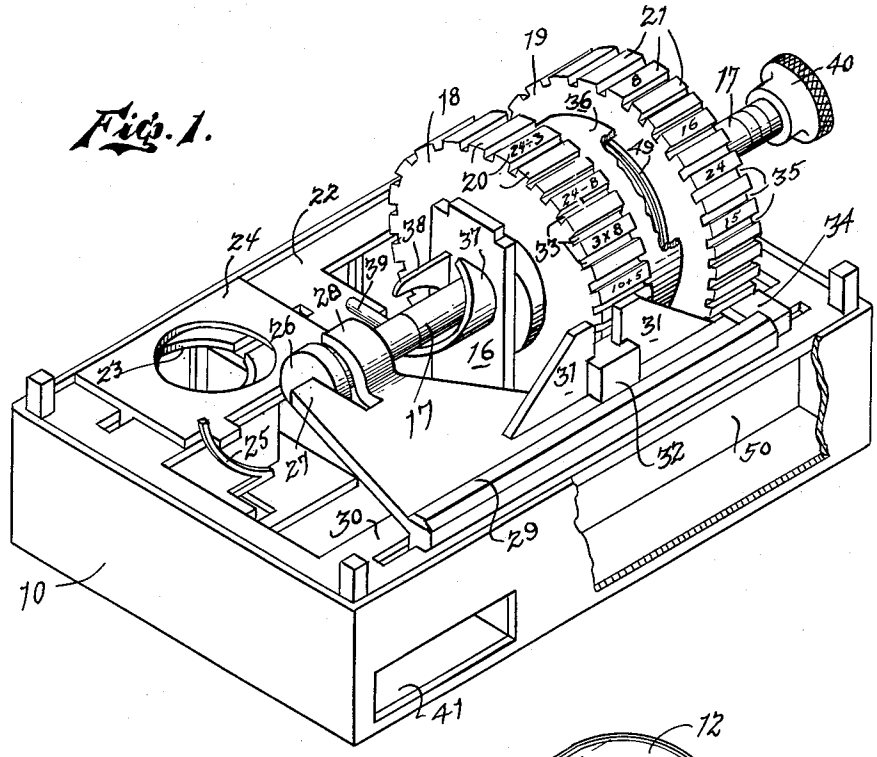
April 24, 1956 O. VILLANUEVA 2,742,713

EDUCATIONAL QUESTION AND ANSWER TOY

Filed Sept. 27, 1954 3 Sheets-Sheet 1

Fig. 1.



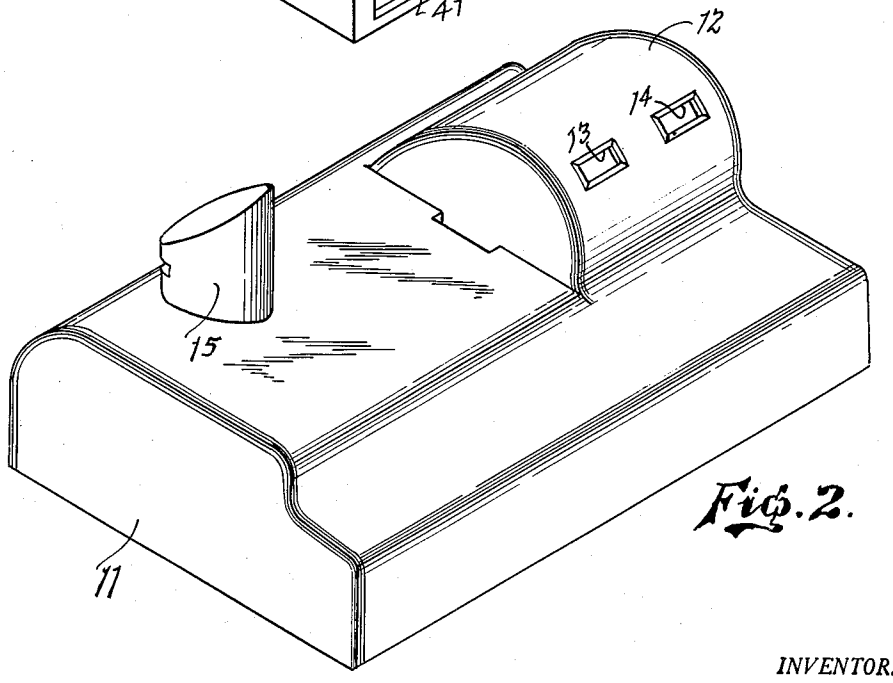


Fig. 2.

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EDUCATIONAL QUESTION AND ANSWER TOY

Filed Sept. 27, 1954 3 Sheets-Sheet 2

Fig. 3.

