

CONCLUSION

The presented monography is devoted to topical issues of forensic activities of forensic research of cartridges (ammunition) used for shooting in hand-held firearms. In the text of the work, the theoretical and practical aspects of the study of criminalistically significant properties of these objects, including their historical development, are gradually revealed.

The most significant of them, according to the authors, are as follows. In the monography for the first time various approaches to definition of the term “ammunition” in various branches of knowledge are investigated: legal, military, technical. At the same time, it is noted that in law enforcement and expert practice at the moment there is no unambiguous understanding of the essence of this term, which is due to the different spheres of its application. As a result of clarification of the basic signs characterizing the specified object, the conclusion that the definitions of the term “ammunition” contained in scientific literature and normative legal acts are characterized by uncertainty regarding fixing of its signs in this connection do not fully meet the needs of criminalistic research of such objects is proved.

To overcome this problem, the author formulated and theoretically justified the definition of the term “small arms ammunition”, based on the results of understanding the essential aspects of the forensic study of ammunition, including the main features characterizing their structural and functional properties.

The proposed definition reflects the following distinctive features: functional purpose, structural security, multicomponent, single use, the effect on the target of a sufficient level of damaging properties of the projectile element of the munition.

Lack of unambiguous understanding and uniform application of criteria of reference of the cartridges used for firing from manual small arms, to category “ammunition”, complexity in definition of constructive and functional properties of the investigated objects caused need of development of exact and scientifically proved criteria of reference of cartridges to the specified category. These criteria include: multicomponent, single-use, the suitability of the cartridge for firing. For homemade and improvised reequipped way of bullets (ammunition) in addition a criterion for the purpose of hitting the target.

The use of these criteria allows to provide unity of approaches in the production process of the judicial ballistic expertises of ammo (ammunition), complete and comprehensive investigation of structurally-functional properties of these objects, the validity and reliability of findings contributes to an objective assessment of the opinions of expert stakeholders.

In the paper the problem of classification of cartridges (ammunition) both existing samples and prospective ones is studied. Developed and scientifically based author’s classification based on a comprehensive approach to the study of forensic properties of elements of the system “ammunition — weapon — target”.

This classification is aimed at ensuring the effectiveness of the process of expert research of these objects, allows you to optimize the choice of methods

and means of their research, corresponding to the solution of specific tasks of forensic ballistic examination, to exclude the disparity of approaches when referring a particular instance of a cartridge (ammunition) to a particular group of objects.

Considerable attention is paid to the introduction of advanced achievements in the field of obtaining criminally significant measuring information into forensic activities. So, in particular, in the process of determining the model and the specific instance of the weapon from which the bullet is fired, the set of linear-angular parameters of the traces displayed on the elements of the cartridge (ammunition) is measured).

In the framework of the study conducted by the author developed and tested PAK "BIZAN", designed to measure the linear and angular parameters of traces of weapons on the elements of the design of cartridges (ammunition), the principle of operation of which is based on the correlation analysis of digital stereo images. The approach based on partial modernization of microscopic equipment available in expert units was used in the development of this measuring instrument.

In addition, the issues of tool support of the production of forensic ballistic tests of cartridges (ammunition) with the conditions of the pilot shooting, selection of the necessary technical means, determining the qualitative state of small firearms, means of measuring the speed of throwing item, matching the results obtained from the point of view of Metrology.

In the framework of the theoretical and experimental study, the author refined the criterion of the minimum striking ability of a single wounding projectile used as a criterion of the striking ability of small arms in forensic ballistics. The empirical data obtained as a result of experimental firing indicate that the currently used value of the specific kinetic energy of a single propellant element 0.5 J/mm^2 needs to be reduced to a value of $0,35 \text{ J/mm}^2$.

The article analyzes both from theoretical and practical positions the technique of forensic investigation of small arms cartridges, their serviceability and suitability for use for the intended purpose, which was used earlier in the production of forensic ballistic examinations and studies (2008). In the course of the study, it was found that the above-mentioned technique did not fully meet the requirements of modern practice of expert research of cartridges (ammunition). On the basis of advanced achievements in the field of forensic ballistics, information from related branches of science, the principle of consistency is used in the development of the current Methodology, which allows to objectively establish the properties of the studied object both in the aggregate and in isolation.

The implementation of the provisions enshrined in the Methodology allows to refer the cartridge to the category of "ammunition" on the basis of the identified structural and functional properties, to determine its suitability for hitting the target as a result of firing, thereby ensuring the validity of the results and the reliability of the conclusions formulated in the expert's opinion.

The results of the study reflected in this work, according to the authors, can be used for further theoretical and applied research in forensic science and forensic ballistic examination, law enforcement practice.