Abstract: Magnetic system possessing and producing polar and field properties comprising an application of organized ensemble of constituted constructions of magnetic apparatus as means of construction. The magnetic system as an application produces magnetic phenomena and interactions, such as the production of three different interactions and also their related respective three opposites, depending on the distance existing between the magnetic constructions. It is a fully systemized product that can be used as an experimental instrument for exploitation of new designing possibilities in magnetic constructions, containing also a method of manufacturing.
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Magnetic system of three interactions

BACKGROUND OF THE INVENTION

1. Field of the invention.
The present invention relates to a magnetic system, which as an application is comprised by a magnetic apparatus that possesses and produces polar and field properties for exhibiting and interpreting magnetic phenomena and interactions.

2. Description of the Prior Art.
Magnetostatic fields are widely used in industry. These are either used as interactions between bodies that generate these, for the generation of a desired kinetic energy by attraction or repulsion, or for the generation of electric energy, wherein the dynamic lines of the field generate induction such as in motors, generators etc., or as a means for accelerating high-energy particles in cyclotrons, or for diagnosis and therapy by means of medical instruments, and these constitute the foundational base of all kinds of the technology employing the various special aspects of the properties, interactions and phenomena of magnetism.

The interaction in the empty air space between two magnetic bodies is of a single type, either repulsive or attractive, but never seen to be both. This results to the fact that the effect of the field, whether it being homogeneous or heterogeneous, extends from the closest distance between the poles to infinity with impossibility of delimitation. The possibility of delimitation means that the specific attractive or repulsive property of the field may be abruptly stopped according to the preferred design and at the selected point. This means that whereas the field has an increasing intensity (as we approach the poles) one cannot interrupt this specific property of the effect of the attraction or the repulsion abruptly or oppositely, one cannot interrupt the increasing extinguishments of the specific property of the effect of the field (as we progressively separate the poles). As a result, the specific attractive or repulsive property of the effect of the field does extinguish at infinity and cannot abruptly stop at a specific desired distance. These limitations and prohibitions of magnetism in the state of the art do not allow the available technology to design products in a flexible and efficient manner, thus the exploitation of the
magnetic lines of the field is frequently not achieved in its quantitative and qualitative entirety. A
disadvantage of the present state of the art is also that it cannot generate an attractive field
without the physical union and contact between two magnetic bodies. For example, the presently
available technology does not allow a magnetic construction of a train without the contact or
union between wagons and the engine.

SUMMARY OF THE INVENTION

The magnetic system as an application is a complete product which possesses and produces new
technological magnetic features and characteristics and can function and be utilized as a complete prototype laboratory instrument. The magnetic system provides the application, which is realized by the magnetic apparatus producing three interactions and the method serves as a guide for manufacturing in many specific-alternate and not arbitrary ways the invention. The invention is constituted in three main claims:

1) the magnetic system as an application producing three interactions
2) the magnetic apparatus as a mechanism-means of constructing the application
3) the method for manufacturing the application as it is specialized in every
constructional variation of the magnetic apparatus.

The magnetic system as a comprehensive application but also the magnetic apparatus as a particular and specialized device may be used by theoretical and experimental scientists, engineers, chemists, physicists, technicians, professors, teachers, students and all other persons interested in magnetism and its phenomena, so that its feats may be used in the general magnetic technology. The main features of the magnetic apparatus are:
a) depending on the different distance that is created between the positions of two confronted and
parallel magnetic bodies, the following are produced:
1) three different interactions: attractive, repulsive and attractive-repulsive
and the opposite to the above order namely
2) three different interactions: repulsive, attractive and repulsive-attractive
b) possession of specific polar and field properties, where the simultaneous like-unlike and
unlike-like properties of poles are created and introduced according to the fluctuation of the
distance between the magnetic bodies.
A certain plurality of dipolar permanent magnets arranged in specific positions is placed by
gluing on a thin planar surface, thereby forming a magnetic arrangement. Each magnetic
arrangement is perpendicularly supported on a thin, planar, horizontal and non-magnetic base,
thereby making a magnetic body, which is designated as "magnetic construction". This magnetic construction slides in the grooves of a guide and interacts with its respective magnetic construction with which it constitutes a pair. Each pair is designated as a comprehensive constructional type of arrangement for the ease of understanding the description. The motion of the pair of the magnetic constructions on the guide is controlled manually. The guide allows the two magnetic constructions to interact in an attractive or repulsive manner and even to balance unmoving, remaining stable, however, this is always achieved only towards one spatial dimension (forward and backward) so that the faces of the magnetic constructions remain always confronted and parallel to each other. The guide with the two magnetic constructions, which interact thereon constitute the magnetic apparatus, which is the product of the invention. The user of the product moves forward-backwards the confronted magnetic constructions in various ways as desired. Each arrangement of the magnets creates specific technological distributions of the magnetic lines, which in both manners regarding their path through the magnets as magnetic lines and also regarding their distribution in the surrounding air space as dynamic lines determine the geometry of their magnetostatic field. Each magnetic construction by itself has specific technologically applicable magnetic properties, while when this confronts its respective magnetic construction of the pair on the guide it produces further applicable magnetic properties. That is on the guide and by means of the compound properties of the magnetic arrangements three interactions are produced. On the guide the two compound magnetic constructions as a factor of possession and production of the magnetic fields create in the free air in-between them the phenomenon of co-existence of three different fields in one and only distance that varies from their union to infinity. While the visible and experimental maximum distance of interaction of the magnetic constructions is between the local margins of the guide, we use the concept of infinity as the maximized distance of non-interaction, as this is used as a scholarly term in magnetism. Depending on the specific intervening distance, which the user creates in-between the magnetic constructions, the property of their polarity is differentiated, as unlike or like or as unlike-like polarity and the kind of effect of the magnetic field whether it is attractive or repulsive or attractive-repulsive simultaneously. As it is known, the opening and closing fluctuation of the distance in physical magnetism never effects and cannot contribute to the changing of the property of the polarity in-between two confronted magnetic bodies. In the present application the opening and closing fluctuation of the distance becomes the factor that is able to alter the properties of the polarity from unlike to like poles or the opposite. Also in physical magnetism we never meet the case where the poles are unlike-like simultaneously or like-unlike simultaneously, while in the invention this is realized.
In other words, in the state of the art the poles confronted in-between interacting magnetic constructions are only like or only unlike independently of the opening or closing fluctuation of the distance intervening between the poles.

In the operation of the present application the poles in-between interacting magnetic constructions of the invention become like, unlike, like-unlike or unlike-like depending on the opening or closing fluctuation of the distance intervening between the poles.

The main characteristic features are the possession and production of interactions in the technological application of the invention lying in the uniqueness that on the guide there exist three different delimitated phenomena of magnetic interdependence, namely three different multi-planar polarities in-between two magnetic bodies, which create correspondingly three different interactions with also three different fields. All these interdependences are produced in the opening or closing fluctuation of the distance that is regulated within the one and only empty air space when two magnetic constructions become confronted. More analytically:

A) Depending on the position and the distance of the magnetic constructions, their magnetic poles become opposite in the nearer distance producing attractive in effect field and in the further distance become similar (the unlike poles are also named opposite and the like are also named similar. In the present invention these terms are used equally) producing repulsive in effect field, while in the middle distance become similar and opposite simultaneously, because there is the intensity equivalence of the attractive and repulsive forces and occurs a production of unstable balance interaction. The A) case constitutes the independent claim of the magnetic apparatus as the mechanism-means of construction of the application.

B) In the case where we bring two other types of confronted magnetic constructions then depending on the position and the distance of the magnetic constructions, their magnetic poles become similar in the nearer distance producing repulsive in effect field and in the further distance become opposite producing an attractive in effect field, while in the middle distance become opposite and similar simultaneously, because there is the intensity equivalence of the repulsive and attractive forces and occurs a production of stable balance interaction (secured attractive field from a distance). Case B) constitutes the first dependent claim of the magnetic apparatus as
the mechanism-means of construction of the application, followed by further
dependent claims of various types which produce the results of Cases A) and B).

ADVANTAGES OF THE INVENTION

The magnetic system as an application with the magnetic apparatus as mechanism-means of
construction and the method of manufacturing constitute a full and systemized product which
serves in the statement, verification, proofing and technological and scientific study of all these
factors and agents which its technology introduces in the magnetic technology and science as
different additive capabilities of the properties, interactions and phenomena of magnetism. By
means of the above-mentioned capabilities, the invention achieves in various ways to eliminate
the disadvantages of the state of the prior art since in a single empty air space between two
interacting magnetic bodies, which possess fixed and invariably arranged dipole permanent
magnets, the property of polarity as like or unlike alters depending on the distance between them
(it is noted that this is achieved for the first time in magnetism).

Also, in the mentioned disadvantage of the state of the prior art as regards its incapability to
construct a train without contact or union between wagons and engine, the present invention is
able to succeed with electromagnets the magnetic coupling between the wagons and the engine
of a train through the secured attractive field from distance, without the physical contact of the
wagons. In this manner every mechanical union and friction is avoided having as a result
(between many other advantages) greater security quotas. Constructions of this kind, i.e.
attractive interaction from distance are much more useful in robotics and in the assembly lines of
fabricated products. Also, the interactions of the unstable balance as well as the stable balance
(secured attractive interaction from a distance), which are introduced in magnetism for the first
time, may be exploited by the magnetic industry and depending on the design application may
become particularly useful due to the co-existence of the homogeneous and the heterogeneous
field between the magnetic constructions, at the spatial distances where the attractive forces are
equal to the repulsive ones.

By these capabilities, the invention can contribute in eliminating different disadvantages of the
state of the art, since its technology may be successfully incorporated in the generation of
existing and also new technological alternative applications.
BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows the exploitation of the additional polar properties of the loops (8) of a dipole by utilizing the front (3) and the front/rear (4A) bundle of dynamic lines.

FIG. 2 shows the front (3) and the front/rear (4A) bundle of dynamic lines with a front (7) and a rear dipole (9).

FIG. 3 shows the front (3) and the front/rear (4A) bundle of dynamic lines with two marginal forewords (7, 7) and a central rear dipole (9).

FIG. 4 shows on top a plan and on the bottom a section where is viewed the front (3) and the front/rear (4A) bundle of dynamic lines with six marginal front (7) and a central rear dipole (9), that shows the outmost number of loops (8A) that can exist between a rear dipole (9) and six marginal sideways situated front dipoles (7).

FIG. 5 shows on bottom two confronted magnetic arrangements each comprised of two magnets aligned in one row-array and on top two sections A-A and B-B of the arrangements. On bottom shows separate unique interactions of the front - front (3-3) bundles of dynamic lines, when the front/rear bundles of dynamic lines are (4) and their polarity is the same with the rear face-pole (32) of the front (31) dipole (7).

FIG. 6 shows on bottom two confronted magnetic arrangements each comprised of four magnets aligned in two rows-arrays and on top two sections A-A and B-B of the arrangements. On bottom shows separate unique interactions of the front - front (3-3) bundles of dynamic lines, when the front/rear bundles of dynamic lines are (4A) and their polarity is the same with the front face-pole (15A) of the rear dipole (9).

FIG. 7 shows on bottom two confronted magnetic arrangements each comprised of two magnets aligned in one row-array and on top two sections A-A and B-B of the arrangements. On bottom shows separate unique interactions of front - front/rear (3-4) bundles of dynamic lines, when the front/rear bundles of dynamic lines are (4, 6, 5) and their polarity is the same with the rear face-pole (32) of the front (31) dipole (7).

FIG. 8 shows on bottom two confronted magnetic arrangements each comprised of four magnets aligned in two rows-arrays and on top two sections A-A and B-B of the arrangements. On bottom shows separate unique interactions of front - front/rear (3-4A) bundles of dynamic lines, when the front/rear bundles of dynamic lines is (4A) and their polarity is the same with the front face-pole (15A) of the rear dipole (9).

FIG. 9 shows on bottom two confronted magnetic arrangements each comprised of two magnets aligned in one row-array and on top two sections A-A and B-B of the arrangements. On
bottom shows simultaneous, double interactions of the front - front (3-3) and the front - front/rear (3-4) bundles of dynamic lines, when the front/rear bundles of dynamic lines are (4,6,5) and their polarity is the same with the rear face-pole (32) of the front (31) dipole (7).

FIG. 10 shows on bottom two confronted magnetic arrangements each comprised of four magnets aligned in two rows-arrays and on top two sections A-A and B-B of the arrangements. On bottom shows simultaneous, double interactions of the front - front (3-3) and the front - front/rear (3-4) bundles of dynamic lines, when the front/rear bundles of dynamic lines is (4A) and their polarity is the same with the front face-pole (15A) of the rear dipole (9).

FIG. 11 shows a sample of the magnetic arrangement (10) in perspective.

FIG. 12 shows samples of the base (11, 11A) in perspective.

FIG. 13 shows on top perspective view and on the bottom elevation of the sample of the magnetic construction (12).

FIG 14 shows perspective view of the typical right cylindrical dipole permanent magnet (13) that is utilized in all the arrangements of the invention.

