

[54] PERIODIC TABLE DISPLAY DEVICE

3,581,409 6/1971 Alexander35/18 R

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[57] ABSTRACT

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[58] Field of Search35/18 R; 40/111

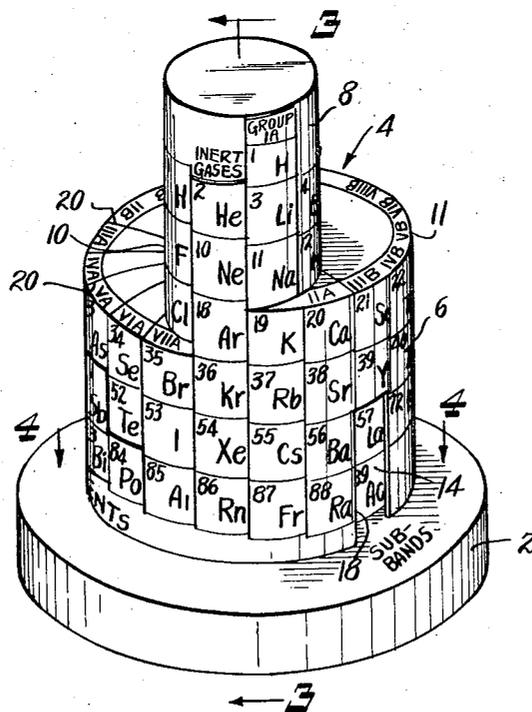
A three-dimensional device for displaying the periodic table of chemical elements in a substantially continuous helical sequence with substantially all elements arranged to be adjacent those having sequential atomic number and with those of the same chemical family or group being arranged in the same column. A rotor in the device has indicia denoting the lanthanides and actinides and is rotatable to expose selected indicia through a window in the device.

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5 Claims, 6 Drawing Figures



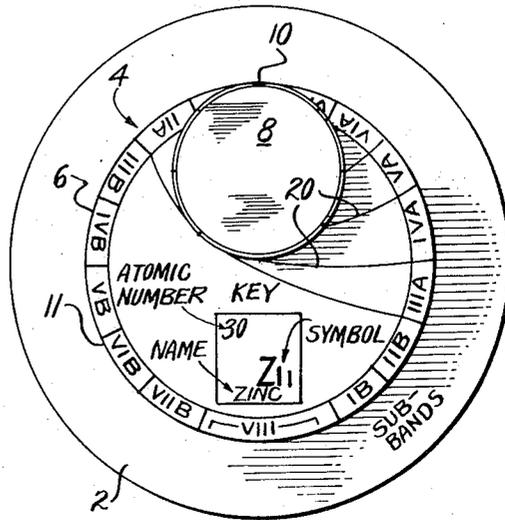
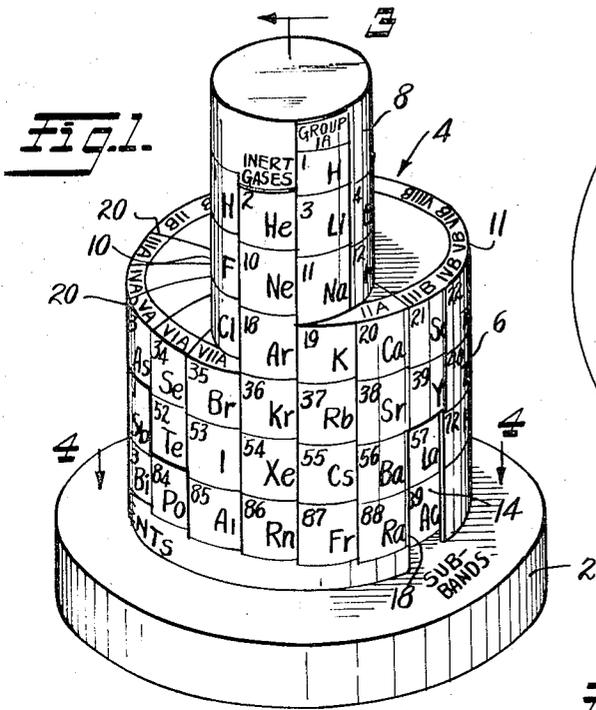


Fig. 5.

