

(No Model.)

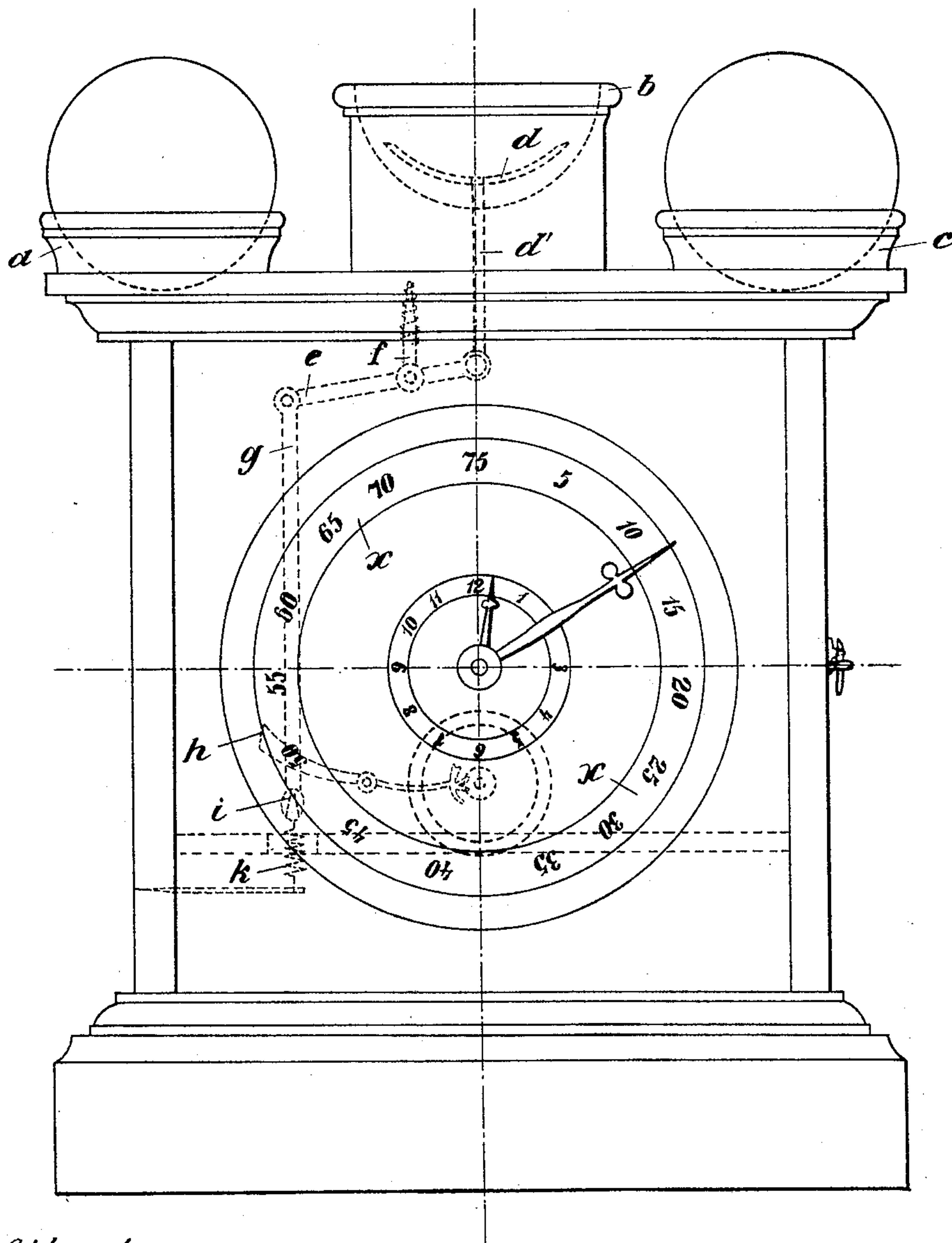
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H. VON LEESEN.
TIME REGISTER FOR BILLIARDS.

No. 532,568.

Patented Jan. 15, 1895.

Fig. 1.



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(No Model.)