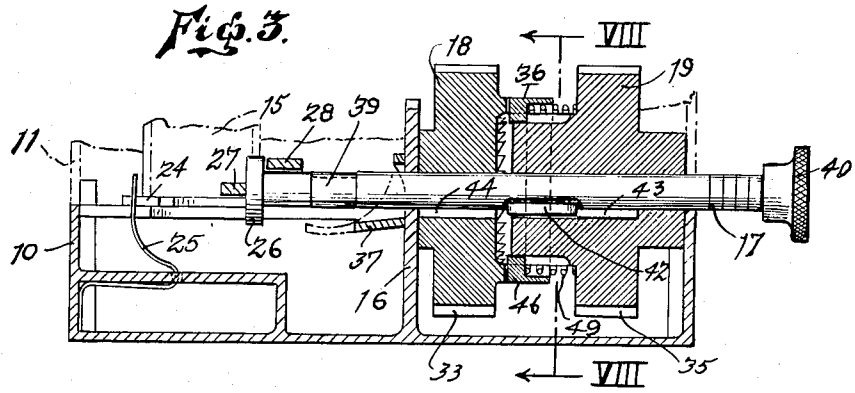


Fig. 4.

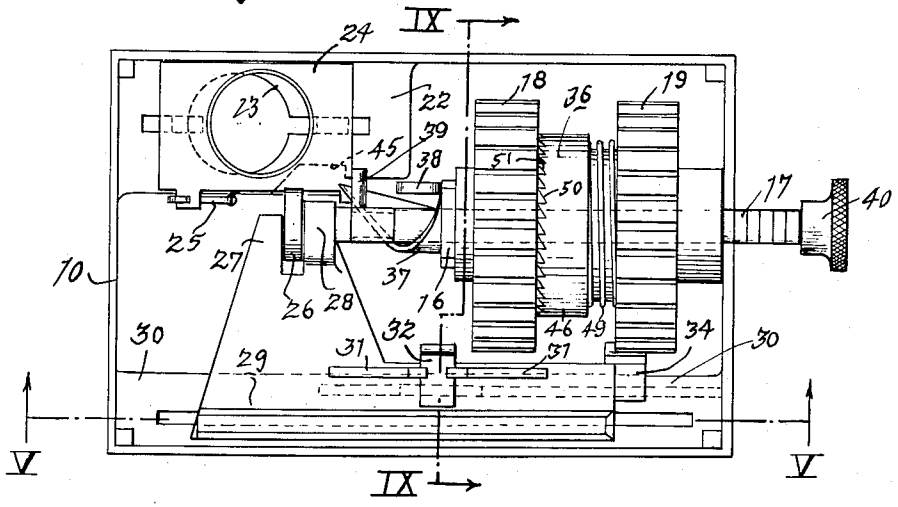
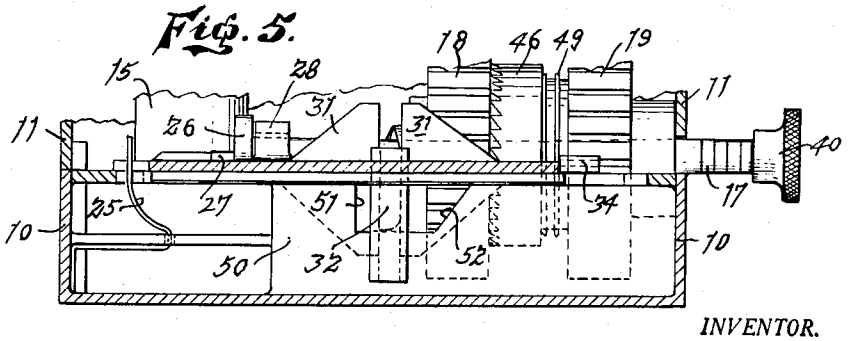


Fig. 5.



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EDUCATIONAL QUESTION AND ANSWER TOY

Filed Sept. 27, 1954 3 Sheets-Sheet 3

Fig. 6.

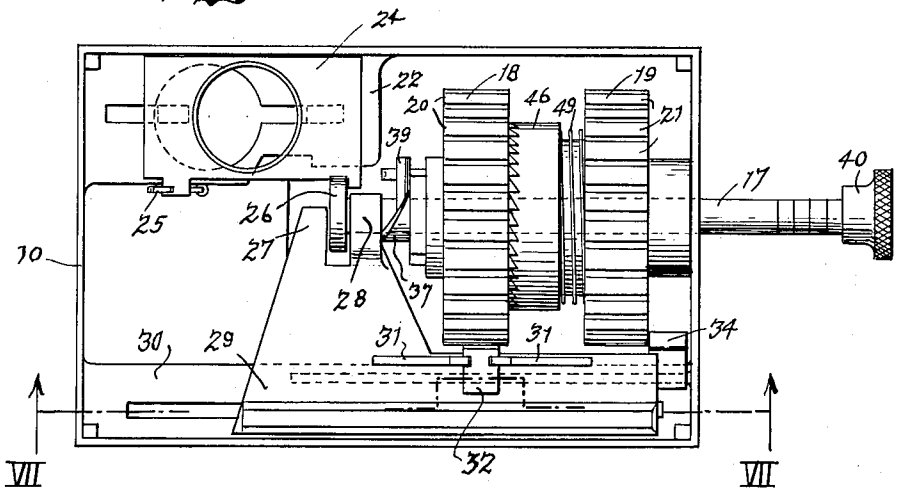


Fig. 7.

