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NEW MACHINE TOOLS FOR RAIL MILLS AND TRACTOR PLANT

The process of finishing rails on rail-rolling mills has until now been limited and labor-consuming due to the small degree of mechanization. The construction of modern automatic rail shops required a radical change in the machining process, and the designing of machine tools which would permit automatic handling of rails being machined.

Rail-milling and rail-drilling machines have been designed by Stalin Prize winners G. P. Aristov and R. F. Novosad. These machines guarantee continuous machining of the rails and their completely automatic transportation. The ICOI rail-milling machines are built for a complete pass of the rails, with simultaneous milling of both ends of the rail. The 1A85 and 1C21 rail-drilling machines for machining round and oval holes are equipped with hydraulic devices which automatically feed rails to the machine and eject them upon completion of machining. All machines are provided with hydraulic chucks and a completely automatic operating cycle. The machines are exceptional because of their increased durability, rigidity and reliability. As a result of the automatic process, the labor input is only one-fourth that required by the latest American machine tools.

Gor'kiy Milling Machine Plant engineers B. I. Petyashin, V. A. Anufriyev, B. N. Muravin, M. M. Ivanov, and N. M. Khitrin were awarded Stalin Prizes for designing original high-duty universal high-speed milling machines, including a group of unified bracket milling machines, Types 6N82, 6N82G, 6N12, 6N83, and 6N13.

Chelyabinsk Tractor Plant Gets New Machine

Heavy milling machines were also designed. Among these are the Type 6991 special face-milling machine weighing 130 tons for high-speed surface milling of columns for high buildings and the tower for the Palace of Soviets; a Type GF-75 plano-milling machine for high-speed rilling of left and right-hand truck frames $\sqrt{\text{part of a caterpillar mechanism}}$ for the Chelyabinsk tractor; and the Model A664D 4-spindle plano-milling machine; which completes a series of plano-milling machines (A622, A663 and their modifications) and combination units.

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Mechanical removal of chips has been perfected on the Model 6991. High-speed milling with cylindrical mills has been used for the first time on the Model GF-75 machines. For faster and more economical manufacture of heavy machine tools, standardized parts have been extensively adopted. Manufacture of bronze worm gears from bimetal castings is saving nonferrous metals.

A group of Stalin Prize winners, I. Ye. Burshteyn, N. N. Ognev, L. S. Slonim, and D. Ye. Leksakov, have developed and introduced a new method of manufacturing files. As a result of their work, an automatic line for the manufacture of billets for files, seven new-type machine tools, and 50 new-design fixtures and tools have been built. Four new methods of machining were developed which have overall industrial importance. The effectiveness of the new technology, equipment, and tools is shown by the following: production of files can be increased five times, cost of machining cut three times, and production area decreased four times. A sharp improvement in working conditions can be achieved. These innovations have already been put into operation at file-making plants.

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