

W. W. BILLINGS.

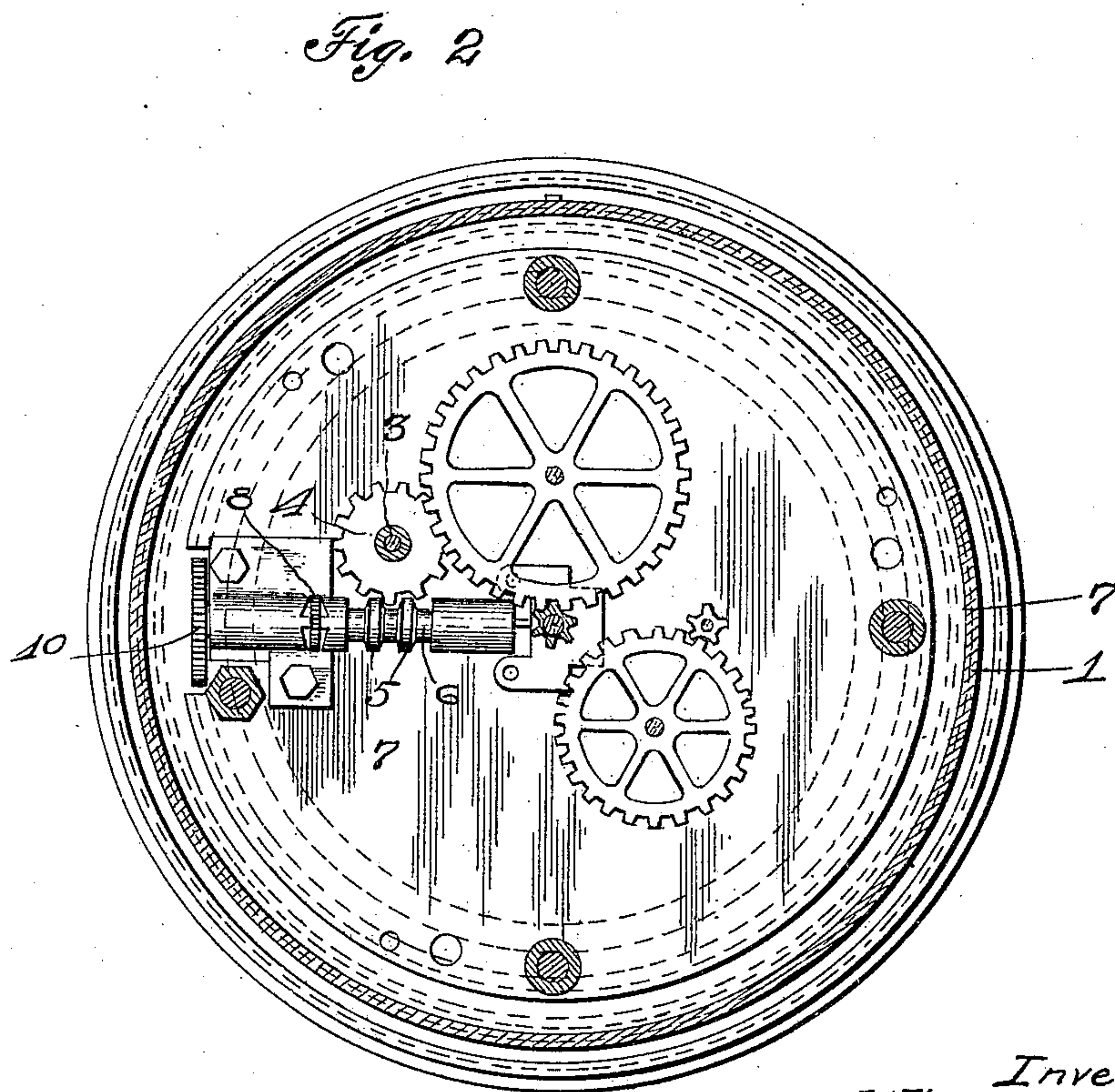
