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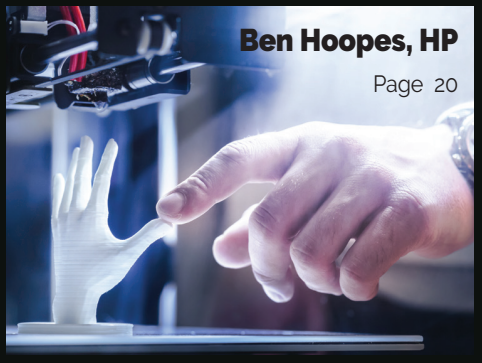

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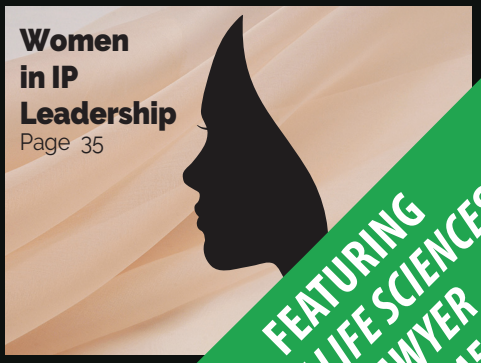

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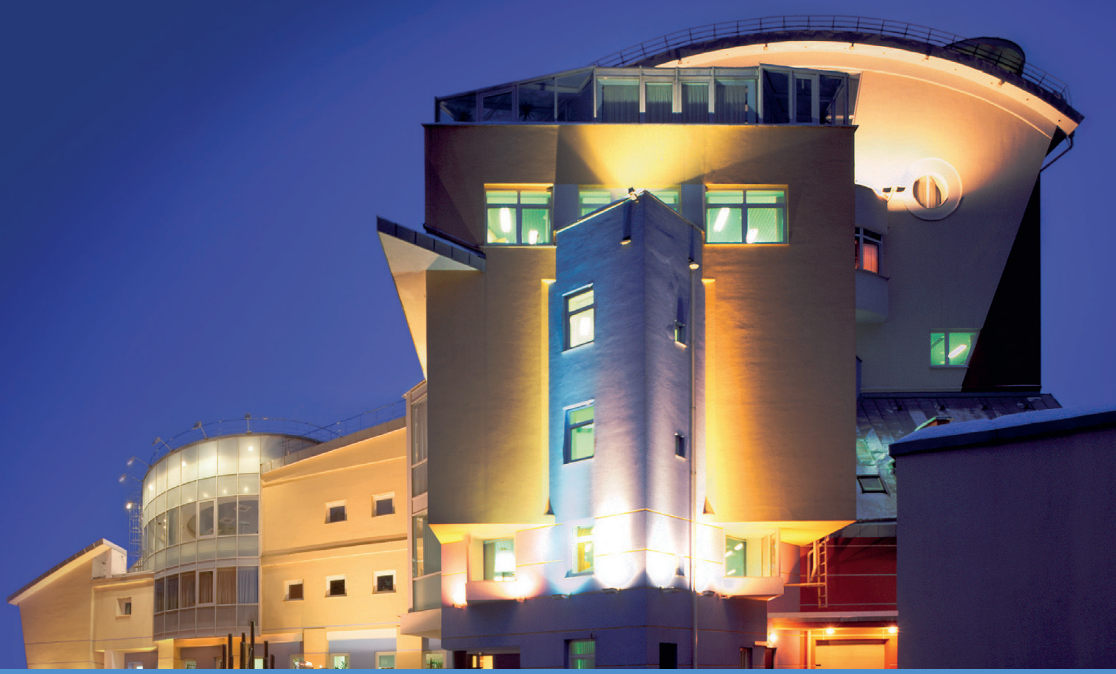

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Approaches to patenting alloys before the Russian and the Eurasian patent offices

Anatoly Nistuk and Mikhail Samsonov, of Gorodissky & Partners, examine the patenting of alloys through history and give an evaluation of both the RUPTO and the EAPO approach to patenting.

Having come into the life of people at the dawn of civilization, alloys were becoming increasingly important to the point that by about 1550, at the time the treatise "De re metallica" was written by Georgius Agricola, they were a precondition for "leading a civilized lifestyle".

