

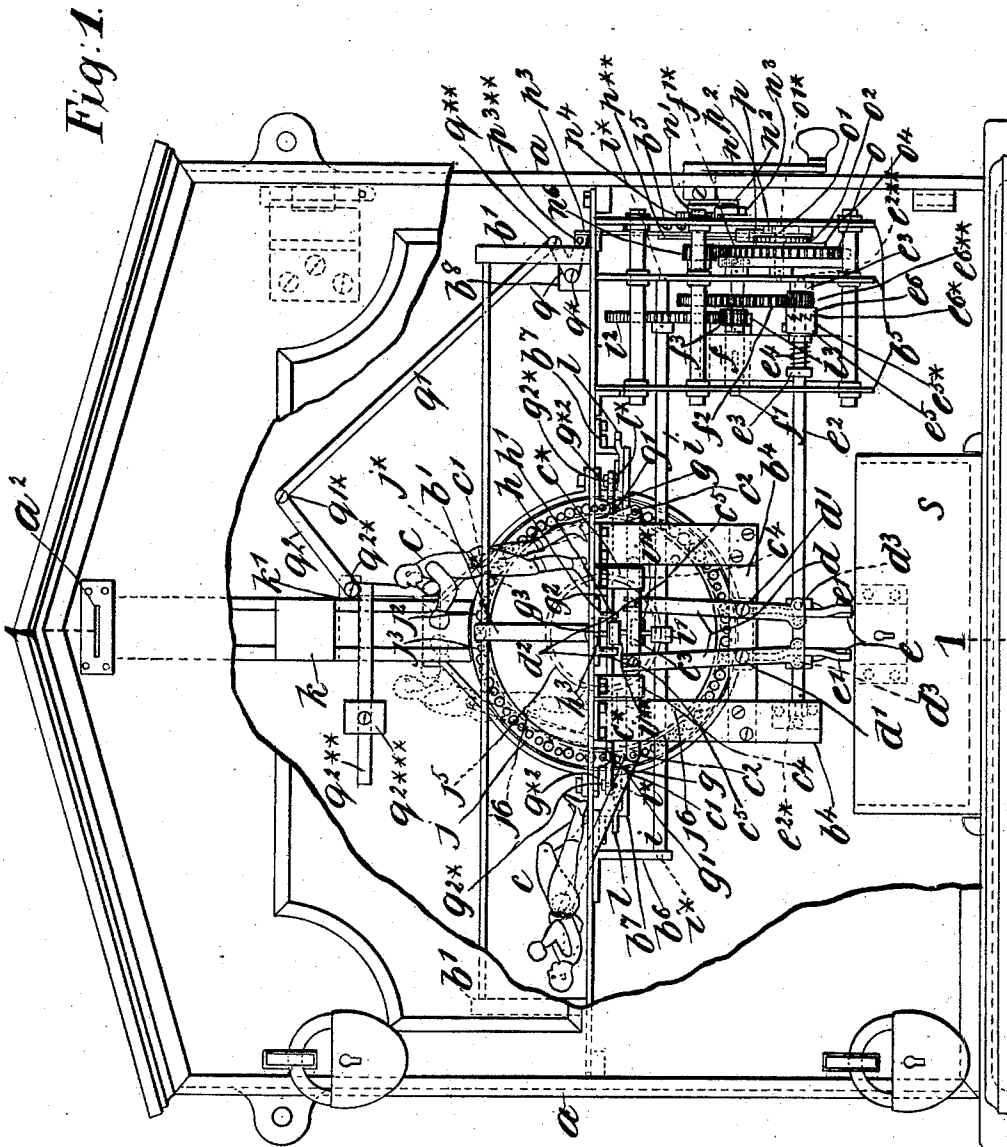
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13 Sheets—Sheet 1.

C. F. A. RÖELL.
COIN OPERATED TOY.

No. 474,304.

Patented May 3, 1892.



Attest:

Walter E. Allen.
Edward D. Knight.

Inventor:
Cornelius F. A. Röell.
By Knight Bros.
Attorneys.

(No Model.)

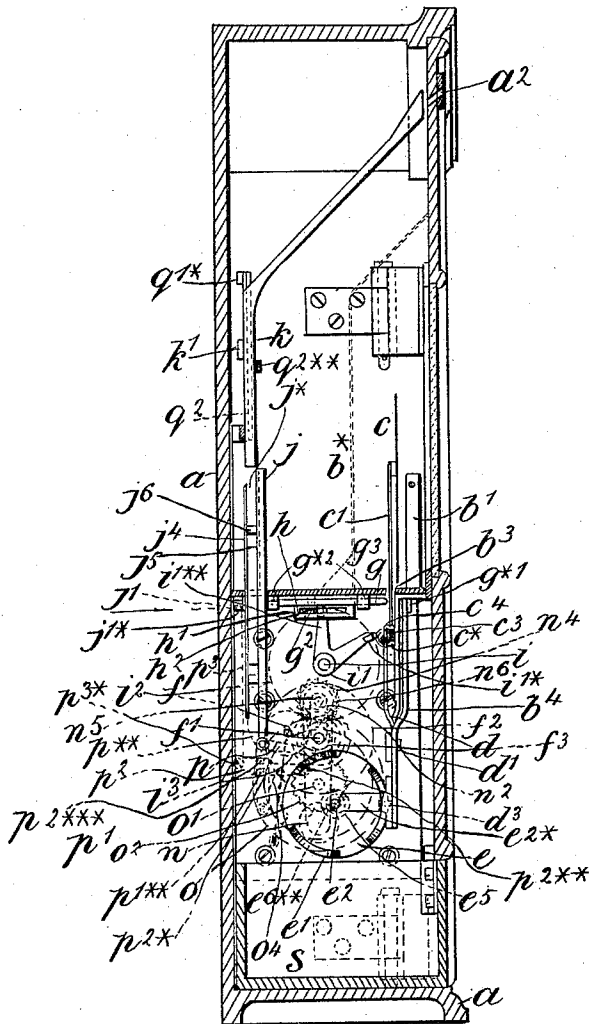
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Fig: 2.



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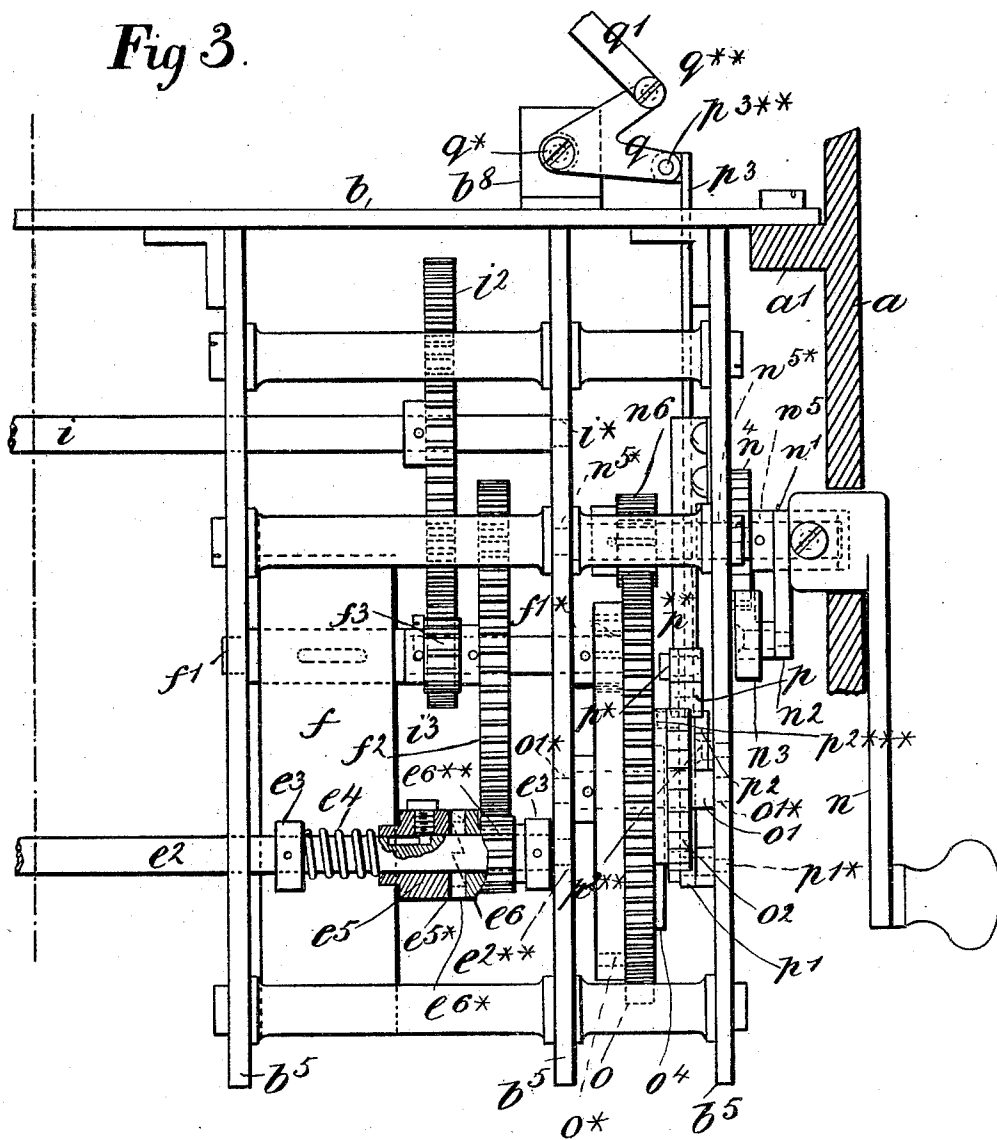
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Fig 3.



