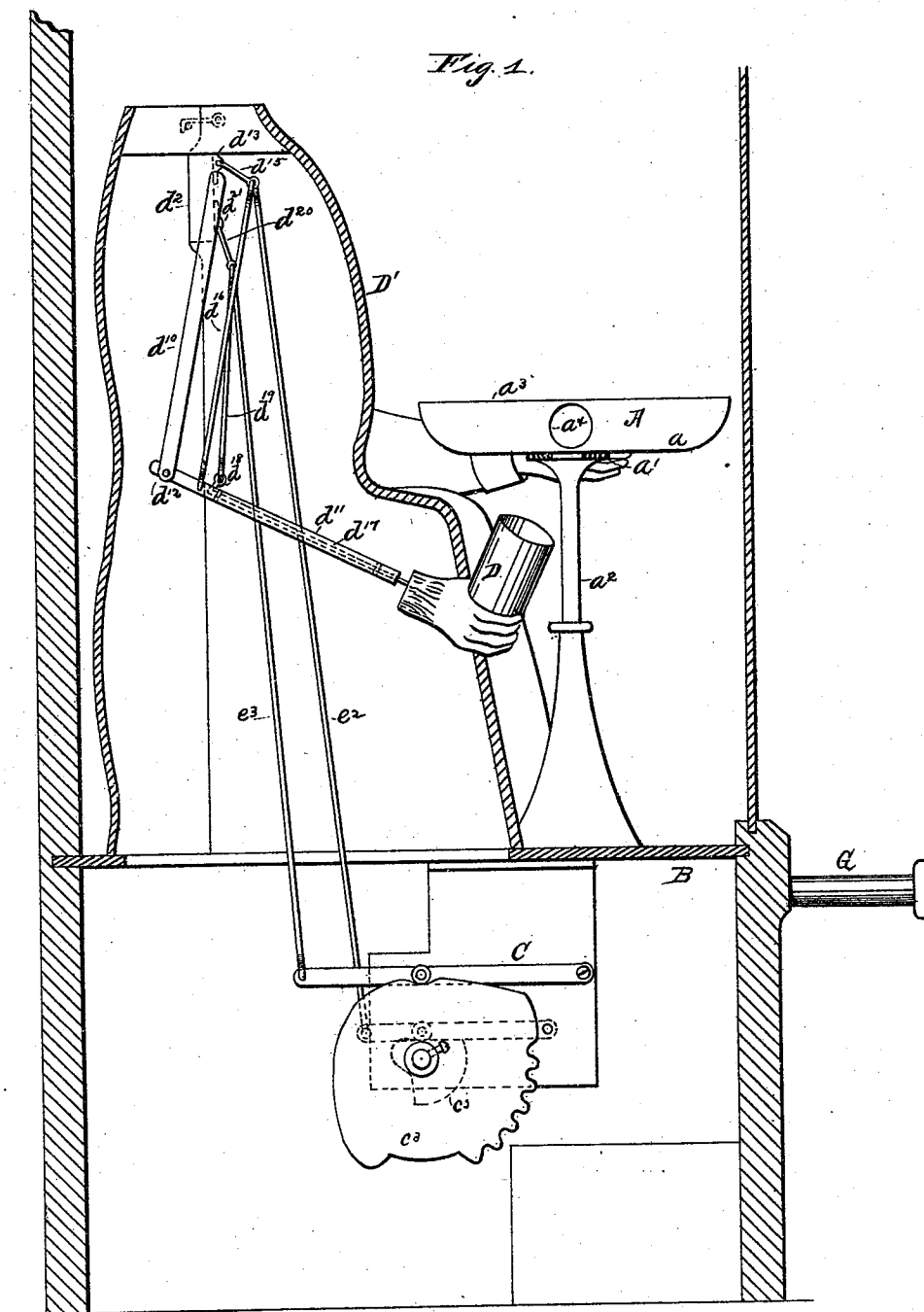


4 Sheets—Sheet 1.

No. 491,971.

Patented Feb. 14, 1893.



Witnesses  
C.R. Ferguson  
Wm. W. Chiff.

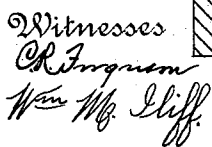
By their Attorneys.