FIG. 15 shows a general perspective view of the application (220), the guide (19) with two magnetic constructions (12A, 12B) and freedom of movement of them only foreword-backward (20) with their faces being always parallel and confronted forbidding their movement towards the other two spatial dimensions (21,22).

FIG. 16 shows as magnetic apparatus the First Comprehensive Constructional Type Of Arrangements (FCCTOA) with north (1) like front poles (15, 3) in elevation at the top right part of the Fig., with the section A-A at the left and right underneath sections B-B and C-C that show the front part of the arrangements (10A, 10B). The section D-D that is cutting the elevation is shown on Fig. 18.

FIG. 17 shows the First Comprehensive Constructional Type Of Arrangements (FCCTOA) with north (1) like front poles (15, 3) that are shown also on Fig. 16, but here they are shown separately the two magnetic constructions (12A, 12B) in perspective and underneath are shown again in perspective the two magnetic constructions (12A, 12B) confronted inside the guide (19).

FIG. 18 shows at the top typical delimitated arrangement of the confronted situated dipoles between two arrangements and at the bottom is section D-D from Fig. 16 showing the comprehensive symmetry that is constituted from the combination of the two different arrangements.

FIG. 19 shows at the bottom perspective view and of the magnetic apparatus and on top section A-A, typical, for all referenced symmetries (34) with marginal sideways horizontal and
vertical alignment of the confronted and situated at the front (31) dipoles (13) of the arrangements.

FIG. 20 shows the chosen first comprehensive symmetry (34) of arrangements (10A, 10B) to comprise the symmetry of the square tiling p4m (37).

FIG. 21 shows at the center (10B) and at the top (10A) the two chosen allocated symmetries of arrangement, comprising on the bottom of the page the comprehensive symmetry of arrangements (10A, 10B) so that it constitutes a comprehensive symmetry (34) of the square mesh of plane tiling p4m.

FIG. 22 shows the typical toleration from 0 to 1/3 infiltration of every dipole from the sideways outmost barrier, until the central conceivable line of every confronted situated dipole, so that the tolerance (39) to be equal with 2/3 or even more of the dipole’s radius.

FIG. 23 shows typical manner of gluing of the magnets on a thin plane surface.

FIG. 24 shows typical manner of gluing both poles (15, 32) of the magnets on a thin plane surface.

FIG. 25 shows the magnetic arrangement (10B) ready to be glued on the base (11) or (11A).

FIG. 26 shows the magnetic arrangement (10B) glued on the base (11) comprising with it the magnetic construction (12B).

FIG. 27 shows typical manner of construction of the guide (19).

FIG. 28 shows the typical plan view of the guide (19) and two magnetic constructions on it where there is a division and determination of the free air space between the magnetic constructions in three distances (51, 46 50) and two boundaries (48, 49), where depending on the distance that separates the magnetic constructions, there is a change of the polarity of the arrangements and of their interactions between them.

FIG. 29 shows during the magnetic construction's interaction the occurrence of three typical spatial distances (51, 46, 50) and two boundaries (48, 49), three different polarities and three interactions on the guide (19) when the front poles (15) of the magnets of the arrangements are initially like. The conical representation of the dynamic lines shows in a graphical manner the fluctuation of their intensity without corresponding of course to a real representation of them in space. This pertains also for Fig. 32.

FIG. 30 shows the First Comprehensive Constructional Type Of Arrangements (FCCTOA) with north-south (1-2) unlike front poles (15, 3), in elevation at the top right part with the section A-A at the left and right underneath sections B-B and C-C that show the front part of the arrangements (64A, 64B).
FIG. 31 shows the First Comprehensive Constructional Type Of Arrangements (FCCTOA) with north-south (1-2) unlike front poles (15, 3) that are shown also on Figure 30, but here they are shown again in perspective and also confronted are the two magnetic constructions (66A, 66B) inside the guide (19).

FIG. 32 shows during the magnetic construction's interaction the occurrence of three typical spatial distances (51, 46, 50) and two boundaries (48, 49), three different polarities and three interactions on the guide (19) when the front poles (15) of the magnets of the arrangements are initially unlike. The conical representation of the dynamic lines shows in a graphical manner the fluctuation of their intensity without corresponding of course to a real representation of them in space.

FIG. 33 shows the Second Comprehensive Constructional Type Of Arrangements (SCCTOA) with like (1-1) front poles (15-3), in elevation at the top right part of the Fig., with the section A-A at the left and right underneath sections B-B and C-C that show the front part of the arrangements (78A, 78B).

FIG. 34 shows the Second Comprehensive Constructional Type Of Arrangements (SCCTOA) with like (1-1) front poles (15-3), that are shown also on Fig. 33, but here they are shown again in perspective and also confronted are the two magnetic constructions (76A, 76B) inside the guide (19).

FIG. 35 shows the Second Comprehensive Constructional Type Of Arrangements (SCCTOA) with unlike (1-2) front poles (15, 3), in elevation at the top right part of the Fig., with the section A-A at the left and right underneath sections B-B and C-C that show the front part of the arrangements (81A, 81B).

FIG. 36 shows the Second Comprehensive Constructional Type Of Arrangements (SCCTOA) with unlike (1-2) front poles (15, 3) that are shown also on Fig. 35, but here they are shown again in perspective and also confronted are the two magnetic constructions (80A, 80B) inside the guide (19).

FIG. 37 shows typical delimited arrangement of front (31) and rear dipoles (9) on an arrangement that uses two rows of dipoles.

FIG. 38 shows on top perspective view of magnetic arrangement with two rows-arrays of magnets and on bottom elevation of typical delimited placement for all referred symmetries that constitute magnetic arrangements with two rows of dipoles, front (31) and rear (9) positioned in every arrangement.

FIG. 39 shows the typical toleration from 0 to 1/3 infiltration of every rear dipole (9) from its sideways outmost barrier, until the central conceivable line of every front dipole (31), of
every arrangement that makes use of two rows of front (31) and rear (9) dipoles, so that the
tolerance (39) to be equal with 2/3 or even more of the dipole's radius.

FIG. 40 shows a square mesh of plane tiling p4m (221) with alternating one (222) by one
(223) cells and pairs of geometrical forms that comprise the methodological step that is
embodied in the method of manufacturing the apparatus.

FIG. 41 shows the square mesh of plane tiling p4m and the three, three-dimensional
systems of the standard mesh of the state of the art.

FIG. 42 shows the crystalloid mesh structure of sodium chloride NaCl that has a
resemblance with the application in the distribution of the elements in p4m symmetry.

Herewith are referred for the facility of cross-referencing by the reader often used identical
reference numbers from 1 to 13 for the characterization of common components in the figures:

1 - north pole.
2 - south pole.

3 - front bundle of dynamic lines that is emitted always from the front face-pole (15) on
the front placed (31) dipole (13) in an arrangement.
4 - front/rear bundle of dynamic lines that are emitted from the rear face-pole (32) of a
front placed (31) dipole (13) in an arrangement.
4A - front/rear bundle of dynamic lines that are emitted from the front face-pole (15A) of
a rear placed (9) dipole (13) in an arrangement.

5 - neutral area of the dipole magnet (7) or (13) between its two poles, in regard to the
dynamic lines at the environmental air space.
6 - conceivable surface that cuts vertically every loop (8) of the magnetic lines exactly at
the stage where they form a curvature and leave every polar area (3).
7 - the known to the state of the art typical dipole magnet.
8 - loop of magnetic lines of a dipole magnet (7).
8A - loop of magnetic lines that flows through any front placed dipole (7) and a rear and
marginally in line sideways placed dipole (9).
9 - at the rear placed dipole in every arrangement that makes use of it.

10 - magnetic arrangement as a general term of the invention.
10A - in Fig's 15 and 19 represents typical magnetic arrangement - on the guide (19)
confronting the magnetic arrangement (10B). In Fig's 16, 17, 18 and 19 represents the specific
magnetic arrangement of the first constituted constructional type of arrangements.
1OB - in Fig's 15 and 19 represents typical magnetic arrangement - on the guide (19) confronting the magnetic arrangement (10A). In Fig's 16, 17, 18 and 19 represents the specific magnetic arrangement of the first constituted constructional type of arrangements.

11 - thin planar base where on it is glued every different magnetic arrangement that slides on the guide (19) forward-backwards.

11A - thin planar base as (11) characterized by the fact that the magnetic arrangement that is glued on it is elevated by an additional wedge (11B), which is glued on it at the front part.

11B - additional wedge that is glued on the front part of the base (11A).

12 - magnetic construction as a general term of the invention.

12A - in Fig's 15 and 19 represents typical sliding magnetic construction on the guide (19) confronting the magnetic construction (12B). In Fig's 16, 17, 18 and 19 represents the specific magnetic construction of the first constituted constructional type of arrangements.

12B - in Fig's 15 and 19 represents typical sliding magnetic construction on the guide (19) confronting the magnetic construction (12A). In Fig's 16, 17, 18 and 19 represents the specific magnetic construction of the first constituted constructional type of arrangements.

13 - the specific typical right cylindrical dipole permanent magnet that is used by preference in all the arrangements.

14 - the right and vertical 90° (right angle) position that are placed the dipole magnets (13) in regard to the horizontally theorized surface of the base (11) and (11A) of the magnetic constructions (12) and the guide (19).

15 - face-pole of the front placed (31) dipole (13) in a magnetic arrangement.

15A - face-pole of rear placed (9) dipole (13) in a magnetic arrangement.

16 - radius a of the specific typical right cylindrical dipole magnet (13) that is used by preference in all the arrangements.

The rest of the reference numbers are explained through the description and the drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The magnetic system is an application producing three different interactions and the relevant to it opposites between the empty air space of the manually sliding pair of confronted magnetic constructions that are uni-directionally interacting in a guide.

The above realization is done by the magnetic apparatus with specific polar and field properties that achieves as a means the different magnetic requirements of the application and its necessity
to constitute a comprehensive system. The magnetic apparatus provides the guide, the magnetic constructions and the magnetic arrangements that form each magnetic construction, these being constituted by permanent magnets and at the position where one magnetic construction has a front dipole, the respective opposite arrangement of the magnetic construction of the pair does not have an opposite front dipole but has it on the side either in horizontal or vertical or otherwise diagonal delimitation opposite the first one.

All this is described below in fig's 1 to 10 defining the detailed preferred embodiment that theoretically and as a core technology exploits the dynamic lines of the dipole permanent magnets to form the system. Also, from fig's 11 to 39 is described the detailed preferred embodiment of the magnetic apparatus that as a mechanism-means is called upon to make use of this core technology and realize the application that in all its constructions fulfills all the required variations that the completeness of a system must expose. Furthermore, fig's 40 to 42 describe in detail the method of manufacturing in regard to the symmetries that form the technology of the magnetic apparatus. The method describes the relation that exists between the described symmetries and an infinite square mesh of plane tiling p4m and additionally shows that through this relation of the arrangements with the entity of the mesh p4m, many other embodiments can be manufactured with more or less permanent magnets embodied in the arrangements than the ones already shown. In this case this method provides the opportunity of constructing other embodiments if one chooses different parts of the mesh p4m while keeping all other elements of the technology as is.

Figures 1, 2, 3, and 4 show the exploited constructional typical step of the application realized by the apparatus, which is the core and the common step in all the technology of the invention, and depicts the manner by which the invention exploits and makes useful all the polar properties of the loops of the magnetic lines. Each dipole permanent magnet used in the arrangements, in one or the other way, makes use of this exploited constructional typical step.

Figure 1 shows every specific in magnetic vector and direction part of the loop (8) of a dipole (7), that is constituted by the front bundle of dynamic lines (3), with two poles corresponding to every two loops, which poles regard the North (1) and South (2) of the dipole (7) and also the front/rear bundle of dynamic lines (4), which is in the neutral zone of the magnet (5), where there two other beneficial poles are found to be present, which correspond to each bundle of the loops (8) of the neutral zone (5) and are of opposite polarity from their respective adjacent front poles of the same loop. The term "beneficial pole" is used in the sense that in the interactions of the
arrangements' of the invention this "beneficial pole" functions in the same way and with the same properties as a pole with two loops (8, 8) as shown in figure 1. In every planar conceivable surface (6) that cuts vertically every loop (8) of the magnetic lines, exactly at the points where the magnetic lines curve leave every polar area (3) and are located in the named neutral zone (5) of the magnet, every magnetic line has an opposite vector and direction from what each one had at its neighboring polar area (3). All lines at that planar conceivable surface (6) that cuts there vertically the dynamic lines, are of opposite polarity from the neighboring pole (3) that they belong. We name then, these dynamic lines front/rear bundle of dynamic lines (4) specifically for their recognizable identification. This bundle is also in that area (6) always of opposite polarity than the adjacent pole (3), in which these are also present and differ from this part of the dynamic lines coming from the adjacent polar region (3) and which for their recognizable identification are particularly designated here as front bundle of dynamic lines (3). At the north (1) pole (3) of a dipole (7), which is designated as front bundle of dynamic lines (3), the adjacent front/rear bundle of dynamic lines (4) coming from a perpendicularly considered level (6) jointly from the two adjacent loops (8, 8) of the neutral zone (5) are of south polarity (2, 2) and this as (4, 2) is identical to the south (2) pole (3) of the dipole (7). The same case applies to the south (2) pole (3) of the same dipole (7), which is also designated as front bundle of dynamic lines (3) and the adjacent front/rear bundle of dynamic lines (4), which comes from a vertically considered level (6) jointly from the two adjacent loops (8, 8) of the neutral zone (5) is of north (1, 1) polarity (4, 1) and is identical to the north (1) pole (3) of the dipole (7). Because then of the fact that every dipole (7) has two poles (3, 1 and 3, 2) the invention exploits constructionally the areas (5) of every loop (8, 8) of every dipole (7), utilizing the differentiation that the dynamic lines attain in their magnetic vector and direction in space, when they penetrate in the neutral zone (5) of the magnet (7) so that every dipole (7) has two poles (3, 1 and 3, 2) but every loop (8, 8) of the dipole (7) possesses two more beneficially exploited constructionally-wise polarities (4, 2) and (4, 1).

