No. 853,756. PATENTED MAY 14, 1907.

V. BÉTIS.

EDUCATIONAL APPLIANCE.

APPLICATION FILED SEPT. 24, 1906.

2 SHEETS—SHEET 1.

Fig. 1

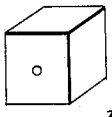


Fig. 2

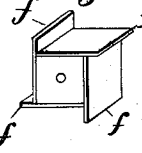


Fig. 3

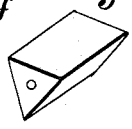


Fig. 15

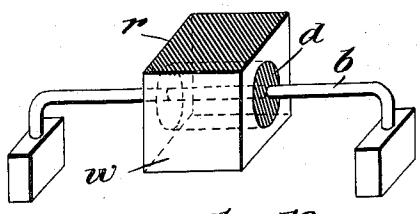


Fig. 4

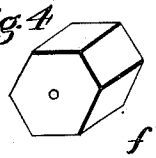


Fig. 5

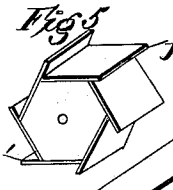


Fig. 8

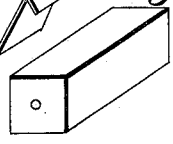


Fig. 16

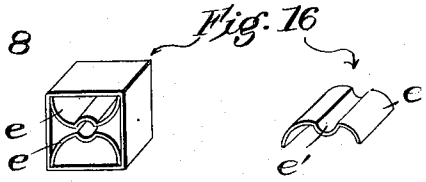


Fig. 6

Fig. 7

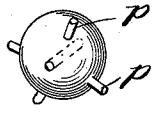


Fig. 10

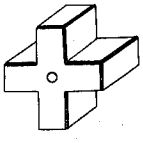


Fig. 17

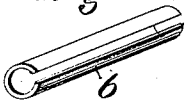


Fig. 18

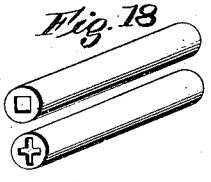


Fig. 9

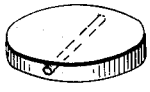


Fig. 19

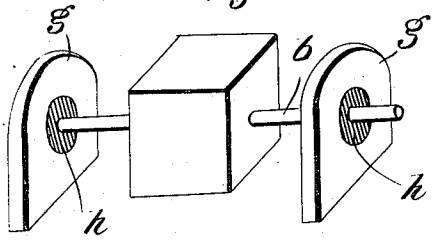


Fig. 11

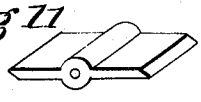


Fig. 12

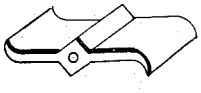


Fig. 13

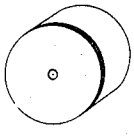


Fig. 14

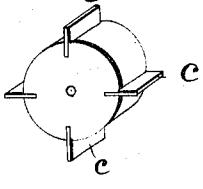
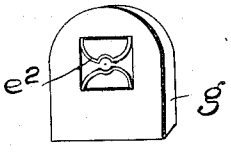


Fig. 20



WITNESSES.

C. E. Huffey

Edw. W. Byrn.

INVENTOR

VICTOR BÉTIS

BY Munn & Co.

ATTORNEYS

No. 853,756. PATENTED MAY 14, 1907.

V. BÉTIS.

EDUCATIONAL APPLIANCE.

APPLICATION FILED SEPT. 24, 1906.

