No. 740,160. PATENTED SEPT. 29, 1903.

H. S. MILLS.

COIN CONTROLLED PUNCHING BAG APPARATUS.

APPLICATION FILED JULY 31, 1903.

NO MODEL. 5 SHEETS—SHEET 1.

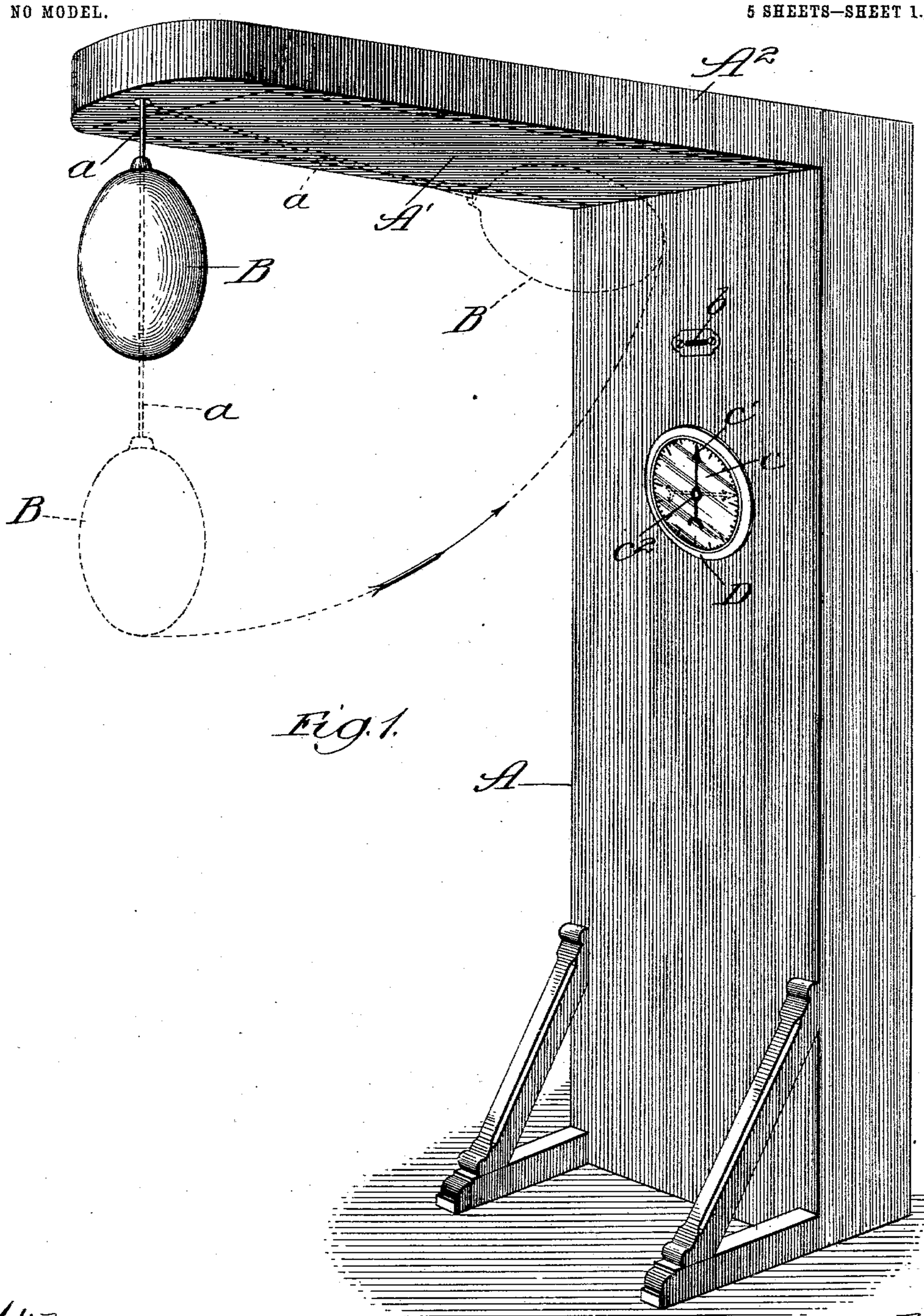


Fig. 1.

Witnesses:
Chas. E. Gaylord.
John Enders.

Inventor.
Herbert S. Mills,
By Dyrenforth, Dyrenforth & Lee,
Attys.

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NO MODEL. 5 SHEETS—SHEET 2.