By the time of establishing patent systems at the beginning of the 20th century, alloys were already so important for mankind that it allowed them to avoid the fate of chemical compounds recognized at that time as unprotectable solutions based on the laws of nature. As one example of such recognizing, Article 3 of the USSR Regulations on Inventions and Technical Improvements dated April 9, 1931 may be mentioned here, according to which: "Invention certificates and patents shall be issued for new methods of manufacturing medicinal, food, flavouring, and any other substances obtained through chemical means, but not for the substances themselves."

Despite such restrictions for chemicals, "alloys" as a patent subject-matter have been historically allocated into a category of their own and have been unambiguously recognized to be patentable as such, but at the same time it has been persistently discussed what set of features should define a patentable solution classified as "alloy".

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For example, in the 30s of the last century in the USSR, an alloy was not considered to be patentable if "specifically valuable technical properties that determine new scope of use are discovered in a known alloy".[1] Accordingly, for example, if "stainless" steel had paramagnetic properties, such an alloy would not be considered to be patentable.

This provision gave rise to a concept of "properties inherent to a known alloy" that can be detected by a skilled person. This concept was applied with a varying intensity during patent examination of technical objects such as alloys in the initial USSR period and it is gaining adherents again nowadays, particularly in practice of the Russian Patent and Trademark Office (RUPTO).

[1] Kheyfets, I. Ya. (1935). Osnovnye Problemy Izobretatelstva. Patentnaya Okhrana Sovetskogo Eksporta [Main Inventive Act Issues. Patent Protection of the Soviet Export], Vneshtorgizdat, Moscow; p. 202.

As a remark, it is worth noting that initially it involved exactly discovery of *specifically valuable technical properties* of a known alloy, and the use of said provision was limited to this case. At the same time, it remained unclear how to classify the case when specific valuable properties of the alloy were obtained purposefully as a result of inventive activities, selection of a certain ratio of alloy components from known ranges, and relevant process operations to manufacture the alloy.

Numerous alloys, new requests, and new pertinent arts requiring suitable materials demanded a constant improvement of the patent system as to alloy patenting regulations.

In the Soviet times, the prevailing general approach provided that a "general" solution did not discredit novelty of particular "implementations"; moreover, skilled persons theoretically studied and discussed a possibility to extend the concept of so-called "selection inventions" to alloys.

"What set of features should define a patentable solution classified as "alloy".

Although, in our opinion, this issue was not supertopical at that time due to the fact that the problem of a variety of alloys and development of the art was levelled by the fact that the role of characteristics of alloys in the claims was assumed by a purpose and properties of the alloys, which allowed skilled persons to define new technical solutions so as to distinguish them from those previously known.[2]

The reappearance of market competition at the end of the 20th century in Russia resulted in significant social changes, which affected all areas including the RUPTO. So, comparing to the USSR times, where the examination goal consisted in identifying new technical solutions for the benefit of all state-owned collaborating enterprises, today the Office's functions are shifting towards providing services in granting a patent to competing market players.

This goal setting has resulted in a review of the private existing practice and statutory provisions taking as the basis a reduction in the processing time and an increase in the scope of services provided.

As a result, for example, the statement that the properties of an alloy are a consequence of its qualitative and quantitative composition chosen randomly has first appeared in the recommendations for patent examination of applications for inventions and utility models. Accordingly, no evidence of an advance in the art, when narrowing the known range, was required and a solution was considered as disclosed if it could be obtained by a random search of pointwise values out of the known ranges. It started to smoothly drift to adopting the provision that a general disclosure discredits novelty of all particular forms covered by it, which is reflected in the regulatory documents effective today.

To achieve the goals set, an approach to ultimate formalization of the patent examination has been proposed, backing off the technical nature of the claimed invention, replacing it with formal reading of the features, and discarding those features that require high technical competence in making a decision. In other words, according to an approach by the RUPTO, an "alloy" is assumed to exist outside the environment, that is, to be an attribute of the virtual space, and projections into reality reflect only its gist and are inherent to it in the whole variety of manifestations.

In fact, it appears as a slightly modified revival of the afore-mentioned century-old concept that an alloy is non-patentable in case of a "discovery of specifically valuable technical properties in the known alloy".

