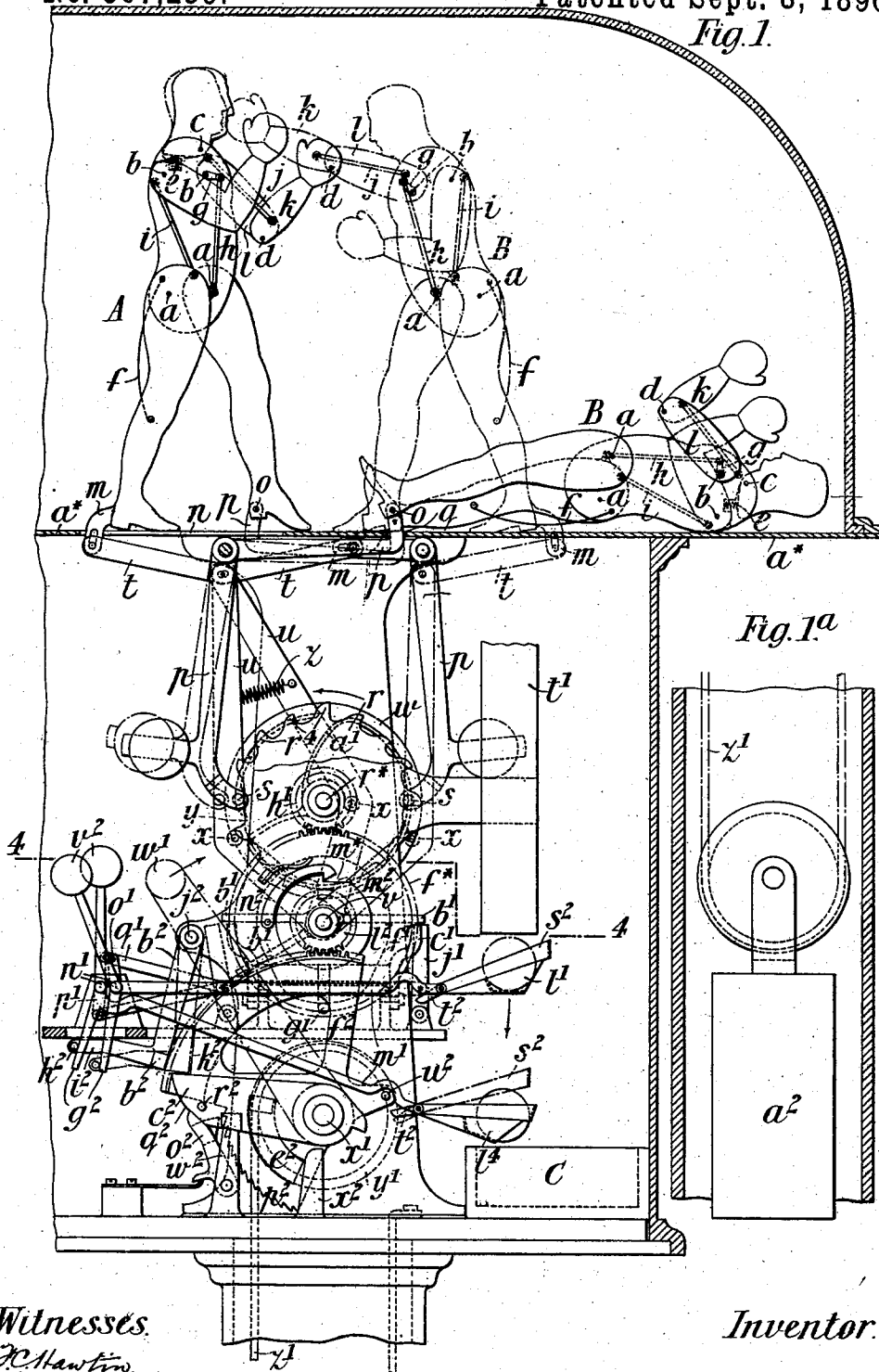


C. INGLEY.
COIN FREED APPARATUS.

No. 567,239.

Patented Sept. 8, 1896.

Fig. 1.



Witnesses.

H. Hawtin
J. J. Lydon

Inventor.

Charles Ingley

(No Model.)

