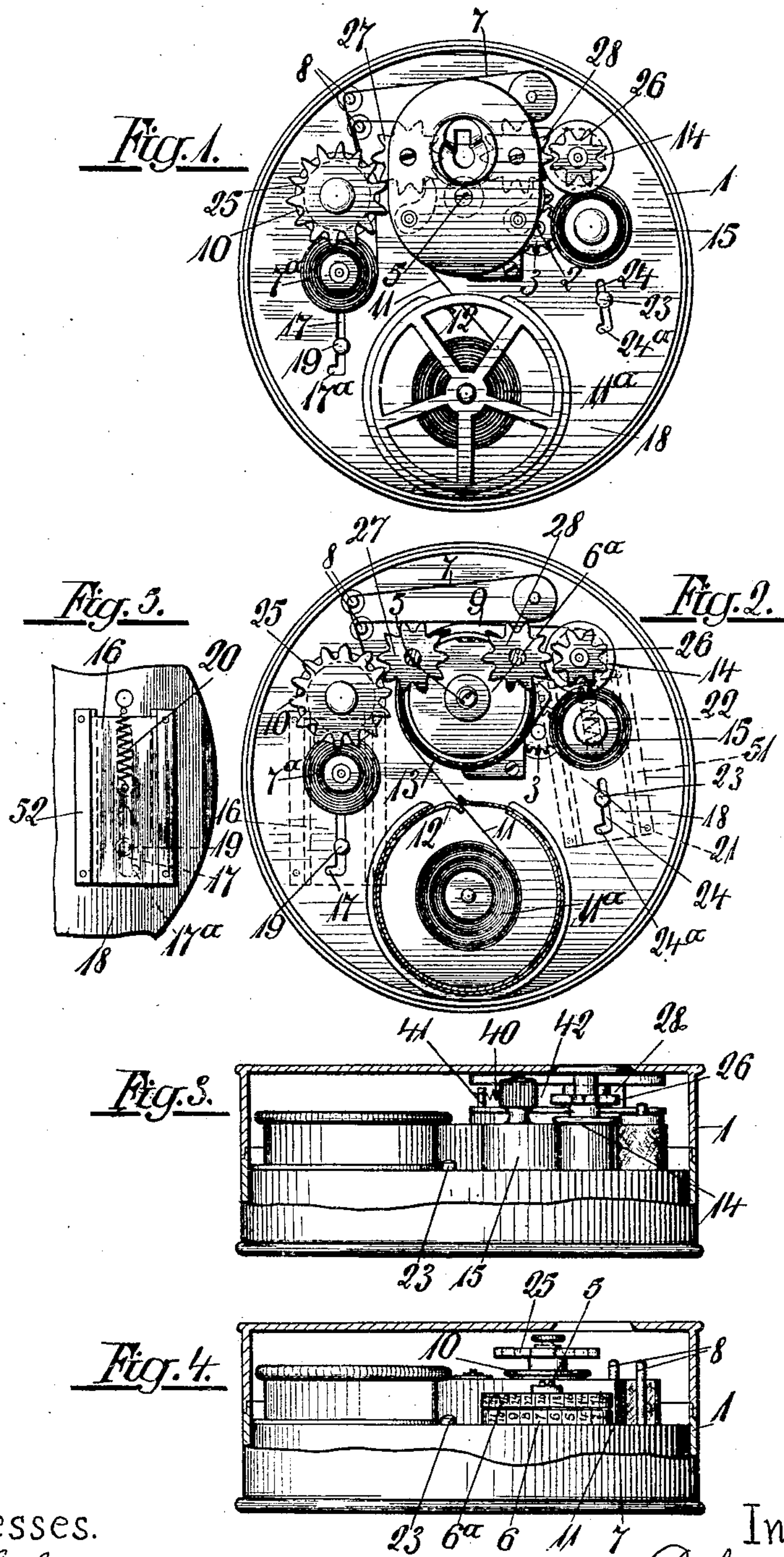


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TIME RECORDER AND THE LIKE.
APPLICATION FILED JULY 6, 1908.

934,038.