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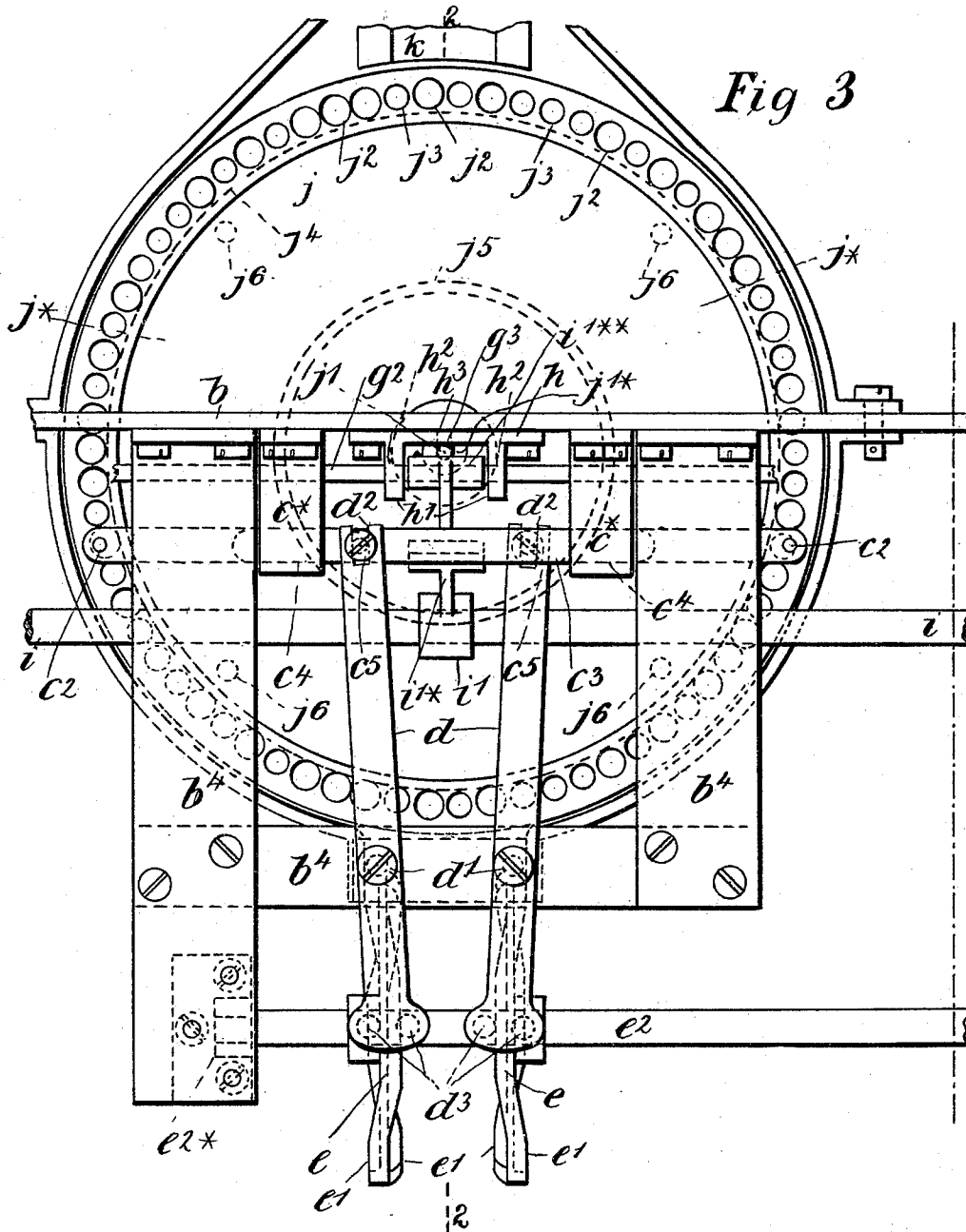
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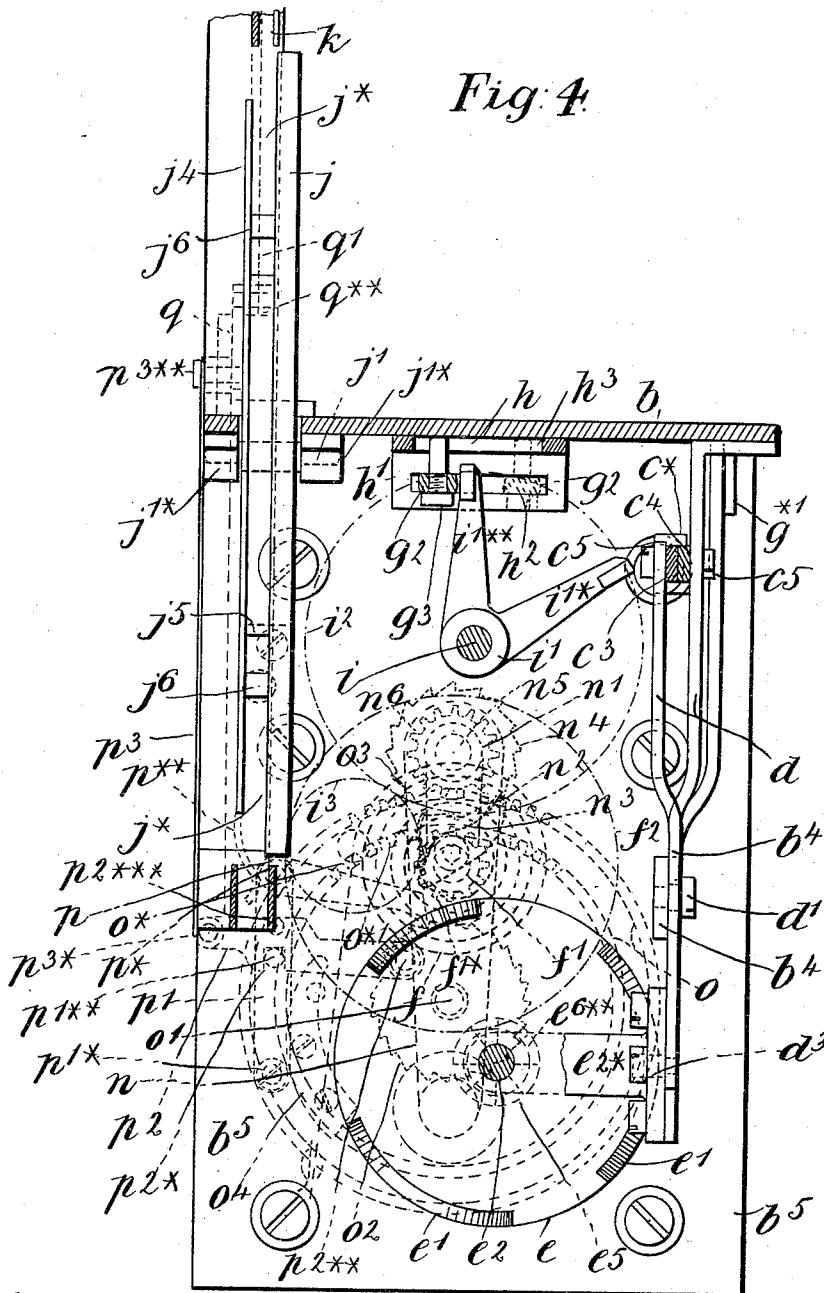
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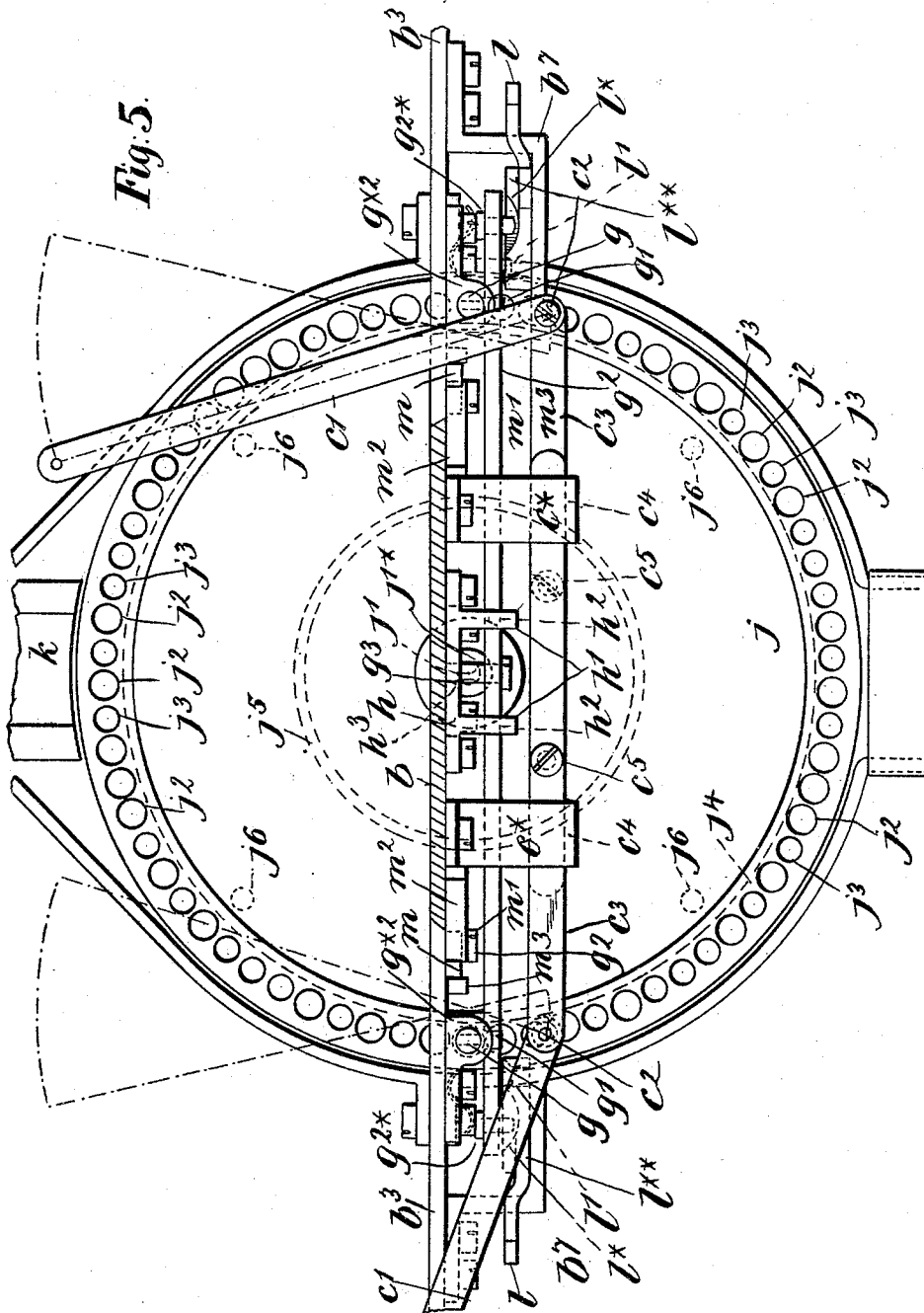
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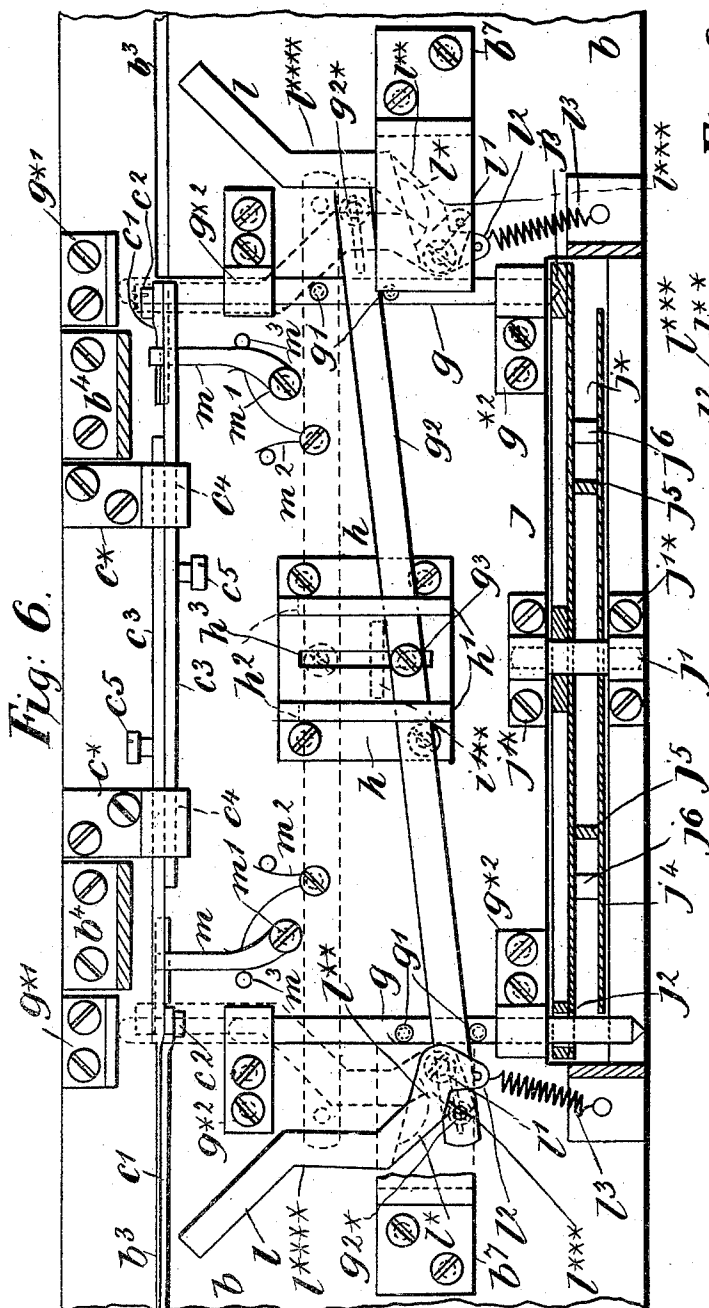
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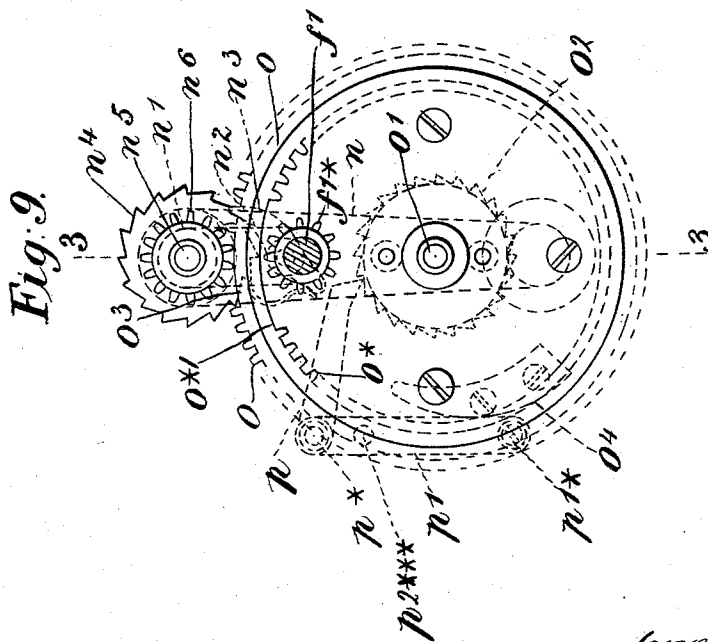
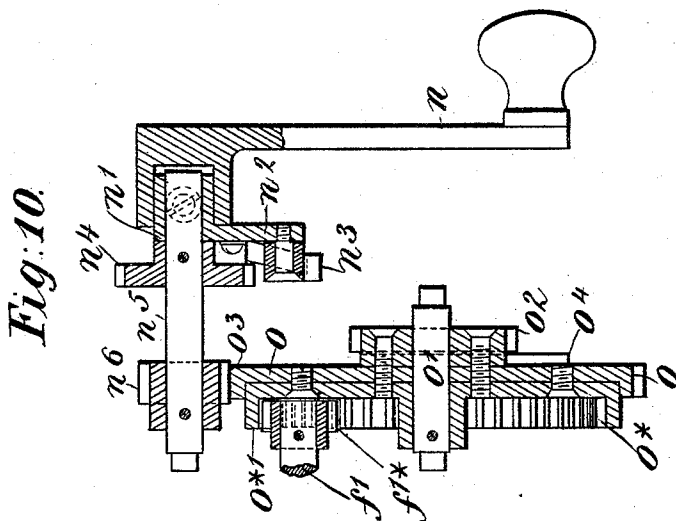
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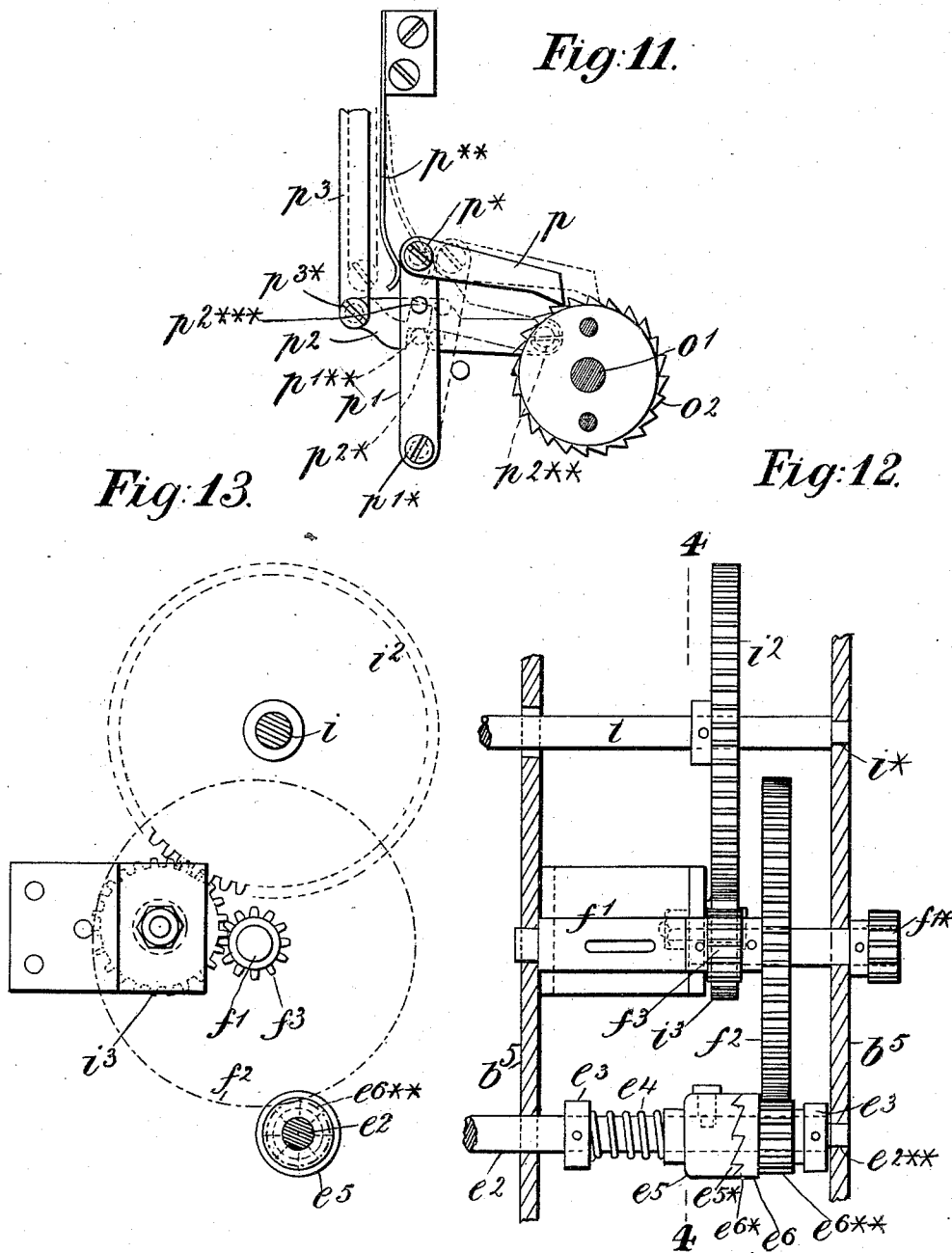
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Fig. 14.