The main idea behind such formalization is creating completely unbiased patent examination by delegating comparison of features to a

Résumés

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He has a considerable experience of oppositions and appeals before the Russian and Eurasian Patent Offices. He is a frequent speaker of Russian and international events, an author of numerous articles.

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Time scale	Admissible features of composition (alloy)	Differences
USSR and Russia until December 15, 2018	1. Qualitative formulation (ingredients) 2. Quantitative formulation (content of ingredients) 3. Structure of composition 4. Structure of ingredients 5. Physical, chemical and other characteristics 6. Preparation method features (for compositions of non-established or unknown formulation)	
Since December 15, 2018 in Russia	1. Qualitative formulation (ingredients) 2. Quantitative formulation (content of ingredients) 3. Structure of composition 4. Structure of ingredients 5. Preparation method features (for compositions of non-established or unknown formulation)	Physical, chemical and other characteristics and method features are not admissible features if they are distinctive features over the prior art.
Since January 01, 2012 in EAPO	1. Qualitative formulation (ingredients) 2. Quantitative formulation (content of ingredients) 3. Structural characteristics 4. Preparation method features (for compositions of non-established or unknown formulation)	It is not admissible to use features of a composition that are not directly related to the composition (for example, conditions and modes of using the composition in any process, method); quantitative parameter (measurable or calculable) defining one or more properties of the composition, if this parameter is used as the only feature defining the composition in an independent claim.

Table 1

allowed only if it is used as the only feature defining the composition in an independent claim.

The formal reading of these provisions makes it possible to conclude that the approaches of the RUPTO and the EAPO are similar.

However, essentially, the EAPO's approach is actually more loyal to applicants and makes it possible to define alloys through a combination of their properties as used historically and is consistent with the common sense and the gist of developing and creating alloys and their improvements.

Let us consider one specific example of patent examination of a claimed alloy at the RUPTO. In independent claim 1, an iron-based alloy (steel) has been claimed in the following form:

"1. Iron-based alloy for high-temperature corrosive medium, comprising:
- element A in amount X
- element B in amount Y
- element C in amount Z

wherein

(a) a ratio of $X + 2Y - 3Z > 10$

(b) having a mechanical strength of S, and

(c) allowing for pitting corrosion resistance of a rolled product."

"It is possible to fully automate the patent examination."

However, the purpose "for high-temperature corrosive medium" of the alloy has been found by the RUPTO to be an inadmissible feature related to the "use conditions" of the alloy in a high temperature corrosive medium.

Feature (a) has been found to be an inadmissible feature related to a calculable quantitative parameter (inadmissible calculable parameter).

Feature (b) has been found to be an inadmissible feature related to a measurable parameter (inadmissible measurable parameter).

Feature (c) has been found to be an inadmissible feature related to a technical effect (inadmissible technical effect).

The rest alloy features defining the amounts of X, Y, and Z of the elements A, B, and C, respectively, have been found to be disclosed in the prior art, i.e. in a known document D1.

As a result, the alloy claimed in independent claim 1 has been rejected by the RUPTO as having no novelty over the document D1.

However, if the EAPO's approach was applied to this claimed alloy, then, since neither the feature of the purpose of the alloy nor the features (a), (b), and (c) of the alloy are the only features of the alloy in independent claim 1, all these features would be considered to be admissible and, as a result, the claimed alloy would most likely be found by the EAPO to have

a novelty over D1.

As we can see from this specific example, the EAPO's approach to patentability assessment of alloys is actually much more loyal to applicants than that of the RUPTO.

Another important difference in the approaches of the RUPTO and the EAPO appears during patentability assessment of selection inventions.

Thus, on the one hand, pursuant to paragraph 78 of the Rules for Compiling, Filing and Considering of Inventions Application Documents as used by the RUPTO, the concept of "selection invention" is used in assessment of only an inventive step and only individual chemical compounds, but not in assessment of any other technical solutions, such as compositions, devices, and methods.

The Recommendations for Patent Examination of Invention Applications dated 2009 and previously effective at the RUPTO have provided for in paragraph 9.1.12 that: "Methods for assessment of compliance of selection inventions with the inventive step condition are generally the same as the methods for the inventive step assessment of other chemical compounds having an established structure". In addition, paragraph 13 of these Recommendations has provided methods for patentability assessment of an invention correlated with a known solution based on the "broader — narrower" or "narrower — broader" principle. However, these provisions have disappeared from the new Guidelines for Patent Examination of Invention Applications at the RUPTO dated 2018.

