A. W. TISDALE.

PIN SPOTTING DEVICE FOR BOWLING ALLEYS.

APPLICATION FILED FEB. 1, 1909.

983,956.

Patented Feb. 14, 1911.

3 SHEETS—SHEET 1.

Fig. 1.

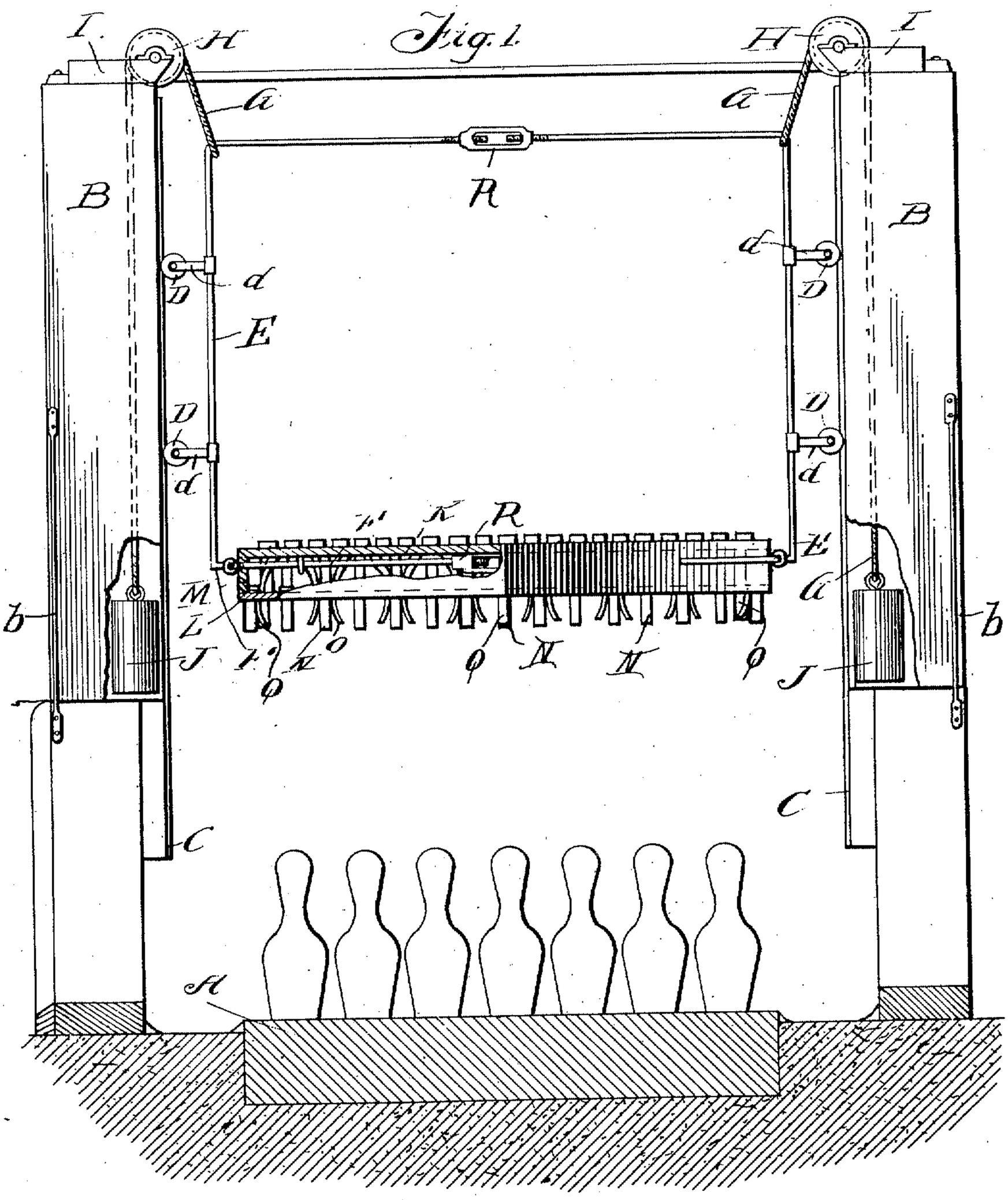
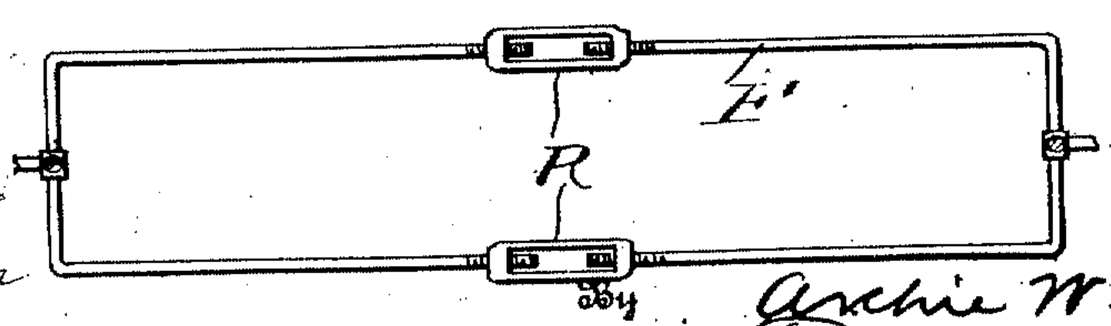