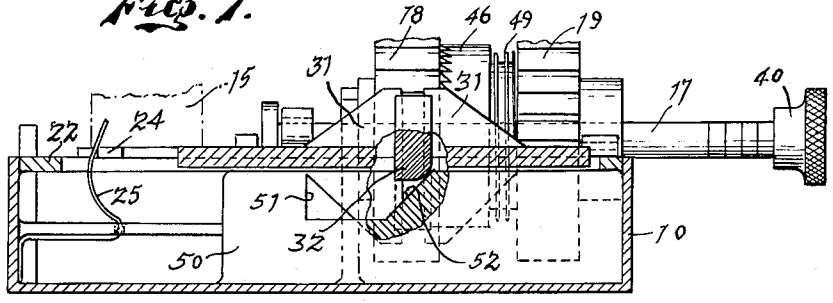
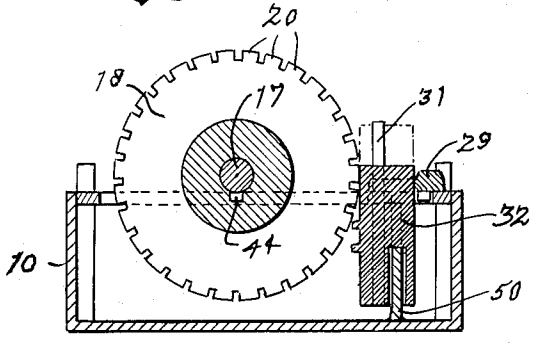


Fig. 9.



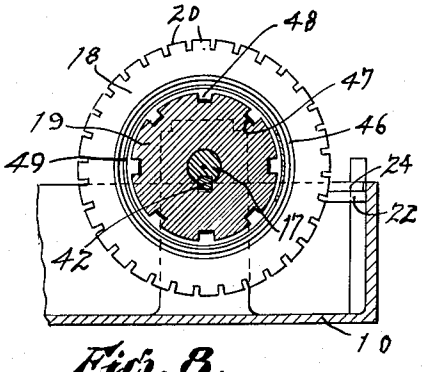


Fig. 8.

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United States Patent Office 2,742,713 Patented Apr. 24, 1956

2,742,713

EDUCATIONAL QUESTION AND ANSWER TOY

Oscar Villanueva, San Francisco, Calif.

Application September 27, 1954, Serial No. 458,483

10 Claims. (Cl. 35—9)

My present invention relates to educational devices and more particularly to a device in the nature of a toy for exercising the mind of a child in answering problems in arithmetic and in other fields of study.

The principal object of the invention is to provide a mechanically operating device or toy by which problems to be solved mentally may be set up and answered by mechanical means which in the event of a correct answer will indicate and/or dispense a rewarding token.

Another object of the invention is to provide a problem presenting and answering mechanism in the form of a toy which may be operated in a simple manner by a child with a minimum of effort and which is composed of a minimum of complicated parts that can be economically manufactured.

A further object of the invention is to provide a manually operated toy which when properly operated for the solution of a problem presented thereby will dispense a token in reward for a correct answer and which in the event of a wrong answer will automatically operate to change the problem and thus prevent a second try for a right answer to the presented problem.

Other objects and advantages will be in part evident to those skilled in the art and in part pointed out in more detail hereinafter in connection with the accompanying drawings wherein there is shown by way of illustration and not of limitation a preferred embodiment of the invention.

In the accompanying drawing—

Figure 1 is an isometric view of a device constructed in accordance with the invention with cover removed,

Figure 2 is a similar view of a cover such as is employed with the device as shown in Figure 1 of the drawing,

Figure 3 is a vertical sectional view taken longitudinally along the operating center line of the device,

Figure 4 is a plan view of the device as shown in Figures 1 and 3 of the drawings,

Figure 5 is a fragmentary vertical sectional view taken along the line V—V of Figure 4 looking in the direction of arrows,

Figure 6 is a plan view similar to Figure 4 with the parts in different operating positions,

Figure 7 is a vertical sectional view taken along section line VII—VII of Figure 6 looking in direction of arrows and with a small central portion set back as indicated by said section line,

Figure 8 is a fragmentary sectional view taken along line VIII—VIII of Figure 3 looking in direction of arrows, and

Figure 9 is a vertical sectional view taken along line IX—IX of Figure 4 looking in direction of arrows.

While the device as indicated above has been described as relating to an educational toy, it may be also considered as a game apparatus in the sense that by a proper manipulation thereof in accordance with conditions set up therein the device is adapted to dispense a token as a reward in the event of a proper operation of the device as is determined by successively changing conditions therein.