2 SHEETS—SHEET 2.

Fig. 21

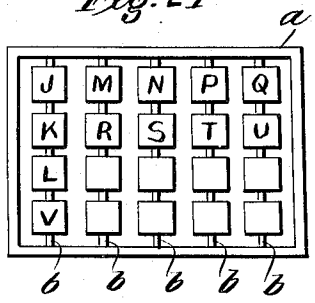


Fig. 22

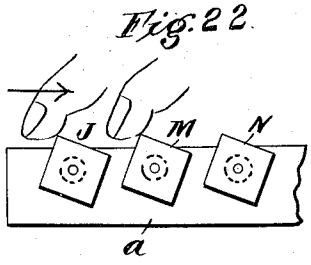


Fig. 23

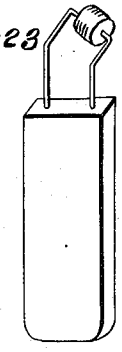


Fig. 24

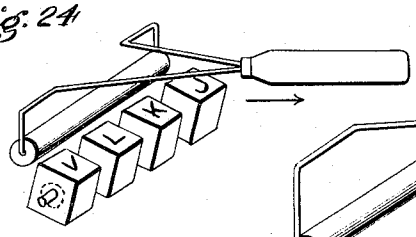


Fig. 25

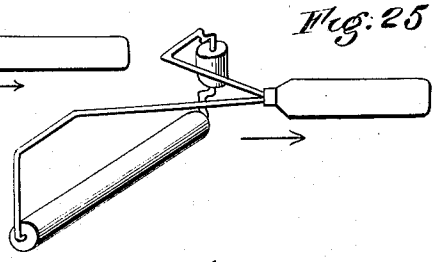


Fig. 26

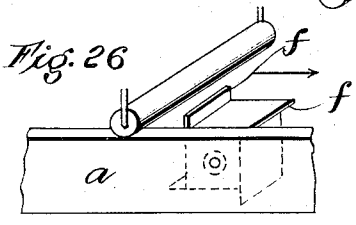


Fig. 28

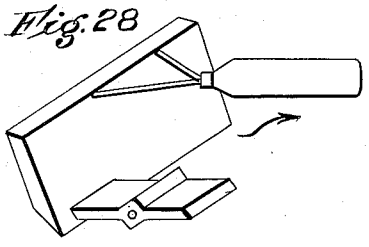


Fig. 27

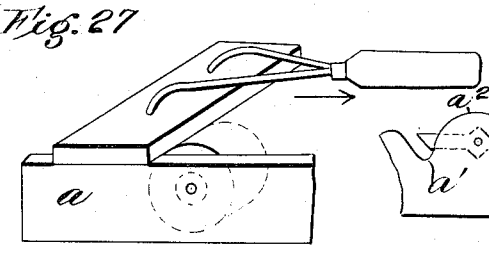
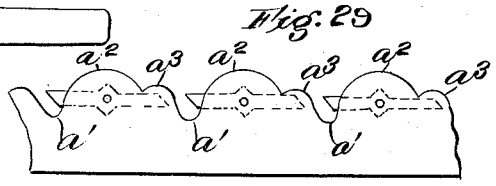


Fig. 29



WITNESSES

E. E. Duffy

Edw. W. Byrn.

INVENTOR

VICTOR BÉTIS

BY Munn & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

VICTOR BÉTIS, OF WEST EALING, ENGLAND.

EDUCATIONAL APPLIANCE.

No. 853,756. Specification of Letters Patent. Patented May 14, 1907.

Application filed September 24, 1906. Serial No. 336,019.

To all whom it may concern:

Be it known that I, VICTOR BÉTIS, a citizen of Paris, France, and a resident of West Ealing, in the county of Middlesex, England, have made certain new and useful Improvements in Educational Appliances, of which the following is a specification.

My invention is in the nature of a novel educational appliance, designed more particularly for kindergarten work and whose general character is that of a counting frame in which is arranged a plurality of units in the form of cubes, or blocks of any shape, bearing each a plurality of letters, figures, colors or other differentiated faces, susceptible of the various groupings or arrangements required by such work.

The object of my invention is to provide a device of this character in which the units are not liable to accidental separation or derangement, but remain in the position to which they may be adjusted and yet are susceptible of easy, cleanly, and exact readjustment both individually and collectively.

The leading features of the improvement consist in the construction of the units, their rotary suspension upon axial shafts with a frictional brake effect by which they are prevented from moving away from the position to which they may be adjusted and also further in the construction of the frames, and certain hand tools or implements by which the units are adjusted singly or in groups without soiling them by the fingers and without the possibility of the transfer of contaminating germs from one pupil to another, all as hereinafter fully described with reference to the drawing, in which—

Figures 1 to 14 inclusive represent in perspective views the several different forms of units which may be employed. Figs. 15 to 20 inclusive, represent in perspective views the different means for securing a rotary frictional suspension of the units. Fig. 21 shows in plan view a group of units within the frame. Fig. 22 illustrates how the units may be turned by the finger. Figs. 23 to 28 inclusive, show in perspective views different forms of hand implements for turning the units, and Fig. 29 shows a fractional side view of the frame employed in connection with the unit and hand implement shown in Fig. 28.

In Fig. 21 is shown a rectangular frame *a* in which are arranged a plurality of parallel shafts *bbb* upon each of which are mounted a plurality of rotary adjustable units in the form of cubes whose several faces bear different letters, numbers, colors, or characters of any kind. When any one of these units is turned on its axis it presents to view a different face and character and the convenient arrangement, rearrangement and grouping of these changeable characters for educational purposes for spelling, number work, &c, is the objective point of my invention.