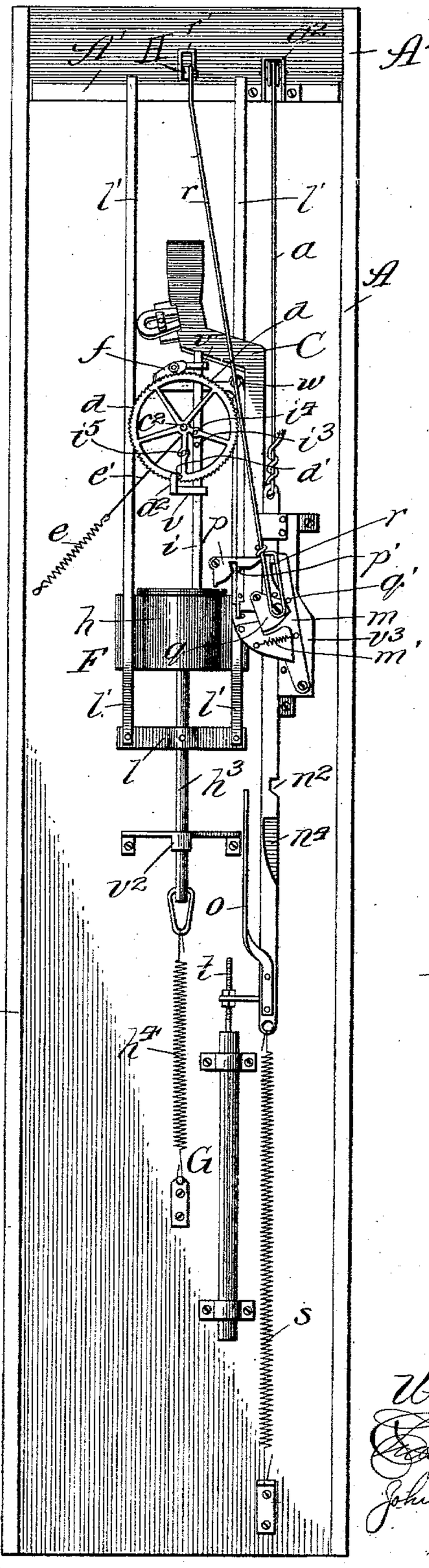
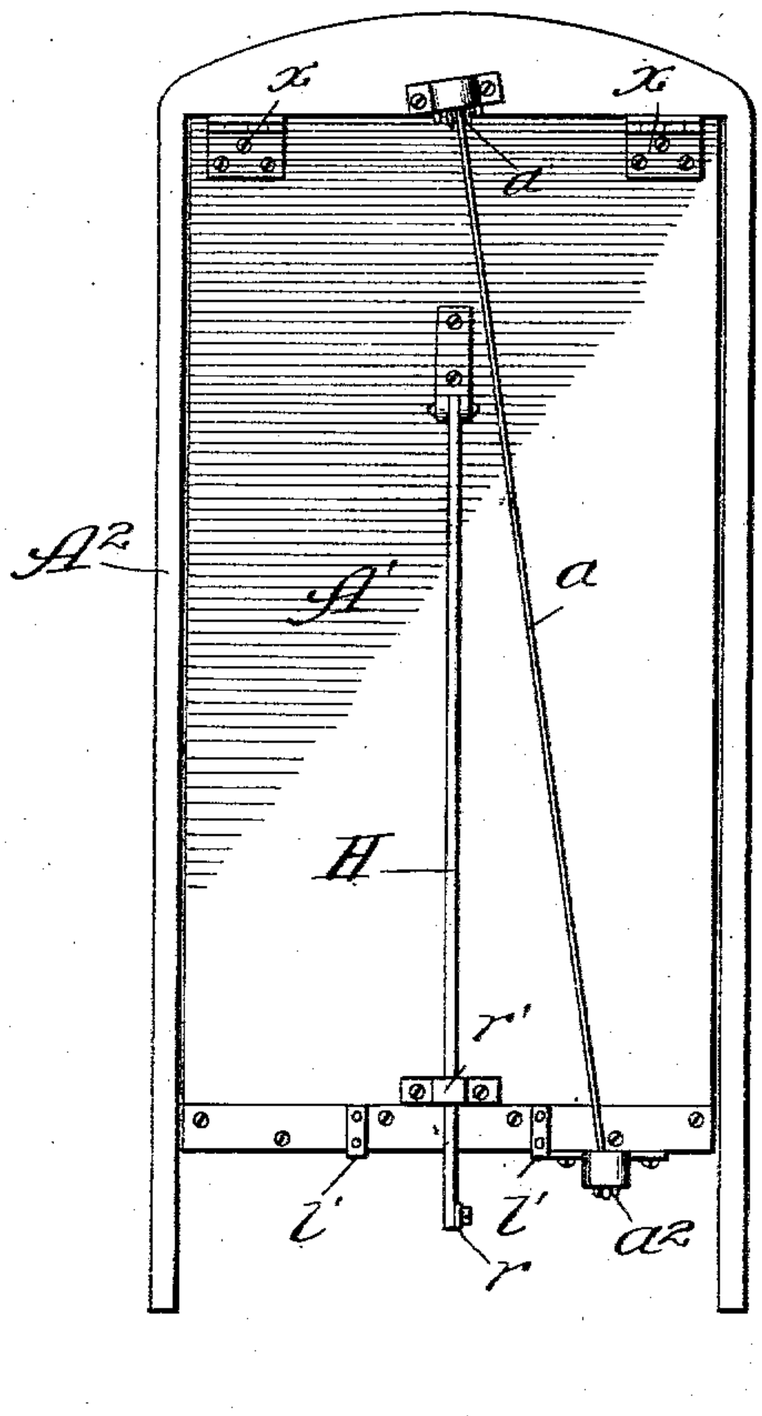



Fig. 2.

Fig. 3.




Witnesses:
Chas. L. Gaylord.
John Enderle.

Inventor:
Herbert S. Mills,
By Dyrenforth, Dyrenforth & Lee,
Attys.

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H. S. MILLS.

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NO MODEL. 5 SHEETS—SHEET 3.

