Технічні науки

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SYSTEMATIC IMPLEMENTATION OF INNOVATIONS IN MODERN MEDICINE

Innovations and their systematic implementation in modern conditions of medicine and cosmetology; Methodology of educating innovative motivation according to the system of Marina Savchenko

Summary. *As the practice of the innovation process shows, for a statistically average idea generator and later inventor, much in the successful promotion of his ideas or inventions is determined by the basic training that he received in his time, starting from high school, continued to receive in a higher educational institution and, what is especially important, as it seems to the author of this publication, in special targeted courses for advanced training and new professional orientation that arose in the conditions of the transition of social production to high and digital technologies.*

Of particular importance for the progressive and fruitful development of the innovation process in general and especially the innovation process in the USA is the fact that a multidisciplinary specialist who has knowledge and skills in basic exact disciplines and in the Theory of Inventive Problem Solving and the Algorithm for Solving Inventive Problems must also know the specifics of technical standards and restrictions adopted in the USA in order to successfully adapt them for use in the conditions of each specific project.

Numerous attempts to find a curriculum that would produce a well-rounded technical specialist have encountered many parallel problems.

The Theory of Inventive Problem Solving and the Algorithm for Solving Inventive Problems are the most important complex analytical professional engineering tools for developing projects of any complexity in the innovation process

For successful and effective application of the specified tools, it is necessary, in addition to comprehensive and deep engineering knowledge and skills, to have skills and positive experience in creatively adapting the laws and postulates of the theory and algorithm in a real innovation process.

Key words: *Practice of innovation process, Systemic implementation of innovations, Idea generator, High technologies, Digital technologies, Complex analytical professional tools, Complex analytical engineering tools, Methodology of nurturing innovative motivation, Organization of innovative projects, Development of innovative ecosystem, Development of innovative infrastructure, Theory of solving inventive problems, Algorithm for solving inventive problems.*

Innovations and their systematic implementation in modern conditions of medicine and cosmetology are a very important part of today's smart process of achieving the ideal end result; The method of educating innovative motivation according to the Marina Savchenko system has shown very high results;

Innovation cannot be impersonal;

Behind every innovation there is an author, and very often the personality and talent of the author determine both the nature and the result of the implementation of each innovative idea.

The creative reputation of an author or inventor is the calling card and face of an innovative product or technology.

In our opinion, holding lotteries, the proceeds from which can help finance innovative processes, does not solve and, in principle, cannot solve the problem of the lack of funds for the systematic and consistent development of innovative infrastructure.

All the latest options, techniques and methods of organizing investments are also of little help in targeted systematic work on organizing innovative projects or projects with an innovative focus

One of the basic reasons for this phenomenon is the question of the project's affiliation with the work of one or another inventor; as a rule, investors trust one inventor, even waiting for the appearance of each new invention of this author, and practically do not pay attention to others

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The search in this direction is ongoing and publications about the results of such searches often appear.

Many researchers are primarily turning to the study of genetic characteristics of future generators of innovative ideas and organizers of innovative start-ups; Here is one example:

Scientists have identified hereditary traits that are associated with better electrical conductivity in the brain and improved intelligence test scores. The work has been published ;

The study involved 472 volunteers from Australia, including 85 pairs of genetically identical (identical) twins, 100 pairs of non-identical twins, and their siblings. During the experiment, the volunteers completed IQ tests and underwent magnetic resonance imaging.

Scientists paid attention to the volume of individual brain structures and the features of the conduction of nerve impulses by neurons. Researchers measured the electrical insulation of individual nerve fibers - the higher it is, the faster the neurons conduct signals. The results obtained were compared with the genetic data of the volunteers.

The authors found 24 variants of six genes that were associated with better electrical conductivity in the brain. These variants were single nucleotide polymorphisms (SNPs) - changes in the gene sequence that are one nucleotide in size. In addition to better electrical conductivity, some of the polymorphisms found were also associated with a few points higher IQ test scores .

According to the analysis, the genes in which polymorphisms were found formed a functional network - possession of a successful variant of one of them increased the efficiency of another. In other words, "intelligent" polymorphisms had a synergistic effect.

Previously, these same authors published a paper in which they discovered genetic features that influence the volume of the hippocampus, a brain structure associated with memory and emotions.

