No. 818,555. PATENTED APR. 24, 1906.

A. W. POCOCK.

MECHANICAL TOY.

APPLICATION FILED JAN. 21, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

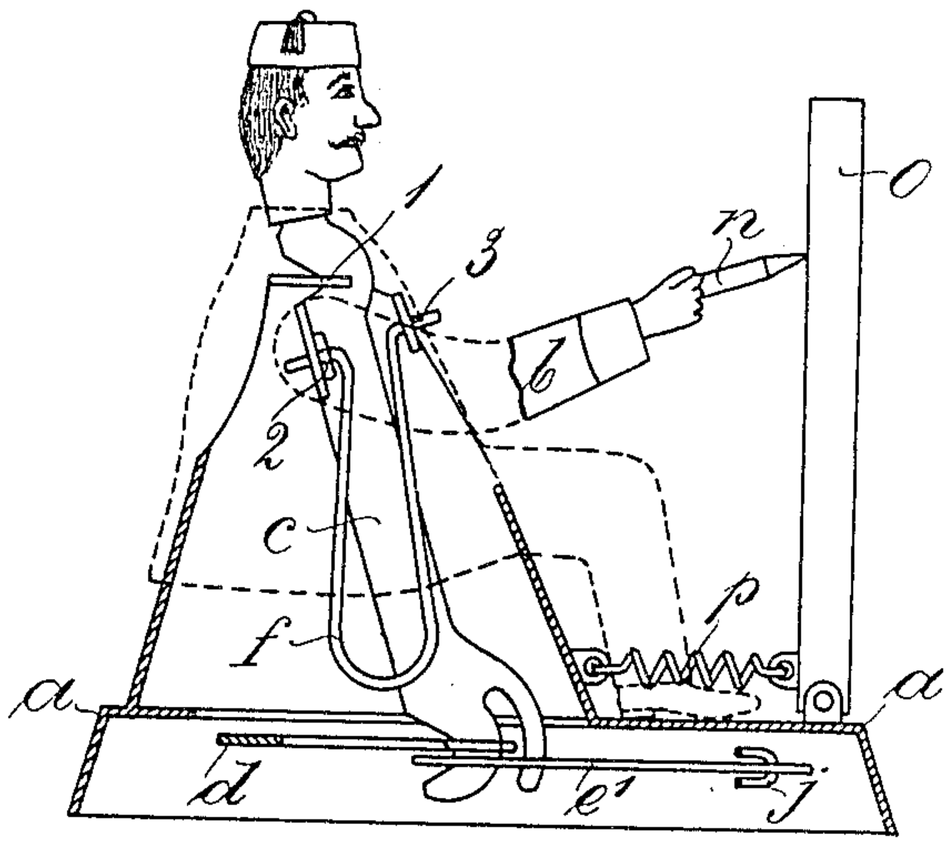
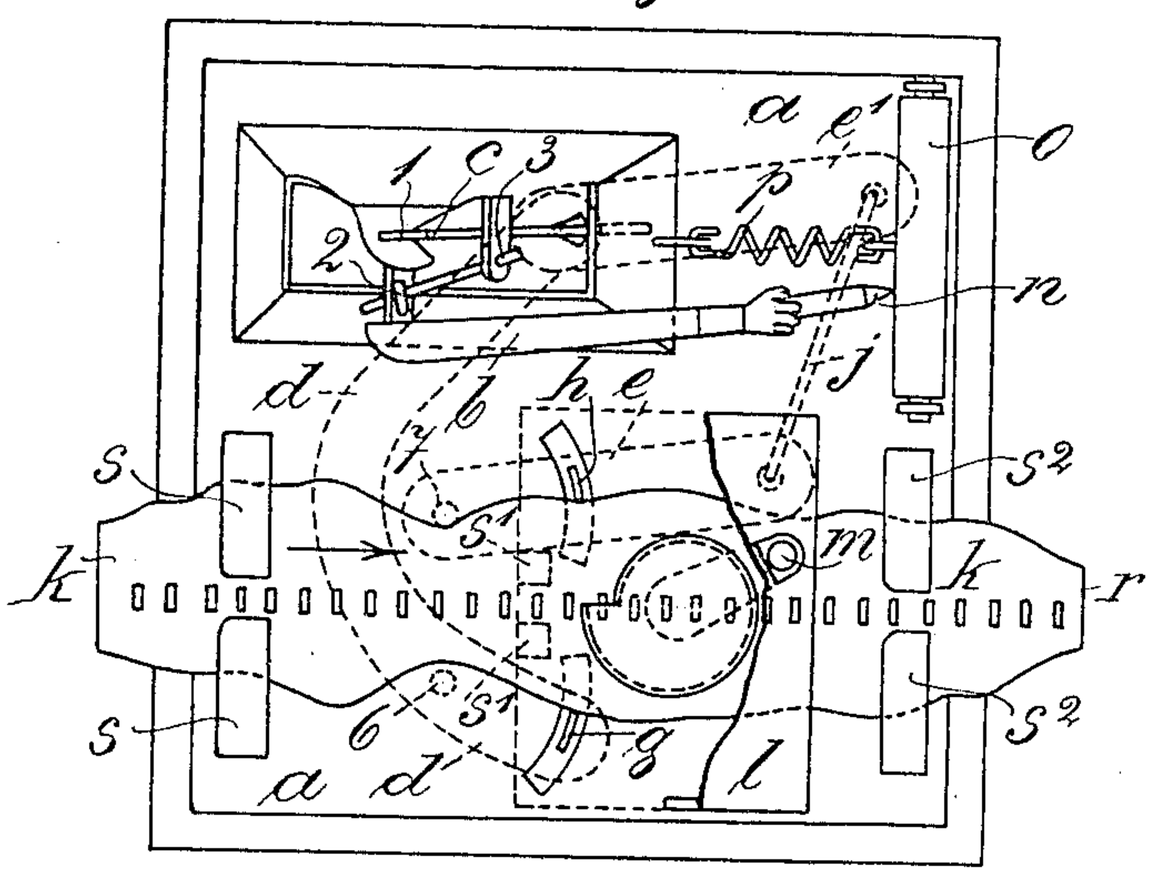