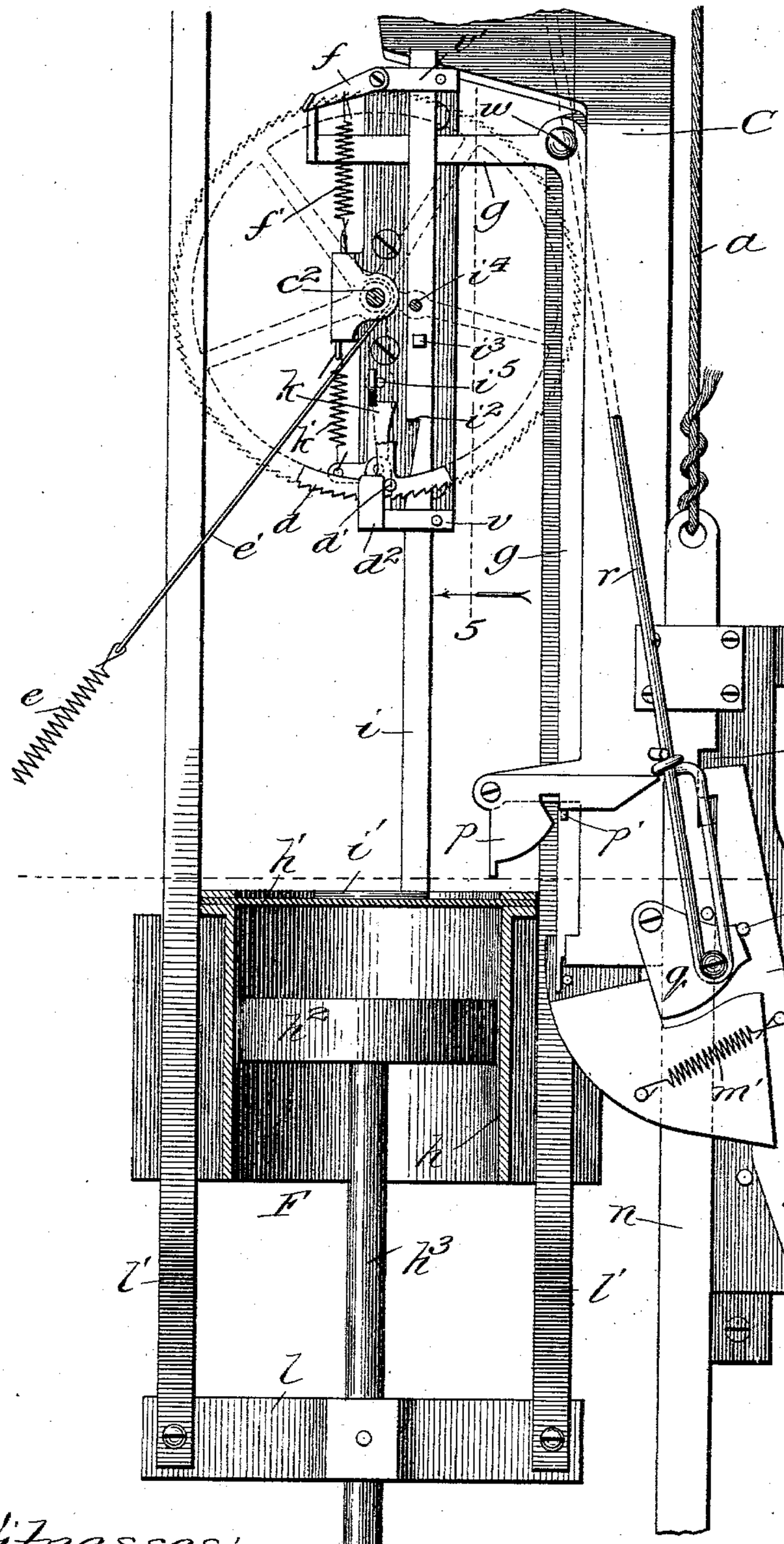


Fig. 4.

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NO MODEL. 5 SHEETS—SHEET 4.

Fig. 5.

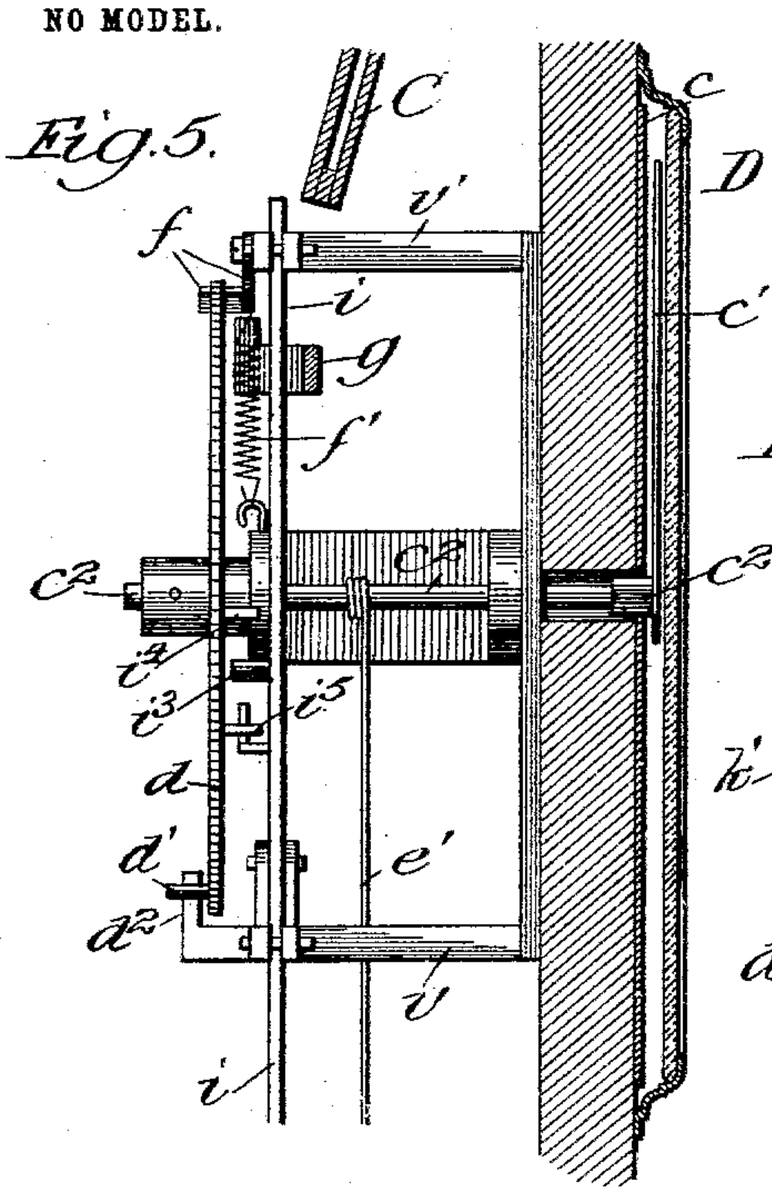



Fig. 7.