Fig. 4



Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

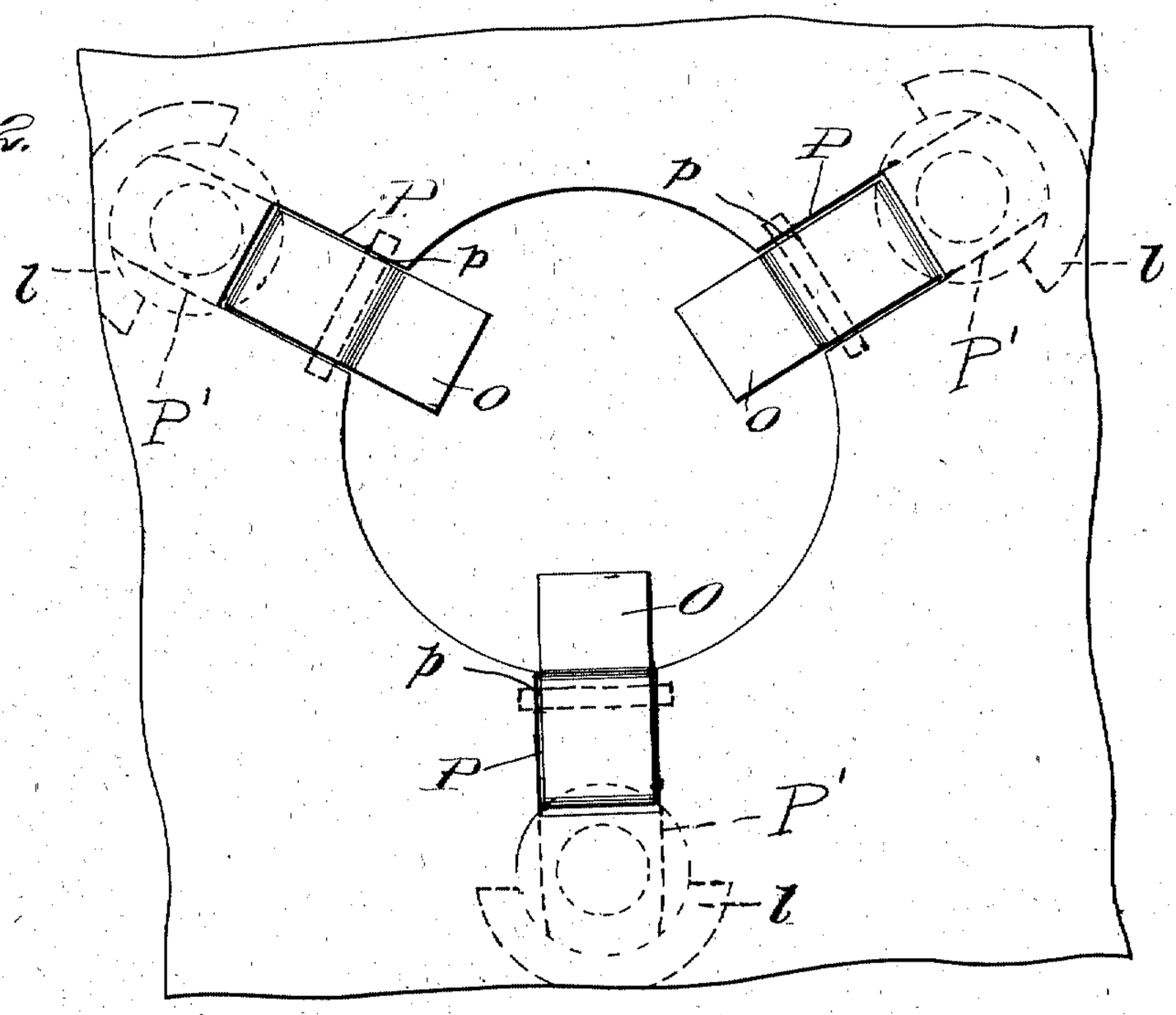
