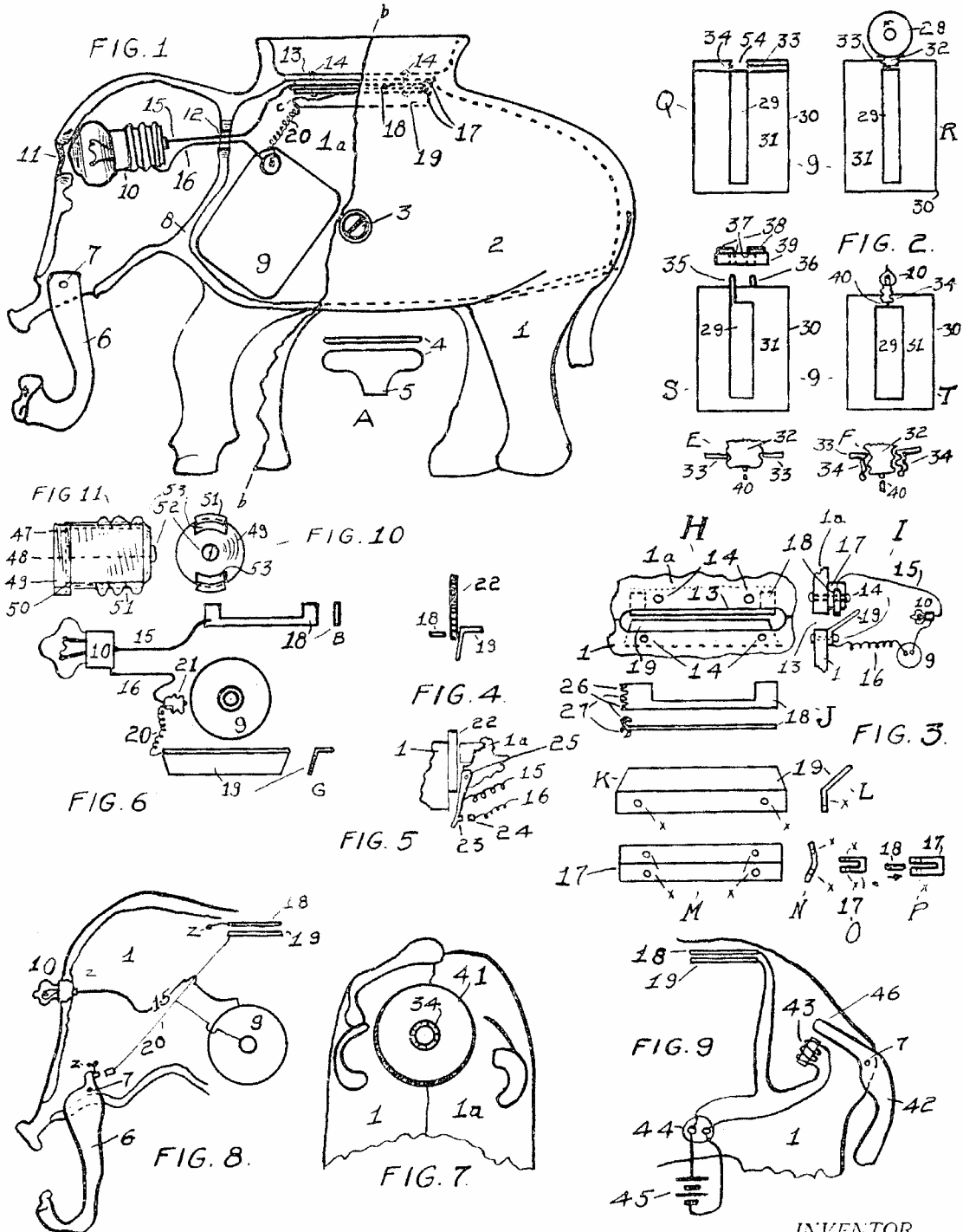


1,300,361.

Patented Apr. 15, 1919.



WITNESSES:
Meyer Edelmann
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UNITED STATES PATENT OFFICE.

PHILIP E. EDELMAN, OF ST. PAUL, MINNESOTA.

ELECTRICAL TOY AND DEVICE.

1,300,361.

Specification of Letters Patent. Patented Apr. 15, 1919.

Application filed August 7, 1915. Serial No. 44,232.

To all whom it may concern:

Be it known that I, PHILIP E. EDELMAN, a citizen of the United States, residing at St. Paul, 1803 Hague Ave., in the county of Ramsey and State of Minnesota, have invented Electrical Toys and Devices, of which the following is a specification.