For a general description of the apparatus here shown to illustrate my invention, reference is now particularly made to Figures 1 and 2 of the drawings wherein the numeral **10** designates a shallow rectangular housing or base portion over which an enclosing cover **11** is mounted. The cover **11** has a raised circular portion **12** having sight openings **13** and **14**, the purpose of which will become apparent as the description proceeds. In addition to the sight openings the cover **11** also carries a coin magazine **15**. As shown, the housing **10** has a substantially central pedestal **16** that serves as a support for the inner end of a rotatable and axially moveable shaft **17** upon which there is mounted a problem carrying wheel **18** and an answer carrying wheel **19**. The problem carrying wheel **18** and the answer carrying wheel **19** are notched about their periphery to provide spaced lands **20** and **21** upon which there is respectively printed or otherwise formed a problem and an answer thereto. When the related problem and answer carrying lands **20** and **21** are placed in register and viewable through the sight openings **13** and **14** of the cover **11** the device can then be operated to control a coin dispensing mechanism which is associated with the magazine **15** carried by the cover **11**. This coin dispensing mechanism comprises a fixed surface plate **22** having a circular dispensing opening **23** over which there is mounted a slideable coin displacing slide **24** that is adapted to be actuated by axial movement of the shaft **17**. In this arrangement the coin engaging slide **24** is biased into its inoperative position by means of a spring **25**.

At the inner end of the shaft **17** there is an enlarged head **26** which is also adapted to engage with an extension upon the slide **24** to insure a return thereof to its inoperative position. As illustrated in Figure 1 of the drawing, the enlarged head **26** carried by the shaft **17** is disposed between extending fingers **27** and **28** which are carried by a slide or problem resetting device **29** that is mounted upon a slideway **30** carried by the housing **10** in spaced parallel relation with the axis of the operating shaft **17**.

As will be hereinafter pointed out in more detail, the slide or resetting device **29** has spaced vertically extending guides **31** between which there is mounted a vertically moveable problem wheel engaging element **32** that has an extending tooth or teeth which engage with slots or notches **33** extending into the periphery between the lands **20** of the problem carrying wheel or drum **18**. At its extreme end the slide or resetting device **29** also carries a notch engaging member **34** that is adapted to engage one of the notches **35** between the lands **21** of the answer carrying wheel **19**. In this figure of the drawing it will be noted that the problem carrying wheel **18** and the answer carrying wheel **19** are positioned on opposite sides of a yielding ratchet mechanism **36** which is to be explained in greater detail hereinafter. The central pedestal **16** of the housing **10** is also here shown as carrying an axially extending cam-like member **37** and an adjacent projecting lip **38** which operate upon both rotary and axial movement of the shaft **17** to control the position of a radially extending pin **39** which is loosely mounted to turn freely about the shaft **17**. Under operating conditions this radially extending pin **39** will engage the coin dispensing slide **24** and dispense a coin when a correct answer to a problem is set up with the answer wheel **19** by an axial movement of the shaft **17**. To facilitate manual operation of the shaft **17** in both its rotary and axial movements there is provided a knurled operating knob **40** at its extending end. As a means for centering the cover **11** upon the housing **10** there is shown an upwardly extending square stud or post at each corner of the housing **10** over which the cover **11** is positioned and not shown at its other end the cover **11** has a properly dimensioned notch to accommodate the shaft **17** when

the device is closed. When the cover **11** is positioned upon the housing **10** in this manner the sight openings **13** and **14** will be positioned over the problem carrying wheel **18** and the answer carrying wheel **19** so that only one of the spaced lands upon each of these wheels will be visible therethrough. When the shaft **17** is pulled out of the housing or to the right as shown in Figure 1 the resetting slide **29** will be moved likewise to the right and cause the problem carrying wheel **18** to be rotated in a manner explained hereinafter to bring a particular land **20** thereof into register with the problem sighting opening **13** of the cover **11**, then by a rotation of the shaft **17** in a clock-wise direction any desired land **21** of the answer carrying wheel **19** may be brought into register with the sight opening **14** of the housing **11**. When a proper answer is brought into register with a problem in this manner under the sight openings **13** and **14** the shaft **17** can be moved axially and into the housing so as to move the pin **39** carried thereby in such a manner as to operate the coin dispensing slide **24** and cause a coin to drop from the coin magazine **15** and be finally discharged from the housing **11** through a side opening **41**. This axial movement of the shaft **17** will also serve to move the extending tongue **34** of the resetting slide **29** into locking engagement with the answer carrying wheel **19** and at the same time release the problem carrying wheel **18**. Then upon reverse or outward movement of the shaft **17** the resetting device **32** will operate to reset the problem carrying wheel **18** in a new position and thus present a new problem in the sight opening **13** of the cover **11**. During this reverse movement of the shaft **17** the extending tongue **34** will be moved out of engagement with the answer carrying wheel **19** and the latter may then be again turned by rotation of the shaft **17** to set up a proper answer at the sight opening **14** for the new problem.

