Nov. 17, 1953

E. F. GRUBOLA

2,659,165

EDUCATIONAL TOY

Filed April 12, 1951

2 Sheets-Sheet 1

FIG. 1.

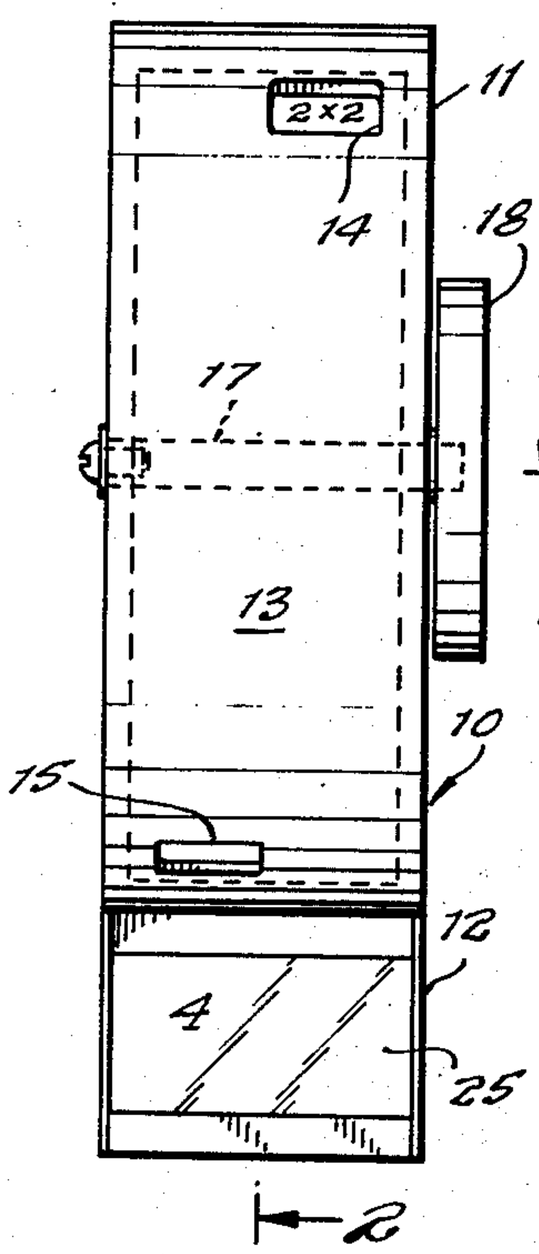


FIG. 2.