My invention relates to electrical novelties utilizing small amounts of power such for example as electrical toy banks and I aim primarily to provide inexpensive non-injurious devices of this nature which will please children and others while at the same time affording obvious educational lessons. A further object is to provide electrical means which while incidental to the primary object are nevertheless capable of commercial service, such for example as to supply a cheap serviceable lantern. Other objects will presently appear. By way of example I show means therefor in the accompanying drawing, in which—

Figure 1 is an embodiment of my invention in a toy, being shown as a front elevation partially cut away along the line *b b*; Fig. 2, a diagrammatic representation of contact arrangements for a battery or cell embodied in my invention, being shown at E, F, Q, R, S, T thereof; Fig. 3, is a detail view showing the parts of the coin operated switch used in the toy bank of Fig. 1, in which H is a top or plan view thereof assembled, I a side view projected therefrom and containing in addition a circuit diagram; J, a front elevation and plan view of the member 18 of the said switch, K a plan view and L a side view of the member 19 thereof, and M N O P are views of the member 17 thereof; Fig. 4 is a view explanatory of the operation of said switch; Fig. 5 is a diagrammatic view of a modification of said switch. Fig. 6 is a diagrammatic view of the electrical parts as embodied in the toy of Fig. 1; Fig. 7 is a bottom partial view of the figure of Fig. 1 showing a modification thereof; Fig. 8 is a fragmentary diagrammatic view showing a modification of the electrical part of the toy of Fig. 1; Fig. 9 is a diagram showing a modification of the invention embodied in a figure toy bank like that shown in Fig. 1; Fig. 10 shows an end view of a plug such as is diagrammed

in Fig. 2, and Fig. 11 shows a side view of this plug connector.

Similar letters and numerals refer to similar parts in the several views, numerals denoting parts mentioned in the specification, and capital letters parts of figures while small letters denote section lines, cut lines, holes, electrical connections or subscripts as specified.

Fig. 1 shows an example of my invention embodied in a toy bank. The bank as shown comprises a two part hollow figure (here representing an elephant). It may for instance be made in the usual manner as a hollow casting or stamping of suitable metal or composition comprising two halves 1 and 1^a held together by a screw or fastener 3 which is removable by means of a key 4—5 as shown at A. This key can conveniently be stamped out of sheet metal or cast so that the portion 4 thereof can be held by the fingers to turn the screw 3 by means of the screw driver end 5. A coin holding compartment 2 is thus formed. Coins may be placed through an opening 13 suitably formed on the toy figure and serve to operate a switch or circuit closer 18—19 during their passage. The member 19 thereof then prevents the return of the coin by shaking in the usual manner and is also formed to extend as a shield over the member 18 to prevent short circuiting or closing the circuit if a child should shake or turn the toy over. The battery 9 may be of any suitable type, preferably of the kind known as dry cells and similar to those used in flashlights and in Fig. 1 is shown in place. It will be noted that it is preferably shaped to fit snugly within the hollow toy as in Fig. 7 for example so that it will not move about or wear through to a bare spot and thus short circuit. It may of course be shaped to conform to the toy figure or form a part thereof but I find by experiment that the round form of dry cell well made and carefully sealed-in at the ends to prevent loss of its moisture is preferable. To this end, when the cell 9 is completed I immerse the whole of its surface in a wax which solidifies on cooling such for instance as the wax known by the trade name of Halowax, a chlorinated product having a high melting point,

