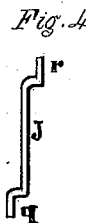
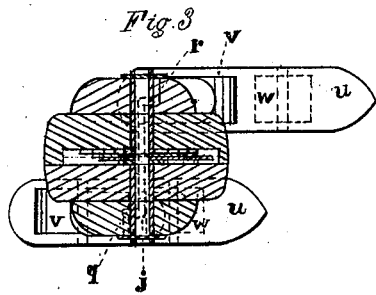
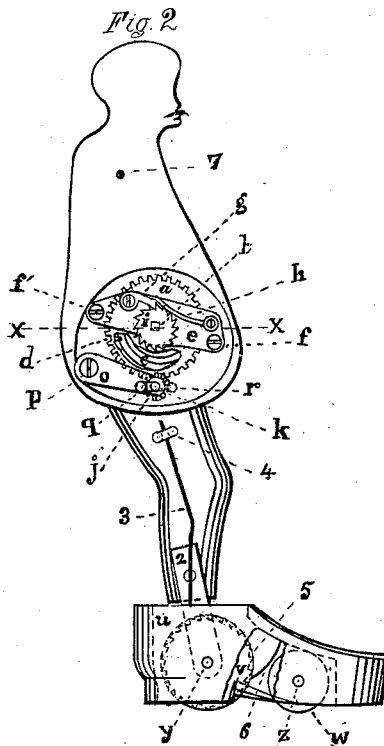
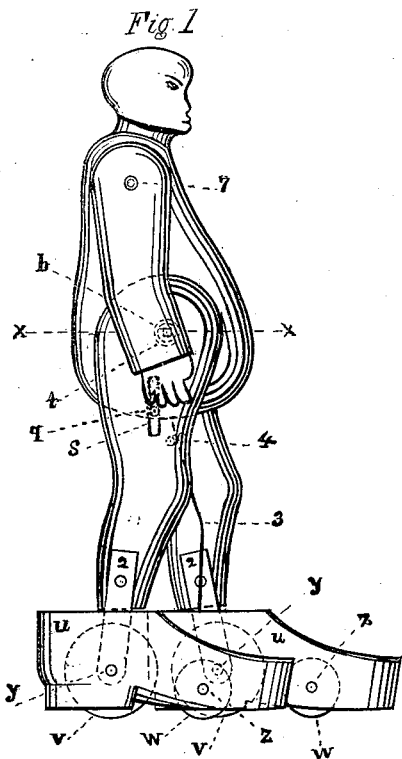


A. E. HOTCHKISS.

Walking-Doll.

No. 167,899.

Patented Sept. 21, 1875.



Witnesses.

Williams Smedley  
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# UNITED STATES PATENT OFFICE

ARTHUR E. HOTCHKISS, OF CHESHIRE, CONNECTICUT.

## IMPROVEMENT IN WALKING-DOLLS.

Specification forming part of Letters Patent No. **167,899**, dated September 21, 1875; application filed March 4, 1875.

*To all whom it may concern:*

Be it known that I, ARTHUR E. HOTCHKISS, of Cheshire, in the county of New Haven and State of Connecticut, have invented a new and Improved Mechanical Toy, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to provide a simple and effectual device by which an artificial man may be made to walk or to have the appearance of one walking, and to be so constructed as to be operated independent of any attached wagon, vehicle, guides, or surrounding objects to keep said figure in an upright position when in operation.

The construction of my invention I will now explain.

In the drawings, Figure I shows my invention in operation. Fig. II is a vertical section, showing the construction. Fig. III is a cross-section at *x x*. Fig. IV is a detached view of the crank-shaft and cranks used in the device.