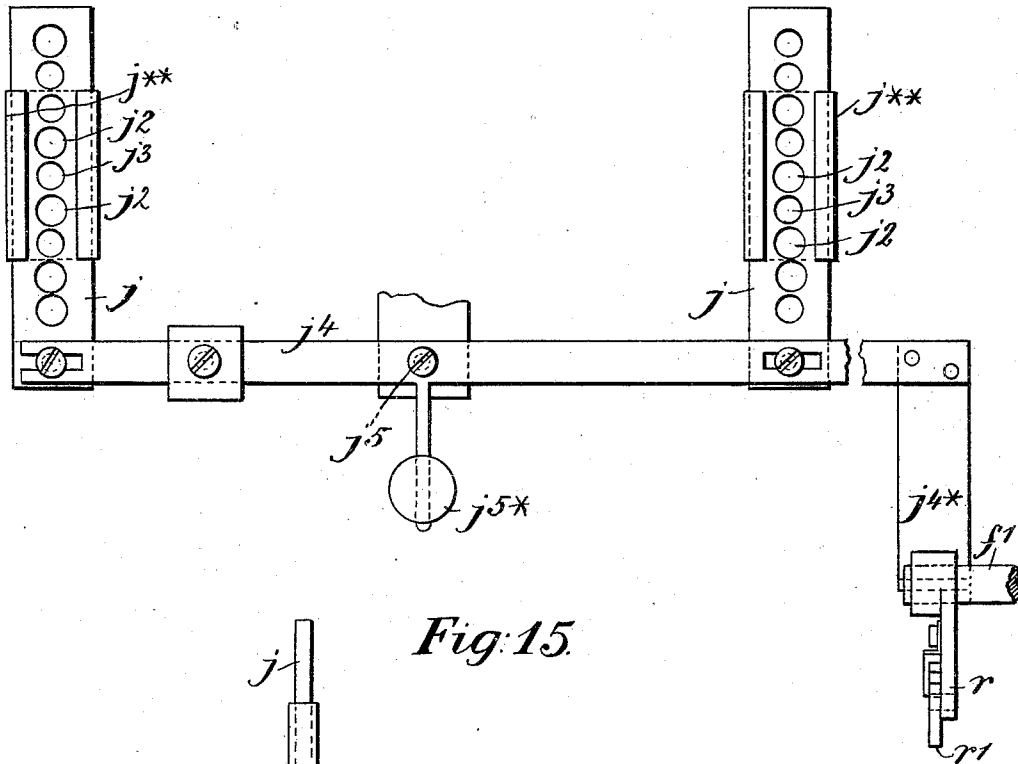
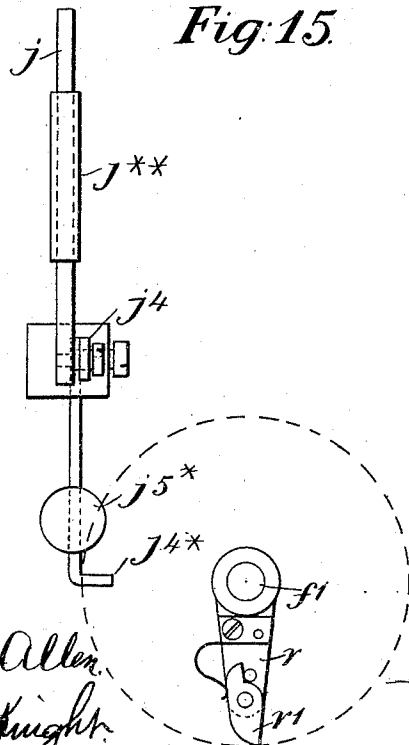


