J. GRAVES.

CHECK CONTROLLED GAME APPARATUS.

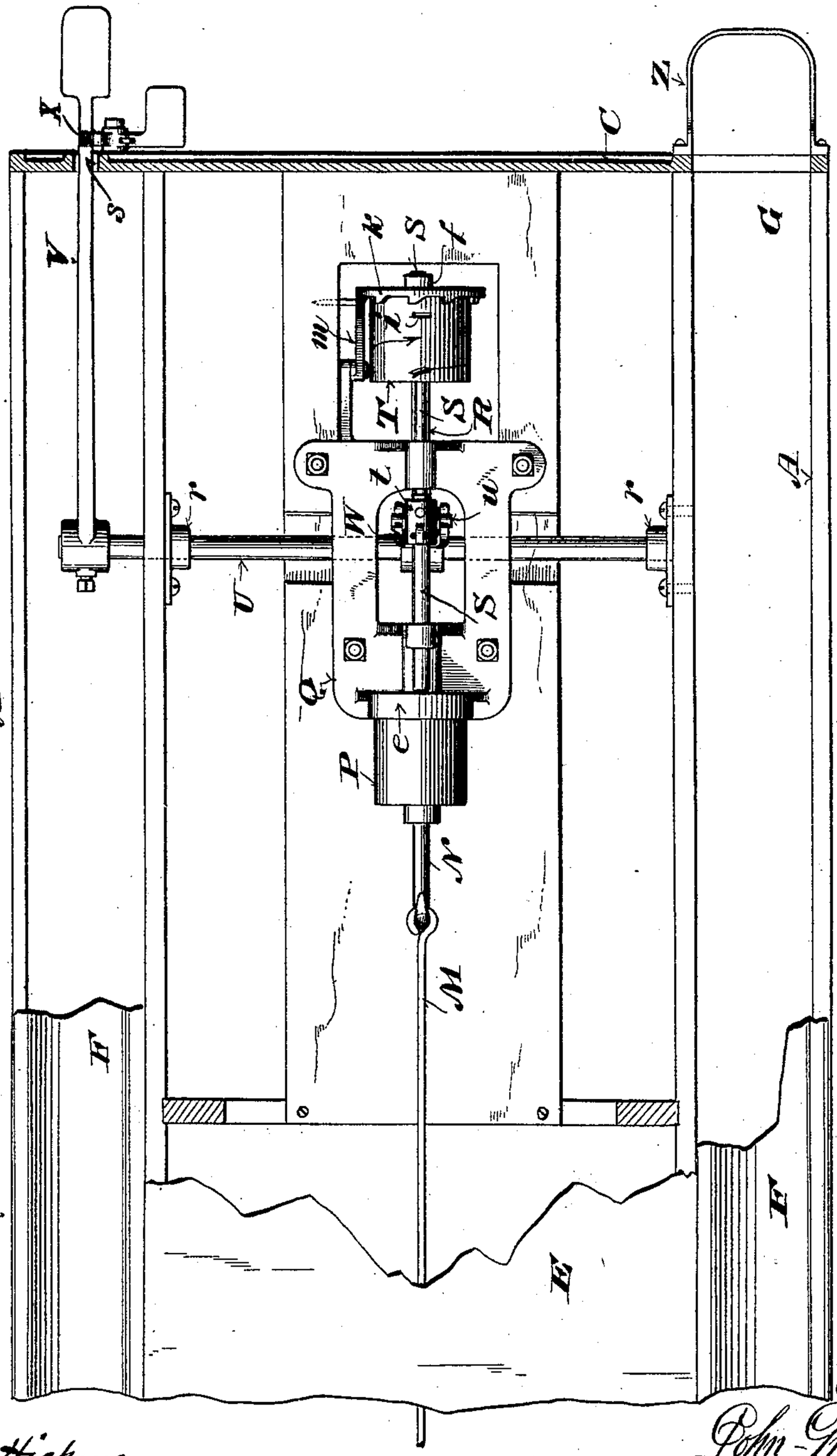
APPLICATION FILED FEB. 29, 1908.

912,239.

