

W. HUGHES.
APPARATUS FOR SCORING BILLIARDS.

No. 410,973.

Patented Sept. 10, 1889.

Fig. 1.

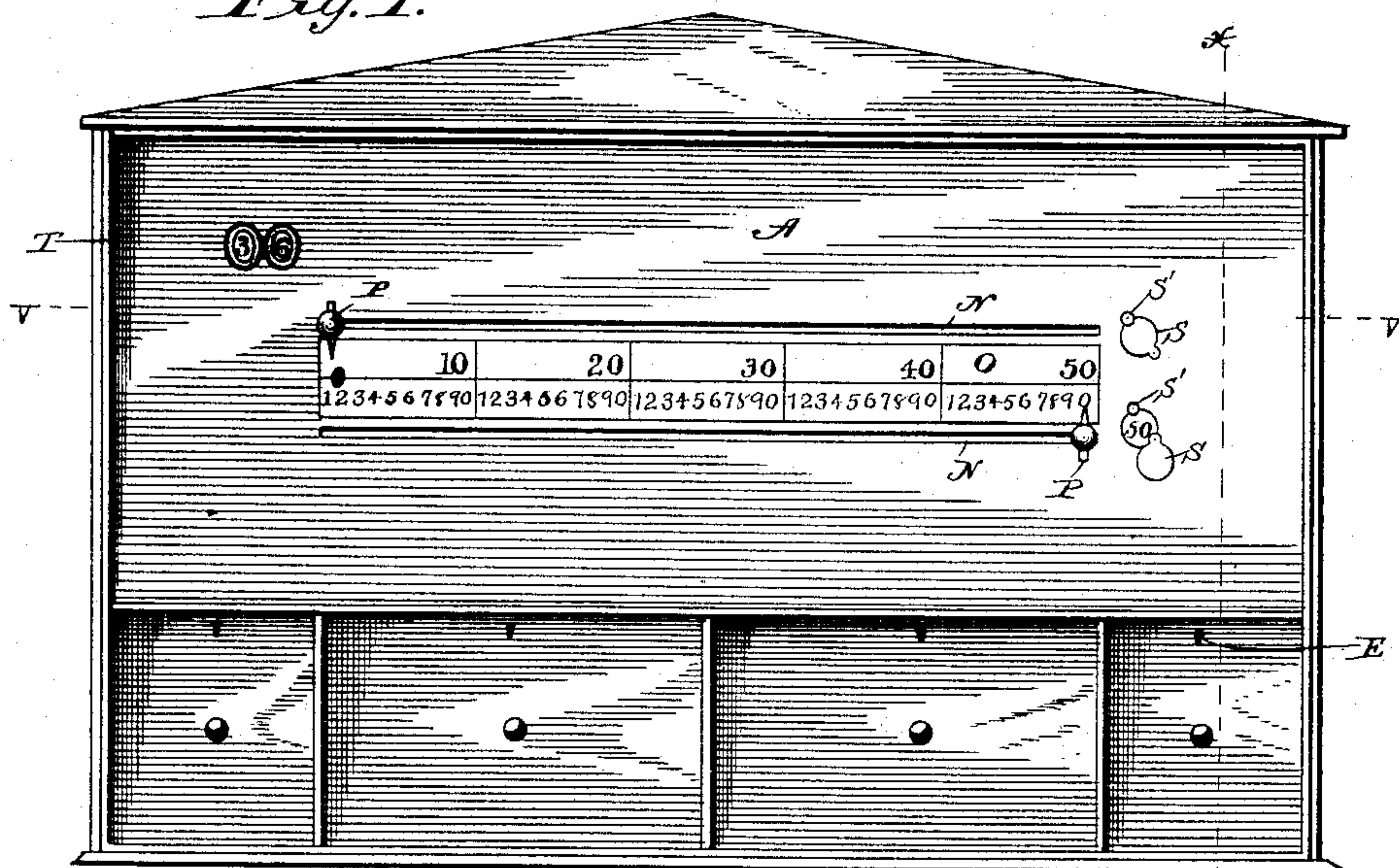


Fig. 5.