Fig. 15.



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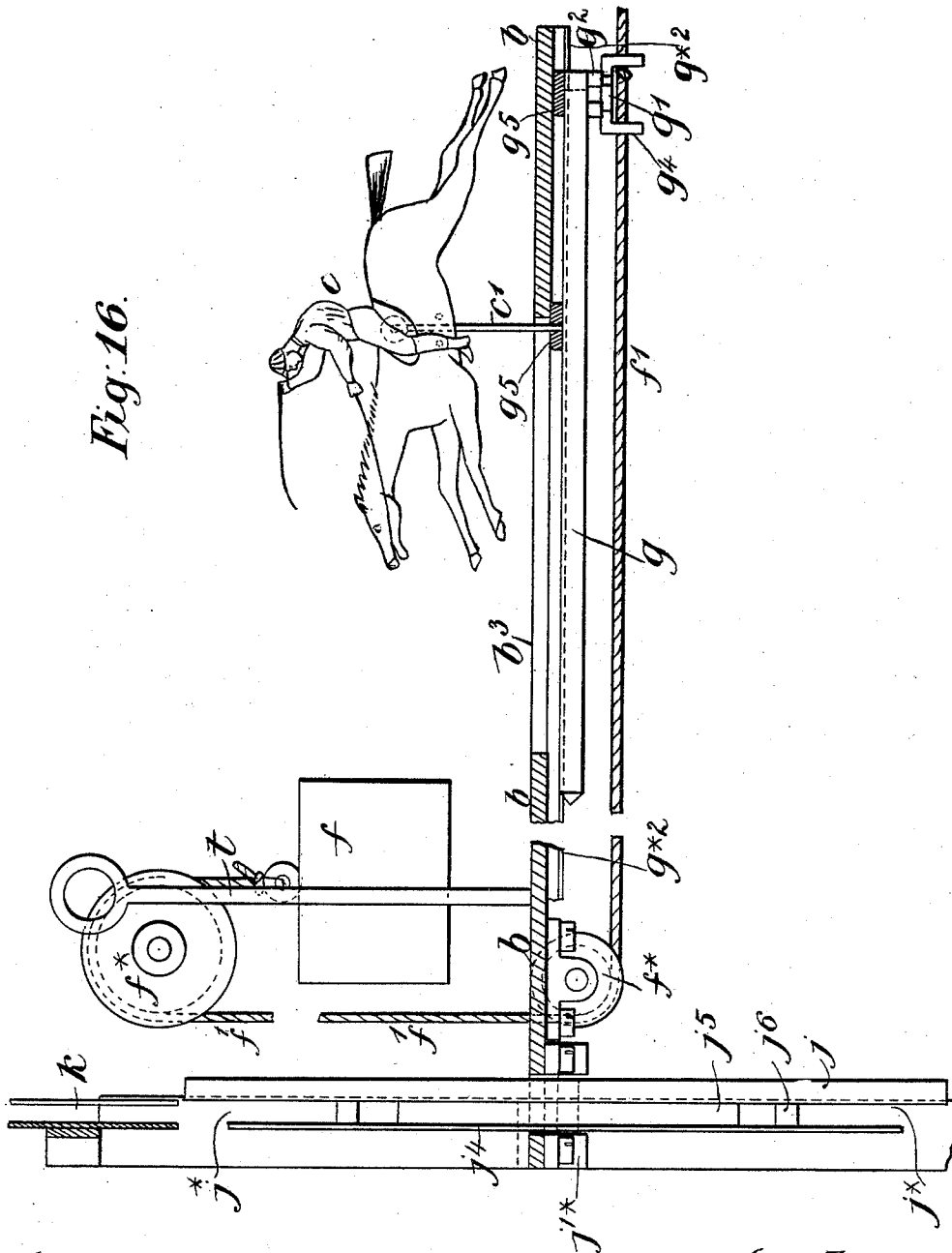
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Fig. 16.



