United States District Court,
W.D. Texas, Austin Division.

LEVITATION ARTS, INC,
Plaintiff.
v.
FASCINATIONS TOYS & GIFTS, INC., and ASI Associates, Inc. d/b/a Abbor Scientific,
Defendants.

No. A-07-CA-990-SS

Aug. 25, 2008.

Paul Adams, Ryan B. Kennedy, The Adams Law Firm, Albuquerque, NM, William Christian, Graves, Dougherty, Hearon & Moody, Austin, TX, for Plaintiff.

Daniel R. Smith, Brown McCarroll, LLP, Virginia Katherine Hoelscher, Office of the Attorney General of Texas, Austin, TX, David A. Lowe, Black, Lowe & Graham, PLLC, Seattle, WA, for Defendants.

FIRST AMENDED REPORT AND RECOMMENDATION OF THE SPECIAL MASTER REGARDING UNITED STATES PATENTS IN SUIT

KARL BAYER, Special Master.

Attached hereto is the First Amended Special Master's Report and Recommendation to United States District Judge Sam Sparks regarding the construction of claims in United States Patent No. 6,168,183. The Special Master did not consider any information presented in the tutorials as evidence and did not base any of his recommendations on statements attributed to the tutorial experts in Post- *Markman* Briefing.

The parties may file written objections to the recommendations made in this report within ten (10) days from the date of their receipt of it, as discussed at the conclusion of the *Markman* hearing.

CLAIM CHART FOR DISPUTED TERMS IN UNITED STATES PATENT NO. 6,168,183			
Claim 1	**Plaintiff's Proposed Construction**	**Defendants' Proposed Construction**	**Special Master's Construction**
a levitating device positioned on one side of a separating plane for maintaining a **levitated element** at a substantially **stable position** on		**levitated element:**	

the side of said separating plane remote from said one side and wherein said levitated element includes magnetic means defining a magnetic region, and			
		the entirety of the structure that is levitated, including the levitated magnet and all elements levitating with the magnet	**No construction necessary.**
		stable position:	
		the position where the levitated element levitates with respect to the levitating device in actual use	
a static magnetic means producing a preselected static magnetic field configuration such that said levitated element is levitated by said magnetic field configuration interacting with said magnetic region	This limitation is in means-plus-function format and is subject to 35 U.S.C. s. 112, para. 6. The function of the means is to produce a preselected static magnetic field configuration. The structures in the specification that are clearly linked to this function are:		
		static magnetic means (Structure):	**static magnetic means (Structure):**
	(a) shown in Fig. 1, diagrammatically, at 3010 which generates "a magnetic field configuration that interacts with the magnets 2010 and 2020 of the levitated element 2000 so that movement of the magnetic region 2030	the structure shown here, namely, a first pair of fixed linear bar	*The structure shown in Figures 5 and 6, namely, a first pair of*

	parallel to the stability plane 1000, i.e. in the y and z directions as depicted by graphs (b) and (c) will result in increased magnetic potential energy U_{mag} as shown by the curves 3050A, ... 3060A, ... in FIGS. 2, 3 and 4 which show the potential energy increasing on opposite sides of the stability position 4000 for the y and z mutually perpendicular directions." (Col.7, II.45-54);	magnets of essentially the same strength positioned substantially parallel to each other along a first axis and a second pair of fixed linear bar magnets of essentially the same strength positioned below and perpendicular to the first pair of magnets [symbol below]	*fixed linear bar magnets of essentially the same strength positioned substantially parallel to each other along a first axis and a second pair of fixed linear bar magnets of essentially the same strength positioned below and perpendicular to the first pair of magnets*
	(b) "[i]t will be evident that to generate this type of magnetic configuration, having its potential energy increase with movement in two substantially perpendicular directions parallel to a stability plane and decrease in movements	And equivalents that exclude ring or cylindrical magnets [symbol below]	*The structure shown in Figures 10 and 11, namely, a substantially cylindrical permanent magnet having an annular groove concentric to the x-axis.*
to cause **magnetic potential energy** of said interaction to increase for **substantially all displacements of said levitated element from said stable position in directions parallel to a preselected stability plane** and said magnetic	perpendicular to the stability plane, it is possible to use a large variety of different static magnetic means which can be designed by employing the well known laws of magnetic fields." (Col.7, ll.61-68);		