Inventors  
Percy G. Williams  
Alfred H. Robbins  
Gifford Thorne

4 Sheets—Sheet 2.

No. 491,971.

Patented Feb. 14, 1893.



By *their* Attorneys

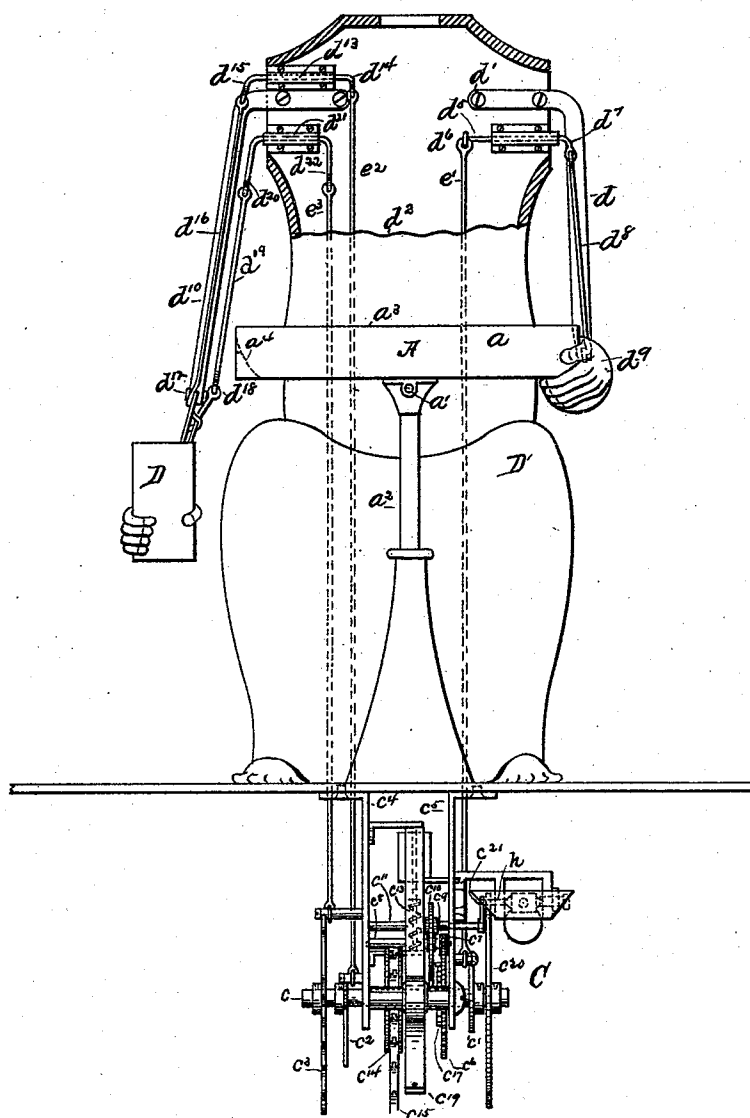
Inventors  
Rugg G. Williams  
Alfred W. Koppers  
Gifford Thorne

4 Sheets—Sheet 3.

No. 491,971.

Patented Feb. 14, 1893.

*Fig. 3.*



Witnesses.  
CR Ferguson  
Wm Mc Cliff.

Inventors  
 Perry G. Williams  
 Alfred H. Rogers  
 By their Attorneys  
 Gifford & Brown

(No Model.)