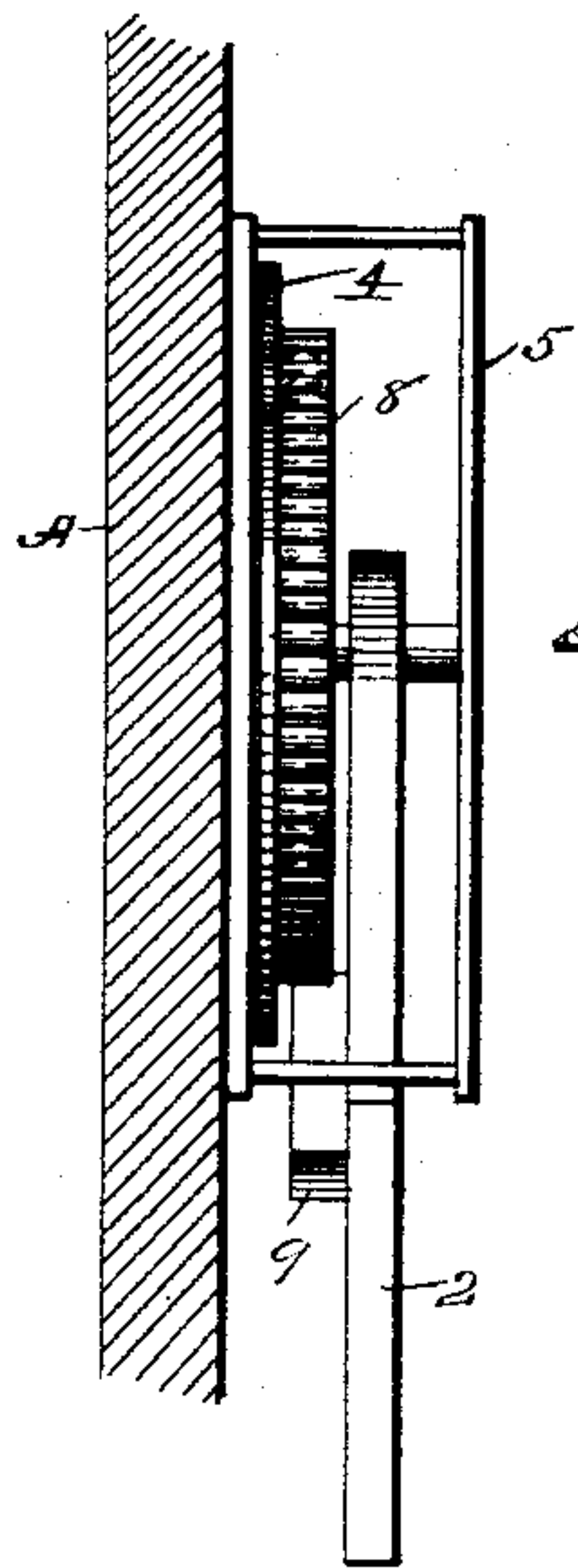


Fig. 6.

