

A. M. LANE.
PENDULUM BEAT ADJUSTER.
APPLICATION FILED AUG. 24, 1904.

Fig. 5.

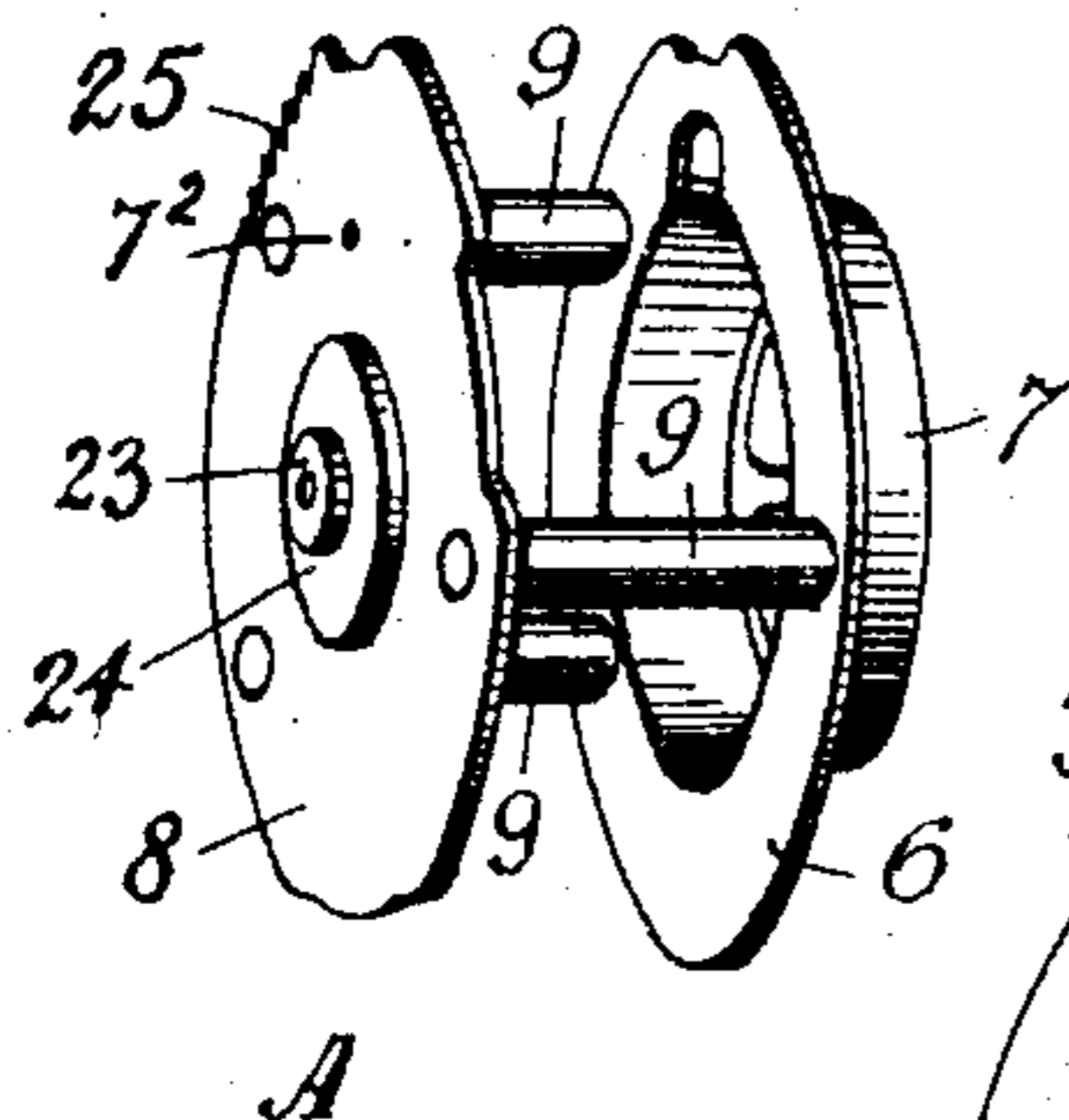


Fig. 1.