Figure 2 shows a second case, where due to the nature of magnetism the dynamic lines always select the closest and easiest way or mean to pass through both magnetic materials that are nearby, to close a magnetic loop (8A) as dynamic lines. These corresponding results are achieved by positioning a dipole (9) in marginal adjacent rear position from a front dipole (7), where the front pole of the rear dipole (9) is of the same polarity, meaning north (1) with the rear polarity of the front dipole (7) so, one front bundle of the dynamic lines (8A) of the rear dipole (9), unifies with the bundle of dynamic lines of the loop of the front dipole (7) in this manner is
formed a single and uniform loop of magnetic lines (8A) is formed that penetrates both dipoles (7, 9). If the front bundle of dynamic lines (3) of South polarity (2) is designated as the one coming from the front dipole (7), then the total front bundle of the rear dipole (9) will be designated as front/rear bundle of dynamic lines (4A) of North polarity (1) executing the similar operations as in the first case of figure 1 (4, 1), referred above as one dipole (7) only, with the exception that here in figure 2 the front/rear bundle (4A, 1) is emitted from the front bundle of dynamic lines of the rear positioned dipole (9). The front/rear bundle of dynamic lines (4), is emitted spherically in the three-dimensional space from a cylindrical dipole.

Figure 3 shows the front/rear bundle of dynamic lines (4A, 1) being formed from two front dipoles (7, 7) and one rear dipole (9), where there are two loops (8A, 8A) passing through the two front dipoles (7, 7) and the rear dipole (9). Thus, there are various combinations, wherein loops may be present of the type (8A) passing through two magnetic dipoles. In the case of three front dipoles (7, 7, 7) and a rear dipole (9), three loops (8A, 8A, 8A) etc. will be formed and the maximum number is six loops (8Ax6), between equally sized proper cyclic cylindrical magnetic dipoles, namely when there are six front dipoles (7) in the front and around a rear dipole (9), with p6m symmetry, of hexagonal planar mesh of plane tiling, as shown exemplarily in figure 4. Figure 3 and the above referred as in figure 4 is exemplary, since (4A) may contain two or three or up to six loops (8Ax6), which will depend on the manner that the magnetic dipoles are arranged in the construction of each magnetic arrangement.

The exploitation of all the polar properties produced by the dynamic lines of the loops of the magnetic lines of a dipole, either by the manner of figure 1, or by the manner of figures 2, 3 or 4 constitutes the exploited constructional step of all the arrangements of the invention. In any of the mentioned arrangements, the above-mentioned exploitation of the various cases of figure 1 and of the figures 2, 3 and 4 is used, wherein the front/rear bundle of dynamic lines of figure 1 (4) is exactly similar in operation as the front/rear bundle of dynamic lines (4A) of figures 2, 3 and 4. Their only difference is in the intensity, namely in figures 2, 3 and 4, the (4A) is more powerful in magnetic intensity than that (4) of figure 1. As regards the functions of the interactions, these are similar. An example of the function of the particular interactions is given with the figures 8 and 10, which shows confronted dipoles as arrangements schematically, using the cases of the figures 2, 3 and 4, wherein the bundles of the dynamic lines (4A) comes from rear positioned dipoles (9). As applied in these figures for (4A), the same applies for the case of figure 1 (4), where in this case no rear dipoles (9) are used, but at the area (4) of the loops, the
polarity of which is identical with the rear pole of the dipole, is exploited and these interaction
cases are shown in figures 7 and 9.

Figures 5, 6, 7, 8, 9 and 10 show the interactions of the above-mentioned cases of figures 1, 2
and 3, in the construction of the interacting magnetic constructions located opposite one another.
In the figures 5 and 6, the front bundles of dynamic lines (3) of each dipole (7) interact either
attractively or repulsively with the front bundles of dynamic lines (3) of each opposite dipole (7),
with the figure 5 having for front/rear bundles of dynamic lines the (4) and figure 6 having the
(4A). Also, the front bundles of dynamic lines (3) of each dipole (7) interact either attractively or
repulsively also with the front/rear dynamic lines in figures 7 and 8, with the figure 7 having for
front/rear bundles of dynamic lines the (4) and figure 8 having the (4A).

Figures 9 and 10 show the mutual dual front-front and front-front/rear interaction occurring
simultaneously and in equivalence depending on the distance between the confronted dipoles
(7,9), with the figure 9 having front/rear bundles of dynamic lines the (4) and figure 10 having
the (4A).

Each magnetic arrangement of any design on each magnetic construction operates having
additional beneficial poles in magnetism with multi-planar emission possibilities of north and
south polarity with possibilities of a unique interaction of attractive or repulsive figures 5, 6, 7,
and 8, or simultaneous beneficial interaction between these polarities, figures 9 and 10.

Figure 11 shows the magnetic arrangement (10), and figure 12 shows a planar base (11) or (11A)
which may also have an elevated front base (11B). The magnetic arrangement (10) and the base
(11) constitute a magnetic construction, figure 13 (12), the magnetic arrangement comprised of
right cylindrical dipole permanent magnets (13) and these are arranged always on a vertical
standing 90° orthogonal position (14), in relation to the horizontal theorized plane of the base of
the constructions (11) and of the guide (19) accordingly. Also, the faces-poles of the magnets
(15), which always face the opposite faces-poles of the opposite arrangements, constitute the
north or south pole of each magnet (13). The cylindrical surface (17) constitutes the neutral zone
between the poles.

Figure 19 shows a typical right central cylindrical dipolar permanent magnet (13), which is
preferably used in all the arrangements. The bases of the cylinder constitute the poles (1, 2) of
the cylindrical magnet (13) with radius a (16), while the cylindrical surface (17) constitutes the
neutral zone between the poles (1, 2) with height $h$ (18). The magnets employed by the invention may be of any analogous type and size, as long as a single selected type is for all the arrangements using these and each dipolar magnet (7) to be a right central cylinder (13) or a cylinder of a similar shape and the ratio between $h$ (18) and base diameter $2a$ is preferably equal to $h=4/7(2a)$, without excluding a small deviation which will provide a smaller or larger ratio.

The geometry of the magnetostatic field determined by the geometry of the loops of the magnetic lines is the decisive and critical factor, which is served by the above-mentioned material requirements of the magnet and also of the ratio that is determined. If this geometry of the magnetostatic field that the loops of the magnetic lines have, is served by another form and ratio of magnets, it will cause the same results that the description and claims of the method determine. Each right central cylindrical dipolar magnet (13) of the invention is similar to any other used, in order to apply the claims of the application and its method. The ratio between height $h$ (18) and diameter base $2a$ of every magnet to be equal to $h=4/7(2a)$ and the height to be $h$ (18) 8 mm and the base radius $a$ (16) is 7 mm, so that $2a$ equals 14 mm, the Gauss value for each north or south pole for each magnet is on average 4000 Gauss ± 100 Gauss, the mean flux - (X 10$\mu$Wb) for each north or south pole in each magnet varies between 296 and 308 and the type of the material of each magnet (13) is Nd-Fe-B.

Figure 15 shows general perspective representation of the application (220) constituted by the guide (19) with two sliding magnetic constructions (12A, 12B). When two of the magnetic arrangements (10A, 10B) of the magnetic apparatus are positioned on a flat base (11, 11) constituting a magnetic construction (12A, 12B), respectively and afterwards they become confronted one against the other, with only one freedom of sliding motion (20), due to any manner-guide (19) which will guide these only to one spatial dimension in the interactions (20), blocking the motion to the other two spatial dimensions (21, 22), maintaining their faces always parallel, these magnetic constructions create in the single empty air space (23) and depending on the distance (24) varying from zero distance (25) to the theoretical infinity (26) different properties of similar or opposite poles and interactions. The assembly consisting of the guide (19) and the two magnetic constructions (12A, 12B), with possibility of interaction between them, constitutes the application (product) (220), namely the magnetic system. Subsequently, the construction of the application is determined, by the positioning of the dipoles (13) in each mentioned arrangement but also the operations, the behaviors as well as the interactions of their dynamic lines are determined. Also, it is here explained how these dynamic lines are operating
and modified, depending on the different delimited distance (24) between the magnetic constructions (12A, 12B).

In order to create three different polarities, as regards the like and unlike poles and the three different interactions of the magnetic constructions, figure 15 (12A, 12B) depending on the distance (24) separating the two magnetic constructions, which are herein mentioned as typical also for the subsequent ones, a single manual motion (20) of the magnetic constructions (12A, 12B) should be provided, i.e. the one moving against the other in a single spatial dimension (20) with no possibility of motion in the other two spatial dimensions (21, 22). In the invention, each pair of magnetic constructions which interact between them (12A, 12B) have for each magnetic construction (12A, 12B) the magnetic arrangements (10A, 10B) adhered on a thin planar base (11), which moves on a planar guide (19), which over the length of the interacting path of the magnetic constructions (24) and on its two sides the guide (19) has an elevated obstacle with a tooth projected inwards (27) which create the channel (28), that allows each magnetic construction (12A) to be guided in a single spatial dimension (20), forward-backwards (20), against the other magnetic construction (12B), but blocks their motion to the other two spatial dimensions (21, 22).

When reference is made to the description and drawings, to like or unlike front poles of the two confronted magnetic constructions, which constitute a comprehensive constructional type of arrangements, this reference always determines the initial property of the polarity of the poles in the arrangements, without any interaction of the constructions occurring on the guide. That is, by the phrase "First Comprehensive Constructional Type Of Arrangements (FCCTOA) with like front poles", it is meant that the front poles of each arrangement is either north or south, initially, *when no interaction is present between them*. It is noted, as already mentioned, that whereas the initial front polarities are always present there, and in the interactions themselves, however, these same initial front polarities apply only in a specific spatial range, since the magnetic constructions subsequently change, during the interactions, the property of each initial polarity depending on the distance. The subsequent change of the already present initial property of the interacting polarity, depending on the distance, due to the application technology, is marked by the typical exploited constructional step.

Figures 16 and 17, show the First Comprehensive Constructional Type Of Arrangements (FCCTOA) with like front poles (30), here the north poles are shown as like and the same conditions exist if the poles are south as like poles. In the FCCTOA with like front poles, each
one of the arrangements (10A, 10B) of the pair (30) has one row-array of dipoles (13) but possesses two levels of beneficial and operational polar property (3, 4). The imaginary central axes (40A) passing through the poles (15, 32) are in parallel relation with the plane of the base (11) of the magnetic constructions (12A, 12B) and the guide (19) and also, the cylindrical surface (17), i.e. the neutral zone (5) between the poles (15, 32) is for each magnetic dipole (13) in parallel relation with the plane of the base (11) of the magnetic constructions (12A, 12B) and of the guide (19). Each magnetic construction (12A, 12B) of each pair (30) emits in the empty air space (23) in front, a beneficial front bundle of dynamic lines (3) and an equally beneficial front/rear bundle of dynamic lines (4) having an opposite polarity. The front bundle of dynamic lines (3) is the one that either starts or ends directly from or to the face of each front pole (15), whereas the front/rear bundle of dynamic lines (4) constitutes the part of the loop of the magnet (13), as this is present in the neutral zone (5), i.e. in the empty air space surrounding the sides (17) of the dipole and not the polar surface (15). The front bundle-emission of dynamic lines (3) has as origination point the front face-pole (15) of each frontally positioned (31) dipole (13) of the magnetic arrangements (10A, 10B) and it is necessary, irrespective of the how many magnetic dipoles (13) are used or irrespective of their different arrangement between them, as in all the arrangements of like front poles of the invention, all the poles of the front faces (15) of each frontally positioned dipoles, figures 16 and 17 (3, 1) should be of like polarity. For the FCCTOA with like front poles of figures 16 and 17 (3, 1) the front/rear bundle-emission of dynamic lines (4) has as beneficial polar property the rear face-pole (32) of each front dipole (31) and this occurs because when these dynamic lines (4) interact with the confronted arrangement, the beneficial property of their polarity is identical with the polar property of the rear face-pole (32) of each front dipole (31) and is always opposite to the polarity of the front bundle-emission of dynamic lines (3) of the same arrangement.

