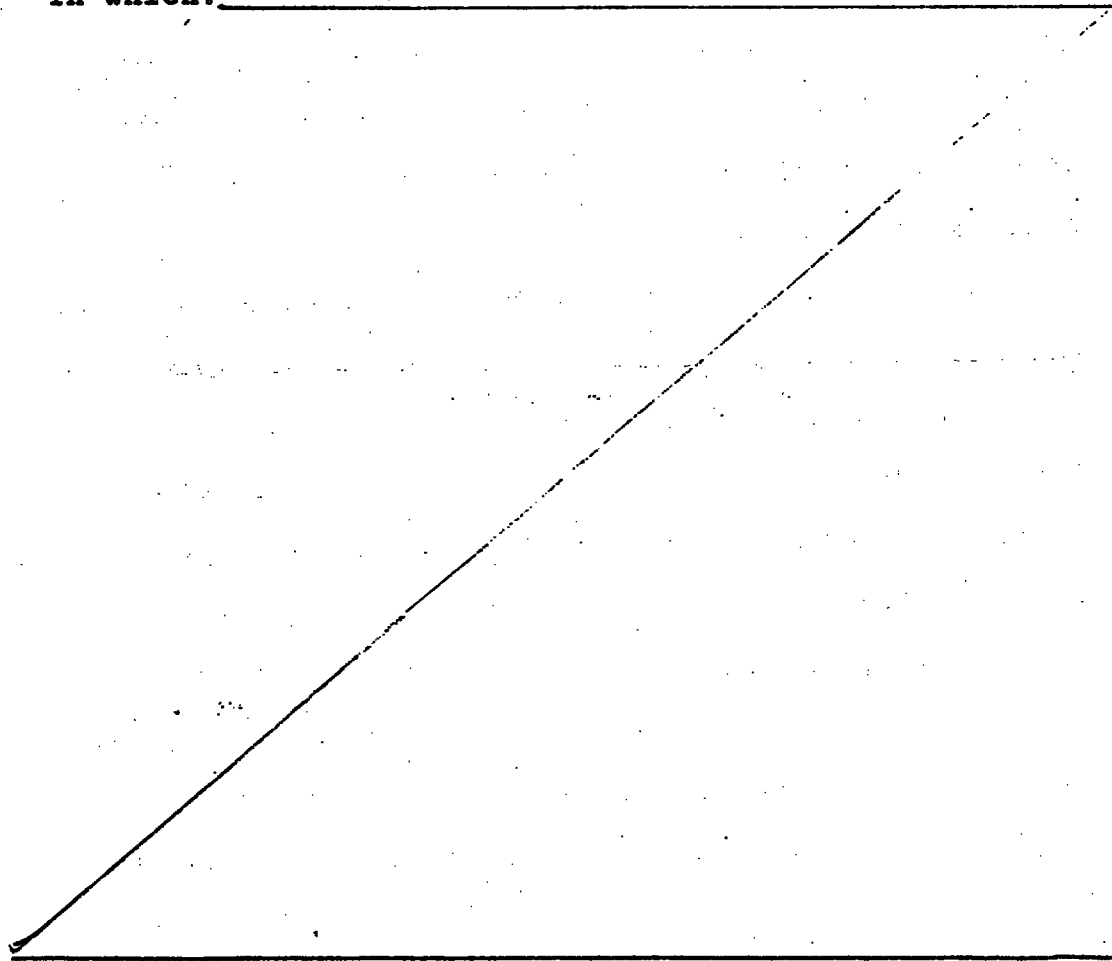


Figure 1 is as earlier described, a plan view of the essential part of a conventional traction machine for an elevator;

Figure 2 is a longitudinal sectional view of
5 Figure 1,

Figure 3 is a cross-sectional plan view of a machine room, showing one embodiment of a traction machine for an elevator in accordance with the present invention, and

Figure 4 is a vertical sectional view of Figure 3.