With the above in mind, reference is now made to Figures 3, 4 and 5 of the drawings where the shaft **17** is shown as extended into the housing **10** to a position intermediate its limits of movement. As particularly well shown in Figure 3 the shaft **17** carries a fixed key **42** that is adapted to move axially within a keyway **43** in such a manner that the shaft **17** may move relative thereto without releasing the wheel **19**. When the answer carrying wheel **19** is positioned in proper problem solving relation with the problem carrying wheel **18** the keyway **43** thereof will be located in register with a keyway **44** formed in the problem carrying wheel **18** in such a manner that the shaft **17** may then be moved into its extreme left hand position where the coin dispenser operating pin **39** will operate to move the coin displacing slide **24** a distance sufficient to discharge a coin from the magazine **15**. At the end of this movement the pin **39** will drop through the cut away portion **45** of the fixed surface plate **22** and around the end of the cam **37**. As is also well illustrated in these figures of the drawings, the yielding ratchet mechanism designated generally by the numeral **36**, comprises a slideable collar or sleeve **46** that is splined to the hub of the problem carrying wheel **19**, as is more clearly shown in Figure 8 of the drawings, by means of a plurality of keyways **47** formed in the hub of the answering wheel **19** and projecting tongues or keys **48** carried by the sleeve **46** and operating to bias the sleeve **46** outwardly from the answer carrying wheel **19** there is a helical spring **49**. At its outer face the sleeve or collar **46** is provided with an annular sawtooth or ratchet-like surface **50** which engages with a similar matching surface **51** formed upon the engaged face of the problem carrying wheel **18**. With this arrangement it will be evident that the problem carrying wheel when not oherwise held may be rotated relative to and independently of the answer carrying wheel **19** and in like manner it will be seen that this ratchet-like connection will also permit the answer carrying wheel **19** to rotate in a reverse direction when it is not held against rotation by the extending tongue **34** carried by the resetting slide member **29**. At the same time this ratchet mechanism will prevent a reverse rotation of the wheels **18** and **19** when one or the other is locked in position as indicated above. With the lands **20** and **21** upon the wheels **18** and **19** held in alignment in this manner and irrespective of the relative locations of the keyways **43** and **44** or the questions and answers carried thereby it will be only when the keyways **43** and **44** are in register that the shaft **17** may be moved a distance sufficient to operate the coin dispensing slide **24**. In the event that an attempt is made to operate the shaft **17** with an incorrect answer in register with a problem set up at the sight opening **13** the keyways **43** and **44** will not be in register and as a result it will be found that the shaft can be moved a distance only sufficient to bring the key **43** into engagement with the inner face of the problem carrying wheel **18**. When this occurs the pin **39** carried by the shaft **17** will fail to operate the coin dispensing device. As a further consequence the pin **39** will not move far enough to drop through the notch **45** and from the surface of the fixed surface plate **22**, but will be carried back under the projecting lip **38** upon the next operation of the device and in this position it will be held inoperative with respect to the coin dispensing mechanism upon the next correct answer operation of the device. That is until the shaft **17** has completed a full length operating stroke which will permit the pin **39** to drop from the surface plate **22** and into cooperating relation with respect to the cam **37** for a return to its operative position above the projecting lip **38**. In other words, the pin **39** will not become again operative with respect to the coin dispensing mechanism until after at least one operation with a correct answer to a problem has been accomplished. In this situation when the correct solution is set up, the pin **39** will be moved sufficiently far to again assume its resetting relationship with respect to the cam **37**. Then upon a subsequent operation of the device the pin **39** will be carried around by the cam **37** and reset in an operative position with respect to the coin dispensing mechanism as above described. This feature in a sense provides a penalty for a wrong answer as the operator must now present two correct answers in succession before receiving a rewarding token in the form of a coin or other object. However, where a correct answer is initially set up and the shaft **17** is moved inwardly as above indicated, the pin **39** will be moved a distance sufficient to clear the end of the cam **37** and then as the shaft **17** is moved outwardly or to the right as here viewed the pin **39** will be caused to turn about the shaft **17** as it rides over the camming surface of the cam **37** when this operation is completed, the pin **39** will assume a position above the lip **38**, as shown in Figure 6, from which it will drop to the surface of plate **22** and into operative relation with the coin dispensing device and dispense a coin upon each successive correct answer to a problem.

Upon now referring particularly to Figures 4 and 5 of the drawings it will be seen that when the shaft **17** is moved inwardly to actuate the coin dispensing apparatus the enlarged head **26** thereupon in conjunction with the extended fingers **27** and **28** will cause the resetting slide member **29** to move along the slideway **30** and thus bring the answer wheel locking member **34** into locking engagement therewith. When the answer carrying wheel is thus locked against rotation the key **42** carried by the shaft **17** will be extended into the problem carrying wheel **18** and thus this latter wheel will be also locked against rotation. During this movement of the shaft **17** the resetting device **32** will be moved out of engagement with the problem carrying wheel **18**. At the same time the keyways **43** and **44** of the problem and answer carrying wheels **18** and **19** will be held in register by the key **42** so that the shaft **17** may be moved outwardly to again release the answer carrying wheel **19** so that it may be turned by a rotation of the shaft **17**. During this axial movement of the shaft **17** the resetting slide member **29** will carry the resetting device **32** into engagement with the problem carrying wheel and after becoming engaged with a notch of the problem carrying wheel **18** will move upwardly

