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The invention relates to metallurgy and can be used for hardening machine parts obtained by plastic deformation, working in frictional and cyclic conditions.

The process, according to the invention, comprises heat treatment, plastic deformation and nitriding. At the same time, before nitriding, the product is heated to a temperature of 490-540°C, keeping it in an inert atmosphere for 20-30 min. The nitriding process is performed cyclically, at the same time each cycle consists of two equal in duration half-cycles, and the duration of each half-cycle is 0.5; 1; 1.5; 3 hours. In the first half-cycle, the process takes place when nitrogen diffuses into the iron, and in the second half-cycle the stage of dissociation of the nitrided layer takes place (the ammonia supply is interrupted). The half-cycles are performed at different temperatures. Before nitriding, the nitrided surface is cleaned by electrolysis, mechanically, etc. The diffraction annealing is carried out below the temperature of eutectoid transformations.

Claims: 4

Fig.: 5