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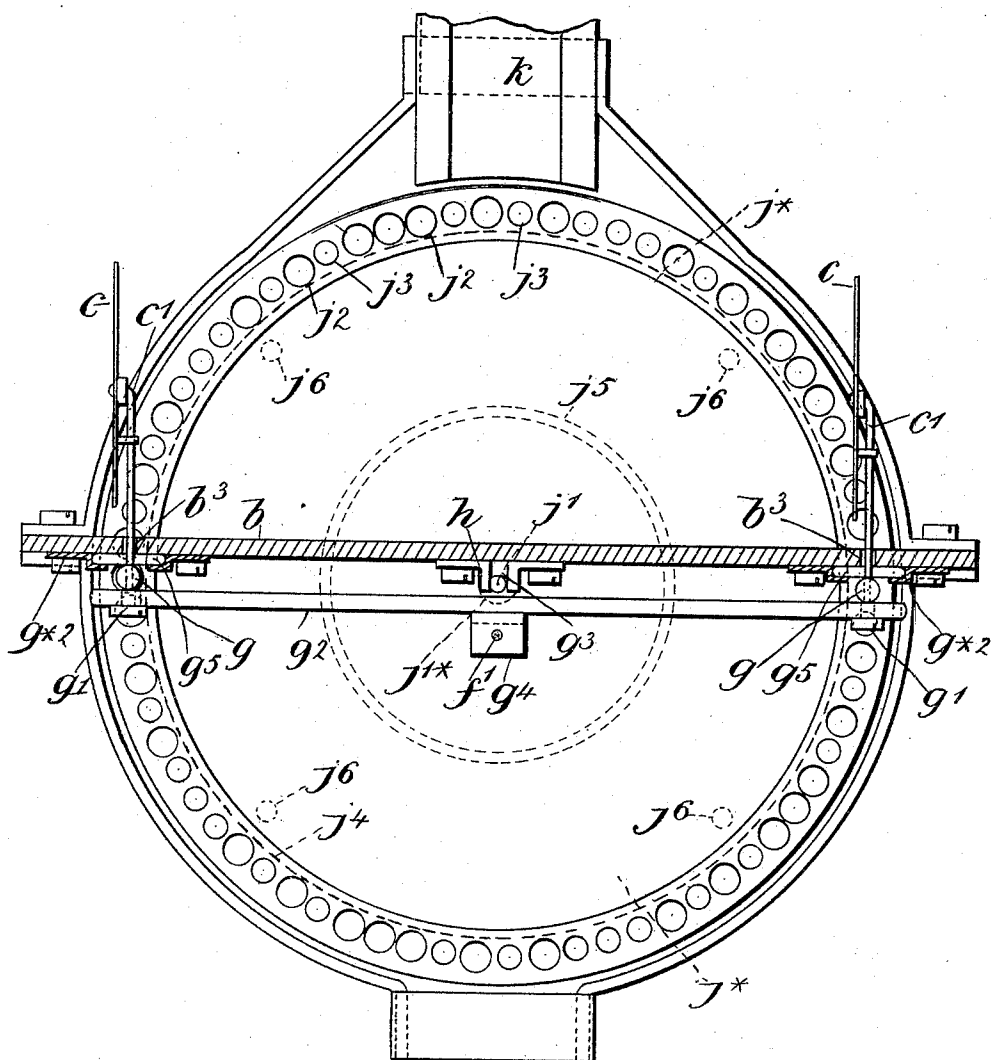
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Fig:17



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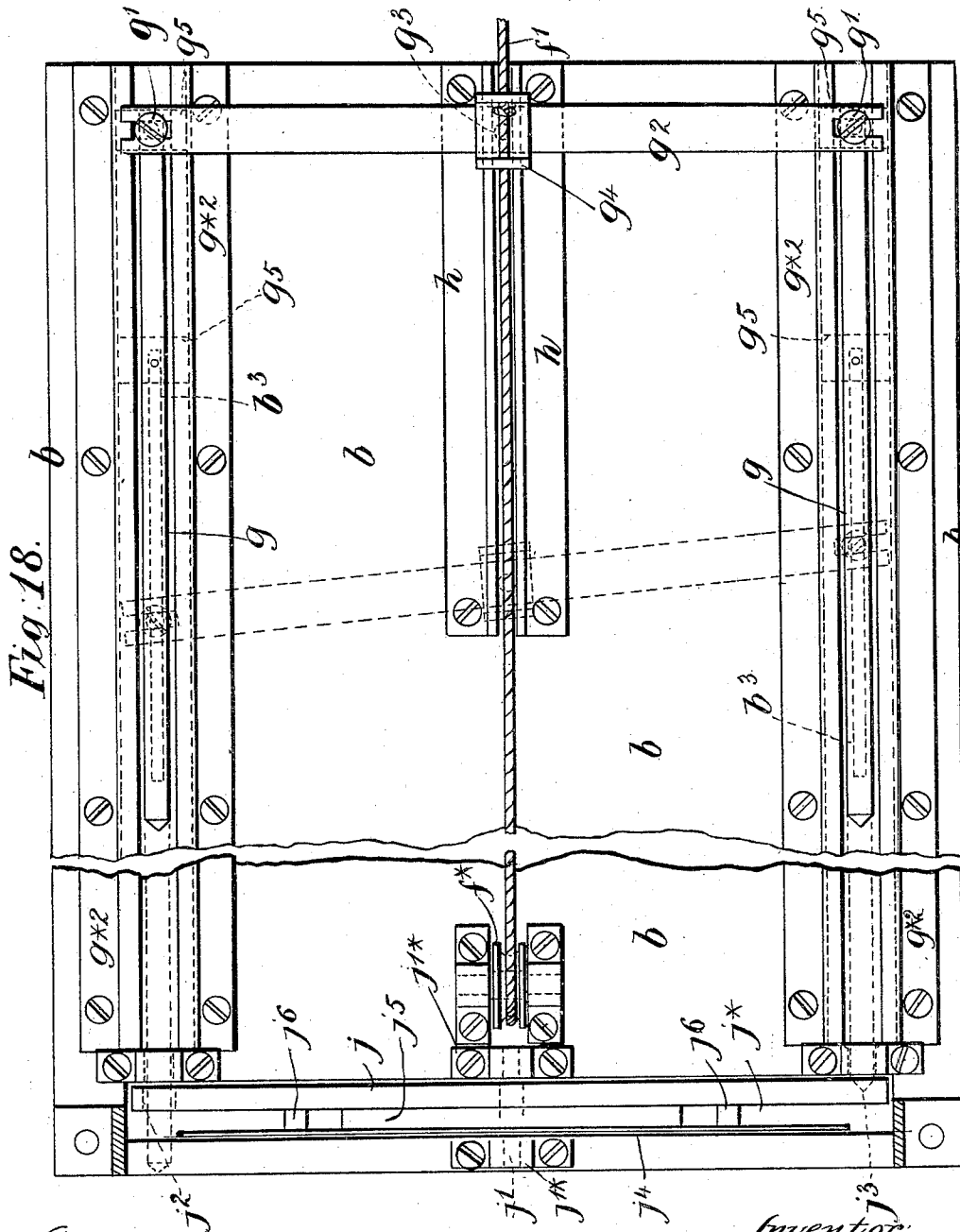
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UNITED STATES PATENT OFFICE.

CORNELIS FREDERIK ALEXANDER RÖELL, OF LONDON, ENGLAND.

COIN-OPERATED TOY.

SPECIFICATION forming part of Letters Patent No. 474,304, dated May 3, 1892.

Application filed September 22, 1891. Serial No. 406,531. (No model.)

To all whom it may concern:

Be it known that I, CORNELIS FREDERIK ALEXANDER RÖELL, a member of the Lyric Club, and a subject of the Queen of Holland, residing in Leicester Square, London, in the county of Middlesex, England, have invented certain new and useful Improvements in or Connected with Coin-Operated or other Mechanical Toys, of which the following is a specification.

The invention has for its object to actuate boxing or foiling or other figures in such manner that they will apparently engage in a contest and at the termination thereof one of them will fall, while the other remains erect, and that accidentally or irregularly, so that it will be impossible to previously select the winner with any degree of certainty, and similarly to actuate the figures of running horses or human beings or other objects, so that they will gradually move in a given direction, as if engaged in a race, and terminate the competition, one in advance of the other, with the same uncertainty as to the winner.