The largest companies are investing heavily in artificial intelligence research that is absolutely hopeless today:

An Internet search engine has created an artificial brain that can independently recognize cats, The Times reports. The project could be a major breakthrough in creating machines that can interact with the outside world by recognizing shapes and objects, the author of the article notes.

It turned out that Google's "brain" began to behave in accordance with the habits of many Internet users: it was very interested in pictures of cats. The researchers loaded random images from YouTube into the machine.

By the end of the experiment, Google's brain recognized three-quarters of the 20,000 cat images, the article says.

It also turned out to be sensitive to images of human bodies and faces. "The ability to recognize cats may seem trivial, but for the world of artificial intelligence it has serious implications," the author emphasizes.

Experts cite a paradox that says it's harder to teach machines to do things that are easy for humans (recognizing cats) than to teach them to do things that humans might find difficult (playing chess).

"Google's brain appears to be the first artificial neural network that can recognize objects without human prompting, but it's still a long way from the human brain," the author writes.

"It should be noted that our network is very small compared to the visual cortex of the human brain: it is millions of times larger in the number of neurons and synapses ," the researchers emphasize, that is, our conclusion at the beginning of this paragraph is most likely correct, - this kind of research must be properly prepared and, most importantly, - to successfully conduct this kind of research, a trained working group is needed, perfectly mastering the innovative foundations, namely TRIZ and ARIZ

All studies in any case provide some understanding and indication of the state of the problem in the final version, but it is necessary to note the absence of any effective mechanisms for overcoming them.

Of course, the first thing that comes to mind for a practicing inventor is the time-tested Theory of Inventive Problem Solving and its effective working Algorithms

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For successful and effective application of the specified tools, it is necessary, in addition to comprehensive and deep engineering knowledge and skills, to have skills and positive experience in creatively adapting the laws and postulates of the theory and algorithm in a real innovation process.

Of particular importance for the progressive and fruitful development of the innovation process in general and especially the innovation process in the USA is the fact that a multidisciplinary specialist who has knowledge and skills in basic exact disciplines and in the Theory of Inventive Problem Solving and the Algorithm for Solving Inventive Problems must also know the specifics of technical standards and restrictions adopted in the USA in order to successfully adapt them for use in the conditions of each specific project.

In addition, the level of technology at the time of creation of the Theory of Inventive Problem Solving and the Algorithm for Solving Inventive Problems was completely different and for successful and effective adaptation, a specialist at a high professional level must have an idea of the features of the application of modern methods of digital design, computer imitation and animation, in order to combine during adaptation the most effective techniques and methods of a general nature from the Theory of Inventive Problem Solving and the Algorithm for Solving Inventive Problems and modern integrative methods and complex techniques of computer design

Numerous attempts to find a curriculum that would produce a well-rounded technical specialist have encountered many parallel problems.

The situation changed radically when we became familiar with a clear and proven methodology for forming innovative motivation for a developer specialist, based not on spontaneous ideas and bursts of pseudo-inventiveness, but on a clear, deep understanding of TRIZ and ARIZ and their close relationship with basic scientific criteria, especially in the field of classical physics.

The merit and advantage of the innovative specialist Marina Savchenko, the author of this system of methodological developments, over many modern specialists is that, thanks to her universal and deeply professional education, as well as thanks to her complete understanding and deep skills in applying the Theory of Inventive Problem Solving and the Algorithm for Solving Inventive Problems in eliminating various technical contradictions and problems, she additionally, during her internship and study and work in the USA, perfectly studied the specifics and features of the development of innovative technologies that are characteristic today and found ways and solutions for their adaptation in the learning process with TRIZ and ARIZ

This allowed her, in a relatively short period of internship and work in the USA, to create more than twenty educational - pedagogical and pedagogical-technical fundamental integrative solutions at the level of pioneering inventions, and also to publish more than 10 articles and methodological guidelines after that, in which she publishes professional educational and fine-tuning recommendations for specialists creating new products and technologies for the needs of innovative development in the USA and other countries, especially in the fields of cosmetology;

To begin with, let us return to the information on TRIZ and ARIZ in the modern sense;

Modern TRIZ includes several schools that develop classical TRIZ and add new sections that are absent from the classics.

The deeply developed technical core of TRIZ (techniques, ARIZ, material field analysis) remains practically unchanged, and the activities of modern schools are aimed mainly at rethinking, restructuring and promoting TRIZ, that is, it has more of a philosophical and advertising character than a technical one.

