

No. 878,371.

PATENTED FEB. 4, 1908.

E. E. GAGE.  
ALARM CLOCK.

APPLICATION FILED MAR. 15, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

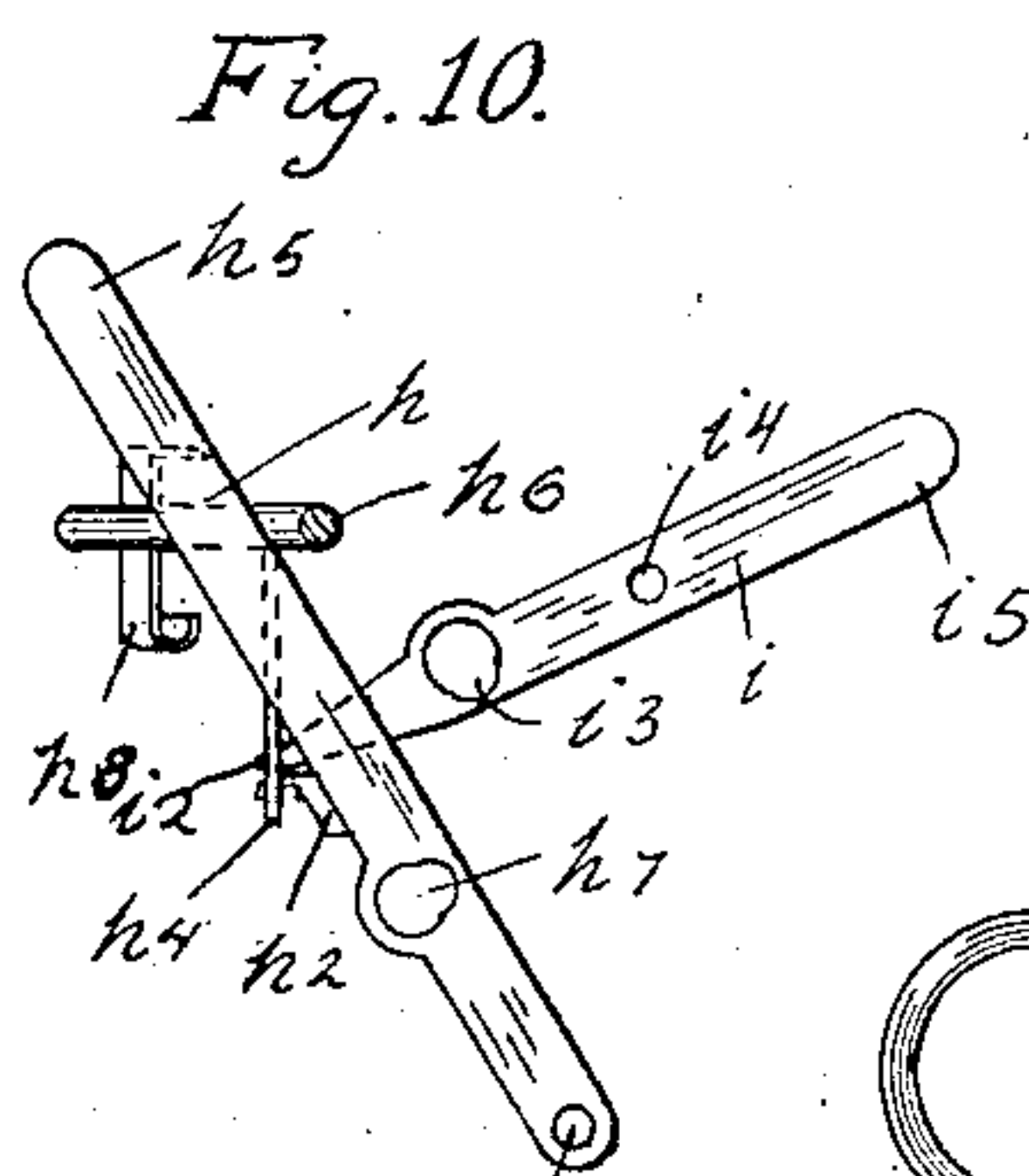
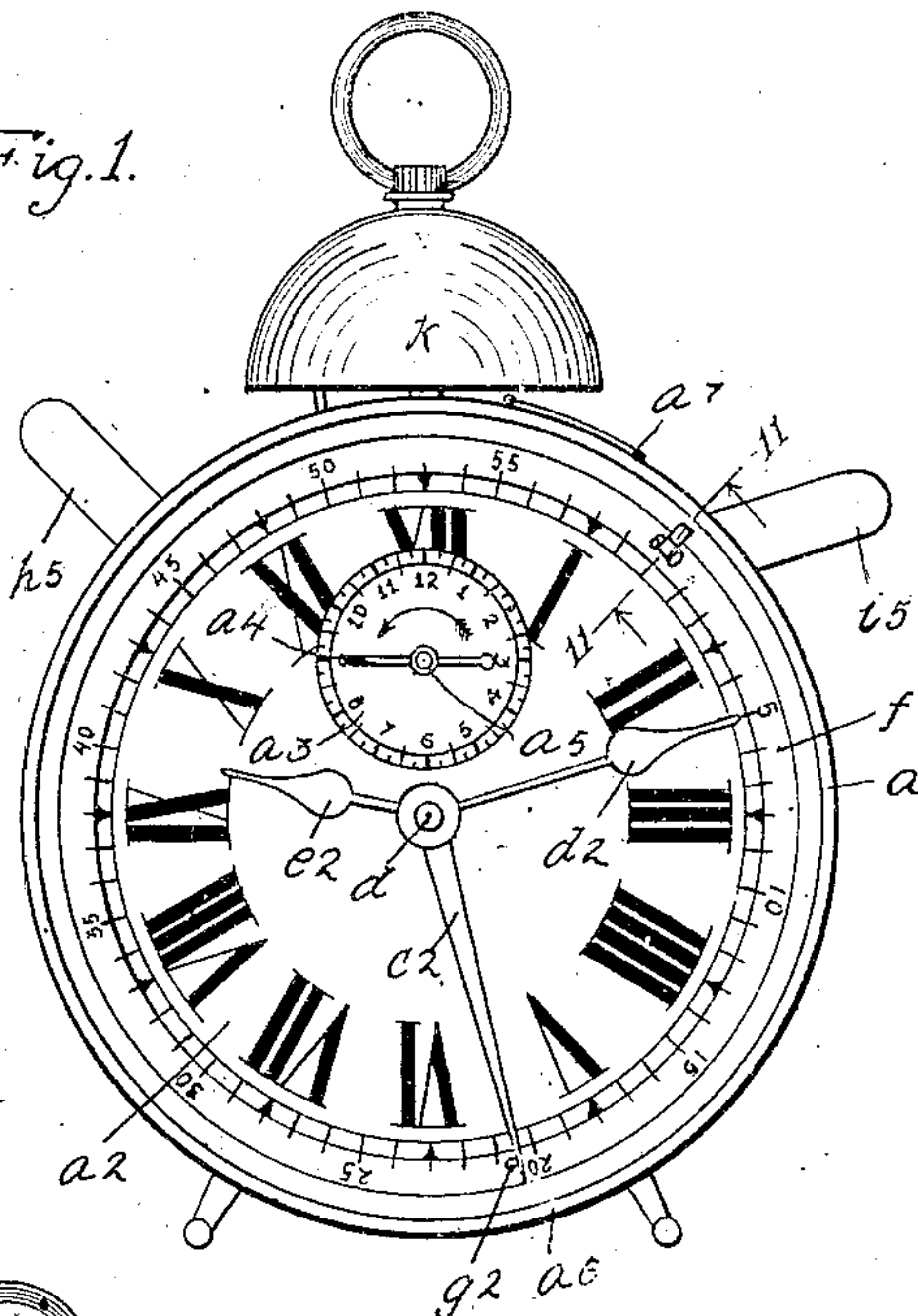