57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	(Lw)

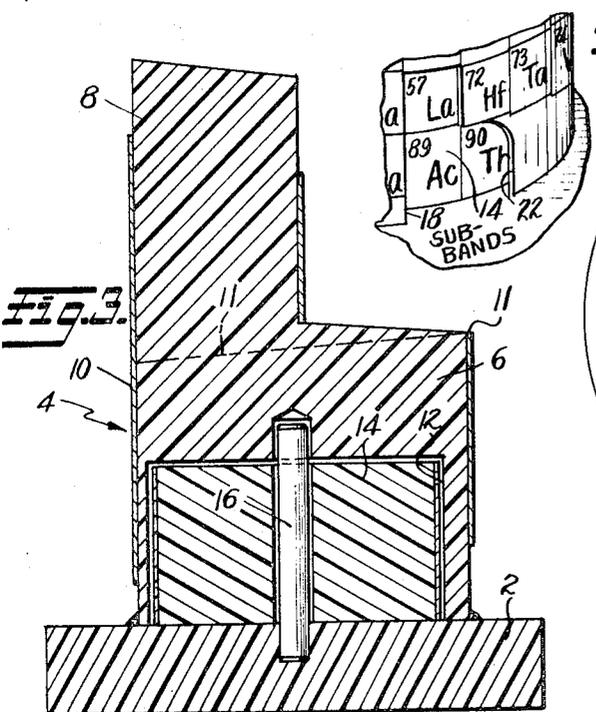


Fig. 6.

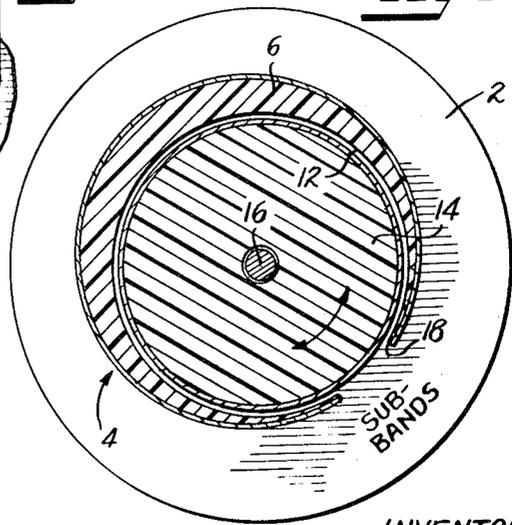


Fig. 4.

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PERIODIC TABLE DISPLAY DEVICE

BACKGROUND OF THE INVENTION

This invention relates to display devices, particularly adapted to display the various elements commonly exhibited in the well-known PERIODIC TABLE OF THE ELEMENTS.

As is well-known, all of the chemical elements are customarily arranged on a chart in horizontal rows and vertical columns and wherein the horizontal rows denote chemical elements of successive atomic numbers. The vertical columns contain elements having common chemical characteristics and are often referred to as families of elements. However, to arrange the elements in such order results in a chart consisting of three continuous horizontal rows with the vertical columns extending above the uppermost row at the end portions of the chart, thus resulting in a display wherein successive atomic numbers are not all directly adjacent each other. Furthermore, certain other groups of elements known as the lanthanides, or rare earths, and the actinides, are not customarily arranged in the main chart but are displayed separately in an arrangement of two horizontal rows of elements. The atomic numbers of the lanthanides are of values appearing between certain elements in a horizontal row of the main chart.

SUMMARY OF THE INVENTION

The present invention comprises generally a three-dimensional body having a continuous peripheral surface defined by a first generally cylindrical lower portion and a second or upper cylindrical portion of smaller diameter extending upwardly from the main portion and being tangent to the outer surface of the main body at one side thereof. The elements of the periodic table are arranged on the outer surface of the two portions and comprise a substantially continuous helical row extending around the surfaces of both portions, thus placing elements with successive atomic numbers directly adjacent each other. The lanthanides and actinides are displayed on a separate rotatable drum within the first portion and visible through a window therein in one or more positions on the helical row and where their atomic numbers normally appear if in sequence.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a preferred embodiment of the invention;

FIG. 2 is a top plan view of FIG. 1;

FIG. 3 is a vertical sectional view taken substantially along the line 3—3 of FIG. 1;

FIG. 4 is a horizontal sectional view taken substantially along the line 4—4 of FIG. 1;

FIG. 5 is a planar display showing the arrangement of the lanthanides and actinides on the surface of a rotatable drum; and

FIG. 6 is a fragmentary perspective view illustrating a modification of the structure in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

As shown in the drawings, the display device comprises a suitable base 2 of any desired configuration upon which a display structure 4 is fixedly mounted.

The display structure 4 comprises a lower cylindrical portion 6 fixed to the base 2 and extending upwardly therefrom and a second generally cylindrical portion 8 fixed to the upper surface of the portion 6 and extending upwardly therefrom with one side of the portion 8 being substantially tangent to a side of the portion 6 and defining therewith a continuous axial surface 10 extending the full height of the device. The upper edge 11 of the lower portion 6 and the upper surface of that portion are arranged in the form of a helix, as clearly seen in FIG. 1.

The lower portion 6 is provided with a generally cylindrical chamber 12 (see FIGS. 3 and 4) in which a cylindrical drum 14 is rotatably mounted on a suitable shaft or pivot 16. As best seen in FIG. 4, the chamber 12 is eccentric to the body portion 6, extending very close to the outer surface thereof, in one region, and provided with an opening or window 18 through the thinnest portion of the wall between the chamber 12 and the outer surface of the portion 6 (see FIGS. 1 and 4).