In this regard, modern TRIZ schools are often reproached (both by others and mutually) for sterility and empty talk. TRIZ is actively used in advertising, business, art, early childhood development, and so on, although it was originally designed for technical creativity.

Classical TRIZ is a general technical version. For practical use in technology, it is necessary to have many specialized versions of TRIZ, differing in nomenclature and content of information funds. Some large corporations use elements of TRIZ adapted to their areas of activity. We believe that for use in startups, it is necessary to create a special version of TRIZ, adapted to the process of active commercialization.

Currently, there are no specialized versions of TRIZ for stimulating discoveries in the fields of science (physics, chemistry, biology, etc.).

As a highly skilled innovative specialist, Marina Savchenko critically approached the formulation of the basic logical relationships between immutable physical laws and principles and innovative technical ideas, which are often far from the orderly postulates and dependencies of classical exact and technical disciplines.

The main obstacle in the development of TRIZ is the lack of a methodology for analyzing the initial problem situation, diagnosing and forecasting problems as a source for setting goals for improving socio - technical systems .

The development of a modern methodology – "designing solutions adequate to the Future" – is aimed at overcoming this shortcoming.

Marina Savchenko's methodical educational and practical developments smooth out these problems and allow you to focus your attention and creative energy on the most advantageous direction.

One of the trends in technical progress is the intensification of the struggle for the copyrights of product developers. Therefore, the demand for innovative activities of personnel and, accordingly, for the methodological and software support of these works is growing.

From this point of view, it is necessary to expand the database with a full spectrum of theoretical approaches. Meanwhile, Altshuler's heirs reject any deviations from the position in the original source. They naturally have the right to insist on their interpretation of the name "TRIZ" and at the same time act and appeal to humanitarian environments and aspects, to pedagogy with art and up to memoirs.

The alternative is loyalty to new approaches born of new conditions and realities that have emerged recently, keeping TRIZ afloat as a brand of theoretical developments.

New aspects of modeling the innovation process may, in order to avoid excessive controversy, acquire a new name, especially since TRIZ consists of words known before the birth of G.S. Altshuler.

Currently, the mass transition to computerized methods of developing the technical part of projects leads to the fact that it is very difficult to separate the virtual part of the project from the real design.

According to Marina Savchenko, the most effective mechanism for combining all factors of project development, including digital components, is the regulating and regulatory factor of systemic and compositional learning, when the laws of classical physics and theoretical mechanics are presented in combination with three-dimensional computer modeling and simulation of physical processes.

This methodological system allows, through the use of digital technologies, to teach listeners of all ranks and ages to combine classical and high-tech digital techniques in reasonable proportions and achieve maximum efficiency.

We will try to give examples from today's innovative practice in the field of high technologies

There is no need to dwell specifically on the importance of technologies in the field of computer security.

Next, we will try to show how the combination of classical scientific and heuristic innovative components as a whole forms new effective technologies in this technological field.

Computer security inventions based on electromagnetic resonance and resonance spectroscopy effects

Very often corporate users of computer networks find themselves powerless against hacker attacks

There are many examples that can be given, but it is enough to consider the most acute and dangerous cases for users:

The internal computer network of the lower house of the Japanese parliament has been subject to regular hacker attacks since July 2011.

An anonymous source told a Japanese newspaper that the attackers obtained the passwords to the members of parliament's email accounts using a computer virus. The hackers were believed to have targeted information related to Japan's defense and international relations policies.

It is noted that the first hacked computer received a virus from a server registered in China, but it is not possible to determine who uploaded the virus to this server.

This is far from the first hacker attack on the computers of the lower house of the Japanese parliament. There is no information that the hackers changed or moved any information contained in the parliament's internal network.

The news of a cyberattack on the Japanese parliament's internal network comes a month after the first recorded hacking attack on Japan's defense industry was reported, when the computer network of Mitsubishi was hacked. Heavy Industries Ltd. (MHI), which produces, among other things, ships, missiles and components for nuclear power plants.

But the problem is moving from country to country, and the most developed countries are the first to be hit.

Threats to user data are varied – from viruses that, once on a computer, spread further, to phishing pages that trick you into revealing important information, and, of course, malicious applications.