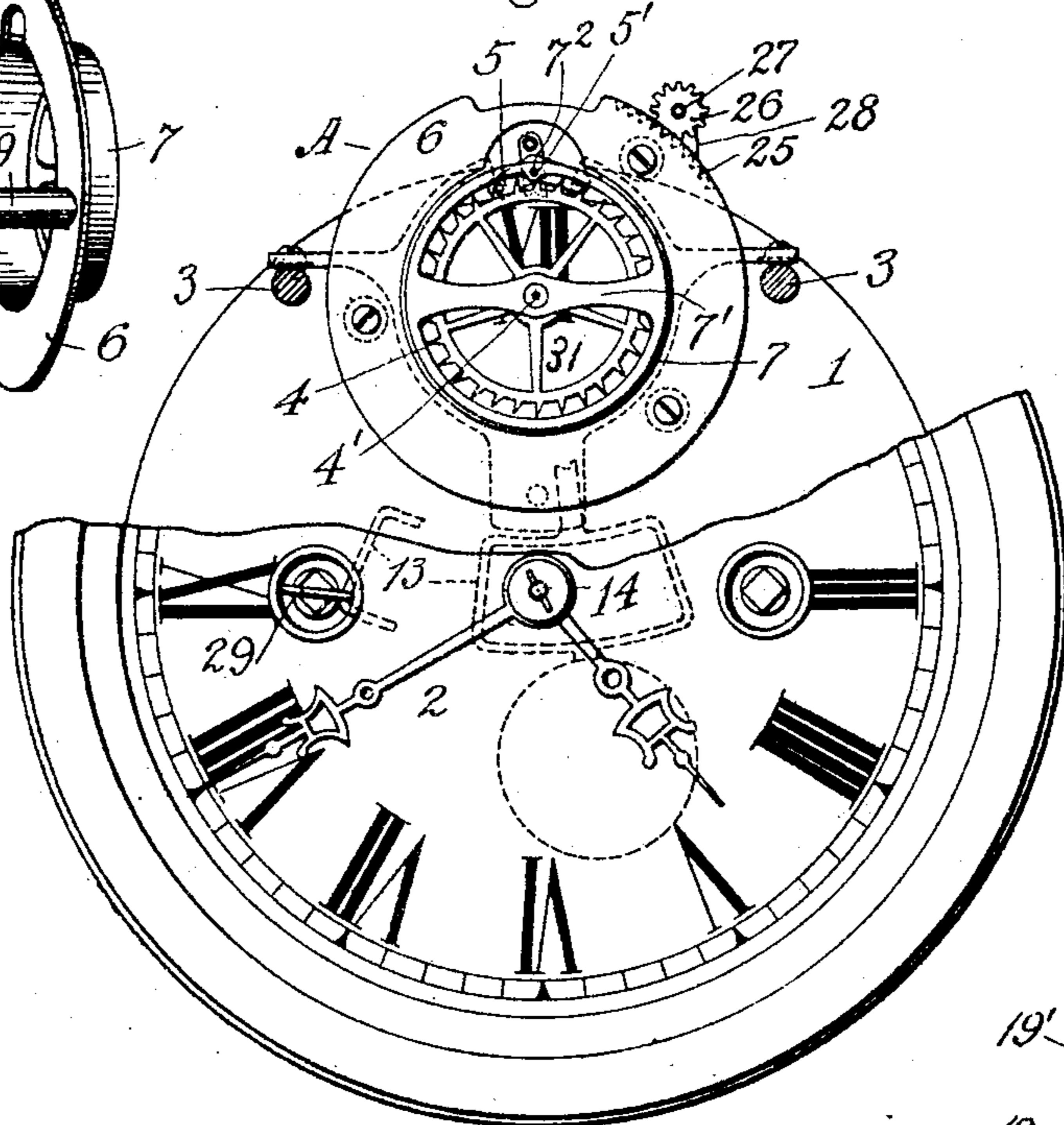


Fig. 2.