though ordinary paraffin or pitch will do. The life of the battery may be conserved for fully 100% longer in this manner thus permitting the use of a cell of small bulk for a practical length of time. The circuit is completed through any suitable electrical current consuming device using relatively small amounts of power, such for instance as a miniature electrical lamp. This lamp 10 is shown in the standard form but special forms may be made. For instance the little bulb can be constructed of colored glass or manufactured to represent an animal eye. A lamp having its head blown into a lens in the well known manner is preferred and should preferably be of the tungsten filament type though for cheapness a carbon lamp will do. A single cell affording about 1.5 volts will light up any of the small lamps rated at as much even as 3 volts sufficiently bright to serve as an animal eye. A lamp requiring as little as 1 watt lights brilliantly in a toy of this nature. I prefer to connect the lamp 10 by insulated fixture wire 15, 16 which I find has sufficient mechanical rigidity to support the whole mechanically as well as electrically. As shown, these wires 15, 16 are simply soldered to the bulb terminals of lamp 10. In using a lamp with such a toy a hole or light opening 11 may be made at one or more places in the toy figure, and equivalents thereof as the same invention can be generally applied by those skilled in this simple art. 12 indicates a hole formed in the casting 1^a to allow the wires 15, 16 to pass and be supported. 8 indicates the thickness of the shell and its general location to form a suitable bank. This it will be noted that money cannot reach the fragile lamp 10. It is preferable to support the elements 9, 10, 15, 16, 17, 18, all on or in one half 1^a of the toy figure so that the money deposited can be withdrawn conveniently. Coiling up a short length of fine insulated wire 20 to serve as a connection from the battery 9 held in 1^a by surface friction to the uninsulated member 19 of the switch 18-19 allows the portion 1^a to be folded over about the slot portion 13 as a force closed hinge so that coins can be extracted without disturbing the electrical connections. For cheapness the connections can accordingly all be soldered. As shown however and preferably, the battery is arranged so that it can be readily renewed, suitable means being shown in Fig. 2 hereafter described. The contact piece 18 of switch 18-19 is held insulated from the frame 1^a by means of insulation 17 and fasteners 14, the details being clearly shown in Fig. 3.

Fig. 4 shows how the switch of Figs. 1 and 3 operates. The coin 22 simply drops and in so doing must touch both the insulated edge contact 18 and the uninsulated spring contact strip 19, thereby causing in the case of

Fig. 1 a pleasing wink of the eye lamp 10. Coins of all kinds operate this switch equally well as the current passes through the metal of the coin because of the good contact thus made. 6 indicates a movable portion of the toy animal hinged at 7 which will be referred to later in the specification.

Looking down at slot 13 from the top (H, Fig. 3) and observing also I of Fig. 3 it will be seen that 18, preferably shaped of brass, copper, or German silver, in the form of a U as indicated in J of Fig. 3 is held between a sheet fiber sandwich 17 formed originally as shown by the front view M and side view N of Fig. 3 with holes x then bent over into the U form shown at O of this figure after which it is fastened to the toy figure by pin rivets 14. The piece 18 can then be pushed into place later as indicated by P of Fig. 3 where it will be held securely by surface friction. It will be seen that 18 is held insulated from the pins 14 and frame 1^a as well as the member 19 but still projects sufficiently to make contact with falling coins pushed by it. 18 can be connected to 15 by solder or by the joint indicated in J of Fig. 3 where prongs 26 bent one way and prong 27 bent oppositely in obvious manner catch and hold the end of wire 15 when the latter is pulled therebetween. In this detail, the wire is simply laced in between the prongs and pulled so that it binds against the prongs by friction, thus facilitating rapid economical assembly.

The more one pulls on such a joint the better it holds as the wire 15 is then acting as a friction wedge. The contact piece 19 of suitable metal is shaped as shown by front view K and side view L with holes x and then fastened to 1^a, no insulation being necessary here. Contact with wire to battery 9 can be made in any suitable manner. Fig. 6 shows the simple scheme of connections. Having already assembled the fiber 17 on 1^a and 19 on 1 it is merely necessary to push 18 into place as already described, and place 10, 15, 16 and 9 in position, where as already set forth they stay until removed. 21 of Fig. 6 indicates a separable connector in lieu of solder for connecting the wires to battery 9 as will presently be described with reference to Fig. 2. B and G of Fig. 6 merely indicate the side view appearance of 18, 19. It is of course an obvious equivalent to make 15 and 18 for instance in one piece from sheet metal. Similarly, though less desirable, the switch mechanism can be of the type indicated by Fig. 5. It will be noted that the coins 22 here merely pushes a contact 23 hinged at 25 and held by 1^a over to a contact 24, no current being carried by the coin and the wire 15 being used also as a restoring spring.

Referring now to Fig. 2, I show means for cheaply and quickly connecting the battery 100

Refrerring now to the modification of Fig. 1 shown in Fig. 8, z indicates that 18, 6, and 10 are grounded or connected to the frame L, 19, 9, 15, and 7 being insulated therefrom. This simplifies the wiring. Here a portion of the figure-toy as the trunk 6 pivoted at 7 serves as an auxiliary or shunt circuit closer normally held open by gravity but operative by movement of member 6, and 10 is mounted external to the shell 1. In Fig. 9, the tail or other convenient portion of the figure toy is electro-mechanically moved. As shown by way of example, the tail 42 pivoted at 7 serves as an armature to the magnet 43. The core of magnet 43 may be attached to or formed as a portion of shell 1 which shell also carries a separable connector 44 of the type already described whereby an external current source 45 may energize said magnet 43 when the switch 18-19 is closed. The battery 45 may for instance be contained in a hollow base upon which the figure toy rests which is so obvious as to require no illustration.