Patented Feb. 9, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

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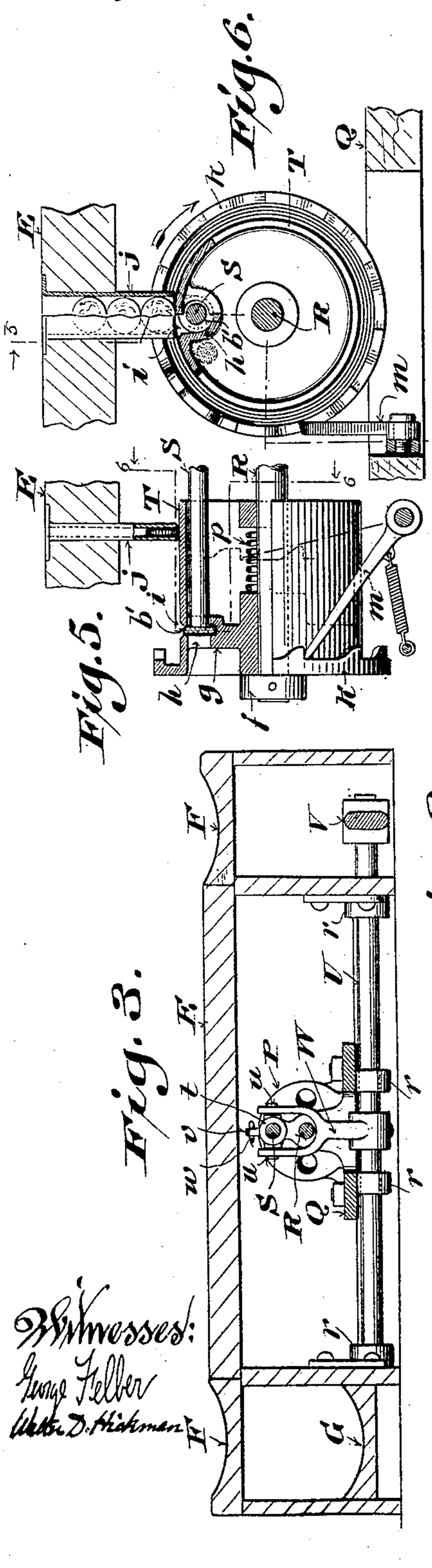

Fig. 5.

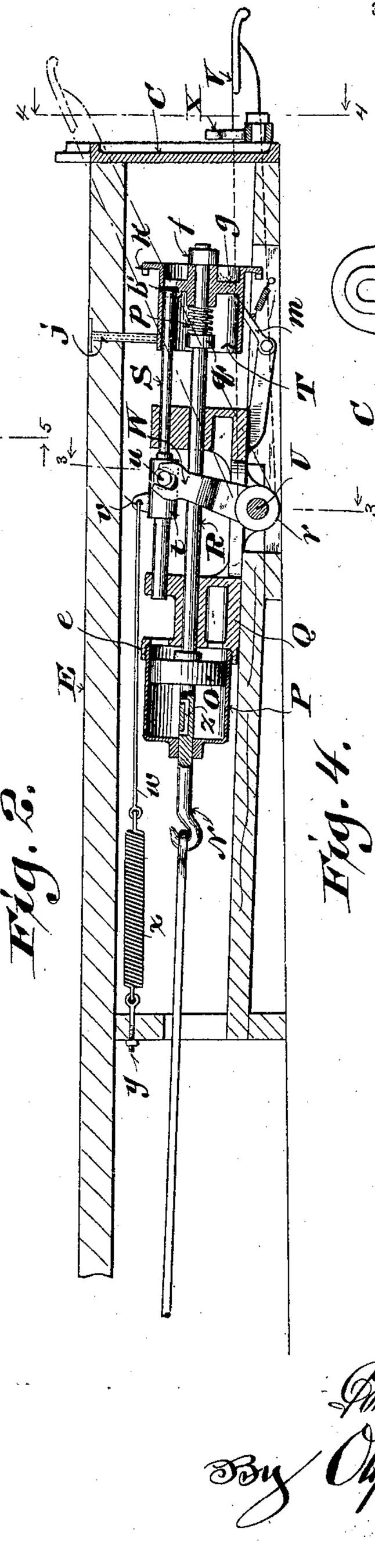

Fig. 2.