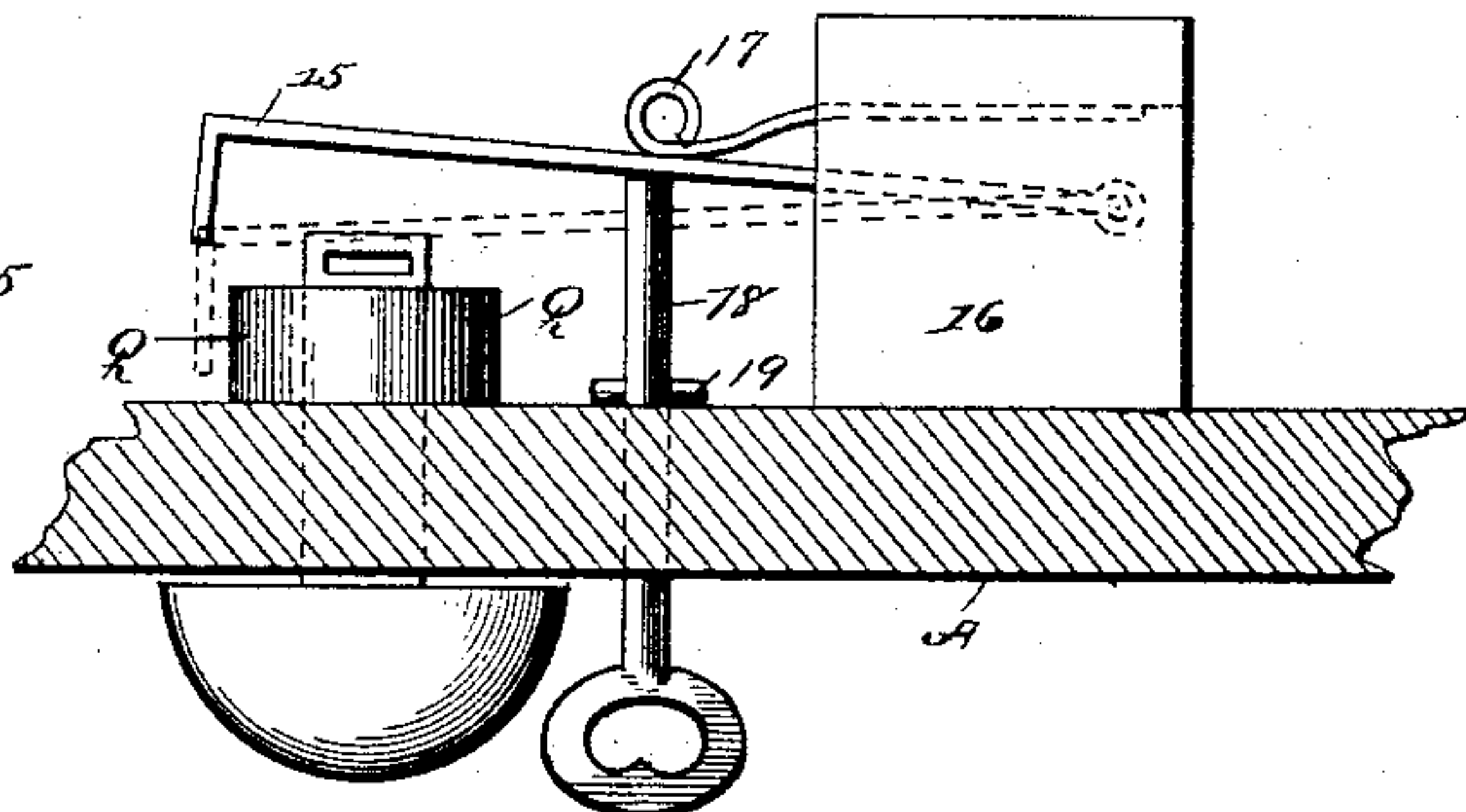


Fig. 2.

