(No Model.)

J. J. GLEASON.

AUTOMATIC BILLIARD REGISTER.

No. 301,714. Patented July 8, 1884.

Fig. 1.

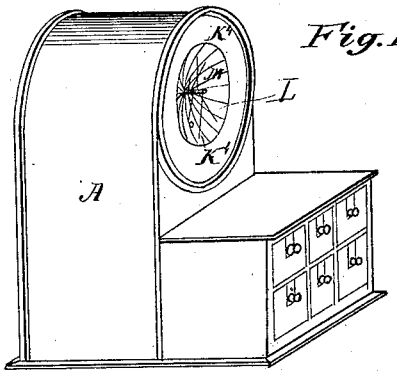


Fig. 4.

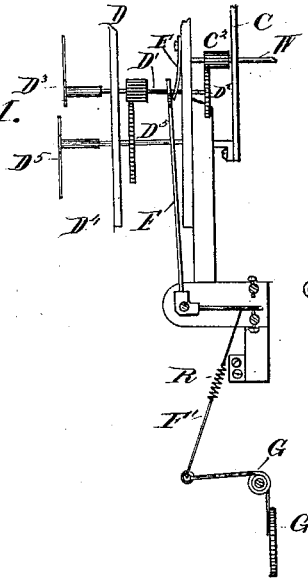


Fig. 7.

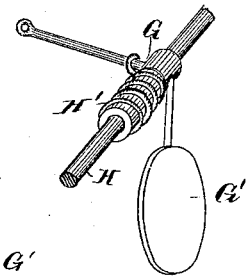


Fig. 3.

Fig. 5.

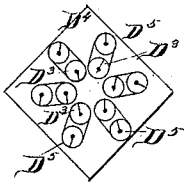
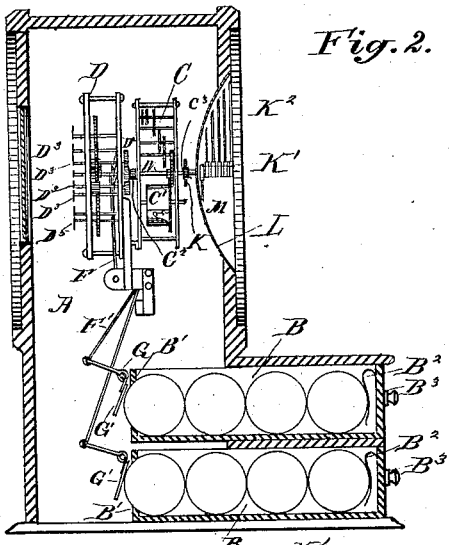


Fig. 2.



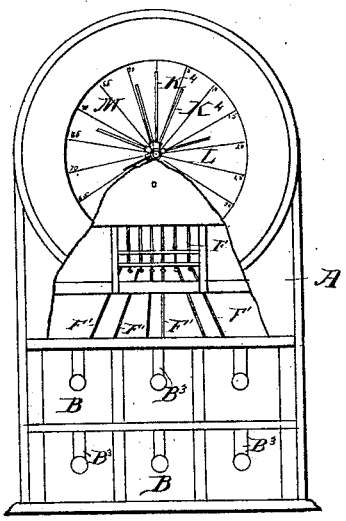
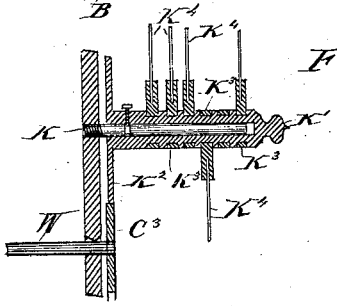


Fig. 6.



Witnesses.

Alfsteiger.

G. M. Wordeck.

Inventor.

Joseph J. Gleason

By David A. Burr

Attorney.

UNITED STATES PATENT OFFICE.

JOSEPH J. GLEASON, OF NEW YORK, N. Y.

AUTOMATIC BILLIARD-REGISTER.

SPECIFICATION forming part of Letters Patent No. 301,714, dated July 8, 1884.

Application filed October 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH J. GLEASON, of the city, county, and State of New York, have invented new and useful Improvements in Automatic Time and Money Registers; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to an improved indicator and register for use in connection with billiard-tables, and has for its object the construction of a machine which will automatically indicate and register the time during which each set of billiard-balls is in use, and the amount in dollars and cents due therefor, or either.

It consists in combining with a series of sliding drawers or other convenient receptacles within which the billiard-balls are to be stored when not in use, and with a suitable clock-movement, one or more sets of index-hands revolving over suitable dials, and a series of levers interposed between the movement and the drawers in such a manner as that the removal or replacement of the balls from or into any one drawer shall, by means of its lever, operate to throw the appropriate index-hand in or out of gear with the moving mechanism, and also in an improved construction and arrangement of the dials, as hereinafter fully described.