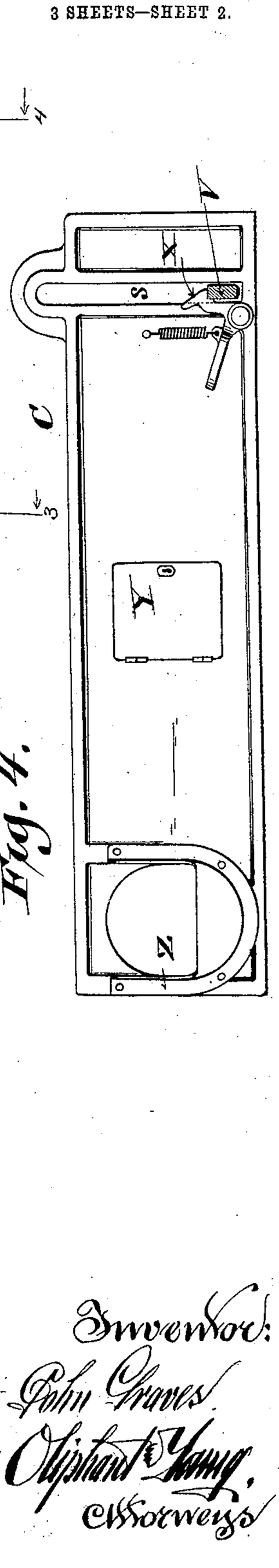

Fig. 4.



Fig. 3.

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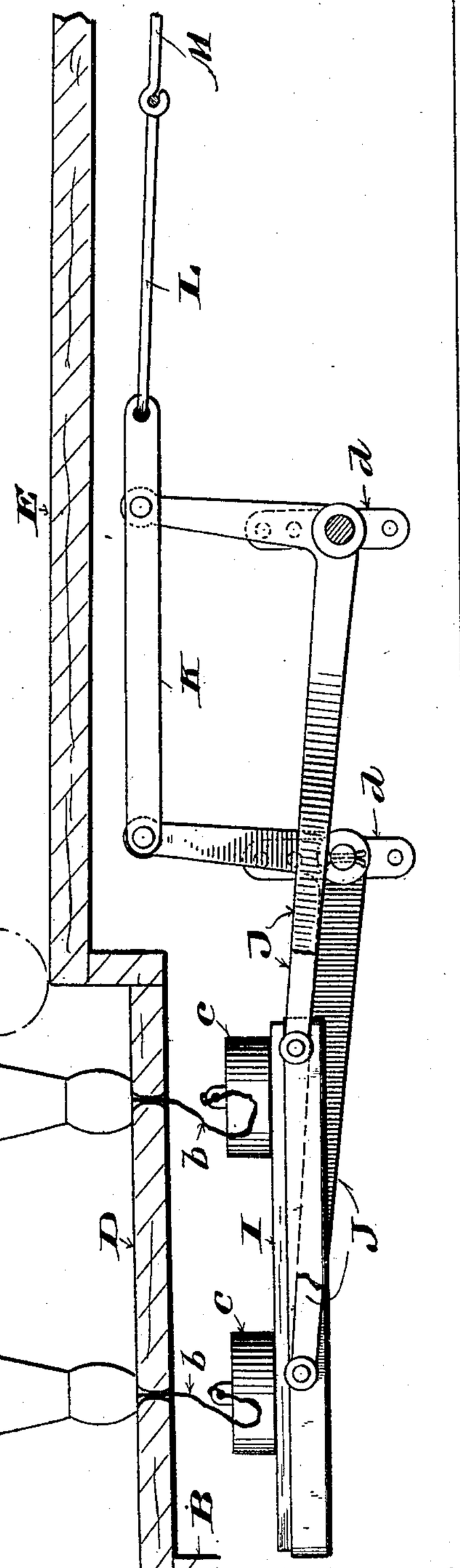
3 SHEETS—SHEET 3.

Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## CHECK-CONTROLLED GAME APPARATUS.

No. 912,239. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed February 29, 1908. Serial No. 418,490.

*To all whom it may concern:*

Be it known that I, JOHN GRAVES, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Check-Controlled Game Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof.

My improvements consist in what is herein shown, described and pointed out in the claims of this specification, its object being to provide simple, economical and compact check-controlled mechanism by which to control pin set-works of a bowling-game apparatus, the specific pin set-works herein disclosed having been divided out of this application and claimed in my divisional application Serial No. 442,658, filed July 9, 1908.

Figure 1 of the accompanying drawings represents a plan view of a fragment of a game-apparatus in accordance with my invention partly broken away and in section horizontally thereof; Fig. 2, a vertical, longitudinal central sectional view of said fragment of the apparatus; Fig. 2ª, a similar sectional view of a continuation of said apparatus; Fig. 3, a transverse sectional view indicated by lines 3—3 in Fig. 2; Fig. 4, a front elevation of the apparatus; Fig. 5, a partly sectional side elevation of a detail of the apparatus and is indicated by lines 5—5 in Fig. 6, and Fig. 6, a partly sectional end elevation of said detail indicated by lines 6—6 in Fig. 5.

