C. HALPERN AND F. W. ZEIDLER.

TOY ACTUATING AIR MOTOR.

APPLICATION FILED MAR. 6, 1920.

1,357,706. Patented Nov. 2, 1920.

Fig. 1.

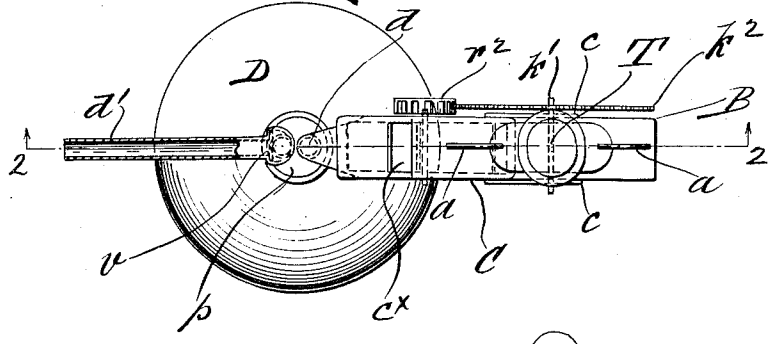


Fig. 4.

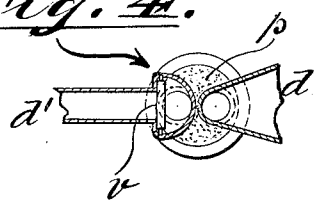
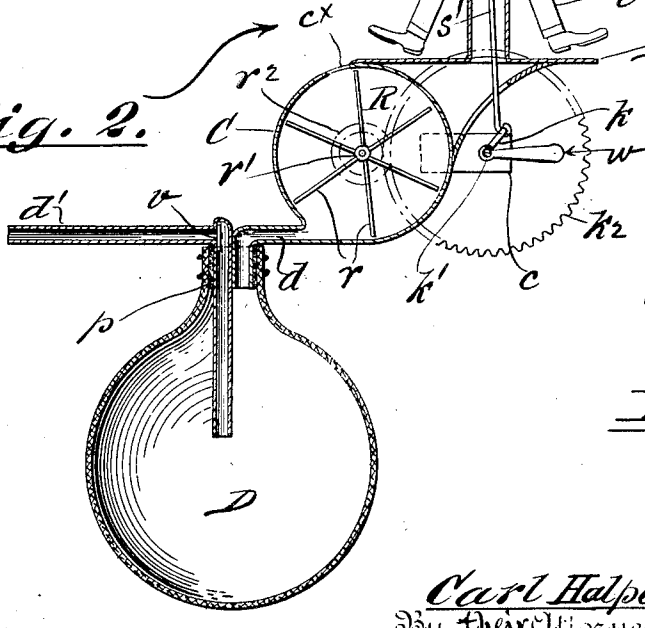


Fig. 2.



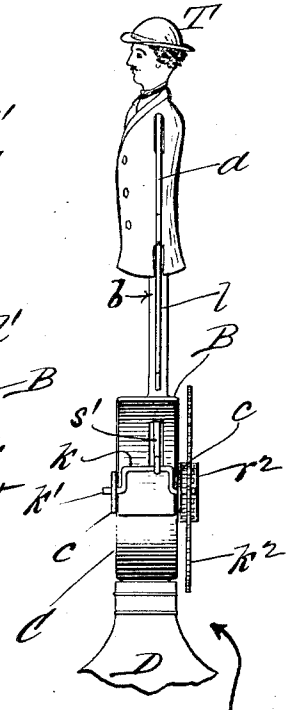


Fig. 3.

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UNITED STATES PATENT OFFICE.

CARL HALPERN, OF NEWARK, AND FREDERICK W. ZEIDLER, OF JERSEY CITY, NEW JERSEY.

TOY-ACTUATING AIR-MOTOR.

1,357,706. Specification of Letters Patent. Patented Nov. 2, 1920.

Application filed March 6, 1920. Serial No. 363,812.

To all whom it may concern:

Be it known that we, CARL HALPERN, a citizen of the United States, and a resident of Newark, county of Essex, and State of New Jersey, and FREDERICK W. ZEIDLER, a citizen of the United States, and a resident of Jersey City, county of Hudson, and State of New Jersey, have invented a new and useful Toy-Actuating Air-Motor, of which the following is a specification.

