United States Patent Office

3,554,735
Patented Jan. 12, 1971

3,554,735

WOODWORKING TOOL OF CHROMIUM STEEL CONTAINING COBALT

Heinrich Hiltebrand, Bassersdorf, Zurich, Switzerland, assignor to ALBA-Werkzeugfabrik Lennartz & Co., Bulach, Zurich, Switzerland

No Drawing. Filed Nov. 19, 1968, Ser. No. 777,177
Int. Cl. C22c *39/14*
U.S. Cl. 75—126 1 Claim

ABSTRACT OF THE DISCLOSURE

A high-speed woodworking tool consisting of a steel alloy of substantially the following composition in percent by weight: carbon 1.5–2.0, silicon 0.20–0.40, manganese 0.20–0.40, chromium 12.0–13.0, molybdenum 0.40–0.60, vanadium 0.40–0.60, tungsten 1.50–2.50, cobalt 2.50–3.50, and the remainder substantially of iron.

The quality of woodworking tools nowadays must satisfy very severe conditions. The cutting speeds have been greatly increased, so that the temperature of the cutting edges of the tools become higher, and besides increased heat-resistance properties, such tools must have a long edge-time and improved wear resisting qualities.

Only tools made of high-speed steel can satisfy these severe requirements, however such tools require a heat treatment at about 1200° C. and demand rigorous requirements to the technique of hardening or tempering.

Particularly planing knives which may have current lengths up to 1300 millimeters require particularly expensive hardening plants.

I have now found that a steel alloy of a composition

requiring considerably lowering hardening temperatures can be used with advantage for making woodworking tools. The steel alloy according to the invention comprises the following components in percentage by weight: Carbon 1.5–2.0%, silicon 0.20–0.40%, manganese 0.20–0.40%, chromium 12.0–13.0%, molybdenum 0.40–0.60%, vanadium 0.40–0.60%, tungsten 1.5–2.5%, cobalt 2.5–3.5%, the remainder being iron. Tools made from the above alloyed steel have a cutting efficiency corresponding to that of tools made from a good quality of high-speed steel; however, for hardening the tools made from this new alloy, they must be brought only to a temperature of from 980° to 1020° C., this temperature requiring less expensive hardening plants, and less delicate problems of hardening technique are to be solved. Particular advantages are obtained when the described alloy is used for making planing tools or cutters for machining wood and pressboard materials.

What is claimed is:

1. A woodworking tool consisting of a steel alloy having a composition essentially within the following range in percent by weight: carbon 1.5–2.0, silicon 0.20–0.40, manganese 0.20–0.40, chromium 12.0–13.0, molybdenum 0.40–0.60, vanadium 0.40–0.60, tungsten 1.50–2.50, cobalt 2.50–3.50 and the remainder substantially iron.

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HYLAND BIZOT, Primary Examiner