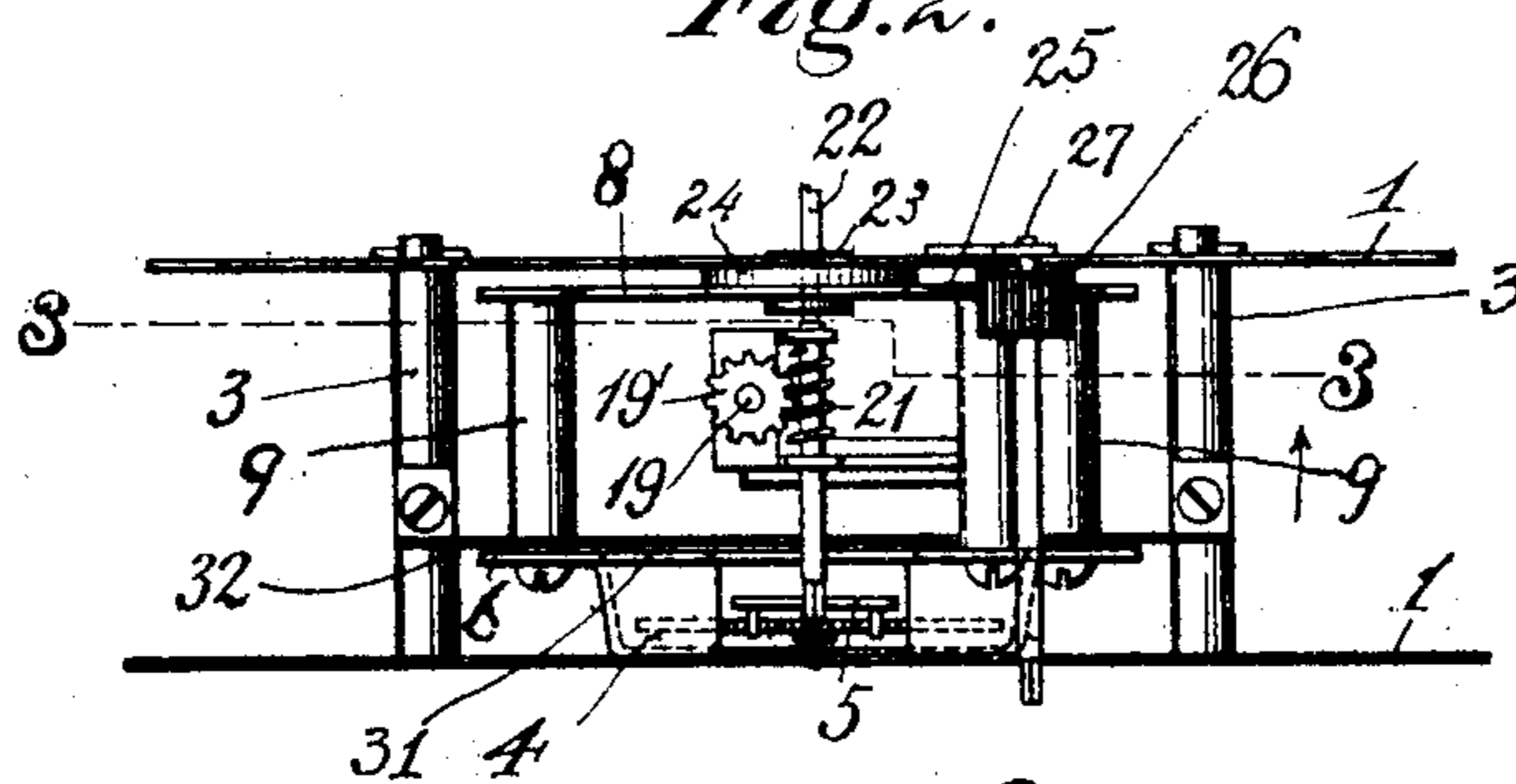


Fig. 3.