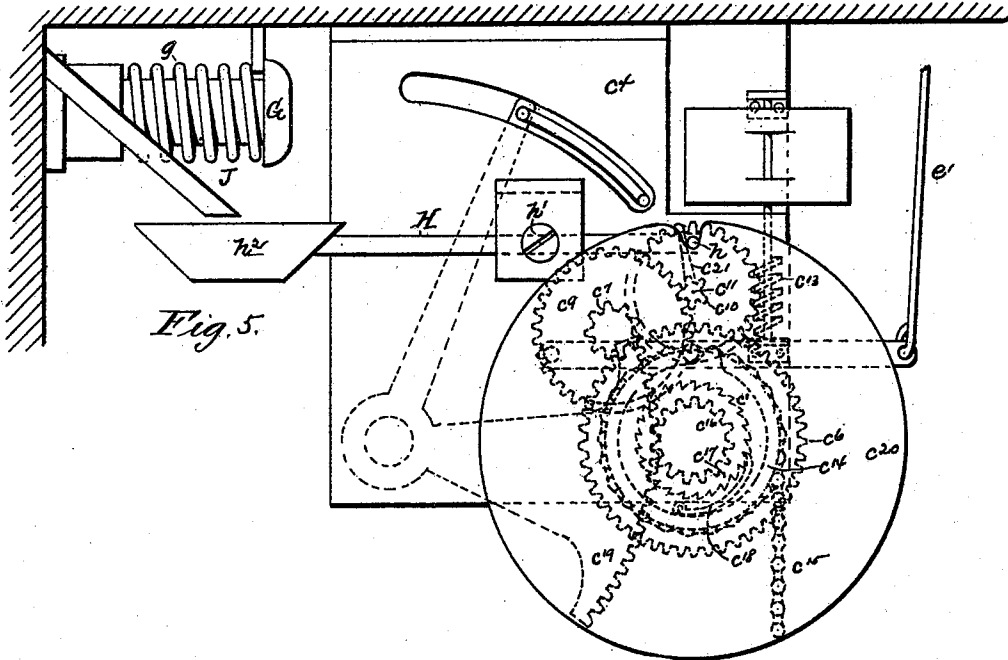
4 Sheets—Sheet 4.

P. G. WILLIAMS & A. W. ROOVERS.

COIN CONTROLLED DICE THROWING MACHINE.

No. 491,971.

Patented Feb. 14, 1893.



# UNITED STATES PATENT OFFICE.

PERCY G. WILLIAMS AND ALFRED W. ROOVERS, OF BROOKLYN, NEW YORK; SAID ROOVERS ASSIGNOR TO SAID WILLIAMS.

## COIN-CONTROLLED DICE-THROWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 491,971, dated February 14, 1893.

Application filed December 26, 1889. Serial No. 334,948. (No model.)

*To all whom it may concern:*

Be it known that we, PERCY G. WILLIAMS and ALFRED W. ROOVERS, both of Brooklyn, Kings county, and State of New York, have  
5 invented a certain new and useful Improvement in Coin-Controlled Dice-Throwing Machines, of which the following is a specification.

We will describe a machine embodying the  
10 improvement and then point out the novel features in the claims.

In the accompanying drawings, the machine is represented as comprising a figure representing a monkey.

15 Figure 1 is a sectional elevation of the machine including a view of the left side of the monkey. Fig. 2 is a sectional elevation comprising parts of the other side of the monkey. Fig. 3 is a sectional elevation taken parallel  
20 with the front of the monkey. Fig. 4 is a plan of certain parts. Figs. 5, 6 and 7 are enlarged detail views of the motor mechanism.

Similar letters of reference designate corresponding parts in all the figures.

25 It may conduce to a clear understanding of the particular machine illustrated to premise that the machine consists essentially of a motor mechanism controlled by a coin receptacle, a movable table or platform, a monkey  
30 having one arm movable for the purpose of alternately tilting the table and returning it to a horizontal position, and another arm having the dice box and movable to shake the dice within the box, subsequently empty  
35 the box over the table and finally hold the box below the table so that upon the tilting of the table the dice will drop back into the box.

A designates the table. It is shown as consisting of a top  $a$  pivotally connected or hinged diametrically by means of a pin  $a'$  to a pedestal  $a^2$  which is erected upon the top of a box or case B containing a motor mechanism C, whereby the movements of the monkey and consequently the table top  $a$  are produced. The table top preferably has an up-  
45 turned rim  $a^3$  and at the right hand side this rim is provided with a spoutlike extension  $a^4$  through which, when the table top is tilted, the dice may slide or roll into the dice box, the latter being in the present example of our

improvement designated by the letter D and held in the right hand of the monkey. The table top is tilted by a movement of the left arm of the monkey, the left hand being con-  
55 nected with the left side of the table top.

The body D' of the monkey may be made of cast metal or of any other suitable material and of any desired configuration to represent wearing apparel. It is mounted upon  
60 and secured to the box or case B. The head is not in the present instance intended to be movable. Indeed, as here shown, none of the parts of the monkey are movable except the arms.