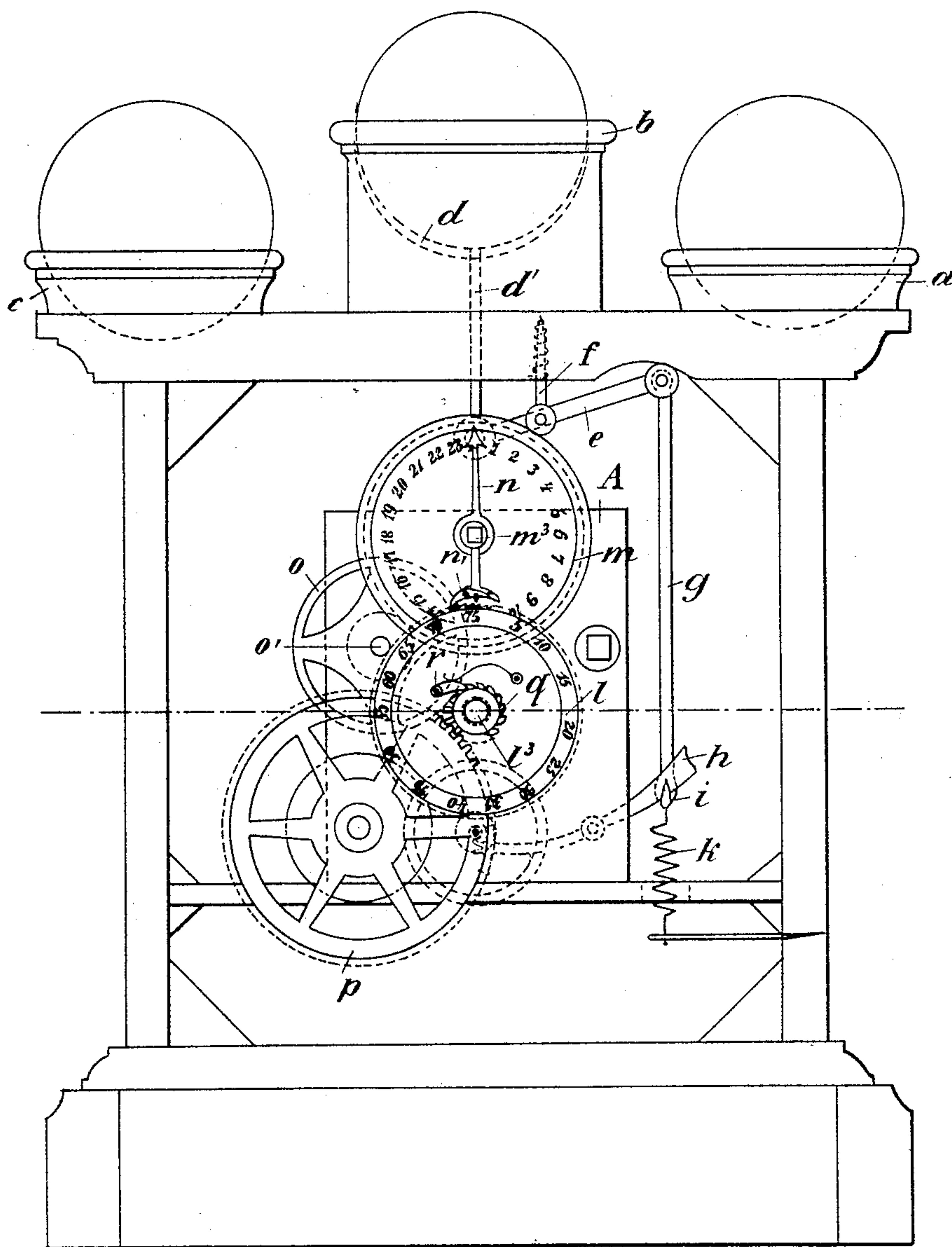
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Fig. 2.



