Feb. 16, 1926. 1,573,122

H. J. RANK

ELECTRICAL TOY

Filed Feb. 13, 1922

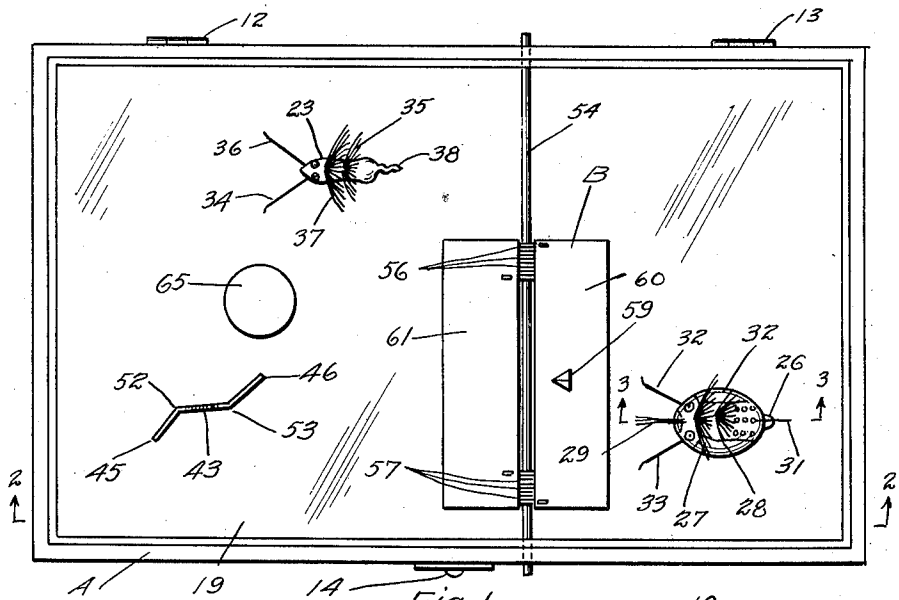



Fig. 1.

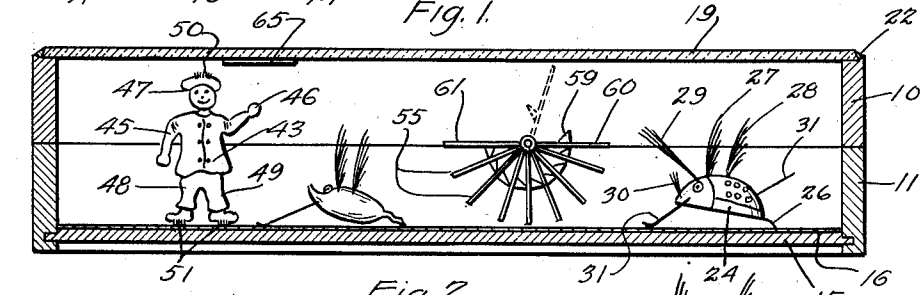



Fig. 2

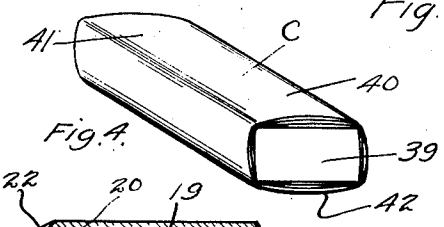



Fig. 4.

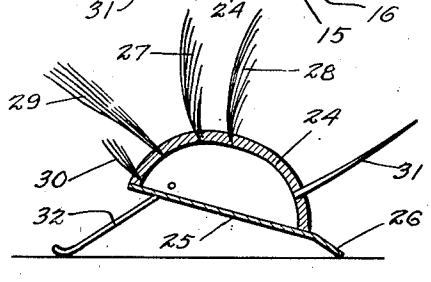



Fig. 3

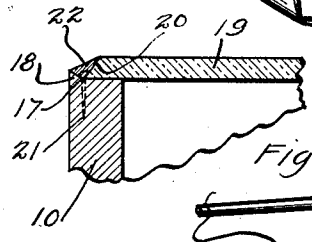
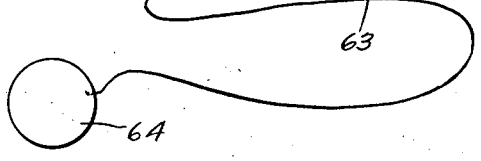



Fig. 6




Fig. 5.




