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[Continued on next page]

(54) Title: MACHINING CENTER FOR A WIND TURBINE HUB

(57) Abstract: A machining center is designed for machining a hub having faces that are spaced one hundred and twenty degrees from one another around the hub. The machining center includes a table for supporting the hub when it is being machined and three vertical gantries arranged around the table that are spaced one hundred and twenty degrees from one another. The gantries have X and Z axis drives for moving the gantries parallel to the faces of the hub and toward and away from the hub. At least one machining member is mounted on each of the gantries for vertical movement on the gantry and stroke drives are provided for the machining members for driving the machining members toward the center axis of the hub, allowing the three faces of the hub to be machined simultaneously by the machining center.

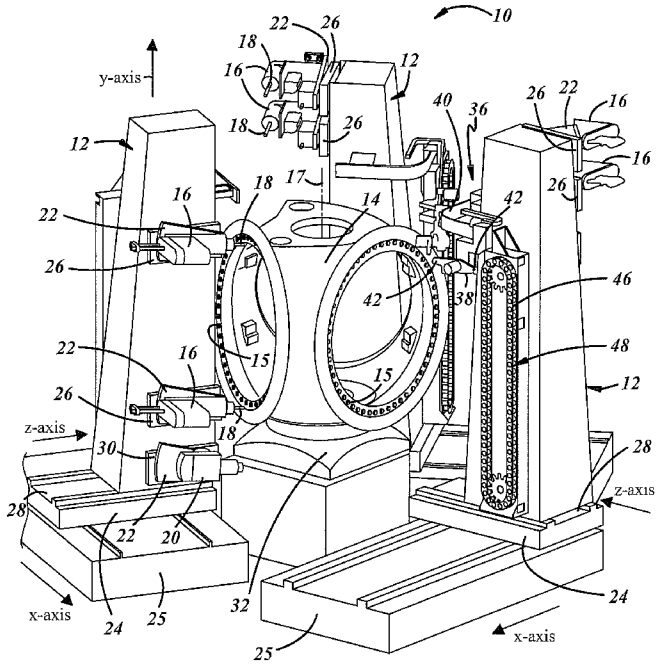

FIG. 1

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— *with amended claims (Art. 19(1))*

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1. A machining cemer for a hub having an axis of rotation and faces to be machined that are positioned one hundred and twenty degrees from one another around the axis of rotation of the hub, the machining center comprising:

a support for the hub when it is being machined so that the axis of rotation of the hub is oriented in the vertical direction;

at least a first two vertical gantries arranged around The center of the support and spaced one hundred and twenty degrees from one another;

a least one machining member mounted on each of the gantries for vertical movement on the gantry; and,

stroke drives for the machining members for driving the machining members toward the faces of the hub, whereby at least two faces of the hub may be machined simultaneously by the machining center.

2. The machining center of claim I further comprising:

a third vertical gantry arranged around the center of the support and spaced one hundred and twenty degrees from the first two vertical gantries; and,

a third machining member mounted on the third vertical gantry, whereby three faces of the hub may be machined simultaneously by the machining center.

3. The machining center of claim 2 further comprising:

an X-axis drive for each of the gantries, whereby each of the gantries is able to move on the X-axis parallel to one of the faces of the hub.

4. The machining center of claim 3 further comprising:

Y-axis saddles for mounting the machining members on the gantries, whereby the machining members are able to move in the vertical direction along the Y-axis and parallel to the faces of the hub.

5. The machining center of claim 2 further comprising:

an A-axis pivot for the machining members, whereby the machining members are able to pivot relative to the horizontal in order to machine a hub face that is not parallel to the axis of rotation of the hub.

6. The machining cenier of claim I further comprising:

8 Z-axis drive for the gantries, whereby the gantries may be driven toward and away from the faces of the hub.

7. The machining center of claim 1 further comprising:

a table comprising the support for The hub; and,

a B-axis drive for the table, whereby the table may be rotated relative TO the gantries.

8. The machining center of claim 1 further comprising:

a tool changer mechanism mounted on at leasi one of the gantries, whereby the tools in the machining members on the at least one gantry can be changed for a successive number of machining operations.

9. The machining center of claim 1 further comprising:

at least two machining members mounted on at least one of the gantries for vertical movement on the gantry.

10. The machining center of claim 1 further comprising:

a plurality of machining members mounted on each of the gantries, the plurality of machining members on at least one of the gantries comprising a pair of drill units and one milling spindle.

I X. The machining cenier of claim 1 further comprising:

a plurality of machining members mounted on each of the gantries, the plurality of machining members on at least one of the gantries comprising a pair of machining spindles.