Fig. 2.

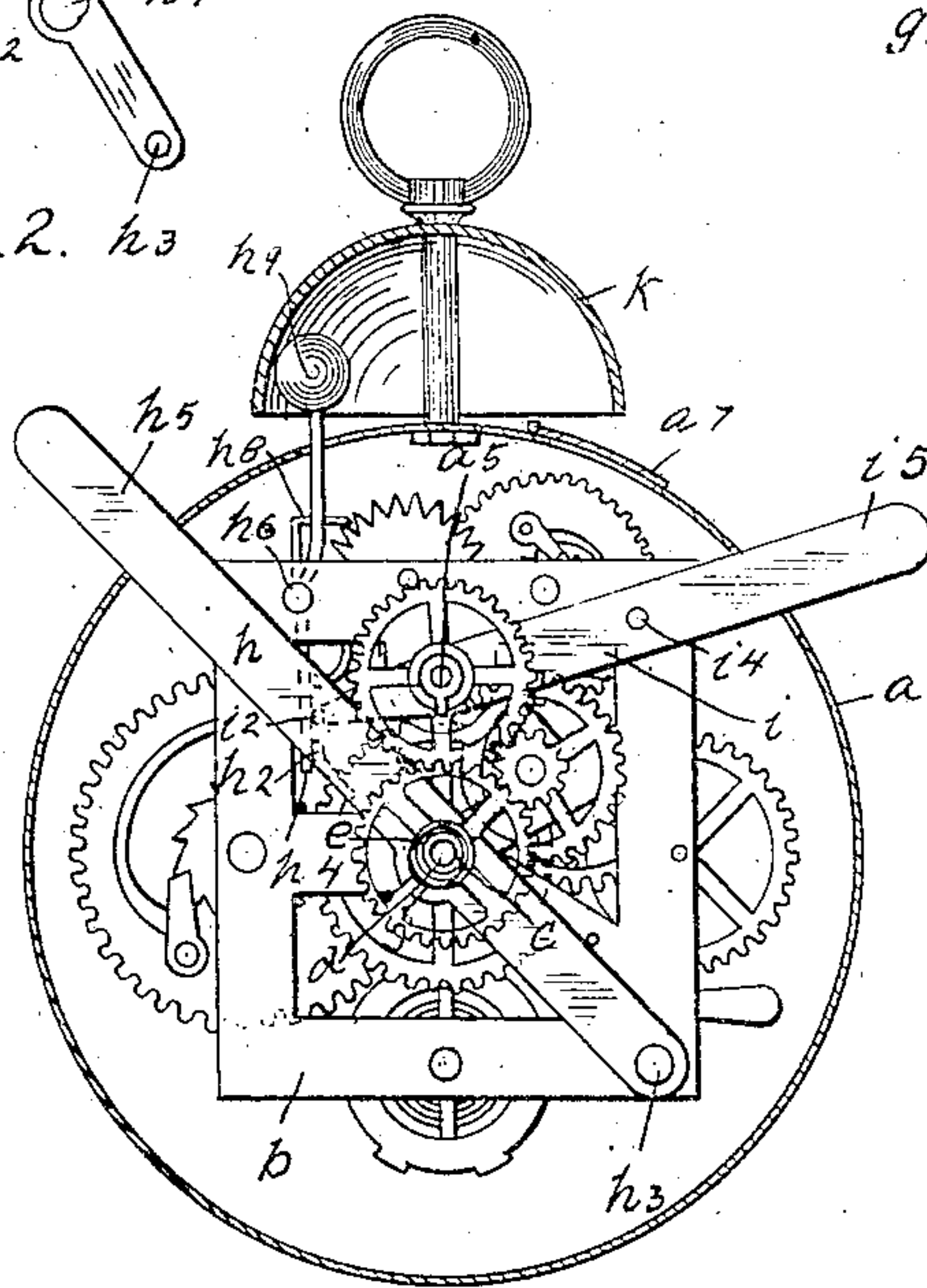


Fig. 11.