The positioning of each front dipole (31) is assembled in a manner so that at the position where one magnetic arrangement (10A) has a front dipole (31), the respective confronted arrangement (10B) of the magnetic construction (12B) of the pair (30) which will operate with that, does not have a confronted front dipole (31) but has it on the side as shown in the upper part of the figure 18 either in horizontal (33A) or vertical (33B) or otherwise diagonal delimitation (33C) confronting the first one. This condition applies for all the described arrangements of the invention.
The pair (30) constitutes the FCCTOA and in figures 16 and 17, all the front poles (15) of the confronted arrangements (10A, 10B) are north (3, 1) and if they were south (3, 2) everything would be the same. In that case there would be two different positionings of the poles of the dipoles (13), however in both cases of like north or like south, the poles are like between confronted arrangements (10A, 10B), wherein apart from the similarity in the construction they provide exactly the same results in all the interactions and effects on the application. Thus, figures 16 and 17 constitute the FCCTOA (30), with like front poles, wherein the arrangement (10A) becomes the first allocated constructional type of arrangement of the FCCTOA of like front poles and the arrangement (10B) becomes the second allocated constructional type of arrangement of the FCCTOA of like front poles. Features and properties of the comprehensive as well as of the allocated types of arrangement of the above is that the arrangements possess one row-array of dipoles (13), but possess two levels of beneficial polar property (3, 4). That is, whereas a type includes the symmetries for location-positioning of the dipoles (13), as these are described at the bottom of figure 18, the type is independent from the symmetries, exactly because the same type is produced with numerous symmetries, as will be described below. Therefore, the already described concept of the type differs explicitly from the concept of symmetry. It is noted that in the description as well as in the claims, it applies that from the first to the second comprehensive constructional type of arrangements, for each numbered type, for example the first one, there are two such associated types, i.e. the like ones the one type and with the same numbering the unlike ones the other type. That means that there are: the first comprehensive constructional type of arrangements of like front poles and also the first comprehensive constructional type of arrangements of unlike front poles and this applies for the second comprehensive constructional types of arrangements. This unified numbering regarding the like and the unlike front poles has been selected as such in the description, since each comprehensive constructional type of arrangements, from the first to the second, apart from the different polar location of the dipoles, has the comprehensive constructional type of arrangements with like front poles and the comprehensive constructional type of arrangements with unlike front poles absolutely identical in the other material constructional elements. While they are absolutely identical in all the other constructional elements, apart from the polarity between them, however with their determined polarity, as like or unlike front poles, they provide opposite properties, interactions and effects and therefore they are individualized between them in the description and the claims.
Figures 18 and 19 show typical delimitated arrangement of the confronted located dipoles between two arrangements and total formation of the symmetry constituted from the summation of the two different arrangements (10A) and (10B).

Figure 18 at bottom shows a section D-D from the figure 16 depicting the formation symmetry of the arrangements, where the arrangement (10A) and the arrangement (10B) are depicted together. The arrangement (10A) constitutes the first allocated arrangement symmetry (34A) and the arrangement (10B) constitutes the second allocated arrangement symmetry (34B). These two arrangements together constitute the formulated arrangement symmetry (34). It is clearly distinguished in this manner that the type differs in regard to the symmetry and that one type may be created and produced in numerous different symmetries. Also, as will be explained below, the opposite applies also, i.e. symmetry may be created and produced in different types of arrangements.

Figure 19 shows at the bottom perspective representation and on top view being typical for all the mentioned symmetries with marginal sideways-lateral location of the opposite located front dipoles of the arrangements. When the magnetic constructions (12A) and (12B) are located on the guide (19), and their magnetic arrangements (10A) and (10B) are one against the other, the front poles (15) of the front dipoles (31) of the magnetic arrangements (10A) and (10B) must be located marginally sideways-lateral either in horizontal (33A) or vertical (33B) or in otherwise diagonal (33C) delimitation one opposite the other (see also figure 18), for any number or combination of poles (15, 13, 31) used, which applies for all the analogous arrangements of the invention, i.e. the marginal final sideways-lateral point of each should coincide to a horizontal (35) or vertical (36) imaginary line, to which the marginal initial sideways-lateral point of the opposite pole (15, 13, 31), belonging to the opposite magnetic construction, also coincides.

Figures 20 and 21 show the selected first formulated symmetry of arrangements (34), which is a symmetry of the normal square mesh p4m (37), which comprises the formulated symmetry that constitutes the constructional pair (30) of the magnetic arrangements (10A, 10B).

Figure 20 depicts the selected first formulated symmetry of arrangements (34), which constitutes symmetry of the normal square mesh p4m (37). The horizontal (35) and vertical lines (36) show the sideways-lateral limits of the opposite located poles-magnets (15, 13) to coincide and to constitute a square mesh (37), with symmetry p4m, and the pole-magnets (15, 13) are marginally enclosed in each empty square cell (38) and constitute as a whole a selected total symmetry of arrangements (34) of the normal square mesh p4m with symmetry (37). Exactly as a selected
formulated symmetry of arrangements (34) of a normal square mesh p4m (37) distributes in alternate manner the double colors between the cells of the mesh, also here is done in the formulated symmetry arrangements (34), and in a typical alternate manner it applies in all the arrangements of the invention. This means that as shown on figure 21 on the top, the magnetic construction (12A), does not have magnetic poles (15, 13) in its empty cells (38). These are located in the central part of fig 21, at the magnetic construction (12B), in the magnetic arrangement (10B). When (10A) and (10B) are confronted, bottom of figure 21, they complete the total formulated symmetry of arrangements (34). A selected comprehensive symmetrical arrangement, as the (34), becomes comprehensive constructional type of arrangements as the already mentioned (30). The vertical and horizontal lines figure 20 (29) are central axes of the cells (38) of the mesh (37) passing through the dipoles at their centers.

In figure 21, it is important to note that the horizontal imaginary central line (40A), which cuts in half each arrangement (10A, 10B) and the vertical imaginary central line (40B) coincide to a single line, when the two arrangements are confronted and thus the total symmetry (34), which constitutes the constructional pair (30), has a horizontal imaginary central line (40A) and a vertical imaginary central line (40B), since the (40A) and (40B) of the individual arrangements coincide to those. As long as each front pole of the figure 21, (15, 13, 31) of each arrangement (10A, 10B) has marginally or in tolerance penetration sideways-laterally, as described immediately below, either in horizontal or in vertical delimitation opposite that, each front pole (15, 13, 31) of the opposite magnetic construction, exactly opposite and not sideways-laterally or diagonally, it confronts the front/rear bundle-emission of the dynamic lines (4) of the loop of the confronted magnetic construction, where, when operating, the beneficial interacting polar property becomes identical to the property of the rear face-pole (32) of each front dipole (31, 13).

Figure 22 shows the tolerance from 0 to 1/3 of the radius a, of penetration of each dipole from its sideways-lateral upper boundary until the central imaginary line of each opposite located dipole. It shows the manner that each confronted front dipole (31) may be introduced laterally through the boundary of the selected imaginary line, to which their confronted lateral boundaries (35, 36) coincide and the manner that the boundary of the one penetrates in the confronted one (35, 36) from 0 to 1/3 of the dimension as regards the lateral boundary of each confronted dipole (15, 13) so that the dimension figure 22 (39) to be equal to 2/3 or more of the radius of the dipole, but never smaller.
The above-mentioned tolerance (39) allows the control of the interaction's intensity allowing its increase or decrease, since from the zero marginal sideways-lateral coincidence to the 1/3 of the radius of the dimension penetrating between them, the intensity of the magnetic force generated from each front bundle of dynamic lines is gradually increased, figures 5, 6, 7, 8, 9 and 10 (3) in its mutual interactions. These include the mutual-dual front-front/rear interactions (4), whether these are attractive or repulsive. The magnetic arrangements may be manufactured either in marginal relation between the opposite located dipoles, figure 19 (35, 36) or with tolerance penetration, figure 22 (39).

Figures 23, 24, 25 and 26 show the constructional steps and the proposed ways for constructing the magnetic arrangements and magnetic constructions, using as example the magnetic arrangement (10B), which constitutes along with the base (11) the magnetic construction (12B). Figure 23 shows the selected symmetry (10B) being constructed. Any thin surface (41), made of balsa or thin fiberglass or from any thin plastic as that of the CD or DVD casings, is selected. Each magnet (13) is attached-glued in the selected position, the face-pole (15) being vertical to the surface (41), which has been placed horizontally on a bench or a mounting plate. The mounting plate is preferred since it is a paramagnetic material and stabilizes due to magnetization the magnetic dipoles in the attachment procedure. Instant glue is employed and preferably each magnet is drawn - in a sliding manner- to the attachment point to avoid the undesired interaction between them. The surface (41) is sawn exactly on the surface (42) with the cylindrical surfaces (17) of the magnets (13) and another rear surface (41), either cut appropriately, or adhered as large surface and subsequently sawn, is also adhered on the rear side, figure 24 (32) of the magnets (13), as long as this is exactly on the face with the cylindrical surfaces (17). When these are adhered and filed-sanded-polished, in order that the surfaces are facing, figure 25 (41) with the cylindrical surfaces (17) of the magnets (13), the magnetic arrangement (10B) is ready as an arrangement. After the instant glue enters the edge of the surfaces (41) and the sides (17) of the magnets (13), which will be glued on the surface, the magnetic arrangement (10B) is also glued flat-face with the base (11) of dimensions 60x52x3 mm which may be made of balsa wood or soft plastic and together they constitute the magnetic construction, figure 26 (12B), where the face of the base (11) and the front part of the magnetic arrangement (10B), i.e. the surface (41) are facing a vertical line. If the base figure 25 (11A) 60x52x3 mm is necessary to be used instead of the base (11), in order to elevate the magnetic arrangement adhered to the base for alternative constructions, wherein (11A) seems to have a
further wedge made of wood or balsa (11B), on the front part, of analogous height in order to bring the confronted magnetic arrangements to the different desired height. The proposed construction of the guide, figure 27 (19) and of the base, figures 24 to 26 (11) or (11A) made of wood or balsa, is exemplary and serves in that it does not provide undesired interferences in the magnetic fields, but also in that the magnetic constructions may be easily and quickly immobilized with a pin which will easily penetrate in the balsa of the base (11) or (11A) and in the wood of the guide (19). Other materials realizing the same conditions may be used such as soft plastic or any other alternative material. Subsequently the magnets (13) with the surfaces (41) may be covered with two-component epoxy glue having a solidification time of 5 minutes, so that this is soon hardened to stabilize the adherence of the magnets (13) with the surfaces (41). The above is typical and applies for all the magnetic arrangements and magnetic constructions of the invention. In the below mentioned arrangements, where further rows-arrays or layers of magnets (13) are present, behind the front ones the same procedure is repeated, wherein the second row of magnets is adhered on the rear surface (41) and again on the rear faces of the magnets of the second row a further surface (41) is adhered, etc. Figures 24, 25 and 26 show two adhered surfaces (41) present on the front and rear faces-poles of the magnets (13). However, a surface (41) is able to form an arrangement, either on the front or on the rear part. Thus, in all the following figures, the application uses only the rear surface (41) to form the arrangements and not the front surface (41), so that the faces-poles of the magnets (13) are exactly aligned with the surface of the base (11) or (11A). In this way, a zero distance between the confronted arrangements is achieved optimally. It is noted that this zero distance (25) is always in one sideways-lateral viewing dimension only, if and when mentioned in the description and the figures, given that the confronted poles of magnets (13) of the arrangements are always laterally confronted and never straight-forward aligned. In the arrangement having rear poles, an additional surface (41) may be adhered on their rear part; however it may also not be adhered. The figures and descriptions do not show an additional adhered surface (41) on the rear part of the rear dipoles to facilitate easy reading of the figures.

Figure 27 shows a typical construction of the guide (19) where in order to construct the already mentioned guide (19) a straight orthogonal plate (43) 275x43x15 mm, made of MDF or any desired plywood with smooth surface is used. On this surface the magnetic constructions (12A, 12B) and any other of the invention may slide, since the guide is typical and common to all the magnetic constructions of all types. On the lateral sides of the plate (43) two equally long angles
are glued, the angles being made of wood or plastic and not of metal, without using nails, creating on both sides of the guide a tooth (27) elevated to the interior of the guide, leaving the desired channel (28) having a height of 3.5 mm on both sides, where in both channels (28) all the magnetic constructions of the invention slide. From the proposed dimensions of the guide and the base, it is apparent that between the base and the guide there is a 0.5 mm air tolerance between them, since the channel is higher than the base by 0.5 mm and the plate of the guide (43) is also larger than the width of the base by 1 mm. This ensures the free sliding of the base on the guide. The proposed construction of the guide, figure 27 (19) and of the base, figures 24 to 26 (11) or (11A), made of wood or balsa, is exemplary and serves in that it does not create interferences to magnetic fields; and also, in that the magnetic construction may be easily immobilized with a pin which will penetrate the balsa of the base (11) or (11A) and the wood of the guide (19). Other materials realizing the same conditions may be used such as soft plastic or any other alternative material.

