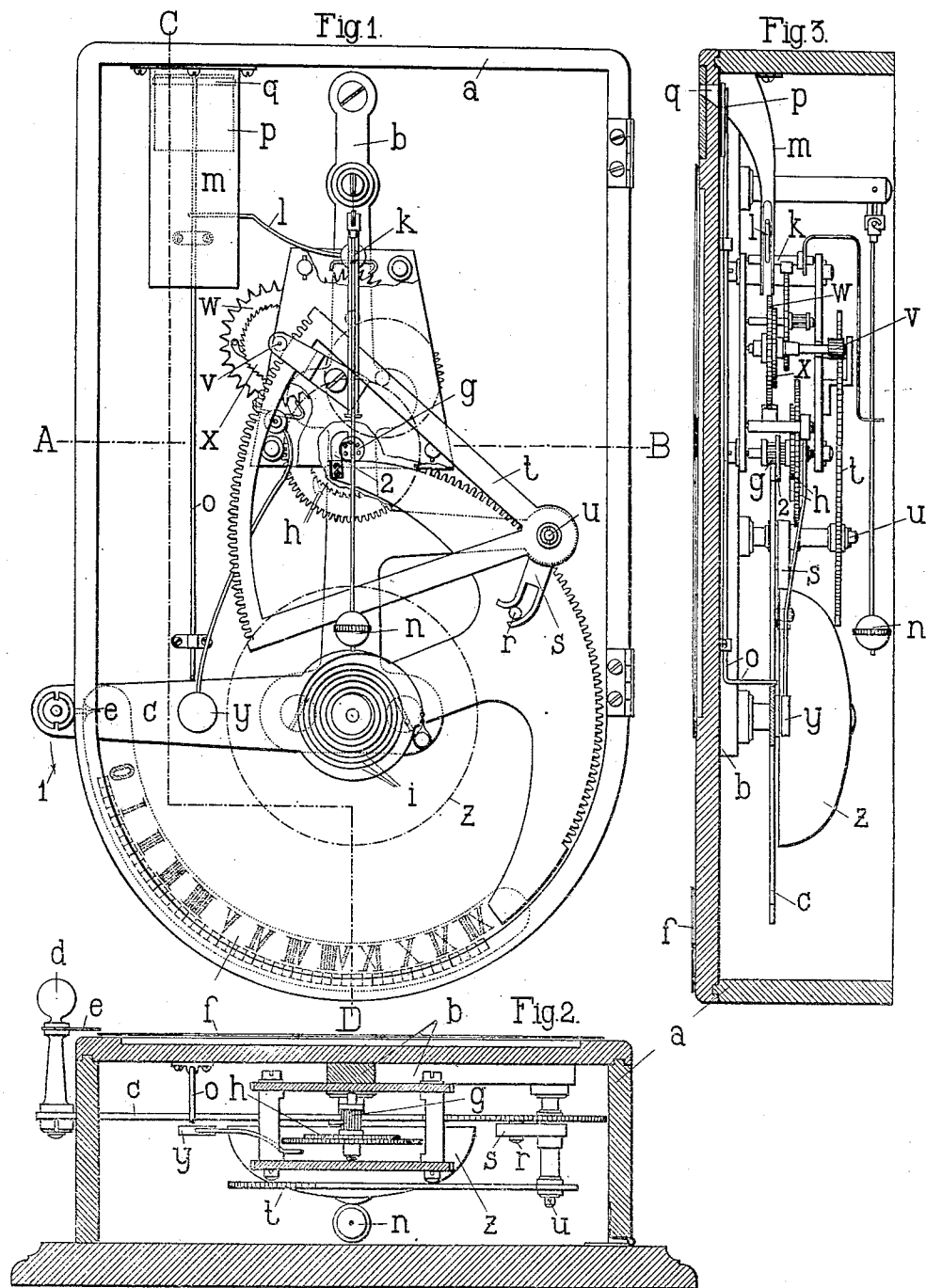


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APPLICATION FILED FEB. 27, 1908.

