(No Model.)

D. M. W. WALLER.

TOY.

No. 434,817. Patented Aug. 19, 1890.

Fig. I.

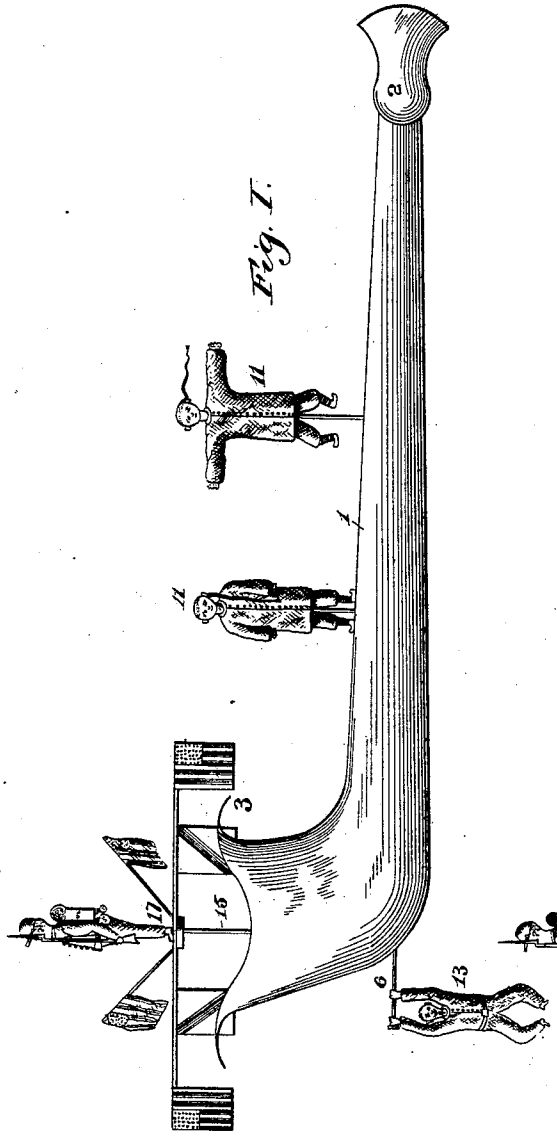
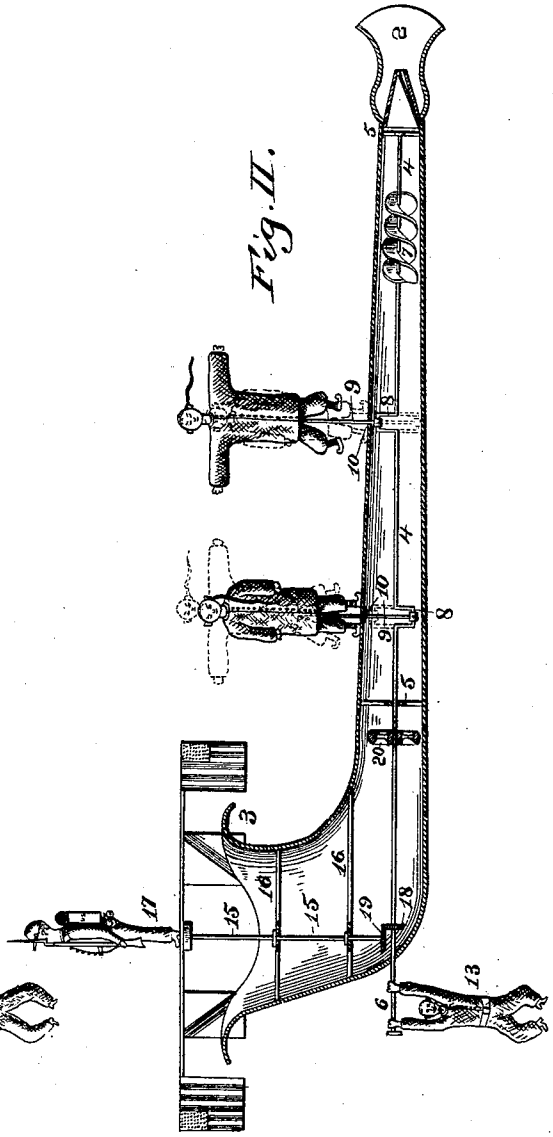


Fig. II.



