United States Patent

Dröll

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[54] MACHINE FOR INSERTING WINDINGS INTO STATORS OF ELECTRIC MOTORS

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[51] **Int. Cl.** **H02k 15/02,** B23q 1/12

[58] **Field of Search** ..... 29/205 R, 205 C, 205 CM, 205 D, 29/205 E; 90/59.7; 269/55, 56, 58, 59, 60, 61, 74; 108/6, 7

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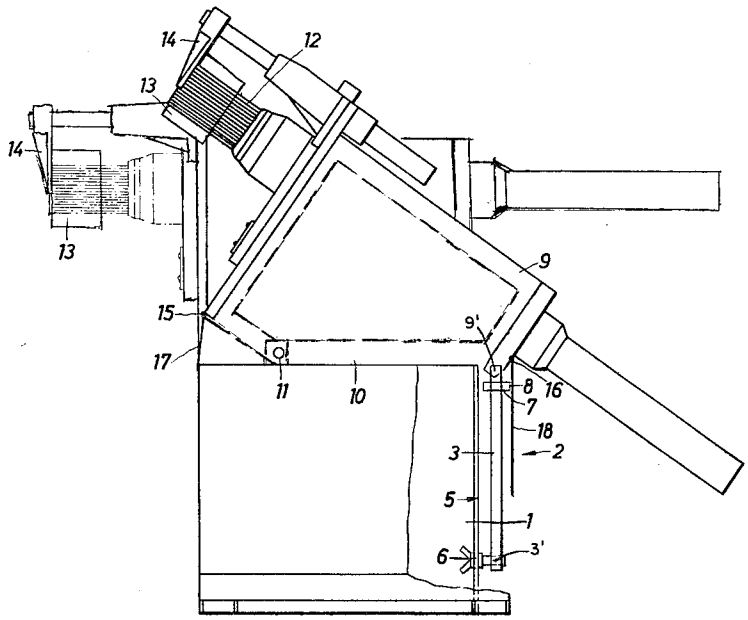
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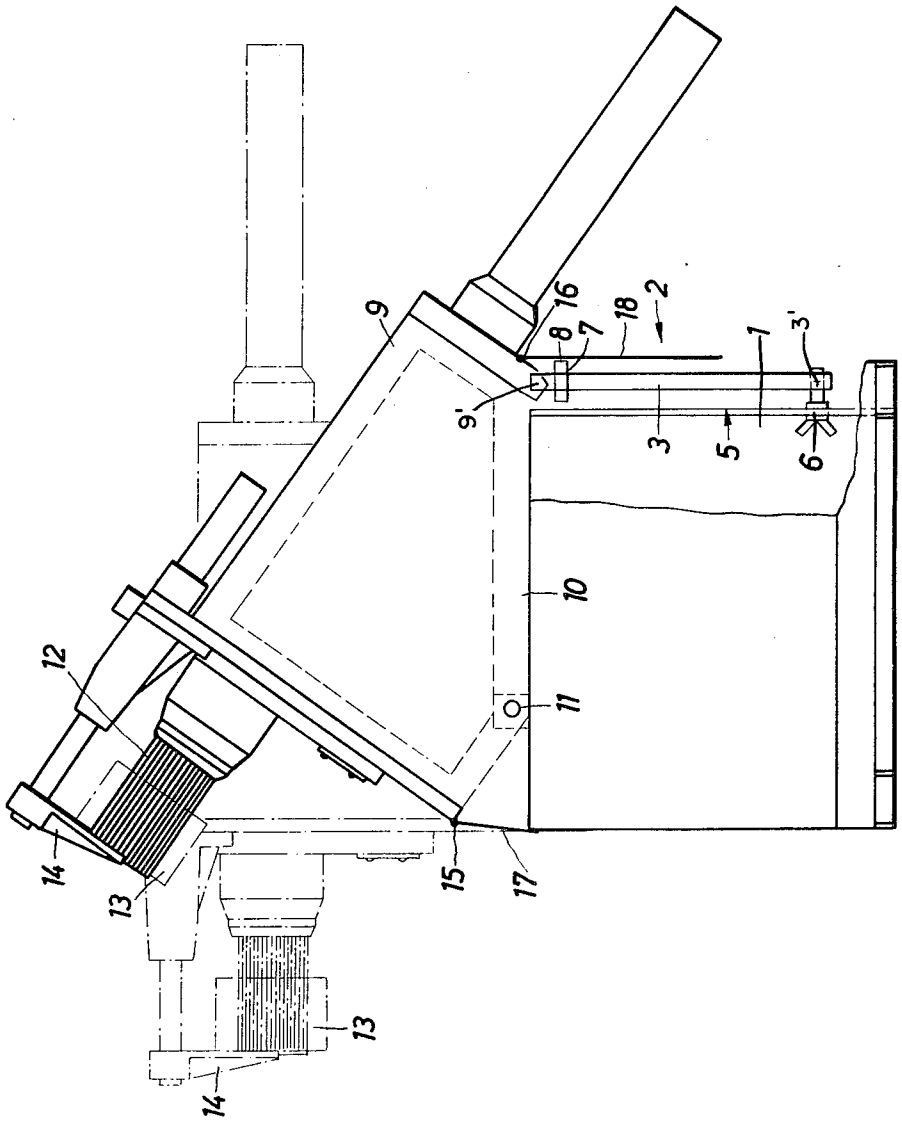
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[57] **ABSTRACT**

A machine for inserting windings into stators of electric motors and like machines which is provided with a machine frame divided into two parts with the upper part pivotally mounted on the lower part and carrying an insertion tool for the windings. Such a construction allows the adjustment of the head of the insertion tool according to the height of the operator. The pivot is disposed eccentrically on the lower frame part and preferably located near the front edge of the lower frame part and immediately above the upper edge of the lower frame part. The upper part may be adjustable by a continuously variable lifting device mounted on the lower frame part and flexible in any desired position of adjustment. Skirts, pivotally linked to the lower edges of the front and rear sides of the upper part shroud the corresponding upper edges of the lower frame part in all positions of the upper frame part.