between the vertical guides **31** and thus cause the problem carrying wheel **18** to be moved a fraction of a revolution with respect to the answer carrying wheel **19**. This vertical movement of the resetting device **32**, as will appear more clearly hereinafter, is accomplished by a camming web **50** which has a notch **51** that is straddled by a portion of the resetting device **32** as is more clearly shown in Figure 9 of the drawings. At its end this notch **51** in the camming web **50** has an inclined portion **52** which when engaged by the straddling portion of the resetting device **32** will cause the latter member after becoming engaged with the problem carrying wheel **18** to move the problem carrying wheel **18** a distance of two lands with respect to the sight opening **13** of the cover **11** and thus present a new problem for answer by a turning of the answer carrying wheel **19** into proper relationship therewith.

As shown in Figures 6 and 7 of the drawings, the shaft **17** is in its extreme outward or righthand position and as a result the problem wheel resetting device **32** is here shown as in full engagement with the problem carrying wheel **18** and in its elevated position. Under these conditions, as previously indicated, the problem carrying wheel **18** will have been advanced a distance of two lands so as to present a new problem beneath the sighting aperture **13** of the cover **11**. At the same time the extending tongue **34** carried by the resetting slide **29** will be in disengagement with the answer wheel **19** and the key **42** carried by the shaft **17** will have been withdrawn from the problem carrying wheel **18**. Thus a turning of the answer carrying wheel **19** will be possible by rotation of the shaft **17**. During this rotation of the answer carrying wheel **19** the problem carrying wheel **18** will be held against rotation and the ratchet-like connection **36** between the problem carrying wheel **18** and the answer carrying wheel **19** will become operative to insure a stopping of the answer carrying wheel **19** at any point through a complete revolution thereof with a land **21** thereupon in register with one of the lands **20** of the problem carrying wheel **18**. If by this turning of the shaft **17** the operator should bring a land **21** of the answer carrying wheel which has the correct answer to a problem carried by a particular land **20** of the problem carrying wheel into alignment the keyways **43** and **44** carried respectively by these wheels will be in register and if it is assumed that the pin **39** carried by the shaft **17** is in the position shown in Figure 6, this pin **39** will engage with the slide **24** of the coin dispensing mechanism and cause the coin to be discharged from the magazine **15** as the reward for a correct answer. On the other hand, if an incorrect answer is set up with the answer carrying wheel **19** the inward movement of the shaft **17** as suggested above will be limited by an engagement of the key **42** carried thereby with the face of the problem carrying wheel **18**.

In order to render the device more interesting and also somewhat more difficult in its operation and particularly to make more difficult the memorizing of the various problems by a child, I prefer to form the problem carrying wheel **18** and the answer carrying wheel **19** with an odd number of lands and with this arrangement the problem carrying wheel **18** is advanced a distance of two lands upon each operation thereof. As a result it will require two complete revolutions of the problem carrying wheel **18** before the same problem will again appear under the sight opening **13** of the cover **11**. As a further variation of the invention, I may also provide the problem carrying wheel with more than one keyway with a corresponding number of similar answers upon the answer carrynig wheel **19** so that when any one of the problems corresponding to a particular keyway of the problem carrying wheel **18** is correctly answered by a turning of the answer carrying wheel **19** the device may be operated as above indicated.

While I have for the purpose of illustrating my invention illustrated and described the problem carrying and answer carrying elements as in the form of cylinders or

drums, I desire to have it understood that the invention is not necessarily limited to this particular construction. It is conceivable that the problem carrying element **18** and the answer carrying element **19** may take other forms. I desire to have it also understood that insead of the coin dispensing mechanism as controlled by the slide **24** I may associate my invention with a conventional article dispensing device that will dispense some article other than a coin as a rewarding token. For example, it is contemplated that the coin dispensing device here illustrated and described may be modified so as to dispense a reward in the form of gum or candy and possibly a quantity of peanuts or the like. With these possibilities in view it can be readily seen that while the device is here illustrated and described as an educational toy the mechanism here disclosed may be embodied in a public vending machine in such a manner that upon the insertion of a coin the shaft **17** will become exposed or otherwise rendered operative for the actuation of the device as above described and when properly operated a reward in the form of merchandise will be dispensed by the vending machine.

With the above in view and for the sake of clearness and in order to disclose the invention so that the same can be readily understood, I have described and illustrated a specific form and arrangement and I desire to have it understood that the invention is not limited to the specific form disclosed, but may be embodied in other ways that will sugegst themselves to persons skilled in the art. It is believed that this invention is new and all such changes as come within the scope of the appended claims are to be considered as part of this invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In an educational toy of the character described, the combination of a housing with a sight opening through which a problem carrying element is exposed and a sight opening through which an answer carrying element is exposed, a manually controlled rotatable and axially moveable shaft extending into said housing, said shaft having a fixed key thereupon, a problem carrying element rotatably mounted upon said shaft having a free keyway for the key upon said shaft, an answer carrying element mounted upon said shaft having a keyway for the key upon said shaft, means operating between said problem carrying element and said answer carrying element for maintaining problems and answers carried by said elements in proper relationship with each other when the keyways thereupon are in register, and means operable upon axial movement of said shaft in one direction for securing said shaft and answer carrying element against rotation and changing the position of said problem carrying element with respect to said answer carrying element, whereby upon each successive operation of said shaft a different problem to be answered will be presented at said problem exposing sight opening.