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UNITED STATES PATENT OFFICE.

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TOY.

SPECIFICATION forming part of Letters Patent No. 434,817, dated August 19, 1890.

Application filed May 2, 1890. Serial No. 350,324. (No model.)

To all whom it may concern:

Be it known that I, DAVID M. W. WALLER, a citizen of the United States, residing in Fortress Monroe, in the county of Elizabeth City and State of Virginia, have invented certain new and useful Improvements in Toys; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in toys, in which is combined, with a blow pipe or tube, a series of reciprocating figures and a wind-wheel or whirligig, which are operated by air blown into or sucked through said blow pipe or tube; and the object of my invention is to provide a simple and inexpensive toy, which will afford amusement for and can be easily manipulated by small children.

With these and other ends in view my invention consists in an improved toy comprising a blow pipe or tube, a shaft arranged longitudinally within said blow pipe or tube and journaled in suitable fixed bearings therein, a spiral or screw-bladed motor rigid with the shaft and situated thereon at a point in rear of the mouth-piece and within the blow pipe or tube, so as to be operated upon directly by the blast or current of air as it leaves the mouth-piece, and one or more figures connected with and operated by the rotation of said longitudinal shaft.

My invention further consists in the combination and devices and construction and arrangement of parts, as will be hereinafter fully described and claimed.

To enable others to more readily understand my invention, I have illustrated the same in the accompanying drawings, in which—

Figure I is an elevation of my improved toy. Fig. II is a longitudinal vertical sectional view thereof.

Like numerals of reference denote corresponding parts in both figures of the drawings, referring to which—

1 designates the blow pipe or tube, which is provided at its mouth end with a mouth-piece 2 and has its opposite end bent substantially at right angles to said tube, the blow pipe or tube being preferably tapered throughout its length and terminating in the enlarged or flared bent discharge end 3, as shown.

The mouth-piece 2 is of any suitable form, and it may be provided with a whistle or vibrating metallic tongue to make a noise; but this is optional, as the whistle or vibrating tongue may be in many cases satisfactorily dispensed when it is desired to produce a noiseless toy.

Within the longitudinal or horizontal part of the blow pipe or tube is arranged a shaft 4, which extends longitudinally of the blow pipe or tube, and is journaled in suitable rigid or fixed bearings 5 therein, which bearings are in the form of narrow transverse strips that are fixed centrally in the blow-pipe to obviate obstruction to the passage of the air blast or current. This longitudinal shaft 4 extends in a straight line from the mouth-piece to the opposite end of the blow pipe or tube, and its rear end may be extended through said tube, as indicated at 6, for a purpose to be described. A motor or propeller 7 is provided for this rotary longitudinal shaft 4, for the purpose of rotating the latter by the blast or current of air blown into or sucked through the pipe or tube by the mouth from the mouth-piece. This motor is situated within the blow pipe or tube at a point immediately in rear of the mouth-piece 2 and in the path of the current of air as it leaves the mouth-piece, so that the full effect or force of the air is utilized by the motor to propel or rotate the longitudinal driving-shaft from which the series of figures are all operated. This motor, as shown in the accompanying drawings, is in the form of an endless screw with spiral blades or propellers, and the same fits snugly within the blow pipe or tube, but is free to rotate therein without contact with the walls of said pipe, for the purpose hereinbefore mentioned. This longitudinal driving-shaft 4 is provided with two or more cranks 8 at intermediate points of its length, and with these cranks are connected reciprocating rods 9, which pass through and are guided in small apertures or openings 10, formed in the wall of the tube or pipe 1 at a point in rear of the motor or propeller therein,

to obviate diminution of the strength of the air current or blast. These reciprocating rods fit snugly in the apertures 10, and they protrude for the free play of figures 11, which are attached to said rods, whereby the figures are reciprocated by the rotation of the longitudinal driving-shaft. Another figure 13 may be attached to the protruding end 6 of the driving-shaft, as shown, and this last-mentioned figure 13 may be suspended from the driving-shaft, while the other figures 11 are arranged above the blow pipe or tube; but this is optional.