Patented Sept. 14, 1909.
2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

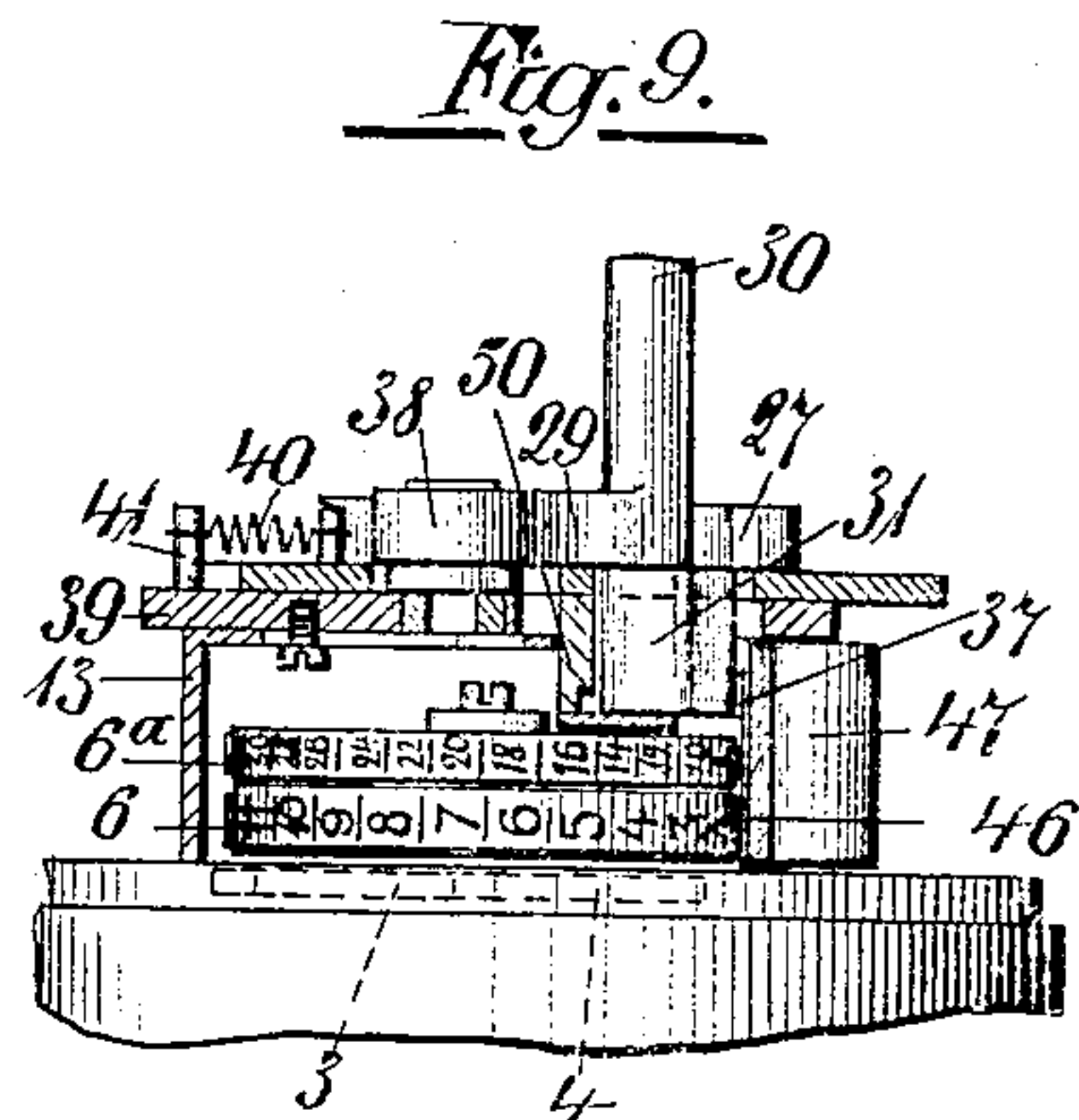
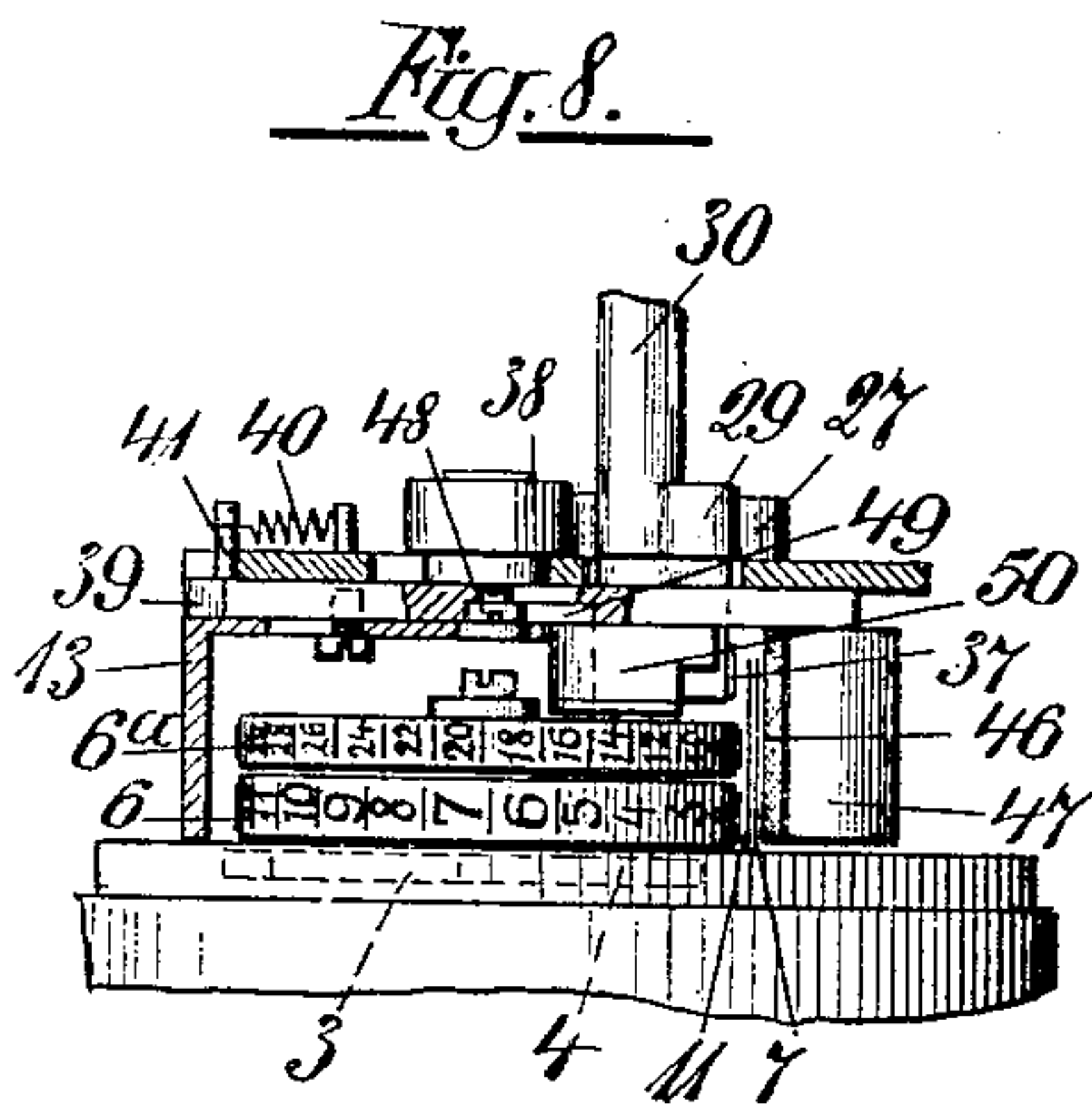