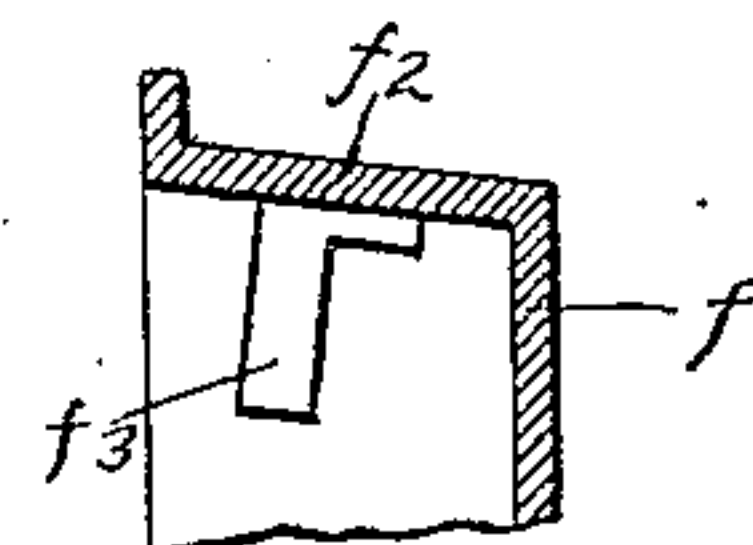
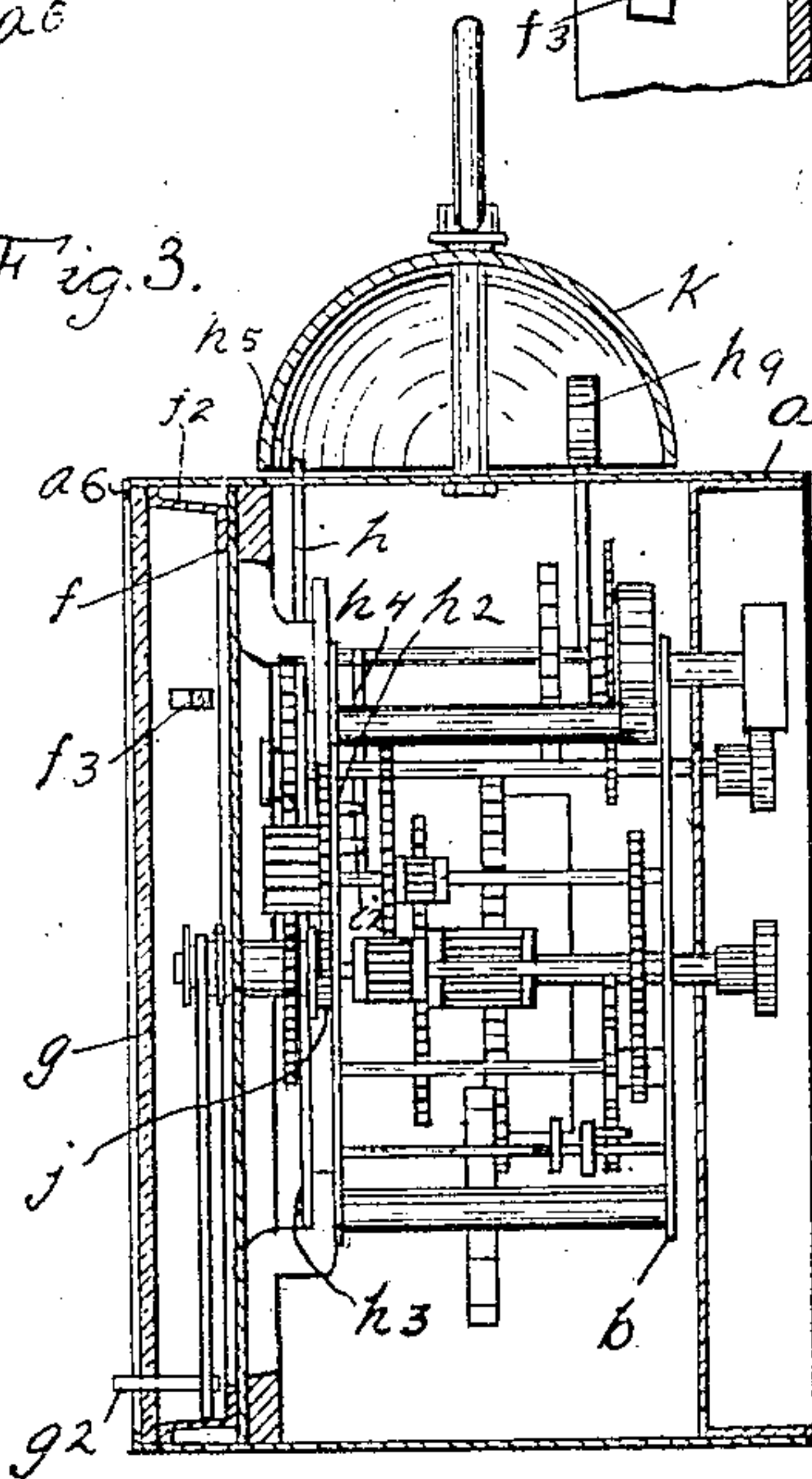