The invention consists, primarily, in the employment of a perforated stop-disk or perforated stop-plates, the position of which is varied at each operation of the machine, in combination with two coacting stop-bars, which control the falling or advance of the figures and which are gradually carried toward the stop disk or plates until one or other of such bars is arrested by the stop disk or plates and the other of such bars passes through an aperture thereof, thus causing the corresponding figure in a boxing competition or duel or the like to fall and lose or the corresponding figure in a race to pass beyond the other and win; and the invention further consists in various details of construction hereinafter more fully set forth.

In order that the said invention may be more clearly understood and readily carried into effect, I will proceed, aided by the accompanying drawings, more fully to describe the same.

In the drawings, Figure 1 is a front elevation, with the front of the case broken away, of a mechanical toy constructed according to my invention and illustrating the application thereof to boxing figures. Fig. 2 is a vertical transverse section taken on the line 1 1 of Fig. 1. Fig. 3 on Sheets 3 and 4 of the draw-

ings represents a front elevation similar to Fig. 1, part being in section and parts being omitted. Fig. 4 is a vertical transverse section thereof taken on the line 2 2 of Fig. 3. Fig. 5 is a front elevation, partly in section, of the stop-disk and coacting parts separately. Fig. 6 is an under side view thereof. Fig. 7 is an end view of the device for raising the fallen figure. Fig. 8 is a plan thereof. Fig. 9 is a sectional elevation of part of the winding mechanism separately. Fig. 10 is a vertical transverse section taken on the line 3 3 of Fig. 9. Fig. 11 is an elevation of the pusher and connected parts for throwing the winding mechanism into gear. Fig. 12 is an elevation of another part of the winding mechanism and gearing for transmitting motion from the main spring to the working parts of the machine. Fig. 13 is a transverse section taken on the line 4 4 of Fig. 12. Fig. 14 is an elevation of a modified device which might be employed in lieu of the stop-disk. Fig. 15 is an end view thereof. Fig. 16 is a sectional elevation of a mechanical toy illustrating the application of my invention to racing figures or objects. Fig. 17 is an end view thereof, and Fig. 18 is an under side view thereof.

In the several figures of the drawings, in which like parts are indicated by similar letters of reference, Figs. 1 and 2 are drawn to a reduced scale, while the remainder of the figures are drawn full size.

Referring to Figs. 1 to 15, *a* represents the case of the machine.

b represents the ground-line or platform, which is supported upon side beams *a'*, and *b'* represents several vertical posts fixed to the floor *b* in imitation of a boxing-ring.

*b** represents a screen or background, and *c* represents the boxing figures.

The boxing figures *c* are each mounted upon the upper end of a vertical rod or holder *c'*, located at the back thereof and rising through long slots *b³*, formed in the stage or platform *b*, and these slots *b³* are extended rearward of the figures in order to permit them to fall over onto their backs at the desired times, while at other times the motion of the figures is limited by means of stop-bars *g*, hereinafter more fully described, and which act as fulera to the vertical rods *c'*. The lower ends of the vertical rods *c'* are by hinge-joints each connected with a separate sliding bar *c³*,

mounted in guides c^4 , formed in brackets c^* , fixed to the under side of the platform b , so that the endwise movement of the sliding bars c^3 will also give motion to the boxing figures c and throw them forward and backward, as in the act of boxing. The necessary motion is given to the sliding bars c^3 , and consequently to the boxing figures c , by means of levers d , which are mounted upon axes of motion d' , carried by a bracket b^4 , fixed to the under side of the platform b . The levers d are at their upper ends formed with slots d^2 to receive studs or screws c^5 , fixed upon the sliding bars c^3 , while at their lower ends they are provided with studs d^3 , which embrace wheels e , formed with irregularly shaped and spaced cams, projections, or teeth e' upon the two faces thereof, so that in the revolution of the cam-wheels e the levers d will be rocked upon their axes d' , and a to-and-fro motion will thus be communicated through the sliding bars c^3 to the boxing figures c . The cam-wheels e are fixed upon a horizontal shaft e^2 , which at one end is mounted with capability of revolving in a bearing e^{**} , carried by the bracket b^4 , and at the other end is mounted in a bearing e^{***} , formed in one of the walls of a frame b^5 , fixed to the under side of the platform b , and within the frame b^5 the shaft e^2 has mounted with capability of sliding thereon, but fixed therewith as regards revolution, a half-clutch e^5 , formed with ratchet-teeth e^{5*} , which is kept up to its work by a spring e^4 , taking an abutment against a collar e^3 , fixed upon the shaft e^2 , and this half-clutch e^5 engages the teeth e^{6*} of a half-clutch e^6 , which is mounted with capability of revolving loosely upon the shaft e^2 , and is also kept up to its work by a collar e^3 , and this half-clutch e^6 has formed or fixed thereon a pinion e^{6**} , which engages a toothed wheel f^2 , fixed upon a spring-shaft f' , to which is fixed one end of a spring f , which furnishes the requisite motive power. By this arrangement of parts the spring f may be wound up, as hereinafter described, without imparting any motion to the cam-wheel shaft e^2 , the half-clutch e^6 revolving loosely upon the shaft e^2 , while upon the unwinding of the spring f rotary motion will be communicated through the spring-shaft f' , toothed wheel f^2 , pinion e^{6**} , clutches e^5 e^6 , and cam-shaft e^2 to the cam-wheels e , which will impart the desired movements to the boxing figures c .

By reason of the length of the slots b^3 in the platform b to the rear of the figures c the latter would be liable to fall upon their backs at any time if not supported in some manner, and in order to prevent the figures c so falling except at the desired times and to furnish fulcrums for the vertical rods c' sliding stop-bars g are employed, whose outward motion is limited by stops g^{**} and which work in guides g^{**} , fixed to the under side of the platform b , and these stop-bars g cross the long slots b^3 of the platform or stage b and form stops to the vertical rods c' , supporting

the figures c , thus limiting the backward movement thereof, but leaving sufficient play for the normal working of the figures c , and these stop-bars g are drawn forward across the slots b^3 by the means hereinafter more fully described.

In order to cause the figures c to be thrown down upon their backs as if from a knock-down blow, a delayed but gradual inward movement toward the back of the machine is given to the stop-bars g shortly before the spring f is completely run down, as hereinafter more fully described, so that the stop-bars g are withdrawn from across the slots b^3 of the platform b and the figures c are at liberty to fall backward.

Motion is given to the sliding stop-bars g through a bar or yoke g^2 , which at its ends passes between and engages pins or studs g' upon the stop-bars g , and this yoke g^2 passes through and works in long slots h^2 , formed in the depending walls h' of a bracket h , fixed to the under side of the platform b , while at its center it is provided with an upwardly-projecting stud g^3 , which enters a long slot h^3 , formed in the bracket h , and maintains the yoke g^2 in a central position, while at the same time allowing it to more or less turn upon the stud g^3 , and the yoke-bar g^2 receives the required outward traverse to move the stop-bars g across the slots b^3 of the platform b and the opposite traverse to withdraw the same by the following means:

Upon a shaft i , which at one end is mounted with capability of revolution in a bearing i^* , formed in a bracket b^6 , fixed to the under side of the platform b , and at the other end is mounted in a bearing i^{**} , formed in one of the walls of the frame b^5 , is fixed a bell-crank lever i' , one arm i'^* of which gives the required outward traverse to the yoke-bar g^2 and the other arm i'^{**} of which imparts the required inward traverse thereto, and the shaft i has fixed thereon a toothed wheel i^2 , which through an idle-wheel i^3 , engaging a pinion f^3 , fixed upon the spring-shaft f' , transmits to the shaft i a partial revolution in one direction while the spring f is being wound up, which causes the arm i'^* of the bell-crank lever to give the required outward traverse to the yoke-bar g^2 immediately before the spring f is completely wound up, and the shaft i receives a similar partial revolution, but in the opposite direction while the spring f is running down, which causes the arm i'^{**} of the bell-crank lever to impart the required inward traverse to the yoke-bar g^2 immediately before the spring f is completely run down. This arrangement of parts would cause both figures c to fall upon their backs after a given period of time; but in order to cause either one of such figures to fall, and that accidentally or irregularly, the following device is employed:

At the rear of the machine and within the traverse of the stop-bars g is located a stop-disk j , which is fixed upon a shaft or axis j' ,

mounted with capability of revolution in bearings formed in brackets j^* , fixed to the under side of the platform b , and this stop-disk j is formed with a circle of holes or apertures j^2 therein, preferably irregularly spaced and alternated with cupped recesses j^3 , arranged singly or in clusters, according to the extent of the spaces between the holes or apertures j^2 , to receive the pointed ends of the stop-bars g ; but a recess j^3 is located diametrically opposite each aperture j^2 , so that upon rotary motion being given to the stop-disk j and the stop-bars g carried inward one of them will pass through one or other of the apertures or holes j^2 in the stop-disk j and the other of them will pass into and be arrested by the corresponding cupped recess j^3 .

