

(No Model.)

4 Sheets—Sheet 1.

A. JUNGHAUS.

WATCH.

No. 370,146.

Patented Sept. 20, 1887.

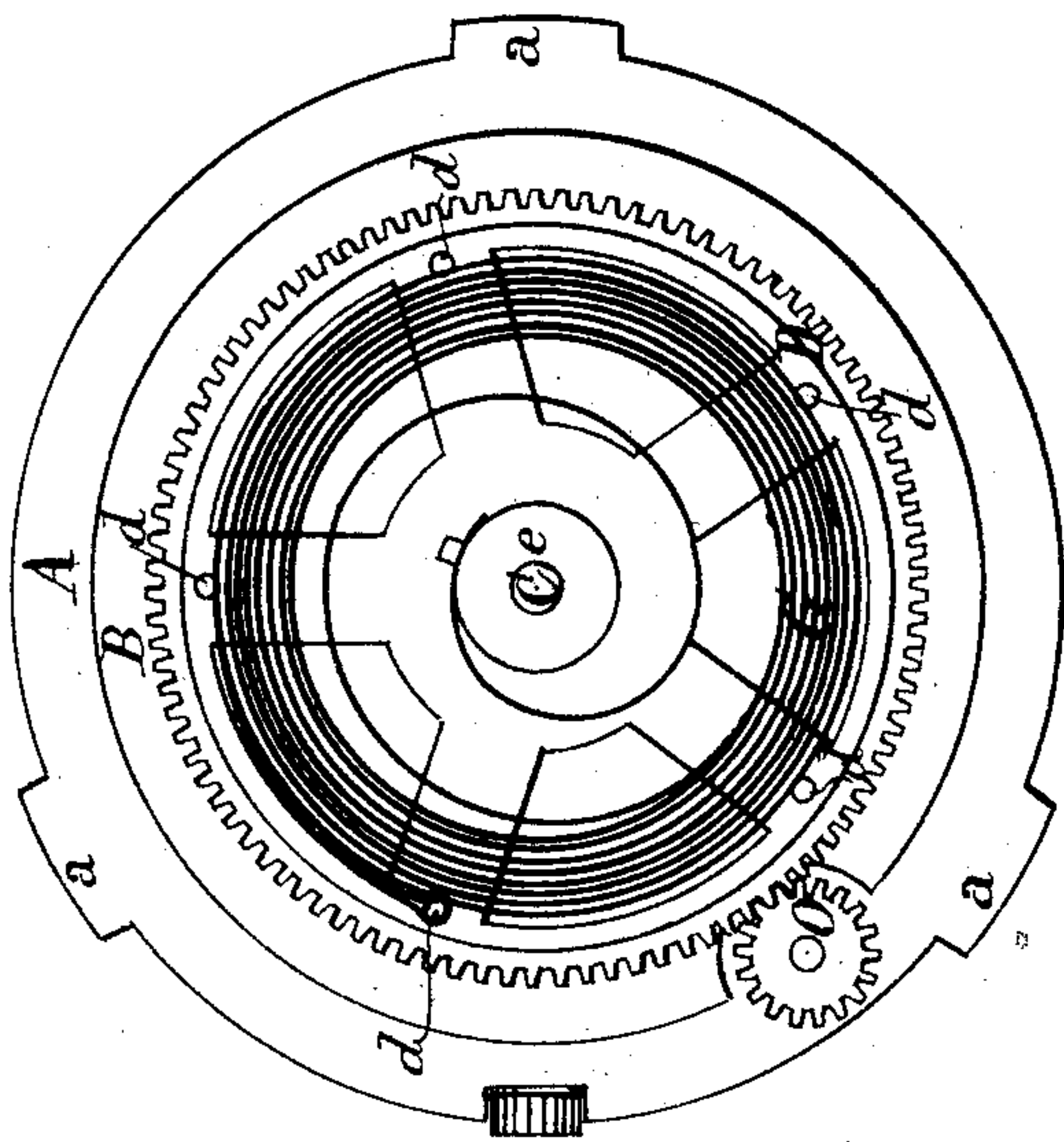
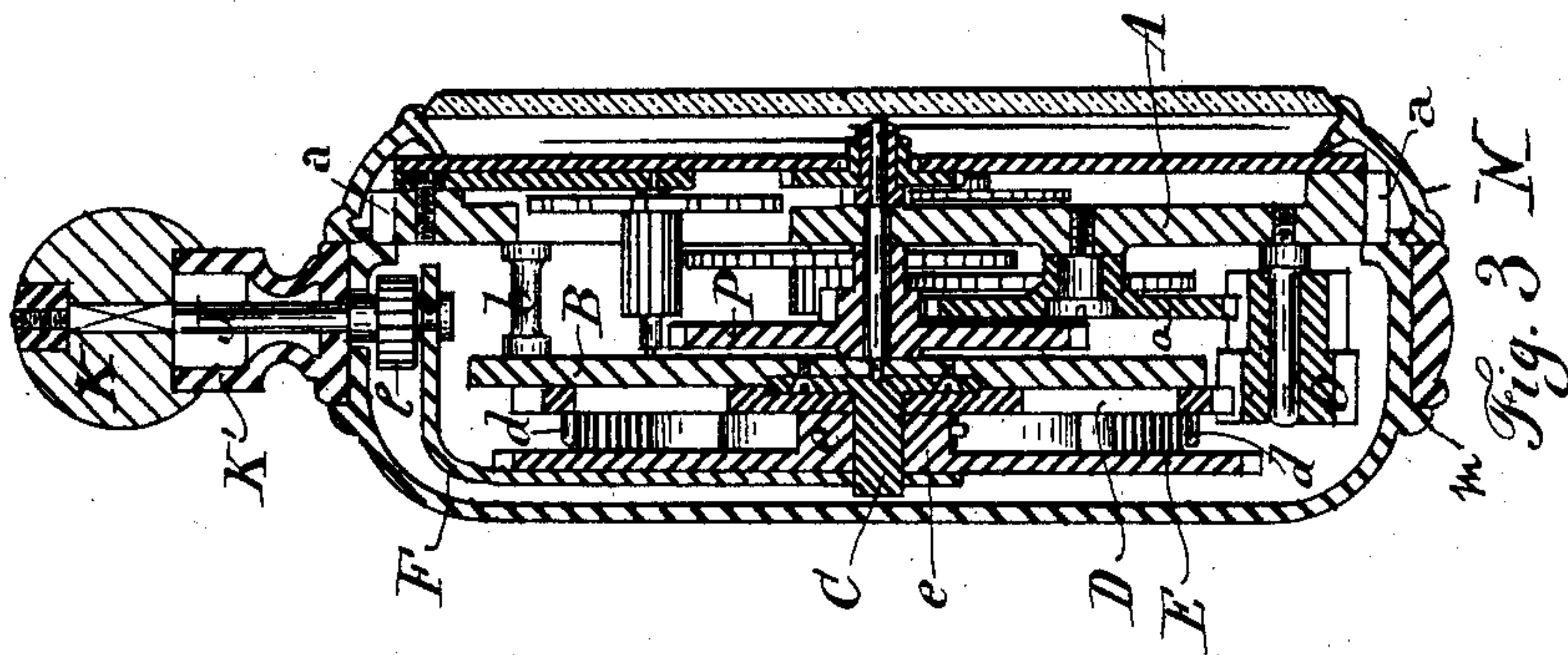