Figure 28 shows the division and determination of the empty air space between the magnetic construction at three distances and two boundaries which apply both for the like and the unlike front poles. Figure 29 shows the three typical spatial distances, the three multi-plane polarities and the three interactions with properties and with spatial boundaries and interactions based on the bundles of the dynamic lines between the two magnetic constructions, on the guide, when the poles of the front poles of the arrangements are initially like.

Figure 28 shows a typical plan view of the guide and two magnetic constructions, where the empty air space is divided and defined between the magnetic constructions, at three distances and two boundaries. Depending on the distance dividing the magnetic constructions, the polarities of the arrangements' and the interactions between them change. By dividing and defining the empty air space between the magnetic constructions at three distances: 1) nearer (45), (2) middle (46) and 3) further (47) and by defining the boundaries of the middle distance (46) to the nearer distance (45) as middle-nearer boundary (48) and to the further distance (47) to the middle-further boundary (49), the description of the interactions follows beginning from the so-called middle-further interaction, figure 29 (53), which includes the middle distance, figure 28 (46) and further distance (47), and as total this distance is designated as middle-further distance (50) and extends to infinity (26). Subsequently, the nearer-middle interaction, figure 29 (56) that comprises the nearer distance, figure 28 (45) and the middle distance (46) and as total this distance is designated as nearer-middle distance (51). Finally, the middle interaction, figure 29 (75), is described, which includes the middle distance itself, figure 28 (46), which is noted
between the middle-nearer (48) and middle-further boundary (49). In order to make the said
distances in figure 28 and 29 better understood, the magnetic construction (12A) is fixed and the
magnetic construction (12B) is movable. It is apparent that on the application of the guide, the
magnetic arrangements (10A, 10B), by means of the magnetic constructions (12A, 12B)
respectively, are both movable and if desired either one or both of them may be fixed-
immobilized so that the experiments and measurements may be executed in various preferred
ways. Thus, it is noted that the distances and the interactions, as mentioned above, are typical for
all the comprehensive constructional types of the invention that employ these and not only those
described in the above figures and the above-mentioned arrangements.

Each arrangement (10A, 10B), on each magnetic construction (12A, 12B), applying the above-
mentioned features, has the vertical standing dipoles (13) arranged in one row-array only, i.e. the
front faces (15) and the rear faces (32) of the poles are aligned between them, i.e. figures 16 and
17 and 23. Depending on the distance, figure 28 (24) between the interacting magnetic
arrangements (10A, 10B), both the front (15) and the rear polarity (32) of each dipole become
functionally beneficial. Each magnetic arrangement (10A, 10B) has one row-array of dipoles
(13) but possesses two levels of beneficial and functional polar property, i.e. a beneficial front
bundle of dynamic lines, figures 16 and 17 (3,1) and an equally beneficial front/rear bundle of
dynamic lines having an opposite polarity, in the same figures 16 and 17 (4, 2). Thus, when two
matched magnetic constructions that fulfill the above requirements, such as (12A, 12B), are
moved one against the other on the guide (19) by the intervention of the operator, three
interactions occur, due to the polarity exchanges in the empty air space (23), according to the
distance (24), which separates the magnetic arrangements (10A, 10B) present on the magnetic
constructions (12A, 12B), respectively and are the following:

A) When the magnetic constructions, figure 28 (12A, 12B), approach one another on the
guide (19), from a non-interaction distance, which theoretically is infinity (26), the
first interaction created between the confronted dynamic lines is the lateral and
diagonal distance relation found between the front poles, figure 16 and 17 (15, 3) of
each magnetic arrangement (10A, 10B), see also figure 5. Between these and as long
as this relation of sideways-lateral and diagonal distance is the nearer for the
interaction of the dynamic lines (3) and as the constructions approach each other, the
front bundles of dynamic lines, figures 16 and 17 (3, 1) of the front poles (15) of the
arrangements (10A, 10B) continue to interact and this interaction is designated as
mutual-double front-front interaction, figure 29 (52) of the middle-further distance, figure 28 and 29 (50). This becomes typical for all the comprehensive constructional types of arrangements as middle-further interaction, figure 29 (53), of the mutual-double front-front interaction (52), since the confronted front poles (15) are like (55A) with repulsive (54) interaction. Its maximum strength starts from the middle-nearer boundary (48) and extinguishes through the further distance (47) to infinity (26) and this is repulsive (54), since the poles are like (55A) and this interaction does not occur at all (53, 54) from the middle-nearer boundary (48) to the whole of the nearer distance (45).

B) When, however the same magnetic constructions, figure 28 (12A, 12B) are in the nearer-middle distance, figures 28 and 29 (51) their distance ranging from their physical contact to a small distance (24) apart up to the middle-further boundary (49), the nearer distance created between the interacting confronted dynamic lines is the distance between the front poles, figure 16 and 17 (15, 3) of each magnetic arrangement (10A, 10B) and of the confronted front/rear emission bundles of dynamic lines, figure 16 and 17 (4, 2), which are identical to the rear poles (32) of the confronted arrangement. Thus, the front bundles of dynamic lines, figures 16 and 17 (3, 1), interact with each confronted front/rear emission bundle of dynamic lines, figures 16 and 17 (4, 2) of the loop of the confronted magnetic construction which possesses the property of each rear pole (32) and this interaction is designated as mutual-double front-front/rear interaction, figure 29 (55) of the nearer-middle distance (51), see also figure 7. This is always of opposite interaction from the mutual-double front-front interaction (52) of the middle-further distance (50), of the same constructions (12A, 12B) that interact. Its maximum strength starts at the zero distance (25) of the nearer distance of physical contact, figures 28 and 29 (45) of the magnetic construction (12A, 12B) and its extinguishing stops abruptly at the middle-further boundary (49). This is typical for all the comprehensive constructional types of arrangements as nearer-middle interaction (56) of the mutual-double front-front/rear interaction (55), since the poles are unlike (57) with attractive interaction (58) and this interaction is absent from the middle-further boundary (49) until the whole further distance (47) extending to infinity (26), i.e. wherein the above-mentioned repulsive (54) mutual-double front-front interaction (52) of the middle-further distance (50) applies uniquely.
C) When in two confronted magnetic constructions, figure 28 (12A, 12B), the two above-mentioned effects apply, i.e. since the poles are like, figure 29 (55A), in the mutual-double front-front interaction (52) of the middle-further distance (50), causing repulsive interaction (54) of the magnetic constructions, then the poles of the constructions become unlike (57) in the mutual-double front-front/rear interaction (55) of the nearer-middle distance (51), causing attractive interaction (58) of the magnetic constructions. These two different and opposite interactions coexist and are equivalent, where exactly the poles are like and unlike (59) simultaneously and simultaneous repulsive and attractive (60) equivalent interaction (62) is generated, causing an unstable balance (61) of the magnetic constructions, keeping them in full immobility thereof and this interaction is designated as unstable balance (61), due to the particularly small distance range, figure 28 (46), on which the effect is observed, see also figure 9. Furthermore, if the magnetic constructions are slightly displaced from the position of unstable balance, figure 29 (61), i.e. if they penetrate to the nearer distance (45) between them is activated the attractive interaction (58) with subsequent contact thereof, or if they are brought to the further region (47), is activated the repulsive interaction (54). This is typical for all the comprehensive constructional types of arrangements as middle interaction (75) of the unstable balance (61), since the poles are like and unlike (59), simultaneously and at the same time is generated a simultaneous repulsive and attractive equivalent interaction (60).

The repulsive interaction (54) of the middle-further distance (50) with the attractive interaction (58) of the nearer-middle distance (51) are equivalent to the middle interaction (75) of the middle distance (46) of the unstable balance (61). The repulsive (54) middle-further interaction (53) vanishes completely from the middle-nearer boundary (48) until all the nearer distance (45), i.e. to the physical contact of the magnetic constructions and the attractive (58) nearer-middle interaction (56) vanishes completely from the middle-further boundary (49) until the whole further distance (47).

By applying the above, as the operator moves the two confronted magnetic constructions, figure 28 (12A, 12B) with the uni-directional, forward-backwards (20) confronted always sliding possibility, they possess to move in the guide (19) the following three magnetic experimental phenomena and data are obtained:
1) When the operator brings manually from a non-interaction distance anyone of the two magnetic constructions (12A, 12B) near the other, i.e. from the further distance, figures 28 and 29 (47), to the middle-nearer boundary (48) and if left free, the confronted magnetic construction will exhibit repulsive, figure 29 (54), interaction, and move backwards. If the two magnetic constructions are held and the operator brings them slowly closer one-another by hand, he feels the repulsive (54) gradually increasing force, its maximum value being at the middle-nearer boundary, figure 28 and 29 (48).

2) Contrary to the only present observable phenomenon in magnetism, which determines and defines the continuous increase of this repulsive force up to the zero distance between the magnetic constructions, figure 28 and 29 (25), as soon as the force applied by hand, which brings the magnetic constructions closer, exceeds the marginal repulsive force, figure 29 (54), its maximum being at the middle-nearer boundary, figure 28 and 29 (48), the magnetic constructions present strong attraction (58) and are joined by attractive force.

3) If the operator holds the two magnetic constructions, figure 28 (12A, 12B) and brings them to the middle distance, figure 28 and 29 (46), in order to equilibrate the attractive, figure 29 (58) and the repulsive (54) interactions between them, then at the middle distance (46) the magnetic constructions are completely fixed-immobilized, since the attractive and repulsive forces there are equivalent, causing the interaction designated as *unstable balance* (61). Any small shift, even of the one magnetic construction from the position of the middle distance (46), will cause an attraction and subsequent union thereof if displaced to the nearer distance (45), or the repulsive (54) separation thereof, if displaced to the further distance (47).

The measurements of the spatial distances, figure 28 and of the interactions, as these are defined in figure 29, depend on the size of the dipoles used for the execution of the application and on the magnetic force that they possess. The measurements of the distances with the defined materials and elements of the invention are typical, i.e. they apply for the present as well as for the following comprehensive constructional types of arrangements of like front poles, approximately and they range on average as following: the range of the nearer-middle distance, figures 28 and 29 (51) is 7.8 to 8.5 mm. The range of the middle distance (46) is minimal in macroscopic measurement, from 0.1 to 0.4 mm and the range of the middle-further one (50)
begins from the middle-nearer boundary (48), the distance of which from the zero distance (25) is estimated from (51) minus (46) and then this (50), having the range from 7.7 to 8.1 mm from the zero distance (25) extending to infinity (26). Notably, the magnetic constructions begin to repel one another on the guide (19), at an average distance between 31 and 33 mm. In order to bring the magnetic constructions from the distance 31 and 33 mm to the middle-nearer boundary (48), where the repulsive field vanishes abruptly, figure 29 (54, 52), these should be kept by the operator and an external force should be applied thereon so that the magnetic constructions are brought closer. As explained above, as soon as the constructions go past the middle-nearer boundary, figures 28 and 29 (48), entering the nearer distance (45), they are attracted due to the attractive contact interaction, figure 29 (58, 56, 55).

Figures 30 and 31 show a first comprehensive constructional type of arrangements (FCCTOA) of unlike front poles (65), where this is similar to the FCCTOA of like front poles (30), as all the elements of that have already been described above and in all the figures for this type (30). Thus, exactly the same and similar apply for the type described below, except that the front poles are unlike between the confronted magnetic constructions. Therefore, for this type of unlike front poles, the features already described for the type (30) also apply from figures 1 to 28 excluding the figures 16 and 17 and also replacing figure 29 with figure 32. This type of unlike front poles (65) is shown in figures 30 and 31, which are corresponding to the figures 16 and 17, with only difference the unlike front poles between the arrangements.

The FCCTOA of unlike front poles (65) are shown in figures 30 and 31, with the magnetic constructions (66A, 66B) of unlike front poles, wherein in figures 30 and 31 the front poles (15) are north (3,1) for the (64A) and south (3,2) for the (64B). The magnetic arrangements (64A, 64B) form the magnetic constructions (66A, 66B). The front/rear bundles of dynamic lines (4) have an opposite polarity than the front bundles of dynamic lines (3) of the same magnetic arrangement for each case (64A, 64B). Figure 29, which regards the type of like poles (30) do not apply for this type of unlike poles (65), as regards the interactions, but figure 32, which shows all the interactions of the type (65), with the figure 28 applying for both cases, i.e. of (30) and (65). In order to make the mentioned distances in figures 28 and 32 better understood, the magnetic construction figure 32 (66A) is fixed-immobilized and the magnetic construction (66B) is movable. On the application of the guide, the magnetic arrangements (64A, 64B) by means of the magnetic constructions (66A, 66B) respectively, are both movable and if desired either one or both may be immobilized, and the experiments and measurements are executed in various ways. The distances and interactions, as mentioned above, are typical for all the comprehensive
constructional types of arrangements that use these and not only for the arrangements mentioned in the figures and the description.