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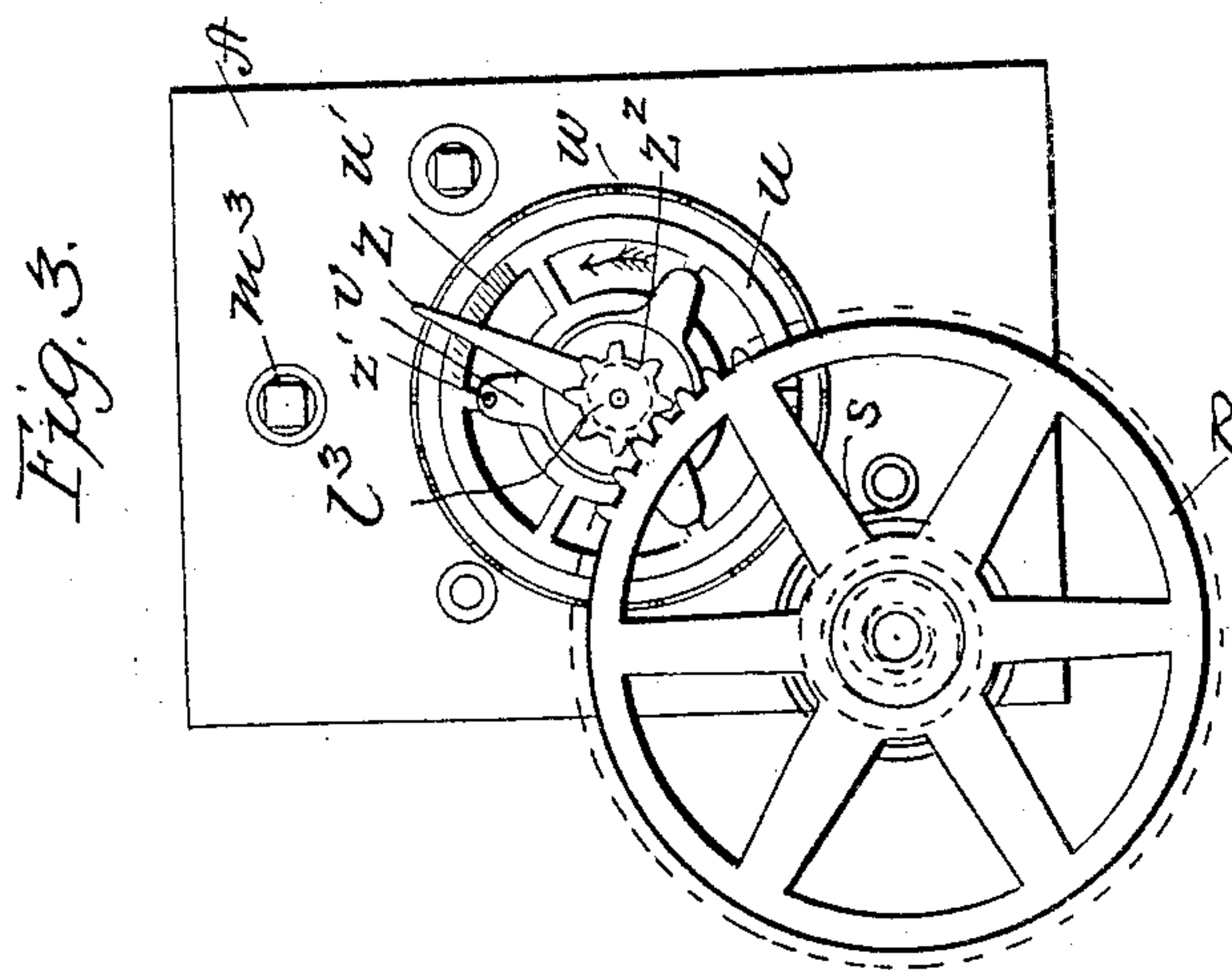