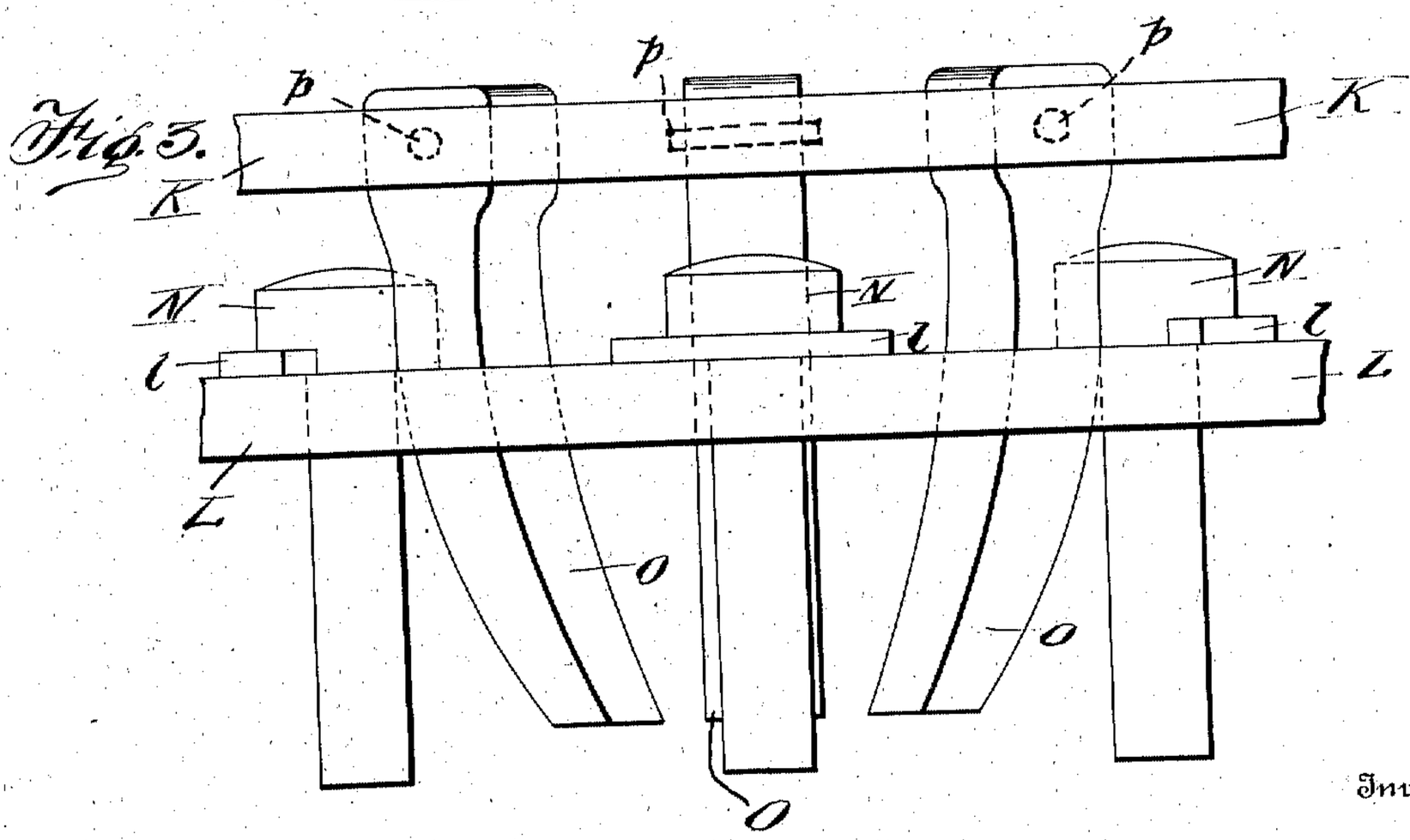


Fig. 3.



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3 SHEETS—SHEET 3.