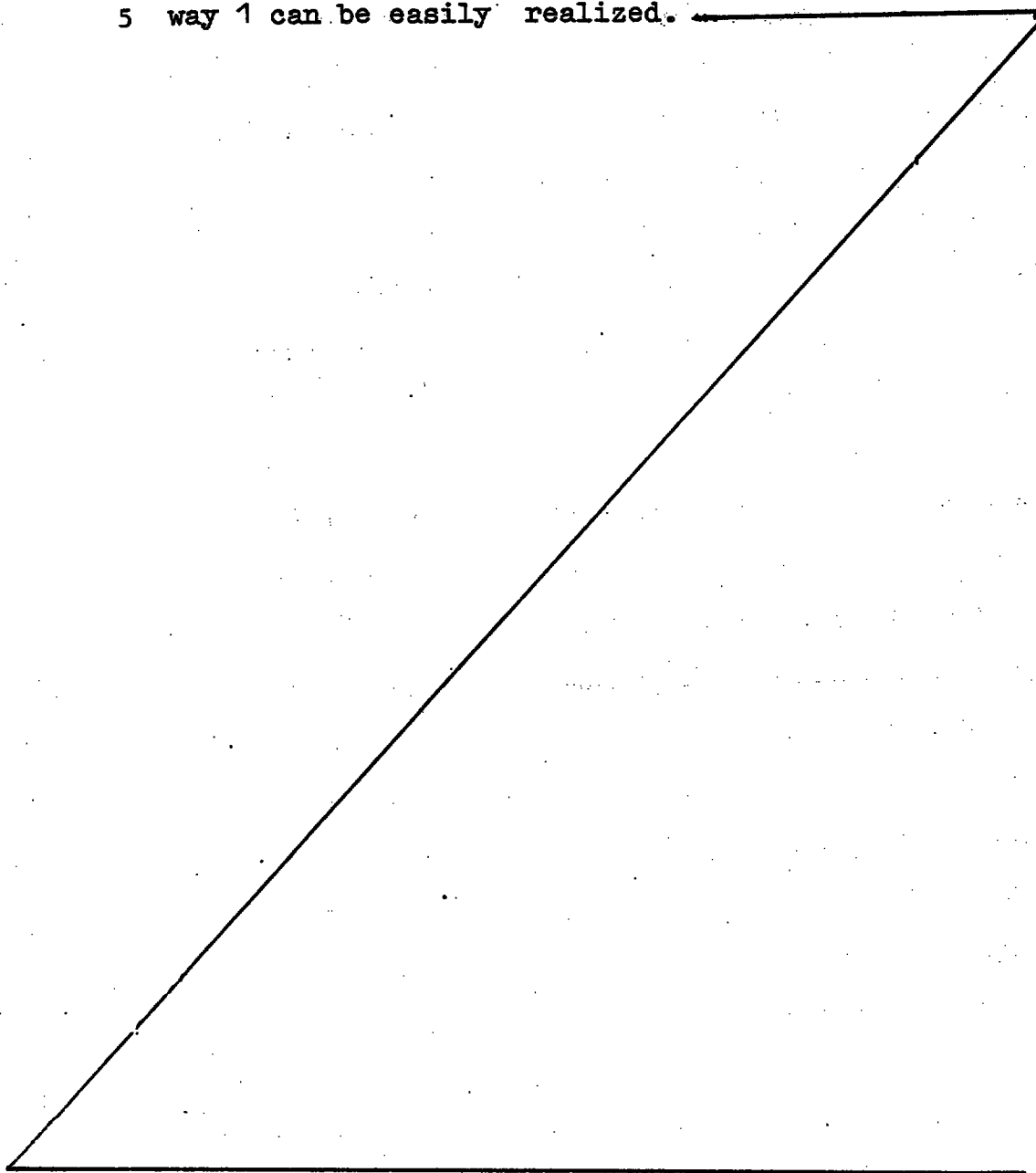
10 Referring now to Figures 3 and 4 reference numeral 3 represents a reduction gear mainly comprising spur gears and having an input shaft 3a and an output shaft 3b arranged above one another on the same side of the reduction gear 3. An electric motor 4 is connected to the
15 input shaft 3a of the reduction gear 3, and a traction sheave 6 disposed on the same side of the reduction gear 3 as the electric motor 4 is connected to the output shaft 3b, the traction sheave 6 being arranged to
lie substantially on the center line of a hoist way 1
20 in the plan view. The run of the main hoisting wire ropes 7 from which the counter weight 11 is suspended and the run from which the cage 8 is suspended are disposed on opposite sides of the center line of the electric motor 4.

25 Thus, since in the present invention the electric motor 4 and the traction sheave 6 are arranged on the same side of the reduction gear 3, the traction machine

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can be easily installed within a relatively narrow machine room, and as is easily understandable from Figures 3 and 4, a machine room 2 having a configuration precisely corresponding to the upper portion of the hoist 5 way 1 can be easily realized.





CLAIMS:

1. A traction machine for an elevator, the traction machine being installed on the floor of an elevator machine room in a building and comprising a reduction gear, an electric motor disposed to one side of the
5 reduction gear and connected to drive an input shaft of the reduction gear, traction sheave means disposed on the same side of the reduction gear as the electric motor and connected to be driven by an output shaft of the reduction gear, the traction sheave means having a
10 width which is less than the axial length of the electric motor, the reduction gear and the end of the electric motor remote from the reduction gear being disposed on opposite sides of the traction sheave and the input shaft being disposed beneath the output shaft
15 with the two runs of a main hoisting wire rope for supporting respectively a cage and a counter weight of the elevator on opposite sides of the centre line of the electric motor.
 2. A traction machine for an elevator, constructed and
20 arranged substantially as hereinbefore described with reference to and as illustrated in Figures 3 and 4 of the accompanying drawings.
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