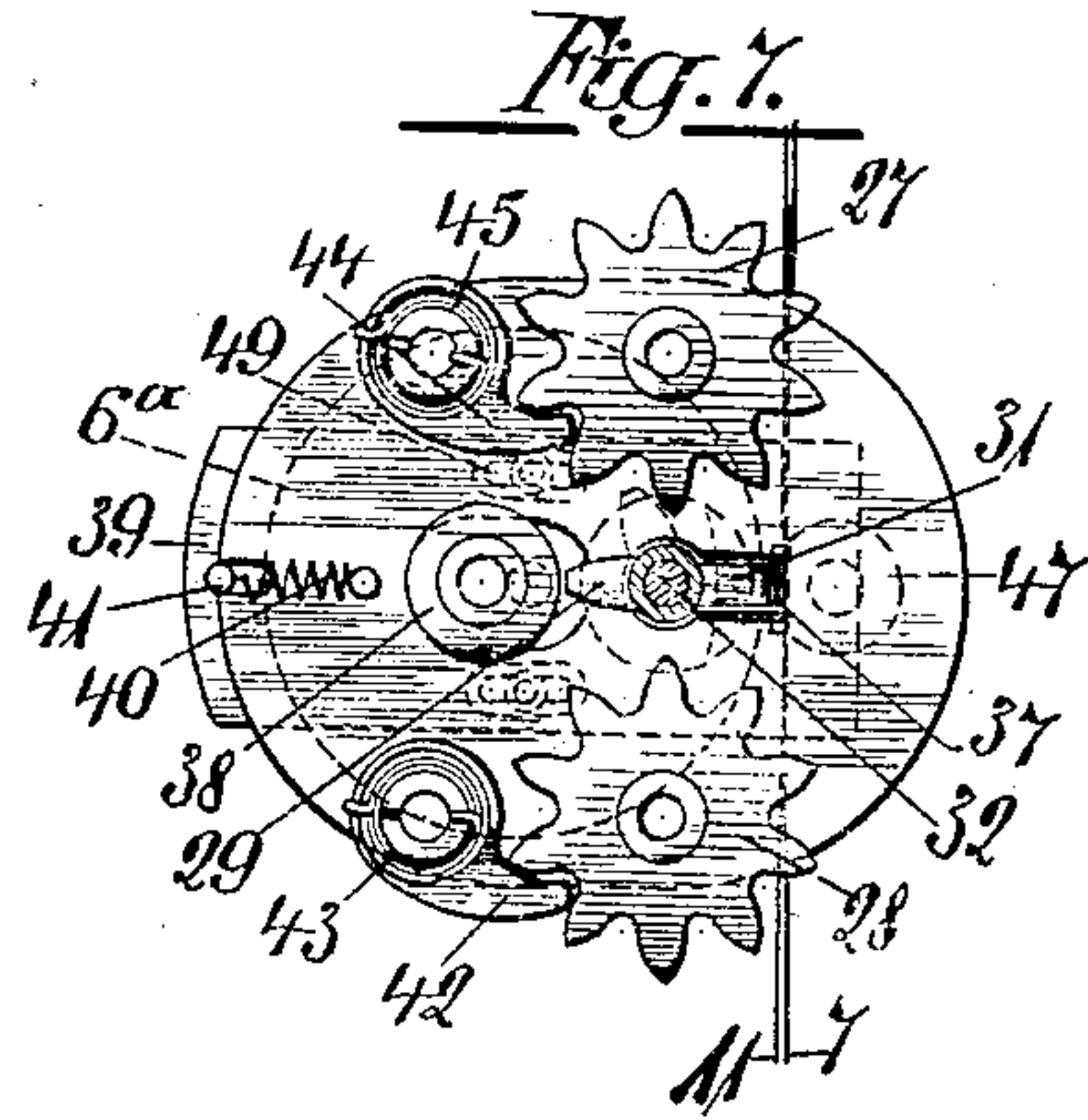
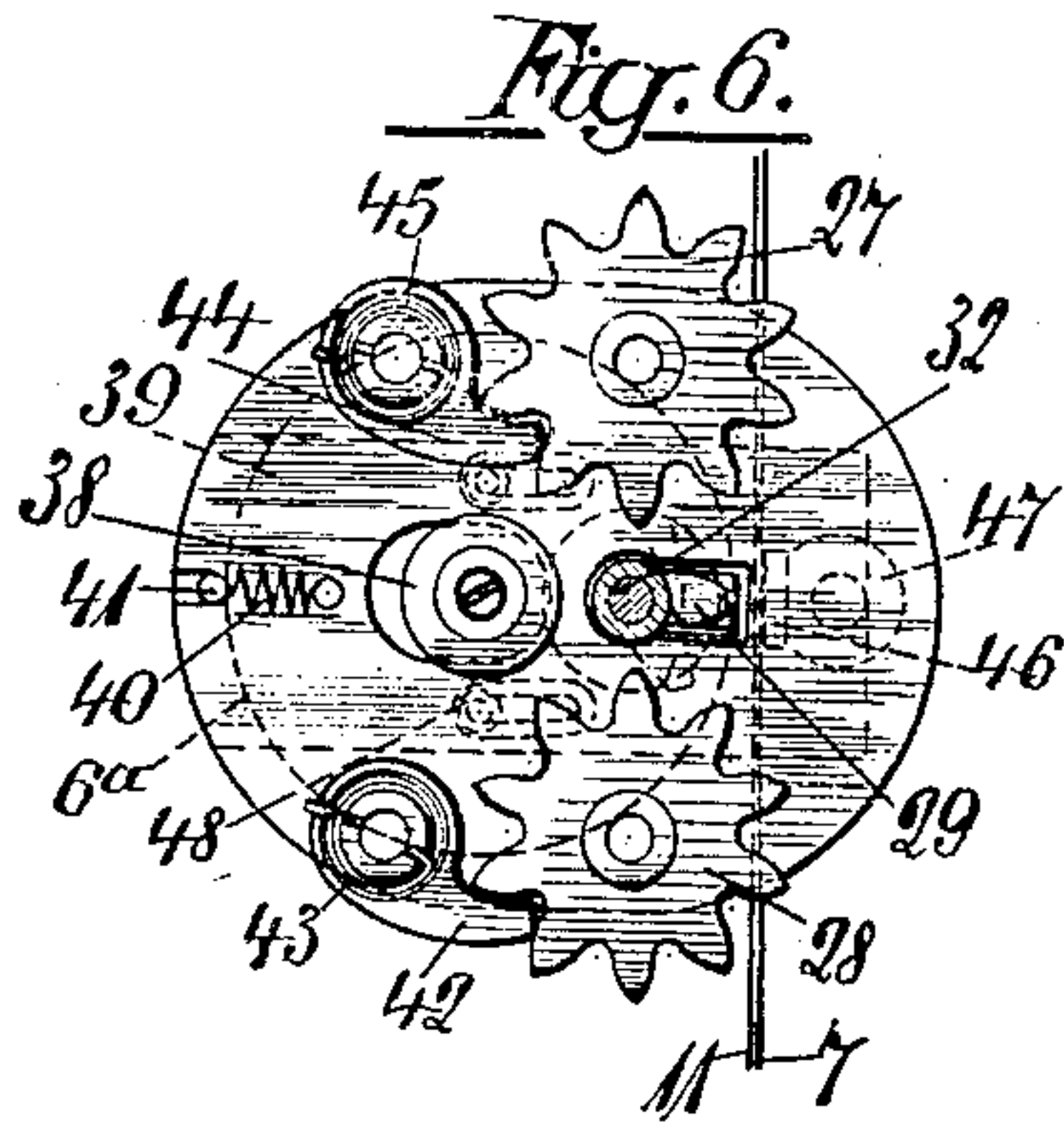