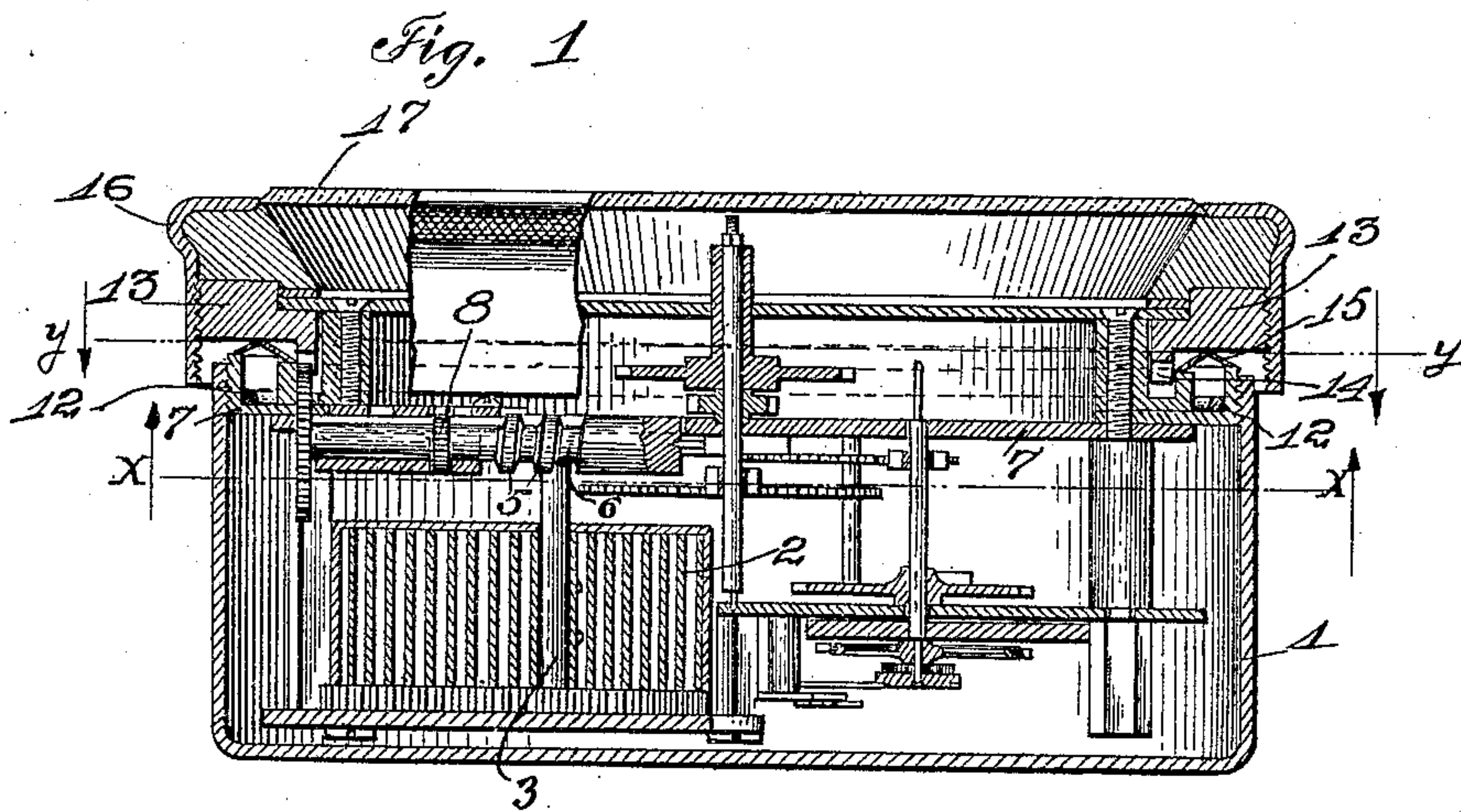
CLOCK.