Figure 32 shows the three typical spatial distances, the three multi-plane polarities and the three interactions with properties and with spatial boundaries and interactions based on the bundle of the dynamic lines between the two magnetic constructions, on the guide, when the poles of the front magnets of the arrangements are initially unlike:

A) When between the magnetic constructions, figure 30 and 31 (66A) and (66B) the mutual-double front-front interaction is occurring, figure 32 (52) of the middle-further distance (50), which starts its maximum strength from the middle-nearer boundary (48) and extinguishes through the further distance (47) to the infinity (26), this is attractive from distance (70) since the poles are unlike (57).

B) When between the magnetic constructions, figures 30 and 31 (66A) and (66B) the mutual-double front-front/rear interaction is occurring, figure 32 (55) of the nearer-middle distance (51) where its maximum strength starts from the zero distance (25) of physical contact of the nearer distance (45) of the magnetic constructions and its extinguishing stops abruptly at the middle-further boundary (49) this is repulsive (71) since the interacting poles are like (55A) and constitutes the nearer-middle interaction (73).

C) When on the two confronted magnetic constructions, figures and 30 and 31 (66A) and (66B) the poles are unlike, figure 32 (57) in the mutual-double front-front interaction (52) of the middle-further distance (50) causing attractive interaction from distance (70) of the magnetic constructions (66A) and (66B), then the poles of the constructions become like (55A) in the mutual-double front-front/rear interaction (55) of the nearer-middle distance (51) causing a repulsive interaction (71) of the magnetic constructions. However, at the middle distance (46) these two different and opposite interactions (70, 71) co-exist and are equivalent and at that point exactly the poles are unlike and like simultaneously (67) and simultaneous attractive and repulsive equivalent interaction (68) is generated. This causes a stable balance (69) of the magnetic bodies (66A) and (66B) with full immobility of the magnetic constructions (66A) and (66B) and this middle interaction (75A) is designated as interaction of
stable balance (69) causing further, apart from the stable balance (69) of the magnetic constructions also the interaction of the attractive secured field from distance (70). This happens because when the one construction withdraws in the guide, it attracts and pulls the confronted construction, having always a distance (23, 24) and never physical contact, due to the repulsive interaction (71) existing at the nearer-middle distance (51).

The attractive interaction from distance, figure 32 (70) of the middle-further distance (50), with the repulsive interaction (71, 73) of the nearer-middle distance (51) are equivalent (68) at the middle interaction (69) of the middle distance (46) of the stable balance (69). The attractive middle-further interaction (72) vanishes from the middle-nearer boundary (48) until all the nearer distance (45) i.e. to the physical contact of the magnetic constructions and the repulsive, figure 32 (71) nearer-middle interaction (73) vanishes from the middle-further boundary (49) to the whole further distance (47).

With the application of the above, as the user moves the two confronted magnetic constructions, figures 30 and 31 (66A) and (66B) with the uni-directional forward-backwards, figure 28 (20), confronted always sliding possibility they possess to move inside the guide (19) there develop the following three experimental magnetic phenomena and facts:

1) When the operator brings anyone of the two magnetic constructions from the non-interaction distance close to each other, i.e. from the further distance (47) to the middle-nearer boundary (48) the confronted magnetic construction, if left free, presents an attractive interaction, figure 32 (70, 72) and moves forwards, i.e. to the confronted magnetic construction since it is attracted by it, to the middle-nearer boundary (48), where the strength of this attractive force (70) is maximum. This means that while there is attraction and the confronted magnetic construction is approaching due to the attractive force (70, 72) however this attraction vanishes abruptly at the middle-nearer boundary (48) leaving an empty air space, figure 28 (23, 24) between the magnetic constructions (66A) and (66B), which is the nearer distance (45) and at that point there is repulsive field, figure 32 (71, 73) between the magnetic constructions. Thus, if the operator pulls backwards, selecting anyone of the magnetic constructions, he simultaneously pulls the confronted magnetic construction, due to the attraction, figure 32 (70, 72) and between them there is a distance and no contact.
On the contrary, with the only present observable effect on magnetism, which defines that with an attractive interaction the magnetic constructions are joined with zero distance between them. Therefore, this specific attractive interaction (70, 72), which does not allow the union of the two magnetic constructions, due to a mediating repulsive (71, 73) field, is also designated as interaction of the attractive secured field from distance (70).

2) At the point where the two magnetic constructions are attracted and remain fixed with empty air space between them, figure 28 (66A) and (66B) stable balance is established, figure 32 (69). Contrary to the unstable balance of figure 29 (61) in the case of figures 16 and 17 of magnetic constructions (12A) and (12B) respectively with like front poles between the arrangements, where effort must be applied to equilibrate the two magnetic constructions, at the stable balance no effort is required since the two magnetic constructions, figure 28 (66A) and (66B) by themselves equilibrate permanently (69) at the middle distance (46) due to the equivalence of the attractive and repulsive forces, figure 32 (68).

3) When the operator brings manually anyone of the two magnetic constructions, figure 28 (66A) and (66B) from the middle distance (46) of stable balance (69) of non-movement, close to the other, the confronted magnetic construction, if left free, presents a repulsive interaction, figure 32 (71, 73) and moves backwards. If the two magnetic constructions are held and the operator brings them closer, he feels a repulsive (71) gradually increasing force, the maximum of which is at the zero distance (25) between the magnetic constructions, figure 28 (66A) and (66B) and of course its extinguishment vanishes abruptly at the middle-further boundary, figure 32 (49). If from the position of non-movement of the stable balance (69) anyone of the two magnetic constructions is displaced, this causes either the attraction and pulling from distance (70) of the confronted magnetic construction, if displaced to the further distance (47) or the repulsive (71) interaction thereof, if displaced to the nearer distance (45).

The measurements of the spatial distances figure 28 and of the interactions, as those defined in figure 32 depend on the size of the dipoles employed for the execution of the application and on the magnetic force that these possess. The measurements of the distances with the defined
materials and elements of the invention are typical, i.e. they apply for the present as well as for the subsequent comprehensive constructional types of arrangements of unlike front poles and on average they vary as follows: on average, the width-range of the nearer-middle distance, figures 28 and 32 (51), is 7.8 to 8.5 mm. The width-range of the middle distance (46) of the stable balance, figure 32 (69, 68) is wider in macroscopic measurement than that of the unstable balance, figure 29 (61, 60), from 0.1 to 2.8 mm and the width-range of the middle-further one, figures 28 and 32 (50), begins from the middle-nearer boundary (48), the distance of which from zero distance (25) is evaluated from (51) minus (46) and then this (50) is extended to infinity (26). It is also noted that the magnetic constructions pull one another on the guide (19), while as it is explained above, in between them the distance of the nearer distance exists, figure 32 (45), where the repulsive interaction (71, 73, 55) is applied.

Figures 33 and 34 show the second comprehensive constructional type of arrangements (SCCTOA) with like front poles (77), which is based on all the features given in the description and the drawings on the first comprehensive constructional type of arrangement of figures 16 and 17, and in comparison with it the featured (77) here is characterized in that each magnetic construction (76A, 76B) of each pair (77) emits in the empty air space in front of it (23) a beneficial front north bundle of dynamic lines (15, 31, 3,1) and an equally beneficial front/rear south bundle of dynamic lines (15A, 9, 4A, 2) of opposite polarity, which however contrary to the first comprehensive constructional type of arrangements of figures 16 and 17 is emitted from the front face-pole (15A) of the rear positioned magnets (9) of the two magnetic constructions (76A) and (76B). Since, as shown from the first comprehensive constructional type of arrangements (30) of the figures 16 and 17, which show north like poles, the results of the construction are exactly the same as if south like poles are used, due to the nature of magnetism and since it is known to the skilled in the art, the term "like" poles encompasses both the confronted north and the confronted south poles. In the following, two figures with front like poles will be shown, as north on all arrangements as an example of like front poles, which encompass also the case of south like poles. The same applies for the subsequently described comprehensive constructional types of arrangements which will use unlike front poles, i.e. two figures including both cases are used, wherein the magnetic arrangements have two different locations of unlike front poles.

The front bundle of dynamic lines, figures 33 and 34 (3) is the one that either starts or ends directly from or to the face (15) of each front pole (13), while the front/rear bundle of dynamic lines (4A) has as polar emission the front face-pole (15A) of each rear positioned magnet (9, 13),
on each magnetic construction (76A, 76B), which of course is positioned laterally and behind from each front dipole (31, 13) of each arrangement (78A, 78B) and it is always the polarity of the face of the rear dipole (9, 13) that emits the dynamic lines in front of the magnetic construction in the empty air space, similar to the rear pole (32) of every front dipole (31, 13) of the same arrangement and is always opposite to the front polarity (15, 3) of each front dipole (31) of the same arrangement. All the front faces-poles (15A, 4A) of the rear positioned dipoles (9, 13), independently from the quantity or arrangement they have between them, always possess the same polarity, i.e. this is always similar to the rear polarity (32) of each front dipole (31), of the same arrangement and is always opposite to the front polarity (15, 3) of each front dipole (31), of the same arrangement.

Figures 37 and 38 show typical delimited location-positioning of the front (31) and the rear dipoles (9) on an arrangement with two rows-arrays of dipoles and figure 39 shows a penetration tolerance of the rear dipoles (9) in relation to the front dipoles (31) of the arrangement.

The location of the rear dipoles (9), in relation to the front dipoles (31) on a magnetic arrangement (78A) or (78B), is similar to the location of the front confronted dipoles (31) between two arrangements, as mentioned for the first comprehensive constructional type of arrangements (30), in figures 19, 20 and 21 including the penetration tolerance (39) of figure 22. This relation is shown on the new figures 37, 38 and 39, noting their similarity to the figures concerning the first comprehensive constructional type of arrangements (30), i.e. figures 19, 20, 21 and 22.

In figure 21 it is important to note that the horizontal imaginary central line (40A), which intersects exactly in half each arrangement (78A, 78B) and the vertical imaginary central line (40B) coincide one another in a single line, when the two arrangements are confronted and the total symmetry (34), namely the constructional pair (77) has a horizontal imaginary central line (40A) and a vertical imaginary central line (40B), since thereon the (40A) and (40B) of the individual arrangements coincide. Also, in figure 21, only the front poles (15, 13, and 31) of the front dipoles are shown and in the location of the cells with bundle (4) of figure 21, in the above case of two rows-arrays of (78B) there is in that location a rear dipole with a bundle (4A). Figure 38 shows in detail this variation of figure 21.

The location of each rear dipole (9), as lateral horizontal one, figure 37 (33A) or vertical one (33B) or otherwise diagonal one (33C) and behind each front dipole (31) of each arrangement is exactly opposite to the physical existence of the front dipole (15, 3, 31) of the confronted arrangement i.e. exactly confronted to the loop of the front bundle of dynamic lines (3) which
have as emission origin each front face-pole (15) of each frontally located magnet (31, 13) and the loop (3) is able to interact with the front/rear bundle of dynamic lines (4A). If the imaginary line, figure 38 (35, 36) coincides with the final lateral boundary of each front dipole (3, 31) of the arrangement (78B), then this also coincides with the initial lateral boundary of each rear laterally located magnet (4A, 9) on the same arrangement. The similar applies on the arrangement (78A).

Figure 39 gives a view of the magnetic construction (76B), which has the magnetic arrangement (78B), and shows a tolerance (39) in which each rear dipole (9) may enter laterally, through the boundary of the imaginary line (35, 36) and its boundary may penetrate in the boundary of the front dipole from 0 to 1/3 of the dimension regarding the lateral upper boundary (35, 36) of each dipole (9,31), to the central imaginary line (40), which intersects in half each dipole (9, 31), so that the dimension (39) is equal to 2/3 or more of the dipole radius, but it is never smaller. The same apply for the magnetic construction (76A), which has the magnetic arrangement (78A).

The above-mentioned tolerance (39) allows a control on the intensity of the interaction by increasing or decreasing it, since from the marginal zero boundary lateral coincidence, figure 38 (35, 36) and up to the 1/3 of their penetrating dimension, figure 39 (39) the intensity of the magnetic force generated by each front/rear bundle of dynamic lines (15A, 4A) when interacting attractively or repulsively is incrementally increased. The magnetic arrangements may be constructed either by marginal boundary placement between the rear and front dipoles or by tolerance penetration, figure 39, which may range from zero boundary to 1/3 of the dipole radius.

As long as each north front pole (15, 31, 3, 1) of each arrangement, figures 33 and 34 (78A, 78B) has marginally, figure 38 (35, 36) or in tolerance penetration, figure 39 (39) laterally, or in horizontal,' figure 37 (33A) or vertical (33B) or otherwise diagonally (33C) delimitated, oppositely confronted each north front pole (15, 31, 3, 1) of the confronted magnetic construction exactly opposite to each front pole and not laterally or diagonally, each front pole confronts the south front/rear bundle/emission of the dynamic lines, figures 33 and 34 (15A, 9, 4A, 2) of the confronted magnetic construction, the polar origin of which is the front face-pole (15A) of each rear positioned dipole (9, 13) in the magnetic construction.