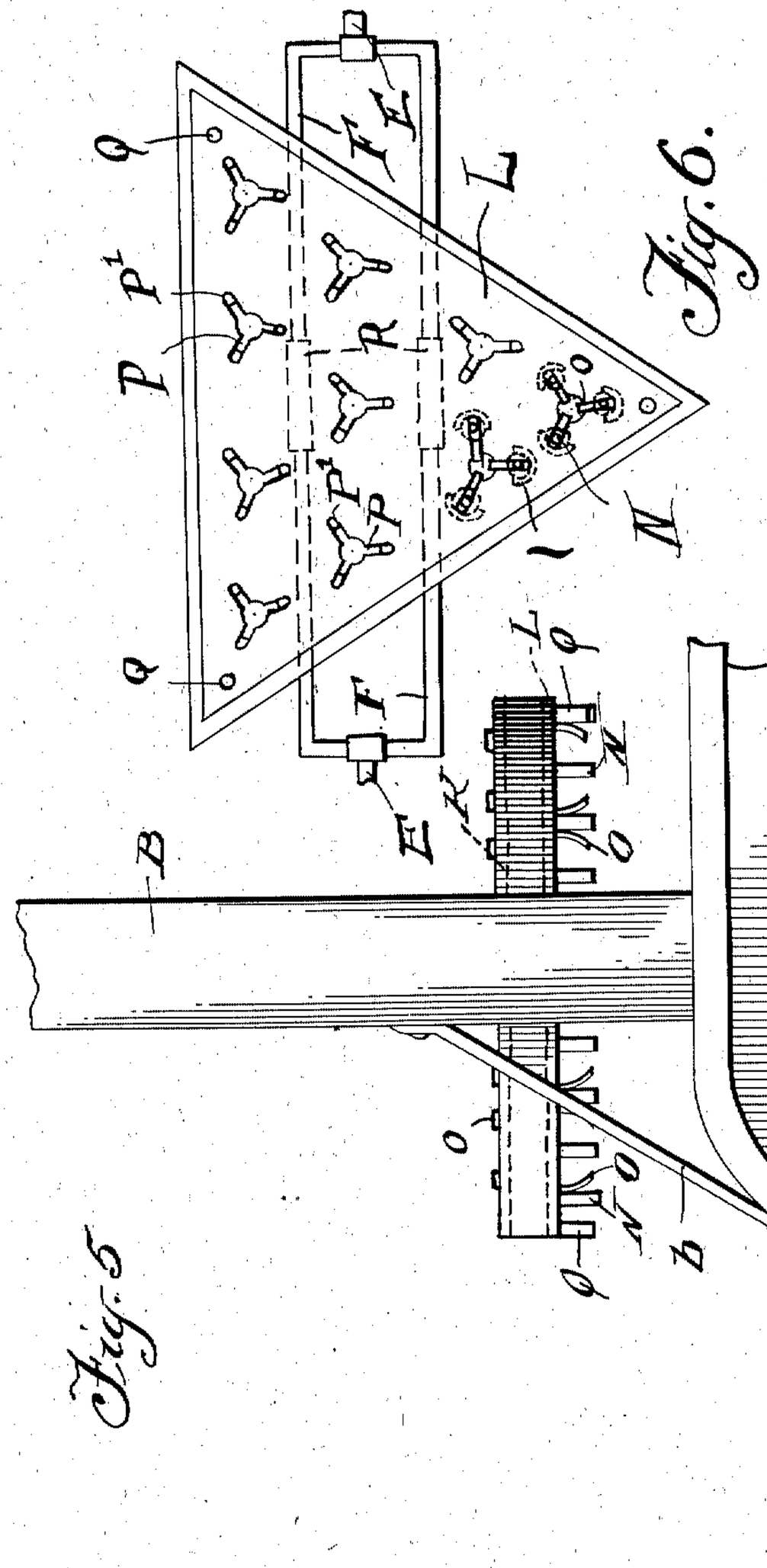

Fig. 6.

Fig. 5.

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UNITED STATES PATENT OFFICE.

ARCHIE W. TISDALE, OF MOBILE, ALABAMA.

PIN-SPOTTING DEVICE FOR BOWLING-ALLEYS.

983,956. Specification of Letters Patent. Patented Feb. 14, 1911.

Application filed February 1, 1909. Serial No. 475,468.

To all whom it may concern:

Be it known that I, ARCHIE W. TISDALE, a citizen of the United States of America, residing at Mobile, in the county of Mobile and State of Alabama, have invented certain new and useful Improvements in Pin-Spotting Devices for Bowling-Alleys, of which the following is a specification.