In the accompanying drawings, Figure 1 is a perspective view of my improved register. Fig. 2 is a central vertical section of the same. Fig. 3 is a front view thereof, having the case partially broken away to show the interior. Fig. 4 illustrates one of the movable spindles operating in connection with its levers to throw the index-hand into or out of gear. Fig. 5 is an elevation of the index-dials detached; Fig. 6, a horizontal longitudinal section of the spindle carrying the time-pointers corresponding to each drawer detached, and Fig. 7 a perspective view on an enlarged scale of one of the bell-cranks with its operating-spring detached.

A represents the case of my improved billiard-register and time-keeper; B B, a series of drawers mounted in the lower part of the case, and constructed each of a depth and width sufficient to receive in a row a set of billiard-balls. The rear end, B′, of each drawer is cut away to allow the rearmost ball in the set to project outwardly, the ball being held in this projecting position so long as all the balls of the set are in the drawer by means of a spring, B^2, placed within the front end of the drawer, to bear against the forward ball and force the set rearward. Each drawer is provided with a latch or lock, B^3, to retain it in place when closed. The bottom of the drawer may be made sloping toward the front end to facilitate the removal of the balls.

Within the case and above the rear end of the drawers is mounted, in a suitable frame, a clock-movement or train of wheels, C, actuated by a coiled spring, C′, and regulated by a scape-wheel and balance or a pendulum. The main spindle W of this train of wheels projects at each end out beyond its supporting-frame, and upon its projecting ends are fitted, respectively, the pinions C^2 C^3.

In the rear of the clock-movement C, and within the case A, a frame, D, is secured, within which are mounted a series of parallel longitudinally-reciprocating spindles, D′ D′, corresponding in number with the drawers B B, and each of which projects both at the front and rear of the frame D. The end of each spindle projecting next to the clock-movement is fitted with a toothed wheel, D^2, adapted to mesh into the pinion C^2, on the end of the main spindle of the movement when carried forward into line therewith, so as to derive motion therefrom, but which, when the spindle is moved backward through its bearings, will clear the pinion C^2 on the moving train and will then remain at rest. Upon the opposite end of each spindle an index-hand, D^3, is fitted to revolve over a dial-plate, D^4, (see Fig. 5,) formed upon the rear face of the frame, and which is inclosed within the case, so that it may be locked up therein. The dials upon this dial-plate may be marked to indicate either the time during which the hands are moving or the amount in dollars and cents properly due for the use of a set of balls during that time. Each index-hand is secured to its spindle by means

of a friction-collar, so that while it shall move with the spindle it may nevertheless be turned thereon independently to admit of being set. Each spindle D′ may be geared to actuate one or more additional spindles, D^5, each carrying an index-hand to travel over a secondary dial upon the dial-plate D for the purpose of indicating the number of complete revolutions of the first spindle. The longitudinal movement of each spindle and its toothed wheel D^2 is effected in one direction by means of a spring, E, adapted to engage an annular groove in the body of the spindle. The resiliency of this spring tends to throw the spindle out of gear with the main spindle W of the clock-movement into a position of rest. The movement of each spindle in the opposite direction is effected by means of a bent lever, F, (see Fig. 4,) pivoted to a suitable support below the frame D, the upper arm of the lever being made to bear against the spring E of the spindle to retract it, while its opposite arm is connected by means of a light rod, F′, with the outer arm of a bell-crank, G, pivoted at the rear end of one of the drawers in the lower part of the case. The bell-crank G is pivoted upon a shaft or pin, H, about which a spiral spring, H′, is coiled, so that the resiliency shall operate to depress the outer arm and acting through the connecting-rods F′ and the bent lever F, thereby serve to throw forward the spindle engaged by the lever F, so that its toothed wheel D^2 shall engage the pinion C^2. Each bell-crank is so pivoted with reference to the rear end of its appropriate drawer as that when the latter is closed, with its sets of balls in place therein, the surface of the innermost ball projecting through the opening in its rear end will press against the inner or downwardly-projecting arm of the bell-crank, and, overcoming the tension of the spring H′, will force said arm backward and elevate the outer arm, and by means of the connecting-rod F′ will relieve the spring E from the pressure thereon and allow its resiliency to come into play to move back the spindle engaged thereby, so as to throw its wheel D^2 out of gear with the pinion C^2. The lower arm of each bell-crank G is preferably, although not necessarily, fitted with a disk or plate, G′, to afford an extended bearing against which the projecting ball in the drawer may act. Each separate drawer is connected by means of a separate bell crank and lever with its appropriate spindle and index-hand, although all of the spindles are adapted to gear into and be rotated as described by the train-spindle of the one clock-movement or driving-train. A recess, M, preferably concaved, is formed in the front of the case over the clock-movement therein, within which is fixed centrally a spindle, K, Fig. 6, to project therefrom at a right angle to the face of the case, and upon this fixed spindle is mounted a tubular shaft, K′, adapted to rotate upon the spindle, and which is fitted at its inner end with a pinion, K^2, gearing into a pinion, C^3, upon the end of the main spindle W of the clock-movement, so as to derive its motion therefrom.

Upon the tubular shaft K′ are fitted a series of frictional collars, K^3 K^3, each carrying an index-hand, K^4, and each adapted to embrace the shaft so closely as to be made to rotate therewith by frictional contact, so that while these friction-collars allow the hands to be moved back and forth around the spindle K, they will insure their revolution in unison with the revolution of the shaft K′. Behind these hands K^4 K^4 is placed a dial, L, which may be divided either to denote time or dollars and cents. The number of the index-hands K^4 K^4 corresponds with the number of drawers B in the case—one for each.