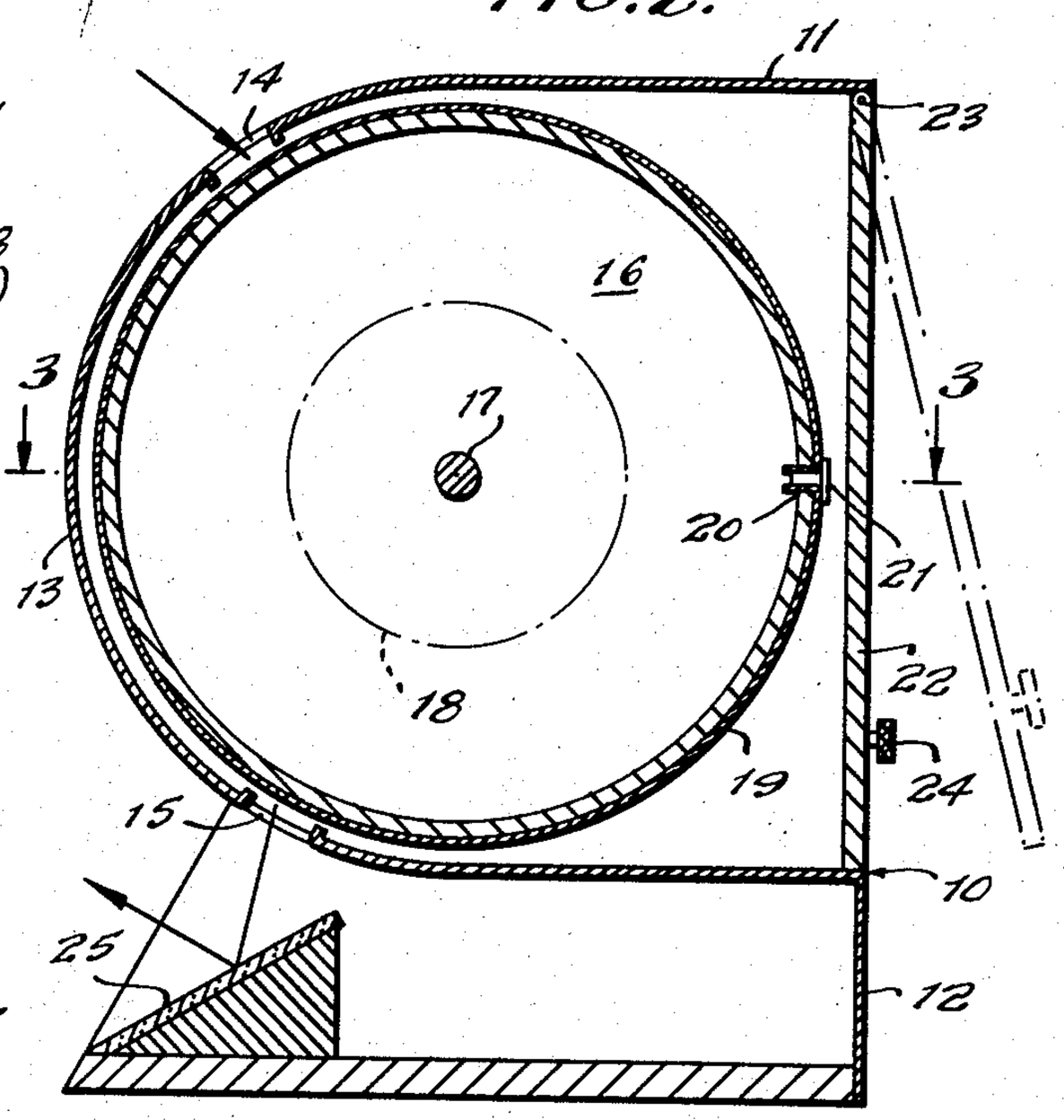


FIG. 3.