Fig. 2

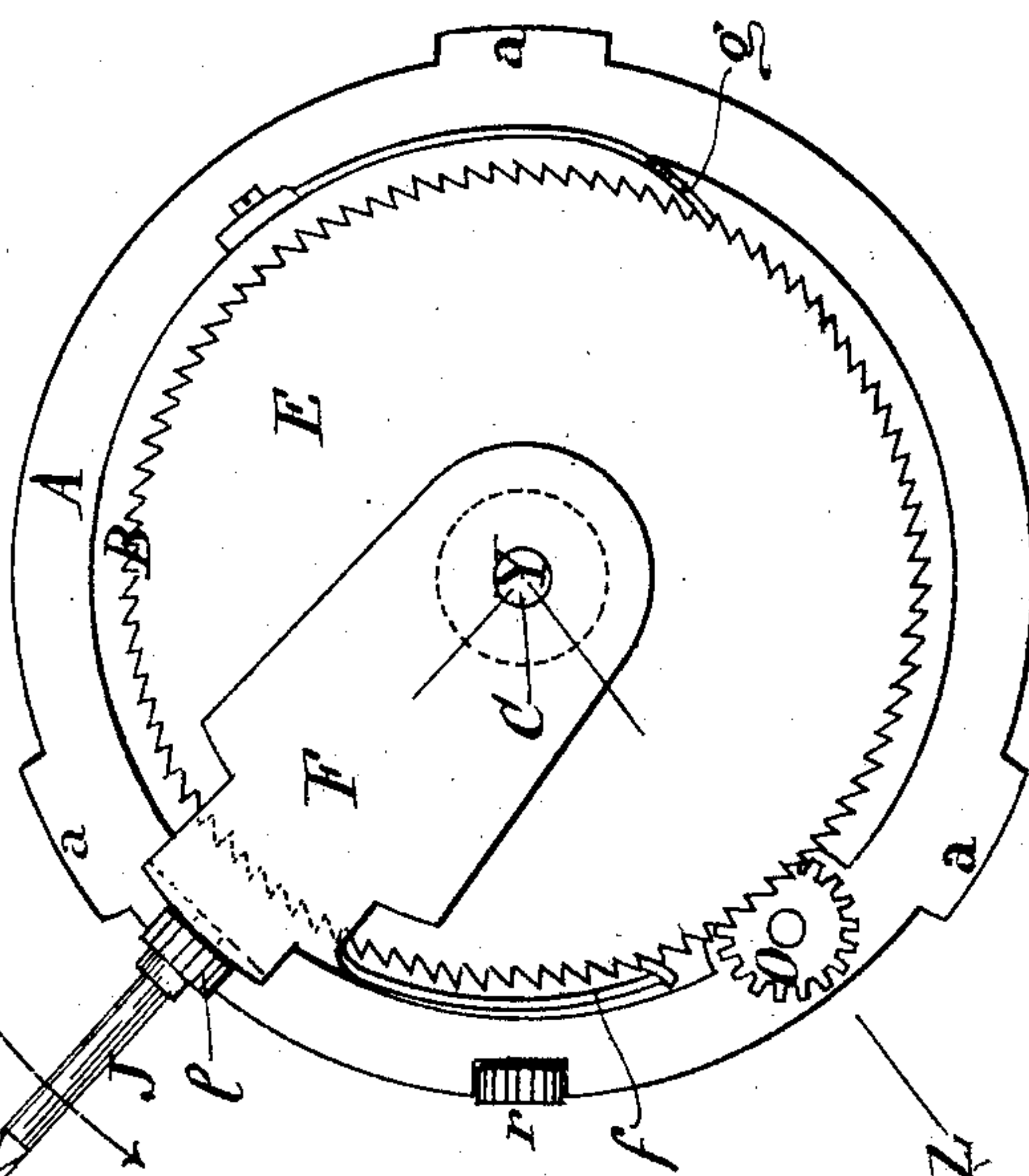


Fig. 1

Witnesses

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Arthur Junghaus  
