

A. F. KUHL.
MECHANICAL TOY.
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1,038,603.

Patented Sept. 17, 1912.
2 SHEETS—SHEET 2.

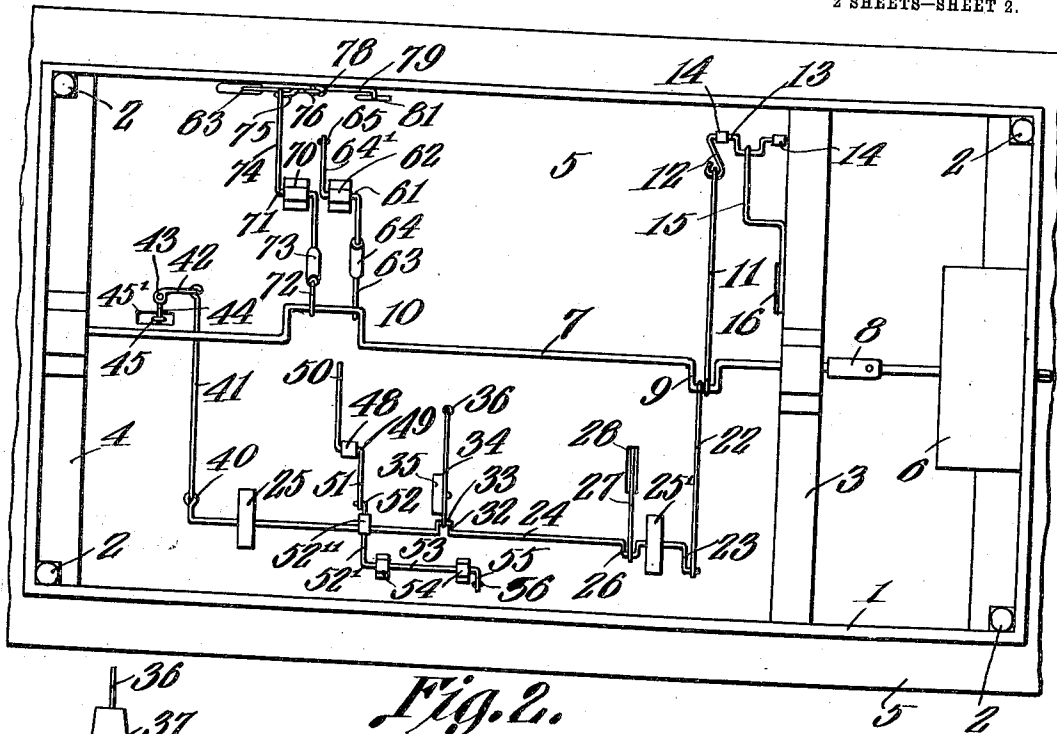


Fig. 2.

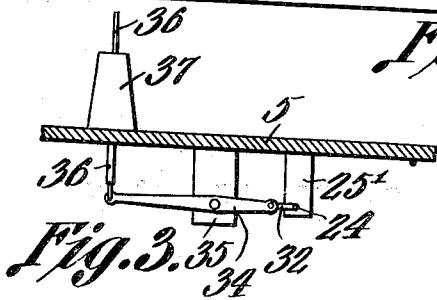


Fig. 3.

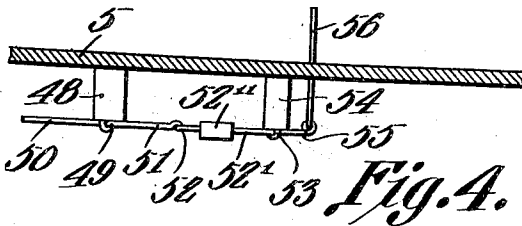


Fig. 4.