2. In an educational toy of the character described, the combination of a housing with a sight opening through which a problem carrying element is exposed and a sight opening through which an answer carrying element is exposed, a manually controlled rotatable and axially moveable shaft extending into said housing, said shaft having a fixed key thereupon, a problem carrying element rotatably mounted upon said shaft having a free keyway for the key upon said shaft, an answer carrying element mounted upon said shaft having a keyway for the key upon said shaft, means operating between said problem carrying element and said answer carrying element for maintaining problems and answers carried by said elements in proper relationship with each other when the keyways thereupon are in register, said last means being adapted and arranged to permit relative rotation between said problem carrying element and said answer carrying element independently of each other and only in opposite directions, means operable upon axial movement of said shaft for securing said shaft and answer carrying element against rotation and changing the posi-

tion of said problem carrying element with respect to said answer carrying element, whereby upon each successive operation of said shaft a different problem will be presented for answer.

3. In an educational toy of the character described, the combination of a housing with sight openings through which a problem carrying element and an answer carrying element are exposed, a manually controlled rotatable and axially moveable shaft extending into said housing, said shaft having a fixed key thereupon, a problem carrying element rotatably mounted upon said shaft and having a free keyway for the key upon said shaft, an answer carrying element mounted upon said shaft having an elongated keyway for axial movement of the key upon said shaft, means operating between said problem carrying element and said answer carrying element for maintaining problems and answers carried by said elements in register with each other when the keyways thereupon are in register, said last means including a ratchet type connection which will permit relative rotation between said problem carrying element and said answer carrying element independently of each other but only in opposite directions, and means operable upon axial movement of said shaft for changing the position of said problem carrying element with respect to said answer carrying element, whereby upon each successive operation of said shaft a different problem will be presented for answer.

4. In an educational toy of the character described, the combination of a housing having sight apertures through which problem and answer carrying elements are exposed, a rotatable and axially moveable shaft extending into said housing having one end exposed for manual operation, a problem carrying element rotatably mounted upon said shaft and having a keyway therein, an answer carrying element keyed upon said shaft with an elongated keyway permitting axial movement of said shaft relative thereto, a key carried by said shaft forming the keyed connection between said answer carrying element and said shaft, said key being adapted and arranged to enter the keyway of said problem carrying element upon axial movement of said shaft when the keyway of said element is in register with the keyway of said answer carrying element, means mounted between said problem carrying and answer carrying elements for holding the keyways thereof in register when a problem and an answer thereto are in proper relationship to each other in said sight openings, said means permitting relative movement of said answer carrying element in one direction only with respect to said problem carrying element, and means responsive to axial movement of said shaft for changing the position of said problem carrying element with respect to the problem exposing sight aperture of said housing.

5. In an educational toy of the character described, the combination of a housing having sight apertures through which independently moveable problem and answer carrying elements are exposed, a rotatable and axially moveable shaft extending into said housing having one end exposed for manual operation, a problem carrying element rotatably mounted upon said shaft and having a keyway therein, an answer carrying element keyed upon said shaft with an elongated keyway permitting axial movement of said shaft relative thereto, a key carried by said shaft and extending into the elongated keyway of said answer carrying element, said key being adapted and arranged to enter the keyway of said problem carrying element upon axial movement of said shaft when the keyways of said problem carrying element and said answer carrying element are in alignment, means carried by said problem carrying element and said answer carrying element for holding the keyways thereof in register when a problem and an answer carried respectively thereby are in correct relationship with each other in said sight openings, said means comprising a ratchet-like mechanism permitting relative movement in one direction only between said answer carrying element and said problem carrying element independently of or upon rotation of said shaft, and means operative upon axial movement of said shaft for changing the position of said problem carrying element with respect to the problem exposing sight aperture of said housing.

6. In an educational toy of the character described, the combination of an enclosed housing having sight apertures through which a problem and an answer carrying element are exposed, a rotatable and axially moveable shaft extending into said housing having one end exposed for manual operation, a problem carrying element rotatably mounted upon said shaft and having a keyway therein, an answer carrying element keyed upon said shaft with an elongated keyway permitting axial movement of said shaft relative thereto, a key carried by said shaft forming the keyed connection between said answer carrying element and said shaft, said key being adapted and arranged to move axially in the elongated keyway of said problem carrying element and thus permit axial movement of said shaft in one direction when the keyway of said problem carrying element is in register with the elongated keyway of said answer carrying element, and means responsive to a reverse axial movement of said shaft for changing the position of said problem carrying element with respect to the problem exposing sight aperture of said housing.