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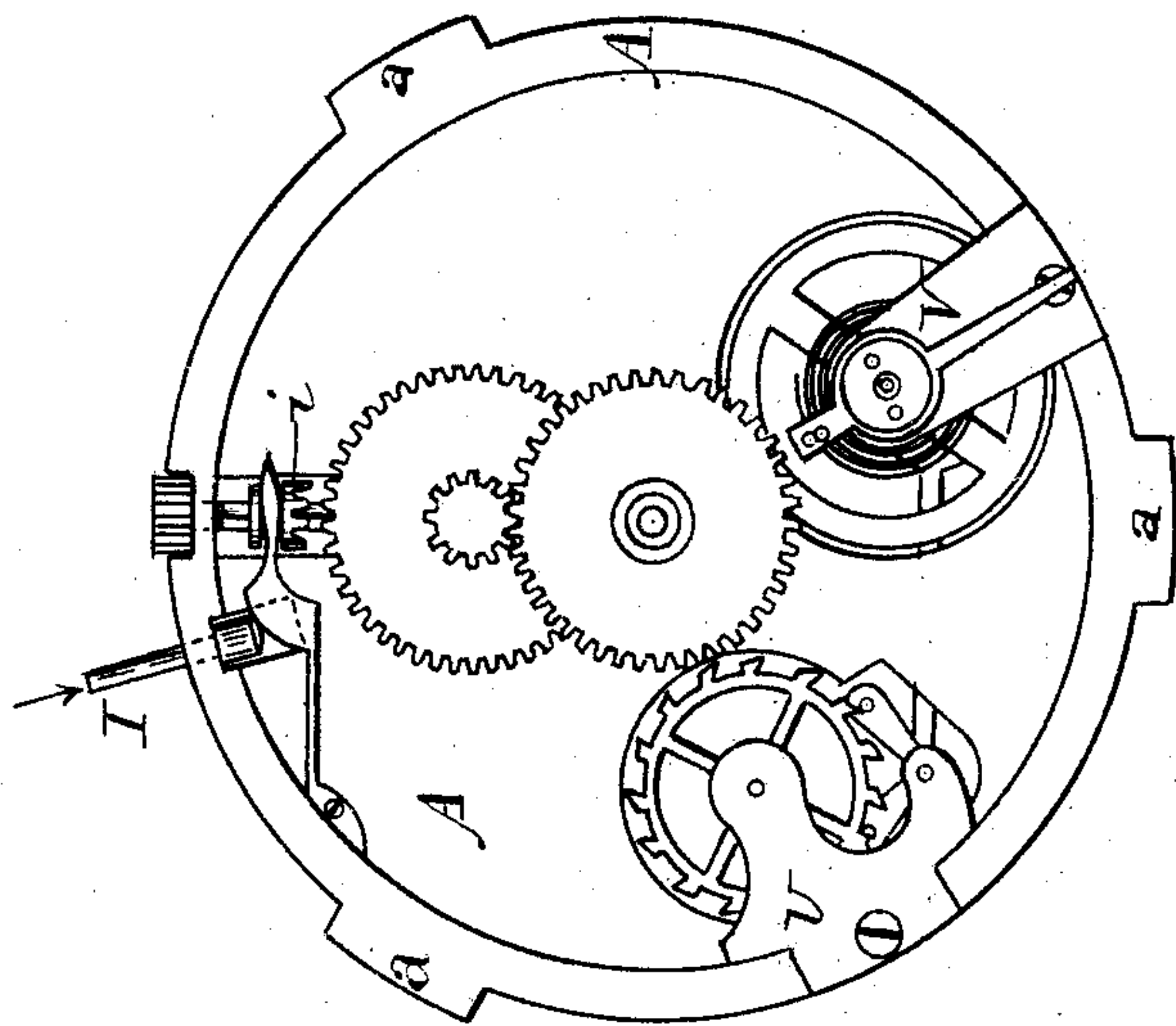


Fig. 5.