4 Claims, 1 Drawing Figure




9
16
8
7
18
2
1
3'
9'
3
5
6
10
11
12
14
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MACHINE FOR INSERTING WINDINGS INTO STATORS OF ELECTRIC MOTORS

This invention relates to a machine for inserting windings into stators of electric motors or dynamo electric machines.

DESCRIPTION OF PRIOR ART AND SUMMARY OF INVENTION.

In known constructions of machines for inserting windings into the stators of electric motors, the frame of the machine is made integrally with the upper part which receives the inserting tool. Generally, the upper part is so constructed that the axis of the inserting tool forms with the horizontal a rearwardly downwardly sloping angle. This construction determines the level of the operative head for the stator and thus the working height.

In practice, this construction has been shown to have certain disadvantages in that it is not possible to adapt the working height to the height of the operator and it is a primary object of this invention to provide a machine wherein the operative stator winding inserting head may be adjusted according to the height of the operator.

According to this invention the inserting tool is carried in an upper part of the machine frame which is pivotally mounted about a pivot disposed eccentrically on a lower part of the machine frame.

Preferably the pivotal axis is arranged to be horizontal and is located near the front edge of the lower frame part and immediately above the upper edge of said lower part. The pivotally mounted upper part has a pivoting skirt on the lower edges of the front and rear sides which cover the upper edges of the corresponding sides of the lower part in all positions of the upper part.

Preferably the upper part is continuously adjustable by means of a hydraulic or mechanical drive arranged in the lower part and a clamping device may be provided for fixing the upper part in any position of adjustment.

By virtue of this construction the head of the inserting tool protruding from the upper part and adapted to receive in a detachable manner the stator of the motor, can be swiveled from a raised position into a low position so as to adapt the level thereof to the height of the operator. In this way by the simplest means the possibility is provided of adapting these machines to the height of the operator.

The new construction and its features will become apparent from the following detailed description, with reference to the drawing showing a diagrammatic side elevation of the improved machine with a portion broken away to show certain details. In the drawing the machine is shown in its basic position with the head of the inserting tool at its maximum elevation.

DETAILED DESCRIPTION OF THE DRAWING

A box-shaped base frame **1** carries near its rear edge a lifting device consisting of a conventional double-acting car jack

shown generally at **2** and having a fixed base part **5**. The lifting part **6**, that is, the part engaged by the operator for raising the jack, is connected to the raisable rod **3** at a pivot point **3'** and the rod **3** is in turn pivotally connected to a box-shaped upper part **9** at **9'**. Located adjacent the upper part of the rod **3** is a clamp **7** which selectively holds the rod **3** in any vertical position and hence enables the jack **2** to be fixed in the desired position of adjustment by tightening the threaded studs **8**.

The upper part **9** of the main frame **1** is fitted with a frame **10**, following the outline of the upper part and pivotally connected to the lower part **1** by a pivot pin **11**. The upper part **9** carries an inserting tool, the projecting head of which includes stator-holding fingers **12** adapted to receive a stator **13** of a motor to be wound. In the operative position, the stator **13** is secured by claws **14** pivotally mounted in front of the front face of the upper part. The lower front edge **15** and the lower rear edge **16** of the upper frame each carry a pivotable skirt **17, 18**. The lengths of these skirts are such that they cover the front and rear upper edges of the lower part in all positions of the upper part.

The drawing indicates the lower pivoted position of the upper part in dash-dot lines so that the two extreme positions of the working head of the inserting tool are clearly visible.

I claim:

1. A machine for inserting windings into stators of electric motors and dynamo electric machines comprising a first frame member, a pivotal mounting disposed on the first frame member, a second frame member secured to said pivotal mounting such that said second frame member is pivotable about a generally horizontal axis relative to said first frame member, and a winding inserting tool for supporting a stator thereon, said tool being mounted on the second frame member and including a plurality of stator-holding fingers projecting outwardly in a direction generally perpendicular to the said horizontal axis, means for pivoting said second frame member relative to the first frame member to increase the height and vary the angular orientation of the fingers of the inserting tool, and means mounted adjacent said inserting tool to cooperate therewith for securing said stator on said inserting tool.

2. A machine as claimed in claim **1** in which said pivoting means includes a continuously variable lifting device mounted on said first frame member and supporting said second frame member to adjust said second frame member about said pivotal mounting and means for securing said lifting device in any position of adjustment thereof.

3. A machine according to claim **1**, wherein the said pivotal mounting of said first frame member is located near the side edge of said first frame member closest to the said tool and immediately above an upper surface of said first frame member.

4. A machine as claimed in claim **3** wherein the pivotally mounted second frame member freely carries at the lower edges of its front and rear sides a shrouding skirt having a length such that in all positions of adjustment of said second frame member the corresponding upper edges of the first frame member are shrouded by said skirt.

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