

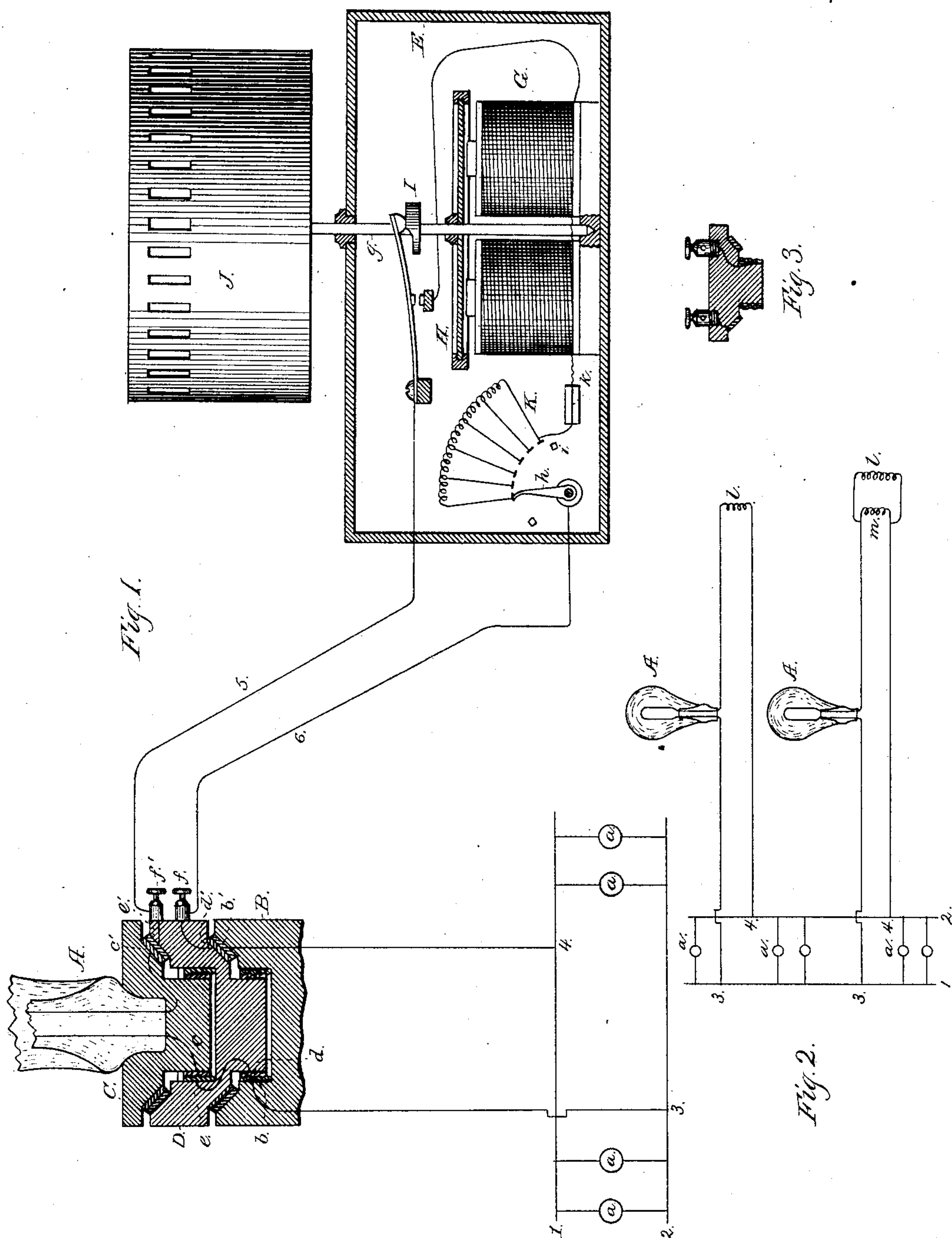
(No Model.)

R. N. DYER & H. W. SEELY.

ELECTRIC TOY.

No. 259,115.

Patented June 6, 1882.



WITNESSES

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# UNITED STATES PATENT OFFICE.

RICHARD N. DYER AND HENRY W. SEELY, OF NEW YORK, N. Y., ASSIGNORS  
OF ONE-THIRD TO SAMUEL INSULL, OF SAME PLACE.