Each magnetic arrangement, figures 33 and 34 (78A, 78B), on each magnetic construction (76A, 76B) has the vertical standing dipoles (13) arranged in two rows-arrays, i.e. the front dipoles (13, 31) are aligned between them and also the rear dipoles (9, 13) are aligned between them and their front poles (15A) coincide with the rear poles (32) of the front dipoles (31). Depending on the distance (24) mediating between the interacting magnetic arrangements (78A, 78B) the front bundle of dynamic lines becomes functionally beneficial, figure 6 (15, 3) from the front dipoles
(31) and the front/rear bundle of dynamic lines figure 8 (4A) from the rear located dipoles (9). Each magnetic arrangement, figures 33 and 34 (78A, 78B) has two rows-arrays of dipoles front and rear (31, 9) and also has two levels of beneficial and operational polar property, i.e. a beneficial front bundle of dynamic lines (15, 3, 1) from the front dipoles (31) and an equally beneficial front/rear bundle of dynamic lines (15A, 4A, 2) of opposite polarity from the front poles (15A) of the rear dipoles (9).

As regards now the spatial distances of figure 28 and the interactions of figure 29, whatever applies for the FCCTOA of the pair (30) figures 16 and 17, also applies for the SCCTOA of the pair (77) of figures 33 and 34. Also, whatever regards the distances of figure 28 and the various interactions of figure 29 they apply, with the only exception that when the magnetic constructions, figures 33 and 34 (76A, 76B) are in the nearer-middle distance, figure 28 and 29 (51) in-between them distance, which may range from the physical contact (25) to the nearer-further boundary, figure 28 and 29 (49), the smallest distance created between the interacting confronted dynamic lines, figure 8 (3, 4A) and this is the distance between the front poles, figures 33 and 34 (15, 31, 3) see also figure 8 (3), of each magnetic arrangement and of the front-rear poles, figures 33 and 34 (15A, 9, 4A) see also figure 8 (4A), which belong to each rear dipole (9, 13) of the confronted arrangement. Thus, the front bundles of dynamic lines, figure 8 (3) interact with each opposite front/rear bundle-emission of dynamic lines, figure 8 (4A) of the front/rear face-pole, figures 33 and 34 (15A) of each rear positioned dipole (9, 13) of the confronted magnetic construction and this interaction is designated as mutual-double front-front/rear interaction, figure 29 (55) of the nearer-middle distance, figure 28 and 29 (51). This is the nearer-middle interaction, figure 29 (56) and is attractive by contact (58), since the interacting poles are unlike (57). All other elements are similar -as regards the spatial distances and the interactions between the pair (30) of the figures 16 and 17 and the pair (77) of the figures 33 and 34 and the only exception is that the front/rear bundle of dynamic lines in the first case of the pair (30) is the (4), whereas in the second case of the pair (77) is the (4A). Consequently are applied figures 6, 8 and 10, instead of the figures 5, 7 and 9. All other elements and features of the above SCCTOA, figures 33 and 34 (77) are absolutely similar to those of the FCCTOA of figures 16 and 17 (30). They apply as typical and similar as regards the spatial dimensions and interactions, as well as the common elements used either for the second or of the first comprehensive constructional type of arrangements. In other words, as with the above example, the front/rear bundle of dynamic lines as (4) existing in the arrangements (10A, 10B) of the pair (30) is similar as regards the behavior to the front/rear bundle of dynamic lines as (4A), which exists in the arrangements (78A, 78B) of the pair (77) there is no other reference and distinction
between them, apart from making the distinction in the arrangements that follow as to whether they use (4) or (4A) in their construction. For the spatial distances and all the interactions, figures 28 and 29 apply, which also apply for the FCCTOA of like front poles (30).

Figures 35 and 36 show the SCCTOA of unlike front poles (79). Each magnetic arrangement (81A, 81B), on each magnetic construction (80A, 80B) has the vertical standing dipoles (13) arranged in two rows-arrays, i.e. the front dipoles (13,31) are aligned between them and also the rear dipoles (9, 13) are aligned between them and their front poles (15A) coincide with the rear poles (32) of the front dipoles (31). The magnetic construction (80A) has the magnetic arrangement (81A) having as south (3, 2) poles the front poles (15, 31) and the magnetic construction (80B) with the magnetic arrangement (81B) with north (3, 1) front poles and the faces-poles (15A) of the rear dipoles (9, 13) have an opposite polarity than the front polarities of each arrangement (81A, 81B). Figures 35 and 36 show the SCCTOA with unlike front poles, which is based on all the elements and features given in the description and the drawings regarding the SCCTOA of like front poles of figures 33 and 34, pair (77). Any constructional feature that applies for the (77) of the figures 33 and 34, including the references to (30), also applies for (79) of the figures 33 and 34 except the figure 29, namely the interactions. In other words, for the (79) of the figures 35 and 36, the figure 28 applies for the spatial distances, as it also applies for the (77), however figure 32 applies as regards the interactions for unlike front poles, as it applies for the pair (65) of the figures 30 and 31 of the FCCTOA of unlike front poles. As already mentioned, the SCCTOA of unlike front poles (79) covers both combinations of unlike poles, i.e. it covers the case in which the magnetic construction (80A) has the magnetic arrangement (81A) with north (3, 1) and the magnetic construction (80B) with the magnetic arrangement (81B) has the front poles (15, 31) as south poles (3, 2).

METHOD FOR MANUFACTURING THE APPARATUS

As described above the magnetic system as it is comprised from the magnetic apparatus employs a pair of magnetic arrangements comprised of vertical standing dipole permanent magnets positioned each on a planar base to constitute manually uni-directionally guided confronted magnetic constructions sliding in a guide.

The magnetic arrangements that form each magnetic construction are constituted by permanent magnets and at the position where one magnetic construction has a front dipole, the respective confronted arrangement of the magnetic construction of the pair does not have a confronted front
dipole but has it on the side either in horizontal or vertical or otherwise diagonal delimitation confronting the first one. These magnets as explained already in the description form in the magnetic arrangements themselves, specific symmetries. The method includes all these in its scope so that the complete comprehensive symmetry that includes both symmetries of the pair of magnetic constructions is considered as a symmetry that is a specific part of an infinite square mesh of plane tiling p4m. Figures 40 to 42 describe in detail the method of manufacturing in regard to the symmetries that form the technology of the magnetic apparatus. Also, the method describes the relation that exists between the described symmetries and an infinite square mesh of plane tiling p4m and additionally shows that through this relation of the arrangements with the entity of the mesh p4m, many other embodiments can be manufactured with more or less permanent magnets included in the arrangements, than the ones described here. In this case, the method provides future designs of embodiments if one chooses different parts of the mesh p4m while keeping all other elements of the technology as is.

Figures 40 to 42 show the method employed for manufacturing the product realized by the apparatus from various symmetries of dipoles, wherein the figure 40 is the first scheme described by the independent claim of the method. Figure 40 shows a square mesh of plane tiling p4m with alternating one-to-one cells and geometrical forms constituting the manufacturing method of the apparatus. Figure 41 shows the square mesh of plane tiling p4m and the three systems of three-dimensional regular mesh of the state of the art.

Figures 40 and 41 show a square mesh of plane tiling p4m (221) which has its shaded cells of figure 40 (222) corresponding to the front poles (15, 3) of the dipoles (13) of the arrangements and the empty cells (223) corresponding either to front/rear bundles of dynamic lines, figure 1 (4) either on the front poles of rear dipoles, figure 2 and 3 (15A, 4A). The square mesh of plane tiling p4m figures 40 and 41 (221) determines the symmetries of the three-dimensional crystalline structure of the cubic or isometric system, figures 41 and 42 (224), and also of the square system, figure 41 (230) and of the orthorhombic system, figure 41 (231). There is a relation one-to-one between the front and rear cells as shown in figure 40 between them (222) and (223). Figure 42 shows the crystalline structure of sodium chloride NaCl (225) with 3x3x3 sodium and chloride ions, with representations as spheres in a three-dimensional crystalline grid in figure 42 (226), with 4x4x4 as spheres (227), with 5x5x5 as spheres (228) and with 7x7x7 as spheres in (229). In the application, the spheres represent the dipoles. As the 3x3x3 crystalline grid of the sodium chloride NaCl (226) is created with a repeated periodical pattern in (227), (228) and (229), thereby constituting an open system of a single cubic system, figures 41 and 42
(224), the application can be manufactured in the same way. An example is figure 40 (232A) and (232B) that also represents the crystalline structure-grid of the sodium chloride NaCl, figure 42 (226), as well as the constructional structure of all the comprehensive constructional type of the arrangements of the application from the first the second, figures 16, 17, 30, 31 and 33, 34, 35 and 36. Notably, the above figures with the symmetry of arrangements, figure 18 (34) consisting of the first allocated arrangement symmetry figure 18 (34A) and the second allocated arrangement symmetry figure 18 (34B) is exactly similar to the spatial crystalline structure-grid of the sodium chloride NaCl, figure 42 (226), as defined by the axes (233), (234) and (235) and as this is determined also by the square mesh of plane tiling p4m figures 40 and 41 (221) with the surface axes (233) and (234) and specially selected as shown in figure 40 (232A) and (232B).

As it is discussed in the description of the comprehensive constructional types of arrangements of the application, each arrangement of the application from the cubic system, figures 41 and 42 (224), may be produced in square system, figure 41 (230) and in orthorhombic system, figure 41 (231). As a square system, this is produced with additional arrangements introduced and operating as symmetries with a non-limiting number and also, as orthorhombic system it is also produced if unequal quantities of horizontal and vertical dipoles are selected in the symmetry as this it is determined by the square mesh of plane tiling p4m, figure 40 (221). Thus figure 40 shows apart from the symmetry (232A) and (232B) used by the application as figure 18 (34A) and (34B) the symmetries of the pair (236A) and (236B) until the symmetry of the pair (246A) and (246B), which show the various possibilities of manufacturing the application as dipole symmetries which constitute the arrangements, and this constitutes the methodological inventive step of the invention. Each comprehensive symmetry in the described method consists of the first allocated arrangement symmetry, which has the (A) and the second allocated arrangement symmetry which has the (B) after the numbering. This categorization serves to relate (A) of the first allocated arrangement symmetry to the (A) that is already used in the application for the first allocated constructional type of arrangement as is the (10A) of the figures 16 and 17 and respectively the (B) of the second allocated arrangement symmetry to the (B) already used in the application for the second allocated constructional type of arrangement, as is the (10B) of figures 16 and 17, without this being limitative.

If the symmetry selected has any number of dipoles on the horizontal axis figure 40 (233), exactly laterally the same number is selected and the same applies for the vertical axis (234) and immediately the opposite symmetries are constituted, which operate as a pair. The symmetries, figure 40 with total number of even order, is exactly similar, thus when they are confronted the front dipoles (222) do not coincide with the confronted front dipoles (222) of the other
arrangement. The symmetries, figure 40 with comprehensive number of odd order, on the contrary have a one-to-one relation, so that each one of the pair already has a front dipole (222), at the point where the other one has a rear dipole (223). The symmetries of the arrangements may have dipoles in unequal numbers, thus all the symmetries of the figure 40 may be rearranged between them, as long as they fulfill the specifications of the application. An example is that the (232A) may create a pair with the (238B) or the (237B) may create a pair with (239A), etc.

CONCLUSIONS, RAMIFICATIONS AND SCOPE

The present invention, introduces three different polarities and interactions that are generated between two magnetic bodies, depending on the spatial distance between them. The three different polarities and interactions have two main features:

a) The polarities of like, unlike, like-unlike and unlike-like develop and create according to the fluctuating distance for the first time in magnetism. Up to now, the distance between two magnetic bodies gives always one and only polarity.

b) The polarities of like-unlike and unlike-like are created from the equivalence of the two opposing fields, repulsive and attractive simultaneously, in the in-between distance of two magnetic bodies. These new in magnetism polarities provide two different manners of a co-existence of a homogeneous and a heterogeneous field.

The application provides the essential factors, such as the specific positioning of the confronted magnetic dipoles with further exploitable polarities of the magnetic loops beyond the two known polarities so that they become beneficial to be utilized. This constitutes the magnetic technology of the invention useful as a product, which is also subjected to various possible alternative constructional designs, that however, these would not alter the reasons and effects of the specific technology of the invention or of the constructional or methodological step. After all, the exemplary embodiments described in the claims are for the description and construction of the product itself, without being limiting as regards the alternative applications of the magnetic constructional or methodological step. Other embodiments of the arrangements may be successfully applied, without deviating from the technical reasons and causes and results of the invention.
CLAIMS

1. A magnetic system possesses and produces polar and field properties, the magnetic system comprising:
   an application producing three different interactions in-between the fluctuating empty air space of the manually sliding pair of confronted magnetic constructions that are uni-directionally interacting on a guide;

   a magnetic apparatus that achieves as a means of construction, the three different interactions of the application, comprised by the guide, the magnetic constructions with their magnetic arrangements, which are constituted by permanent magnets and at the position where one magnetic arrangement has a front dipole, the respective confronted arrangement of the magnetic construction of the pair, operating with that, does not have a confronted front dipole but has it on the side either in horizontal or vertical or otherwise diagonal delimitation confronting the first one;

   the steps of different cases of the magnetic apparatus that utilize like or unlike front poles in the confronted magnetic arrangements and produce the complete magnetic possibilities of the three different interactions and also their related respective three opposites that occur in-between the sliding confronted magnetic constructions.