In order to impart the necessary rotary motion to the stop-disk j , and thus change the position of the apertures j^2 , I fix upon the shaft j' a second but imperforate disk j^4 , which is connected with and separated from the stop-disk j by a distance-ring j^5 , forming a central boss, and at a suitable distance from the boss are arranged several bars j^6 , thus constituting a drum with skeleton pockets j^* , formed by the bars j^6 and the boss j^5 . The bars j^6 of the skeleton pockets j^* are so placed with relation to the boss j^5 that they will retain a coin of the predetermined size and permit a coin of lesser size to pass through, and over this drum is placed a money-chute k and with its axis central thereof, so that a coin of the maximum size passed into the machine through the usual money-slot a^2 will be conducted by the chute k to the drum and will upon falling from the chute k into the drum rotate it either to the right or left and with varying speed, according to the position of the particular pocket j^* which is immediately beneath the money-chute k , and the stop-disk j will thus at every operation of the machine be irregularly moved, after which the coin will pass into the money-compartment s . By these means as the stop-bars g are carried inward toward the back of the case a by the arm i^{**} of the bell-crank lever i' one or other of such stop-bars g will encounter a recess j^3 of the stop-disk j and will be thereby held against further movement, so that it cannot be entirely withdrawn from across the corresponding slot b^3 of the platform b to allow of the figure c falling backward, while the other of such stop-bars g will enter a hole or aperture j^2 of the stop-disk j and will continue its inward movement until it is entirely withdrawn from across its corresponding slot b^3 of the platform b , so as to allow of the free passage of the vertical rod c' , supporting the corresponding figure c , when such figure will fall over onto its back, as if from a knock-down blow.

In order to raise the fallen figure c at the required time, levers l are employed, which are mounted upon axes of motion l' , carried by brackets l^7 , fixed to the under side of the platform b , and these levers l are formed with tails

or offsets l^2 , to which are attached springs l^3 , which normally retain the levers in their retracted position, as shown by the full lines in Fig. 6, while the yoke-bar g^2 at its ends is provided with spring-studs g^{2*} , which in the inward traverse of the yoke g^2 and stop-bars g toward the stop-disk j ride up and pass over the inclines l^* of the thickened portions l^{**} of the levers l without giving motion thereto; but in the outward traverse of the parts the spring-studs g^{2*} come against the angles l^{***} of the thickened parts l^{**} at the back of the inclines l^* and turn the levers l upon their axes l' into the position shown by the dotted lines in Fig. 6, thereby raising the fallen figure previous to the stop-bar g corresponding with the fallen figure being moved across the slot b^3 , after which the studs g^{2*} in the further traverse of the yoke-bar g^2 will travel along the faces l^{****} without giving any motion to the levers l , but will thus retain them in their inward position, so as to hold the figure c raised until the corresponding stop-bar g has crossed the long slot b^3 of the platform b , after which the spring-studs g^{2*} pass beyond the raised faces l^{****} , when the levers l are released from the spring-studs g^{2*} and returned to their normal position by the springs l^3 .

Arms m , crossing the inner ends of the slots b^3 of the platform b and mounted upon centers of motion m' and normally held by springs m^2 against stops m^3 , are employed to act as spring-buffers to the vertical rods c' of the figures c during the raising operation and to compensate for any slight excess of motion of the levers l , and thus avoid injury to the parts and also to give a backward impulse to the figures, and thus assist in throwing them on their backs.

In order to wind up the spring f to a given extent upon the insertion of a proper coin into the machine, to prevent overwinding, and to prevent the partial rewinding until another coin has been inserted, I employ the following arrangement of parts:

n represents a crank-handle located upon the exterior of the case a and fixed upon a sleeve n' , mounted loosely upon a winding-shaft n^5 , mounted with capability of revolution in bearings n^{5*} , and n^2 represents an arm or offset from the sleeve n' , upon which is mounted a spring-pawl n^3 , which engages a ratchet-wheel n^4 , fixed upon the winding-shaft n^5 , when the crank-handle n is turned in the required direction for winding, but slips in the contrary direction, so as to prevent the winding-shaft n^5 being turned in the wrong direction, and upon the winding-shaft n^5 is fixed a pinion n^6 , which at given times engages a double-toothed wheel o . The double-toothed wheel o is fixed upon a shortshaft o' , mounted with capability of revolution in bearings o'^* , and this wheel o is provided with an external ring of teeth o and an internal ring of teeth o^* , or two separate toothed wheels fixed upon the same shaft might be employed, and upon the shaft o' of the dou-

ble-toothed wheel o is fixed a ratchet-wheel o^2 , which at the desired times is acted upon by a driver p , pressed forward by a spring p^{**} . The driver p is pin-jointed at p^* to the upper 5 end of a rocking arm p' , mounted upon an axis of motion p'^* upon the frame b^5 and provided with a stud p'^{**} , which normally engages a notch p^{**} , formed in a detent-lever p^2 , which holds the driver p in its retracted position, and the detent-lever p^2 is mounted upon 10 an axis of motion p^{2**} , also carried by the frame b^5 , and is pin-jointed at p^{2*} to the lower end of a link or connecting-rod p^3 , which at its upper end is pin-jointed at p^{3**} to a bell-crank lever q , mounted upon a center of motion 15 q^* , carried by a bracket b^8 , and the bell-crank lever q is at q^{**} pin-jointed to a link or connecting-rod q' , which is at q'^* pin-jointed to one arm of a bell-crank lever q^2 , mounted 20 upon a center of motion q^{2*} , carried by a bracket k' from the back of the money-chute k , and the other arm of which is cranked and projects into the money-chute k in such a position that a coin of the predetermined kind 25 inserted into the machine will act thereon and through the several connections raise the detent-lever p^2 , thus releasing the spring-driver p and allowing it to give a partial rotation through the ratchet-wheel o^2 to the double-toothed wheel o , an arm q^{2**} from the lever q^2 , 30 fitted with an adjustable weight q^{2***} , furnishing the necessary counter-balance for the various parts.

At a given point a break o^{**} is formed in 35 the internal teeth o^* of the double-toothed wheel o , and at a corresponding point a similar but smaller break o^3 is formed in the external teeth o and which in the normal position of the parts coincides with the pinion 40 of the winding-shaft n^5 , and thus permits the crank-handle n to be freely revolved in either direction without imparting any motion to the double-toothed wheel o , while upon the spring-shaft f' is fixed a pinion f'^* , which coincides 45 with the break o^{**} in the ring of teeth o^* . By these means upon the introduction into the machine of a proper coin the spring-driver p (which also acts as a pawl to prevent back action) will turn the double-toothed wheel o 50 until the external teeth o are brought into gear with the pinion n^6 of the winding-shaft n^5 , when the double-toothed wheel o may be rotated by the crank-handle n , thus bringing the internal teeth o^* into gear with the pinion 55 f'^* of the spring-shaft f' and in the continued motion winding up the spring f until in the revolution of the double-toothed wheel o the breaks o^3 o^{**} in the teeth thereof occupy their normal position coincident with their respective 60 pinions n^6 and f'^* . By reason of the break o^{**} in the internal ring of teeth o^* being larger than that in the external ring of teeth o the internal teeth o^* are disengaged from the pinion f'^* of the spring-shaft f' before the pinion 65 n^6 of the winding-shaft n^5 ceases to act upon the external teeth o , and thus any danger of the internal teeth o^* remaining in gear with

the pinion f'^* when the spring f is fully wound up is avoided. The driver p is returned to 70 its normal position in engagement with the notch p^{**} of the detent-lever p^2 by means of a cam or incline o^4 , carried by the double-toothed wheel o , which acts upon a stud or pin p^{3***} thereon.

In lieu of giving motion to the stop-disk j 75 by the weight of the coin actuating a drum, as hereinbefore described, the necessary impulse may be given thereto from a moving part of the machine by a driver similar to that represented at Figs. 14 and 15. 80

In the example given at Figs. 14 and 15 vertically-movable plates j are employed in lieu of the stop-disk, and these plates are provided with perforations j^2 and recesses j^3 in 85 a similar manner to the stop-disk j , while they work in guides j^{**} and at their lower ends are coupled by a bar j^4 , mounted upon a shaft or center of oscillation j^5 , which has fixed thereon a pendulous weight j^{5*} , and the bar 90 j^4 receives an impulse through an offset j^{4*} from a finger r , fixed upon the spring-shaft f' , in order to give several oscillatory impulses thereto and a vertical reciprocating movement to the perforated plates j , the finger 95 r being formed with a latch end r' to enable it to freely pass the offset j^{4*} in the reverse motion of the winding-shaft f' .

Although I have shown boxing figures c 100 mounted upon the vertical rods c' , it will be understood that I may substitute foiling or dueling figures therefor with equal effect.

In the example given at Figs. 16, 17, and 18 I 105 have shown the primary features of my invention applied to a simple race-game, and although I have represented horses as the racing figures I would have it understood that 110 other figures or objects may be substituted therefor and that any suitable coin-freed mechanism may be employed in connection therewith. In this example the stop-bars g 115 are somewhat prolonged and have fixed thereon by vertical rods c' the figures of horses c , longitudinal slots b^3 being provided in the platform b for the passage of the rods c' , while the necessary motive power is obtained 120 by means of a weight f , which is by a cord f' , passing around the pulleys f^* , connected with a bracket g^4 from the yoke-bar g^2 , and in order to prevent the stop-bars g turning and the supports c' , and consequently the figures c , getting out of their erect position sliding plates 125 g^5 are fixed to the stop-bars g and run in guides g^{**} , fixed to the under side of the platform b .