## ELECTRIC TOY.

SPECIFICATION forming part of Letters Patent No. 259,115, dated June 6, 1882.

Application filed November 2, 1881. (No model.)

*To all whom it may concern:*

Be it known that we, RICHARD N. DYER and HENRY W. SEELY, both of New York, in the county and State of New York, have invented a new and useful Improvement in Electric Toys, of which the following is a specification.

Our invention consists primarily in the utilization of the electricity of a multiple-arc system of incandescent electric lighting for actuating or propelling automatic or mechanical toys of various kinds, and also in the novel devices and combinations of devices employed by us in accomplishing such utilization.

The manner of carrying out our invention may be stated generally as follows: In one of the derived circuits of the electric lighting system is placed a small electromotor of any desired pattern, which is run by the current in the circuit, and to which is connected any toy which is to be moved thereby. It is desirable, however, in a multiple-arc system that no derived circuit shall have much less resistance than the others. It is also desirable that the toy-circuit should have a greater resistance than any lamp-circuit, so that less current will be used. We prefer to use as a resistance in the toy-circuit one of the electric lamps, which, with the toy motor and any other resistance, if any is used, will make the entire resistance of the toy-circuit greater than that of a lamp-circuit. We also find it desirable to so arrange the terminals of the toy-circuit that they may be removably connected to an ordinary incandescent electric-lamp socket. When another resistance than a lamp is used we use for this purpose a wooden plug having two exterior metal terminals corresponding to the interior terminals of the socket into which the plug is set or screwed in the place of the lamp. Wires run from the two terminals of the plug through it to binding-posts, in which the terminals of the toy-circuit are held; but where the lamp is to be used as a resistance in the toy-circuit, which we prefer, another arrangement is necessary. A second socket is now used, fitting into the lamp-socket and having exterior terminals corresponding to those of the lamp-socket. This second socket is also hollowed out to receive the base of the lamp, and has interior terminals corresponding to the

terminals of said base. One terminal of each set in the second socket is connected to one of the other set. The other terminals are connected only through the toy-circuit, a wire running from each terminal to a binding-post or other suitable device, to which a wire running to the motor which actuates the toy may be connected. By this means the lamp and the toy are included directly in the same circuit; but other arrangements may be used, some employing the same connections of socket-terminals that we have described, and others different forms, as will be set forth more fully hereinafter. We may include in the toy-circuit, in addition to the fixed standard resistance, an adjustable resistance, so that the speed of the motor may be regulated, a safety-catch of the proper size, and a circuit-controller.

In the accompanying drawings, Figure 1 is a sectional view of a form of our invention used to actuate a zoetrope, the wire connections being shown diagrammatically. Fig. 2 shows diagrammatically two ways of arranging the toy and the lamp used as a resistance in the circuit, and Fig. 3 is a view of another form of socket-terminal in section.

It is to be understood that the application of our invention to a zoetrope is merely typical and for the sake of illustration, as we intend to use the invention with any kind of moving toy.

1 2 are conductors of an electric lighting system having lamps or other translating devices *A a a* arranged in multiple arc upon them.

3 4 is one of the multiple-arc circuits, and contains the incandescent electric lamp *A*, which is of the standard resistance used in the system. The wires 3 4 lead to the interior of the lamp-socket *B*, where they connect with terminals *b b'*, which in this case are bands or rings within the socket, but may be of other suitable construction. The socket has the usual circuit-controller. (Not shown.)

*C* is the base or collar, encircling the neck of the lamp *A*. It has exterior terminals, *c c'*, corresponding with the interior terminals, *b b'*, of the socket *B*. From the terminals *c c'* wires lead to the incandescing conductor of the lamp.

*D* is a second socket, whose exterior conforms in shape to the interior of the socket *B*,



while its interior is fitted to receive the base C. It has exterior terminals,  $d$   $d'$ , and interior terminals,  $e$   $e'$ , corresponding respectively to the terminals of the socket B and base C.

5 The lamp is removed from the socket B, the socket D put in its place, and the base C placed in the socket D.

From the terminal  $d'$  a wire runs to the binding-post  $f$ , and another runs from binding-post  $f'$  to terminal  $e'$ . Wires 5 6 lead from the binding-posts to the toy motor, a circuit thus being formed which includes both the lamp and motor.