potential energy to decrease for any displacement of said levitated element from said stable position in a direction perpendicular to said stability plane			
		magnetic potential energy (U_{mag})	
	(c) shown in Figs. 5 and 6 comprising first magnetic means "in the arrangement illustrated in FIG. 5 is composed of a first pair of bar magnets 14 and 16 which have been positioned substantially parallel to the y axis and spaced on opposite sides of the stability plane y,z extending as above indicated in the y and z directions and indicated by dot dash lines in FIG. 5 i.e. spaced in the x direction and symmetric relative to the stabilization plane y,z. In this case the two magnets 14 and 16 are essentially the same and have essentially the same strength. The spacing D_x between the magnets 14 and 16 is bisected by the plane y,z. The length of these magnets 14 and 16 in the y direction and their extension on opposite sides of the stabilization point 12 are sufficiently to appear almost infinitely long relative to the magnetic region schematically indicated by the dash line 13 around the element 10. The element 10 is suspended with the magnetic center of the magnetic region 13 of the element 10 substantially positioned at the stable suspension point 12.	the combined potential magnetic repulsion and attraction energy that exists between the magnetic means of the levitated element and the structure of the static magnetic means	**No construction necessary.**
	"The polarity of the magnets 14 and 16 is arranged so that the magnetic poles of the magnets face in the z direction. In the illustrated arrangement the north pole has been directed upward, the south pole downward as indicated by the letters N and S on these magnets 14 and 16. "The levitated magnetic element 10 has its magnetic poles also arranged facing in the z directions but is	**static magnetic means (Function):**	

positioned with its magnetic poles arranged in opposition to those of magnets 14 and 16 so that in the illustrated arrangement the upwardly facing pole is a north pole (N) and a downwardly facing pole is a south pole (S), i.e. opposite poles are closer to each other between the magnetic element 10 and the magnets 14 and 16 of the first magnetic means.		
	the function is to cause the magnetic potential energy (U_{mag}) of the interaction between the levitated element and the static magnetic means to: [symbol below]	**static magnetic means (Function):**
		The function is to cause the magnetic potential energy (U_{mag}) of the interaction between the levitated element and the static magnetic means to:
	(1) increase for any movement away from the stable position in both directions along the z-axis (which extends from	*(1) increase for at least some minimal displacement away from the stable position in both directions along the z-axis (which*

the levitated device through the levitated element), as graphically shown; [symbol below]	*extends from the levitated device through the levitated element), as graphically shown;* [symbol below]
(2) increase for any movement away from the stable position in both directions along the y-axis (which extends perpendicular to the z-axis), as graphically shown; and	*(2) increase for at least some minimal displacement away from the stable position in both directions along the y-axis (which extends perpendicular to the z-axis), as graphically shown; and* [symbol below]
(3) decrease for any movement away from the stable position in both directions along the x-axis which extends perpendicular to both the z-axis and y-axis), as graphically shown. [symbol below]	*(3) decrease for at least some minimal displacement away from the stable position in both directions along the x-axis (which extends perpendicular to both the z-axis and y-axis), as graphically shown.* [symbol below]
	Although the curves above

		are shown as being perfectly smooth, they may include very slight imperfections that do not change the overall direction or shape of the curve.
	substantially all displacements of said levitated element from said stable position in directions parallel to a preselected stability plane:	
	at least some minimum displacement away from the stable position in all directions along the z-axis and y-axis	**No construction necessary.** [symbol below]
"These magnets 14 and 16 stabilize the element from movement in the z direction, while providing a destabilizing effect in the x direction, and a neutral effect in the y direction." (Col.8, ll.14-52) "Second magnetic means "formed by a second pair of bar magnets 18 and 20 which in the illustrated arrangement are positioned below the magnets 14 and 16, i.e. spaced farther in the z direction from the point 12 than the magnets 14 and 16. These magnets 18 and 20 have their longitudinal axis substantially		

parallel to the x axis, i.e. substantially perpendicular to the axis of the magnets 14 and 16 and are arranged with their magnetic poles facing in the z direction but inverted relative to magnets 14, 16 and 10 so that in illustrated arrangement the south poles (S) of the magnets 18 and 20 face vertically upward and the north poies (N) downward.

"The spacing between the two magnets 18 and 20 has been indicated by the distance D_y and assuming that the magnets 18 and 20 are of the same strength they will also be positioned symmetrical relative to the axis z, i.e. will be equally spaced from the vertical axis z on which the point 12 is located.

"These magnets 18 and 20 stabilize the element 10 from movement in the y direction while providing a destabilizing effect in the z direction, and a neutral effect in the x direction. It is therefore important that the magnetic forces applied to the element 10 by the magnets 18 and 20 be significantly less than the forces applied by the magnets 14 and 16 of the first magnetic means, so that stability in the z direction is not lost.

"Thus the first and second magnet means formed by the magnets 14 and 16 and 18 and 20 respectively stabilize the element 10 from movement in the plane y, z while creating a destabilizing effect in the x direction." (Col. 8, i. 53 thru Col. 9, l. 14);

(d) shown in Figs. 10 and 11; "The above example has dealt with substantially straight magnetic elements forming a first and second magnetic means generating in conjunction with the element 10 the required magnetic potential energy distribution to stabilize the element 10 in the y,z stabilization plane, and the use of a controlled leakage magnetic field to stabilize the element against movement out of the plane y,z.