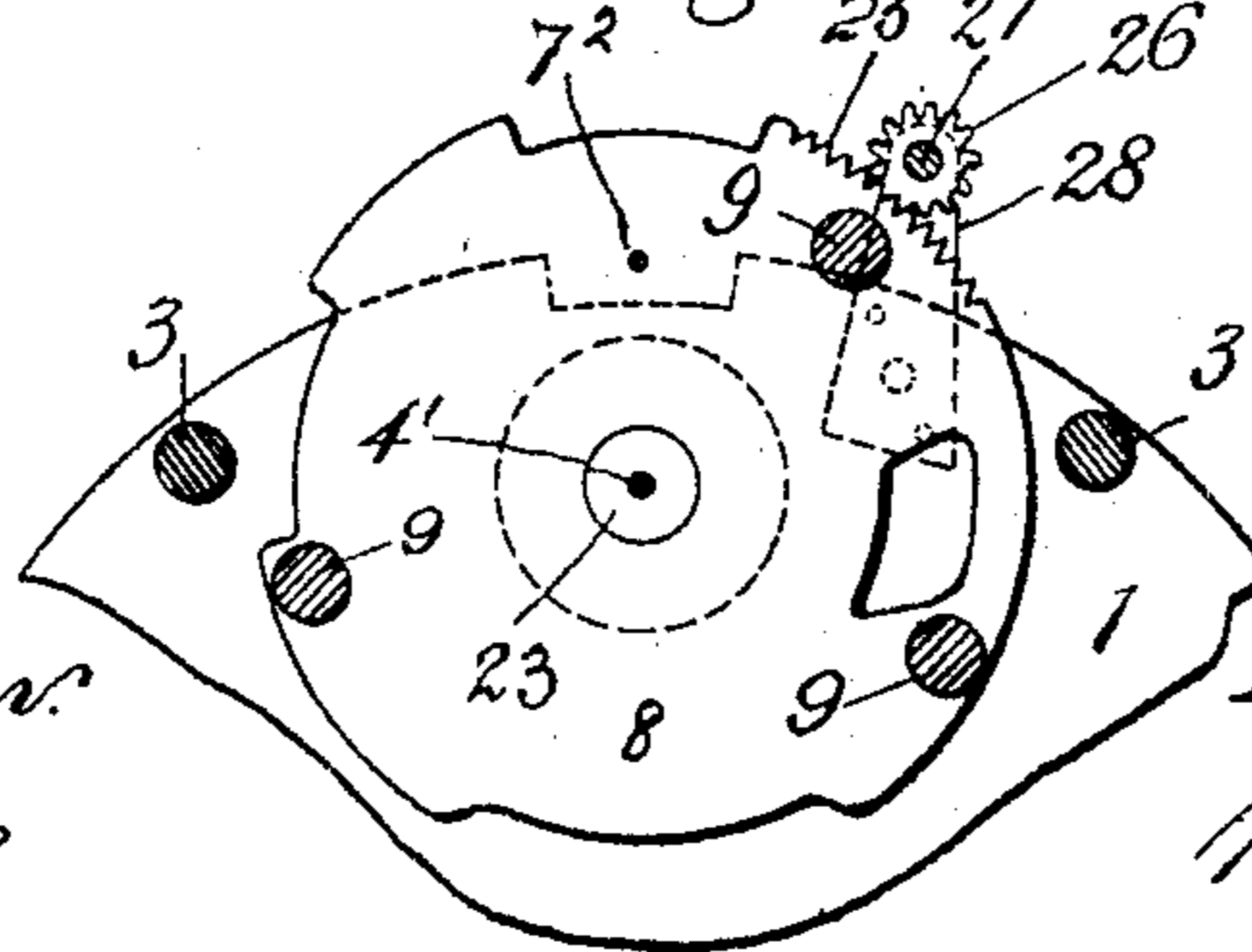