Fig. 10.

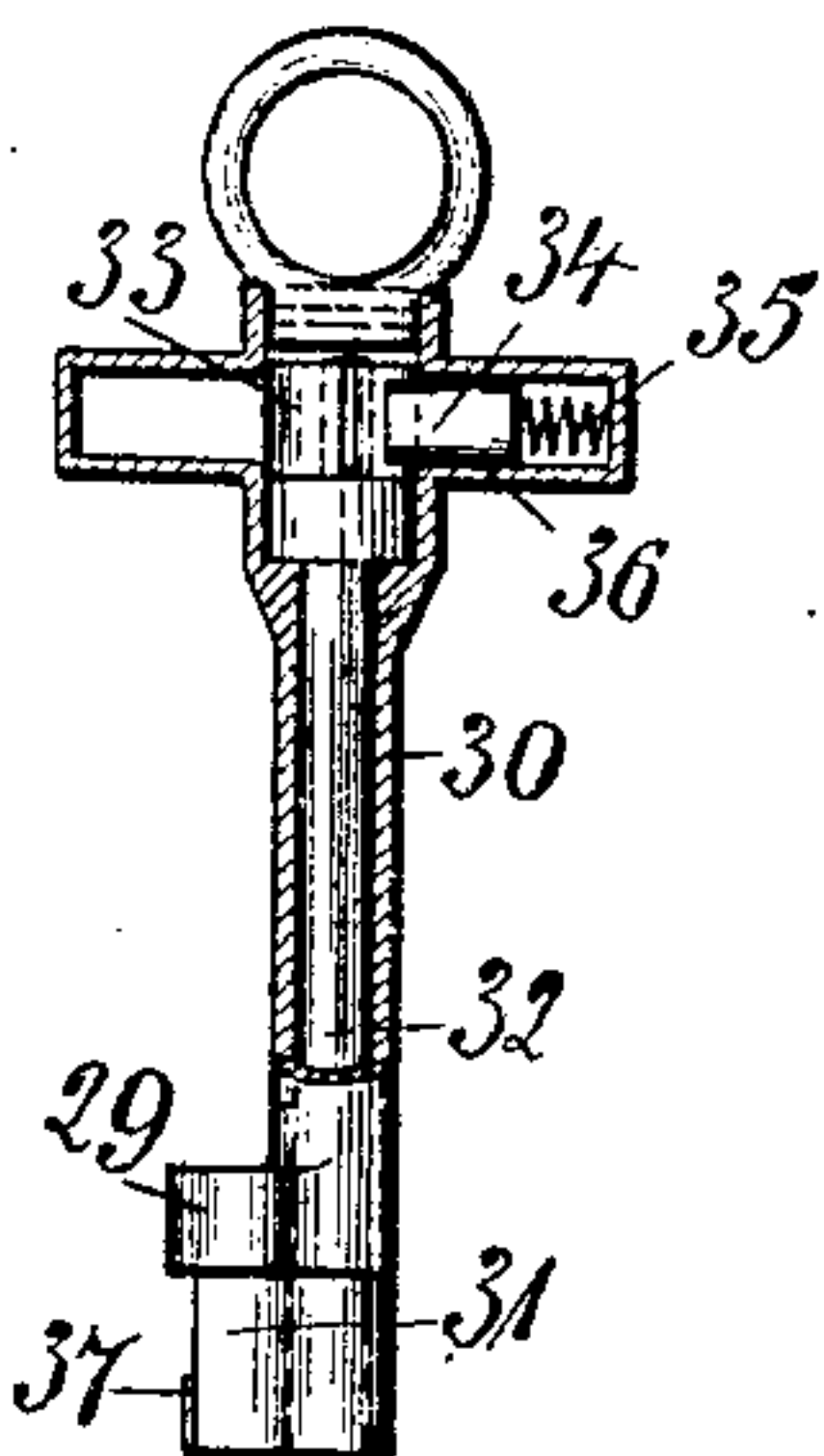


Fig. 11.