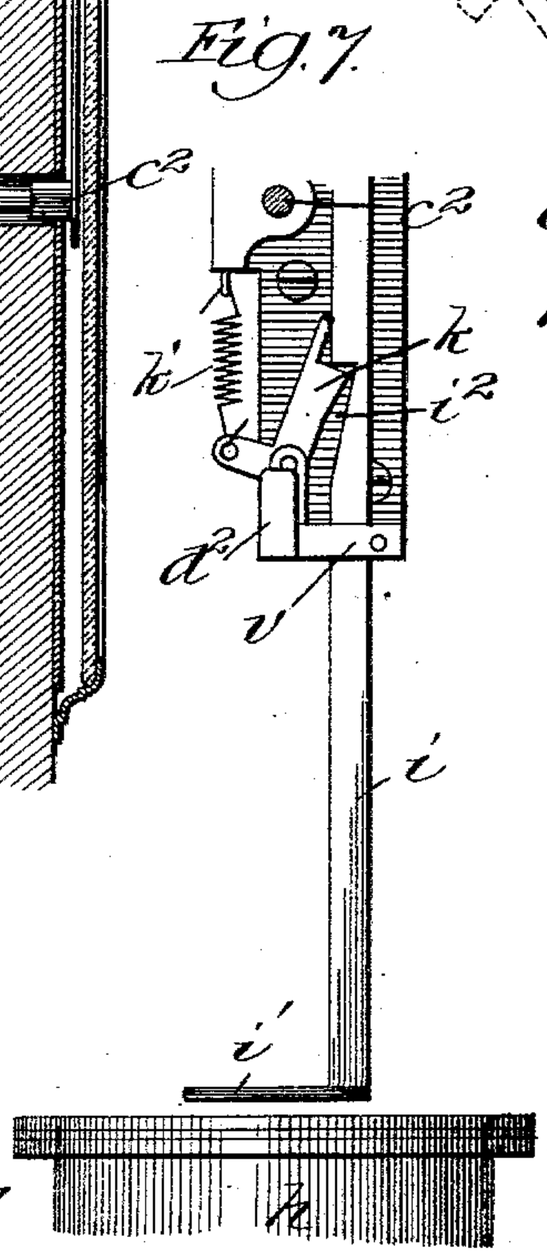



Fig. 6.

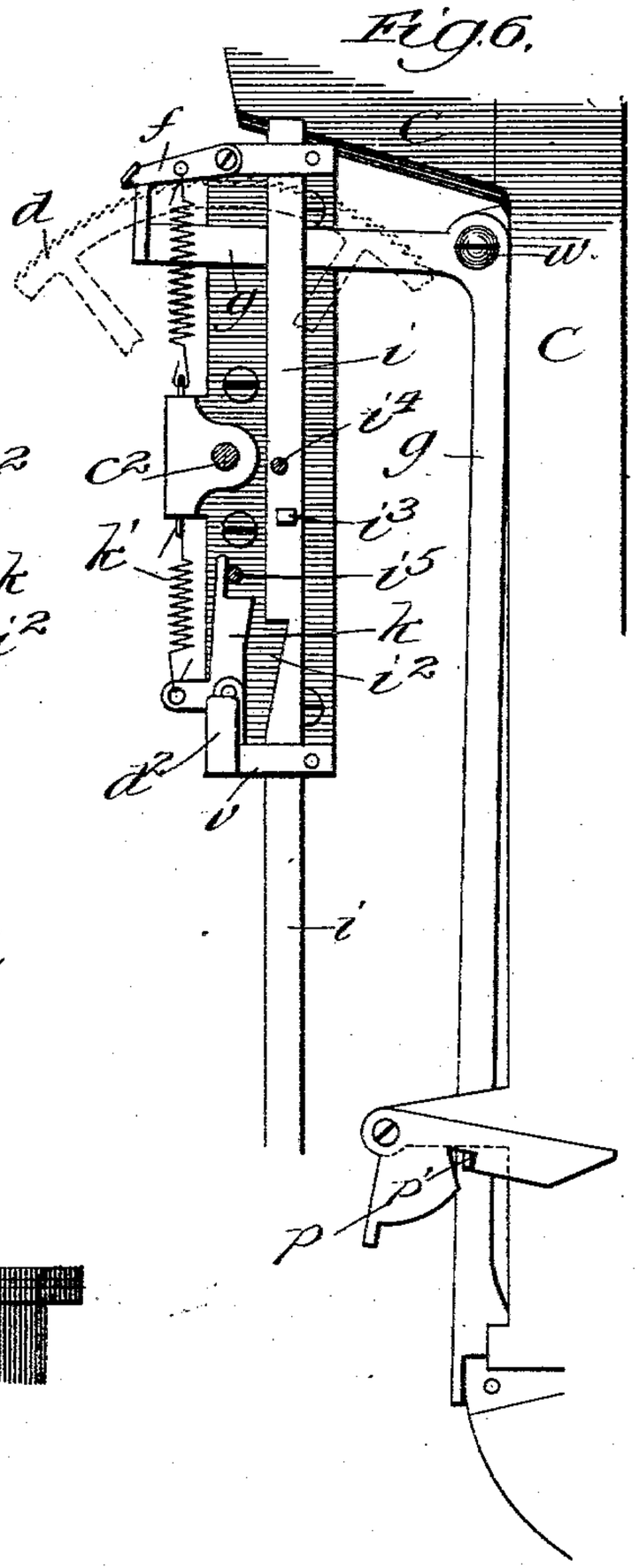
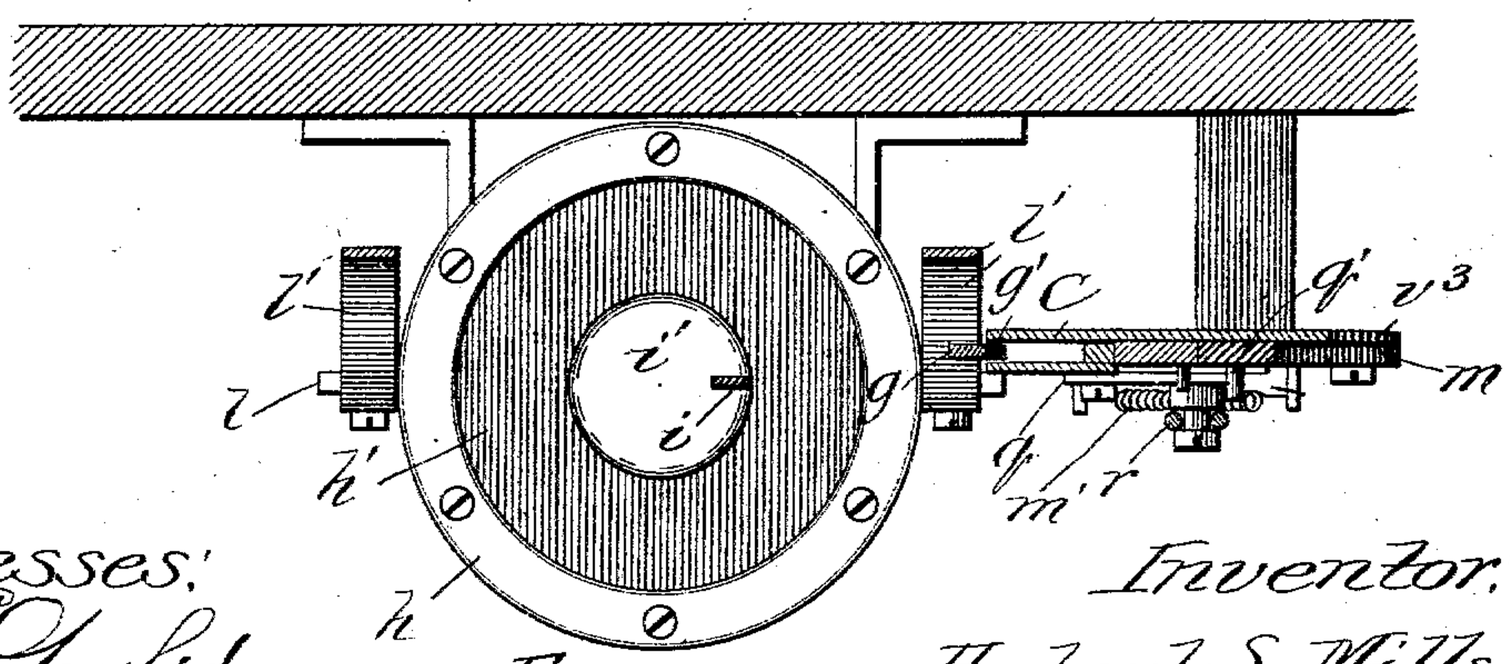