In the lower part of the body, as shown in Fig. II, I place "clock-work" for propelling the device. *a* is a driving-gear. *b* is a shaft passing through the center of the gear, and made fast in it. To the shaft *b* is secured the inner end of a coiled spring, *c*, the outer end being attached to the gear *a* at point *d*, near the rim. The shaft *b* is hung in a frame, *e*, which is secured to the inside of the body by means of the screws *f* and *f'*. To the frame *e* is pivoted the pawl *g*, which is rendered automatic by means of the small spring *h*. *i* is a ratchet secured to shaft *b*, and serves, in combination with the pawl *g*, to hold the spring *c* when wound up by means of a key applied to the square end of the shaft *b*. *j* is a small pinion, which meshes in the gear *a*, and has a shaft, *k*, passing through it. *o* supports the shaft *k*, having a bearing each side of pinion *j*, and is secured in the device by means of screw *p*. On each end of the shaft *k* is a crank, *q* being one, *r* the other one, (dotted.) The cranks are set opposite each other, as shown in Fig. IV. In Fig. I *s* is a vertical slot, which is made in both legs for the cranks to work in. In Fig. III the dotted crank-

shaft may be seen passing through the body, and placing the cranks within the legs, respectively.

By referring again to Fig. I it will be seen that the legs are pivoted to the body in line with the shaft *b*, to which the key must be adjusted in winding up the spring; hence for a pivot to one of the legs I use a hollow tube, *t*, through which the key is admitted to the works, the works being inside the body, as above described.

It will be seen from the explanation thus far given that the clock-work, when set in motion, will cause the legs to vibrate in opposite directions, since the cranks are set opposite and made to work in the slots in the legs, respectively, the slots being vertical.

I will now call attention to the lower part of Fig. II in further explaining the device. *u* is a shoe or foot. *v* and *w* are rolls hung upon axle-trees *y* and *z*, respectively, so as to project below the bottom of the shoe. To the axle-tree *y* is pivoted the lower end of the leg by means of two straps. 2 is the one on the inside of the leg. 3 is a vertical spring. The lower end is secured to the shoe. The upper end passes through a loop, 4, secured to the leg. On the face of the roll *v* I make a ratchet, 5, the small spring 6 acting as an automatic pawl to the same. All the parts above named as belonging to the lower part of Fig. II are duplicated in the other leg and shoe shown in Fig. I. The face of the rolls *v* and *w* is nearly equal to the width of the shoe, as shown in Fig. III.

It will be seen in Fig. I that when the device is in operation there are four of these wide rolls supporting and carrying the same, and that they are so located in the feet as to keep the device from falling over.

In the earlier part of my explanation it became apparent that the clock-work, when in motion, would cause the legs to vibrate in opposite directions—*i. e.*, to move one past the other. Now, having pivoted shoes to each of the legs, and having put the device upon a table or any plane surface, it will be supported in an upright position by the rolls, and the vibrating of the legs would seem to make the feet roll backward and forward by each other, but the ratchet 5 and spring 6 allow

each foot to roll forward but not backward; hence the device will move forward step by step as the legs move. The spring 3 serves to steady the device when the feet are abreast of each other, since at this point the legs in passing each other are not in a thoroughly bracing position.

The feet I have represented are of larger dimensions than would be necessary when body and limbs are made from light material, such as tin or even paper. The rolls in the feet I make of metal, as the device operates better when the feet are loaded. The arms are pivoted at 7, which allows them to swing when the device is in operation.

It is obvious that the front roll in each foot might be dispensed with. Again, that in place of cranks eccentrics might be used, or by an intervention of any similar mechanical movement between the mainspring and the legs the latter might be made to move in a similar manner.

It is also obvious that the clock-work or

motive power might be located in one or both of the feet, and by a connection made through one or both of the legs to a counter-shaft or its equivalent in the body, the device might be made to operate on the same principle; but I have fixed upon the above mode of constructing my invention as the better way.

I do not claim the clock-work or a walking device, broadly, as my invention; but

Having explained my invention, what I do claim, and wish to secure by Letters Patent, is—

A walking automaton figure, provided with clock-work, and having the shoes or feet *u u*, wheels *v w*, ratchet 5, and springs 3 and 6, all said parts being combined, constructed, and arranged to operate substantially as and for the purpose described.

ARTHUR E. HOTCHKISS.

Witnesses:

WILLIAM SMEDLEY,  
CHAS. C. THOMAS.