Fig. 2.



Witnesses:
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2 SHEETS—SHEET 2.

Fig. 5.

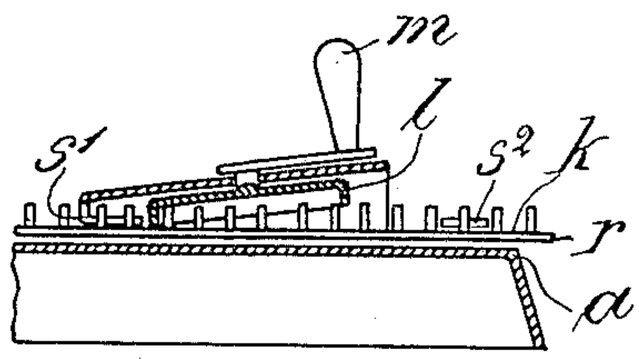
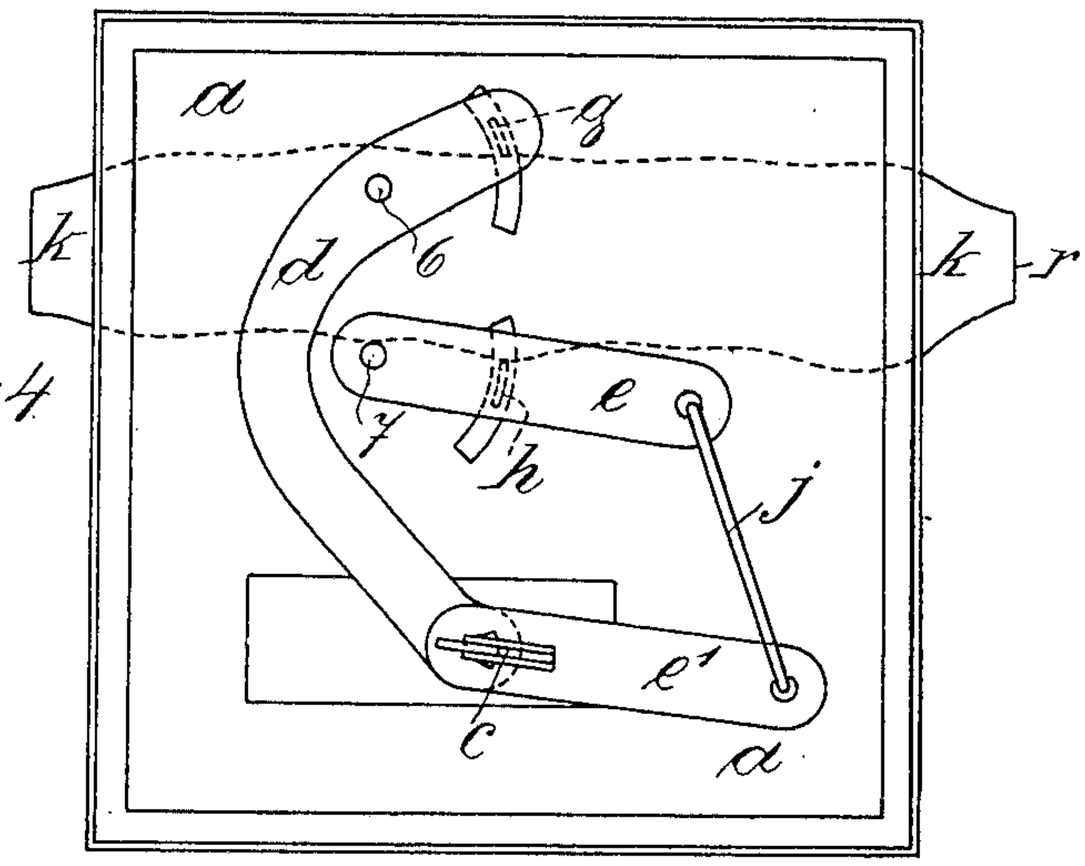