Fig. 8.




Witnesses:
Chas. E. Gaylord.
John Enders

Inventor:
Herbert S. Mills,
By Dyrenforth, Dyrenforth & See,
Attys.

No. 740,160. PATENTED SEPT. 29, 1903.

H. S. MILLS.

# COIN CONTROLLED PUNCHING BAG APPARATUS.

APPLICATION FILED JULY 31, 1903.

NO MODEL. 5 SHEETS—SHEET 5.

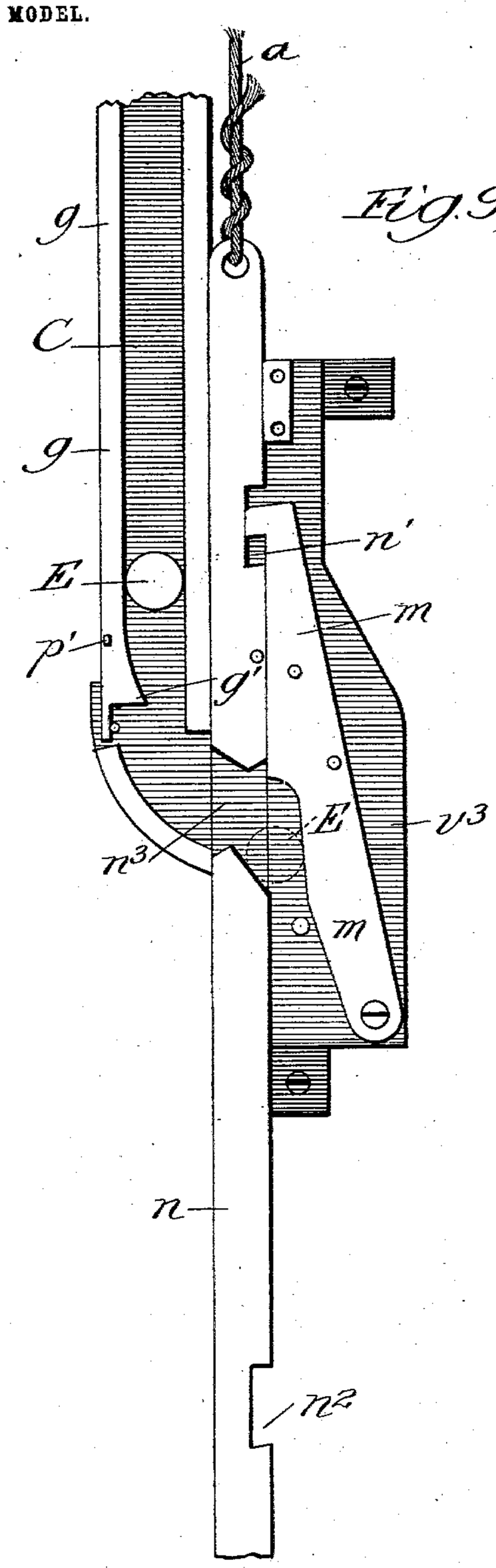



Fig. 9.