In the use of my apparatus, the clock-work being set in motion and the balls being all in place in their respective drawers, the rear ball in each drawer, projecting through the rear end thereof, will press against the lower arm of its appropriate bell-crank, and, acting through the crank, its connecting-rod, and the upper lever actuated thereby, will relieve the spring E from pressure and allow it to move back the spindle engaged thereby, and consequently disengage its toothed wheel D^2 from the pinion on the driving-spindle. The index-hands on the spindle, thus disengaged or thrown out of gear with the driving-train, may now be each set at zero, and they will remain at rest at this point so long as the balls remain in the drawers. If, now, any one of the sets of balls be removed from its drawer for use, thereby removing the pressure upon the arm G′ of its bell-crank, the spring H upon this crank will be left free to turn it, and its force will be brought to bear through the connecting-rod F′ and the upper lever, F, against the spring E to overcome it and to force its spindle and toothed wheel D^2 forward into gear with the pinion C^2 of the driving-train. The spindle will thus be set in motion and will continue to move until the balls taken from the drawer are replaced, the extent of its movement being indicated by the revolution of its index-hand over the dial in the rear. If, when any set of balls are thus removed for use, the front index-hand, K^4, before the large dial L, appropriate to that set, be turned to zero, it will move forward in unison with the movement of the clock-work, so that the attendant can at any time see at a glance how long the particular set of balls has been used, or, if the dial be so graduated, the amount due for their use, the same being determined by the time during which the balls are out of the drawer. The index-hands D^5 D^5, if not set to zero after each usage of the balls, will always indicate the sum of all the intervals of time during which the balls have been used since they were last set, and will therefore form a check for the proprietor over the attendant in charge of the room.

To avoid the shock or strain upon the spin-

dle which the sudden withdrawal or replacement of the balls might otherwise produce, I interpose a spring, R, in the length of the connecting-rod F′, to take up and ease any sudden pull or pressure thereon. By causing the main spindle W of the clock-movement to rotate with the speed desired for the movement of the index-hands D^3, and gearing the spindles of said index-hands to the main spindle, so as to impart to the latter a rate of rotation equal to the former, the main spindle itself may be prolonged to receive the front adjustable index-hands, K^4 K^4; and the fixed spindle K, the tubular shaft K′, and gears K^2 and C^3 be dispensed with.

It is evident that instead of causing the spindles of the index-hands to be thrown in and out of gear with the clock-movement by means of a longitudinal reciprocation of the spindles, the spindles may be adapted to remain stationary and to be geared to the clock-movement by means of a friction-clutch or other of the many well-known mechanical devices for this end which may be adapted to be moved by the weight or pressure of the balls in the drawer, or of a spring bearing thereon, transmitted thereto through the intervention of suitable mechanism, and that a variety of devices for this purpose will suggest themselves to any skilled mechanic.

I claim as my invention—

1. The combination, with a receptacle for brilliard-balls and with a suitable clock-movement, of a rotating spindle carrying an index-hand over a suitable dial, and adapted to be automatically thrown into gear with the clock-movement, to rotate in unison therewith by means of a spring or its equivalent, and to be automatically thrown out of gear by the superior weight or pressure of a set of billiard-balls placed in said receptacle, or of a spring bearing upon said balls, transmitted to the gearing of the spindle by means of interposed mechanism, substantially in the manner and for the purpose herein set forth.

2. The combination, with a receptacle for billiard-balls, a clock-movement, and an index-hand carried by a spindle automatically thrown into gear with the clock-movement by a spring or its equivalent, and out of gear therewith by the pressure of the balls placed in said receptacle, of a second index-hand carried by and admitting of independent rotation upon a second spindle geared to said clock-movement, substantially in the manner and for the purpose herein set forth.

3. The combination, with a series of drawers or receptacles for billiard-balls, a case containing the same, and a clock-movement supported by or upon said case, of a series of index-hands corresponding in number with the receptacles in the case, all mounted upon a common shaft or spindle driven by the clock-movement, to rotate therewith over a common dial-plate, and each of which admits of being moved independently of the other upon said spindle, substantially in the manner and for the purpose herein set forth.

4. The combination, with a drawer or receptacle for billiard-balls, and with a clock-movement supported in the case or frame carrying said drawer, of a spring in the forward end of the drawer, an opening in the rear thereof, a spring-actuated bell-crank pivoted so that one arm thereof shall bear against said opening when the drawer is closed, a bent lever interposed between the bell-crank, and a spindle adapted to gear with the clock-movement, a connecting-rod coupling the bell-crank and one arm of the bent lever, a spring bearing against the opposite arm of said lever, and adapted to throw the spindle out of gear with the clock-movement when released from the pressure of said lever, and an index-hand mounted upon the end of said spindle, to revolve over a suitable dial, all substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH J. GLEASON.

Witnesses:
A. B. MOORE,
A. W. STEIGER.