Fig. 3.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

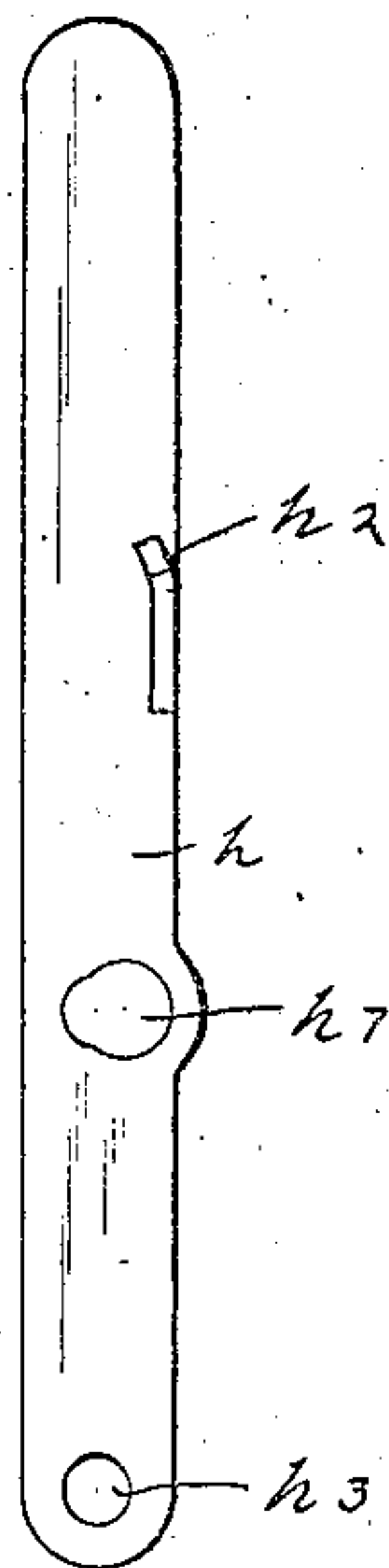


Fig. 5.

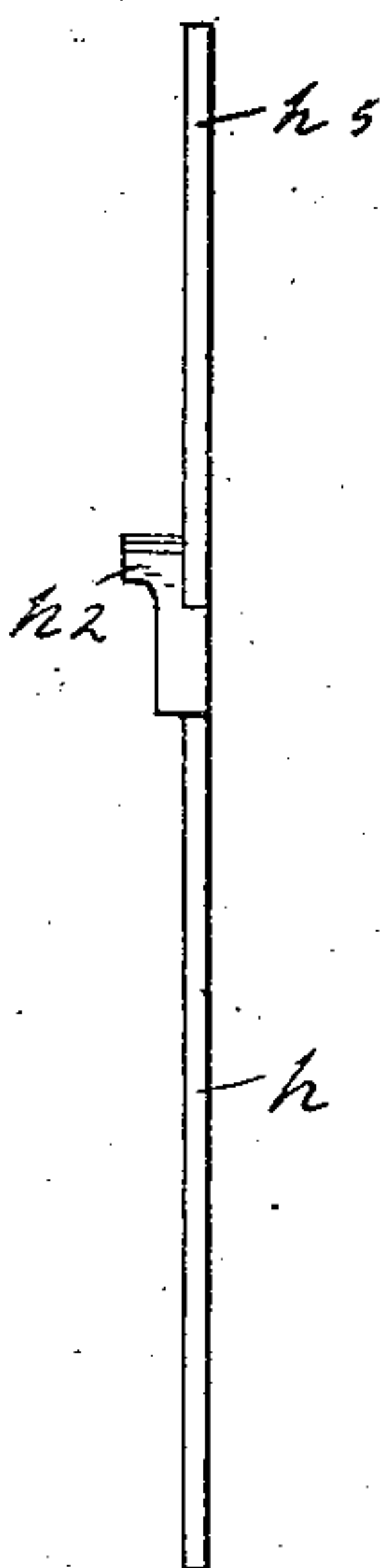


Fig. 6.