Fig. 3.

Fig. 4



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UNITED STATES PATENT OFFICE.

ALFRED WILLMER POCOCK, OF WOKING, ENGLAND.

MECHANICAL TOY.

No. 818,555. Specification of Letters Patent. Patented April 24, 1906.

Application filed January 21, 1905. Serial No. 242,152.

To all whom it may concern:

Be it known that I, ALFRED WILLMER POCOCK, a subject of the King of Great Britain, and a resident of "Lyndhurst," Chobham Road, Woking, Surrey, in the Kingdom of Great Britain, have invented a new and Improved Mechanical Toy, of which the following is an exact specification.

The object of my invention is to produce an automaton that will execute a drawing.

To effect my purpose, I provide a doll mounted, by preference, upon a suitable frame or platform and having one or more of its limbs jointed, as may be necessary, such as a universal joint for one arm, so that it may be moved in any direction. To move the arm as may be required, I attach to it or to an extension of it a lever or levers, which I hinge or pivot to the frame or platform or to the doll itself. By preference these levers are in two sets and so adjusted and arranged that by the movement of one set the arm of the doll is moved in a vertical or other direction and by the movement of the other set it is moved in a horizontal direction or a direction at right angles to the other. Thus by the simultaneous movement of the two sets of levers the arm may be moved diagonally, and by a due and proper correlation of the movements the arm may be so caused to move as that a pencil or stylus attached to it shall describe any desired outline or figure. I control the action of the arm by a spring or springs so attached and adjusted that it or they shall always tend to keep the arm in its normal position or bring it back thereto if moved from it. To cause the arm to move, and so make the doll to draw a figure upon a surface, such as a slate or piece of paper, I provide a slide or slides movable in a guide or guides having one or both edges cut to a suitable outline. These slides are so adjusted and arranged that a suitable notch, peg, or other device provided upon one of the levers in each of the aforementioned sets shall engage against the edge or one of the edges of the slide or slides, and as the slide is drawn along the said notch or peg shall follow the sinuosities of the edge, being kept against the edge by the action of the aforesaid spring, and cause the arm to make a certain movement. As the two sets of levers are to be engaged simultaneously, one with one edge and the other with another edge, either of the same or different slides, it follows that the arm will partake of the movement partially horizontal and partially vertical, or at any rate of the two movements due to the two sets of levers, and that the slides may be so cut as to cause the doll to draw or describe any figure that may be desired. In a suitable position relatively to the doll I provide an easel for supporting a piece of paper or other suitable material to receive the drawing, the point of the pencil being kept in contact with the paper either by a spring behind it or by the easel being suitably hinged to the frame or platform and being kept up to the pencil by a spring or weight.

