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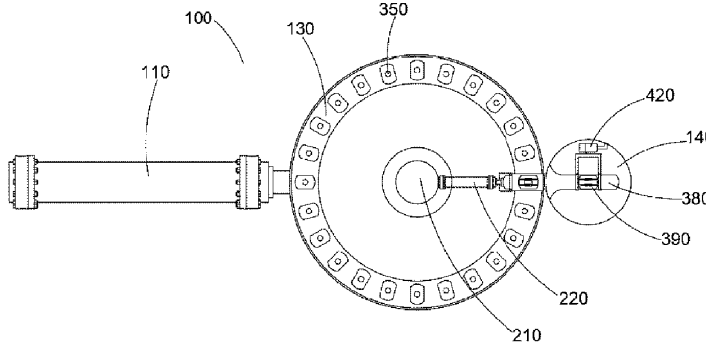
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(54) Title: AUTOMATIC TOOL CHANGING (ATC) MECHANISM USING CAMBERED SURFACE CAM TECHNOLOGY

(54) 发明名称: 一种弧面凸轮技术ATC自动换刀机构



[图1]

(57) Abstract: The present invention relates to the technical field of numerically controlled machine tools, and in particular to an automatic tool changing (ATC) mechanism using cambered surface cam technology, comprising: a body assembly, a tool changing assembly, a positioning assembly and a fixing assembly; the body assembly comprises a hydraulic rod mounted in a numerically controlled machine tool and a servo motor fixed to a driving end of the hydraulic rod. According to the present invention, by using the tool changing assembly and the positioning assembly, a cylinder 1 pushes a tool into a tool guiding slot; then, a second cylinder 2 is used to continue to push the tool to move, and push a tool to be replaced on a machining spindle to a tool changing slot position; at this time, the replaced tool is magnetically fixed on the outside of a positioning plate 2; at this time, an electromagnet is located above the tool changing slot; the electromagnet is used to generate electromagnetic force to attract the replaced tool, and then the cylinder 1 moves the tool to the top of a positioning plate 1; after the electromagnet is powered off, the tool falls on the positioning plate 1 and is magnetically fixed. The described tool changing method does not require high precision, and the loading and unloading of the tool are completed with only one push and retraction, thereby achieving high efficiency in tool changing.

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根据细则4.17的声明:
— 关于发明人身份(细则4.17(i))

本国际公布:
— 包括国际检索报告(条约第21条(3))。

(57) 摘要: 本发明属于数控机床技术领域, 具体为一种弧面凸轮技术ATC自动换刀机构, 包括: 机体组件、换刀组件、定位组件和固定组件; 其中, 所述机体组件包括安装于数控机床内的液压杆、固定于所述液压杆驱动端的伺服电机。本发明通过换刀组件和定位组件, 可以利用气缸一推动刀具进入导向刀槽内, 而后利用气缸二继续推动刀具移动, 将加工主轴上需更换下来的刀具推至换刀槽位置, 此时更换上去的刀具磁吸固定在定位板二的外侧, 此时电磁铁位于换刀槽的上方, 利用电磁铁产生电磁吸附更换下来的, 而后气缸一带着刀具移至定位板一的上方, 电磁铁断电后刀具落在定位板一上进行磁吸固定, 该换刀方式所需精度不高, 且装卸刀具均在一次推进和收缩后完成, 换刀效率较高。