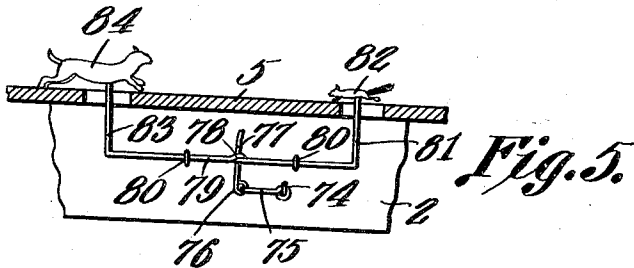


Fig. 5.

Witnesses

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MECHANICAL TOY.

1,038,603.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT F. KUHLE, a citizen of the United States, residing at Van Wert, in the county of Van Wert and State of Ohio, have invented a new and useful Mechanical Toy, of which the following is a specification.

The present invention relates to improvements in mechanical toys, the primary object of the invention being the provision of a mechanical toy including a plurality of jointed lay figures mounted upon a stage, each of said figures being positioned to perform, or rather imitate the performance of a particular manual operation, all of said figures being connected to and operated from a single motor driven shaft, the operating mechanism and connections of which are disposed below the stage or platform and completely obscured from view.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings—Figure 1 is a top perspective of the toy. Fig. 2 is a bottom plan view showing in elevation the operating mechanism for the various jointed figures. Figs. 3, 4, 5 and 6 are detail views of the various operative connections for controlling the movements of the individual jointed figures from the main shaft.

Referring to the drawings, the numeral 1 designates a rectangular frame supported upon four legs 2 and having the cross pieces 3 and 4 attached thereto, said frame and cross pieces providing a means for properly supporting the stage or platform 5, and the spring motor 6 and central longitudinally disposed main shaft 7. This shaft 7 is properly journaled within the cross pieces 3 and 4 as clearly illustrated in Fig. 2, and is connected to the spring motor 6 through the medium of the coupling 8. Although a spring motor is shown in the present apparatus, it is evident that any form of motive power may be employed to rotate continuously the shaft 7.

The shaft 7 is provided with a crank 9 intermediate of its ends and adjacent to the

cross piece 3 and with the large crank 10 near other end, said crank 10 forming in reality, the cam for actuating several mechanisms as will later appear.

Operably connected to the crank 9 is a link 11 whose other end is attached to the crank arm 12 of the short rock shaft 13, said rock shaft 13 being disposed in journals 14 depending from the under side of the stage or platform 5. Connected to the crank of the rock shaft 13, is an angle arm or link 15 whose upper end is extended through the transversely disposed elongated slot 16 formed through the platform or stage 5, the upper end of said link being pivotally connected to one end of the miniature cross cut saw 17, whose other end is operably connected through the medium of the handle 18 to the pivoted arms of the jointed lay figure 19. This lay figure 19 is rigidly connected to the upper surface of the stage or platform, so that the reciprocatory action imparted to the miniature saw 17 will cause the body and arms thereof to simulate such movement as would be necessary to impart such reciprocatory action to the saw. The horse 20 carries the miniature log 21.

Pivotally connected to the crank 9 and extending in opposite directions to the link 11 is a similar link 22, whose other end is pivotally connected to the short crank 23 of the long rock shaft 24, said rock shaft 24 being disposed in journal boxes 25 and 25' suspended from the under side of the stage or platform 5 and retaining the said shaft 24 in parallel with the main drive shaft 7. The rock shaft 24 is provided with the small crank 26 near the journaling standard 25'; and to this crank 26 is connected a link 27 which extends inclinedly upward and through the elongated transverse slot 28 formed through the platform or stage. The upper end of the link 27 is threaded through an aperture 29 of the miniature wash tub 30, the same being operably connected to the pivoted arms 31 of the jointed lay figure 32, the said lay figure being so disposed as to imitate when actuated through the link 27, a washerwoman. This particular jointed figure 32 is pivoted at the waist line so that the legs thereof will be rigidly supported upon the stage 5 and permit only a stooping movement of the body due to the pull of the link 27 thereupon. Another crank 32, which is oppositely disposed to the crank 26, is carried by the shaft 24 and has pivot-

ally connected thereto, one end of the lever 34, said lever being pivotally connected to the post 35 carried by and depending from the under side of the stage 5. The outer free end of the lever 34 is pivotally connected to a vertical rod 36, which rod 36 is slidably mounted within the truncated cone 37, which simulates a churn, the upper end of the rod 36 being pivotally connected to the arms 38 of the jointed lay figure 39. By this construction the figure 39 has a movement imparted thereto to imitate a figure in the act of churning butter.