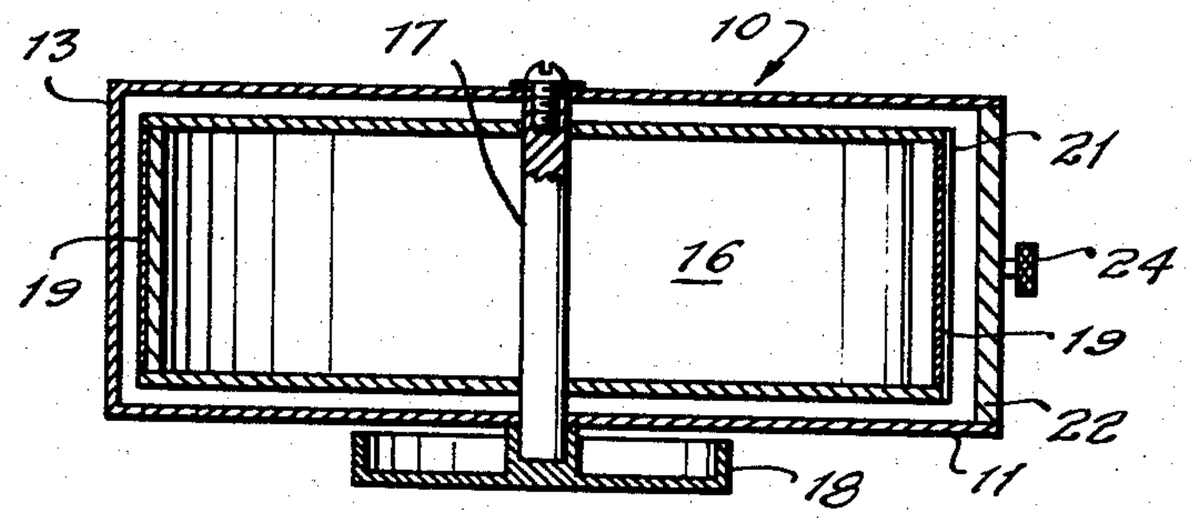
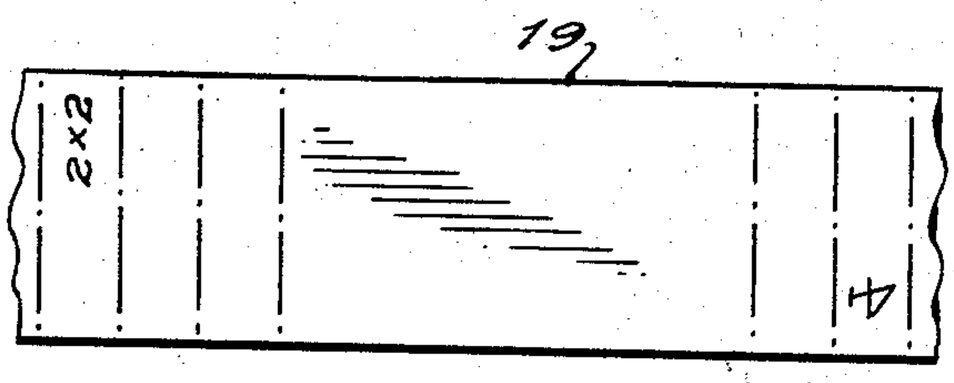


FIG. 4.