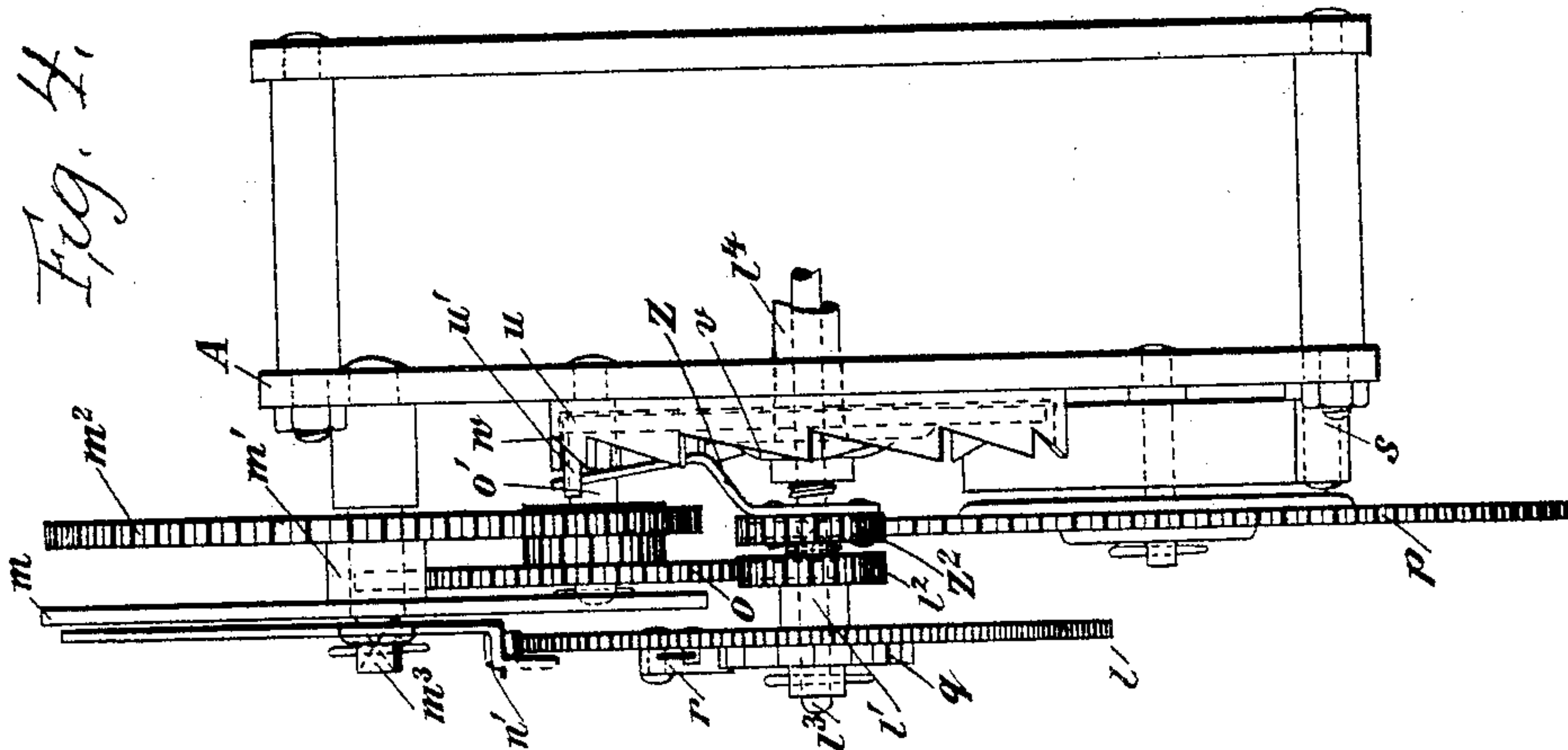
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UNITED STATES PATENT OFFICE.