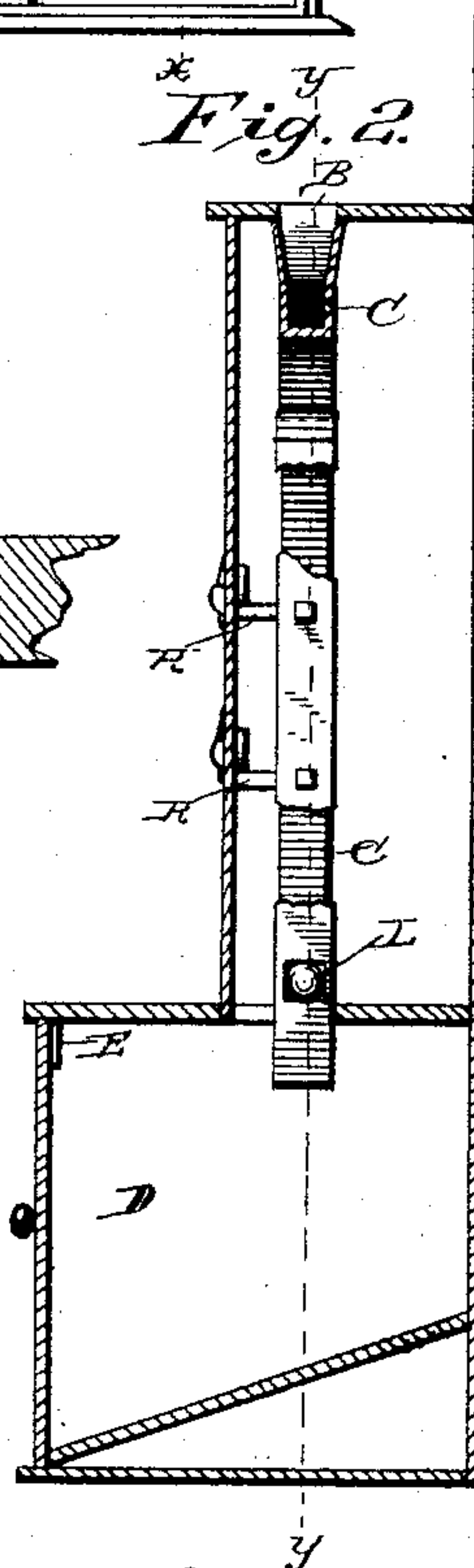


Fig. 7.