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2 Sheets-Sheet 2

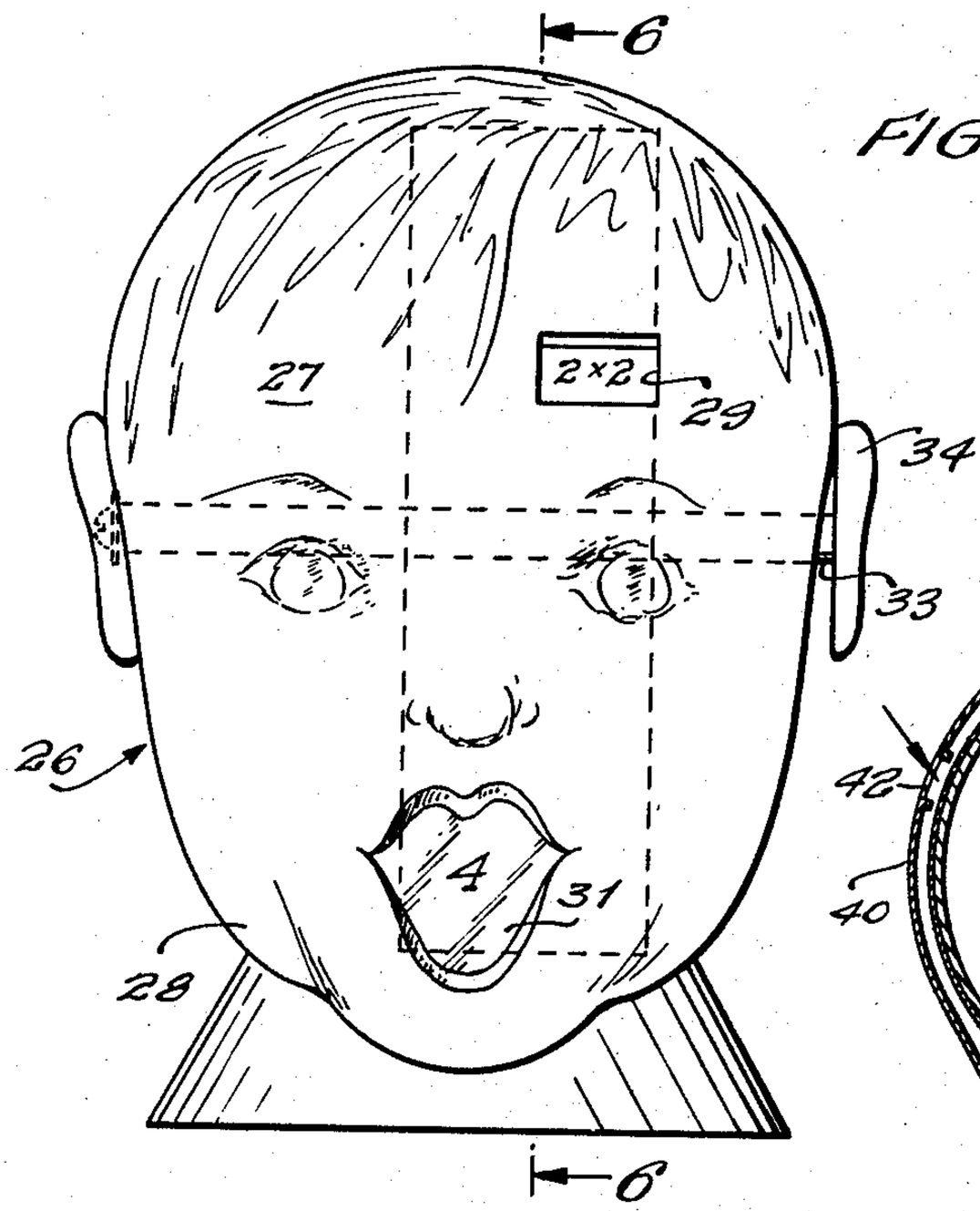

FIG. 5.

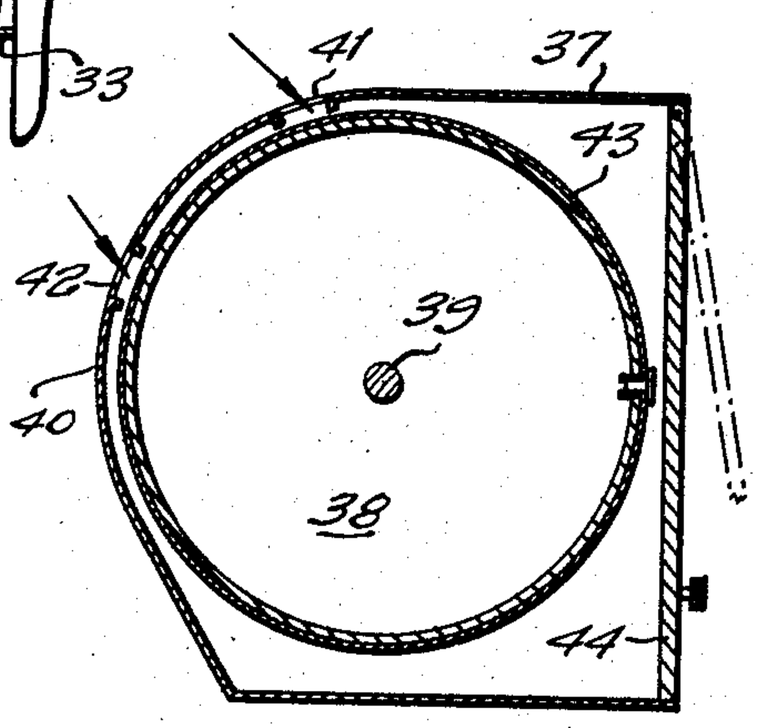

FIG. 7.