Modern browsers have built-in protection against a number of threats – in particular, they warn the user about sites that may pose a threat to the computer. According to NSS Labs , the best level of protection in such cases was provided by SmartScreen technology , built into the Internet system Explorer .

the Internet took over the lead. Explorer of new generations, where SmartScreen has been improved. To date, all new versions of the Microsoft browser daily reflected from two to five million attacks on users' computers, which is 5 or more times more than the figures of other browsers

Initially, the main component of SmartScreen was checking the page address for suspicious signs. SmartScreen calculates the reputation of page addresses. This indicator is influenced by many parameters: the address itself, the frequency of visits to the site, the domain, IP addresses and DNS servers that know about the resource. Thanks to the comprehensive check, attackers who are blacklisted will have to spend a lot of money on moving the infrastructure to another location.

Internet Explorer learned to identify phishing, i.e. fake, sites back in version 7. Since then, Microsoft browsers have detected more than 160 million phishing pages. In total, since the release of the Internet Explorer 8 has prevented 1.5 billion malware attacks. Overall, IE now blocks about 90 percent of such threats.

The Remaining 10 Percent of the Internet Explorer "closed" in the latest version, when a new layer of protection appeared in SmartScreen - calculation of the reputation of applications. Such a mechanism is not available in other browsers.

According to Microsoft , every fourteenth downloaded program is malicious. The user simply does not know how to distinguish a good application from a bad one. Internet The latest version of Explorer can, for its part, give advice based on the reputation of the program.

An application's reputation consists of several components. The browser monitors the digital signatures of applications (they are signed by developers) and trusts signed programs more. The site's age also affects the reputation - newly created resources are less trusted than sites from which programs have been downloaded for a long time. Reputation calculation technologies often allow warnings about the potential maliciousness of a program even before the antivirus finds out about them.

Because most app publishers already have a reputation, 90 percent of the time there are no warnings. The browser warns about unknown programs; there is a 25 to 70 percent chance that a user who disobeys the warning will download malware. Fortunately, 95 percent of users follow the recommendation and do not run the suspicious program.

The browser only starts to sound the alarm when the risk is particularly high. According to Microsoft's calculations , the average Internet user The latest version of Explorer encounters this warning only twice a year.

The results of the system implementation speak for themselves. Currently, Microsoft has published a forecast according to which the application reputation

mechanism will prevent over 20 million infections monthly. And this does not include pages blocked by regular SmartScreen .

The efficiency of the system depends on the volume of data it has accumulated. Thus, the longer SmartScreen works , the closer the protection rate is to one hundred percent. Thus, the number of "saved" computers will only grow from month to month.

And yet, it seems to us that the most appropriate way to solve the whole complex of problems related to computer security is to apply the integrative method of identifying optical storage devices using the means and properties inherent in electromagnetic resonance, invented and tested in California.

Briefly about the innovative products offered:

1. The product, based on the application, is a MICRO-SENSOR, INTENDED FOR INTEGRATED INTO THE SPINDLE UNIT OF THE READING AND WRITING DEVICE OF OPTICAL MEMORY; The product is a micro-resonance sensor with a variety of topology options for the arrangement of particularly sensitive nano-sized detectors and with a large variation in the number of said nano-sized detectors; the sensor is installed in the receiving device of the spindle unit of the optical memory drive; the sensor is connected to a software system that identifies the signals received by the detectors and gives the drive a command to start working or blocks the drive in the event of the absence of correct identification of the optical disk installed in the drive; the coordinates of the nano-sized detectors must coincide with the coordinates of the coding nano-sized implants; the characteristic difference of the product:

1.1. High measurement accuracy
1.2. Simplicity of design
1.3. Reliability and durability
1.4. Complete absence of contact with the measured surface
1.5. Possibility of integration into any existing technological scheme of an optical memory module and into modules currently under development, including those for terabyte optical disks;

1.6. The product consists of completely standard elements, which determines its high reliability, low production costs, the possibility of organizing production without special technological equipment; the production of detectors can be carried out on existing technological equipment of semiconductor production;
1.7. Low energy consumption for product operation; several milliwatts of energy are enough to operate the sensor;
1.8. Possibility of control of any configuration of the topology of the arrangement of nanoscale implants;
1.9. Possibility of control of ultra-pure materials and possibility of control and identification of materials differing at the isotopic level;
1.10. The possibility of integration into automatic control systems not necessarily related to optical memory devices - the possibility, thanks to the highest sensitivity, of capturing any signals from ferromagnetic nano-sized powders, even if the amount of these powders does not exceed 100 cubic nanometers;
1.11. Ability to operate autonomously regardless of external interference;