The chemical elements normally appearing on a conventional periodic table are delineated or denoted on the outer surface of the display device and arranged in a generally helical continuous row extending from near the top of the upper portion 8 helically downwardly across the continuous surface 10, then on to the outer surface of the portion 6 and substantially to the bottom thereof, all as is clearly evident from FIG. 1. Each of the elements is shown in the drawings as being identified only by its symbol and atomic number. It is to be understood, however, that the area denoting each element will contain additional information and data concerning that element, as is customary on the conventional periodic table. Such additional data or indicia have been omitted from the drawings herein to render the same less confusing.

It is to be further noted that the element hydrogen having atomic number 1, appears on the device to the left of the element helium bearing atomic number 2. If desired, the element hydrogen may also be delineated immediately above the element lithium bearing atomic number 3 since it belongs to the same chemical family as lithium and the elements appearing in the column therebelow (FIG. 1). The upper surface of the portion 6, adjacent the edge 11 may also bear indicia identifying the columns therebelow and from those indicia, it is preferred that direction or indicator lines 20 be provided to indicate those columns on upper portion 8 that are to be considered as upward continuations of the indicated columns on lower portion 6, thus identifying the displayed elements which belong to the same chemical families.

In the conventional periodic table chart, there is customarily a jump from atomic number 57 (La) to atomic number 72 (Hf) in the lowest continuous row of the chart. The lanthanides or rare earths bear atomic numbers from 58 to 71, which would normally fall between the two elements (La and Hf) having atomic numbers 57 and 72. The window 18 previously referred to occupies the position on which element having atomic number 57 (La) would normally appear. Thus, when the drum 14 is positioned to exhibit element of atomic number 57 through the opening 18, the display of the device corresponds to the conventional periodic

table. However, the drum 14 may be manually rotated to position any desired one of the lanthanides or actinides in position to be viewed through the opening 18. Rotation of the drum 14 may be accomplished by engaging the same through the opening 18.

To successfully rotate the drum 14 through the opening 18 shown in FIG. 1, it is almost necessary to use a fairly thin member, such as a pencil having an eraser thereon, or the like. To facilitate rotation of the drum, with a thumb or finger of the user, applicant contemplates the modification shown in FIG. 6 wherein a further opening 22 communicates with the opening 18 to enlarge a portion of the same in a horizontal direction, thus permitting the user to engage the drum 14 with a fingertip and rotate the same to the desired extent.

While not shown in the drawings, the lanthanides and the actinides may be mounted on separately rotatable drums rather than on a single drum 14. Furthermore, the drum 14 or separate drums bearing the lanthanides or actinides could conveniently be arranged to be rotated by external knobs connected thereto either at the top or at the bottom of the device.

While a limited number of specific embodiments have been shown and described herein, the same are merely illustrative of the principles of the invention and the scope thereof is limited only by the scope of the appended claims.

I claim:

1. A display device for displaying a periodic table of the elements, comprising:

a body having a first upright generally cylindrical portion of relatively large diameter and a second upright cylindrical portion of relatively small diameter fixed to said first portion and extending upwardly therefrom substantially tangent to said first portion at one side thereof to define therewith an axially continuous narrow peripheral surface, the upper peripheral edge of said first portion extending helically upwardly from one side of said narrow surface to the other side thereof;

a multiplicity of indicia on the outer surfaces of said portions, denoting the chemical elements, said indicia being arranged in a substantially continuous helical row with the indicia being arranged along said row in the order of their atomic numbers and indicia on each portion, denoting elements of the same chemical family, being arranged in substantially vertical columns; and

indicating means extending from each column on said second portion, that is displaced from said narrow surface, to the tops of the columns on the first portion identifying elements of the same chemical family.

2. A display device as defined in claim 1 wherein said first portion is provided with a chamber therein, an opening in the peripheral surface of said first portion communicating with said chamber; at least one member movably mounted in said chamber to position successive surface portions at said opening; and a row of further indicia on said surface portions denoting certain chemical elements whereby said further indicia may be selectively positioned for viewing through said opening.

3. A display device as defined in claim 2 wherein said opening is positioned to lie in said helical row between indicia bearing atomic numbers (56) and (72), said further indicia denoting chemical elements of atomic numbers (57) to (71), arranged in numerical sequence.

4. A display device as defined in claim 2 wherein said at least one member is provided with a pair of rows of said further indicia, one of said rows denoting the lanthanides and the other row denoting the actinides; said opening being vertically elongated whereby indicia from each of said rows may be simultaneously viewed therethrough.

5. A display device as defined in claim 2 wherein said member is a cylindrical member pivotally mounted in said chamber about an upright axis, the peripheral surface of said cylindrical member being inwardly of said opening and bearing said further indicia.

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