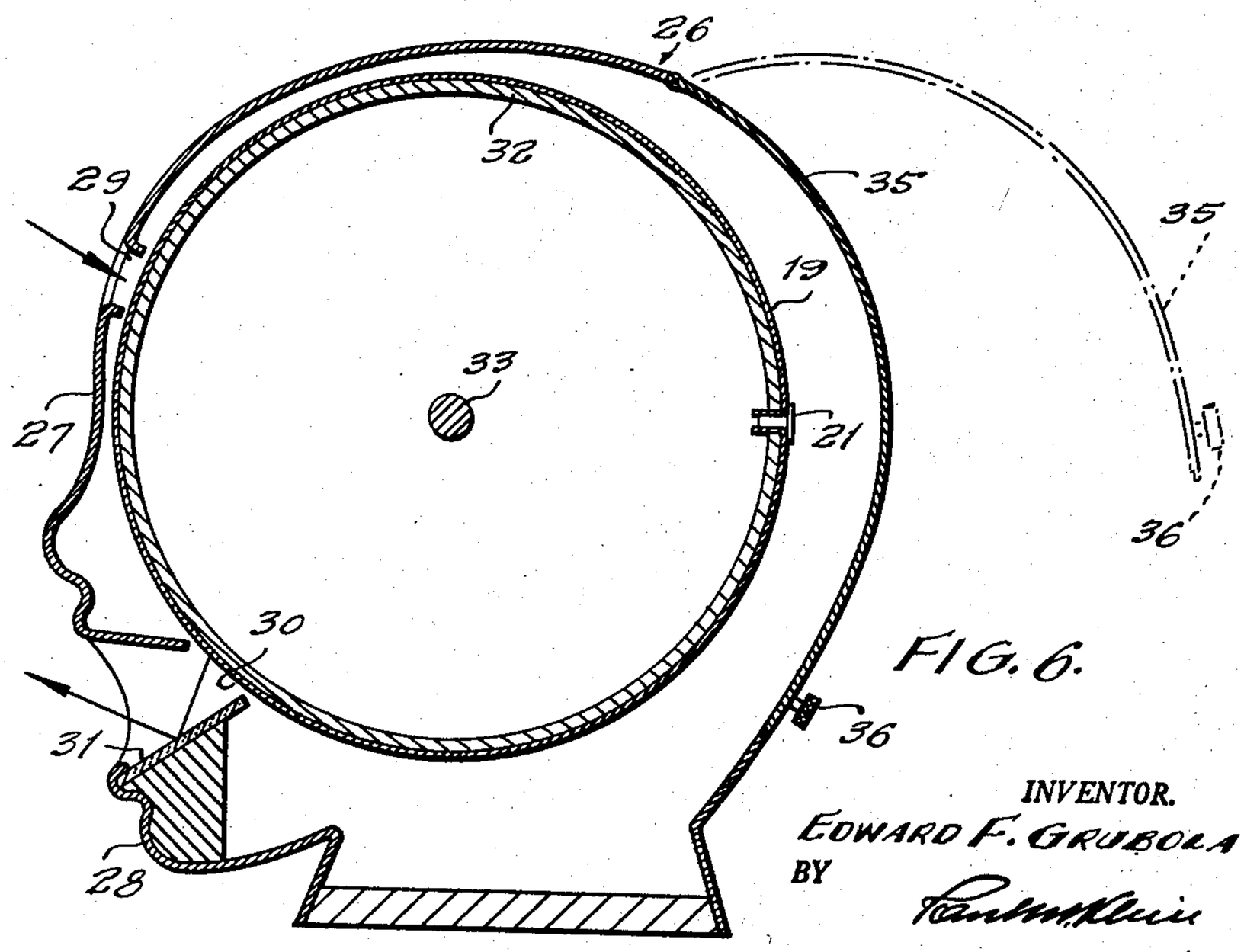

FIG. 6.

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EDUCATIONAL TOY

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5 Claims. (Cl. 35—77)

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This invention relates generally to educational, amusement or toy devices adapted to arouse children's interest in educational matter and train them to memorize it.