This invention relates to bowling alleys, the invention having special reference to ten pin spotting devices.

An object of this invention is to provide novel means for setting up ten pins or the like, the same being provided with a pin carriage having means for retaining the pins in position while the carriage is being moved, each of the pin-supporting devices being provided with releasing mechanism operated by contact with the surface of the bowling alley as the table descends.

A further object of this invention is to provide a ten-pin setting apparatus in which the releasing of the ten-pins will be automatic in operation and the releasing device will be automatically raised in its guideways.

A further object of this invention is to provide novel means for raising and lowering the table, means being also provided for retaining the table in elevated position while the players are bowling.

Finally, an object of this invention is to produce a novel device of the character noted, which will possess advantages in points of simplicity, efficiency and durability, proving at the same time comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this specification, wherein like characters denote corresponding parts in the several views, in which—

Figure 1, illustrates a sectional view of a bowling alley with the pin spotting apparatus in elevation; Fig. 2, is a top plan view of a fragment of the table; and Fig. 3, is a view in elevation of a fragment thereof. Fig. 4 illustrates a detail view of the table frame. Fig. 5 illustrates a side elevation of the apparatus. Fig. 6 is a detail view of the invention.

In these drawings, A, denotes the bowling alley having the standards or uprights B, at the sides thereof designed to form supports for the operating mechanism of the spotting device. The standards are provided with guides C, forming tracks for the wheels D, which wheels are mounted on arms *d*, projecting from the frame E, which frame has its lower end connected to a horizontally disposed frame F. The upper end of the frame E, is supported by the flexible devices, preferably cables G, which have their ends connected to the frame and are run over the idlers H, mounted in the brackets I, on the upper ends of the standards. The outer ends of the cables are provided with weights J which are slightly heavier than the combined weight of the table (to be hereinafter referred to) and eight pins, it being the purpose of the inventor to have the said weight support the table and eight pins clear of the ten pin alley and when the last two pins are placed in position on the table, the weight of the table and pins will be greater than the weight J, causing the table to move down toward the alley surface at which place it automatically releases its pins and automatically returns to its position over the alley ready for the next setting of the pins.

The table is composed of two decks, viz: an upper deck K, and a lower deck L, the said decks having coinciding apertures and being separated by spacing blocks or bars M. The horizontally disposed frame F, lies between the two decks and is secured thereto in any desired manner in order that the table may be held constantly in the same position with relation to the said frame. The upper surface of the lower deck L, is provided near each hole with flanges *l*, designed to engage heads of pins N, said pins having their shanks extending through recesses P′ in the said deck L which extend into the deck as far as the flanges *l*, said recesses also being in communication with the pin receiving apertures, so that the fingers O may swing thereinto. The heads of the bolts fall by gravity into engagement with the flanges and said heads engage the fingers O, which fingers are pivoted at *p* in recesses P, extending from the edges of the holes in said deck. The fingers, as shown, are curved in order that their ends will project within the area of the holes in the table for the purpose of sup-

porting ten pins which have been applied to the holes, and the said ten pins will be supported by the fingers until the heads of the pins are disengaged from the flanges. In order to permit the fingers to swing on their pivots, the shanks of the pins are moved vertically in the lower deck until the heads thereof are raised above the surfaces of the flanges *l*, when said pins tilt and the heads thereof slide over the edges of said flanges, thus permitting the fingers O, to swing away from the ten pins which they are supporting.

The lower deck L, is provided with a series of feet Q, which are shorter than the shanks of the pins N, so that in lowering the table, the shanks of the pins first contact the surface of the bowling alley and as the table further descends, the pins are raised until the heads of said pins pass the upper surfaces of the flanges as heretofore described, so that it is necessary to have the feet of the table relatively shorter than the shanks of the pins in order that the pins may move the distance heretofore described to cause the heads of the pins to pass above the upper surfaces of the flanges before the feet of the table contact the surface of the bowling alley, for it is only through this arrangement that the pins would operate to release the fingers. After the heads of the pins have been released, upward movement of the table would cause the fingers to ride over the outer surfaces of the ten pins and the said ten pins would be left standing on the spots or at the proper positions on the bowling alley.