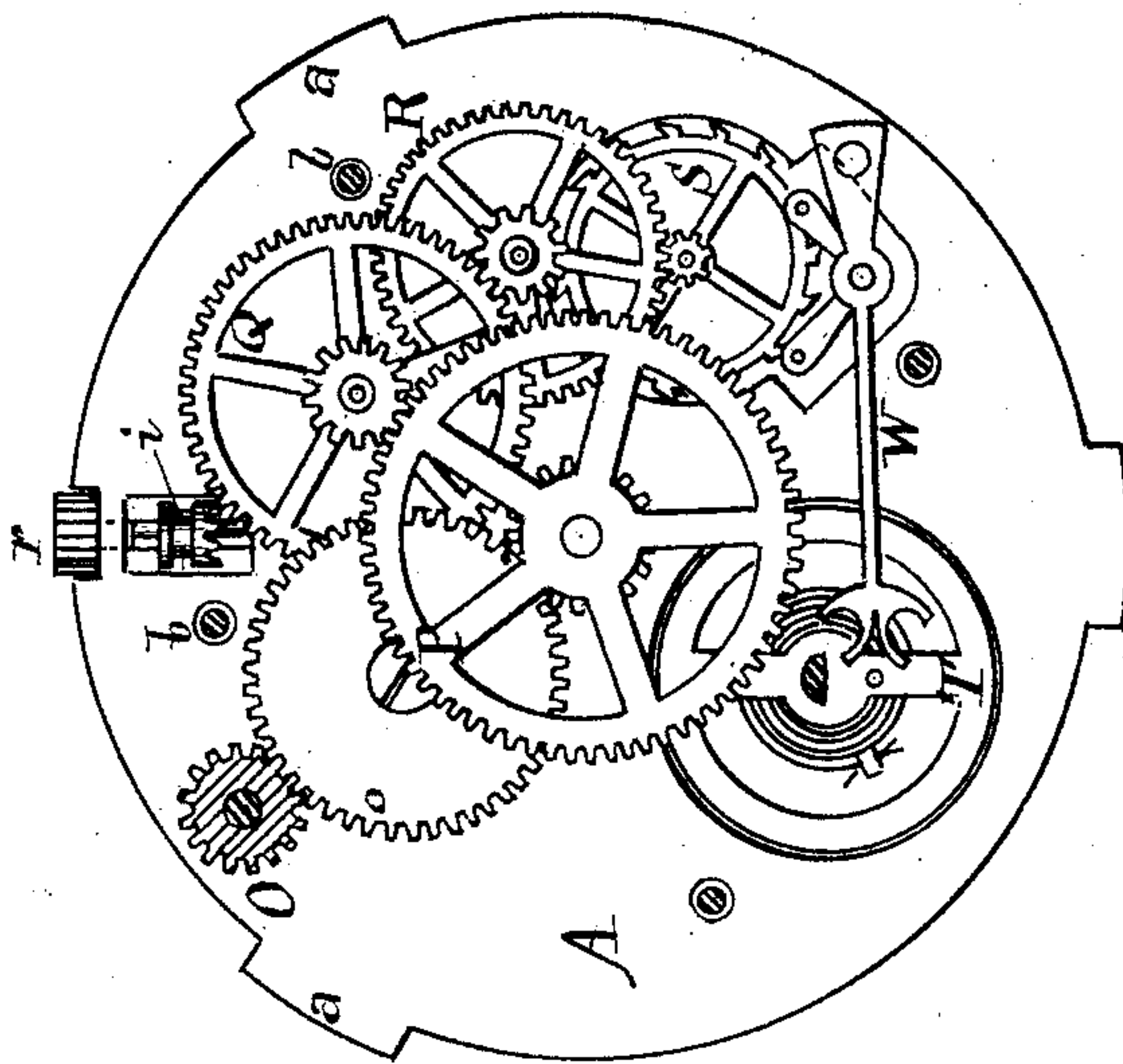


Fig. 4.

Witnesses.

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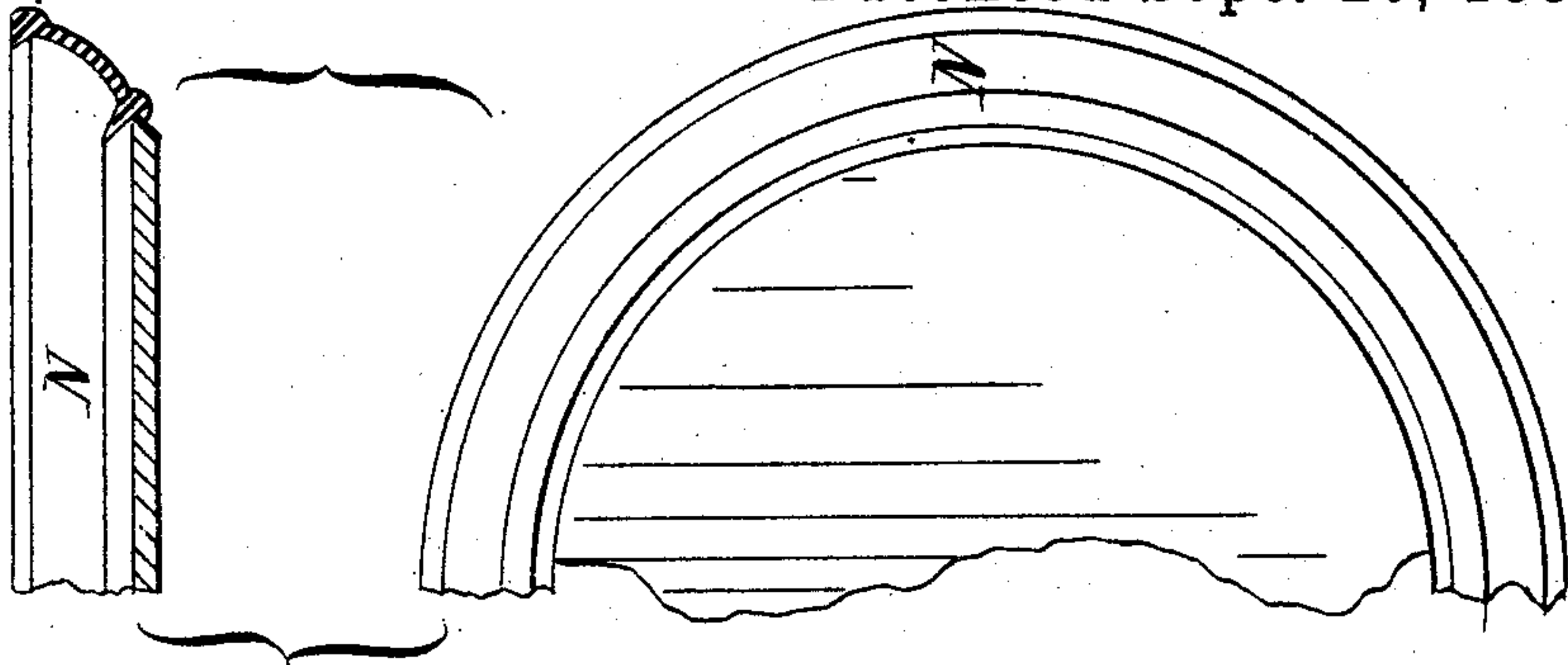