One of the objects of this invention is the provision of a relatively simple, inexpensive but very effective educational toy which will, by way of amusement, facilitate making lasting impressions upon the child's mind of problems ordinarily difficult to grasp or to remember by the usual educational methods employed, thus aiding in the progress of a pupil both at school as well as at home.

Another object of this invention is to provide a device of the aforesaid type, wherein is employed, within a substantially closed compartment or casing, a rotor rendered operable from without the casing, and which rotor is adapted to support exchangeable strips bearing various types of intelligence, and which casing is provided with at least two spaced openings disposed in different parallel planes, and wherein one of the openings is adapted to facilitate the observation of certain intelligence carried by said strip, while through another opening additional intelligence may be observed which is related to the intelligence seen through the first-mentioned opening.

Another object of this invention is the provision of an educational device comprising a substantially closed casing provided with spaced observation openings arranged in two different parallel planes, and in which casing there is operatively mounted a rotor, and which rotor is adapted to removably support a problem-and-answer strip, the problems thereof being adapted to be observed through one of the openings, while the corresponding answers are rendered visible simultaneously through the other opening, and which casing is provided with an openable closure for providing access to the rotor, and in which rotor means are provided for removably securing to and holding over its periphery said problem-and-answer strips.

A further object of this invention is the provision, in conjunction with the above-indicated device, of a reflecting surface adjacent one of the openings for projecting the image of an answer carried by the strip toward the observer.

The foregoing and numerous other objects and advantages of this invention will become more fully apparent from the following description of the device in conjunction with the accompanying drawings, which, although forming a part of the present disclosure, are by no means intended to in any way limit the present invention and in which drawings:

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Fig. 1 is a front elevation of one embodiment of the device;

Fig. 2 is a section approximately along line 2—2 of Fig. 1;

Fig. 3 is a section taken partly along line 3—3 of Fig. 2;

Fig. 4 is a fragmental plan view of a problem-and-answer strip employed in the device;

Fig. 5 is a front elevation of a modified form of the present device;

Fig. 6 is a vertical cross section taken approximately along line 6—6 of Fig. 5; and

Fig. 7 is a vertical cross section through still another embodiment of the present invention.

The device illustrated in Figs. 1 to 3 discloses a casing 10, composed of an upper structure 11 and a base or under structure 12. The upper structure forms a substantially closed compartment with a curved front portion 13 in which are provided peripherally spaced upper and lower openings 14 and 15. Within the upper structure of the casing there is operatively mounted a rotor 16 in the form of a drum, mounted on a shaft 17, which is lodged in the walls of the casing and projects at least with one end through the wall to be engaged by a knob 18, the latter serving for rotating the drum within the casing. The outer surface of the rotor is relatively wide and is adapted to removably support a problem-and-answer strip 19, illustrated in one of its simplest forms in Fig. 4. This strip is adapted to cover the periphery of the rotor, the latter being provided with a transverse slot 20 shown in Fig. 2 and through which slot are passed into the interior of the drum the ends of strip 19 which are then held in place by any suitable device, as, for instance, indicated at 21 in Fig. 2. Obviously strip 19 is intended to be exchangeable with similar other strips whenever desired.

In order to provide access to the rotor and to facilitate the exchange of strips, the upper structure of the casing has at its rear end and opposite openings 14 and 15 an openable closure 22 which is preferably hinged as indicated at 23 and is equipped with a knob or button 24 for operating the closure.

In the under structure of the casing there is arranged a reflector 25, such as a mirror, which is adapted to project an image appearing in opening 15 towards an observer in front of curved portion 13 of the casing.

It will be noted from Fig. 1 that openings 14 and 15 are not only spaced peripherally from one another, but that they are disposed in two parallel, vertical spaced planes cross-secting the axis of rotation of rotor 16 at right angles, so that

opening 14 is offset to the right in respect to opening 15 which is at the left lower part of the curved portion 13. Obviously the position of the openings may be reversed.