"Has in fact become unlawful and virtually impossible."

Therefore, the broad application of the arguments based on the "selection invention" concept in favour of patentability of selective compositions in general and selective alloys or glasses in particular has in fact become unlawful and virtually impossible.

Let us consider this using a specific example of patent examination of a claimed getter alloy at the RUPTO. Independent claim 1 recites:

1. A getter alloy consisting of:
   (a) element A in amount X
   (b) element B in amount Y
   (c) one or more optional additional element in amount Z
   (d) element C the balance.

At the same time, both a ternary getter alloy with elements A+B+C and a quaternary getter alloy with elements A+B+C + an additional element have been identified in document D1, known from the prior art, however, the ternary alloy has only been formally covered by the claims of document D1, but has not been disclosed in the

description of D1, while the quaternary alloy has been described in details in the experimental examples given in the description of D1.

However, despite of such non-disclosure in D1, the ternary alloy has been found by an examiner of the RUPTO to be known from D1 and, therefore, having no novelty. At the same time, the examiner of the RUPTO has not taken into account the applicant's arguments that the claimed getter alloy is selective and that the ternary alloy allegedly known from D1 is in fact not disclosed in the description of D1, therefore, a person skilled in this art could not implement such alloy based only on the claims of D1 without any experimental data on preparation methods and properties of such alloy, which means that the social agreement between the society seeking to obtain as detailed information as possible about new inventions for further progress in the art and the D1 patent holder, who has received patent protection for the ternary alloy without disclosing any experimental data on it, has not been complied with. As a result, the applicant has been forced to excessively limit the claimed composition of the ternary alloy with elements A+B+C so as to ensure a difference from the ternary alloy that is only formally known from the claims of document D1.

When considering the corresponding application at the European Patent Office (EPO), to the contrary, the selectivity of the claimed getter alloy has been observed and the document D1, although having been considered by the EPO examiner, has been found to not discredit the novelty and the inventive step of the claimed getter alloy and, as a result, a European patent containing the claim shown above has been granted.

Understanding the importance of selection inventions to stimulate innovations, specifically in the long-developed and well-studied arts, the EAPO has often recently demonstrated an approach generally similar to the European approach and, in general, confirms the conceptual patentability of selection inventions, even despite that the term "selection invention" is not yet explicitly used in the Eurasian Rules**. As one example, the article titled "Patent Examination of Inventions in Chemistry at the Eurasian Patent Office" published by heads of the EAPO Department of Chemistry and Medicine[5] says literally as follows: "The subject-matters of such inventions (i.e. selection inventions) can be both products (individual chemical compounds, compositions) and methods."[6] Moreover, the EAPO is considering a possibility to change the regulatory provisions of the Eurasian Rules** so as to clearly prescribe specific patentability criteria for selection inventions quite similar to the EPO's criteria.[7]

> **Known from the prior art.**

Taking into account all the above, we can see that the approaches to patentability assessment of alloys at the RUPTO and the EAPO are constantly changing and improving, but, along with that, it can be stated that the RUPTO's approaches are drifting to the alloy patentability assessment methods used as far back as at the beginning of the 20th century, while the EAPO's approaches are more advanced and loyal to applicants, are generally focused on harmonization with the approaches of the world's leading patent offices such as the EPO, and are aimed at stimulating innovations in this long-established technical field.

5 Michael E. Ignatov and Maria A. Serova in the Russian magazine "Patents and Licenses", No. 1, 2017, pages 58-69.

6 (see page 67).

7 (see the articles of Michael E. Ignatov and Maria A. Serova recently published in the Russian magazine "Patent Attorneys": "Patentability Assessment of Inventions related to 'Composition' Subject-matter", Part I in No. 3, 2018, pages 42-51 and Part II in No. 4, 2018, pages 29-39; "Particulars of Filing and Examination of Divisional Applications for Inventions at the Eurasian Patent Office" No. 1, 2020, pages 48-58; and "Once again about Selection Inventions" No. 2, 2020, pages 34-43).

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