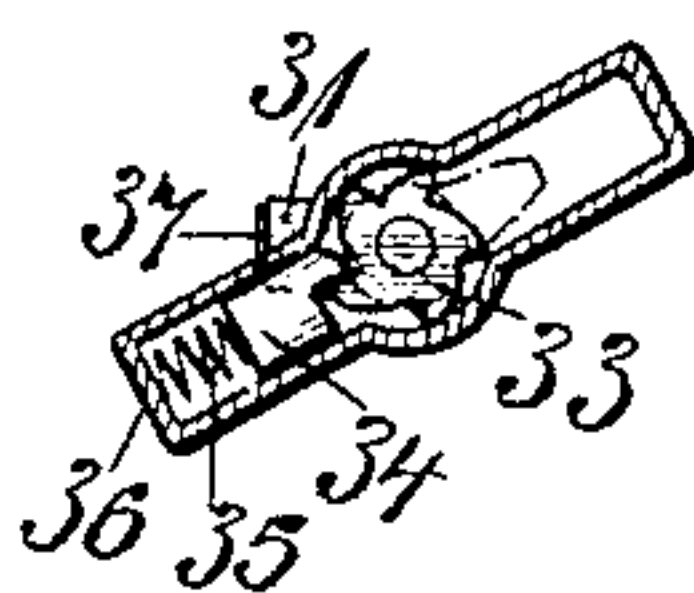
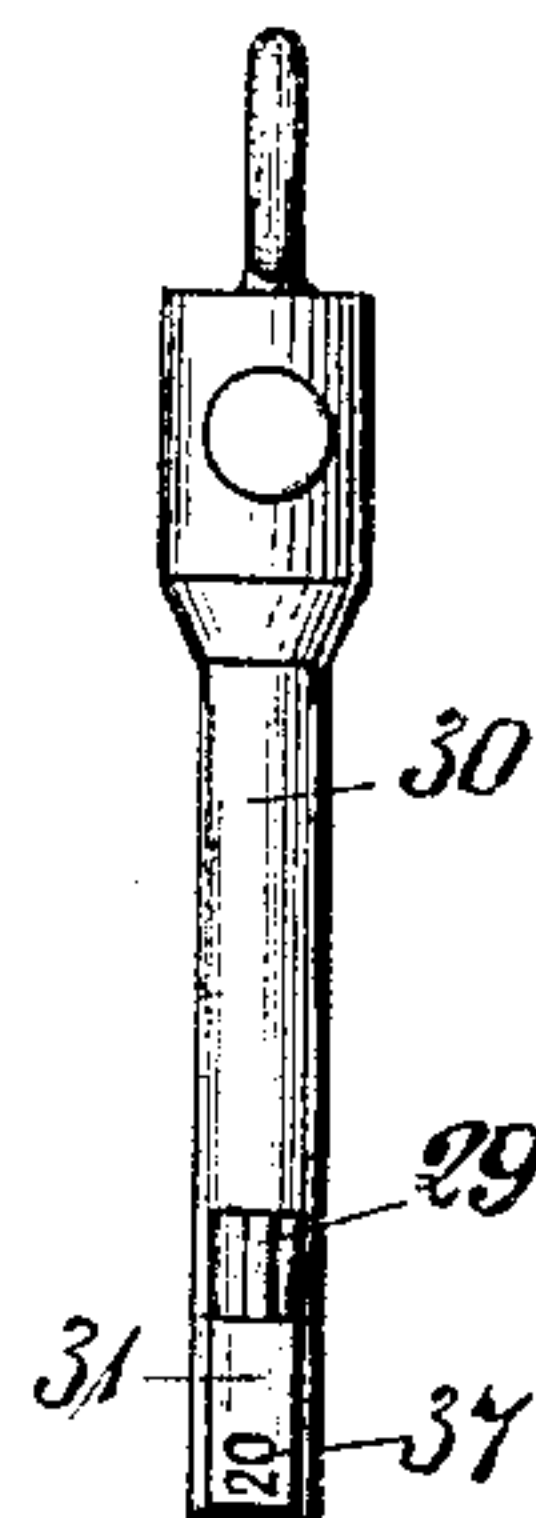


Fig. 12.