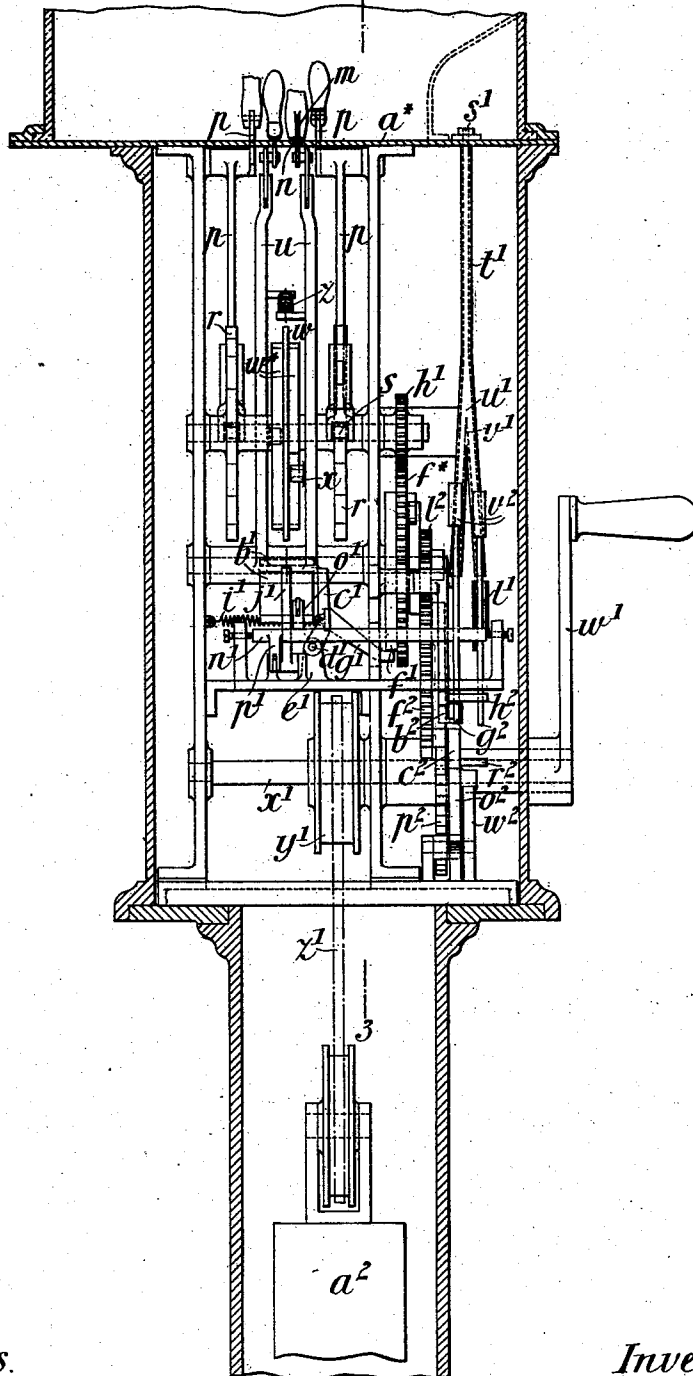
5 Sheets—Sheet 2.

C. INGREY.
COIN FREED APPARATUS.

No. 567,239.

Patented Sept. 8, 1896.

Fig. 2.



Witnesses.
J. C. Hawton.
J. J. Igdon

Inventor.

