1. **A.V. Kalyaskin, A.O. Ovodov, I.V. Bakin, A.V. Barkhatov, B.A. Kulakov.** Investigation of defect «subcutaneous blowhole» at casting «Cylinder»

Abstract. During experimental work the reasons and the ways of elimination of defect «subcutaneous blowhole» in gray iron casting «Cylinder» at automobile factory were investigated. Three possible reasons for the formation of this type of blowhole were investigated: slag blowhole, shrinkage hole, gas blowhole. The technological process of presented casting is studied. The metallographic investigation the specimens of casting have been studied, simulation of casting technology in ProCAST was carried out. The sample with a blowhole was cut, and the obtained samples were studied by electron microscopy. The cause of the defect formation is revealed. Corrective measures were implemented, which made it possible to eliminate the «subcutaneous blowhole» defect on casting.

Keywords: subcutaneous blowhole, pinhole porosity, discontinuity of casting, gas hole, shrinkage hole, core, core sand mixture.

2. **Yu.N. Loginov, G.V. Muller-Kamsky, S.I. Stepanov, E.V. Kudryavtseva, V.V. Popov.** Electron beam melting additive technologies in veterinary

Abstract. It is noted that the use of 3D printing technologies has become widespread in the field of medicine, including veterinary medicine. In order to illustrate the effective use of additive technologies in metallurgy for the needs of veterinary medicine, examples of the manufacture and use of titanium implants based on the electron beam melting (EBM) method are given. The role of digitalization in this form of activity is shown.

Keywords: additive technologies, 3D printing, veterinary medicine, titanium alloys

3. **A.A. Garchenko, V.F. Shevyakov, V.A. Korovin, K.A. Maslov, S.V. Belyaev, I.V. Geiko**. Analysis of the factors and mechanism of crack formation during the operation of mills

Annotation. The molds are necessary to obtain ingots. High requirements are applied to the ladders as to the cast metal mold. It must withstand high temperature, pressure, pressure transformations on the part of the ingot and a large number of fillings. This paper presents a method for producing ladles made of steel and cast iron with additional processing in a bucket.

Keywords: melting point, steel, cast iron, mold and ingot.

4. **Yu.N. Loginov, O.Y. Kornienko, S.I. Stepanov.** Visualization of tests of cellular structures obtained by selective laser fusion

Annotation. The results of digitalization and visualization of cellular materials compression testing in accordance with the international standard ISO 13314 are combined. For this purpose, an experiment was carried out on planting a cellular sample obtained by selective laser melting. Synchronous recording of the loading diagram and video recording of the process itself were performed. The results are compared and conclusions are drawn about the relationship of the characteristic points of the diagram with the conditions of the experiment.

Keywords: additive technologies, laser fusion, 3D printing of products, digitalization, visualization.

5. **Yu.V. Zamaraeva, B.V. Ovsyannikov, Yu.N. Loginov, P.L. Kokovin.** Cast semi-fi nished products from magnesium deformable alloys at JSC «Kamensk-Ural Metallurgical Plant»

Abstract. The results of the research of JSC «KUMP» on the development and implementation of the production of ingots from magnesium deformable alloys are presented. The mechanical properties and structure of ingots are investigated.

Keywords: magnesium, magnesium casting, deformable magnesium alloys.

6. **V.M. Soifer, E.G. Savelieva.** Cast sculptures by Vladimir Zhbanov

Annotation. The article describes the content and history of the creation of cast sculptures by the talented Belarusian sculptor Vladimir Zhbanov for the city of Minsk and other cities of Belarus, as well as for the Moscow region, Dusseldorf, Pavlograd. Cast sculptures dedicated to female images, the first Minsk governor, the Minsk Suvorov School, the heroes of the Great Patriotic War, the coat of arms of the Republic of Belarus, the fallen internationalist soldiers and many others are described. The awards that marked the works of the sculptor Zhba nov are indicated. Information is given about the production of castings of sculptures by Vladimir Zhbanov, a brief description of the manufacturing technology of these castings, as well as the material from which they are cast. The biography of Vladimir Zhbanov is briefly described, data on the death of the sculptor, his family and his memory are given.

Keywords: Sculpture, sculptor, Minsk, Belarus, exhibition, award, dedication, heroes, art school, casting, memory.

7. **A.M. Lazarenkov, M.A. Sadokha, T.P. Kot, A.A. Novik.** Methodology for assessing the dustiness of the air environment of the working areas of foundries

Annotation. The content of harmful substances in the air is an important parameter of the working conditions of foundry workers. Due to the peculiarities of the technology, there are many sources of intense dust emission in the foundry. The distribution of dust concentrations in the atmosphere of the workshops was determined from the equation of the dust balance in the workshop room. The possibility of obtaining by calculation an objective picture of the distribution of dust in various sections of foundries is shown. Data from various studies were used to determine the density and dust at various sites of foundries. The results of the theoretical calculations show that in foundries, dust capture is an effective means of reducing the dustiness of the air of working areas.

Keywords: harmful substances, binders, working area air, harmful substance content, safety measures.

8. **G.A. Rumiantseva, B.M. Nemenenok, A.V. Arabey, L.V. Tribushevskiy.** «Green» technologies in metallurgical production — a dream or reality?

Annotation. The paper analyzes the existing technologies of metallurgical production with minimal harmful effects on the environment. Emissions of carbon dioxide into the atmosphere can be eliminated using hydrogen as a reducing agent with iron oxide. The best results are realized when hydrogen is produced by electrolysis of water, but such technologies require serious investments. More realistic in terms of creating «green» technologies in metallurgical production is to reduce the consumption of natural gas, capture waste gases of metallurgical production and use them to produce electricity and new types of products: methanol, synthetic alcohol, fertilizers and polymers. An integral part of «green» technologies is also the implementation of the NoWASTE concept, aimed at minimizing waste to be

disposed of. Examples of non-waste technologies for the processing of aluminum waste at OOO NPF Metallon are given.

Keywords: «Green» technologies, non-waste production, new types of products.

NIKOLAY ALEKSEEVICH KIDALOV

(to the 70th anniversary of his birth)

(to the 70th anniversary of his birth)

March 16, 2023 marked the 70th anniversary of the birth of the famous scientist and teacher, an authoritative and respected colleague and friend in wide circles of foundry workers.

The Russian Association of Foundry Workers, the editorial board of the Foundry of Russia magazine, numerous colleagues, friends, and students cordially congratulate Nikolai Alekseevich on his Anniversary and wish him good health, happiness, well-being at home and further success in scientific and educational work.