Upon the extreme end of the shaft 24 beyond the journaling post 25 is a crank arm 40, which has pivotally connected thereto, a long link 41 which passes above the shaft 7 and has its opposite end operably connected to one terminal of a horizontally pivoted bell crank lever 42, said bell crank lever being pivoted to the under side of the stage 5, at 43, and having its terminal 44 threaded through an eye 45, which eye is disposed through the longitudinally disposed slot 45' formed in the stage 5 and is connected to a bar 46 for actuating the rocking chair 47 in which is seated the lay figure 47', simulating a male figure at ease and in a position to observe the moving lay figures performing the various labors.

A post 48 is connected to and depending from the under side of the stage 5 in line with one portion of the cam crank 10 of the shaft 7 and has pivotally mounted therein a lever 49, its free terminal 50 being disposed in the path to be engaged by said cam crank 10 once every revolution of the shaft 7. The other terminal 51 of the lever 49 is pivotally connected to the intumed end 52 of the crank 52' of the rock shaft 53, said rock shaft 53 being journaled in the posts or standards 54 connected to and depending from the under side of the stage 5. A weight 52'' normally holds the free end of the crank 52' and the inner end 51 of the lever 49 downwardly, so that a vertically reciprocatory rod 56 connected to the short crank arm 55 of the shaft 53, will pull downwardly upon the bell crank lever 57 pivoted to the body of the jointed lay figure 58 for controlling the miniature ax 59 connected to and disposed in the arms of said jointed lay figure 58. When the lever 49 is actuated by the cam crank 10 of the shaft 7, the free end 50 thereof is lowered and the rod 56 depressed, thus raising the ax 59 from above and out of contact with the miniature chopping block 60, the weight 52' upon the release of the cam crank from the free end 50 of the lever 49 moving the rod 56 and the ax downwardly and into engagement with the upper surface of the miniature block 60, thus simulating a figure in the act of chopping wood.

Connected to the under side of the stage

or platform 5 and in the position opposite to the position of the standard 48 is a standard 62 which has pivotally mounted therein the lever 61, whose inner free end 63 carrying the weight 64 is disposed to be engaged by the cam crank 10 of the shaft 7 and thus impart to the opposite end 64 and the vertically reciprocatory rod 65, a vertical pushing and pulling movement to actuate the bell crank lever 66 connected to the jointed lay figure 68 and the arms 67 thereof, so as to impart to the miniature club 69 disposed in the arms 67 of the figure 68 and also the jointed body of such figure, a movement to simulate a striking action downwardly with the club to imitate a minor in the act of ousting a cornered or trapped animal as will presently appear.

A post 70 is disposed at one side of the post 62 and has journaled therein a lever 71 whose free end 72 carries the weight 73 and is disposed to be actuated by the cam crank 10, said free end 72 being disposed in opposite relation to the free end 63 of the lever 61 so that an intermittent or alternate movement is imparted to the two levers 61 and 71, respectively. The opposite free end 74 of the lever 71 is pivotally connected to one terminal of the bell crank lever 75, said bell crank lever being pivoted at 76 to the inner face of one of the frames 2 of the supporting structure of the device and has its upper terminal 79 threaded through the eye 78 of the longitudinally disposed and reciprocatory rod 79. This rod 79 is disposed in the guide eyes 80 secured to the side of the frame 2 above the crank lever 75 and carries the two parallel arms 81 and 83, respectively, which are disposed for sliding movement through longitudinal slots formed through the stage or platform 5 of the apparatus. Upon the upper end of the rod 81 is connected a figure 82 imitating a rat or other animal, while upon the upper end of the rod 83 is a figure imitating a dog. A hollow member 85 is disposed upon the platform 5 and in the position for the projection and retraction of the figure 82 relatively thereto. Thus through the medium of the cam crank 10, the two levers 61 and 71 impart to the figure 68 a striking action as regards the figure 82 and intermittently moves the figure 82 into and out of the closure 85 respectively. Simultaneously with the movement of the figure 82, the figure 84 has imparted thereto an opposite movement.