Consulting now the strip of intelligence appearing in Fig. 4, it will be seen that on the latter is shown the problem "2×2," which problem appears in Fig. 1 through the upper opening 14, and the mirror image "4" which is rendered visible through opening 15 as it is reflected through mirror 25 toward the observer. Necessarily, strip 19 carries intelligence of problems along substantially one-half of its width, while the intelligence giving the answers to the problems will appear along the other half. While on the sample strip shown only a simple arithmetical problem and a corresponding answer are indicated, it is obvious that other types of intelligence may be carried by such strips. Thus, for instance, illustrations of objects may be carried along one half of the width of the strip to be observed through opening 14, whereas the names of such objects may appear upon the other half, to become observable through opening 15. The problems and their corresponding answers are of course so arranged on the strip that they will be observed through their respective openings at any position of the rotor drum.

Modification

The modified forms shown in Figs. 5 and 6 and Fig. 7 will be now discussed. First, Figs. 5 and 6 will be described. Instead of a plain casing, such as shown in Figs. 1 to 3, there is employed a hollow reproduction of a human head 26 consisting of an upper structure 27, which includes the forehead, the eyes, the nose and the upper part of the mouth, the latter being open. The lower structure 28 includes the lower part of the mouth, the chain and the neck, the latter forming the base or support for the device. In the right portion of the forehead there is provided an opening 29, while the interior of the mouth cavity serves as the lower opening 30. Within the lower mouth portion and the chin there is mounted a reflector 31 through which intelligence appearing in opening 30 is projected towards the observer viewing the face of the head. Mounted within the interior of the upper structure is a rotor 32 whose supporting shaft 33 is journaled at the side of the head, and left ear 34 serves, in place of knob 18 described in connection with Fig. 1, for operating rotor 32. That rotor again comprises a relatively wide drum, the periphery of which is adapted to removably support an exchangeable strip of intelligence 19 held in place by any suitable arrangement as indicated at 21. At the rear of the head there is provided a closure 35 operable by knob 36.

Except for the fact that instead of a plain casing, such as shown in Figs. 1 to 3, a casing in the form of a human head is employed in the modified form, the device is constructed and is operated in the same manner as described previously.

The third modification illustrated in Fig. 7 differs from the embodiments shown in Figs. 1 and 5 in that no reflecting surface is employed in connection with one of its openings. There is again shown a substantially closed casing 37, in which is rotatably mounted a drum 38, supported by shaft 39, which latter again is operable from without the casing similarly to the manner described in connection with Figs. 1 and 5. The front portion 40 of the casing is curved in substantial parallelism with the periphery of drum 38, and at the upper portion of the curved front of the casing there is provided an opening 41 and somewhat lower another opening 42 will be observed. A strip 43 of intelligence is supported by the periphery of the drum and one portion of the strip carrying the problems is rendered visible through opening 41, whereas upon the other strip portion the answers corresponding to the problems are provided and are observable through opening 42. Both problems and answers are visible simultaneously through their respective openings, the latter being offset relative to one another in two parallel planes, in the manner described in connection with Figs. 1 and 5. Casing 37 again is equipped with an openable closure 44, to provide access to the interior of the casing.

The embodiment of the invention shown in Fig. 7 is considerably simpler in construction and arrangement and also less expensive in manufacture than the devices disclosed in Figs. 1 and 5, and, with the exception of the different relative arrangements of the problems and answers on the strip of intelligence carried by the drum and the omission of the reflector in adjacency to one of the openings, the ultimate effect obtained with that modified form will be substantially the same as achieved in the previously described figures.

In every one of the embodiments, the prime thought of aiding children in their educational problems by way of amusement and play is paramount. The illustrations presented disclose devices involving the principle of presenting a problem and solving the problem by way of play or surprise, due to which features lasting impressions of problems and answers in the minds of children are created.