Referring by letter to the drawings, A indicates each of the sides, B, C, the ends, and D, E, top-sections of a box-like casing. The top-section E is a roll-way preferably inclined upward from the approach end C of the casing between gutters F that also constitute top-sections of said casing. The top-section D of the casing is approximately horizontal below the adjacent end of the roll-way and serves as a pin-stand and bottom of a pit from which balls bowled on said roll-way find their escape into a ball-return G that is suitably pitched under one of the aforesaid gutters.

Pins H preferably bulbous at their lower ends, are supported on the stand, and when in vertical position the lower bulb portion of each is below the roll-way, so that the appearance of the set pins from the approach end of said roll-way is that of ordinary bowling-pins set on an ordinary bowling-alley. Attached to the lower end of each pin is a flexible hanger *b* that extends through an aperture provided in the pin-stand, and this hanger is attached to one of a series of weights *c*, by which said pin is automatically set.

Underlying the weights is a platform I attached at each side to long arms of bell-crank levers J that are suitably fulcrumed in connection with brackets *d* fastened to framing of the casing aforesaid inside the same. The connection of the bell-crank levers with the platform is such that said platform is always on a horizontal plane regardless of its movement from time to time in a vertical direction. Other short arms of the levers J are connected, in pairs, by links, only one of these links being shown at K in Fig. 2ª, and a yoke L connecting the links is attached midway of its ends to a rod M that is in turn connected to a shank N of a piston O in a cylinder P, this cylinder being herein shown as having screw-thread connection with an annular flange *e* of a casting Q suitably mounted in the casing above specified, the flanged portion of this casing being one of the heads of said cylinder. The casting is provided with guides for the rod R of the piston as well as for another rod S parallel to said piston-rod above the same and having the function of a pusher.

The piston rod is provided with an end collar *f* and serves as an arbor for a cylindrical shell T, the hub of the shell being in opposition to said collar. A partition portion *g* of the shell outward from its hub is provided with a radial recess *h* that is normally open longitudinally of the shell and contoured to receive a check that enters the same through a registering slot *i* provided in said shell, this slot being in register with a stationary check-chute *j* once in each revolution of the aforesaid shell on its arbor.

The shell T is provided with a ratchet-flange *k* engageable with a spring-controlled pawl *m* in pivotal connection with a lug *n* of the casting Q, and a spiral-spring *p* is arranged, under tension, on the piston-rod R between a collar *q* of same and the hub of said shell to provide sufficient friction to prevent overrunning of the aforesaid shell when

the same has intermittent step-by-step rotary movement as hereinafter more particularly described.

A rock-shaft U is arranged in bearings *r* with which the inner framing of the casing and the casting Q aforesaid are provided. A treadle-lever V is attached to one end of the shaft and extends through a vertical play-slot *s* in the approach end of said casing. Fast on the shaft is a crank W having a yoke-end astraddle of a collar *t* of the rod S and in spanner connection with lateral lugs *u* of the same, an ear *v* of said collar being connected to one end of a link *w* that has its other end secured to a spiral-spring *x* that is attached, under tension, to a bolt *y* in the framing of the aforesaid casing.

The approach end of the casing is provided with a spring-controlled latch X for holding the lever V in depressed position, and access is had to the interior of said casing through a front opening in same for which a door V is provided. A ball-stop cage Z is also provided at the approach end of the casing in register with the ball-return G aforesaid.

The cylinder P is vented on one side of the piston O through that portion of the casting Q that forms a cylinder-head, and that portion of said cylinder on the other side of said piston is vented through an angular passage *z* in the piston-shank N, the disposition of this passage being such that an air-cushion resistance is established in the aforesaid cylinder to prevent sudden drop of the platform I and jerk of the pin weights *c* on their hangers.

The apparatus is organized with especial reference to the game of ten-pins as ordinarily understood, and the normal position of the shell T is such that the slot and partition-recess of same are in register with the check-chute *j* to receive a proper check *b'* that for a time serves as a stop in the path of the rod S on its movement toward the approach-end of said apparatus, incidental to a depression of the lever V, the result being a throw of said shell to the position shown. This operation actuates the piston O and parts in connection therewith to elevate the platform I and weights *c*, whereby the weight-hangers *b* are slackened, as shown in Fig. 2ª, the pins H having been previously set automatically, by a descent of said weights, when said platform was previously lowered on a release of the lever V from latched position. No check having been deposited as aforesaid, the depression of the lever V will result in a movement of the rod S through the recess in the shell partition without disturbing the normal position of the shell itself, and should a ball or balls be bowled, no pins will fall because of the same being held at the time in set position by the weights aforesaid, then clear of the lowered platform.