65 We will begin a description of the mechanism of the monkey at the left arm. This has an upper limb comprising a rod  $d$  which is fastened in any suitable manner, as for instance, by screws  $d'$  to a fixed part of the  
70 body D' of the monkey, in the present instance, to a cross piece  $d^2$  in said body. This rod is immovable. To its lower end a lower limb consisting of a rod  $d^3$  is pivoted by means of a pin  $d^4$  passing through the same. A rock  
75 shaft  $d^5$  is journaled in a fixed portion of the body D' of the monkey, as here shown in bearings fastened to the cross piece  $d^2$ . This rock shaft has two arms  $d^6$   $d^7$ . The arm  $d^6$  has a pivotal or loose connection with a rod  
80  $e'$  extending from the motor mechanism, said rod serving when actuated by the motor mechanism to transmit an oscillating motion to the rock shaft. The arm  $d^7$  of the rock shaft has a pivotal or loose connection with one end of  
85 a rod  $d^8$ , which, at the other end is connected with the rod or limb  $d^3$  considerably forward of the pivot pin  $d^4$ . It will be readily understood that when the rock shaft is oscillated in such direction that its arms  $d^7$  will be  
90 swung upward the rod or limb  $d^3$  will be swung upward, and as this is connected with the left side of the table, that this side of the table will be elevated and the right side depressed. The left hand  $d^9$  is connected with  
95 the table and has a swinging connection with the rod  $d^3$  so as to adapt itself to the tilting of the table. The joints between the rods  $d$  and  $d^3$  and between the rod  $d^3$  and the rod  $d^8$  will be sufficiently loose to enable the rod  $d^3$  to  
100 swing laterally to compensate for the versed sine of the arc through which the left side of

the table moves. The swivel connection between the hand and the rod  $d^3$  may be made in any desirable manner, as for instance by circumferentially grooving the rod or a cylindrical block attached to the rod, forming a cylindrical socket in the wrist extending from the hand and inserting a pin or screw through the socket into said groove.

Before taking up the details of the motor mechanism, we will explain the construction of the right arm. It has an upper limb consisting mainly of a rod  $d^{10}$  which is rigidly connected in any suitable manner to the body  $D'$ , as for instance by screws passing through it and engaging with the cross piece  $d^2$  of the body. This rod  $d^{10}$ , like the rod  $d$ , is immovable. The lower limb of this arm consists of a rod  $d^{11}$  pivotally connected by a pin  $d^{12}$  to the rod  $d^{10}$  in such manner as to be free to swing upward and downward.

$d^{13}$  is a rock shaft journaled in the body  $D$ , in the present instance in bearings attached to the cross piece  $d^2$ . It has two arms  $d^{14}$   $d^{15}$ . The arm  $d^{14}$  has a pivotal or loose connection with a rod  $e^2$  which is actuated by the motor mechanism to oscillate the rock shaft. The arm  $d^{15}$  has a pivotal or loose connection with one end of a rod  $d^{16}$ , which at the other end has a pivotal or loose connection with the limb or rod  $d^{11}$  at a point considerably forward of the pin  $d^{12}$ , connecting this rod or limb with the rod  $d^{10}$ . Whenever the rod  $e^2$  is raised and the rock shaft is in consequence thereof oscillated in such direction as to swing upward the arm  $d^{15}$ , the latter through the rod  $d^{16}$  will swing the rod or limb  $d^{11}$  upward. In this way, the dice box  $D$  will be elevated above the table top. When the rod  $e^2$  is lowered the rod or limb  $d^{11}$  will be lowered sufficiently for the box to receive the dice as they leave the tilted table top. The right hand which holds the dice box is fixedly secured upon a rock shaft  $d^{17}$  which is journaled in bearings that are secured to the rod or limb  $d^{11}$ . The rear end of this rock shaft  $d^{17}$  is provided with an arm  $d^{18}$  which has a pivotal or loose connection with one end of a rod  $d^{19}$  whose upper end has a pivotal or loose connection with an arm  $d^{20}$  extending from a rock shaft  $d^{21}$  journaled in the body  $D$ , in the present instance in bearings secured upon the cross piece  $d^2$ . The rock shaft  $d^{21}$  is also provided with an arm  $d^{22}$  and the latter has a pivotal or loose connection with one end of a rod  $e^3$  actuated by the motor mechanism.