The object of our invention is the production of a simple, inexpensive air-driven motor for actuating mechanical toys of various kinds; and the invention consists in the specific construction and arrangement of parts herein described and claimed, distinctive features being the use of a counterweight to balance the operative parts of the toy, and the provision of elastic resilient air pressure accumulative means whereby a relatively steady, continuous current of air may be transmitted to the vanes of the rotor, all as hereinafter fully set forth.

In the accompanying drawings,

Figure 1 is a top view of a toy embodying the essential features of our invention;

Fig. 2 is a central vertical section taken upon plane of line 2—2, Fig. 1;

Fig. 3 is a front elevation of the toy, the pressure accumulator being broken away in part;

Fig. 4 is a sectional detail showing air ducts, etc.

C, is the casing in which the rotor R, is mounted, said rotor consisting of a plurality of vanes r, attached to and extending radially from the hub r', mounted in bearings in the side walls of the casing C. A bracket platform B, is affixed to the rotor casing C, said platform B, being formed with a hollow standard b, for the support of a toy T, to be actuated by the rotor R,—said toy T, being shown by way of exemplification as representing a human figure the limbs of which are articularly mounted on the body portion of the image, it being understood in this connection that we do not limit ourselves to any particular form or character of toy, the essential feature of the invention in this respect being the actuation by the air rotor R, of a toy having movable or articulated parts. Thus in the example shown in the drawings, s, (Fig. 2) represents a rack slide positioned in the upper part of the hollow standard b, and meshing with pinion racks l, l, formed on the inner extremities of the pivotally supported leg members l', l', of the toy T, the arm members a, a, also pivotally supported on the body of the toy T, being connected with said rack slide s, by means of rods a', a', so that the reciprocation of the rack slide s, imparts motion to the limbs of the figure in a manner which will be readily understood by reference particularly to Fig. 2, of the drawings.

The reciprocation of the rack slide s, is effected by means of a connecting rod s', articularly attached to said slide s, and to the crank arm k, which forms part of the shaft k', mounted upon and between the bearing arms c, c, attached to the casing C,—said shaft k', having mounted upon it a motion-reducing gear k^2, which meshes with the pinion r^2, mounted on the shaft to which the hub r', of the rotor R, is attached.

Air under pressure is supplied to the rotor R, through a duct d, which enters the casing C, tangentially as shown in Fig. 2, so as to cause the air to impinge circumferentially against the vanes r, r, of said rotor R, to actuate the motion-transmitting means. c^x, is the air exit.

In order to attain a relatively uniform supply and pressure of air to the rotor through the injection duct d, we interpose between it and the mouth piece or other air inlet spout d', an elastic resilient accumulator D, consisting preferably of a rubber bag, the neck of which is hermetically attached to a plug p, through which the inlet spout d', and the injector duct d, extend, a check valve v, being interposed in the inlet spout d', to counteract back pressure. Thus air forced into the accumulator D, through the said inlet spout d', if of sufficient force, will expand said accumulator, and insure a steady uniform supply of air pressure to the rotor R. This is of special importance when, as is the main purpose of use, the air force is attained by lung power, by means of the lips of the user applied to the outer extremity of the inlet spout d'.

As our object is the production of operative parts that may be actuated with a minimum of resistance, and by relatively light air pressure, we provide a counterweight w, on the shaft k', or other motion transmitting part, to balance the leverage or

resistance afforded by the operative parts of the toy. Thus in Fig. 2, the weight w, assists in raising the arms a, a, and legs l', l', of the figure T, the weight of the said limbs tending constantly to lower them.

What we claim as our invention and desire to secure by Letters Patent is,

1. A toy-actuating air motor of the character designated, comprising a circumferentially vaned and inclosed rotor, motion transmitting means connected therewith and with operative toy means, means for counterbalancing the weight of said operative toy means, and air injection means positioned to effect impingement of air against the vanes of said rotor.

2. A toy-actuating air motor of the character designated, comprising a circumferentially vaned and inclosed rotor, motion transmitting means connected therewith and with operative toy means, means for counterbalancing the weight of said operative toy means, air injector means positioned to effect impingement of air against the vanes of said rotor, and elastic resilient air pressure accumulative means connected with said air injector means, for the purpose described.

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Witnesses:
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GEO. WM. MIATT.