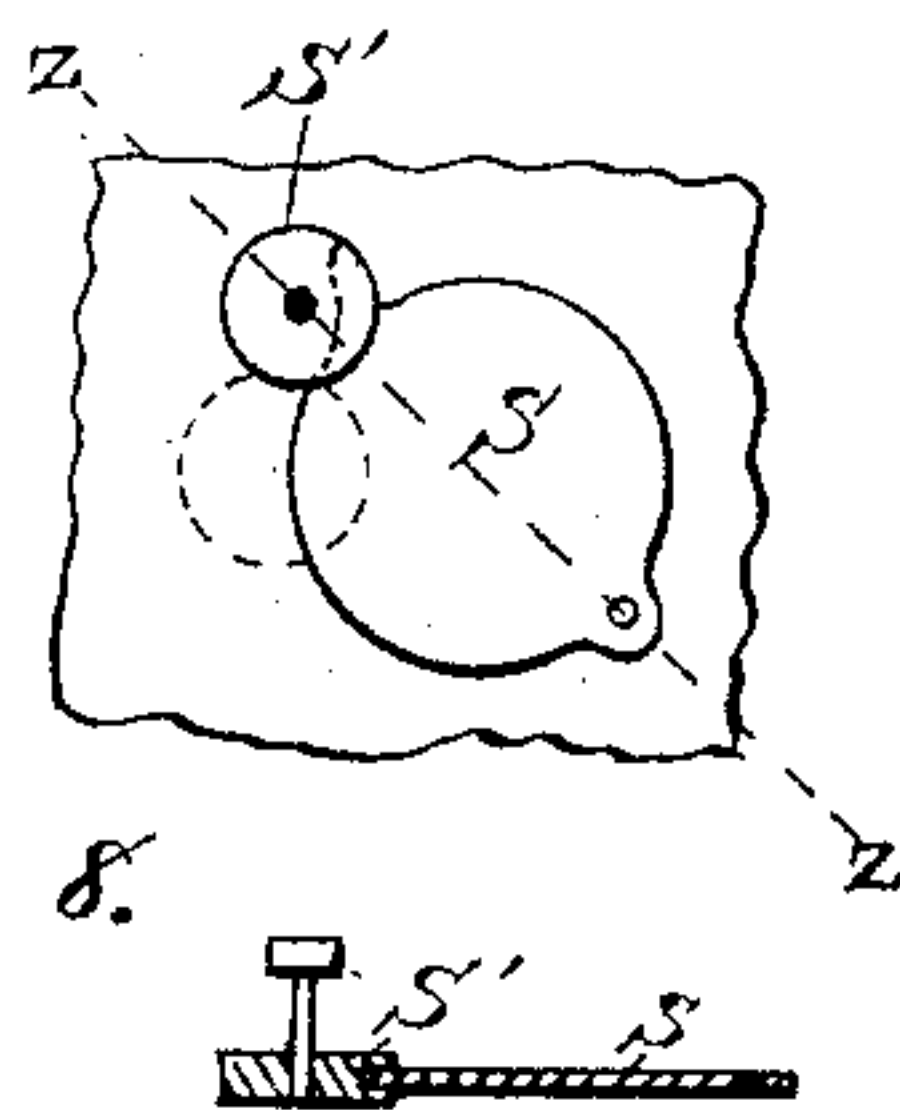


Fig. 8.