Before entering upon a detailed description of the motor mechanism, we will explain that the movements of the rods  $e'$   $e^2$   $e^3$  are so timed that while the left arm is holding the table in an approximately horizontal position, the lower limb of the right arm will be elevated to a point considerably above the table. While said limb is in this position, the right hand will be oscillated several times laterally to shake up the dice in the dice box. Subsequently the hand will be oscillated a consid-

erably greater distance inward to effect the deposit of the dice upon the table, and after this the lower limb of the right arm will be lowered. The right hand will be oscillated to tilt the dice box toward the table and the lower limb of the left arm will be raised to tilt the table toward the dice box.

The rods  $e'$   $e^2$   $e^3$  are operated by cams  $c'$   $c^2$   $c^3$  affixed to a shaft  $c$  journaled in plates  $c^4$   $c^5$  comprised in the motor mechanism. On this shaft  $c$  is affixed a gear wheel  $c^6$  which engages with a pinion  $c^7$  affixed to a shaft  $c^8$  journaled in the plates  $c^4$   $c^5$ . The shaft  $c^8$  has affixed to it a gear wheel  $c^9$  which engages with a pinion  $c^{10}$  mounted upon a shaft  $c^{11}$  that is journaled in the plates  $c^4$   $c^5$  and has affixed to it a worm wheel or star wheel  $c^{12}$  that engages with a worm  $c^{13}$  whose shaft is journaled in brackets secured to the plate  $c^4$  and is provided with a fan. In this way, the shaft  $c$  is retarded.

On the shaft  $c$  is loosely mounted a drum  $c^{14}$  around which is wound a chain or cord  $c^{15}$ , at whose lower end may be attached a motor weight. This drum has attached to it a pinion  $c^{16}$  and a ratchet wheel  $c^{17}$ , the latter engaging with a pawl  $c^{18}$ , pivotally connected to the gear wheel  $c^6$  and so arranged that when the chain or cord is unwinding motion will be imparted by the drum to the said gear wheel  $c^6$  and consequently to the shaft  $c$  and the cams  $c'$   $c^2$   $c^3$  and that when the drum is rotated in a direction to wind the chain or cord up no motion will be imparted to the shaft  $c$  or its appurtenances. The pinion  $c^{16}$  engages with a segment lever  $c^{19}$  fulcrumed to the plates  $c^4$   $c^5$ . Opposite one arm of this lever a slider bar  $G$  is arranged and it extends from the inside to the outside of the box  $B$ . A spring  $g$  coiled around it and engaging at one end with it and at the other end with the box  $B$  or an appurtenance thereof, serves to move the slider bar outward when it is not otherwise actuated. When the slider bar is moved inward it will oscillate the segment lever and rotate the drum in such direction as to wind up the chain or cord and raise the weight. Afterward, providing the motor mechanism shall be released for action, the weight will descend and operate the motor mechanism and through the latter move the monkey and table.

It is not necessary to describe the shapes of the cams  $c'$   $c^2$   $c^3$  as they are fully shown in the drawings and we have already intimated what their contour should be by stating the movements which they are to impart to the rods  $e'$   $e^2$   $e^3$ .

The shaft  $c$  has affixed to it a disk  $c^{20}$  having in its periphery a notch with which may engage a pin  $h$  on a lever  $H$  fulcrumed between its ends by a pin  $h'$  to one of the plates of the motor mechanism or to any other support in the box  $B$ . When the pin engages with said notch the motor mechanism will be stopped. The other end of the lever  $H$  is provided with a coin receptacle  $h^2$  over which ex-

tends a chute J leading from the outside of the box B. When a coin of the proper denomination is dropped into the coin receptacle the lever H will be oscillated and the motor mechanism released.

$c^{21}$  is an arm or projection on the shaft  $c^{11}$ , designed to contact with the extended end of the pin  $h$ , on the lever H, after the wheel  $c^{20}$  shall have made one revolution and the pin falls back into the notch in said wheel. By this means the motor is stopped when the coin receptacle returns to its normal position.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a dice throwing machine, the combination of a tilting table and a dice box movable independently of the table from a point above to a point below the table, substantially as specified.