2. A product based on the application - an OPTICAL DISC WITH ENCODING INFORMATION APPLIED USING NANO-IMPLANTS; The product is any version of an optical disk-storage device for digital information, at a certain level of the volume of which and according to a certain topology nano-sized implants are located, each representing a nano-sized capsule made of magnetic material with a shell made of non-magnetic material; to orient the nano-sized capsules, prior to the operation of gluing the halves of the disk, recesses corresponding to the sizes of the nano- sized capsules are made in the body of the disk, into which the nano-sized capsules are rubbed, after which the halves of the disk are glued together using the existing technology; such disks can be used in any optical memory storage device if the recording was made without taking into account the special code; if the recording is made taking into account the code, it is possible to read the information only on a drive with a resonant micro sensor, and the coordinates of the location of the nanoscale implants and nanoscale detectors must match; large corporate clients, thanks to this technology, can have their own drives installed in all computers and their own optical disks, the coordinates of the location of the nanoscale implants in which match the nanoscale detectors of the drives; such an encoding system completely protects the arrays of information of such a client from hacking, theft or other provocative actions;

3. The opportunity to create such a comprehensive innovative technical solution in an extremely short time appeared precisely thanks to the system and methodology, as well as the constant operational retraining of the project participants, which was carried out according to the methodology successfully developed by Marina Savchenko.

Imperfection of legislation and the effectiveness of the innovation process

In continuation of this information, we believe that greater attention to integrative innovative methods of retraining innovative specialists can, of course, in effective combination with other formative factors, further accelerate the development of competitiveness of the world's leading economies.

It seems to us that the methodological integration and innovative methodological developments of Marina Savchenko should play a positive role in this process;

But the technique can also have a positive accelerating effect on the development of fundamental research.

As an example:

For the first time, physicists were able to experimentally confirm the provisions of ergodic theory - a theory that explains the properties of dynamic systems.

Dynamic systems are systems that evolve over time. In a certain type of dynamic system - ergodic - individual molecules move just as "randomly" as the entire system. In other words, successive and averaged measurements of the states of an individual particle give the same result as measurements of the state of the entire system.

Until now, scientists have not been able to obtain experimental evidence of the ergodic theorem, since measuring the parameters of individual particles and their aggregate requires different conditions.

In the first case, it is necessary to work with very diluted solutions (more precisely, emulsions), and the particles must move at a low speed. In the second, on the contrary, it is necessary to use systems with a high concentration of particles moving at high speeds.

The authors of the new work created a system that allows both of these requirements to be met. The experimental particles, the parameters of which were measured by the specialists, were not in a liquid medium, but in a porous material permeated with channels several nanometers in diameter.

The particles studied by the scientists were molecules of a fluorescent dye, and the entire system was immersed in an alcohol solution. Thanks to the bright radiation of the dye, the researchers were able to track individual molecules and determine their position with high accuracy. The researchers determined the parameters of the entire set of molecules using the method of electromagnetic resonance spectroscopy;

As a result, the scientists showed that measurements performed for individual molecules and for the system as a whole give identical results.

Since all of the above studies are aimed at working with emulsions and, to a greater extent, with nano-sized emulsions, the importance of the issue forced inventors to immediately respond to reports of experimental results, resulting in inventions tested in leading laboratories.

Since the authors of this publication are directly related to this, there is every reason to believe that it was the development of the methods, in combination, developed by Marina Savchenko, that made it possible to give an immediate technological response to the positive results of scientific experiments.

Integration of the Inventive Problem Solving Algorithm with Modern Theories of Commercialization

The Theory of Inventive Problem Solving and all its known derivatives Algorithms for solving inventive problems were created in a country and at a time where commercialization of innovative solutions was not given much importance, one can even say that at a certain stage of the creation of the Theory and Algorithm for Solving Inventive Problems, commercialization issues were deliberately ignored in favor of purely technological options for innovative solutions, completely divorced from the real economy and, in most cases, from real life

As a result of such a short-sighted and one-sided organizational model of development of the innovation process that took place at that time, inventors who grew up and were educated on TRIZ and ARIZ turned out to be completely unprepared for the features and methods of competitive struggle in the conditions of a modern society with a free competitive economy.

They are ready and love to invent, but are not ready and do not know how to make money on their inventions in order to receive decent compensation for their talent and creative work.

It is especially important to assess the need to start an innovation process and to understand, or better yet, calculate all possible scenarios for the development of events in the commercialization process.