In Figs. 10, 11 I show a push plug which serves as a one piece separable connector as distinguished from the two piece devices well known in the art and which has obvious advantages including for example the merit

9 in circuit. I particularly believe the forms in which a socket (female) is formed in or as a part of the battery 9 itself to be capable of general use aside from its obvious value for toy electric banks and similar devices. I am aware that male screw caps have been added to batteries, being known as Patterson screw tops, but such electrodes are exposed as distinguished from protected electrodes such as I show and consequently the female screw socket I illustrate is less liable to short circuit. A further advantage is that an electrical device, such for example as a lamp 10, shown at I, Fig. 2 can be simply pushed or screwed into the battery to form a toy or useful device in itself. Thus by making the battery 9 with larger dimensions and using for example a lamp 10 colored red such a lamp will burn steadily all night long as a danger signal on one cell and then may be used again by renewing this cell or exchanging it for a fresh one. Similarly a toy, or toy part such as an electric motor of small dimensions can be mounted on a male plug and be simply pushed or turned into a battery 9 as indicated in Fig. 2 B where 28 represents a toy motor having a plug connector 29 which also serves to mechanically support it upon the battery 9. A preferred form of plug for such purposes is shown in Fig. 10 and Fig. 11 which will be described hereafter in this specification. At Q, Fig. 2 the battery 9 is shown constructed in the usual manner of an electrode casing 30, electrode 29, and chemicals 31 but in addition I extend the electrode 30 through the usual pitch seal 34 to a female socket 54 formed in this pitch so that a plug such as

is shown in Figs. 10, 11 can make contact electrically and mechanically with the upper portion of battery electrode 29 and the extension 33 of battery electrode 30. This may be done in several ways. At E for example the plug 32 simply screws into a hole in the sheet metal electrode extension 33 so that it also makes contact with a terminal 40. Similarly in the example diagrammed at F, Fig. 2, the electrode extension 33 is formed to include an annular female screw portion 34 into which 32 can be turned, as before or into which a plug such as is shown in Figs. 10, 11 can be pushed. At S, Fig. 2 I show a less desirable modification in which male terminals 35, 36 from the battery electrode 29, 30 are adapted to fit into a female plug 39 carrying contact pieces 37, 38. It will be understood of course that the usual insulation of electrical circuits is to be observed, else short circuits may result.

In Figs. 10, 11 I show a push plug which serves as a one piece separable connector as distinguished from the two piece devices well known in the art and which has obvious advantages including for example the merit

that it can be inserted with either a pushing or turning motion to afford a strong mechanical and electrical joint which nevertheless can be quickly pulled apart if necessary. While devised primarily for use with a female socket formed in a battery 9 as described it is obviously useful for general circuit connections as well, as for example electric light socket connectors. A plug of insulating material 49 suitably formed according to the device to be connected to the terminals 47, 48 (as for instance the motor 28 or wires 16, 20 of Figs. 2 and 1 respectively) has longitudinal slots 53 in which the long sides of a spring brass strip 50 shaped in the form of a U with its long sides pressed to form portions of a socket thread 51 are held so that they can move transversely toward and away from the screw terminal 52 of wire 48 centrally located in plug 49. It is obvious that this plug threaded only at the spring portions 51 can be turned into an ordinary socket in pushed therein because the shallow threaded portion 51 compresses within the slots 53 to a smaller diameter which will pass the female socket threads of an ordinary socket immediately thereafter. The plug can then be removed when necessary by either pulling or turning but it is preferable to press down on the long sides of the U piece 50 near the bottom of the U before pulling the plug out. The usual and obvious electrical insulation is of course to be observed here as elsewhere.

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In the modification of Fig. 1 shown in Fig. 7, a separate battery compartment 41 is formed in the figure toy 1, 1^a and has a male socket 34 of the type already described at 130

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In the modification of Fig. 1 shown in Fig. 7, a separate battery compartment 41 is formed in the figure toy 1, 1^a and has a male socket 34 of the type already described at 130

the upper or top and so that a battery of the type already described with a female socket can be quickly inserted or withdrawn without opening up the bank.