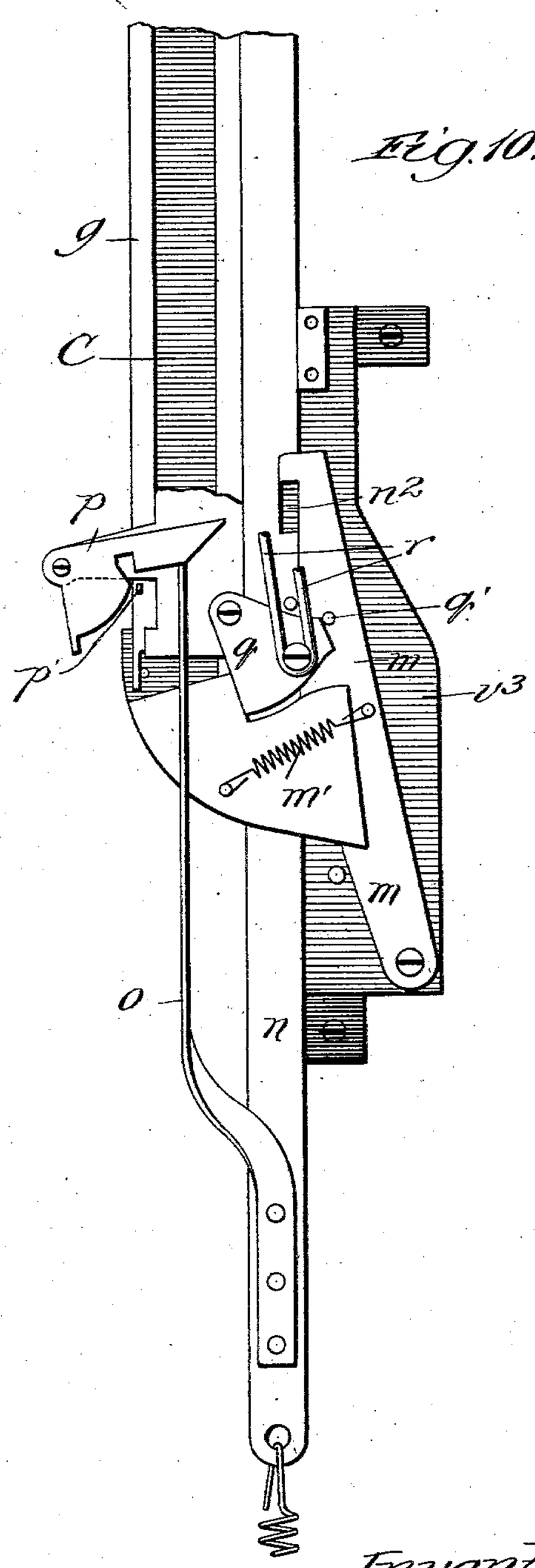



Fig. 10.

Witnesses
Chas. E. Gaylord.
John Enders.

Inventor:
Herbert S. Mills,
By Dyrenforth, Dyrenforth & Lee,
Attys.

No. 740,160. Patented September 29, 1903.

# UNITED STATES PATENT OFFICE.

HERBERT S. MILLS, OF CHICAGO, ILLINOIS.

## COIN-CONTROLLED PUNCHING-BAG APPARATUS.

SPECIFICATION forming part of Letters Patent No. 740,160, dated September 29, 1903.

Application filed July 31, 1903. Serial No. 167,713. (No model.)

*To all whom it may concern:*

Be it known that I, HERBERT S. MILLS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Coin-Controlled Punching-Bag Apparatus, of which the following is a specification.

The object of my invention is to provide a novel construction of punching-bag apparatus which shall be dependent on the insertion of a coin of predetermined denomination to adapt it to register the force of a blow.

Referring to the accompanying drawings, Figure 1 is a perspective view of my improved apparatus, showing diagrammatically different positions of the bag by dotted representation; Fig. 2, a view of the apparatus in rear elevation with the back of the casing removed to display the mechanism within it; Fig. 3, a plan view of the top of the apparatus; Fig. 4, a broken view, partly in section, showing the coin-controlled mechanism on a larger scale than that observed in the representation thereof in Fig. 2; Fig. 5, a section taken at the line 5 on Fig. 4 viewed in the direction of the arrow and enlarged; Fig. 6, a broken view of the register-actuating mechanism in elevation, showing the parts in the relative positions assumed by them as the result of inserting a coin into the apparatus; Fig. 7, a broken view showing some of the parts represented in Fig. 6 in the relative positions occupied by them in registering the force of a blow and to which they have been actuated by the effect of the blow on a pneumatic diaphragm; Fig. 8, a section taken at the line 8 on Fig. 4 and viewed in the direction of the arrow; Fig. 9, a broken view, in side elevation, of the coin-chute mechanism actuated by the movement of the yielding platform under impact against it of the punching-bag, showing the parts in their normal relative positions; and Fig. 10, a similar view of the same mechanism and additional parts controlling the tripping of the register mechanism in the relative positions to which they are adapted to be brought by the action of an inserted coin.

A is the casing, expanded at its base for stability and having extended at a right angle from its upper end a frame $A^2$, supporting the overhead impact-board or "platform" A', which is hinged at one end to the frame, as shown at $x\,x$ in Fig. 3, to adapt it to yield at its opposite end, where it rests normally on the top of the casing. From the end of the frame $A^2$ to which the platform is hinged depends the punching-bag B, on a rope $a$, passing loosely through a hole in the frame over pulleys $a'$ and $a^2$ on top of it, respectively, near its opposite ends and connected with coin-controlled mechanism, as hereinafter described. In the front of the casing is shown a glass-covered dial $c$, with an oscillatory central index-finger $c'$, forming the register D, above which is provided the coin-insertion slot $b$, leading to a coin-chute C. The index-finger is carried on the outer end of a shaft $c^2$, journaled in suitable bearings provided on the inner face of the front wall of the casing and carrying on its inner end a ratchet-wheel $d$, provided with a stop $d'$ to engage, for limiting the return movement of the wheel, with an abutment $d^2$ on a bearing $v$, projecting backward from the casing-front, a spiral spring $e$ having a cord connection $e'$ with the shaft upon which it winds and tending to return the ratchet-wheel into the normal position, at which the stop $d'$ engages the abutment. On a bearing $v'$, Fig. 5, is pivoted a dog $f$, yieldingly held by a spiral spring $f'$ in engagement with the ratchet-wheel and engaged by the shorter arm of a bell-crank $g$, fulcrumed at $w$ and provided on its longer arm, near the lower end thereof, with a cam projection $g'$, Fig. 9, which extends into the path of a coin E through the coin-chute, as and for the purpose hereinafter described.