HEINRICH VON LEESEN, OF VOSSKATHE, NEAR ITZEHOE, GERMANY.

TIME-REGISTER FOR BILLIARDS.

SPECIFICATION forming part of Letters Patent No. 532,568, dated January 15, 1895.

Application filed May 1, 1893. Serial No. 472,550. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH VON LEESEN, of Vosskathe, near Itzehoe, in the Kingdom of Prussia and German Empire, have invented
5 new and useful Improvements in Time-Registers for Billiards, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in
10 apparatus for indicating the time taken in playing the game of billiards and the charge payable therefor, and consists of an apparatus for containing billiard balls and for indicating the time during which such balls
15 are absent from the container, whereby a record is obtained of the time during which such balls are in play without the services of an attendant being required.

In the drawings hereto annexed:—Figure
20 1 shows a front elevation of the apparatus. Fig. 2 is a back view of same, the back of the case having been taken off, in order to afford a clear view of the arrangement of the inner mechanism. Fig. 3 is a front view of the essential parts of the mechanism, fitted to the
25 back plate A. Fig. 4 is a side view of the same considerably enlarged.

The apparatus principally consists of a
30 clock-work provided with a balance wheel escapement. The works are contained in a wooden case, upon which there are three cups *a*, *b* and *c*, which serve for holding the billiard balls. If the balls are in their cups, the weight of the ball which is in cup *b* stops
35 the clockwork. This stoppage of the clockwork is brought about in the following manner: In the cup *b* (Figs. 1 and 2) there is a movable plate *d*. If a ball is put into the cup, it presses the plate *d* down to the bot-
40 tom of the cup by means of its weight. When the plate *d* moves downward, the bar *d'* pushes the lever *e*, which is attached to it by means of a pin joint, and which has its fulcrum in the screw *f* which is made fast to the
45 top of the case, downward, and the opposite end of the lever *e* moves upward and raises the bar *g*. The bar *g* at its lower end has a hook *i*, which, upon the said bar moving up-
50 ward engages with the counter balance weight end of the clockwork escapement lever *h*, which causes the clock to stop. If the plate *d* is relieved of the weight on it by the

ball being removed, it is again pushed up-ward by a spiral spring *k*. At the same time the escapement lever is released by the hook
55 *i* (Figs. 1 and 2) and the clock again starts going.

The face (Fig. 1) of the charge dial *x* bears a number of numerals which indicate the prices payable for the hire of a billiard table
60 and balls for various periods.

In the smaller circle of numerals are indicated the hours, 1 to 12. As the charge for the use of a billiard table and balls per hour varies in every establishment, the charge
65 dial *x* is so arranged that it can be exchanged for others.

In Fig. 2 are shown the internal numeral disks *l* and *m*, which turn on the axes *l*³ and *m*³ and which are not visible on the outside of
70 the apparatus. The disk *l* is, at its circumference, provided with ratchet teeth, and on its surface with a number of numerals indicating the charge for the use of the billiard table. A pawl *n'* gears into the teeth of the
75 disk *l*. This pawl is attached to the lower end of the fixed pointer *n*, and is kept in gear with the disk *l* by means of a spring, for the purpose of keeping the disk *l* from going
80 back. The ratchet wheel *q*, is fixed to the shaft *l*³ by means of a pin. When the shaft *l*³ turns, the teeth of the ratchet wheel, *q* gear with the pawl *r* attached to the disk *l*, and thereby cause the disk to turn with the shaft.
85 The larger outside pointer indicating the charge, and the disk *l*, move forward from number to number with an intermittent motion, whereas the small hand, showing the time, moves continuously while the clock is
90 working.

The mechanism which causes the periodical advance of the large hand as well as of the disk *l*, consists of the following parts: On the shaft *l*⁴, which is bored hollow from end
95 to end, and through which the shaft *l*³ passes, the disk *u* is loosely fitted and bears upon same with gentle friction, which is provided by the tripod spring *v* held by the screw-nut *z'*. The shaft *l*⁴ is driven continuously as long as the balls are removed from the recep-
100 tacle, by any suitable clock mechanism, which causes the small hand to travel over the small dial at the proper rate to indicate the time the balls are in use, and in its movement, the

