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«Constructive Method of Increasing the Durability of Cultivator Blades
Recovered by Surface»

Authors:

**I L Rogovskii, L L Titova, S A Voinash, K Yu Maksimovich, R R Galimov, V A Sokolova,
G K Parfenopulo and M S Taraban**



Problem statement

- In modern conditions, the problem of increasing the reliability of agricultural machines, their elements are resolved through the search and creation of new materials, structural elements, the use of computer methods of information processing, hardening of working surfaces in such combinations that were previously recognized as almost impossible or even harmful, methods of non-destructive and destructive testing, which is the relevance of the research.
- The issue of improving and introducing the flaw detection method using holography is important in terms of the development of methods for ensuring the reliability of agricultural machines, especially design ones. At the same time, as theoretical and experimental studies have shown, it is practically available for implementation at agricultural enterprises, especially repair ones, where there is a need to carry out fault detection and establish the residual life of machines that were in operation, and carrying out such work by existing methods is not available.



Solution methods



Fig. 1. Cultivator blade, reconditioned by surfacing



Fig. 2. A hologram of the cultivator blade, made according to the norms of working drawings

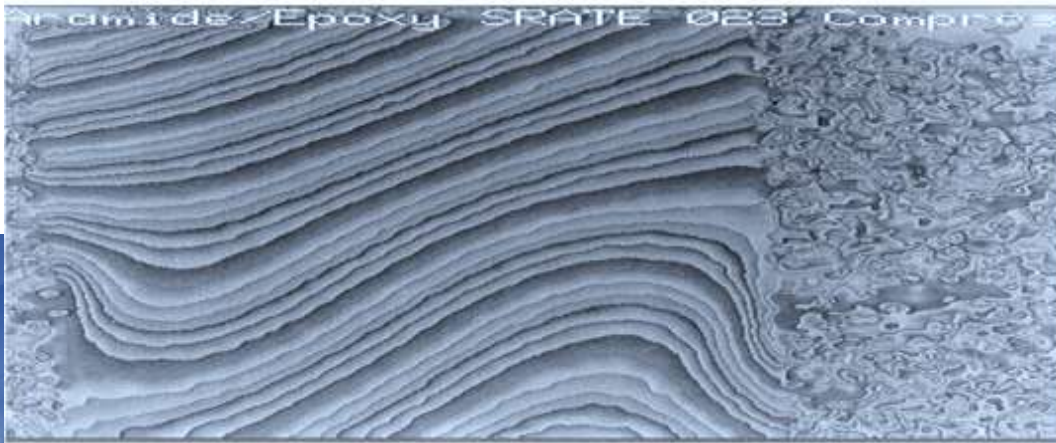


Fig. 3. Computer hologram of a cultivator blade with an irregular structural element

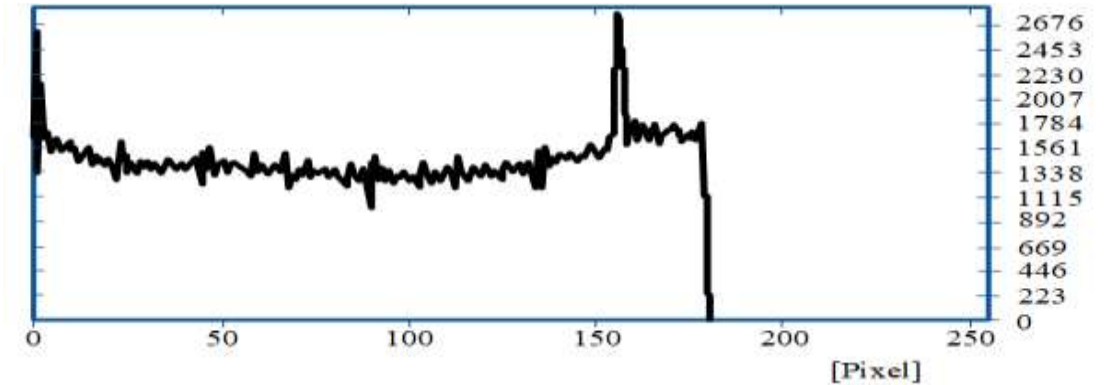


Fig. 4. Values of distribution of dispersion of micro straining's for ploughshares (correct shape)

Conclusions

Results, implementation

Thus, theoretical and experimental studies have made it possible to establish that holography, especially computer holography, is one of the effective methods for determining the design parameters that characterize the reliability of agricultural machines. At the same time, the achievement of micro deformation values above the limiting ones (for example, for cultivator blades 2.1-3.2 μm) indicates that the part has exhausted its resource.

Contacts

S A Voinash

Federal State Budgetary Educational Institution of Higher Education "Novosibirsk State Agrarian University", 160 Dobrolyubova str., Novosibirsk, 630039,
Russian Federation

E-mail: sergey_voi@mail.ru

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