The units may be cubes as in Fig. 1; cubes with flanges *f* dividing the faces as in Fig. 2; triangular prisms as in Fig. 3; hexagons as in Fig. 4; hexagons with flanges *f'* as in Fig. 5; spheres as in Fig. 6; spheres with pins *p* as in Fig. 7; parallelopipedons as in Fig. 8; disks as in Fig. 9; cruciforms as in Fig. 10; double-winged plates as in Fig. 11; double winged plates with curved edges as in Fig. 12; cylinders as in Fig. 13; cylinders with radial flanges *c* as in Fig. 14, or of any other desired or approved shape. To mount these units with a frictional brake effect and a rotary adjustment, so that they may be turned to expose their different faces and when turned will remain in their adjustment against displacement, the units are perforated and mounted rotarily upon the parallel shafts *b* and a frictional brake effect is provided in any one of the following ways.

In Fig. 15 the unit is bored out to receive an elastic bushing *d* of cork, rubber, or any other elastic material, which by its pinching effect on the shaft *b* furnishes a frictional resistance to the rotary adjustment. In this figure is also shown the different color faces of the cube, *w* indicating a white and *r* a black, red, or other color of face. In Fig. 16 I form two spring clips or boxes *e*, each of which has a bearing *e'* for the shaft and these spring bearings are retained within the unit, which may be hollow or solid. These spring boxes pinch the shaft *b* and furnish the frictional resistance in turning.

In Figs. 17 and 18 the axis on which the unit revolves is made elastic. Fig. 17 shows a split spring tube and Fig. 18 represents a small cylinder of rubber or similar material having a longitudinal hole for a stiffening rod of metal. On these elastic axles the unit revolves.

Instead of having the unit turn with a frictional resistance on the axial shaft, the unit and the shaft may move together and the

shaft rotate in end bearings as in Figs. 19 and 20. In Fig. 19 elastic bushings *h* are placed in the lugs *g* and form frictional bearings for the shaft. In Figs. 20 the end bearings for the shaft are made of metal springs e^2 similar to those shown in Fig. 15.

For turning the units, this may be effected by the finger, moved in the direction of the arrow in Fig. 22, but a simple tool consisting of a handle with a roller as seen in Fig. 23 may be used, which avoids the soiling of the faces of the units and prevents the dissemination of germs from one pupil to another. This roller may take an elongated form as in Fig. 24, so as to turn a number of the units at once, or, as in Fig. 25, the tool may comprise one long roller with a short one at the end set at right angles, which furnishes the advantage of being able with the same tool to turn a number of the units or only one at a time.

When the units are made as cubes with flanges *f* as in Fig. 2, the action of the roller thereon is as in Fig. 26, in which the roller rides upon the side bars of the frame and in striking the flanges *f*, turns the units.

In Fig. 27 the units are cylindrical and these are turned by a tool having a flat friction plate which presses with an elastic surface upon the cylinder and thus turns them. The width of the plate determines the extent of rotary movement.

In Fig. 28 is shown a hoe-shaped tool for turning units of the kind shown in Fig. 11. In such case the sides of the frame are made as in Fig. 29 with curves as seen at a' a^2 a^3 and the plate of the tool is made wide enough to ride on these curved side bars on each side and is thus given a curved up and down movement in the pulling stroke, which turns the double-winged plates. The curved parts a' enable the edge of the tool to get under the wings, the parts a^2 guide the tool in lifting the wings up and over, and the parts a^3 limit the downward movement of the tool, so as to leave the units in a horizontal position.

The units are separated on their axes a uniform distance, by any of the usual methods, such as washers, spacing blocks, &c, and said units may be made of wood, metal, cork, rubber, celluloid or any desired material.

In Fig. 21 I have shown a frame with only twenty units. In practice the number will preferably be one hundred.

I claim—

1. An educational appliance, comprising a frame with parallel axial shafts, a plurality of axially suspended units having faces bearing different designations, said units having a central bushing of elastic material embracing the shafts with a frictional resistance.

2. In an educational appliance having a plurality of rotary adjustable units, the unit having its surface equally divided around its axis into alternating faces and turning projections, the turning projections extending outwardly beyond the faces.

3. In an educational appliance having a plurality of rotary adjustable units, the unit having its surface equally divided around its axis into alternating faces and projecting flanges.

4. An educational appliance, comprising a frame with parallel axes and a plurality of rotary adjustable units mounted thereon, means by which they are frictionally held to their adjustment, and a hand tool for operating upon and turning said units.

5. An educational appliance, comprising a frame with parallel axes and side bars and a plurality of rotary adjustable units mounted on the parallel axes, means by which they are frictionally held to their rotary adjustment, and a hand tool riding on the side bars of said frame and operating upon and simultaneously turning all the units of a row.

6. An educational appliance, comprising a frame with parallel axes and a plurality of rotary adjustable units mounted on said axes, means by which they are frictionally held to their rotary adjustment, a hand tool for simultaneously turning a row of said units, the sides of the frame being fashioned to guide said hand tool through the proper course for turning said units.

Dated this 6th day of July, 1906.

VICTOR BÉTIS.

Witnesses:

H. B. WHISTLER,

A. SMITH.