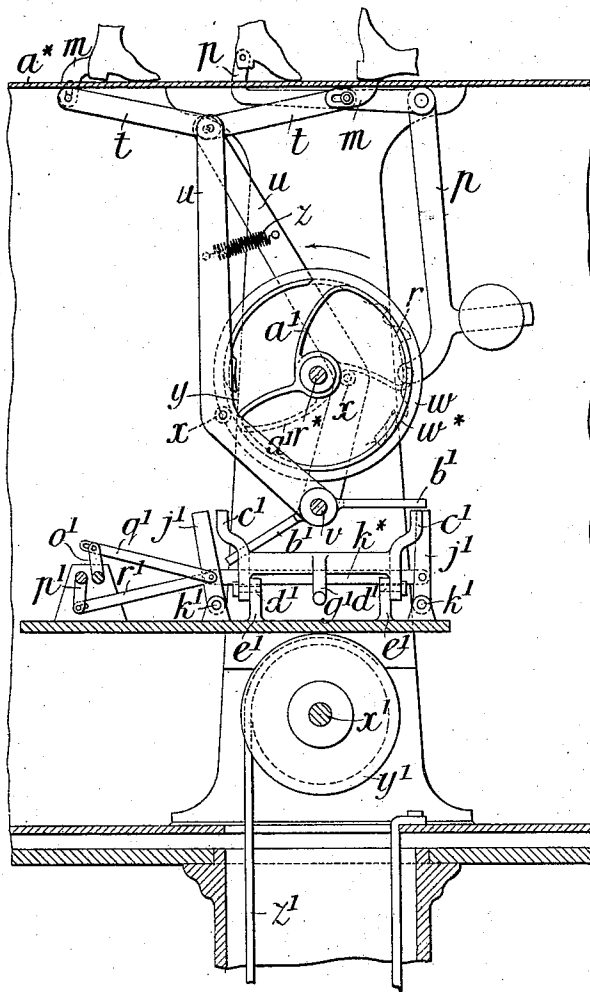
Charles Ingrey

C. INGREY.
COIN FREED APPARATUS.

No. 567,239.

Patented Sept. 8, 1896.

Fig. 3.



Witnesses.

W. C. Hawton.
G. J. Lydon.

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(No Model.)

5 Sheets—Sheet 4.

O. INGLEY.
COIN FREED APPARATUS.

No. 567,239.

Patented Sept. 8, 1896.

Fig. 4.

Fig. 6.

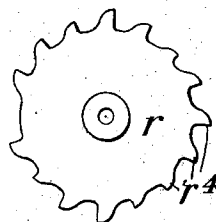
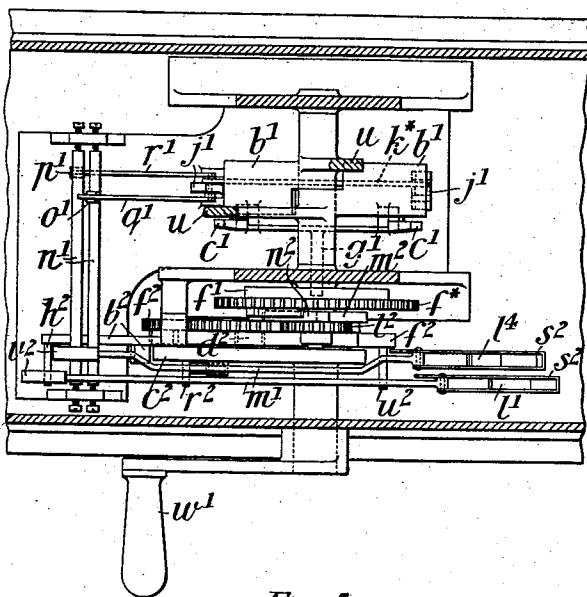


Fig. 7.

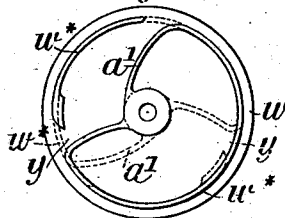


Fig. 8.

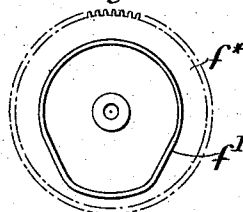


Fig. 11.

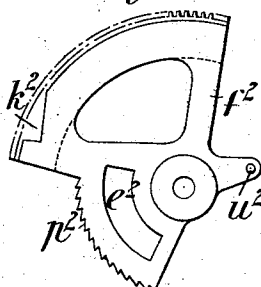


Fig. 12.

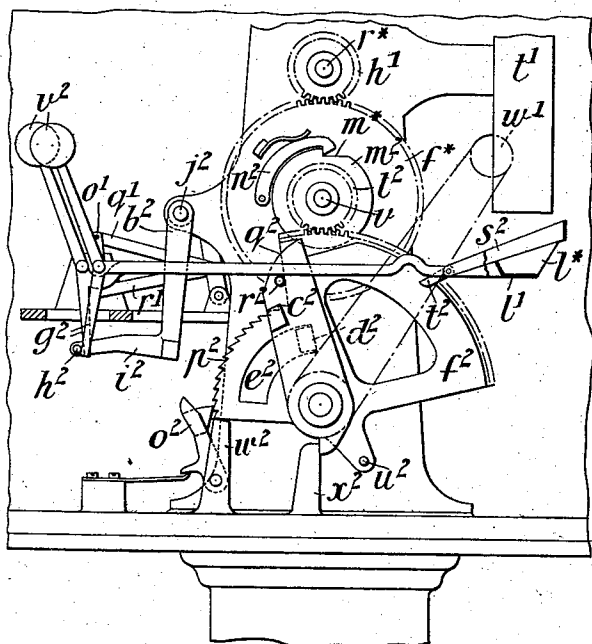


Fig. 9.