7. In an educational toy of the character described, the combination of an enclosed housing having sight apertures through which a problem and an answer carrying element are exposed, a rotatable and axially moveable shaft extending into said housing having one end exposed for manual operation, a problem carrying element rotatably mounted upon said shaft and having a keyway therein, an answer carrying element keyed upon said shaft with an elongated keyway permitting axial movement of said shaft relative thereto, a key carried by said shaft forming the keyed connection between said answer carrying element and said shaft, said key being adapted and arranged to move axially in the elongated keyway of said answer carrying element when the keyway of said problem carrying element is in register with the elongated keyway of said answer carrying element, means responsive to a reverse axial movement of said shaft for changing the position of said problem carrying element with respect to the problem exposing sight aperture of said housing, and a correct answer indicating mechanism operable upon movement of the key carried by said shaft into full engagement with the keyway of said problem carrying element.

8. In an educational device of the character described, the combination of an enclosing housing having sight apertures through which an enclosed problem presenting drum and an answer carrying drum are visible, a shaft mounted for rotary and axial movement within said housing having one end extending externally of said housing for manual operation, a drum mounted upon said shaft within said housing having equally spaced axially extending notches defining lands about its outer periphery, said drum having a keyway but being freely rotatable about said shaft, a second drum having similarly defined lands and an elongated keyway, the lands upon said first drum having different problem indicating indicia thereupon and the spaced lands upon said second drum having related problem answering indicia thereupon, a key carried by and secured intermediate the ends of said shaft adapted and arranged to move in the elongated slot of said second drum and engage with the keyway of said first drum when said keyways are in alignment, a slideway disposed outwardly and extending in parallel relation with said shaft, a slide member mounted upon said slideway, an operating connection between said shaft and said slide member for imparting movement to the latter upon axial movement of said shaft, means carried by said slide member engageable with a notch upon said first drum for preventing rotation when the key upon said shaft is moved out of engagement with the keyway thereof.

9. In an educational device of the character described, the combination of an enclosing housing having sight apertures through which an enclosed problem presenting drum and an answer carrying drum are visible, a horizontally disposed shaft mounted for rotary and axial movement within said housing having one end extending externally of said housing for manual operation thereof, a drum mounted upon said shaft within said housing having equally spaced axially extending notches defining lands about its outer periphery, said drum having a keyway but being freely rotatable about said shaft, a second drum having similarly defined lands and an elongated keyway, the lands upon said first drum having different problem indicating indicia thereupon and the spaced lands upon said second drum having problem answering indicia thereupon, a key secured intermediate the ends of said shaft adapted and arranged to engage with the keyways formed in said drums when said keyways are in alignment, means operating between said drums for limiting relative rotation thereof with respect to each other to one direction only, a slideway extending in parallel relation with said shaft, a slide member mounted upon said slideway, an operating connection between said shaft and said slide member for imparting movement to the latter upon axial movement of said shaft, means carried by said slide member engageable with a notch upon said second drum for preventing rotation thereof when the key upon said shaft is moved into engagement with the keyway of said first drum, and additional means carried by said slide member engaging a notch of said first drum for imparting a partial rotation to said first drum when the key upon said shaft is moved out of engagement with the keyway of said first drum, whereby said first drum will be moved about said shaft to present a different problem to view at the sight opening of said housing while at the same time said second drum will be freed from rotation by a turning of said shaft.

10. In an educational device of the character described, the combination of an enclosing housing having sight apertures through which a problem presenting drum and an answer carrying drum are presented to view, a shaft mounted within said housing for rotary axial movement and having one end extending externally of said housing

for manual operation thereof, a drum mounted upon said shaft having spaced axially extending notches defining lands about its outer periphery, said drum having a keyway but being freely rotatable about said shaft, a second drum having similarly defined lands and an elongated keyway, the lands upon one of said drums having problem presenting indicia thereupon and the spaced lands upon the other of said drums having problem answering indicia thereupon, a key carried by and secured intermediate the ends of said shaft adapted and arranged to engage with the keyways formed in each of said drums when said keyways are in alignment, means for limiting relative rotation between said drums to one direction only and positioning the notches thereupon in axial alignment when stationary, a slideway disposed outwardly and extending in parallel relation with said shaft, a slide member mounted upon said slideway, an operating connection between said shaft and said slide member for imparting movement to the latter upon axial movement of said shaft, a first means carried by said slide member engageable with a notch upon said second drum for preventing rotation thereof when the key upon said shaft is moved out of engagement with the keyway of said first drum, a second means carried by said slide member engaging a notch of said first drum for holding said first drum stationary when said key is moved out of engagement with the keyway of said first drum, and a means for imparting a drum rotating movement to said second means as it is moved into its holding position with respect to said first drum, whereby said first drum will be moved about said shaft and held to present a different problem carrying land thereof to view at the sight opening of said housing when said second drum will be free for rotation to present an answer to the different problem then appearing in the sight opening of said housing.

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