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



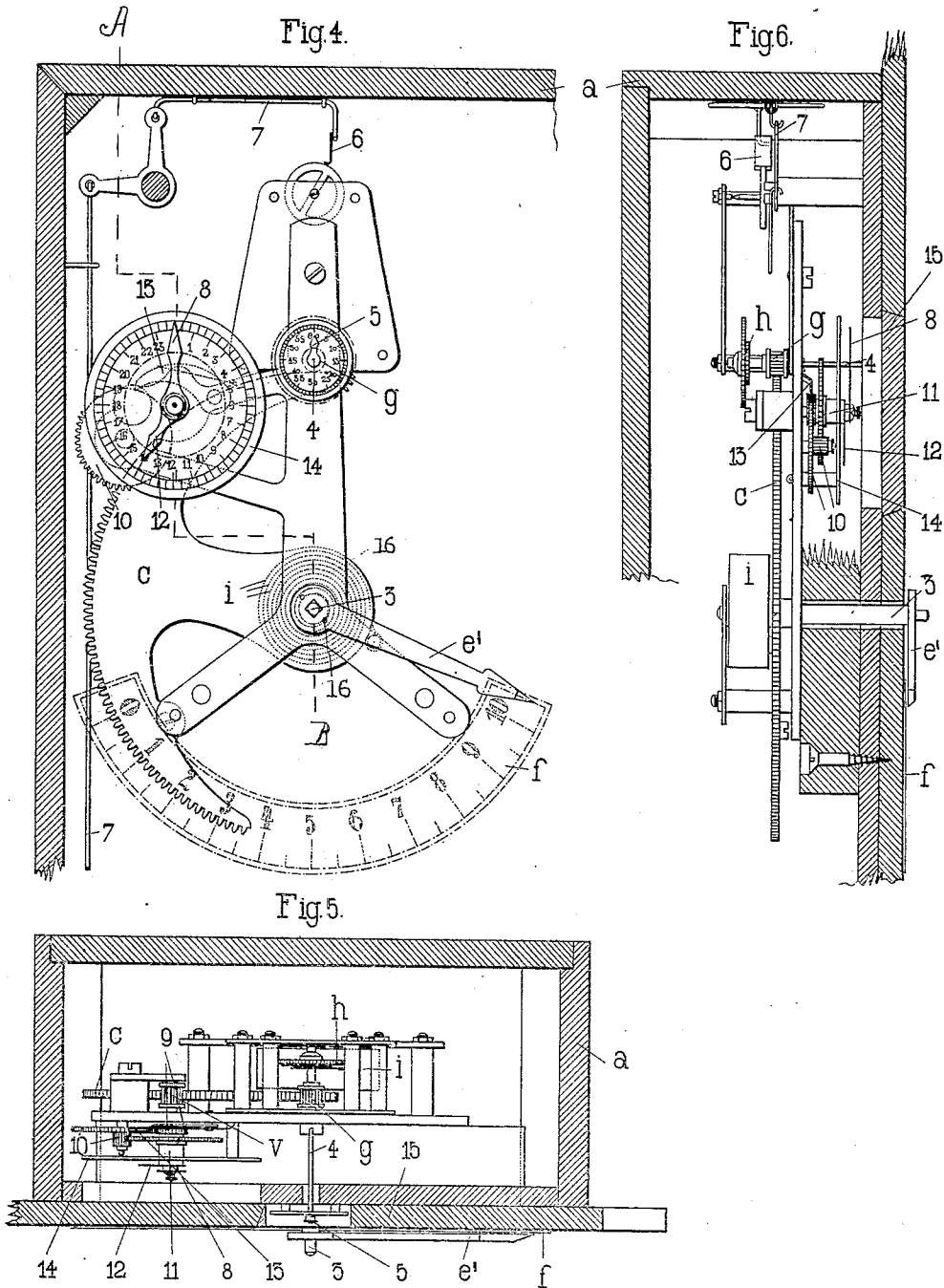
Witnesses
D. Brashers
A. Cooper

Inventor
R. Türk
by Paul E. Schilling

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UNITED STATES PATENT OFFICE.

ROBERT TÜRCK, OF ZURICH, SWITZERLAND, ASSIGNOR TO UNIQUE AUTOMATIC ALARM CLOCK COMPANY, OF ZURICH, SWITZERLAND.

ALARM OR TIME-CHECK.

934,241.

Specification of Letters Patent.

Patented Sept. 14, 1909.

Application filed February 27, 1908. Serial No. 418,091.

To all whom it may concern:

Be it known that I, ROBERT TÜRCK, a subject of the German Emperor, residing at Zurich, Switzerland, have invented certain new and useful Improvements in Alarms or Time-Checks, of which the following is a specification.

The subject of the present invention is an alarm or time check, in which, on an hour hand being set to a definite mark, winding up of the main spring of the entire mechanism is brought about.

When the mechanism is constructed as an alarm, the going train is kept separate from the alarm, but they are both operated in succession by means of the same lever and main spring. The alarm is designed more specifically for hotels, public baths and like institutions, in which there are many separate rooms, for the purpose of audibly informing the occupants of these rooms, in each of which the alarm is provided, of the lapse of certain intervals of time.