It will be seen that this "second socket" is adapted for use generally wherever it is desired to form an external circuit from a lamp-socket and to employ the lamp as a resistance.

E is a box of suitable form for containing the motor and its appliances. The motor may be of any convenient form. That shown in the drawings is one in which an armature-bar revolves before the poles of an electro-magnet, and is carried by a heavy balance-wheel, the circuit being made and broken so as to produce a continuous movement of the wheel. G is the magnet; H, the armature, and I the circuit-breaker. The armature-shaft  $g$  passes up through the top of the box and supports the cylinder of the zoetrope J, which revolves therewith.

The speed of the motor may be controlled by an adjustable resistance, K, cut in and out of circuit by a key,  $h$ , which also acts as a circuit-controller, breaking and closing the circuit when all the adjustable resistance is in, but prevented by a stop,  $i$ , from breaking it in the other direction, so that the motor may be started and stopped gradually.

Instead of the motor shown, any other form may be used—for instance, one on the vibrator principle, whose motion may, if desired, be converted into a rotary one by a pawl and ratchet; or a small electro-dynamic motor may be employed.

45  $k$  is a safety-catch, which may be placed in any convenient portion of the circuit. A constant resistance, in addition to the lamp and to the adjustable one, may, if desired, be placed somewhere in circuit in the box.

50 In Fig. 2,  $l$  represents the motor and toy and their appliances. In the upper part of the figure the lamp A is placed just as in Fig. 1, the entire current in the circuit 3 4 passing through both the lamp and motor. In the lower part of the figure an additional resistance,  $m$ , is placed in circuit and the toy in a shunt around it. The resistance  $m$  might be adjustable, so that more or less current could be shunted through the toy; or the toy could be placed in a shunt around the lamp and have a resistance in its circuit greater than the resistance of the lamp. In this case the connections of the terminals of the plug or socket D would have to be somewhat modified.

65 Where it is desired to use another resistance than a lamp the plug shown in Fig. 3 may be

used, having terminals fitting a lamp-socket, and binding-posts to which the wires of the toy-circuit may be connected.

The essential idea in all these forms is to have a constant resistance in the toy-circuit greater than that of a lamp-circuit, in addition to which an adjustable resistance may be used, if desired.

It will be understood that in all the different ways of connecting the toy with the system of electric lighting herein described said toy is actuated by the current in one of the multiple-arc or derived circuits; and this is the fact whether such toy be placed directly in such circuit or in a shunt therefrom around a wire or lamp resistance; and it will be further understood that in all instances where a lamp is used in the same circuit from the house-mains with the toy the lamp and toy are located in the same multiple-arc circuit, whether the lamp and toy be placed in series or the toy be placed in a shunt around either the lamp or a wire resistance.

Among the various kinds of toys to be used in our invention may be mentioned gymnastic figures, automatic vehicles, toy railway-cars, steamboats, and toy musical instruments—such as have heretofore been operated by clock-work—and all kinds of moving animal and other figures.

What we claim is—

1. The combination of an electrical toy with means for removably connecting said toy with a lamp-socket of a system of electric lighting, substantially as set forth.

2. The combination of an electrical toy, means for removably connecting said toy with a lamp-socket of a system of incandescent electric lighting, and an adjustable resistance in the toy-circuit, external to said lamp-socket, substantially as set forth.

3. The combination of an electrical toy, means for removably connecting said toy with a lamp-socket of a system of incandescent electric lighting, and an incandescing electric lamp serving as a resistance and located in the same derived or multiple-arc circuit of said system with the toy, substantially as set forth.

4. The combination, with a lamp-socket of a multiple-arc system of incandescent electric lighting, and the removable lamp, of removable connections with an external circuit, whereby such lamp and the external circuit will be both supplied through the terminals of the same socket, substantially as set forth.

5. The second socket described, adapted to be placed in a lamp-socket and to receive an electric lamp, and having connections with an external circuit, substantially as set forth.

This specification signed and witnessed this 29th day of October, 1881.

RICHARD N. DYER.  
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Witnesses:

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