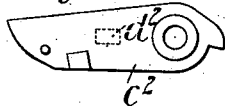
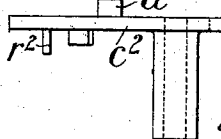


Fig. 10.



Inventor.

Charles Ingley

Witnesses.

J. C. Hamilton.
G. J. Nelson

(No Model.)

5 Sheets—Sheet 5.

C. INGREY.
COIN FREED APPARATUS.

No. 567,239.

Patented Sept. 8, 1896.

Fig. 13.

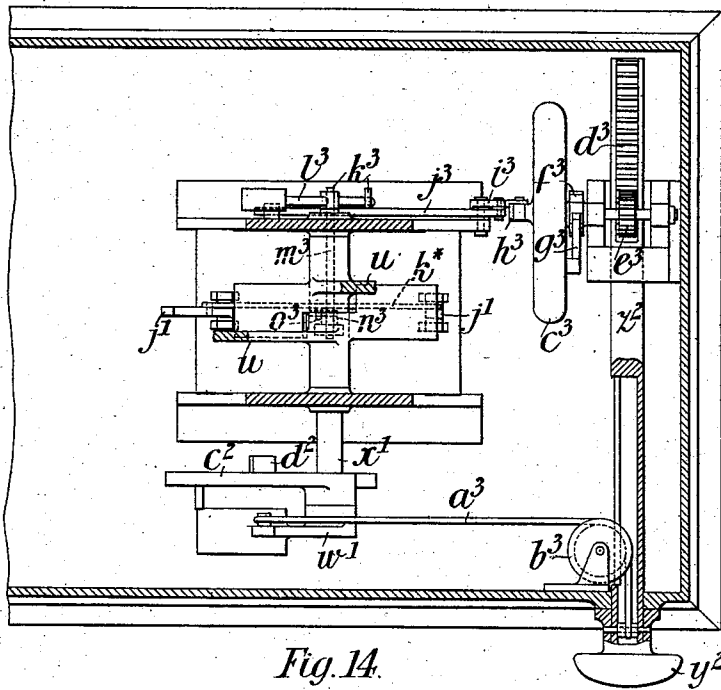


Fig. 14.

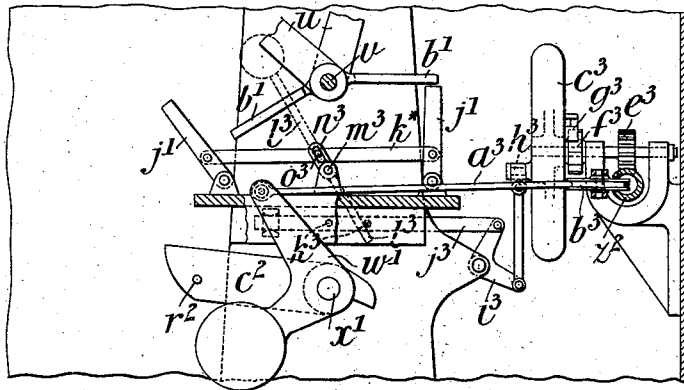
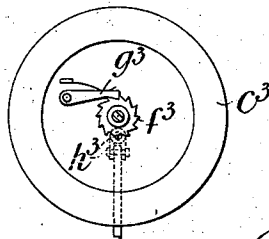


Fig. 15.



Witnesses.

H. C. Stanton.
G. J. Syson.

Inventor:

Charles Ingrey.

UNITED STATES PATENT OFFICE.

CHARLES INGREY, OF LONDON, ENGLAND.

COIN-FREED APPARATUS.

SPECIFICATION forming part of Letters Patent No. 567,239, dated September 8, 1896.

Application filed August 14, 1894. Serial No. 520,285. (No model.) Patented in England March 31, 1894, No. 6,469; in Germany August 5, 1894, No. 83,639; in France August 10, 1894, No. 240,654; in Belgium August 11, 1894, No. 111,371; in New South Wales September 7, 1894, No. 5,308; in Victoria February 7, 1895, No. 12,000, and in Austria February 15, 1895, No. 45/526.