On the back of the casing-front, below the ratchet-wheel $d$, is supported a pneumatic diaphragm device F, comprising an upright cylinder $h$, having its upper end covered with a flexible diaphragm $h'$ and open at its lower end, through which a piston-rod $h^3$ plays, carrying a piston $h^2$, Fig. 4, and movable in a guide-bearing $v^2$ and shown to be yieldingly held against rising by a spiral spring $h^4$. Above the diaphragm there extends loosely through the bearings $v$ and $v'$ an upright bar $i$, having a disk-shaped foot $i'$, a notch $i^2$ in one edge above the foot, Figs. 6 and 7, and a lug $i^3$ on its rear face above the notch in the path of a stud $i^4$, projecting from one of the spokes of the ratchet-wheel. On an adjacent spoke of the ratchet-wheel is a stud $i^5$

to engage, for a purpose hereinafter described, with a dog $k$, pivoted on the bearing $v$ to tend to enter the notch $i^2$ under the control of a spiral spring $k'$.

On the piston-rod $h^3$ is fastened a cross-head $l$, from the ends of which extend upright arms $l'$ $l'$, which are rigidly fastened at their upper ends to the free end of the platform A'.

On a bearing $v^3$, at the outer edge of the coin-chute C, is fulcrumed, at its lower end, a dog $m$, held yieldingly by a spiral spring $m'$, to extend at its upper free end into engagement with a vertical bar $n$, reciprocably confined in bearings to extend along the outer open edge portion of the vertical part of the coin-chute and there close it. With the upper end of this bar is connected the bag-rope $a$, while the lower end of the bar is connected with the piston-rod $t$ of an air-cushion G, of any suitable or known construction, and is also shown to be connected by a spiral spring $s$ with the casing of the apparatus. In the outer edge of the bar $n$, near its upper and lower ends, respectively, are provided the notches $n'$ and $n^2$, and between these notches there is provided in the face of the bar a recess $n^3$, Fig. 9, converging toward the longitudinal center of the bar from its opposite edges. In the normal position of the bar $n$ the recess $n^3$ registers with the lower deflected discharge end of the coin-chute C. On the face of the bar $n$ is fastened, at its lower end, a trip-finger $o$ to extend at its upper end into the path of a pivotal latch $p$, supported in position to adapt it to engage by gravity with a stud $p'$ on the bell-crank $g$ near its lower end.

A pivotal cam $q$ is supported to extend across the face of the bar $n$ into engagement at its cam-face with a stud $q'$ on the dog $m$, and from near the free end of this cam it is connected by a rod $r$ with the free end of a lever H, extending lengthwise along the top of the platform A', with its opposite end fulcrumed thereon and its free end confined in a loop $r'$ against undue extent of rise.

The operation is as follows: In the normal relative positions of the parts the bar $n$ is down and locked against being raised by drawing on the rope $a$ to pull down the bag B into the position to be punched, (being the lowermost position in which it is represented in Fig. 1,) owing to the engagement of the dog $m$ with the bar at the notch $n'$, and the foot $i'$ is raised above the diaphragm $h'$, being held in the raised position by engagement of the spring-dog $k$ with the notch $i^2$ in the bar $i$, Fig. 7. A coin inserted into the chute C in passing through it encounters the projection $g'$ on the bell-crank $g$, thereby turning its depending arm outward, with the effect of raising its shorter arm against the pawl $f$ to disengage it from the ratchet-wheel, and thereby free the latter to permit it to be returned by the retractive force of the spring $e$ against the shaft $c^2$ until stopped by engagement of the stop $d'$ with the abutment $d^2$, Fig. 2. In this position of the ratchet the index-finger $c'$ points to "0" on the dial. In the described return movement of the ratchet the stud $i^5$ encounters the pawl $k$ to force it out of the notch $i^2$ in the bar $i$ to free the latter and permit it to drop, while the stud $i^4$ encounters the lug $i^3$ on the bar and insures the drop thereof, in the event of its sticking, to the position in which it is represented in Fig. 2, wherein the foot $i'$ bears on the diaphragm. It then remains to pull down the bag B. This is permitted by the action of the inserted coin, which passes from the discharge end of the coin-chute into the recess $n^3$ in the bar $n$ and attains the position of the dotted representation of the coin in Fig. 9, wherein it is confined between the downwardly-inclined base of the recess and the adjacent hollowed-out edge portion of the dog $m$. Then by pulling downward on the pendent end of the rope $a$ the bar $n$ is raised, and in rising the coin is rolled wedgingly out of the recess $n^3$ between the straight edge of the bar and the dog $m$, thereby forcing the latter outward and withdrawing it from the notch $n'$ to free the bar, which when it reaches the limit of its rise registers at its notch $n^2$ with the engaging end of the dog to permit the latter to enter the notch under the force of its controlling-spring and lock the bar in its raised position. When the bar $n$ reaches its raised position, the finger $o$ encounters the catch $p$ and lifts it off the stud $p'$ to permit the bell-crank $g$ to resume its normal position, wherein it is disengaged from the pawl $f$ to allow the latter's controlling-spring to engage it with the ratchet-wheel. All is then in readiness for striking the bag. The blow impinges the bag against the under side of the platform A' near its free end, and the impact raises it on its hinges with the following results: The rise of the platform, owing to its connection by the arms $l'$ with the cross-head $l$, suddenly shoots upward the piston $h^2$, causing the air confined against the diaphragm to expand it, with the effect of jumping the foot $i'$ and with it the bar $i$ upward. In the rise of the bar $i$ the stud $i^3$ upon it encounters the lug $i^4$ on the ratchet-wheel, and the impact turns the latter and with it the dial-finger $c'$ to register on the dial the force of the blow. Since the pawl $f$ is in engagement with the ratchet, the latter cannot return to its normal position under the retractive force of the spring $f'$ until the pawl is released by the insertion of another coin into the coin-chute, so that the registration of the last blow on the bag remains in evidence until then, and the bar $i$ is prevented from dropping by the dog $k$ entering the recess $i^2$ when it comes coincident therewith, thereby holding the foot $i'$ out of contact with the diaphragm until by the insertion of another coin the pawl $f$ is tripped to permit the return of the ratchet to normal position, in assuming which the stud $i^5$ forces the dog $k$ out of the recess and permits the bar and foot upon it to drop. Furthermore, in the rise of the platform it pulls upward on

the rod $r$, with the result that the cam $q$ engages with the stud $q'$ on the dog $m$ and forces the latter out of the notch $n^2$ in the bar $n$, which thereupon drops, under control of the air-cushion G, to its normal position, dragging with it the rope $a$, and thus drawing up the bag B to take it out of the proper position for effective punching.