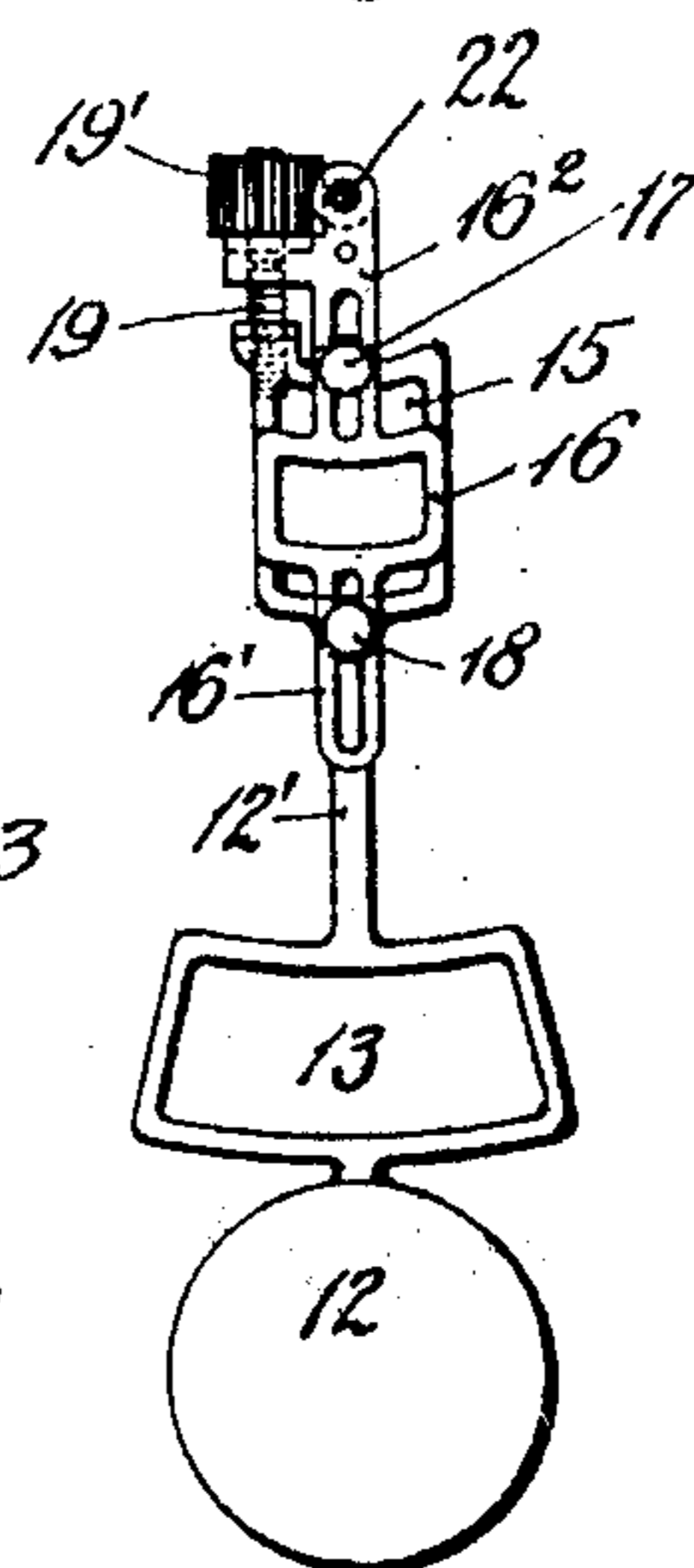