The toy may be wound up by drawing back 125 the cord f' , together with the horses c , and thus raising the weight f , when upon releasing the cord f' the horses will be carried toward the winning-post t ; but that one only 130 which is carried by the stop-bar which enters an aperture j^2 of the stop-disk j will pass the winning-post.

If desired, the coin-freed mechanism may be dispensed with and the other features of my

invention may constitute a simple mechanical toy, and in cases where it is desired to impart an accidental movement to a single figure or object I may employ only one stop-bar and corresponding parts.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a mechanical toy, the combination of suitable mechanical figures and objects, a sliding stop bar or bars for controlling the movements of said figures or objects, means for traversing the same, and means for accidentally or irregularly arresting the movement thereof, substantially as herein shown and described.

2. In a mechanical toy, the combination of suitable mechanical figures and objects, several sliding stop-bars for controlling the movements of said figures or objects, means for traversing such bars, and means for accidentally or irregularly arresting the movement of one of the stop-bars while the other continues its traverse, substantially as herein shown and described.

3. In a mechanical toy, the combination of suitable mechanical figures and objects, two sliding stop-bars coupled by a yoke for controlling the movements of said figures or objects, means for traversing such yoke from the center thereof, and means for accidentally or irregularly arresting the movement of one of the stop-bars while the other continues its traverse, substantially as herein shown and described.

4. In a mechanical toy, the combination of suitable mechanical figures or objects, two sliding stop-bars for controlling the movements of said figures or objects, a yoke-bar attached to both of said sliding stop-bars and provided at its center with a stud, a slot in which said stud operates, means for traversing said yoke, and means for arresting the movement of one of the stop-bars while the other continues its traverse, substantially in the manner set forth.

5. In a mechanical toy, the combination of a suitable platform, mechanical figures or objects supported above said platform upon suitable pivoted rods passing through slots in the table, sliding stop-bars supported in suitable bearings beneath the platform and adapted to cross the slots therein and engage the pivoted rods for holding the figures or objects in position, means for operating said figures, means for retracting said stop-bars, and means for arresting the movement of one of them, substantially as and for the purpose set forth.

6. In a mechanical toy, the combination of the mechanical figures or objects, the pivoted rods supporting said figures, the sliding stop-rods for supporting said pivoted rods in raised position, means for retracting said stop-rods, means for operating said figures, and means for throwing said pivoted supporting-rods and their figures from a vertical position when the

support of the stop-rods is withdrawn, substantially as set forth.

7. In a mechanical toy, the combination of the figures or objects and their pivoted supporting-rods, means for operating the figures, the sliding stop-rods adapted to support the pivoted rods and figures in vertical position, spring-pressed arms bearing on the opposite sides of said supporting-rods and tending to throw them from their vertical position, a yoke connecting said sliding stop-bars, means for retracting said stop-bars, and pivoted levers operated by said yoke and adapted to engage the pivoted supporting-rods and raise them to vertical position, substantially in the manner and for the purpose set forth.

8. In a mechanical toy, the combination of the figures or objects and their pivoted supporting-rods, means for operating said figures, the sliding stop-rods for supporting said pivoted rods in raised position, means for irregularly retracting said stop-rods for allowing the figures to fall singly and irregularly from their vertical position, and suitable means for raising or returning the fallen rod into vertical position, substantially as and for the purpose set forth.

9. In a mechanical toy, the combination of suitable mechanical figures or objects, a sliding stop bar or bars for controlling the movements of said figures, means for traversing the same, and a movable perforated stop-disk supported in the path of said stop bar or bars and adapted to arrest the movement thereof, substantially as set forth.

10. In a mechanical toy, the combination of suitable mechanical figures or objects, a sliding stop bar or bars for controlling the movements of said figures or objects, means for traversing the same, a movable perforated stop-disk supported in the path of said stop bar or bars and adapted to arrest the movement thereof, and suitable means for changing the position of said disk, substantially as set forth.

11. In a mechanical toy, the combination of suitable mechanical figures or objects, sliding stop-bars for controlling the movements of said figures or objects, means for traversing the same, a movable perforated stop-disk supported in the path of said sliding stop-bars and adapted to arrest their movement, and a drum adapted to be set in motion by a falling coin for changing the position of said disk, substantially as and for the purpose set forth.

12. In a mechanical toy, the combination of suitable mechanical figures or objects, sliding stop-bars for controlling the movements of said figures or objects, means for traversing the same, a movable perforated stop-disk supported in the path of said stop-bars and adapted to arrest their movement, means for changing the position of said disk, and coin-operated means for preventing the operation of the machine until after the insertion of a coin, substantially as set forth.

13. In a mechanical toy, the combination of

suitable figures or objects, sliding stop-bars adapted to control the movement of said figures, means for traversing said stop-bars, and a stopping device adapted to arrest the movement of one of said stop-bars and allow the other to be withdrawn from engagement with the support of one of said figures, said stopping device consisting of a suitable plate formed with a number of apertures and recesses therein, substantially as set forth.

14. In a mechanical toy, the combination of suitable figures or objects, sliding stop-bars adapted to control the movement of said figures, and a rotary stop-disk supported in proper relation to said stop-bars and formed with a number of apertures and recesses, the apertures being diametrically opposite to the recesses, substantially as set forth.

15. In a mechanical toy, the combination of several moving figures or objects mounted upon rods or holders, several sliding stop-bars crossing the path traversed by such holders, means for traversing the stop-bars and withdrawing them from across the path of the holders, and means for accidentally or irregularly arresting the movement of one of the stop-bars while the other continues its traverse, substantially as herein shown and described.

16. In a mechanical toy, the combination of several moving figures or objects mounted upon rods or holders, several sliding stop-bars crossing the path traversed by the holders and connected by a yoke, means for traversing the yoke and withdrawing the stop-bars from across the path of the holders, means for accidentally or irregularly arresting the movement of one of the stop-bars while the other continues its traverse, and means for raising or returning the figures to their normal position and afterward placing the stop-bars across their path, substantially as herein shown and described.

17. In a mechanical toy, the combination of several oscillating figures or objects mounted upon vertical rods, several sliding bars, to each of which one of such rods is attached, a separate lever corresponding with each sliding or swinging bar, a separate cam-wheel acting upon each swinging bar through intervening levers and imparting a reciprocating movement thereto and an oscillating movement to the figures or objects, and means for rotating the cam-wheels, substantially as herein shown and described.

18. In a mechanical toy, the combination of the oscillatory figures or objects mounted upon vertical rods, the reciprocating rods pivoted thereto, a suitable motor, a shaft extending from said motor and provided with two cam-wheels, and pivoted levers engaging said cam-wheels and said reciprocating rods, substantially as set forth.

19. In a mechanical toy, the combination of several oscillating figures or objects mounted

on vertical rods or holders, several sliding stop-bars crossing the path traversed by such rods, means for traversing the stop-bars and withdrawing them from across the path of the rods, means for accidentally or irregularly arresting the movement of one of the stop-bars while the other continues its traverse, means for raising the fallen figure, a separate cam-wheel for imparting a positive movement to each figure, and means for rotating the cam-wheel, substantially as herein shown and described.

20. In combination with a mechanical toy, a suitable motor therefor and a winding mechanism consisting, primarily, of a double-toothed wheel formed with a break in one set of teeth, a winding-shaft provided with means of rotation, a pinion fixed upon the winding-shaft and corresponding with such break, a break in the other set of teeth, a pinion fixed upon the spring-shaft and corresponding with such break, and means for giving a partial rotation to the double-toothed wheel, substantially as herein shown and described, and for the purpose stated.

21. In a mechanical toy, a winding mechanism consisting of a winding-shaft, a winding-key loosely mounted upon the winding-shaft, a pawl fixed with such key, a ratchet-wheel fixed upon the winding-shaft and engaging the pawl, a double-toothed wheel formed with a break in one set of teeth, a pinion fixed upon the winding-shaft and corresponding with such break, a break in the other set of teeth, a spring-shaft, a pinion fixed upon the spring-shaft and corresponding with such break, a ratchet-wheel fixed upon the shaft of the double-toothed wheel, a driver forced forward by a spring for giving a partial rotation to the double-toothed wheel, a cam for retracting the driver, a detent for holding the driver retracted, and means actuated by a coin passed into the machine for withdrawing the detent, substantially as herein shown and described, and for the purpose stated.

22. In a mechanical toy, a winding mechanism consisting of a double-toothed wheel formed with a break in one set of teeth, a winding-shaft provided with means of rotation, a pinion fixed upon the winding-shaft and corresponding with such break, a break in the other set of teeth, a spring-shaft, a pinion fixed upon the spring-shaft and corresponding with such break, a ratchet-wheel fixed upon the shaft of the double-toothed wheel, and a coin released or operated driver for giving a partial rotation to the double-toothed wheel, substantially as herein shown and described, and for the purpose stated.

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