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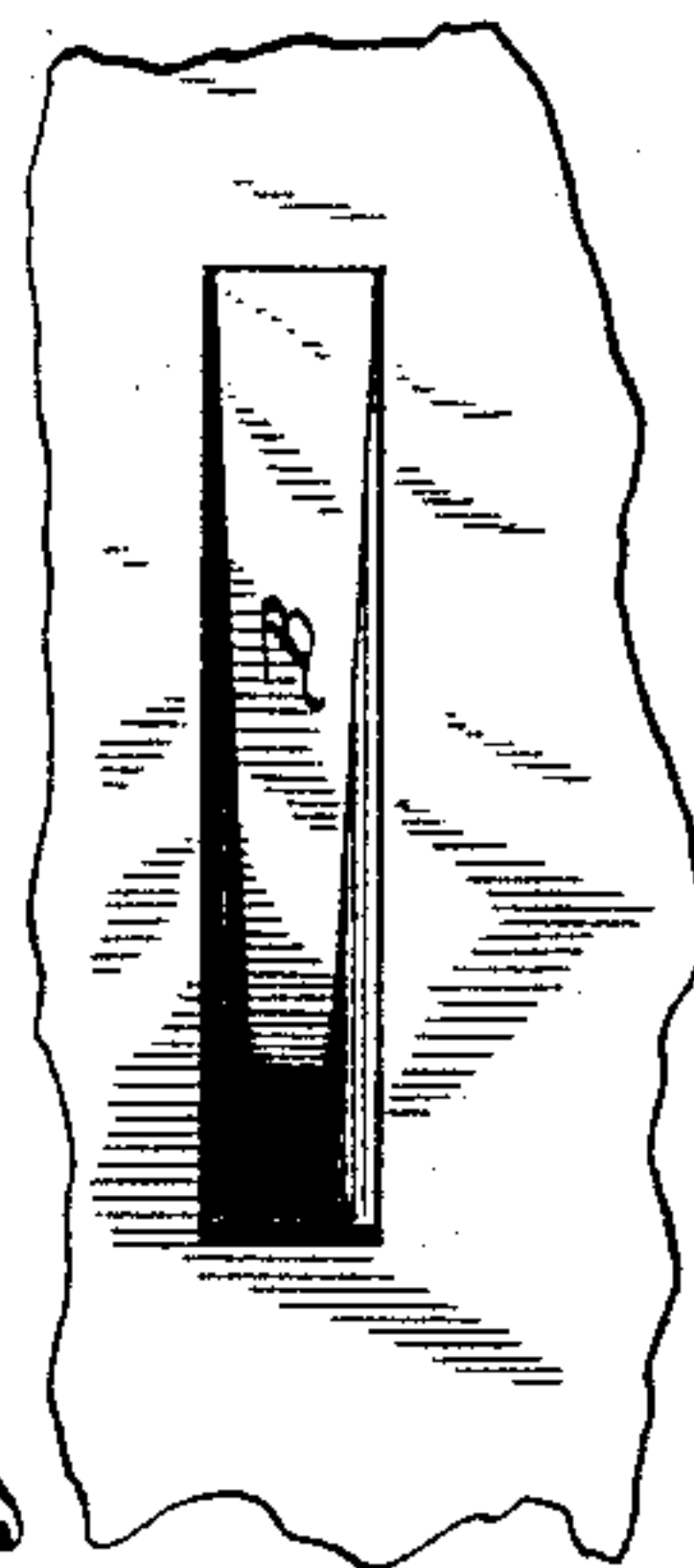
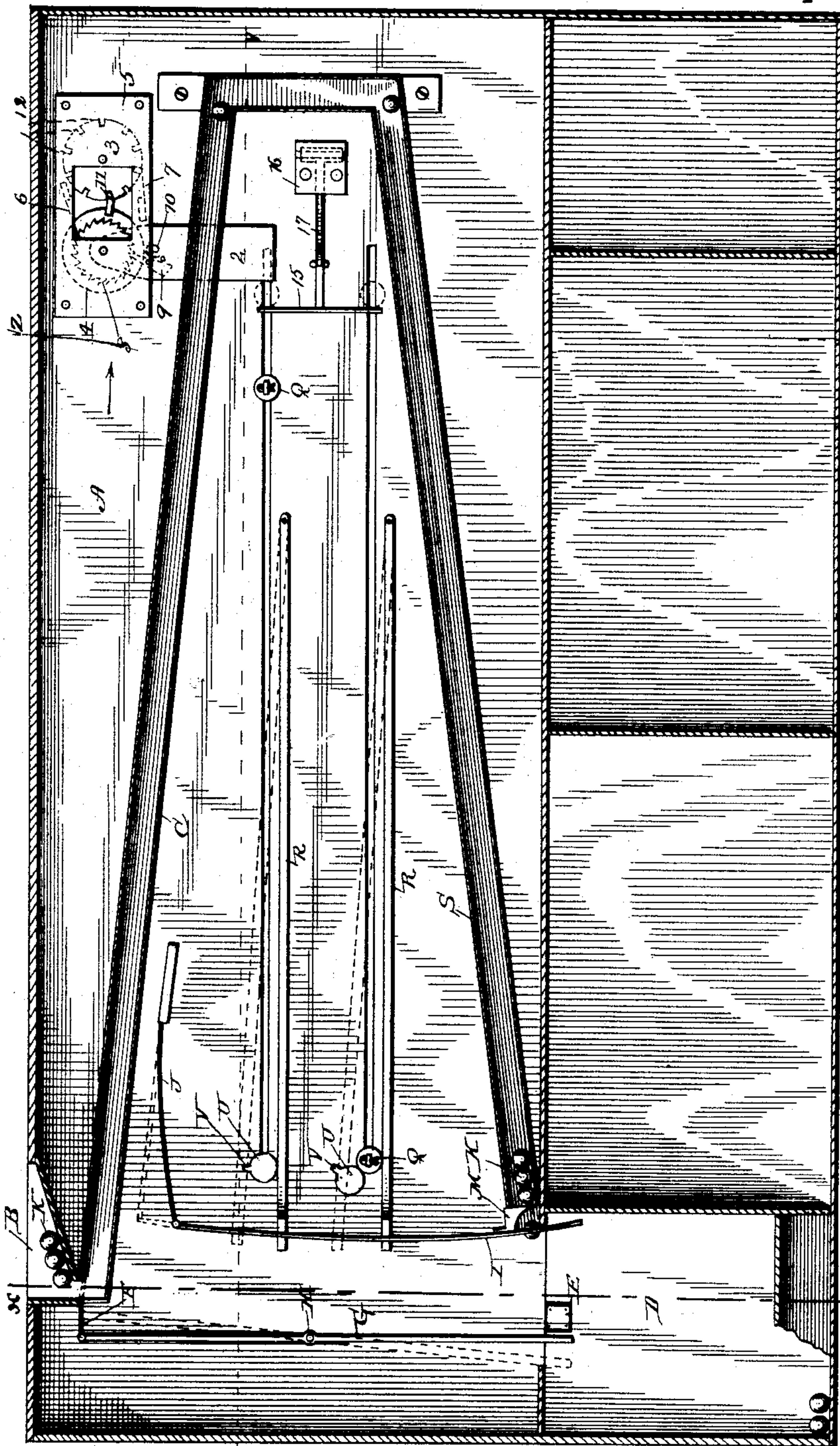
(No Model.)