The figures are to be made of tin or other material to produce a cheap toy.

From the foregoing description, taken in connection with the drawings it is evident that the rotation of the shaft 7 through any motor means, as for instance the spring motor 6, will impart simultaneous movement to the various figures set forth, thus providing an automatic mechanical toy

What is claimed is:

1. A mechanical toy, including a platform, a motor driven shaft journaled below and longitudinally thereof, two oppositely disposed links having their inner ends operably connected to the motor driven shaft, a rock shaft parallel to the first shaft and operably connected to one link, a second rock shaft operably connected to the remaining link, three lay figures mounted upon the platform and operably connected to the first rock shaft, a miniature saw connected to the second rock shaft, a lay figure connected to said saw, a crank upon the motor driven shaft, a plurality of levers fulcrumed below the platform and having their free ends disposed in the path of to be operated by the crank, and a plurality of lay figures mounted upon the platform and operably connected to said levers.

2. A mechanical toy, including a platform, a motor driven shaft below and longitudinally of the platform, a link operably connected at its inner end to said motor driven shaft, a rock shaft journaled below and parallel to the motor driven shaft and operably connected to the link, three cranks carried by the rock shaft, an inclined rod connected to one crank and reciprocable through the platform, a jointed lay figure mounted upon the platform and connected to the upper end of said inclined rod, a double lever pivoted below the platform and having one end operably connected to one of the other cranks of the rock shaft, a vertically reciprocable rod mounted through the platform and operably connected to the other end of the double lever, a jointed lay figure mounted upon the platform and operably connected to the upper end of the vertically reciprocable rod, a horizontally disposed reciprocable link connected at one end to the remaining crank of the rock shaft, a horizontally mounted bell-crank lever below the platform and operably connected to the other end of the horizontally disposed reciprocable link, and a rocking element disposed

upon the platform and operably connected to the other terminal of the bell-crank lever.

3. A mechanical toy, including a platform, a motor driven shaft below and longitudinally of the platform, two oppositely disposed links connected at their inner ends to said driven shaft, a rock shaft journaled below and parallel to the motor driven shaft, said rock shaft being operably connected to one of the links, three cranks carried by the rock shaft, an inclined rod connected to one crank and reciprocable through the platform, a jointed lay figure mounted upon the platform and connected to the upper end of said inclined rod, a double lever pivoted below the platform and having one end operably connected to one of the other cranks of the rock shaft, a vertically reciprocable rod mounted through the platform and operably connected to the other end of the double lever, a jointed lay figure mounted upon the platform and operably connected to the upper end of said rod, a horizontally disposed reciprocable link connected at one to the reciprocable link connected at one end to the remaining crank of the rock shaft, a bell crank lever below the platform operably connected to the other end of the reciprocable link, a rocking element disposed upon the platform and operably connected to the other terminal of the bell crank lever, a short rock shaft journaled below the platform and operably connected to the remaining link of the oppositely disposed links, an inclined rod connected to said last rock shaft and projecting through the platform, a miniature saw having one end connected to and operated by said rod, and a jointed lay figure connected to the other end of the saw and operated through the saw.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ALBERT FRANKLIN KUHLE.

Witnesses:

SADIA J. UHRICH,
HUGH E. ALLEN.