The shell T having been moved to the position shown in Figs. 1 and 2, the lever V is secured for the time being by the latch X, against the draw of the spring *x* and the gravity of the platform I that is then supporting the pin-weights. The player now bowls one frame of the game, after which the lever V is released, the result being a reverse movement of the piston O, parts in connection therewith and the rod S, whereby the platform I is lowered clear of the weights H and fallen pins automatically reset. In the meantime, the shell T is moved one step of its full revolution, because of the engagement of its ratchet-flange *k* with the pawl *m*, this movement taking place when said shell is carried by the piston-rod R toward the casting Q in which said rod and the one S have their play. The lever V is again swung down, and the operations above described repeated until the player has bowled all his frames of a game. After the check in the shell T has cleared the path of the rod S, the partition *g* of said shell becomes the stop for said rod and so continues until the check-recess of said partition is again in register with the aforesaid rod and the check-chute, said check having in the meantime been automatically discharged from the aforesaid shell. As herein shown, the timing of the intermittent rotary motion of the shell T is such that provision is had for all the set-ups possible in a ten-frame game, there being eleven teeth on the ratchet-flange of said shell.

I claim:

1. A bowling-game apparatus comprising a pin set-works embodying a reciprocative pusher, a reciprocative arbor, a cylindrical device rotative on the arbor and provided with a check-seat normally in register with the pusher that is free to move through the same in the absence of a check, means for actuating said pusher, and means for imparting step-by-step rotary motion to said cylindrical device coincident with a reciprocation of its arbor and the aforesaid pusher subsequent to lodgment of a check in said seat.

2. A bowling-game apparatus comprising a pin set-works embodying a suitably guided pusher, a rock-shaft having crank-connection with the pusher, a shaft-controlling treadle-lever, means for holding the lever depressed, a reciprocative arbor, a cylindrical device rotative on the arbor and provided with a check-seat normally in register with said pusher that is free to move through the same in the absence of a check, and means for imparting step-by-step rotary motion to said cylindrical device coincident with a reciprocation of its arbor and the aforesaid pusher subsequent to lodgment of a check in said seat.

3. A bowling-game apparatus comprising

a pin set-works embodying a reciprocative pusher, a reciprocative arbor, a cylindrical device rotative on the arbor and provided with a check-seat normally in register with the pusher that is free to move through the same in the absence of a check, means for actuating said pusher, means for imparting step-by-step rotary motion to said cylindrical device coincident with a reciprocation of its arbor and the aforesaid pusher subsequent to lodgment of a check in said seat, and means for preventing overrunning of the aforesaid cylindrical device.

4. A bowling-game apparatus comprising a pin set-works embodying a reciprocative pusher, a reciprocative arbor, a cylindrical device rotative on the arbor and provided with a check-seat as well as a ratchet flange, said check-seat being normally in register with the pusher that is free to move through the same in the absence of a check, means for actuating said pusher, and a pawl arranged in engagement with the ratchet-flange of the cylindrical device to effect a step-by-step rotary motion of said device coincident with a reciprocation of its arbor and the aforesaid pusher subsequent to lodgment of a check in said seat.

5. A bowling-game apparatus comprising a pin set-works embodying a spring-and-lever controlled pusher, a reciprocative arbor, a cylindrical device rotative on the arbor and provided with a check-seat normally in register with the pusher that is free to move through the same in the absence of a check, and means for imparting step-by-step rotary motion to said cylindrical device coincident with a reciprocation of its arbor and said pusher subsequent to lodgment of a check in said seat.

6. A bowling-game apparatus comprising a pin set-works embodying a casting having a cylinder extension, a piston in the cylinder provided with a rod and shank in opposite directions, the rod being guided in the casting and constituting an arbor, a pusher also guided in said casting, a cylindrical device rotative on the arbor and provided with a check-seat normally in register with the pusher that is free to move through the same in the absence of a check, means for actuating the pusher, means for imparting step-by-step rotary motion to the cylindrical device coincident with a reciprocation of its arbor and said pusher subsequent to lodgment of a check in said seat, a movable pin-weight platform, and platform lever-mechanism in connection with the piston-shank, descent of said platform being retarded by air-cushion in the cylinder.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

JOHN GRAVES.

Witnesses:
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GEORGE FELBER.