Fig. 8

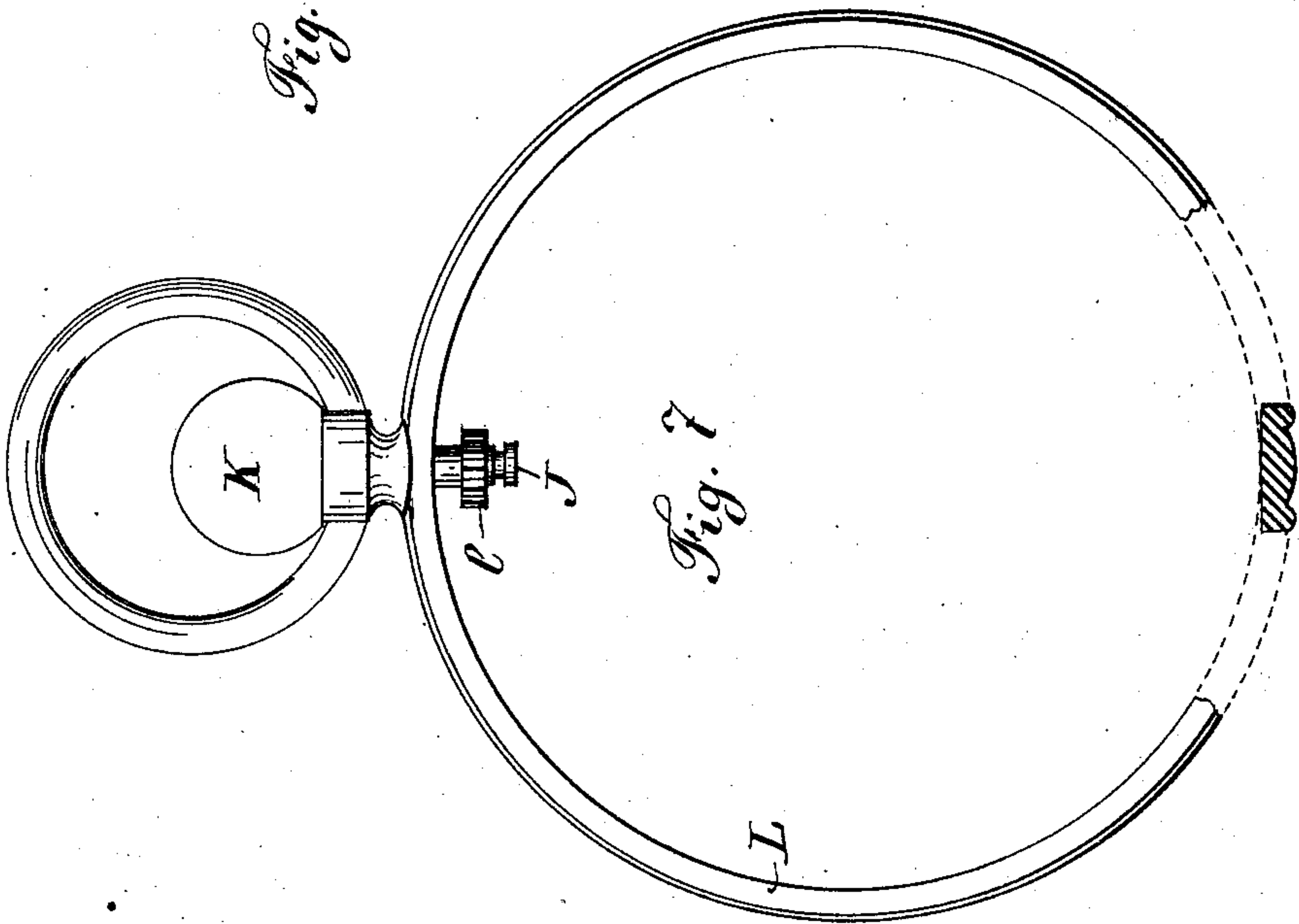


Fig. 7

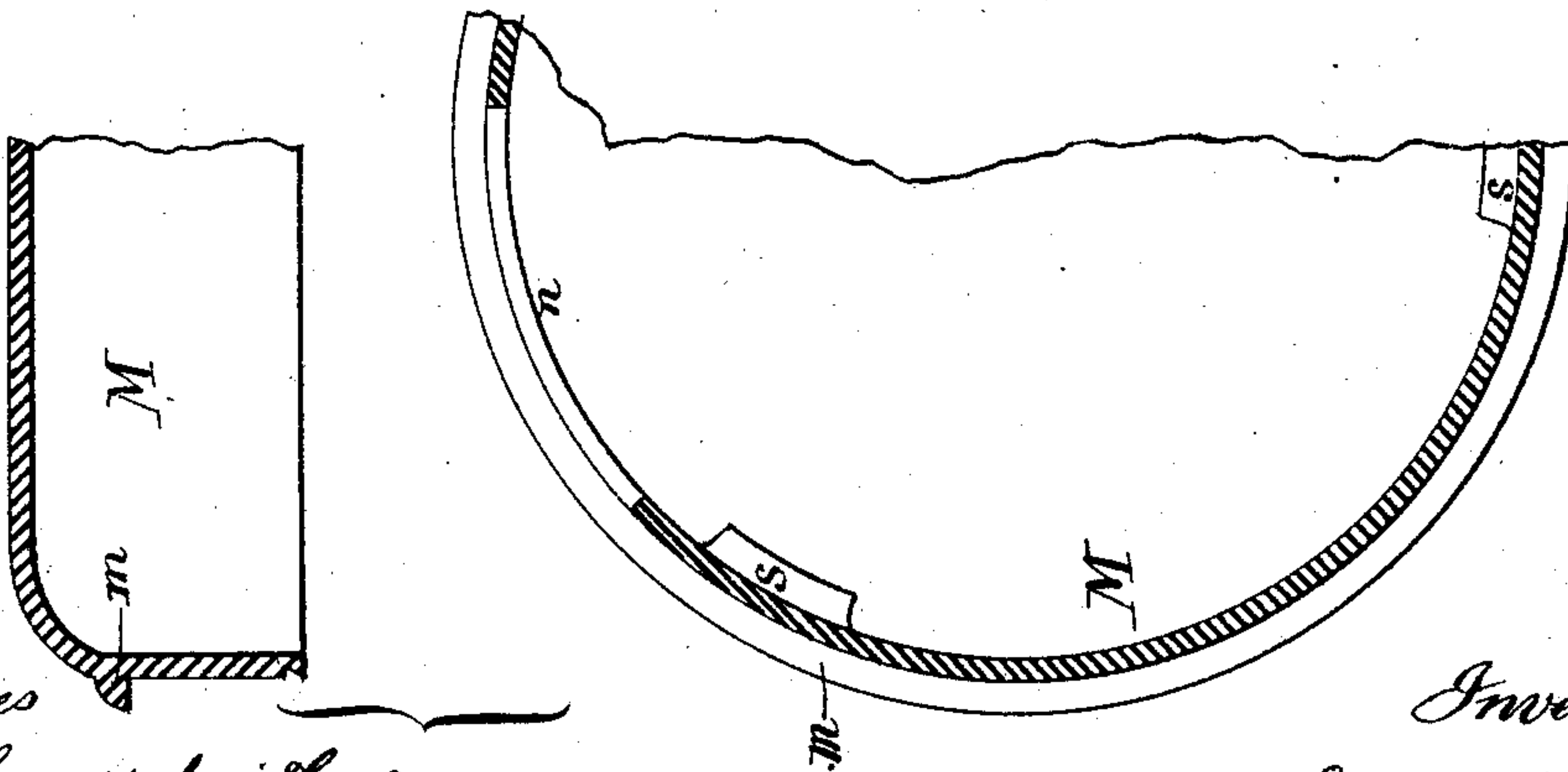


Fig. 6

Witnesses

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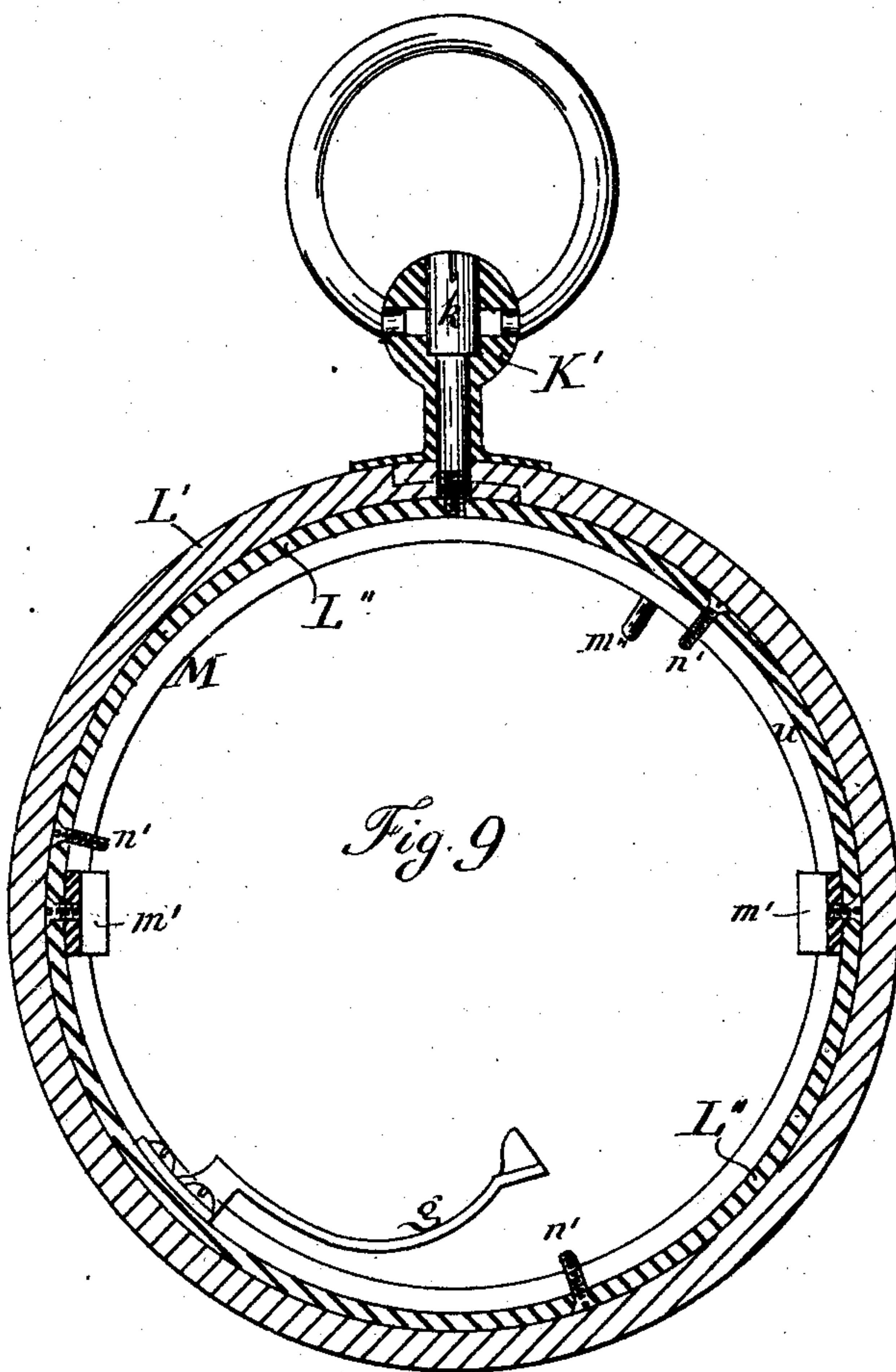
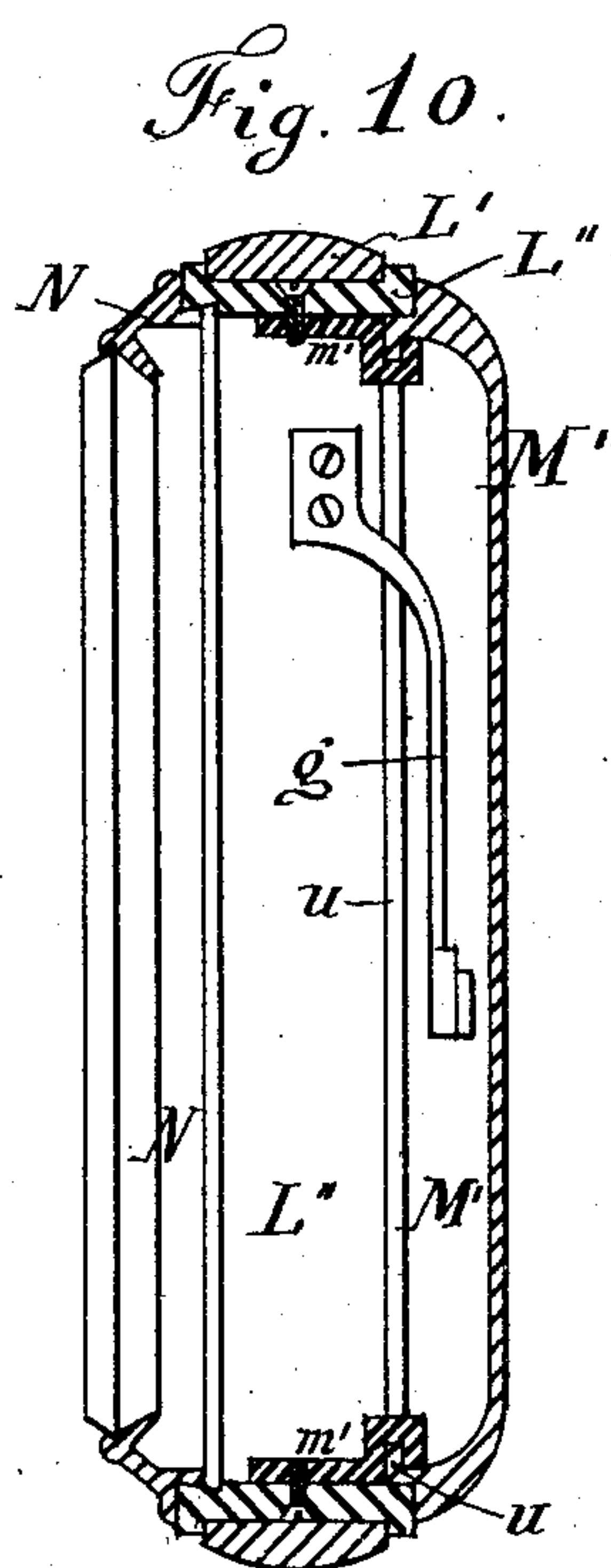
4 Sheets—Sheet 4.

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WATCH.

No. 370,146.

Patented Sept. 20, 1887.



Witnesses.

Chas. H. Smith  
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Inventor

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per Lemuel W. Merrill att.



# UNITED STATES PATENT OFFICE.

ARTHUR JUNGHANS, OF SCHRAMBERG, WÜRTEMBERG, GERMANY,  
ASSIGNOR TO GEBRÜDER JUNGHANS, OF SAME PLACE.

## WATCH.

SPECIFICATION forming part of Letters Patent No. 370,146, dated September 20, 1887.

Application filed February 18, 1887. Serial No. 228,021. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR JUNGHANS, watch-manufacturer, of Schramberg, Kingdom of Württemberg, Germany, have invented certain new and useful Improvements in Watches, of which the following is a specification.