In the event of the mechanism being constructed as a time check, the alarm is merely replaced by a totalizing mechanism, while the going train is furnished with a minute hand, whereby the apparatus can be employed for determining the duration of games or the like, indication being given both of the separate intervals of play and of the total time occupied.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a back view of the mechanism constructed as an alarm. Fig. 2 is a section on the line C—D of Fig. 1. Fig. 3 is a sectional plan of Fig. 1. Fig. 4 is a front elevation of the mechanism constructed as a time check for billiards or the like, Fig. 5 is a sectional plan of Fig. 4, and Fig. 6 is a section on the line A—B of Fig. 4.

Referring more particularly to Figs. 1, 2 and 3, the mechanism is contained in a closed case *a*. To the bracket *b* there is pivoted the winding and setting lever *c* whose one arm projects outside the case *a*, and is furnished with a knob *d* having a pointer *e* (Figs. 1 and 2). The latter moves over a scale *f* marked on the front of the case *a*. The other arm of lever *c* forms a segmental rack, and by turning the lever in the direction of the arrow 1 (Fig. 1) this rack can be brought into engagement with the pinion *g*, whose

arbor carries the first wheel of the going train, with which it is coupled by means of a pawl and ratchet device *h*, a fragment only of which is shown in Fig. 1. When the lever *c* is turned in the direction of the arrow 1, the main spring *i* is wound up. The inner end of this spring is secured to the boss of the lever *c*, while the outer end is attached to a pin on the bracket *b*, as shown in Fig. 1. The pinion *g*, during this motion of the lever *c* can turn idly, owing to the provision of the pawl and ratchet device *h*. When the lever *c* has been set to the desired mark or division on the scale *f* by means of the handle *d*, and then released, the main spring will drive the going train. The latter may be set in motion by hand or by dropping in a coin. In the latter event the pallet staff *k* of the going train is provided with an arm *l*, which projects into the coin duct *m*. When the coin strikes the arm *l*, the latter will be tipped and the pendulum *n* thus started. The lever *c* during the going of the mechanism is regulated by the escapement and returns slowly to its initial position, and in doing so lifts a gravity rod *o*, which is provided at the top with a plate *p*, acting as closure for the coin slot *q*. The slot, however, is uncovered immediately the lever *c* is set to one of the divisions of the scale *f*, since in this case the rod *o*, with its plate *p*, resting on the lever will drop. From this it follows that a coin cannot be dropped into the slot to start the pendulum *n*, until the handle *d* has been turned to set the lever *c*.

The lever *c* and mainspring *i* not only act upon the going train, but also upon the alarm. For this purpose a pin *r* is provided on the segmental arm of the lever *c*. This pin projects into the path of a forked lever *s* which embraces the pin. The lever *s* is rigidly connected with the toothed sector *t* and turns on the pivot *u*. The sector *t* meshes with a pinion *v*, whose arbor carries a wheel *w*, coupled to it by a pawl and ratchet device *x*, a fragment only of which is shown in Fig. 1. With the wheel *w* there engages the alarm pallet *w'*, whose staff carries the hammer *y*. The gong *z* is secured to the pivot of the lever *c*. When the lever *c* is turned to carry the pointer *e* around on the scale *f* in the direction of the arrow 1, the sector *t* will be turned to the right under the influence of the pin *r*. During such

movement the pinion *v* and its arbor can turn idly. If, however, the lever *c* with pin *r* act in the opposite direction upon the sector *t*, the alarm mechanism comes into operation.

5 On rotation of the lever *c* from the zero position in the direction of the arrow 1, the forked lever *s* and sector *t* are first turned, whereby the alarm is set ready for operation. On further rotation of the lever *c* the first

10 tooth of the segmental arm of this lever then at once engages the pinion *g*. The position of the latter must be such that the rack of the segment works perfectly evenly, without any shock. For this purpose a tooth 2 is

15 provided on the segment, which tooth, partaking of the motion of the lever *c*, each time the latter arrives in the position of rest, strikes one of the teeth of the pinion *g* and thus brings the latter into the requisite position.

20 tion.

Let us now assume that the alarm is to sound after the lapse of five hours. The lever *c* must be turned in the direction of the arrow 1 into any desired position, for instance so that the pointer *e* stands at "V".

25 During this setting operation, the sector *t* and pinion *g* will have been idly turned and the mechanism is ready for starting of the pendulum *n*. If a coin is now dropped into the slot and the pendulum thus started, the lever *c* will begin its return movement, controlled by the pinion *g* engaging with the segment. When the pointer *e* arrives above the mark "0", the last tooth of the segment

30 leaves the pinion *g*. This period, however, coincides with the lapse of the fifth hour. Immediately the going work has ceased to operate, the alarm acts, as at this moment the pin *r* will have entered the fork *s* and will

40 retract the sector *t* to the left from adjusted position into the zero position. When the lever *c* arrives finally in the position of rest, the alarm also ceases to operate, and the tooth 2 will have turned the pinion *g* into

45 the correct position.