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UNITED STATES PATENT OFFICE.

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TIME-RECORDER AND THE LIKE.

934,038.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed July 6, 1908. Serial No. 442,116.

To all whom it may concern:

Be it known that I, RICHARD BÜRK, a citizen of the German Empire, residing at Schweningen, in the Kingdom of Württemberg, Empire of Germany, have invented certain new and useful Improvements in Time-Recorders and the Like; and I do hereby 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.

This invention has for its object a recording clock which is provided with a new kind of marking device.

In recording clocks the necessity frequently arises of effecting the markings at very short intervals in succession, and consequently the drawback has been experienced that such markings overlap one another, causing them to be illegible, and therefore the recorders no longer fulfil their object. This is caused by the paper band or strip receiving the markings being moved forward by a clockwork, and thus the extent of its forward movement being dependent on the time between two markings, the consequence of which is that the paper band or tape is not moved forward far enough when the markings have to be effected at only short intervals of time. Now efforts have been made to remove this drawback by enlarging the paper strips and these efforts have led to the result that the recorders have become extremely cumbersome and heavy, so that they can no longer be employed more particularly as portable recorders. Now according to the present invention this drawback is overcome by the paper tape or strip, which has the usual narrow form, being no longer moved forward as heretofore by clockwork, but mechanically by turning the key to a sufficiently large extent, so that an unprinted part of the strip must always be presented at the place where the printing takes place. The forward movement of the strip is independent of the time elapsed. This is operated by means of a special key, which simultaneously also operates the shifting forward of the inking ribbon employed, as well as the impression of the types themselves.

The invention will now be more particularly described in connection with the accompanying drawings, in one form of construction as an example.

Figure 1 is a plan view of the recorder

clock with the cover removed; Fig. 2 is a horizontal section of the tape or strip and the means for guiding or conveying the inking ribbon; Figs. 3 and 4 are different side views with the casing partially removed; while Fig. 5 is a detail view of the mounting of the paper roller and the inking ribbon roller; Figs. 6 and 7 are plan views of the marking device showing the method of working of the key in different positions; Figs. 8 and 9 are corresponding side views of Figs. 6 and 7 respectively; Figs. 10, 11 and 12 are detail views of the key showing the same as a whole in partial longitudinal and cross sections, and in end view.

The recorder clock is inclosed in the case 1 and provided with a type wheel 6^a as minute disk and a type wheel 6 as hour disk, which are mounted on an arbor 5 which wheels are driven by means of a wheel 3 mounted on an arbor 2, by a suitable clockwork, which is located under the workplate 18, the two wheels 6 and 6^a being connected with one another in known manner in such a way that the hour disk 6 is only moved forward after a complete revolution of the minute disk 6^a (Fig. 1). A paper band or strip 11 is carried over the printing place 9 of the recording clock (Fig. 2), which strip proceeding from a roller 11^a is carried between a brake 12 to the printing place 9 and over a guide roller 14, and wound up on a roller 15. Over the printing place 9 an inking ribbon 7 is also carried, which proceeds from a roller 7^a and passes over a roller 10 and over guide rollers 8 and is then wound up on the roller 10. In order to allow for the increasing of the diameter during the winding up the rollers 15 and 10, are arranged on carriages 21 and 16 which are displaceably located in guides 51 and 52 on the under side of the partition 18 of the casing, while they are constantly pressed against the rollers 14 and 7^a by means of springs 22 and 20, so that on the rotation of these rolls the paper strip 11 and the inking ribbon 7 are moved forward and wound up respectively. Now in order to allow of the rollers 15 and 7^a being removed, for instance, for the purpose of inserting a new inking ribbon or paper band, the carriages 21 and 26 are provided with studs or knobs 23 and 19 adapted to be reached from above, which knobs project through slots 24 and 17 in the plate 18, so that they may be grasped. In order to en-

able the rollers to be held fast in a position in which they are thrown out of action, the slots 24 and 17 are bent at the end (Fig. 2).