To all whom it may concern:

Be it known that I, CHARLES INGREY, a subject of the Queen of Great Britain, residing at London, England, have invented new and useful Improvements in Coin-Freed Apparatus, (patented in foreign countries as follows: in England, No. 6,469, dated March 31, 1894; in Germany, No. 83,639, dated August 5, 1894; in France, No. 240,654, dated August 10, 1894; in Belgium, No. 111,371, dated August 11, 1894; in New South Wales, No. 5,308, dated September 7, 1894; in Victoria, No. 12,000, dated February 7, 1895, and in Austria, No. 45/526, dated February 15, 1895,) of which the following is a specification.

My invention relates to a novel arrangement of apparatus whereby two figures representing pugilists can be caused to imitate the action of boxing or fighting on the insertion of a coin in the said apparatus, as hereinafter more particularly described.

In the accompanying drawings, Figure 1 is an elevation, partly in section, of an apparatus constructed according to my invention. Fig. 1^a is a view of a portion of the lower part of the apparatus, showing the weight for operating the same. Fig. 2 is a side elevation, partly in section, looking from the left of the apparatus. Fig. 3 is a vertical section on the line 3 3, Fig. 2. Fig. 4 is a horizontal section on the line 4 4, Fig. 1. Fig. 5 is a front elevation of part of the apparatus shown in Fig. 1, but showing some of the parts in a different position. Figs. 6 to 12 are details hereinafter described. Fig. 13 is a horizontal section showing a modification of the apparatus. Fig. 14 is a front elevation, and Fig. 15 is a detail of the same.

A and B indicate the pugilists, formed of wood, gutta-percha, or other suitable material, arranged facing one another upon a table a^* and of similar construction. Each pugilist has the legs, arms, and head jointed to the body at a , b , and c , respectively, the left arm of each pugilist being also jointed at the elbow at d , to enable it to be straightened when delivering a blow, and the head is retained in a forward position by a spring e or its equivalent. The toe of the left foot of each pugilist

is normally resting upon the table a^* , and the heel raised, as indicated by the pugilist A. Each right leg, which is maintained stationary during the major part of the boxing operation, is connected by a suitable spring f to the body, so as to maintain the latter normally in an upright position, the right leg having the left arm connected to it by a crank g and rod h , and the right arm by a connecting-rod i . It will thus be seen that any alteration of the relative position of the body and the right leg will be communicated to the arms and cause them to move.

In order to operate the elbow-joint of each left arm, I employ a rod j , jointed to the forearm k and to the body in such a manner that when the shoulder part l of the arm is raised the said connecting-rod j causes the forearm to be extended. It will be seen that the joints a between the legs and the body are not in alinement, but one in advance of the other, so that when the left heel is drawn down from the position shown by pugilist A to the position shown by pugilist B in dotted lines the left toe will act as a fulcrum and cause the upper part of the left leg to move backward, thereby producing a forward movement of the body, and at the same time the left arm will be extended by the rod h , crank g , and rod j , as in the action of delivering a blow from the shoulder at the head of the opponent, the spring e allowing the head to give way to the blow in a natural manner. The right arm is also caused by the said movement of the left leg to drop. This position of the parts is clearly shown by the pugilist B in dotted lines in Fig. 1. By raising the left leg the parts will resume the position assumed by A, and by varying the degree of movement of the said leg greater or less movement will be given to the arms and body of each pugilist, whereby a sparring or boxing action is produced. Pugilist B is shown in a recumbent position, it having at a given time been caused to fall after the delivery of a blow by its opponent A.

I will now describe the mechanism whereby the necessary movements are imparted to both pugilists. Each right leg is provided

with a slotted plate m , passing through a slot n in the table a^* , the said slot enabling the said foot to be moved forward, as hereinafter described, for the purpose of enabling the pugilist to fall. Each left leg is jointed at o to the end of a weighted bell-crank lever p , which passes through a suitable opening q in the table a^* and is capable of being raised or lowered by the action of a cam r , connected to a shaft r^* . The cams r , one of which is shown detached in Fig. 6, are each formed with a number of projections r^* of different heights, which engage with the lower end of one of the bell-crank levers p , the said end being formed with a roller or pin s , bearing against its respective cam. Each right leg is operated by means of a connecting-rod t and lever u , the said lever being pivoted loose on a shaft v and operated by a cam w . (Shown detached at Fig. 7.) This cam is formed with concentric paths w^* on each side, one serving to operate A and the other B, the said paths engaging with rollers x on the levers u . An opening y is formed in each path w^* , so that at the proper time its roller can pass therein and allow the lever u to be drawn in toward the shaft r^* by a spring z , thereby drawing the right leg of the connected pugilist forward and causing the same to fall backward into the position assumed by pugilist B. As the cam w continues to revolve a path a' formed thereon comes into contact with the roller x and restores the lever u to the concentric path w^* , thereby moving the lever u and raising the pugilist to its standing position.