Referring now to the modification shown in Figs. 4, 5 and 6, the alarm is dispensed with, a totalizing mechanism being substituted therefor, and the going train is provided with a minute hand in addition to the

50 hour hand. By this arrangement of the parts, though the manner of operation remains the same, a time check is constituted, which may be employed to determine both

55 individual periods of time (for instance periods of use of a gaming table or the like) and the sum total of such separate periods. The setting lever *c* is mounted on the arbor 3 of a bracket, the hour hand *e*, moving over the scale *f*, being mounted at the front end of this arbor. The segmental rack of the lever *c* meshes permanently with the pinion *g* of the arbor 4 to which is secured the minute hand 5. The arbor 4, owing to the

60 provision of a pawl and ratchet device *h*, can

idly rotate in one direction. The lever *c* is set by means of a removable key fitting into the key-holes 16 in the boss of the hour hand *e'* (Fig. 4). In the position of rest of the time check the rim of the balance of the going train is held by a spring 6, which can

70 be actuated by a wire-pull 7. This latter, again, is acted upon by a contrivance which only comes into operation on the billiard balls being removed from a drawer of the

75 case *a*. Before commencing to play, the hour hand *e* is set in the starting position (Fig. 4), which is the zero position of the hand. The minute hand 5, which, being acted upon by the lever *c*, partakes of the

80 motion of the hour hand, will now occupy the position "0" ("60") on the dial. The hands will commence to turn immediately the balance of the going train is started by the removal of the spring 6 by the wire-

85 pull 7.

In addition to acting upon the going train, the lever *c* and mainspring *i* also act on the totalizing mechanism, for the purpose of checking the time of duration of the single

90 and total periods of play. For this purpose the pinion *v* of a minute hand arbor (Fig. 5) meshes with the segmental arm of the lever *c*. The minute hand 8 of this arbor is not rigidly secured to the latter, but is

95 mounted thereon by means of a frictional sleeve. This sleeve is provided with a pinion 9 which meshes with a motion work 10, whereby the motion of the sleeve 11 of the hour wheel, and thus of the hour hand 12,

100 is started. The hour hand makes one revolution in 24 hours. To prevent return motion of the hand of the totalizing mechanism every time the hand *e* is being set on the scale *f*, a pawl 13 engages in the wheel of the

105 motion work 10. Since the minute hand 8 is only driven by friction by the arbor of the pinion *v*, this arbor, during the period of setting the hand *e*, rotates independently of the sleeve carrying the hand 8. If required, the

110 totalizing mechanism hands 8, 12 may be set by hand to any figure of the dial 14. The latter is displayed through an aperture in the case *a*, which, however is closed by a slide 15, so as to prevent unauthorized persons observing the dial.

115

To use the time check, the hand *e* is first set to the figure "0" on the scale *f*. On the billiard balls being removed from their drawer in the case *a*, the wire-pull 7 and

120 starting spring 6 are operated, whereby the going train is set in motion. The hands *e'*, 5, being always visible, admit of the time of playing being observed. The hands of the totalizing mechanism move in the same

125 manner. When the game is ended and the balls again returned to their drawer, the going train is stopped by the wire-pull 7. To commence a new game the hour and minute hands *e'*, 5 are again turned into the

130

zero position, and the totalizing mechanism, being prevented from turning backward, adds the times of the various periods of play.

5 What I claim is:—

1. An alarm or time check, comprising in combination, a going train, a continuous alarm train, a common main spring, an indicator, the setting of which winds up said
10 main spring, and which is returned by said main spring to actuate said going train, and means actuated by said indicator on its return for transmitting the power of said wound up main spring to said alarm train,
15 substantially as set forth.

2. An alarm or time check, comprising in combination, a going train, a continuous alarm train, a main spring, an indicator, the setting of which winds up said main spring,
20 a segment moving with the indicator on its return for transmitting the power of said main spring to said going train upon the return movement only of the said indicator, a segment actuated by the indicator for actu-
25 ating the alarm train, and means for start-

ing the said going train, substantially as set forth.

3. Alarm or time check, comprising in combination, a going train, an alarm train, a main spring, an indicator the setting of
30 which winds up said main spring, a segmental rack on said indicator meshing with said going train, a ratchet device interposed between the indicator rack and the going
35 train, a pivoted toothed sector meshing with the alarm train, means for temporarily actuating said sector by said segmental rack, a ratchet device interposed between said toothed sector and said alarm train, means
40 for automatically turning the going train into proper engagement position with said indicator rack, and means for starting the going train, all substantially as set forth.

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

ROBERT TÜRCK.

Witnesses:

A. LIEBERKNECHT,
CARL DUMER.