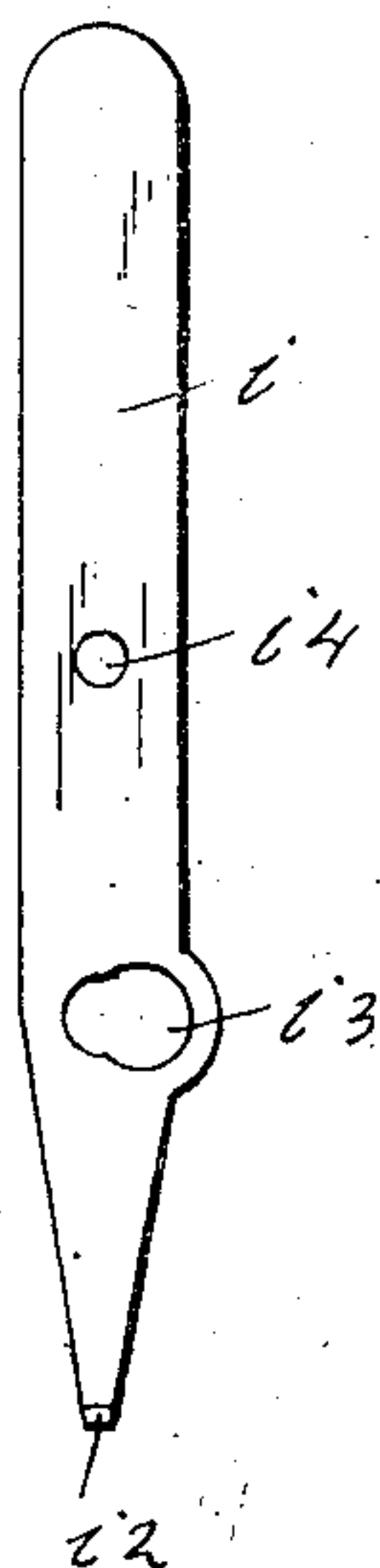


Fig. 7.

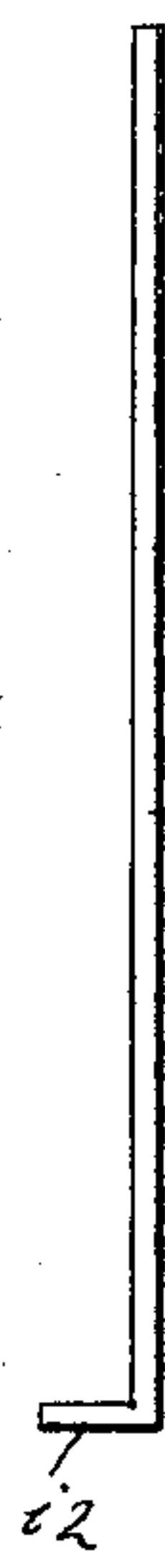


Fig. 8.