The offsetting of window openings 14, 15 in Fig. 2, 29 and 30 in Fig. 5 and 41 and 42 in Fig. 7 has its definite purpose. Obviously the questions appearing in the upper windows 14, 29 and 41 will be observed first, while in order to view the answers to questions the observer would be forced to cast his eye to a much lower point of the device since such answers would appear in openings 15, 30 and 42 which are located at a substantial peripheral distance from the openings 14, 29 and 41. Of course it is relatively simple to observe the two openings 41 and 42 in Fig. 7 but the difficulty of observing the answers in Figs. 2 and 6 would require the observer to actually move his head or move the device in order to enable him to see the answers. That difficulty is obviated by the use of reflectors. However, even by the use of these reflectors the observer is forced to cast his eye to a lower point of the device, and that short interval between such change of vision is counted upon to provide the observer with sufficient time to mentally solve the problem appearing in the upper opening.

As the observer finds the image of the answer in the mirror he then verifies the correctness of his problem solution. This procedure of course applies to the two preferred forms shown in Figs. 2 and 6.

Due to the purposely chosen low location of openings 15 and 30 in these figures it would be extremely inconvenient for the observer to locate the answers through these openings. To facilitate the observation of the answers through these openings reflectors 25 and 31 are provided. The use of the reflectors of course requires that the

answers carried by strip 19 be in the form of mirror images which, when reflected by mirrors 25 and 31, will become readily and directly readable by the observer.

While the drawings illustrate a few presently preferred embodiments of the instant disclosure it is to be understood that obvious changes may be effected within the scope of this invention, as defined by the annexed claims.

What is claimed as new is:

1. In an educational toy, a substantially closed partly cylindrical casing, a drum-like rotor revoluble therein, means for operating the rotor from without the casing, a problem-and-answer strip carried by the rotor, and wherein the problems and answers are offset and peripherally spaced relative to one another, the casing having at its front two peripherally spaced openings offset relative to one another at different parallel planes, the spacing and offset disposition of the openings corresponding to the offset and location of the problems and answers on the strip, one opening serving for rendering visible a problem appearing upon the strip, the other opening facilitating the observation of the answer carried upon the strip.

2. An educational toy comprising in combination a casing provided with a substantially semicylindrical frontal portion and having at its rear an openable closure for providing access to the casing interior, a rotor revoluble within the casing, means for revolving the rotor arranged exteriorly to the casing, said rotor comprising a drum with a relatively wide peripheral surface, said casing having at its front two relatively widely, peripherally spaced openings offset relative to one another at different parallel planes passing at right angles through the axis of rotation of the drum, a problem-and-answer strip removably mounted over the periphery of the drum, the problems and answers carried upon the strip being peripherally spaced and offset to one another so that they are rendered simultaneously visible through the openings of the casing.

3. An educational toy as per claim 2, a reflector mounted in the casing and being disposed adjacent to one of the openings and being adapted to project the answers to problems carried by the strip toward the observer, thus facilitating their reading.

4. An educational toy as per claim 2, said casing comprising a rotor-accommodating portion and an under structure, and a reflector mounted in the latter adjacent one of the openings in the casing for projecting images of answers carried by the strip toward the observer to facilitate its reading.

5. An educational toy comprising in combination, a casing having lower and upper structures, a rotor revoluble within the upper structure, an openable closure for that upper structure to provide access to the rotor, a plurality of spaced openings provided at the periphery of the casing and being disposed in different parallel planes perpendicular to the axis of rotation of the rotor, a reflector in said lower structure opposite one of the openings, a strip removably associated with the periphery of the rotor and carrying at least two different kinds of intelligence, at least one kind of intelligence being adapted to become directly observable through one of the openings, while another kind of intelligence, in the form of a mirror image and related to that one kind, being simultaneously observable as reflected image through another of the openings, said reflector facilitating the ready reading of that other kind of intelligence simultaneously with that one kind of intelligence.

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