2. In a dice throwing machine, the combination of a tilting table, a rod movable up and down to tilt the table and return it to its normal position, and a cam for moving said rod up and down, substantially as specified.

3. In a dice throwing machine, the combination of a tilting table, a rod movable up and down to tilt the table and return it to its normal position, a swiveling connection between said rod and the table, and a cam for moving said rod up and down, substantially as specified.

4. In a dice throwing machine, the combination of a tilting table, a rod  $d$ , a rock shaft  $d^5$  having arms  $d^6$   $d^7$ , a rod  $d^3$  pivotally connected to the rod  $d$ , a rod  $d^8$  extending between the arm  $d^7$  and the rod  $d^3$  and a rod  $e'$  connected to the arm  $d^6$ , substantially as specified.

5. In a dice throwing machine, the combination of a tilting table, a rod  $d$ , a rod  $d^3$  pivotally connected to the rod  $d$ , a hand  $d^9$  connected to the table and having a swiveling connection with the rod  $d^3$ , a rock shaft  $d^5$  having arms  $d^6$   $d^7$ , a rod  $d^8$  extending between the arm  $d^7$  and the rod  $d^3$  and a rod  $e'$  connected to the arm  $d^6$ , substantially as specified.

6. In a dice throwing machine, the combination of a tilting table, a rod  $d$ , a rock shaft  $d^5$  having arms  $d^6$   $d^7$ , a rod  $d^3$  pivotally connected to the rod  $d$ , a rod  $d^8$  extending between the arm  $d^7$  and the rod  $d^3$ , a rod  $e'$  connected to the arm  $d^6$  and a cam for operating said rod  $e'$ , substantially as specified.

7. In a dice throwing machine, the combination of a tilting table, a dice box, a rod

serving to support the dice box and a cam for moving said rod up and down, substantially as specified.

8. In a dice throwing machine, the combination of a tilting table, a dice box, a rod serving to support the dice box, a cam for moving said rod up and down, a rock shaft journaled on said rod and forming a connection between said rod and dice box and a second cam for oscillating this rock shaft, substantially as specified.

9. In a dice throwing machine, the combination of a rod  $d^{10}$ , a rod  $d^{11}$  pivotally connected thereto, a rock shaft  $d^{13}$  having arms  $d^{14}$  and  $d^{15}$ , a rod  $d^{16}$  connecting the arm  $d^{15}$  with the rod  $d^{11}$  and a cam for operating the rock shaft  $d^{13}$ , substantially as specified.

10. In a dice throwing machine, the combination of rod  $d^{10}$ , rod  $d^{11}$  pivotally connected to the rod  $d^{10}$ , a rock shaft  $d^{13}$  having an arm  $d^{15}$ , rods  $d^{16}$  connecting the arm  $d^{15}$  with the rod  $d^{11}$ , a rock shaft  $d^{17}$  journaled on the rod  $d^{11}$ , a rock shaft  $d^{21}$  having an arm  $d^{20}$  and a rod  $d^{19}$  connecting the arm  $d^{20}$  with an arm extending from the rock shaft  $d^{17}$ , substantially as specified.

11. In a dice throwing machine, the combination of a figure representing a living creature, movable arms, a tilting table connected with one of the arms and a dice box connected to the other arm, substantially as specified.

12. In a dice throwing machine, the combination of a figure representing a living creature, movable arms, a tilting table connected with one of the arms, a dice box connected to the other arm, motor mechanism for operating the arms and a coin receptacle for controlling the motor mechanism, substantially as specified.

13. In a coin controlled machine, the combination of a motor mechanism comprising a main shaft, a drum connected to the shaft to impart motion thereto in one direction but to run free vertically in the other direction, a motive agent connected with the drum, a segment lever for rotating the drum in the reverse direction to that in which it is rotated by the motive agent and a slider bar for operating the segment lever, substantially as specified.

PERCY G. WILLIAMS.  
ALFRED W. ROOVERS.

Witnesses:

EDWIN H. BROWN,  
C. R. FERGUSON.