Instead of the edges of the slides being cut to the requisite outline a slot may be cut along them, in which case the aforesaid notches, pegs, or other devices are caused to travel in the slots, and the spring or springs acting on the levers may be dispensed with. I provide any suitable mechanism for moving the slides, such as a worm and wheel acting upon teeth cut in the slides or a snail acting upon teeth formed on the slides and the like. The mechanism may be driven by hand, clockwork, or any other suitable motive power.

In order that my invention may be more fully understood, I have shown one method of carrying it out by the accompanying drawings. in which—

Figure 1 is a side view, partly in section. Fig. 2 is a plan from above. Fig. 3 is a back view, partly in section. Fig. 4 is a plan of bottom. Fig. 5 is a part section through the snail.

a is a plate forming a platform, on which is mounted a frame which forms the basis or body of a doll.

b is the arm of the doll and is jointed by a universal joint to the frame at 1. Attached to this arm is the lever *c*, which is, in fact, an extension or part of the arm itself. The two sets of levers which give the vertical and horizontal movements to the arm are respectively *d* and *e e'*. The levers *d* and *e* are pivoted to the frame at 6 and 7, respectively, and the levers *e* and *e'* are joined together by the link *j*.

f is a spring acting upon the arm at 2 and having an abutment in the frame at 3. This spring is so placed that it not only keeps the arm in its joint at 1, but it also tends to press the pencil end of the arm down and to the right-hand edge of the easel *o*, so that the

normal position of the point of the pencil is at the point marked 5 or thereabout.

g and *h* are pegs or projections upon the upper surfaces of the levers *d* and *e* and passing through the segmental slots in the platform are caused by the action of the spring *f* to rest against the inner ends of the said slots until they are pushed away from them by the edges of the slide *k*. The slide *k* has a series of teeth planted upon its upper surface with which the scroll of the snail *l* engages. The slide *k* is somewhat pointed or narrowed at its entering end *r*, so that it can be pushed between the pegs *g* and *h* when they are in their normal position until the first tooth engages with the snail, when by turning the handle *m* the slide is drawn right through.

In its passage the slide pushes the pegs *g* and *h*, and so moves the levers *d* and *e*, and thus the arm *b* is moved, the spring *f* keeping the pegs *g* and *h* up against the edges of the slide. Thus the slide being properly cut the arm *b*, and so the pencil *u*, may be made to describe any desired outline upon the easel *o* or upon a piece of paper fixed thereon.

The easel *o* is hinged to the platform at its lower end and is kept up to the point of the pencil by the spring *p*. The slide is guided and caused to travel in a straight line by the guides *s s*, *s′ s′*, s^2 s^2, between which the teeth pass.

I do not confine myself to the above details in carrying out my invention.

Having thus fully described the nature of my invention, what I desire to secure by Letters Patent of the United States is—

1. In a mechanical toy, the combination with the toy figure, of a pencil carried by the toy figure, of a drawing-board, of levers connected therewith, sliding means carrying profiles engaging with these levers to operate the same and means for moving said sliding means in a straight line, thereby causing the toy to make drawings corresponding to the profiles, substantially as described and for the purpose set forth.

2. In a mechanical toy, the combination with a movable toy-arm, of a pencil carried by the toy arm of a drawing-board of levers attached at said arm, a slide carrying profiles engaging with the levers, and a gearing for moving said slide in a straight line, thereby causing the toy to make drawings, substantially as described and for the purpose set forth.

3. In a mechanical toy, the combination with a toy arm having a universal joint of a pencil carried by the said arm, of a drawing-board, of levers for vertically and horizontally moving the arm, a slide carrying profiles engaging with the levers, a spring tending to move the arm in a certain direction and to maintain engagement between the profiles and levers, and a gearing for moving said slide in straight line thereby causing the toy to make drawings, substantially as described and for the purpose set forth.

4. In a mechanical toy, the combination with a toy arm having a universal joint of a pencil carried by said arm, of a drawing-board, of levers for vertically and horizontally moving the arm a toy base, a slide placed upon the outside of the upper wall of said toy base and carrying profiles engaging with the levers, a spring tending to move the arm in a certain direction and to maintain engagement between the profiles and levers, and a gearing for moving said slide in straight line, thereby causing the toy to make drawings, substantially as described and for the purpose set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ALFRED WILLMER POCOCK.

Witnesses:
ALFRED NUTTING,
C. P. LIDDON.