In order that the cam w may revolve several times before allowing either of the pugilists A B to fall, I provide on the end of each lever u a plate or projection b' , (shown clearly in Fig. 3,) which can be supported by a strut c' , the two struts being connected together, as shown in Fig. 3, and pivoted at d' to brackets e' . These struts are adapted to be moved by a cam f' , loose on the shaft v , and shown detached at Fig. 8, which cam engages with a projection g' , formed on the said struts c' , a spring i' being employed to keep the said projection against the cam f' . When the struts are beneath the plates or projections b' , it will be seen that notwithstanding the fact of the roller x on either lever u being opposite its opening y , the said lever will be prevented from falling inward, and until such time as the struts are removed the cam w can be revolved without affecting the levers u . In the arrangement shown three revolutions of the shaft r^* are allowed before the struts c' are removed and consequently before either of the pugilists can fall, and for this purpose the cam f' is formed on a gear-wheel f^* , which gears into a pinion h' , attached to the shaft r^* , and has three times as many teeth.

In order to more clearly define how the parts f' and g' cooperate and the result or effect of the mechanism in connection therewith, I again refer to Fig. 8 and to Figs. 1, 2, and 3.

The cam f' is revolved by gearing at a lower speed than the cam-shaft r^* , and it is necessary for this cam f' to take a complete revolution before one of the pugilists can fall. The function of this cam is to remove at a proper time the struts c' , and this is accomplished by the arm g' , which is attached to the struts. When the struts are in their normal position, neither pugilist can fall, as they support the plates b' on the levers u . When the struts c' are removed by the action of the cam f' , either one or the other of the pugilists can fall, according to the position of the abutments j' . In Fig. 3 the struts are shown as moved away from the plates b' , and the abutment j' having been previously moved outward the plate b' on the left of Fig. 3 is no longer supported and the right-hand pugilist has fallen.

In order that only one of the pugilists A B shall be allowed to fall, I provide two arms or abutments j' , (shown clearly in Fig. 3,) pivoted at k' and connected together by a link l^* in such a manner that when one is moved into position beneath one of the plates b' the other one is removed from beneath the other plate b' , whereby one of the levers u is prevented from falling inward when the struts c' are removed from beneath the plates b' , while the other lever is free to fall inward. In order to render it a matter of uncertainty as to which of the said abutments shall allow the corresponding lever u to fall inward and so allow its connected pugilist A or B to fall, I employ two coin receptacles or bucket l' at the ends of levers m' , the buckets l' corresponding with pugilist A, while the bucket l' corresponds with pugilist B. The levers m' are attached to shafts n' , upon which are fixed cranks $o' p'$. The said cranks are both connected to one of the abutments j' by connecting-rods $q' r'$, respectively, but are in opposite positions on their shafts, so that when one coin-bucket is depressed by the weight of the coin the abutments are moved to enable one of the levers u to fall, and when the other money-bucket is employed the abutments are moved to enable the other lever u to fall. The coin is inserted through a slot s' , Fig. 2, and falls into a chute t' , the said chute being divided at u' by a knife-edged plate or division v' , arranged parallel with the longer sides of the chute, so that when the coin falls down the said chute it is a matter of chance upon which side of the said knife-edge it will pass, and consequently which coin-bucket will be operated.

In order that when one coin-bucket is depressed its movements shall not be communicated to the other bucket, I form slots in the ends of the connecting-rod $q' r'$, engaging the cranks $o' p'$, as shown clearly in Fig. 3.

My improved apparatus is most advantageously operated by a falling weight a^2 , as shown clearly at Figs. 1^a and 2. The weight a^2 is wound up by the movement of a hand-lever w' , attached to a shaft x' , carrying a pulley y' , around which a chain or cord z' , carrying

the weight, passes, the winding being effected by moving the lever w' from the position shown in dotted lines in Fig. 1 to the position shown in dotted lines Fig. 5, but is normally locked and prevented from being operated until after the insertion of a coin by means of a pivoted tumbler or stop b^2 , which engages with an arm c^2 , attached to the lever w' , as indicated by the dotted lines in Fig. 1.