Fig. 4.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

ALMERON M. LANE, OF MERIDEN, CONNECTICUT.

PENDULUM-BEAT ADJUSTER.

No. 798,042.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed August 24, 1904. Serial No 221,922.

To all whom it may concern:

Be it known that I, ALMERON M. LANE, a citizen of the United States of America, residing at Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Beat-Regulators for Pendulum Timepieces, of which the following is a specification.

My invention relates to timepieces, and has for its object the provision of means for so actuating the escapement-wheel, pallet, and pendulum that the pendulum may be retained in proper beat should the timepiece be on a non-level support.

A further object of the invention is the provision of a pivoted frame for so regulating the parts controlling the swing of the pendulum that the latter may be kept in proper beat.

Other objects of the invention will be set forth in the following description.

With ordinary timepieces of the pendulum kind much trouble arises in maintaining proper action of the timepiece when it is placed on an uneven support, and the usual practice is to place shims or wedges beneath the base of the clock until a level position thereof is obtained. This takes time and is frequently unsatisfactory in results.

With the present invention the pendulum and its controlling elements can be readily adjusted until the pendulum hangs in the proper perpendicular position to keep it in correct beat no matter how uneven may be the support upon which the clock is placed.

In the drawings accompanying this specification, Figure 1 is a front elevation of a clock-dial, a portion thereof being broken away to show the movement-frame and the beat-adjusting device. Fig. 2 is a top plan view of parts of the clock-frame to which the beat-adjusting device is attached. Fig. 3 is a sectional view of Fig. 2 on line 3-3 looking in the direction of the arrow. Fig. 4 is a front elevation of the pendulum and of means for adjusting the length of the same. Fig. 5 is a perspective view of an adjustable frame which carries the escapement mechanism.

Like characters designate similar parts throughout the several views.

Referring to the drawings, the numeral 1 designates the side plates of the movement-frame, 2 the dial, 3 the posts uniting the plates 1, 4 the escapement-wheel, and 5 the

pallet, all of which may be of any approved construction.

Designated in a general way, A is the frame of a beat-regulating device, said frame comprising a front plate 6, from which projects an annulus 7, within which the escapement-wheel 4 is housed, said annulus having a cross-plate 7', perforated to receive the journal of the escapement-wheel arbor 4' and being again perforated at 7² to receive the end of the pallet-arbor 5'. A rear plate 8 is connected by posts 9 to the front plate 6. Pallet-arbor 5 is journaled in the rear plate 8 and the annulus 7, and depending from said arbor is a pendulum 12, having a yoke 13, fitting over the arbor 14, to which the hour-hand is secured. At its upper end the pendulum-rod 12' is provided with a yoke 15, and upon this yoke is adjustably mounted another yoke 16, having slotted arms 16' 16². Bolts 17 and 18 pass through the slotted arms and enter the parts of rod 12' and yoke 15 beneath them, and a screw 19, having a toothed head 19', enters a threaded seat in the yoke 15. A worm 21 on shaft 22 serves as a means for turning the head 19' and screw 19 to adjust the pendulum longitudinally, and the outer end of said shaft 22 is shaped to receive a key, by which it may be manipulated. On its inner side the plate 8 of frame 3 is provided with a perforated boss 23, through which the escapement-wheel arbor 4' passes, and said boss is inserted for rotation in a seat of the inner side plate and is secured in said seat by flanging over said boss against the frame-plate in the usual manner, as shown in Fig. 2. This produces a tight joint, which will hold the frame 5 by friction against rotation except when turned by means herein-after described. A spacing-washer 24 prevents binding of the plate 8 against the inner frame-plate 1.

Designated by 25 is a rack formed on the periphery of plate 8, and with this rack engages a pinion 26 on a shaft 27, supported at one end by a bracket 28 and passing through at its other end (where it is squared to enter a key) the outer frame-plate 1, as illustrated in Fig. 2.