The printing and the moving forward of the paper band 11 and the inking ribbons 7 is effected by means of a peculiar key 30 by a single revolution of the same (Figs. 10-12). This key is provided with the ordinary type tooth 31, which carries an ordinary type 37 and this tooth 31 is mounted by means of a spindle 32 revolvably in the tube or shank of the key 30. For operating the above devices, the key 30 is also provided with a tooth 29, which is fast to the key, in such a way that the key 30 can only be turned in one direction. For this object a ratchet wheel 33 is arranged on the spindle 32, or even only a notch is provided in the same, in which a pawl 34 engages, which is held by means of a spring 35 in engagement with the ratchet wheel or notch 33, the pawl 34 and spring 35 lying in a casing 36, which also serves as a handle for the key 30. Now if the key be inserted in the keyhole 50 (Figs. 6 and 7), the key 30 and tooth 29 may be turned but only in one direction, while the spindle 32 with the type tooth 31 remains stationary, opposite the printing place 9, in the slot of the keyhole 50. This turning of the key 30 with the tooth 29 operates the forward movement of the paper band, the printing and the moving forward of the inking ribbon.

In order to move the paper band 11 forward, the roller 14 is provided with a toothed wheel 26 with which a toothed wheel 28 gears (Fig. 1), the teeth of which project into the way of the tooth 29 of the key (Figs. 6 and 7). Now if the key 30 be turned the tooth 29 encounters the teeth of the wheel 28 and turns it, whereby also the wheel 26 and the roller 14 are correspondingly turned, that is to say the paper band 11 is moved forward to a certain extent independent of the time. The wheel 28 is secured against turning backward by means of a pawl 42 standing under the action of a spring 43. In similar manner the inking ribbon 7 is moved forward. The roller 10 is for this object provided with a toothed wheel 25 which gears with a toothed wheel 27, the teeth of which again extend into the path of the tooth 29, this wheel 27 being also secured against turning back by means of a pawl 44 standing under the action of a spring 45. A turning back both of the paper band and also of the inking ribbon is thus prevented in a double manner, first by the pawls 42 and 43 and then by the locking device 33, 34, 35 in the key.

For printing off the adjusted types a striking pad 47 is provided on a carriage 39 opposite the printing place 9, which striking pad is preferably set with a rubber coating 46 or the like. This carriage 39 is under

the action of a spring 40 which on the one hand is mounted on the pin 41 on the carriage 39 and on the other hand on a pin fixed to a portion of the casing 13. A roller 38 is also provided on the carriage 39 against which roller the tooth 29 bears when the key 30 is turned, the roller 38 and the carriage 39 being thus displaced, that is to say the striking pad 47 is approached to the printing place 9, so that the paper strip 14 passing over there is pressed against the types.

In using the clock, that is to say on inserting a key 30 in the keyhole 50 the type 37 stands thus always immovable opposite the printing place 9 and also the time types of the type wheels 6 and 6^a corresponding to the actual time also lie at the printing place. Now if the key 30 be turned, it first encounters the teeth of the wheel 28 and moves the paper band 11 a given piece forward, so that for the printing off of the time types and the key type there is always a fresh printing surface presented, then the said key displaces the roller 38 and thus an impression is made, and finally it enters the teeth of the wheel 27, so that the inking ribbon 7 is also moved forward.

In the specification and drawing only hour and minute type wheels are shown for the sake of clearness, but other type wheels with other units of time may of course be employed.

I declare that what I claim is:—

1. In a time recorder, the combination with the clock and the type wheels operated thereby and having its paper band in close proximity to the type wheels, of an inking ribbon, separate carrying rollers for said paper band and inking ribbon, a slidingly arranged striking pad, and a key provided with means for first moving the paper band, then operating the striking pad, and afterward moving the inking ribbon, all said parts substantially as and for the purposes described.

2. In a time recorder, the combination with the clock and the type wheels operated thereby and having its paper band in close proximity to the type wheels, of an inking ribbon, a striking pad, a spring controlled sliding carriage supporting said striking pad, and a key provided with means for successively moving the paper band, the sliding carriage and the inking ribbon, all said parts, substantially as and for the purposes described.

3. In a time recorder, the combination with the clock and the type wheels operated thereby and having its paper band in close proximity to the type wheels, of an inking ribbon, a striking pad, a spring controlled sliding carriage supporting said striking pad, separate take up rollers for the paper band and inking ribbon, toothed wheels

mounted on said take up rollers, and a key provided with a tooth or projection adapted to operate in succession the toothed wheel of the paper band carrying roller, the sliding carriage and the toothed wheel of the inking ribbon carrying roller, all said parts, substantially as and for the purposes described.

4. In a time recorder, the combination with the clock and the type wheels operated thereby and having its paper band in close proximity to the type wheels, of an inking ribbon, a slidingly arranged striking pad, a

key for successively moving the paper band, operating the striking pad and moving the inking ribbon, and means carried by the key for allowing the same to be turned in one direction only, substantially as described. 15

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

RICHARD BÜRK.

Witnesses:

JEAN GULDEN,
ADOLF GRIMM.