said shaft carries with it, the disk u , due to the frictional contact before referred to. On the disk u the cam u' is arranged. The function of this cam is to disengage the spring arm z (which, as well as the pinion wheel z^2 , is firmly fixed on the shaft l^3), when such arm z lays itself behind one of the teeth of the fixed rack w . The disk u , which, as already mentioned is carried loosely on the shaft l^4 , with gentle friction, turns round with this shaft, and the cam u' is pushed in under the spring arm z , and gradually raises it so high that it can slip over the tooth against which it was hitherto lying, and then it lays itself against the next tooth. This is repeated as long as the clock is going. The advance of the spring z and the pinion wheel z^2 is brought about by the wheel p , and as the pinion wheel z^2 and the spring arm z are firmly fitted to the shaft l^3 , the large pointer as well as the disk l' advance synchronously therewith. The wheel p is driven by means of the spring s . When the spring arm z is lifted by the cam u' over the point of the tooth which prevents it from advancing, it advances by one tooth, but by one tooth only, as the arm z , being no longer lifted by the cam u' has gone back into its original position on account of its elasticity. By means of the tooth wheel o which turns on the fixed shaft o' , motion is suitably transmitted to the disk m . The wheel o gears with the wheel l^2 which is connected to the disk l by means of the collar l' , and motion is transmitted to the disk m , by the wheel m^2 (connected with the disk m by means of the collar m') gearing with the wheel o . The wheel o is necessary here, because the disks l and m do not turn at the same speed.

After the play is completed and when the hands have advanced until they have reached their final position, it is necessary to bring the hands of the clock back again into their original position. This final position is at the figure 75, as regards the large hand, and at 12 for the small hand. When the hands are in their former position, the disks l and m have also resumed their former position. The pinion wheel z^2 fitted on shaft l^3 and connected with spring z , turns back the tooth wheel p by so much as it has previously advanced, when the shaft l^3 is moved backward by means of the hands being turned back. As the spring s is hooked onto the arbor of the wheel p (Fig. 3), the spring is rewound when the wheel is turned back. The spring z , firmly connected with the pinion wheel z^2 , must also join in the backward movement. In doing so it slides over the oblique faces of the teeth of the rim w , and becomes hooked behind the cam u' , and draws the disk u back with it. On this account it is necessary to arrange the disk u with gentle friction on shaft l^4 .

In operation, before commencing to play, the balls are removed from their cups and the clockwork is released. The disk u which is

fitted on the shaft l^4 with gentle friction, disengages the spring arm z by means of its cam u' . The spring (forced to do so by the wheel p provided with the spring s) moves forward by one tooth of the fixed rack w , and with it of course goes the shaft l^3 , because it is fixed thereto, and with the shaft moves the hands. Of the latter the small one, on account of its direct connection with shaft l^3 , moves in a suitable manner by means of the train wheels which are in every clock, and thereby the disk l , which is coupled with the shaft by means of the ratchet wheel q , and the pawl r , is also moved on. After finishing playing the balls are replaced in their cups, whereby the clock is stopped, and shows at a glance how long the game has lasted, and what is to pay for the hire of the balls and table. When this has been done the hands are turned back into their original position.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A register for billiards comprising a ball receptacle, a time indicator operating continuously, while the balls are in use, a charge indicating mechanism operated step by step by said clock mechanism, and connections whereby the placing of the ball in the receptacle will stop the said clock mechanism substantially as described.

2. A register for billiards comprising a ball receptacle, a time indicating hand on the front of the register, driven continuously while the balls are in use, a charge indicator at the front and rear of the register, having step by step movement controlled by said time indicating mechanism, and connections whereby the weight of the ball in its receptacle will stop said indicating mechanism substantially as described.

3. A billiard register comprising a ball receptacle, a time indicating mechanism released by the removal of the ball from said receptacle, a charge indicating mechanism held normally against movement, means for driving said charge mechanism, and connections from the time mechanism for releasing the charge mechanism and permitting it to be rotated step by step, substantially as described.

4. In a billiard register, a casing having a series of cup shaped receptacles for the balls, a rod projecting up into one of said receptacles under spring tension and adapted to be depressed by the weight of the ball, time and charge indicating mechanism, and connections from the said rod whereby the removal of the ball will start said mechanism and replacing the ball will stop the movement thereof, substantially as described.

In witness whereof I hereunto set my hand in presence of two witnesses.

HEINRICH VON LEESEN.

Witnesses:

PAUL FISCHER,

HEINRICH GLUNISKY.