

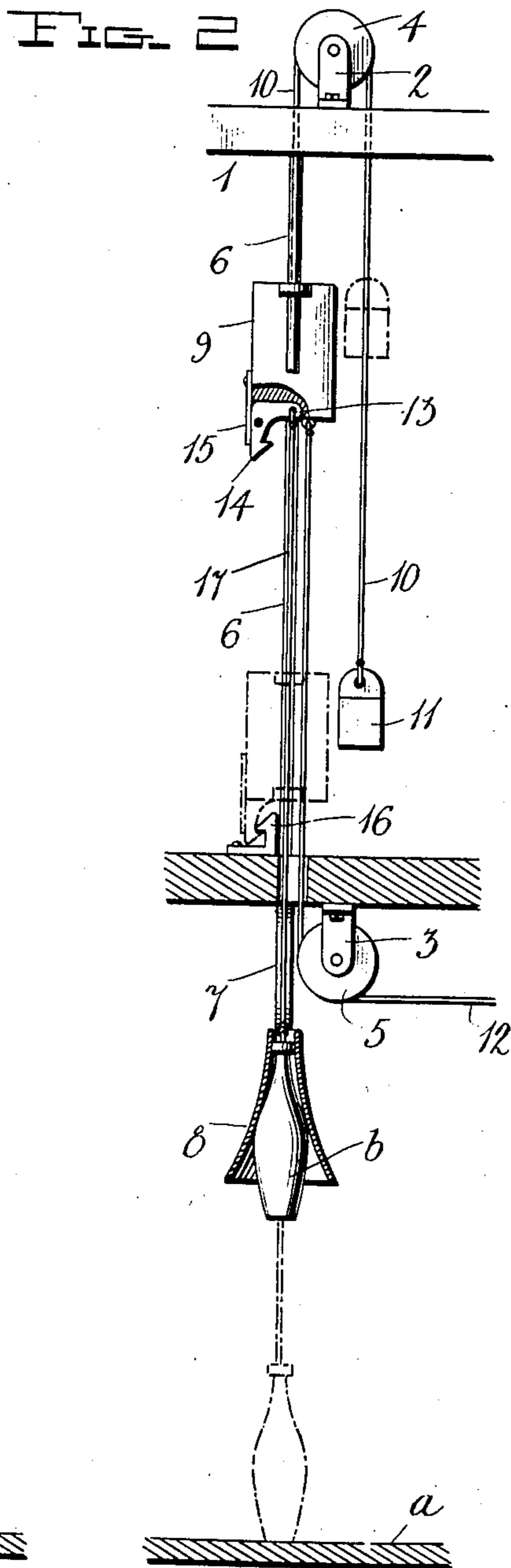
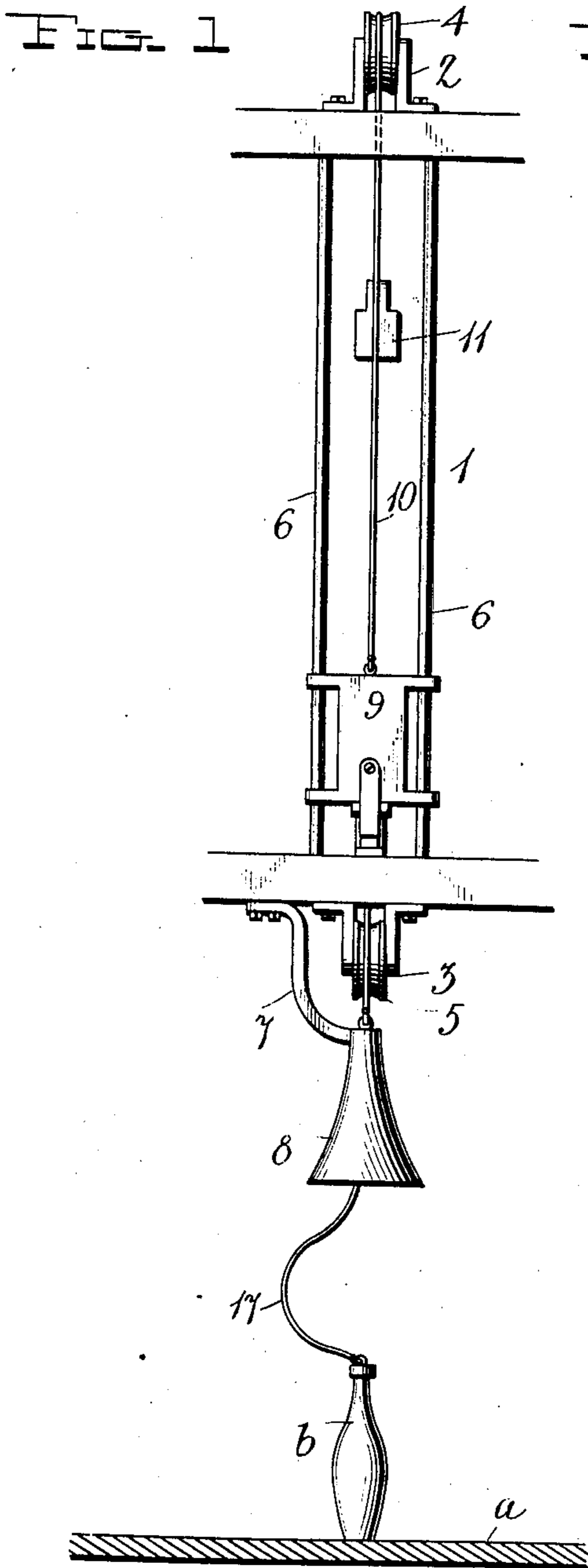
No. 814,227.