As pinion-arbor 27 passes through the plates 1 of the movement-frame, it is obvious that the teeth of the rack 25 and pinion 26 will prevent rocking action of the independent frame except when the latter is adjusted by applying a key to the angular end of said

arbor. In other words, the arbor serves positively to prevent rotary movement of said independent frame except when rotated to actuate the pinion and rack, the frictional engagement of the teeth of the rack and pinion being sufficient to secure the frame and prevent it from turning except when adjusted in the manner described.

As will be observed, the frame A has for its axis the arbor of the escapement-wheel 3, and consequently it is at all points concentrically disposed to said arbor, so that should the pendulum be out of beat, due to an inclined position of the clock, by turning said frame in the manner described said pendulum may readily be brought to the proper perpendicular position. As the escapement-wheel, the pallet, the pendulum, and its accessories all move with the frame A, there can be no disarrangement of any of said elements when the frame is adjusted by a key applied to the shaft 27. Furthermore, the rack and pinion 25 and 26 serve not only to adjust the frame A of the beat-regulating device, but also to lock the same against movement except while being adjusted.

Back of the escapement-wheel a supplemental dial 31 is illustrated, carrying one of the characters of the main dial 2, said dial being mounted on a plate 32, secured to the posts connecting the movement-frame plates 1; but these features constitute no part of the present invention, as they are covered by another application filed concurrently herewith, Serial No. 221,923.

Changes may be made in the form and proportions of the various parts, the invention not being limited to the specific details illustrated and described.

Having thus described my invention, what I claim is—

1. The combination, with the movement-frame of a timepiece, of a pendulum-beat adjuster consisting of a frame independent of the movement-frame, and composed of united plates; gearing for adjusting said frame in an arcuate path on the movement-frame, and for securing it when adjusted; a pallet carried by the frame; an escapement-wheel mounted in said frame; and a pendulum also carried by said frame.

2. The combination, with a movement-supporting frame, of a pendulum-beat adjuster comprising a frame independent of the movement-supporting frame, and composed of united plates, one of which has a toothed surface, combined with escapement mechanism mounted in the independent frame; a pendulum controlled by said escapement mechanism; and a pinion in engagement with said toothed surface.

3. A pendulum-beat adjuster comprising a frame composed of united plates, combined with a support in which said frame is mounted for rotary movement; escapement mechanism carried by said frame; a pendulum also carried by the frame; a rack on one of the plates of the frame; and a key-controlled pinion in engagement with said rack.

4. A pendulum-beat adjuster comprising a frame composed of united plates, one of which has a rack, and the other of which an annulus surrounding the escapement-wheel, combined with an escapement-wheel and a pallet, both carried by the frame; and a pendulum controlled by said escapement-wheel.

5. A pendulum-beat adjuster comprising a frame composed of united plates one of which has a trunnion journaled in the clock-frame, and the other of which has an annulus, combined with an escapement-wheel surrounded by said annulus; a pallet; and a pendulum, the pendulum-controlling mechanism being carried by said frame.

6. The combination, with the frame of a timepiece-movement, of an independent frame mounted thereon for arcuate adjustment, and having a toothed surface; a pinion in mesh with said toothed surface, and the arbor of which is journaled in the timepiece-frame, escapement mechanism mounted in the independent frame; and a pendulum carried by said independent frame, and controlled by the escapement mechanism.

7. The combination, with the side plates of a timepiece-movement frame, of an independent frame mounted for arcuate adjustment on said side plates, and having a toothed surface; a pinion in engagement with said toothed surface, and having an actuating-arbor passing through one of said plates; escapement mechanism carried by the independent frame; and a pendulum supported by the independent frame, and controlled by said escapement mechanism.

8. The combination, with the frame of a timepiece-movement, of an independent frame having a boss inserted in an opening of the movement-frame, and frictionally held in said opening; means for rotating the independent frame; escapement mechanism carried by said independent frame; and a pendulum also carried by the independent frame, and controlled by said escapement mechanism.

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

ALMERON M. LANE.

Witnesses:

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H. P. CAMP.