The said arm is shown detached in elevation and plan in Figs. 9 and 10, and is formed with a projection d^2 , which engages with a slot e^2 , formed in a toothed quadrant f^2 . (Shown detached in elevation and plan in Figs. 11 and 12, respectively.) The said quadrant is loose on the shaft x' , and is normally in the position shown in Fig. 1, and is prevented from being moved until after the insertion of a coin by means of the tumbler b^2 , engaging with a notch k^2 in the quadrant.

h^2 is a pin formed on a projection i^2 on the tumbler b^2 , and bearing normally against both the bent-down ends g^2 of the levers m' , so that when either of the levers m' is depressed by a coin its end g^2 moves the pin h^2 and turns the said tumbler upon its pivot j^2 out of engagement with the arm c^2 and the notch k^2 of the quadrant f^2 . The hand-lever w' is thus free to be moved to the position shown in Fig. 5 to wind up the weight a^2 , and carrying with it the quadrant f^2 revolves a pinion l^2 , gearing with the said quadrant and loose upon the shaft v , and having upon its side a flange m^2 , having a notch m^2 engaging with a spring-pawl n^2 , which is attached to the wheel f^* . This arrangement of the notched flange and pawl enables the weight a^2 to be wound up without giving motion to the pugilists A B. While the said quadrant is being operated to raise the weight a^2 by the lever w' a pawl o^2 engages with ratchet-teeth p^2 on the quadrant, and prevents the latter moving back until such time as the arm c^2 is nearly returned to its normal position, when the curved end q^2 of the said arm comes into contact with the said pawl and forces it out of engagement with the teeth p^2 , thereby allowing the quadrant to be free to be moved by the falling of the weight a^2 , so as to give motion to the mechanism operating the pugilists A B. The slot e^2 enables the arm c^2 to move back without moving the quadrant f^2 . As the arm c^2 is returned to its normal position it forces back the tumbler b^2 and allows the latter again to come forward, whereby the said arm is locked and prevented from being again used until another coin is inserted. The arm c^2 is provided with a pin r^2 which, when the said arm is raised, impinges against whichever of the coin-bucket levers m' is depressed and restores it to its normal position.

Each coin-bucket is open at the front l^* , as shown clearly in Fig. 5, and is provided with a hinged strap s^2 , having a tailpiece t^2 . This strap, which bridges across the open front l^* , retains the coin in position in the

bucket until such time as it is raised into the position indicated by dotted lines in Fig. 1, whereupon, the coin being no longer supported, falls into a suitable coin-receptacle C. The movement for operating either of the said hinged straps when its bucket is depressed is obtained by a pin u^2 upon the quadrant f^2 , so that when the quadrant is moved in the act of winding up the weight a^2 the said pin comes into contact with the tailpiece t^2 and so raises the strap.

v^2 are balance-weights, which are employed to assist the return of the coin-bucket levers m' into their normal positions.

w^2 x^2 are stops for limiting the movement of the arm c^2 , and consequently of the lever w' .

In using my apparatus a coin is inserted in the money-slot s' and passes to either of the coin-buckets l' or l^4 , which thereupon depresses its lever m' and removes the tumbler b^2 out of engagement with the arm c^2 and quadrant f^2 , at the same time moving one or the other of the abutments j' . The apparatus is then wound up by moving the hand-lever w' as before described, and the falling of the weight a^2 gives motion to the cam-shaft r^* through the medium of the quadrant f^2 , pinion l^2 , flange m^2 , pawl n^2 , gearing-wheel f^* , and pinion h' , the said motion being transmitted to the pugilists A B by the cams r through the medium of the levers p . The cams continue to revolve until such time as the quadrant f^2 has been returned to its normal position.

In Fig. 1 it will be observed that the coin-bucket l^4 has been depressed and the abutment j' , to which it is connected, moved from beneath the plate or projection v' above it, so that the lever u , in connection with pugilist B, has, when the opening y in the cam w was in proper position, moved so as to allow B to fall as indicated.