For this purpose, we find it appropriate to apply a system of evaluation tables in the form of an evaluation sheet consisting of 44 elements for evaluating the criteria and parameters of an emerging innovative idea or initiative.

Elements of the Evaluation Sheet

Each of the 44 elements of the Scorecard analyses a specific aspect of the idea. The Scorecard is provided below; Each element is scored in points:

1. Urgent unsatisfied
need
2. Explainable uniqueness
3. Sustainable differentiation
4. Readiness for immediate action
demonstrations
5. Good competition
6. Bad competition
7. Attractive pricing
policy
8. Clients who have concluded a transaction
for a product that doesn't exist yet
9. Weight of evidence of demand
10. Market outperformance
11. Ambush attack
12. "Hot" market
13. Confidence and fearlessness
14. Compliance with obligations
15. Vitality
16. Passion
17. Management competence
18. Honesty and reliability
19. Ethics of Success
20. Attractiveness to lobbyists
21. Cash
22. Income that covers
costs
23. Advantages of delivery service
24. Availability of resources
25. Leading and dominating
26. Penetration Strategy
to the market
27. Strategy for Overcoming the Chasm
28. Protection of property
29. Partnership Potential
30. Choosing the right location
31. Quality of the backup plan
32. Undeserved advantages
33. Managing Needs
in capital

34. Some cash before
starting a business
35. Visible capital
36. High Potential Value
37. Expected results
38. Taboo
39. Show Stoppers
40. Ostrich syndrome
41. Meeting high altitude birds
flight
42. A vivid, compelling story
43. Connections with the ruling circles
44. The path of least resistance, or easy prey...

We further assume that in the future, with the continuation of the development and testing of Marina Savchenko's methodological developments and their integration into modern versions of TRIZ and ARIZ, the possibility of a qualitative leap in the effectiveness of innovative projects will arise.

List of references, patent and license information:

United States Patent Application **20090245066**
Kind Code **A1**
October 1, 2009

OPTICAL DATA CARRIER, AND METHOD FOR READING/RECORDING DATA THEREIN

Abstract

An optical data carrier is presented. The data carrier comprises: at least one recording layer composed of a material having a fluorescent property variable on occurrence of multi-photon absorption resulting from an optical beam, said recording layer having a thickness for forming a plurality of recording planes therein; at least one non-recording layer formed on at least one of upper and lower surfaces of said recording layer and differing in fluorescent property from said recording layer; and at least one reference layer having a reflecting surface being an interface between the recording layer and the non-recording layer.

United States Patent Application **20080285396**
Kind Code **A1**
November 20, 2008

Method and Apparatus of Formatting a Three Dimensional Optical Information Carrier

Abstract

A method of formatting at least one optical information carrier is provided. The method is aimed at creating a plurality of formatting marks that are to be sequentially addressed when reading recording information in the carrier. The method comprises recording the plurality of formatting marks within the carrier volume in an interleaved order, thereby reducing delays in recording locally adjacent formatting marks thus reducing the entire carrier formatting time.

United States Patent Application **20080182060**
Kind Code **A1**
July 31, 2008

Manufacturing of Multi-Plate For Improved Optical Storage

Abstract

In accordance with the invention a new optical data carrier and methods for its production are provided. The optical data carrier of the invention is characterized in that different plates have different concentrations.

United States Patent Application **20060250934**
Kind Code **A1**
November 9, 2006

Three dimensional optical information carrier and a method of manufacturing thereof

Abstract

A three dimensional optical information carrier is presented. The information carrier comprises formatting marks disposed on the nodes of a three dimensional

lattice formed by the intersection of equiangular spaced radial planes, equidistantly spaced cylindrical spiral tracks and virtual recording planes.

United States Patent Application **20070288947**
Kind Code **A1**
December 13, 2007

SWING ARM OPTICAL DISC DRIVE

Abstract

Disclosed is a swing type optical disc drive. The drive includes a disc rotating on a disc support and a swing arm pivoted at one of its ends and having a distal end communicating with an encoder. The pivot point and a point on distal end define a swing axis of the arm. The disc further includes an optical system mounted on the arm such that the optical axis of the system is parallel with the swing axis and both axes lie in the same plane. A cam actuator imparts a swinging motion to the arm. The swinging motion of the arm positions the plane with the optical axis and the arm axes such that the plane is always tangent to a reading/recording track of the disc.