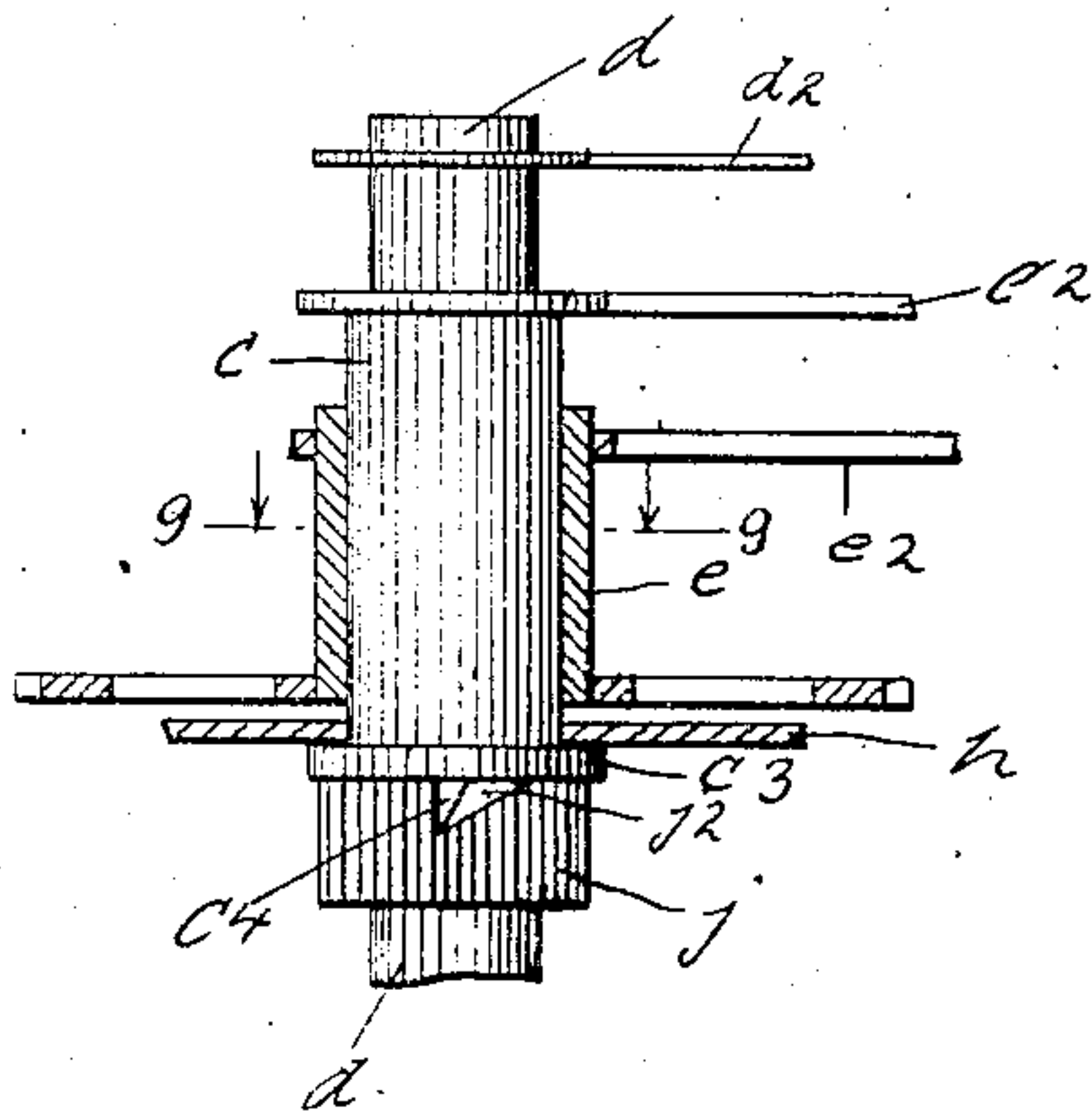
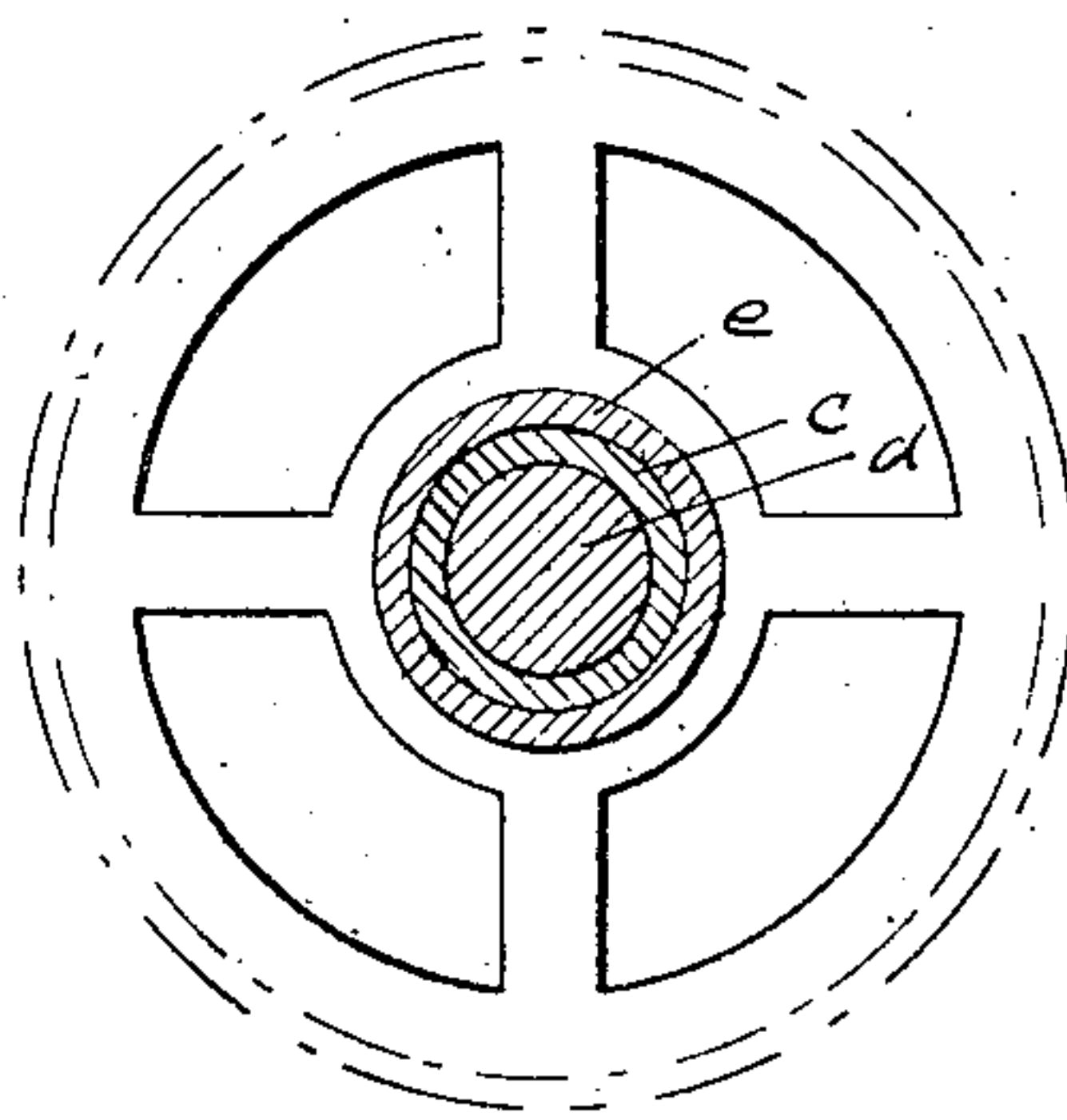


Fig. 9.



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# UNITED STATES PATENT OFFICE.

EDWARD EVEREATT GAGE, OF NEW YORK, N. Y.

## ALARM-CLOCK.

No. 878,871

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed March 15, 1907. Serial No. 362,443.