In some cases, instead of employing the device I have described for rendering it a matter of chance which pugilist is allowed to fall, I employ the mechanism shown in Figs. 13, 14, and 15. In this arrangement a knob y^2 , connected with a pull-bar z^2 , is employed to wind up the weight a^2 , through the medium of the lever w' , to which it is connected by a cord or chain a^2 , passing around a pulley b^3 , the said lever being weighted, as shown, to return it and the pull-bar to their normal positions. This return motion of the said pull-bar gives motion to a fly-wheel c^3 by means of rack-teeth d^3 on the said bar, a pinion e^3 , a ratchet-wheel f^3 , and a pawl g^3 . The fly-wheel c^3 is provided with a crank-pin or its equivalent h^3 , so that when it is revolved it reciprocates a bell-crank i^3 and rod j^3 , to which it is connected, the said rod being provided with two pins k^3 , forming a fork adapted to operate a tumbling-lever l^3 , keyed on a shaft m^3 . The shaft m^3 is provided with a slotted lever n^3 , engaging a pin o^3 on the rod k^* , connecting the two abutments j' . By this arrangement it will be seen that when the

pull-bar z^2 is pulled out to wind up the weight a^2 the ratchet-wheel f^3 will move under the pawl g^3 without affecting the fly-wheel c^3 , which is loose upon the shaft carrying the said ratchet-wheel. When, however, the pull-bar z^2 is released or pushed back, the fly-wheel c^3 will be caused to revolve by the ratchet-wheel f^3 , engaging with the pawl g^3 , and will continue to revolve even after the bar is back in position. The weight a^2 is not shown in Figs. 13, 14, or 15, but it will be understood that the turning of the axle x' will operate the weight in the same manner as shown in Figs. 1, 1^a, and 2. It will also be understood from the foregoing description that when the fly-wheel c^3 is set in motion it causes the weighted lever l^3 to oscillate, and with it the two abutments j' . As the fly-wheel comes to rest the oscillations of the lever l^3 decrease, and as it is unlikely it can balance itself in a vertical position it falls either to the right or to the left, and consequently determines which of the abutments j' shall be removed. In Fig. 14 the left-hand abutment is shown as moved out by the weighted lever l^3 . The number of such revolutions of the fly-wheel will depend upon the force exerted by the pull-bar, and as it is doubtful whether the same amount of force would be consecutively exerted, it is a matter of chance as to what position the fly-wheel will assume when it stops revolving, and consequently the position of the abutments j' will be similarly determined.

Although I have described my apparatus as being operated by a weight, it will be obvious that a spring or other motive power may be employed, or the pugilists may be worked by means of a crank or wheel connected by gearing to the shaft v , such crank or wheel being turned by the user of the apparatus.

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 coin-freed machine in which two figures are caused to move in imitation of the act of boxing, the legs of such figures jointed to the body, and one of the legs of each figure being supported while the other is hinged at the heel as set forth, and whereby when the heel is lowered the toe acts as a fulcrum and causes the body to move forward substantially as described.

2. In a coin-freed machine having two figures which are moved to imitate the action of

boxing, the described mechanism connecting the arms to the body and to one of the legs of each figure, combined with devices as described whereby both of the legs of each figure is supported at its heel, all substantially as shown and set forth.

3. In a coin-freed machine having two figures which with their arms are moved to imitate the action of boxing, the combination with arms and legs jointed to the body, the arms also connected to a leg, of the weighted bell-crank levers p , p , the pivots o , o , one on the heel of each figure, and cams for operating such heel, substantially as set forth.

4. In a coin-freed machine of the kind described, the combination with the figures of two boxers, of the levers u , u , each connected by a link to a slotted plate on a heel of one of the figures, such plate projecting through and working in a slot in the table, and a cam w , the combination causing the fall and the raising of either of the figures, all substantially as set forth.

5. In a coin-freed machine having two figures in the attitude of boxing, the combination therewith of the slotted plates m , working in slots in the table, links t , connected to such plates, levers u , u , connected to such links and having projections b' , b' , thereon, struts c' , c' and cam f' , the combination being and operating substantially as and for the purposes set forth.

6. In a coin-freed machine having two figures in the act of boxing, the combination with the levers u , u , and with the slotted plates m , connecting said levers severally to a heel of each figure, of the projections b' , b' , on said levers and adapted to engage the arms or abutments j' , j' , and coin-receptacle levers m' , m' , said arms or abutments being applied as set forth, and whereby only one of them at a time can act in conjunction with one of the levers u , all substantially as set forth.

7. In a coin-freed machine having boxing figures, and operated by a weight or spring, the combination therewith and in the described relation to each other, of a coin-receptacle lever, the hinged stop b^2 , the toothed quadrant f^2 , pawl o^2 , ratchet-teeth p^2 , and hand-lever w' , the combination being and operating substantially as set forth.

CHARLES INGREY.

Witnesses:

JOHN E. BOUSFIELD,
E. CHURCHER.