The standards B, have braces *b*, which are connected to them near their upper ends and said braces extend diagonally toward the forward end of the bowling alley and are suitably anchored to the side rails or gutter. The frames are adjustable transversely of the bowling alley through the medium of turn buckles R, which are provided between the decks of the horizontally disposed table and between the standards in which the vertically disposed frame moves. After the ends of the fingers have ridden over the surfaces of the ten pins, the pins which hold the fingers in operative position, re-set themselves by gravity, with the heads thereof in engagement with the sides of the flanges ready to again receive the ten pins for the next setting.

Briefly describing the operation, the same is as follows. In its normal position the table is raised by the weights J, and the pins are placed within the apertures of the table, while the table is thus elevated. The weights J being slightly lighter than the combined weight of the table and all of the ten-pins when in position in the apertures, the table will be automatically lowered and in this instance I preferably make the weights J heavy enough to support the combined weight of the table and eight of the ten-pins, so that when the last two pins are placed in position on the table it will be automatically lowered as hereinbefore set forth. When the table strikes the surface of the alley, the heads of the pins N are raised above the upper surface of the flanges *l*, thereby allowing the said pins to swing outwardly, thus allowing the fingers O also to swing outwardly upon the pivots *p* thereby releasing the ten-pins from within the recesses. When the pins N have been raised by contact with the surface of the bowling alley, the table is supported by the feet Q, thereby taking the jar off of the ten-pins engaging devices when the table is lowered. As soon as the ten-pins are released, as heretofore described, the weights J tend to automatically return the table to a raised position upon the guideways C for the next setting.

I claim—

1. In a ten pin spotting device, a vertically movable frame, means carried by the frame whereby the width thereof may be adjusted, a table carried by said frame, counterbalance weights for said frame and table, said weights being slightly heavier than the combined weight of the table and eight of the ten pins but slightly lighter than the combined weight of the table and all of the ten pins, ten pin retaining devices carried by the table and means for tripping the ten pin retaining devices.

2. In a pin spotting device, standards, guideways upon said standards, a frame slidable in said guideways, said frame comprising upright members and a connecting member, means for laterally adjusting the upright members, a horizontal frame connected to the lower end of the upright members, said horizontal frame having means for lateral adjustment, a table supported by said horizontal frame, counterbalance weights for said frames and table, ten-pin retaining devices carried by the table, and means for tripping the ten-pin retaining devices.

3. In a ten-pin spotting device, standards provided with guideways, a frame, arms projecting from the sides of said frame, rollers carried by said arms and slidable in the guideways, a turn buckle for adjusting the width of the frame transversely and equally at both sides, a table carried by the frame, ten-pin retaining devices carried by the table, counterbalance weights for said frame and table, cables connecting the frame to the weights, idlers mounted upon standards, over which pass the cables, said weights being slightly heavier than the combined weight of a table and eight of the ten-pins but lighter than the weight of the table and all of the ten-pins.

4. In a ten pin spotting device, a table comprising upper and lower decks having coinciding apertures, fingers pivoted in recesses in the upper deck adjacent the apertures, pins provided with heads seated in the lower deck, said heads being adapted to engage said fingers, flanges engaging said pins at their heads to retain the fingers in operative position, the aforesaid pins having a sliding movement upon said flanges to allow the fingers to swing upon their pivots.

5. In a ten pin spotting device, guideways, a frame slidable in the guideways, a table carried by said frame, said table comprising upper and lower decks having coinciding apertures, fingers pivoted in the recesses in the upper deck, and having curved extremities adapted to project into the area of the apertures to receive the ten pins, flanges on the upper surfaces of the lower deck secured near said apertures, pins having shanks slidable in the lower deck, the heads of the pins being held in engagement with the fingers by the flanges, feet for the table of less length than the shanks of the pins, and means for moving said table.

6. In a ten pin spotting device, a vertically movable frame, a table carried by said frame, counterbalance weights for said frame and table, ten pin retaining devices carried by the table, and means for tripping the ten pin retaining devices, the aforesaid weights being heavier than the combined weight of the table and eight of the ten pins, but lighter than that of the table and all of the ten pins.

7. In a ten pin spotting device, standards, guideways upon said standards, a frame slidable in said guideways, a table supported by said frame, said table comprising two decks having coinciding apertures, fingers pivoted to the upper deck and projecting through the apertures of the lower deck, pins carried by the lower deck adapted to engage said fingers and hold the same in operative relation to engage the ten pins, and feet for the table of less length than the pins.

In testimony whereof, I affix my signature in the presence of two witnesses.

ARCHIE W. TISDALE.

Witnesses:

ANDREW KASSEN,

N. E. STALLWORTH.