*To all whom it may concern:*

Be it known that I, EDWARD EVEREATT GAGE, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Alarm-Clocks, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to alarm clocks, and the object thereof is to provide an ordinary alarm clock having an alarm dial, and a hand movable over said dial and adapted to be set so that the alarm will be sounded at any hour, or certain fractional parts of an hour, with supplemental alarm setting devices whereby the alarm may be set to go off at any minute during the day or night, and means whereby the alarm may be thrown out of operation whenever desired.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which;—

Figure 1 is a face view of an ordinary alarm clock provided with my improvement; Fig. 2 a similar view with the front glass and dials removed and the case shown in section; Fig. 3 a sectional side view of the clock as shown in Fig. 1; Fig. 4 a side view of a spring lever which I employ; Fig. 5 an edge view thereof; Fig. 6 a face view of another spring lever which I employ; Fig. 7 an edge view thereof; Fig. 8 a sectional side view of the minute hand shaft or arbor and the parts mounted thereon in operative connection therewith; Fig. 9 a section on the line 9—9 of Fig. 8; Fig. 10 a perspective detail view of the escapement shaft, a trigger connected therewith and operating spring levers which I employ; and, Fig. 11 a section of a rotatable annular dial which I employ, said section being on the line 11—11 of Fig. 1.

In the drawing forming part of this specification, reference being made to Figs. 1 to 3 inclusive, I have shown an alarm clock of the usual form and which comprises a case  $a$  in which the usual clock mechanism or time mechanism is placed, the latter being mounted in a frame  $b$  secured in the case, and the time mechanism is in all respects similar to that of other clocks of this class, and the said clock is provided on the main dial  $a^2$  thereof

with a supplemental alarm dial  $a^3$  having an alarm set hand  $a^4$  which is connected with the shaft  $a^5$  in the usual manner. The clock mechanism is provided with the usual minute shaft or arbor  $d$  with which the minute hand  $d^2$  is connected and with the hour sleeve or arbor  $e$  with which the hour hand  $e^2$  is connected, and in the practice of my invention, I provide an intermediate or third arbor  $c$  through which the shaft or arbor  $d$  passes and on which the sleeve or arbor  $e$  is mounted, as clearly shown in Figs. 8 and 9. The sleeve or arbor  $c$  is provided with an alarm set operating hand  $c^2$ , the purpose of which is to indicate minutes in setting the alarm, but said operating hand and the shaft or arbor  $c$  do not turn except when operated in setting the alarm as hereinafter described.

Mounted on and rotatable on the outer portion of the main dial  $a^2$  is a rotatable minute dial  $f$  having an outwardly directed annular flange  $f^2$  on which the glass  $g$  is placed, and said glass is held in place by a flange or rim  $a^6$  on the clock case, and said glass is also rotatable with the dial  $f$ . The dial  $f$  is divided into twelve equal parts, each of which is provided with five subdivisions representing minutes, said parts being numbered from one to sixty from left to right, and the dial  $f$  is also provided with an inwardly directed lug or projection  $f^3$  in connection with which the operating hand  $c^2$  operates as hereinafter described. The front glass  $g$  of the clock is provided near its outer edge with a peg  $g^2$ , which passes through a suitable aperture formed therein, and by means of which the hand  $c^2$  and the rotatable dial  $f$  are operated, and the case of the clock is provided at  $a^7$  with a door or opening for the purpose of determining when the alarm spring is run down, notice of which is given by the said door being raised by said spring as it unwinds, this position of the door indicating that the alarm spring should be wound up. I also provide a spring lever  $h$  pivoted to the lower right hand corner of the frame  $b$  at  $h^3$ , and extending upwardly and diagonally across the front of the clock mechanism and projecting through a slot in the case  $a$ , and the upper end portion of which forms a handle by means of which said spring lever may be operated as hereinafter described, and said spring lever is provided with a backwardly directed lug  $h^2$  which operates in connection with a trigger  $h^4$  secured to the escapement shaft  $h^6$ , and



the said spring lever is also provided with an aperture  $h^7$  through which arbors  $c$  and  $e$  pass, and said aperture is enlarged to permit of the movement of the spring lever on said arbors so that the operator may throw the alarm mechanism into or out of operation at any time by simply moving the handle portion  $h^5$  of said lever up or down as may be required.

The spring  $i$  which in a clock of this class is secured to the upper right hand corner of the frame  $b$  as shown at  $i^4$ , and which is provided with a lug  $i^2$  which also operates in connection with the trigger  $h^4$  is also employed, and said spring  $i$  is also provided with an enlarged aperture  $i^3$  through which the alarm shaft  $a^5$  and sleeve mounted thereon pass, the aperture  $i^3$  being enlarged so as to permit of a slight movement of the spring  $i$  on its pivotal support at  $i^4$ , and in my improvement this spring is extended and passed through the case  $a$  and forms a lever adapted to be operated by hand to throw the main alarm mechanism out of operation.

In Figs. 3 and 8 of the drawing, I have shown at  $j$  the ordinary main or minute gear of the clock mechanism, and said gear is provided with a cam recess  $j^2$ , and the inner end of the arbor  $c$  with which the operating or supplemental alarm setting hand  $c^2$  is connected is provided with a flange  $c^3$  having a tooth  $c^4$  adapted to operate in the cam recess  $j^2$  in said gear and the spring lever  $h$  presses on the flange  $c^3$  and tends to hold said flange and the minute gear in connection, and the arbor  $c$  is movable longitudinally on the arbor  $d$ .