My invention consists of a watch mechanism having the following advantages: first, possibility of providing the watch with a very strong mainspring; second, easily-working winding-up mechanism in spite of the extraordinary strength of the mainspring, in combination with a mechanism for setting the hands by the pendant; third, strong toothed wheels and a cheap escapement can be employed which work with the utmost precision, notwithstanding their finish and cost.

In the accompanying drawings, Figure 1 shows the winding-up mechanism as it may be seen on the movement when the latter is taken out of its case. Fig. 2 shows the barrel and the mainspring after removing the winding-up mechanism. Fig. 3 is a section through  $x$   $y$  of Fig. 1. Fig. 4 is a view of the work after removing the plate B. Fig. 5 shows the wheels placed under the dial. Figs. 6, 7, and 8 show separately the pieces which compose the watch-case and the winding-up ring. Fig. 9 is a longitudinal section through the case, and Fig. 10 is a cross-section of the same.

In all the figures similar letters refer to similar pieces.

The movement is between two plates, A and B, which are connected together by four pillars,  $b$ . The works are held within the case M either by means of three projections,  $a$ , formed upon the periphery of plate A, resting upon flanges  $s$  of the case M, or in any usual manner employed for fastening the movements into watch-cases. On the center of plate B there is affixed a pillar, C, which becomes the pivot for the barrel-wheel D, the ratchet-wheel E, and the winding-up lever F, Fig. 1.

The barrel D is composed of a large gear-wheel having five pins,  $d$ . The outer end of the mainspring G is affixed to one of those pins. The other pins are intended to maintain the mainspring in place when the same is unmoved. The inner end of the mainspring

G is affixed to a sleeve,  $e$ , which is of one piece with the ratchet-wheel E, Fig. 2. A click-spring,  $g$ , affixed to plate B, prevents the turning back of the ratchet-wheel E, and a lever, F, which is provided with a click,  $f$ , which moves upon the pivot C, causes the ratchet E to turn and to wind up the mainspring when it is moved back and forth. This motion is produced by means of the stem J. The pendant K' is affixed to the ring L, Fig. 7, which slides on the periphery of the watch-case M, between the fillet  $m$  and glass-bezel N.

The case M is provided with a slit,  $n$ , in which the stem J slides. The crown K is connected with the stem and pinion  $l$ , which pinion is upon the stem and acts upon the usual hand-setting gear-wheels through the medium of a pinion,  $r$ , and a sliding crown-pin,  $i$ , when the push-piece I and lever are acted upon and the crown turned.

The setting of the hands can only take place when the pinions  $l$  and  $r$  are in gear. This is the case when the pendant is placed beyond twelve o'clock. The barrel-wheel D gears into a double pinion, O, placed on the border of the plate, and which transmits the motion of barrel-wheel D to the pinion of the center wheel, P, by means of an intermediate wheel,  $o$ . Wheel P acts upon the pinion of a second wheel, Q, which engages with the pinion of a third wheel, R. The latter drives the pinion and escapement-wheel S, which, as well as the balance-wheel T, is placed in an opening in the plate A.

The arbor of the escapement-wheel S and balance-wheel T are supported at one end by the plate B and at the other end by the bridges U and V. (See Fig. 5.)

The large dimensions of the parts render the manufacturing of this watch so easy that no special workmen are required.

The winding up of the mainspring—that is to say, the to-and-fro motion of the lever F and of its click  $f$ —may also be produced by turning to and fro the metal case M of the watch-case constructed as shown in Fig. 10.

The mechanism of the watch is affixed by means of screws  $n'$  to a ring, L'', which carries two guide-blocks,  $m'$ , in which slide the inwardly-turned edge  $u$  of the metal case M.



The latter is provided with a pin,  $m''$ , (see Fig. 9,) which engages with the lever F in any desired manner, so as to transmit to the latter its own to-and-fro motion to wind up the  
5 mainspring.

The pendant K' is affixed through the ring L' to the ring L'' by means of a screw,  $k$ , which secures at the same time the rings L' and L'' together. The spring  $g$ , which prevents a  
10 back motion of the ratchet-wheel E, is affixed to ring L'' or to the plate of the work.

I claim as my invention—

1. In watches, the combination of the pillar C, placed in the center of the watch, with a  
15 barrel-wheel, D, having five or more pins,  $d$ , a strong mainspring, G, a ratchet-wheel, E, the click-spring  $g$ , and the ratchet-lever F, having a click-spring,  $f$ , substantially as shown and described, and for the purposes set forth.

20 2. The combination, with the case M, having a slit,  $n$ , the ring L, pendants K', and crown K, of a stem, J, ratchet-lever F, and ratchet-

wheel E, for winding up the mainspring, the pinions  $l$  and  $r$ , push-piece I and its lever, and the crown-pinion  $i$ , for setting the hands upon  
25 the shifting of the lever F, substantially as and for the purposes specified.

3. The combination of a case, M, having a slit,  $n$ , a ring, L, bearing the pendant K', provided with a crown, K, a stem, J, and pinion  
30 I, and pinion  $r$ , and the bezel N, substantially as shown and described, and for the purposes specified.

4. The combination, with the case, ring L'', having the work-guides  $m'$   $m'$ , which slide,  
35 the edge  $u$  of the metal case M', and pin  $m''$ , the winding-up lever F, and mechanism connected therewith and to the mainspring, as shown and described, and for the purposes set forth.

ARTHUR JUNGHANS.

Witnesses:

OTTO MEWES,

A. SCHNEIDER.