2 Sheets—Sheet 2.

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Fig. 3

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UNITED STATES PATENT OFFICE.

WILLIAM HUGHES, OF LIVERPOOL, COUNTY OF LANCASTER, ENGLAND.

APPARATUS FOR SCORING BILLIARDS.

SPECIFICATION forming part of Letters Patent No. 410,973, dated September 10, 1889.

Application filed November 30, 1888. Serial No. 292,355. (No model.) Patented in England April 30, 1888, No. 6,363.

To all whom it may concern:

Be it known that I, WILLIAM HUGHES, a subject of Her Majesty the Queen of Great Britain and Ireland, residing at Liverpool, county of Lancaster, England, have invented an improved apparatus for scoring or marking at billiards or other games and for the registering the number of games played, (for which I have obtained a patent in Great Britain, No. 6,363, bearing date April 30, 1888,) of which the following is a specification.

My invention involves both visible and invisible automatic registration of the number of games played by means beyond the control of unauthorized persons. It is fully shown in the accompanying drawings, in which—

Figure 1 is a front elevation of the case containing and embodying my invention. Fig. 2 is a section on the line xx , Figs. 1 and 3, the more distant parts of the device being omitted. Fig. 3 is a section at yy , Fig. 2, looking to the left. Fig. 4 shows in plan a hopper in the top of the box. Fig. 5 is a section at zz , Fig. 3, looking to the right. Fig. 6 is a partial section at vv , Figs. 1 and 3. Figs. 7 and 8 are detail views.

In the drawings, A is a case of suitable form provided with a scale or series of numbers O, arranged in a straight line and suited to the games in the playing of which this apparatus is to be used. Above and below this scale are parallel horizontal slots N, in which slide short bars bearing pointers P, that slide, respectively, over the upper and lower sides of the scale, being pushed along in the usual manner from time to time as points are made. By means of devices inclosed within the case, when either of the pointers reaches the number indicating the completion of the game, it automatically causes the falling of the corresponding one of two disks, normally concealing a like number upon the side of the case. It further causes one of a supply of registering-balls to be discharged into a locked receptacle D, the key of which is in the control of some responsible party. When the upper pointer is returned to zero, a single unit is added to a number displayed at T, so that this number always indicates the total number of games played since the apparatus was set at zero. The pointer-bearing bars, which

slide in the slots N, bear upon their inner ends, and just within the case-wall rollers Q, which actuate most of the movable parts of the apparatus. Each pointer advances as points are added to its score, and when either 55
nears the end of its slot it pushes aside a plate U, fixed to a rotary pin V, passing through the case-wall and having upon its outer end a small disk S', that holds in its grooved edge 60
the otherwise unsupported side of the disk S. The bottom of the groove is eccentric with reference to the axis of the pin, and as the plate U is swung by the advancing roller the deeper portion of the groove is brought next 65
the disk S, and the latter is thereby released, when it falls by gravity, exposing the concealed number. Gravity also restores the plate to its original position when it is freed from the roller. The balls to be dropped suc- 70
cessively into the compartment D are introduced into the case by putting them into a hopper B in its top, whence they pass by gravity down an inclined conduit C until they are stopped by a sliding valve I. The 75
latter is a slightly-curved flat bar hinged at its upper end to a flat spring J, fixed to the wall of the case. Apertures in this bar receive the free ends of two levers R, having their other ends pivoted, respectively, 80
just below the slots N, and which normally cross the slots obliquely, being supported in that position by the spring J. When, however, either pointer advances, its roller Q gradually depresses the corresponding lever, 85
which carries downward with it the bar I and the other lever. As the bar descends, the ball next it is cut off from the remainder by the lip of a block M, fixed to the side of the bar, and passes out through an aperture L, which 90
is brought into the line of the conduit by the bar's descent and drops into the compartment D. When the levers are freed from the rollers, the spring J returns them to their former positions and raises the aperture L above the 95
open end of the conduit. Except when the balls are to be introduced into the conduit, the latter is cut off from the hopper by a plate F, carried upon the upper end of a lever G, pivoted to the case at H, and accessible only 100
when the receptacle D is unlocked. When the upper of the two pointers is returned to