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Patented Feb. 16, 1926. 1,573,122

# UNITED STATES PATENT OFFICE.

HERMAN J. RANK, OF ST. PAUL, MINNESOTA.

## ELECTRICAL TOY.

Application filed February 13, 1922. Serial No. 536,085.

*To all whom it may concern:*

Be it known that I, HERMAN J. RANK, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Electrical Toys, of which the following is a specification.

My invention relates to electrical toys and has for its object to provide an electrical toy employing the principle of static electricity and consists of a pair of parallel plates, one of them being a glass plate, which plates are adapted to receive electrical charges.

Another object is to provide a charging device which consists of a block of wood having a number of wraps of chemically prepared paper wound around the same.

A still further object is to provide a number of light figures adapted to move between the two plates of the invention to alternately receive positive and negative charges from the said plates and to be actuated by means thereof.

In carrying out the above objects I construct figures in the shape of insects and bugs out of light pithy substance which figures have attached to them bristles and feathers adapted to support and receive the charges from the statically charged plates, which figures are adapted to jump up and down between the two plates.

I furthermore provide a set of pivoted leaves adapted to be successively swung about a central axes to successively be attracted by the said plates and so expose the surfaces thereof.

Another object is to provide a handle having an object suspended at the end thereof, which device is used as a game, the object of which is to place the device at the end of said handle upon a certain spot upon one of said plates.

The full objects and advantages of my invention will appear in connection with the detailed description thereof and are particularly pointed out in the claims.

In the drawings, illustrating the application of my invention in one form:

Fig. 1 is a plan view of my invention showing the same provided with a number of objects within.

Fig. 2 is a sectional view taken on line 2—2 of Figure 1.

Fig. 3 is a sectional view of one of the bugs taken on line 3—3 of Figure 1 and drawn to a larger scale.

Fig. 4 is a perspective view of the charging device.

Fig. 5 is a perspective view of the handle member used in connection with the invention.

Fig. 6 is an enlarged detail view showing the manner of attaching the glass cover to the box.

My invention consists primarily of a casing or box indicated at its entirety at A, which comprises an upper section 10 and a lower section 11 of substantially the same height which are hinged together at the rear portion thereof at 12 and 13 provided at the front with a hasp 14, all of ordinary construction. The lower box section 10 is formed with a bottom 15 which is covered with a surfacing of tin foil or paper as indicated at 16. In my experiments I have found that any substance which is adapted to receive an electrical charge opposite to that of glass may be used for the purpose, and I have found that while paper serves the purpose, tin foil is a little the more preferable.

The upper edge of the section 10 of the box is provided with perimetric recesses 17 which forms an upwardly extending ridge 18 along the entire edge of the box. Within recesses 17 is positioned a glass plate 19 which exactly fits within the said recesses and which is formed with a beveled edge 20 extending entirely around the same. In securing the glass in place small nails 21 may be pounded into the upper section 10 as indicated in Figure 6, which nails are adapted to catch on the bevel surface 20 and the plate 19. After the glass has been secured in place, the valley formed between the edge 20 and ridge 18 is filled with putty or any other suitable substance such as a preparation containing wax or a cementing compound, as indicated at 22. When a suitable binder is used which adheres sufficiently to the glass and the material of the box A the nails 21 may be dispensed with. In this manner it can readily be seen that the glass plate 19 is secured to the box A without any visible means of attachment in such a manner that no encumbrance occurs throughout the entire surface thereof. This provides a free surface on which a suitable charging device to be presently explained may be

drawn across to charge the toy without obstruction or injury to the charging device or the toy proper.

Although there are a number of objects that may be readily used with my invention I have shown only a few of the same in the drawings. Of the objects shown I have indicated a bug 122, an insect 23, and a display device indicated in its entirety at B.

The bug 122 which is shown in detail in Figure 3 is constructed from a half of one of the pods of the Buffalo plant indicated at 24. In preparing the pod the outer skin is removed and the same dissected which leaves the same as a thin light shell of a porous or pithy nature. Along the lower edge the same is covered with a flat strip of paper 25 which serves to seal the lower portion of the pod and which is formed with a rearwardly extending portion 26 serving as a rear support for the bug. Along the upper surface of the body 24 is provided a number of feathers 27 and 28 which are applied to body 24 by piercing holes in the same and inserting and gluing the said feathers in the said holes so that the feathers extend upwardly as indicated in both Figures 1 and 3. In a similar manner other feathers 29 and 30 may be attached to the forward end of the body 24 to serve as feelers for the bug. In addition to said feathers I also employ a number of bristles 31, 32, and 33 which are inserted into the body 24 and glued therein, which bristles serve as tail and fore legs respectively to the bug. The outer surface of the body 24 is painted to resemble the appearance of a bug as indicated in Figures 1 and 2. By selecting gaudy colored feathers such as found on wild birds the bug can be made to have a very attractive appearance resembling in all respects a real bug.