When the bar $n$ is raised to its highest position, a recess $n^4$ in its face, below the notch $n^2$, is coincident with the coin, thereby so widening the space between the bar and the dog $m$ as to free the coin and permit it to drop out into any suitable receptacle. (Not shown.) With the parts thus restored to their normal position the machine is ready to be again operated to register the force of a blow against the bag after drawing it down to position.

The somewhat complicated nature of the mechanism has rendered necessary the foregoing minute description thereof in its details; but my invention is not intended to be limited to such details and I do not wish to be understood as so limiting it thereto, since the construction may be variously modified by those skilled in the art without departure from the invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a coin-controlled punching-bag apparatus, the combination with the casing, of a yielding overhead impact-platform, a punching-bag, a rope by which said bag is suspended below the platform, coin-controlled mechanism with which said rope is connected to releasably lock it, a blow-register, and register-operating mechanism connecting the register with said platform and connected with said coin-controlled mechanism, substantially as described.

2. In a coin-controlled punching-bag apparatus, the combination with the casing, of an overhead frame extending horizontally therefrom, an impact-platform hinged at one end to the frame and free at its opposite end, a punching-bag, a rope depending from said frame and by which said bag is suspended, coin-controlled mechanism with which said rope is connected to releasably lock it, a blow-register, and register-operating mechanism connecting the register with said platform and connected with said coin-controlled mechanism, substantially as described.

3. In a coin-controlled punching-bag apparatus, the combination with the casing, of a yielding overhead impact-platform, a punching-bag, a rope by which said bag is suspended below the platform, coin-controlled mechanism with which said rope is connected to releasably lock it, a blow-register on the case, a rotary spring-controlled shaft carrying on one end the index-finger of said register and on its opposite end a ratchet-wheel provided with a pawl having a releasing connection with said coin-controlled mechanism, a pneumatic diaphragm device having its piston suspended from said platform, and a vertically-reciprocable bar in the path of the diaphragm to be actuated by its expansion to engage with said wheel and actuate the register, substantially as described.

4. In a coin-controlled punching-bag apparatus, the combination with the casing, of a yielding overhead impact-platform, a punching-bag, a rope by which said bag is suspended below the platform, coin-controlled mechanism with which said rope is connected to releasably lock it, a blow-register on the case, a rotary spring-controlled shaft carrying on one end the index-finger of said register and on its opposite end a ratchet-wheel provided with a pawl having a releasing connection with said coin-controlled mechanism, with a stop to engage with an abutment in the return-path of the wheel and with studs on one side, a pneumatic-diaphragm device having its piston suspended from said platform, a vertically-reciprocable notched bar carrying a foot and supported in the path of the diaphragm to be actuated by its expansion against the foot, a lug on the bar to engage with one of said studs in its path on the ratchet-wheel, and a spring-dog to engage with the notch in said bar and extending into the path of the other of said studs on the ratchet-wheel, substantially as described.

5. In a coin-controlled punching-bag apparatus, the combination with the casing, of a yielding overhead impact-platform, a punching-bag, a rope by which said bag is suspended below the platform, coin-controlled mechanism with which said rope is connected to releasably lock it, a blow-register on the case, a rotary spring-controlled shaft carrying on one end the index-finger of said register and on its opposite end a ratchet-wheel provided with a pawl having a releasing connection with said coin-controlled mechanism, a pneumatic-diaphragm device, arms depending from said platform and carrying at their lower ends a cross-head fastened to the stem of the piston of said device to suspend said piston from the platform, and a vertically-reciprocable bar in the path of the diaphragm to be actuated by its expansion to engage with said wheel and actuate the register, substantially as described.

6. In a coin-controlled punching-bag apparatus, the combination with the casing, of a yielding overhead impact-platform, a punching-bag, a rope by which said bag is suspended below the platform, a blow-register, register-operating mechanism connecting with said platform the register to actuate it by impact against the platform, a coin-chute extending from a coin-insertion slot in the casing, a vertically-reciprocable notched bar supported at one open side of the coin-chute and with which said rope is connected, a coin-releasable connection with said register-operating mechanism at the opposite open side of said chute, and coin-released locking mechanism for said bar, substantially as described.

7. In a coin-controlled punching-bag apparatus, the combination with the casing, of a yielding overhead impact-platform, a punching-bag, a rope by which said bag is suspended below the platform, a blow-register, register-operating mechanism connecting with said platform the register to actuate it by impact against the platform, a coin-chute extending from a coin-insertion slot in the casing, a vertically-reciprocable notched bar supported at one open side of the coin-chute and with which said rope is connected, a coin-recess in said bar normally registering with the discharge end of said chute, a spring-pressed dog to engage with a notch in said bar, and against which the coin operates to disengage it, and a coin-releasable connection with said register-operating mechanism at the opposite open side of said chute, substantially as described.

8. In a coin-controlled punching-bag apparatus, the combination with the casing, of a yielding overhead impact-platform, a punching-bag, a rope by which said bag is suspended below the platform, a blow-register, register-operating mechanism connecting with said platform the register to actuate it by impact against the platform, a coin-chute extending from a coin-insertion slot in the casing, a vertically-reciprocable notched bar supported at one open side of the coin-chute and with which said rope is connected, a coin-recess in said bar normally registering with the discharge end of said chute, a spring-pressed dog to engage with the notches in said bar for locking it in its raised and lowered positions and against which the coin operates to unlock the bar when down, a releasing device engaging with said dog and connected with the platform to unlock said bar when in its raised position by impact against the platform, and a coin-releasable connection with said register-operating mechanism at the opposite open side of the chute, substantially as described.

HERBERT S. MILLS.

In presence of—
WALTER N. WINBERG,
ALBERT D. BACCI.