the zero-point, its roller, striking a swinging bar 2, actuates wheels 3 4, Fig. 3, upon the outer face of which numerals are arranged in order, and which are so placed that one figure of each wheel may be displayed at the apertures T, Fig. 1. These wheels are mounted in a frame 5, suspended upon the wall of the case, and upon the axis of the wheel 4 the bar 2 swings freely. A ratchet-wheel 8 is fixed to this wheel, and with its teeth engages a pawl 9, mounted upon the bar 2 and actuated by a spring 10. Evidently the swinging of the bar in one direction rotates the wheel, while during its swinging in the opposite direction the spring 10 yields, and the pawl slips over the teeth, a light spring-pawl 6 at the same time preventing reverse rotation. From the edge of the wheel 4 projects a lug 11, and this once in each revolution of the wheel 4 engages one of a series of notches 12 in the margin of the wheel 3 and rotates the latter through the angular space of one of the figures thereon and then releases it. A pawl 7, similar to the pawl 6, prevents reverse rotation. When the parts are properly proportioned, each vibration of the bar 2 moves the wheel 4 through the space of one figure thereon, and the motion that brings to view the last of the unit-characters 0 at the aperture T adds one to the tens exhibited at the adjacent aperture.

To prevent unauthorized use of the apparatus for scoring, devices shown in Figs. 3 and 6 are employed. The rollers, being carried back nearly to the zero-point, are prevented from again advancing by a T-shaped bar 15, pivoted in a block 16 upon the case-wall, and normally held in the path of the rollers by a spring 17. When the rollers are to be released, a key 18 is thrust through a suitable aperture in the case-wall against the T-bar, swinging it out of the path of the rollers. The key is then turned ninety degrees, bringing a bar 19 into position transverse to the key-aperture to prevent the retraction of the key, and leaving the rollers free as long as the key remains in this position.

What I claim is—

1. The combination, with the closed case, the scale thereon, and the pointers sliding over the scale to register points made, of a visibly-registering device and a registering device concealed within the case, each actuated by the movement of a pointer to the limit of its path, substantially as set forth, whereby

the games completed are registered both visibly and secretly by means beyond the reach of the players or other unauthorized persons.

2. The combination, with a closed case provided with an external point-scoring scale and having its walls slotted parallel to said scale, of bars sliding in the slots, respectively, pointers fixed to the outer ends of the bars to pass along the scale, numbers upon the exterior of the case, pivoted disks normally concealing said numbers, and means whereby each bar, when pushed to its limit, may release the corresponding disk, allowing it to fall and display the concealed number beneath, substantially as set forth.

3. The combination, with the closed case provided with the hopper at the top and the locked compartment at the bottom, of the hopper-slide and its lever operated only from said compartment, the downwardly-inclined conduit leading from the hopper to a point above the compartment, the perforated spring-supported valve-bar closing the lower end of said conduit, the balls lying in said conduit, the cut-out block secured to the valve-bar, and the scoring-pointers automatically actuating said valve-bar when pushed forward in scoring, substantially as set forth.

4. The combination, with the case provided with the scale and the parallel slots upon each side thereof, of the bars sliding in the slots, respectively, the pointers upon the outer ends of the bars, the rollers upon the inner ends of the bars, the pivoted spring-actuated T-shaped bar normally obstructing the path of the rollers, and the key adapted to hold said bar out of its normal position, substantially as set forth.

5. The combination of the case, the ball-conduit therein, the balls moving freely in the conduit, the spring-supported valve-bar closing the exit from said conduit, the locked compartment below the exit, the external scale upon the case, the pointers passing along the scale, the internal rollers carried with the pointers, and the oblique pivoted levers crossing the path of the rollers and engaging said valve-bar, substantially as and for the purpose set forth.

Dated this 30th day of October, 1888.

W. HUGHES.

Witnesses:

ARNOLD HUGHES,
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