When the bug 122 is positioned within box A and the plate 19 given an electrical charge the said bug being of an extremely light construction is readily attracted to the said plate 19, during which the said bug hangs below the said plate with the feathers 27 and 28 in contact therewith. As soon as the static charge has been transferred to this bug the said bug is immediately repelled away from glass plate 19 and again falls down upon the surface 16 on the bottom 15. When this occurs the charge received by the bug is immediately absorbed by the said member 16 after which the bug is again in normal state and may be again attracted by the glass plate 19. The cycle of operation continues until the entire charge imparted to plate 19 has been completely lost after which the bug remains upon the surface 16. As the bug jumps up and down between the two plates the same is given a very animated appearance and due to the coloration and appearance of the same in all respects has the appearance of a real bug jumping about within said box.

The insect 23 is constructed very similarly to the bug 122 excepting that the body of this insect is constructed from one of the pods of the Delphinium plant. This insect is provided with two sets of feathers 34 and 35 with bristles 36 and 37 serving as fore-legs the same as with the bug 24. In the case of the insect 23, however, the little stem of the pod indicated at 38 serves as the rear support for the insect and also gives the appearance of a tail. This insect is also painted to produce a life-like appearance and operates the same as the bug 122. In the case both the insect 23 and bug 122 the same are so constructed with the legs and are properly balanced so as to always alight upon the feet when released from the charged plate 19.

The device for producing the electrical charge is shown in Figure 4 and is indicated at its entirety at C. This device consists of a rectangular block of wood 39 or other suitable non-metallic substance. This block has wound upon it several layers of manila paper indicated at 40 or any suitable equivalent therefor. Along the two flattened surfaces 41 and 42 of the device the said paper 40 is impregnated with the preparation consisting of boiled linseed oil which is allowed to thoroughly dry. By keeping the surfaces 41 and 42 and surface of the plate 19 thoroughly clean the member C is capable of rapidly and effectively giving the glass plate 19 the required charge. I have experimented with a number of substitutes for producing the electrical charge and find that a charging device of this nature operates very effectively to provide the results required.

In addition to the bug and insect already described I can use with my invention a number of figures constructed out of paper One such figure is shown in Figures 1 and 2 and consists of a body portion 43 cut out in the shape of a negro having arms 45 and 46, a head 47 and legs 48 and 49. At the top of the head 47 is placed a little fuzz constructed from feathers as indicated at 50 and in a similar manner a fuzz shown in 51 is attached to the lower extremities of the legs 48 and 49. This fuzz serves to rapidly release the device from being held by plate 19, after the same has been attracted thereby. To permit the figure from being easily raised from the bottom 15 when in its reclining position arms 45 and 46 are bent away from the body portion 43 as indicated at 52 and 53 in Figure 1. It can readily be seen with this construction that when the figure reclines the body proper is held from direct contact throughout its entire surface with the member 16 with the head 47 closest to the plate 19. With this device when the

plate 19 is given an electrical charge the figure 43 immediately rights itself and assumes a standing posture between the two plates. In action the figure moves very rapidly between the two plates constantly shifting about within the box A. In fact the movement is so rapid and the position taken within the box so diverse that a very spectacular appearance is given to the toy. It will be noted in regard to this figure and also to the insect and bug that the same are so constructed that when in contact with either plate 19 or surface 16 that the same come in contact therewith over only small areas. This has the effect of quickly releasing the said objects from attraction between the plates so that the movement of the said objects is quite rapid.