PATENTED MAR. 6, 1906.

W. S. MORGAN & S. W. FELLOWS.

PIN SETTING APPARATUS.

APPLICATION FILED APR. 3, 1905.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM S. MORGAN AND SAMUEL W. FELLOWS, OF RUSSELL,
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PIN-SETTING APPARATUS.

No. 814,227.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed April 3, 1905. Serial No. 253,625.

To all whom it may concern:

Be it known that we, WILLIAM S. MORGAN and SAMUEL W. FELLOWS, citizens of the United States, residing at Russell, in the county of Lyon and State of Minnesota, have invented certain new and useful Improvements in Pin-Setting Apparatus; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention is an improved apparatus for setting pins in a bowling-alley; and it consists in the construction, combination, and arrangement of devices hereinafter described and claimed.

The object of our invention is to provide an improved apparatus of this character which is efficient for simultaneously setting all the pins in a bowling-alley and which may be very readily and quickly operated.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a pin-setting apparatus embodying our improvements, and Fig. 2 is a detail sectional view showing one of the pins in elevated position in full lines and in lowered position in dotted lines.

Above the pin-field or end of a bowling-alley, the floor of which is indicated at *a*, is a supporting device 1. At the upper and lower sides of the supporting device 1 brackets 2 3 are here shown, which are respectively provided with pulleys 4 5. Vertically-disposed guide-rods 6, arranged in pairs, are here shown as connecting the upper and lower sides of the supporting device, and the said pairs of guide-rods, together with the said pairs of pulleys, are disposed above and in register with the spaces to be occupied by the pins on the field. From the under side of the casing depend supporting arms or brackets 7, which carry bells 8, which are also disposed in register with the spaces to be occupied by the pins on the field.

Blocks 9 engage and are guided by the pairs of guide-rods 6 and move vertically thereon. To the upper side of each block is attached a cord 10, which passes over one of the pulleys 4 and has a counterweight 11. Lowering-cords 12 engage the lower pulleys 5, and each of said lowering-cords is connected directly to one of the blocks. Each block 9 carries a pivoted hook 14, which depends therefrom

and is provided with an inwardly-extending arm 13. Each of the said blocks is further provided with a spring 15, which bears against the outer side of the said hook, the said springs serving to normally maintain the said hooks in a vertical position. Detent-hooks 16 are on the upper side of the bottom of the supporting device in position to be engaged by the hooks 14 when the blocks are lowered, so as to secure the latter in lowered position. The pins *b* are respectively connected to the arms 13 of the hooks 14 by means of cords 17, each of the said cords passing up through one of the bells 8 and being attached to one of the said hook-arms.

The operation of our apparatus is as follows: The weights 11 are sufficiently heavy to raise the blocks 9 and the pins which are connected thereto by the cords 17. Normally the pins are lowered by pulling upon the cords 12, which are connected together for simultaneous operation, said cords 12 causing the blocks 9 to be lowered and the hooks 14 and hooks 16 to lock the said blocks in lowered position. When the blocks 9 may be in the said lowered position, the cords 17 are sufficiently slack to enable the pins to be knocked over by the balls. As each pin is knocked over by a ball it causes the cord 17, attached thereto, to jerk the arm of the hook 14, to which the said cord is connected, thereby causing said hook to disengage the companion detent-hook 16 and releasing its block, whereupon the weight 11, connected to the said block, instantly raises the latter and by means of the cord 17 also raises the said overturned pin until the latter is lifted completely above the floor of the alley out of the way and is disposed with its upper end in one of the bells 8, the said bells serving to prevent its pins when they are thus elevated from swinging and holding them in position to be lowered to their appropriate places on the field when the cords 12 are operated as hereinbefore described. Hence our improved apparatus removes each pin out of the way during the progress of the game and also enables all of the pins to be simultaneously reset in place for another game.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A pin-setting apparatus of the class described comprising a vertically-movable block, guides therefor, a pulley above the guides, a counterweight, a cord attached to the counterweight, passed over said pulley and attached to the block, a spring-pressed hook pivoted to and depending from the block and having an inwardly-extending arm, a pin, a cord attached to the pin and to the arm of the hook, a cord attached to the block to lower the same and the pin, a fixed detent-hook engaged by the spring-pressed hook of the block when the latter is lowered, to secure the block in lowered position.

2. A pin-setting apparatus of the class described comprising a vertically-movable block, guides therefor, a pulley above the guides, a counterweight, a cord attached to the counterweight, passed over said pulley and attached to the block, a spring-pressed hook pivoted to and depending from the block and having an inwardly-extended arm, a pin, a cord attached to the pin and to the arm of the hook, a cord attached to the block to lower the same and the pin, a fixed guide-belt in an elevated position above the pin and through which the cord attached to the pin extends, for the purpose set forth.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

WILLIAM S. MORGAN.
SAMUEL W. FELLOWS.

Witnesses:

G. W. COCHRANE,
F. S. PURDY.