ON PROTECTIVE TECHNOLOGIES IN THE PROCESS OF FORMATION OF IDENTIFICATION TAG BASED ON PHYSICAL PRINCIPLES

V. Shkilev and A. Adamchuk

Ministry of Information Technologies of the Republic of Moldova, 42, Pushkin str., MD-2012, Chisinau, Republic of Moldova
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Identification of the material resources made of metal [1] based on digital codes has already demonstrated its absolute inadequacy. There is no purpose in the usage of digital codes dialed by random number generator.

Fig. 1. Examples of digital identification *(metal products with identification numbers*).

Using some similar technologies the shadow economy representatives mark the digital codes on their contrafact goods and the tax inspection not having in its disposal automated control systems, which are able to distinguish contrafact goods from legal, cannot resolve the problem by means of an expert level of identification in full measure.

It is important to create the identifier that will have unique qualities for the automated control systems. A protective technology is necessary to construct the identifier in a single copy. Such kind of identifier cannot be made twice. There is the following paradigm in our Consciousness: "what is made once by one person can be always repeated by another". However, this principle does not always work. There are some technologies that basically cannot be repeated twice. It is offered to use them in the process of formation of the identification tags. This approach is very simple. The identification tag should have two information approaches: digital and wave. The digital *(being unsuccessfully used nowadays*) should be added by protective information technology of the highest level. Using the above-mentioned approach, the digital code and the individual matrix *(metal surface with a unique surface profile)* are simultaneously introduced into the database at making the list of material resources. It is impossible to build a database only on individual matrix [2] because of arising mathematical problems in the theory

of “image recognition”. This branch of mathematics is developing very fast; however, it is extremely difficult to find a required matrix in the database from million of individual matrixes. Therefore, two information channels on identification tag allow us to settle the problem of a tag searching in the database. The identification tag is searched by a digital code for today and authenticity of the digital code is checked by the other channel named wave, to which an individual matrix corresponds. It is possible to introduce not the whole matrix into the database (10x10) but only the part, which contains the most informational area.

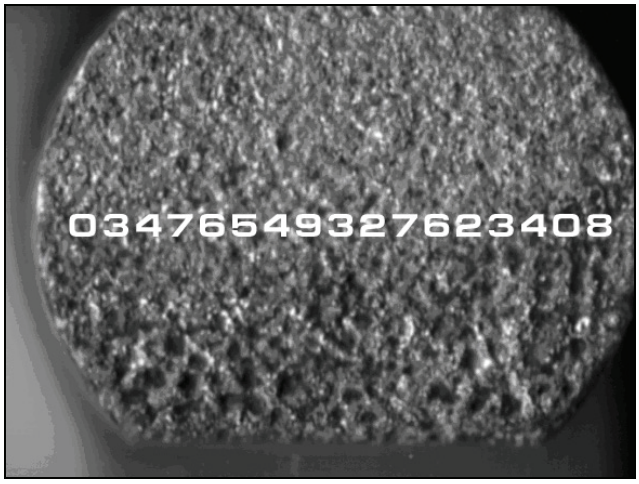

Fig. 2. Identification tag with a digital code and protective technology in the form of an individual matrix composed on the basis of electrodischarge spots.

Basically any surface, even bright polished one, can play a role of an individual matrix at high-magnification. Nevertheless, we can come differently – to give separate properties to the metal surface, which can be registered by the most simple registration means such as scanner or digital camera at macrolevel.

Among physical principles, which can be assumed the formation of an individual matrix on identification tag as a basis, it is possible to mention isotopic, gas-dynamic, and electrodischarge *(electric-spark)* ones [4-7].

From the partial list of possible protective information technologies, we can give, for example, the following:

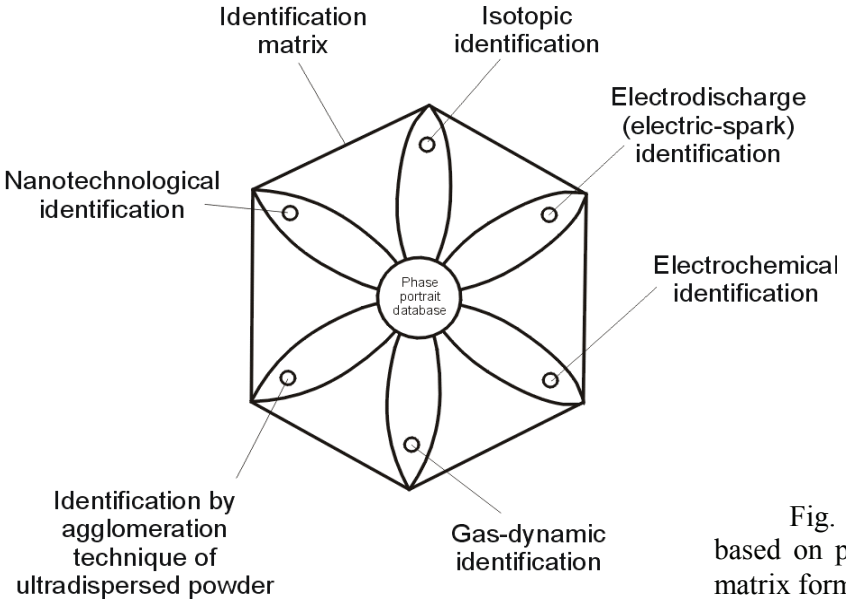

Fig. 3. Protective technologies based on physical methods of individual matrix formation.

The issue of the database formation, in spite of application of various physical processes, which should be built on unique information approaches, is essential [3]. The universal approach consists in recognition of the database formation based on generally accepted "phase portrait" technology.

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