The display device indicated at B operates with the same principle as any of the objects previously described. The device is supported upon a small piece of wire 54 which is positioned within notches in the box A which occurs between the upper and lower sections 10 and 11 so that when the same are closed the said wire is held in place thereby. Upon the said wire is rotatably mounted a plurality of leaves 55 clearly shown in Figure 2. Each of these leaves is formed with separate wire loops or eyes 56 and 57 rigidly attached thereto by means of which said leaves are journalled to the wire 54. With this construction the leaves are independently movable upon said wire as an axle. In addition each of the leaves 55 has rigidly attached to one of the surfaces thereof a stop 59 which serves to hold the leaves in spaced relation to one another as indicated in Figure 2. These stops may be made of small triangular portions of paper, wood, or other material secured to the same. The number of leaves used and the size of stops 59 is such that two upper leaves 60 and 61 are provided which extend in substantially horizontal planes, thus displaying the upper surface of one leaf and the lower surface of the other leaf. Upon the upper surface of each of the leaves is provided printed matter of any desired kind which may be in the form of pictures, fortune telling information, sayings, or any other desired display matter. As the device C is drawn across the surface of plate 19 from left to right as shown in Figure 2, the upper leaf 61 is immediately attracted thereby and follows the movement of the said device C until the same passes off from plate 19. When the leaf 61 passes dead center and takes the position as shown in dotted lines in Figure 2 the same falls by gravity until it engages stops 59 on leaf 60. The entire mass of leaves 55 then rotate sufficiently until the center of gravity is restored to a stable state at which time the leaves again are positioned with the two upper leaves in a substantially horizontal plane. By successively drawing member C across the device each leaf can be made to successively turn over and the display matter shown on each leaf brought to view.

The game portion of the invention consists principally of a handle 62 which has attached to it a thread 63 supporting at its extreme end a disk 64 of paper or other suitable material. This disk may be shaped in any desired manner. Upon the underside of glass 19 in any desirable position is attached a corresponding disk of paper 65 similar to the disk 64. When the plate 19 has been given an electrical charge it is practically impossible to cause the disk 64 to be placed upon the disk 65 by manipulation of the handle 62 since the said disk is repelled away from plate 19. The object of the game therefore consists of superimposing the said disk 64 upon disk 65. When the trick of the game is known it may be accomplished by grasping the disk 64 and touching it to the plate 19. The same is then given the same charge as held by this plate after which disk 64 is attracted to plate 19 instead of being repelled thereby. Until the exact trick is known great amusement may be had with the device.

The advantages of my invention are manifest. With the glass plate set as described the edge of the same is perfectly free so that a charging device may be readily drawn across the same throughout its entire length without injuring the said charging device or loosening the plate within its support. The figures or objects adapted to be used with the device may be made very attractive in appearance and move in an animated manner so that considerable amusement may be had from the invention. Due to the simplicity of the construction and the simplicity of operation the device will not readily get out of order.

In accordance with the patent statutes I have described the principles of operation of my invention together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the construction shown is only illustrative and that the invention can be carried out by other means than those above set forth within the scope of the following claims.

I claim:—

1. A toy adapted to be attracted by static charges comprising a support, an axis attached thereto, a plurality of leaves independently and hingedly connected to said axis, stop members for holding said leaves in spaced relation to one another and means adapted to receive electric charges for successively attracting said leaves.

2. A toy adapted to be attracted by static charges comprising a body portion of a light

and pithy substance adapted to receive a static charge, limbs formed on said body from bristles adapted to hold the body spaced from below.

3. A toy adapted to be attracted by a static charge comprising a body portion and feathers secured to and issuing outwardly therefrom.

4. A toy adapted to be attracted by a static charge comprising a body portion formed from a portion of the pod of a Buffalo plant, feathers secured thereto and issuing upwardly therefrom to hold said pod isolated from contact from an upper surface and bristles secured to said pod extending in a downward direction for supporting said object with the body portion thereof isolated from a lower surface.

5. A toy adapted to be attracted by a static charge comprising a body portion formed from a portion of the pod of a Delphinium plant, feathers secured thereto and issuing upwardly therefrom to hold said pod isolated from contact from an upper surface and bristles secured to said pod extending in a downward direction for supporting said object with the body portion thereof isolated from a lower surface.

6. A toy comprising a plate adapted to receive an electrical charge, a disk secured to said plate, a handle, a thread attached to one end of said handle and disk suspended on said thread, said device being adapted to be manipulated to position said suspended disk over the disk on said plate.

7. A toy adapted to be attracted by static charges comprising a body portion of a light and pithy substance adapted to receive a static charge, limbs formed on said body from bristles adapted to hold the body spaced from below and feathers secured to said body and issuing upwardly therefrom preventing said body from coming in direct contact with objects above it.

In testimony whereof I affix my signature.

HERMAN J. RANK.