In the enlarged or flared bent end of the blow pipe or tube I provide a vertical counter-shaft 15, which is journaled in suitable bearings formed by narrow transverse strips 16, fixed in the bent flared part of the blow pipe or tube. The upper end of this vertical counter-shaft is extended beyond the discharge end of the blow-tube, and on this extended end of said counter-shaft is fixed a whirligig 17, of any suitable form or construction. I preferably employ a series of flags hung on radial arms with a suitable figure, and the form of the whirligig is not important, as it can be changed at pleasure, or other devices can be used in lieu thereof. The counter-shaft gears at its inner end to the longitudinal driving-shaft, for the purpose of rotating the whirligig, by the intermeshing bevel gear-wheels 18 19, as shown in Fig. II.

In order to insure steadiness and uniformity in the rotation of the longitudinal driving-shaft, I provide the latter shaft with a balance-wheel 20, of suitable weight and size, which balance-wheel is fixed to the shaft at a point within the enlarged flared end of the blow pipe or tube.

The operation of my invention is obvious. The air current or blast blown into the mouth-piece 2 acts upon the propeller or motor and rotates the same and the longitudinal driving-shaft, and this shaft in turn operates the reciprocating rods and their attached figures and rotates the vertical counter-shaft, the counter-shaft operating on the whirligig to propel and rotate the latter.

My improved toy is simple and durable in construction, cheap of manufacture, and provides an endless source of amusement for children.

Changes and modifications in the form and proportion of parts and details of construction can be made without departing from the spirit or sacrificing the advantages of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a toy substantially as described, the combination of a blow pipe or tube, a shaft arranged longitudinally within said blow pipe or tube and journaled in suitable bearings therein, a spiral propeller or motor within the blow-pipe and fixed axially to the shaft in rear of the mouth end of said tube to be acted upon by the current of air blown into the pipe or tube and to rotate the driving-shaft, and a figure with the driving-shaft to be operated by the same, as and for the purpose described.

2. In a toy, the combination of a blow pipe or tube, a driving-shaft arranged longitudinally within said blow-pipe, a spiral motor or propeller fitting snugly within the blow-pipe and fixed on the shaft in rear of the mouth end of said tube or pipe, and a counter-shaft geared to the driving-shaft and carrying a whirligig, substantially as described.

3. In a toy, the combination of a blow pipe or tube having the flared bent end, a longitudinal driving-shaft arranged within the blow-pipe and suitably journaled therein, a spiral motor or propeller arranged within the blow-pipe and fixed to the mouth end of the blow-pipe, a counter-shaft arranged at right angles to and geared with the driving-shaft, a whirligig carried by said counter-shaft, and a balance-wheel carried by the driving-shaft, substantially as described.

4. In a toy, the combination of a blow pipe or tube having a mouth-piece, a driving-shaft arranged longitudinally within said blow-pipe and having one or more cranks, a spiral motor or propeller fitted snugly within the blow-pipe in rear of the mouth-piece therein and fixed to the driving-shaft, one or more rods connected to the cranks on the driving-shaft and having the figures attached to the outer ends of the same, a counter-shaft geared to the driving-shaft, a whirligig carried by said counter-shaft, and a balance-wheel carried by the driving-shaft, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID M. W. WALLER.

Witnesses:
T. B. GALER,
J. E. BELOTE.