2. A magnetic apparatus with polar and field properties produces as a means the application, the magnetic apparatus comprising:
   a pair of magnetic arrangements constituted of vertical standing dipole permanent magnets positioned each on a planar base that form manually uni-directionally interacting confronted magnetic constructions that slide on the guide, wherein;

   the confronted front poles of the arrangements are like between them; and

   the magnetic arrangements that form each magnetic construction are constituted by permanent magnets and at the position where one magnetic arrangement has a front dipole, the respective confronted arrangement of the magnetic construction of the pair operating with that, does not have a confronted front dipole but has it on the side either in horizontal or vertical or otherwise diagonal delimitation confronting the first one; and

   for each one of the two arrangements one row-array of vertical standing dipole permanent magnets in regard to the outer shape of the dipole as it is related to the level of the planar base, these permanent magnets possessing two exploitable polar properties, one front bundle of dynamic lines emitted from the front pole of the magnets and an opposite
polarity in regard to the first, which is the exploitable front/rear bundle of dynamic lines emitted from the rear pole of the magnets;

the segmentation and identification of the dynamic lines' vector and direction at the specific boundary of the dipoles' loop, dividing the loop itself in two polar properties, one as a front bundle of dynamic lines emitted from the front pole of the dipole magnet and a second as a front/rear bundle of dynamic lines emitted from the rear pole of each dipole magnet, both polarities fully utilized by the magnetic arrangements;

the interactions of the dynamic lines as effected by the exploitation of the polarities of their loops by the arrangements where the front bundles of dynamic lines of each dipole interact with the front bundles of dynamic lines of each opposite located dipole at the middle-further distance and as these front are also effected in the interactions with the front/rear dynamic lines, when the magnetic constructions approach each other at the nearer-middle distance with the above two interactions occurring simultaneously in equivalence at the middle distance;

the positioning of the confronted front dipoles of the arrangements in marginal adjacent relation with possible penetration tolerance of each dipole from its lateral boundary until the vertical conceivable line of each confronted located dipole wherein the dimensions' tolerance is equal to 2/3 or more of the radius of the dipole;

the specific part of symmetry of arrangements, which is a selected part of an infinite square mesh of symmetry p4m forming the comprehensive symmetry in which the permanent magnets of the combined pair of arrangements are arranged;

the three different polar properties that are created between the magnetic constructions of like, unlike and like-unlike poles, depending on the fluctuation of the distance between the arrangements;

the three different spatial distances that are created between the magnetic constructions that define the spatial range limits of their occurring different interactions, namely the middle-further distance, the nearer-middle distance and the middle distance;

the three different interactions between the magnetic constructions, the repulsive one at the middle-further distance, the attractive one by contact at the nearer-middle distance and the repulsive-attractive one at the middle distance.

3. A magnetic apparatus with polar and field properties according to claim 2,

wherein:

the confronted front poles of the arrangements are unlike between them;
the three different polar properties that are created between the magnetic constructions of unlike, like and unlike-like poles, depending on the fluctuation of the distance between the arrangements;

the three different interactions between the magnetic constructions, the attractive one from distance at the middle-further distance, the repulsive one at the nearer-middle distance and the attractive-repulsive one at the middle distance.

4. A magnetic apparatus with polar and field properties according to claim 2, further comprising: an extra row-array of dipoles for each magnetic arrangement completing a two row-array for each arrangement that is realized by the positioning of a dipole, in marginal lateral rear position from each front dipole; and

two levels of beneficial and operational polar property, namely a beneficial front bundle of dynamic lines from the front poles of the front located dipoles and an equally beneficial front/rear bundle of dynamic lines of opposite polarity to the first, emitted from the front poles of the rear located dipoles;

the front bundle of dynamic lines that is the one emitted from the front dipole and the comprehensive front bundle of the rear dipole designated as front/rear bundle of dynamic lines, executes exactly the same functions as mentioned in claim 2, except that in this case here the front/rear bundle is emitted from the front bundle of dynamic lines of the rear positioned dipole;

the interactions of the dynamic lines as effected by the exploitation of the polarities of then-loops by the arrangements where the front bundle of dynamic lines from the front dipoles becomes functionally beneficial and the front/rear bundle of dynamic lines, from the rear positioned dipoles becomes functionally beneficial and also the above two simultaneous interactions are present at equivalence at the middle distance;

the marginal adjacent relation that the rear dipoles have as positioned in relation to the front dipoles, in each magnetic arrangement, which is typical for all dipoles and is similar to the way of the front opposite located dipoles, between two arrangements, including the penetration tolerance as in claim 2,

wherein;

maintaining all three different spatial distances and the three different polar properties and interactions, according to claim 2.

5. A magnetic apparatus with polar and field properties according to claims 4 and 3, comprising: each magnetic arrangement having the vertical standing dipole permanent magnets arranged according to claim 4,
wherein:

the confronted front poles of the arrangements are unlike between them;
the three different spatial distances, the three different polar properties and the three
different interactions to be according to claim 3.

6. Method for manufacturing the magnetic apparatus with polar and field properties according to
claims 2, 3, 4 and 5 comprising:

a pair of magnetic arrangements constituted of vertical standing dipole permanent magnets
positioned each on a planar base that form manually uni-directionally interacting
confronted magnetic constructions that slide on the guide; and

the magnetic arrangements that form each magnetic construction that are constituted by
permanent magnets and at the position where one magnetic arrangement has a front
dipole, the respective confronted arrangement of the magnetic construction of the pair,
operating with that, does not have a confronted front dipole but has it on the side either
in horizontal or vertical or otherwise diagonal delimitation confronting the first one;

the selective methodology that is used for manufacturing the specific magnetic apparatus as
described in claims 2 to 5 being constituted of symmetries of dipole permanent magnets
that are arranged in the magnetic arrangements as a selective specific part of an infinite
square mesh of plane tiling p4m with one-to-one distribution of the shaded and empty
cells having its shaded cells corresponding to front poles of the dipoles of the
arrangements and its empty cells corresponding either to the front/rear bundles of
dynamic lines of the rear poles of the front magnets or to front poles of rear magnets;
the methodological step that produces designs with more or less number of magnets in the
arrangement's pair, than the ones described, these designs must be selective and specific
and not arbitrary parts of symmetries of an infinite square mesh of plane tiling p4m,
bearing all the other constructional characteristics of claims 2 to 5.
Fig. 1
Fig. 3
Fig. 5
Fig. 6
Fig. 12
Fig. 16

For D - D see Fig. 18
Fig. 18

From the Fig. 16
Fig. 41
Fig. 42
A. CLASSIFICATION OF SUBJECT MATTER

INV. H01F7/02
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H01F F16F F16C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>DE 31 26 470 A1 (CRULL SI EGFRI ED [DE]) 20 January 1983 (1983-01-20) the whole document</td>
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<td>X</td>
<td>US 4 054 944 A (LAU EDWARD H) 18 October 1977 (1977-10-18) col umn 2, line 51 - col umn 4, line 17; figures 1-3,7</td>
<td>1-6</td>
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</table>

Further documents are listed in the continuation of Box C. See patent family annex.

Date of the actual completion of the international search: 29 July 2013

Date of mailing of the international search report: 06/08/2013

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 N.L. 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016

Authorized officer: Reder, Michael
This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. [ ] claims Nos.: Impartial ly) because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically: see FURTHER INFORMATION sheet PCT/ISA/210

3. [ ] Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

This International Searching Authority found multiple inventions in this international application, as follows:

1. [ ] As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. [ ] As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. [ ] As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. [ ] No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.
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Continuation of Box II.2

Claims Nos.: 1-6 (partially)

The present application is unclear to such an extent that it is not possible to carry out a meaningful search of the subject-matter as defined in the claims.

The reasons are as follows:

1. Claim 1 refers to a magnetic system and claim 2 refers to a magnetic apparatus. Basically, "system" and "apparatus" each seems to comprise a pair of magnetic constructions which are unidirectional slideable on a guide. The claims as a whole are unclear as it is not clear what shall be the difference between the "system" and the "apparatus".

2. Claim 6 refers to a method of manufacturing the apparatus of claim 2, but contains only structural features of an apparatus and no process steps.

3. Claim 3 is formulated as dependent claim depending on claim 2. However, claim 3 defines "confronted front pole or l like between them" while claim 2 defines them as being "like between them". Therefore, claim 3 cannot be dependent on claim 2.

4. Claim 6 refers to a method of manufacturing a magnetic apparatus according to claims 2, 3, 4 and 5. It is not clear whether the features of claims 2-5 should be present at the same time. It is not possible to have the features of claim 2 and 3 simultaneously (see 3).

5. Claims 1-6 contain the following unclear expressions which make it impossible to determine the scope of protection of these claims:
   - "three different interactions" (claim 1): It is not clear which kind of interaction (e.g., mechanical, electrical).
   - "the magnetic constructions with their arrangements, which are constituted by permanent magnets" (claim 1): It is not clear whether each magnetic construction can comprise just one permanent magnet or whether it has to comprise several permanent magnets. It is further unclear whether the two expressions "magnetic arrangement" and "magnetic construction" refer to the same or to different features (also claim 2).
   - "front di pole" (claims 1, 2, 6):

Magnetic is unclear.

"in horizontal or vertical or otherwise diagonal delimitation" (claim 1): Without a reference system these directions have no meaning. Directions should be expressed in relation to an inherent axis of the apparatus.

"the steps of different cases ... constructions" (claim 1), "A magnetic apparatus ... produces as means the application" (claim 2): These passages are completely incomprehensible. There do not seem to be any constructive features in these passages.

"vertical standing di pole magnets" (claim 2): Without a reference system the direction of does not have a meaning. Consider the following, a "vertical standing di pole permanent magnet" would be rather interpreted to have the axis of symmetry in the direction indicated as
“22”.
- “front pol es” (cl aim 2): Meaning i s uncl ear,
- “front bundl e of
dynamic l i nes”, "expl oitable front/rear bundl e of dynamic l i nes" (cl aim
2): I t i s not cl ear what kind of l i nes are referred to and which i s thei r
functi on.
- "penetrati on tol erance" , "dimensi ons' tol erance" (cl aim 2):
Meaning i s uncl ear,
- "the specific part of symmetry of arrangement" (cl aim 2): I t i s not cl ear which objects are arranged symmetri cal ly. I f
it refers to the permanent magnets, the use of a plane symmetry group
(p4m) i s probl emati c as the magnets of the two magnetic constructi ons
are not arranged i n the same plane.
- "comprehensi ve symmetry" (cl aim 2):
Meaning i s uncl ear.
- "a selected part of an infinit e square mesh of
symmetry p4m" (cl aim 2): Thi s does not seem to consti tute any l i mi tati on
as the "selected part" could be a si ngl e po i nt correspondi ng possi bly to
the position of a si ngl e permanent magnet.
- "margi nal latera l rea
position", "benefi ci al and operati onal pol ar property" , "becomes
functi onal ly benefi ci al" (cl aim 4): Meaning completely uncl ear.
- "an
infinit e square mesh of plane t i l i ng p4m with one-to-one distri buti on of
the shaded and empty cells" (cl aim 6): I t i s not cl ear what i s meant be
"shaded and empty cells",
- "these designs must be selecti ve and
specific and not arbi trary parts of symmetri es of an infinit e square mesh of
plane t i l i ng p4m" (cl aim 6): Meaning i s uncl ear.

9. The applicati on
as a whole i s further made uncl ear by a passage on page 5 of the
descrii on (p. 5, 1. 16-20) which suggests that electromagnets should be
used in the present inventi on which i s i n contradi cti on to the claims.

In the l i ght of the applicati on as a whole, as far as i t can be
understood, the fol lowi ng has been consi dered for search:
A magneti c
apparatus comprisi ng two opposi ng magnetic constructi ons, each magnetic constructi on comprisi ng one or more permanent magnets and be i ng movabl e
i n one dimensi on usi ng a gui de structure. The directi on of the force due
to the magneti c interacti on between the magnetic constructi ons changes
w i t h the di stance between them. The interacti on i s ei ther attracti ve for
small di stances and repul si ve for greater di stances w i t h an unstabl e
equilibri um position for med i um di stances or repul si ve for small
di stances and attracti ve for greater di stances w i t h a stabl e equilibri um
position for med i um di stances. Two arbi trary magnets be i ongi ng to
di fferent magnetic constructi ons are always shi fted i n a directi on
perpendi cul ar to the di spl acement directi on allowed by the gui des.