5 I have now described my invention and its several features, all of which are clearly inter-related and contribute to a common object of which an example has been fully described. It is clear that I may combine the embodiments illustrated in the several views into one toy figure, for instance, and that various changes and modifications may be made within the scope of the appended claims.

15 I claim, and these Letters Patent are to be understood as granted for—

1. In a device of the class specified, a toy figure, an electrical device included thereby, an electrical circuit therefor, a coin compartment within said figure, a coin slot connecting therewith, and electrical contacts in relation to said slot and included in said circuit, said contacts comprising means which permit passage of coins in one direction only.

2. A toy bank including an electrical current consuming indicator, a current source and circuit controlling contacts therefor, said contacts comprising a pair of metal pieces insulated from each other, one of which has its edge facing the flat side of the other, at an angle to permit passage of a coin therebetween in one direction only.

3. A toy bank comprising an ornamental figure including an electrical device, means for protecting said device from injury and from coins entering said bank, an electrical circuit and circuit closer for said device, said circuit closer being operated by a coin in passing into said bank and comprising means to prevent the return passage of said coin.

4. In a device of the class set forth, a toy figure, an electrical lamp forming a portion thereof, a money compartment therein, a coin slot connecting therewith, a pair of contacts arranged about said slot, a battery connecting with said lamp and contacts, one of said contacts extending over the other whereby a coin can pass therethrough into said compartment but not reversely.

5. In a device of the character specified, a toy figure, an electrical device included thereby and forming a working part thereof, an electrical circuit therefor, a compartment within said figure and an open slot connecting therewith, electrical contacts in relation to said slot and included in said circuit, and means comprised in said toy figure to permit access to said compartment.

6. In a device of the class set forth, a toy figure, an electrical device forming a portion thereof, a compartment therein to hold deposits, a slot connecting therewith, a pair of contacts arranged about said slot, a battery connecting with said electrical device and contacts, said contacts being arranged so that

one thereof extends at an angle to the other and into said compartment so that metal pieces deposited in said compartment will not, when shaken, connect said contacts.

7. The combination with a toy figure of a coin compartment, a coin opening formed in said figure and connecting with said compartment, electrical contacts arranged about said opening, a separable current source concealed within said figure and connecting with said contacts, an electrical indicator also connecting therewith, and means to prevent coins within said compartment from connecting said contacts.

8. In a device of the class specified, a pair of contacts one of which is larger than the other, and has a flat surface facing the edge of the other contact at an angle less than 90 degrees thereto, and comprising a coin passage such that a coin connects said contacts when passing therethrough in one direction but cannot connect nor pass said contacts in the reverse direction.

9. In combination, a two part, ornamental figure forming a coin compartment and a slot leading thereto, insulated electrical contacts adjacent to said slot, an electrical indicator and current source therefor mounted in said figure and connected to said contacts, and means for locking and unlocking said two parts of said figure together and apart without disturbing said electrical parts.

10. In a device of the character set forth, a toy bank provided with electrical indicating means and a pair of control contacts therefor, one of said contacts comprising an angular shaped lip and being insulated from and larger than the other and adapted to be connected by a coin moving therebetween in one direction only.

11. In a device of the class specified, a two part toy figure and means to fasten said parts together whereby a deposit compartment is formed, a slot connecting with said compartment, contacts about said slot, an electrical device and a battery connected to said contacts, and means whereby said toy figure may have its two parts severed to permit access to said compartment without disconnecting said battery and electrical device from said contacts.

12. In a device of the class specified, an ornamental figure including a coin compartment and concealing a current source, an electrical light embodied in said figure to indicate the deposit of coins therein, a coin slot in said figure, contacts adjacent to said slot and connecting with said light and current source, a part of said connections being formed by the material of said figure.

13. In a device of the character set forth, a toy animal figure, an electrically operated device comprising a portion of the anatomy thereof, a deposit compartment formed in said figure and separated from said electri-

ally operated device to protect the latter from injury, a socket in said figure, an interchangeable battery for said socket, and contacts connecting with said device and socket whereby said device may be operated.

14. In a device of the character set forth, means for fastening a wire to a terminal, comprising a plurality of alternately bent prongs immovably arranged with respect to

each other wherebetween said wire may be wedged by pulling.

In testimony whereof I have signed my name in the presence of witnesses this second day of August, 1915.

PHILIP E. EDELMAN.

Witnesses:

Rose Edelman,

B. J. Taylor.