"FIGS. 10, 11 and 12 illustrate a different system utilizing a single magnetic element to stabilize the levitated element 10 in a stabilization or locating plane y,z parallel to the face of the magnet illustrated in FIG. 11 with x axis perpendicular to the y,z plane and to the face of the permanent magnet 100. The orientation of the axes, or naming of the axes as x, y or z axes has no significance, however for consistency y and z axis have been used to define a locating plane or the plane of stabilization y,z established by a permanent magnet means of the levitation device in both embodiments.

"In the embodiment currently being described the permanent magnet 100 is substantially cylindrical as illustrated in FIG. 10 and is provided with an annular groove 102 concentric to the x axis and in which is received a coil 104 that forms the controllable force means, i.e. the controllable magnet that is operated to control the position of the element 10 in the x direction. Also positioned within the magnet 100 on the axis x is a sensor 106 which senses the position of the element 10 relative to the face of the magnet, i .e. the spacing in the x direction. The sensor 106 may be any suitable sensor such as a Hall sensor and functions to provide a signal as described above with respect to the sensor 32.

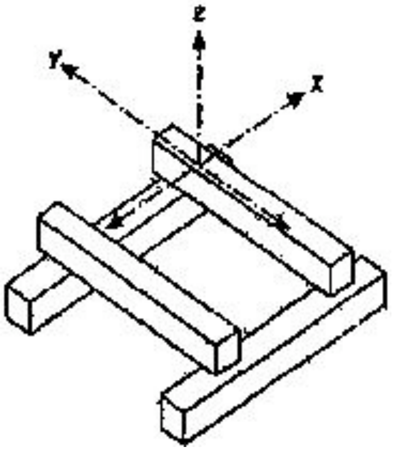
"The position and size of the annular groove 100 is a key feature in forming the levitation system illustrated in FIGS. 10, 11 and 12. A graph magnetic potential energy U_{mag} versus distance in the x direction is shown in FIG. 12. The hash line 108 indicates the typical magnetic effect generated by the magnet 100 when no groove 102 is provided. The curve 110 illustrates the changed magnetic potential energy when groove 102 is provided. It will be noted that the magnetic potential energy when the groove 102 is provided reaches a maximum at the point 112, at a distance from the surface of the magnet 100 determined by the strength of the magnetic 100 and the size and position of the groove 102. This point of maximum magnetic potential energy 112 indicates that the magnetic potential energy decreases on opposite sides of the point 112 so that the element 10 positioned at this point is unstable in the x direction, however in both the y and z directions, i.e. in the y,z plane the magnetic potential energy must increase in substantially all directions of displacement so there is stability in the y,z plane. However, as above indicated, stability in the x direction, i.e. perpendicular to the y,z plane, is not provided by the main magnet 100.

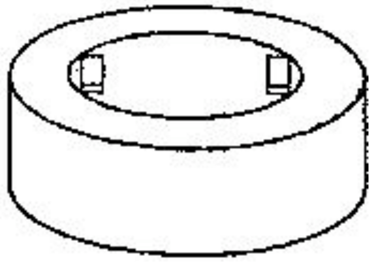
"To obtain stability in the x direction, the sensor 106 senses the position of the element 10 and a feed back controller such as the controller 30 is suitably programmed to adjust the current in the coil 104 to hold the element 10 in stable position, i.e. at a fixed distance from the magnet 100 measured in the x direction.

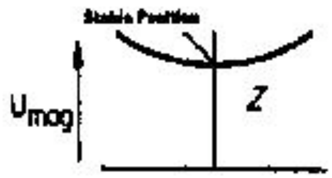
"In the FIG. 5 embodiment the stability plane y,x is substantially parallel to a straight line (z axis) between center of the static magnetic means (magnets 14, 16, 18 and 20) and the center of the magnetic region 13 of the levitated element 10, while in the FIGS. 10 and 11 embodiment the stabilizing plane y,z is perpendicular to the straight line (z axis) connecting the center of the static magnet means 100 with the center magnetic region 13 of the levitated element 10." (Col. 10, l. 16 thru Col. 11, l. 17)

PLAINTIFF'S PROPOSED CONSTRUCTION:

at least one magnet producing a preselected static magnetic field configuration such that the levitated element is levitated by **the** magnetic field configuration interacting with **the** magnetic region to cause magnetic potential energy of **the** interaction to increase for substantially all displacements of **the** levitated element from the stable position in directions parallel to a preselected stability plane and **the** magnetic potential energy to decrease for any displacement of **the** levitated element from a stable position in a direction perpendicular to **the** stability plane.






Stable Position
Umag
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Stable Position
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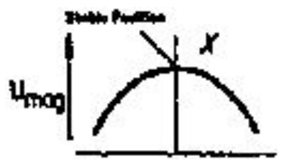
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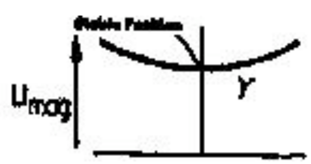
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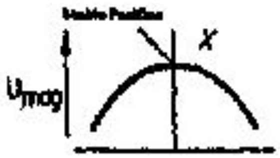

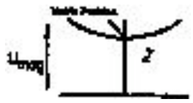

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