The glass  $g$  and the annular rotatable dial  $f$  are normally held stationary by friction, but when an operator desires to set the supplementary alarm mechanism the operation is as follows. Suppose it is desired to set the alarm mechanism so that said alarm will go off at twenty and a half minutes past nine as shown in Fig. 1. The regular alarm device is set for nine o'clock as shown in Fig. 1, and the operator takes hold of the peg  $g^2$  and turns the glass  $g$  to the left, in which operation the operating hand  $c^2$  is picked up, after which the end of the hand  $c^2$  engages the lug or projection  $f^3$  on the dial  $f$ , after which the said hand  $c^2$  and dial  $f$  are turned until the minute hand  $d^2$  and operating hand  $c^2$  are both in the same line at which time the hand  $c^2$  is automatically released from the dial  $f$  by the action of the spring lever  $h$  upon the flange  $c^3$  of the arbor  $c$  and the tooth  $c^4$  dropping into the recess  $j^2$ . The indicator hand  $c^2$  is then turned until it reaches the line of mark representing twenty-one minutes, or the twenty-first line or mark to the right of the sixty minute mark on dial  $f$ , and said hand is left in that position.

The escapement shaft  $h^6$  is provided with the usual escapement  $h^8$  and with the ham-

mer  $h^9$  of the alarm device which operates in connection with the bell or gong  $k$  in the usual manner, and it will be understood that the construction and operation of the clock mechanism other than as herein modified and described is the same as that of other clocks of this class. The projecting portion  $i^5$  of the spring  $i^4$  which passes through the casing  $a$  of the clock converts said spring into a lever and forms a handle by which it may be operated to throw the alarm device into or out of operation, and it will also be understood that as long as either the spring lever  $i^5$  or the spring lever  $h^5$  is in engagement with the trigger  $h^4$ , which is secured to the escapement shaft  $h^6$ , the alarm device cannot operate. It will also be observed that the indicator or operating hand  $c^2$  is located between the hour and minute hands and is adapted to move freely and independently of said hands.

By extending the end of the spring  $i$  through the casing of the clock and forming the same into a lever the main alarm mechanism may be thrown into or out of operation, whenever desired, thereby allowing the hour or minute alarm setting mechanism to be used separately or conjunctively.

My improved setting mechanism for alarm clocks is simple in construction and operation and may be applied to any clock of the class described, and changes therein and modifications thereof without sacrificing the advantages of my invention or departing from the spirit thereof is set out in the appended claims.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is—

1. An alarm clock provided with a supplemental alarm set dial, and means whereby the alarm may be set to operate at any hour or fractional parts thereof, and supplemental alarm set devices whereby the alarm may be set to operate at any minute of the day or night, comprising an annular rotary minute dial mounted on and inclosing the hour dial of the clock, a supplemental arbor slidably mounted on and rotatable on the minute arbor and on which the hour arbor is mounted, said supplemental arbor being provided on its inner side with a tooth adapted to enter a recess in the minute gear, a spring lever pivoted to the frame of the clock mechanism and provided with an aperture through which the supplemental arbor passes, said spring lever being passed out through the casing of the clock and adapted to be operated by hand, and an operating hand connected with the supplemental arbor and adapted during its rotation to engage and carry with it the annular minute dial and to be automatically released therefrom at a predetermined time, said spring lever being also adapted to engage a trigger connected



with the escapement shaft with which the hammer of the alarm device is also connected.

2. In a clock alarm setting mechanism, a supplemental tubular arbor mounted between the hour and minute arbors and provided at its inner end with a tooth adapted to engage a cam recess in the minute gear, and an indicator operating hand connected with the supplemental arbor and movable between the hour and minute hands, in combination with a spring lever mounted on the inner end of the supplemental arbor and one end of which is secured to the framework of the clock mechanism, said spring lever being adapted to engage a trigger secured to the escapement shaft.

3. In a clock alarm setting mechanism, a supplemental tubular arbor mounted between the hour and minute arbors and provided at its inner end with a tooth adapted to engage a cam recess in the minute gear, and an indicator operating hand connected with the supplemental arbor and movable between the hour and minute hands, in combination with a spring lever mounted on the inner end of the supplemental arbor and one end of which is secured to the framework of the clock mechanism, said spring lever being adapted to engage a trigger secured to the escapement shaft, and the free end of

said lever being projected through the casing of the clock.

4. A supplemental alarm setting mechanism for clocks, comprising a supplemental arbor mounted between the hour and minute arbors and provided with an operating hand movable between the hour and minute hands the supplemental arbor being provided at its inner end with a tooth adapted to engage a cam recess in the minute gear, a spring lever pivoted to the framework of the clock mechanism and adapted to move the supplemental arbor longitudinally and to engage a trigger secured to the escapement shaft, an annular rotary minute dial inclosing the hour dial of the clock, a rotary glass inclosing the dials of the clock, and a pin operating in connection with the operating hand and passing through said glass, said operating hand being adapted in its rotation to engage the annular minute dial and to release the same at a predetermined time.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 13th day of March, 1907.

EDWARD EVEREATT GAGE.

Witnesses:

C. E. MULREANY,  
A. WORDEN GIBBS.