APPLICATION FILED APR. 25, 1910.

990,697.

Patented Apr. 25, 1911.

2 SHEETS—SHEET 1.



Witnesses  
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*B. Y. Richards*

Inventor  
*William W. Billings*  
By *Joshua R. H. Felle*  
His Attorney

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2 SHEETS-SHEET 2.

Fig. 3

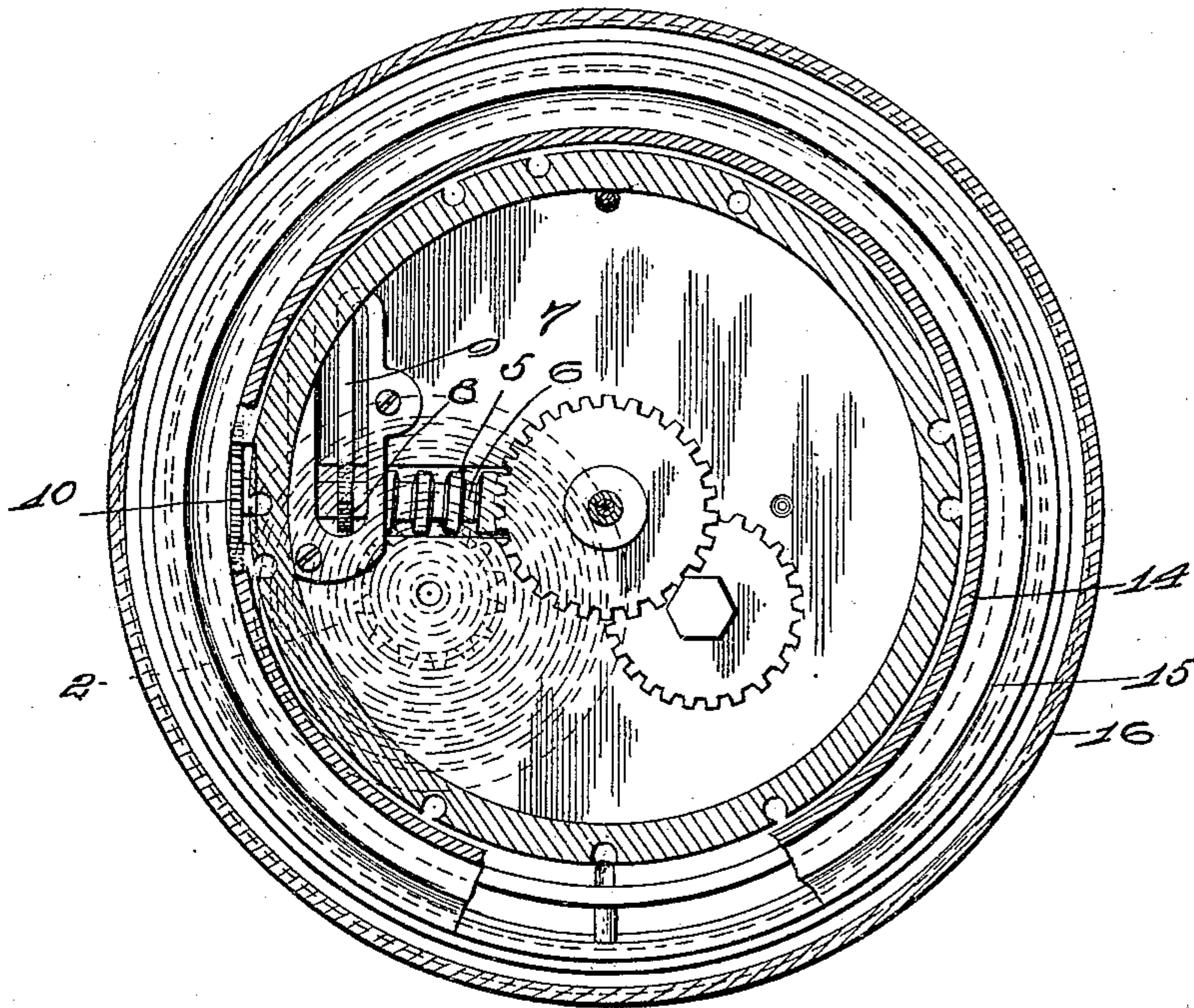


Fig. 4

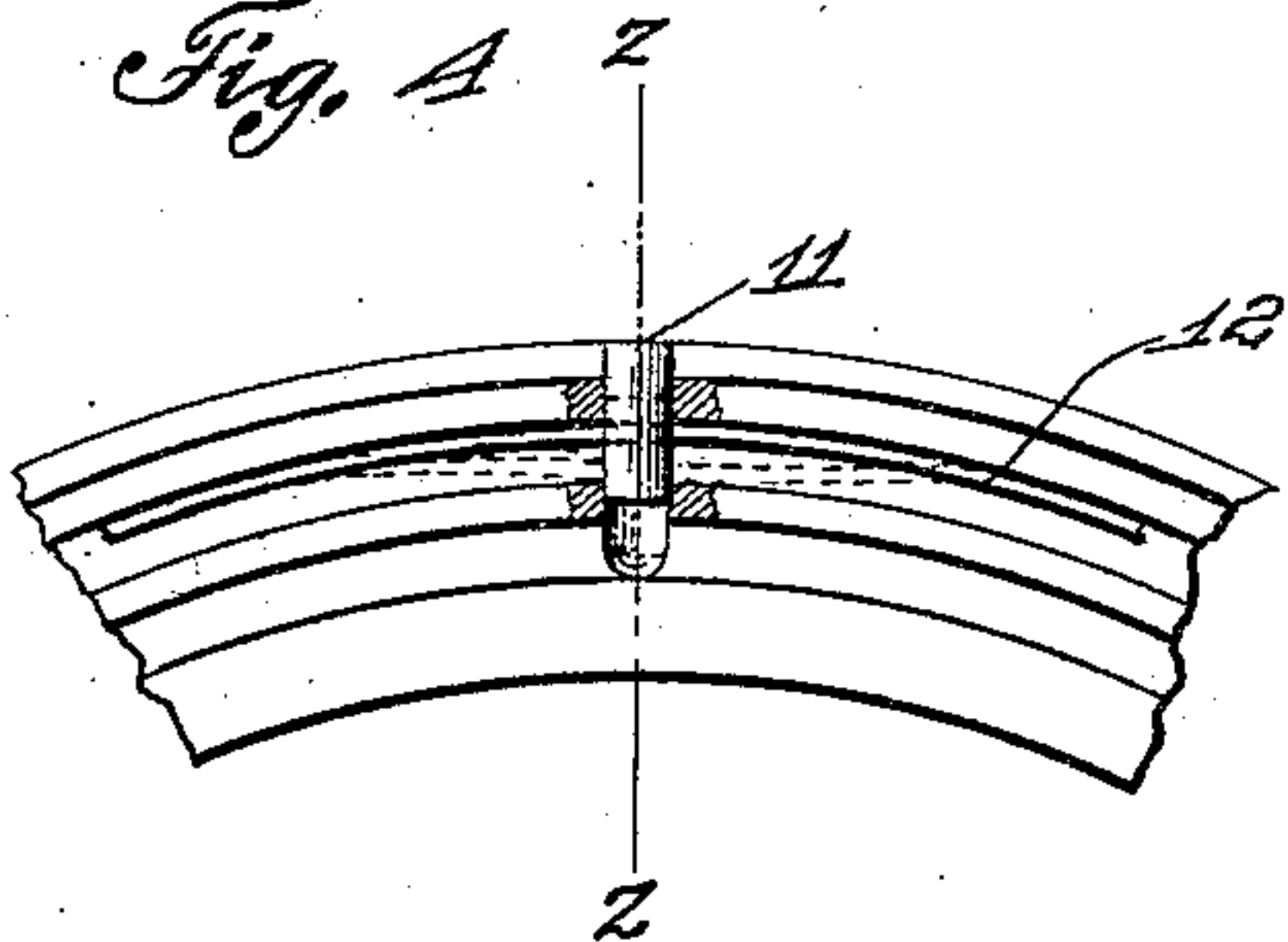


Fig. 5

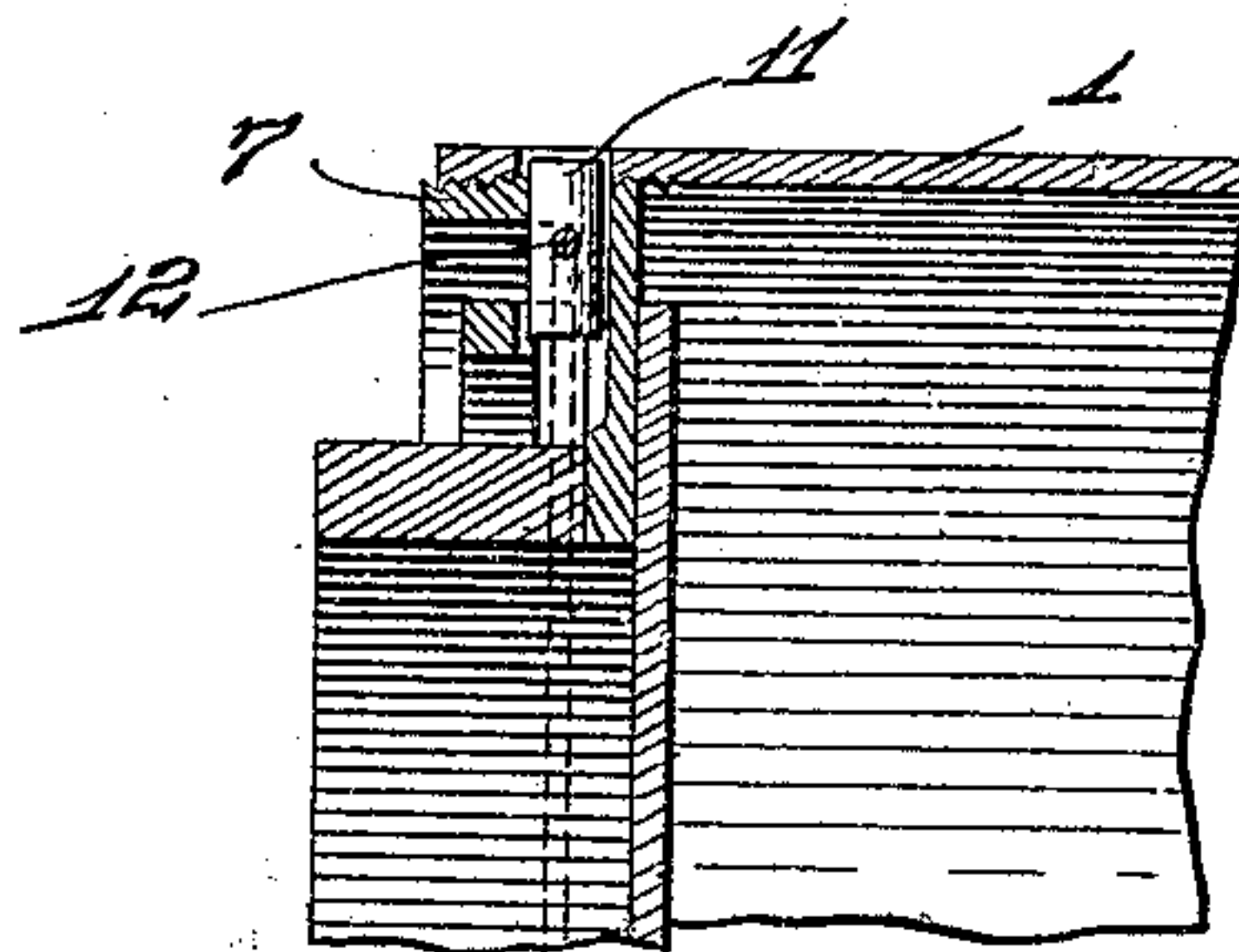
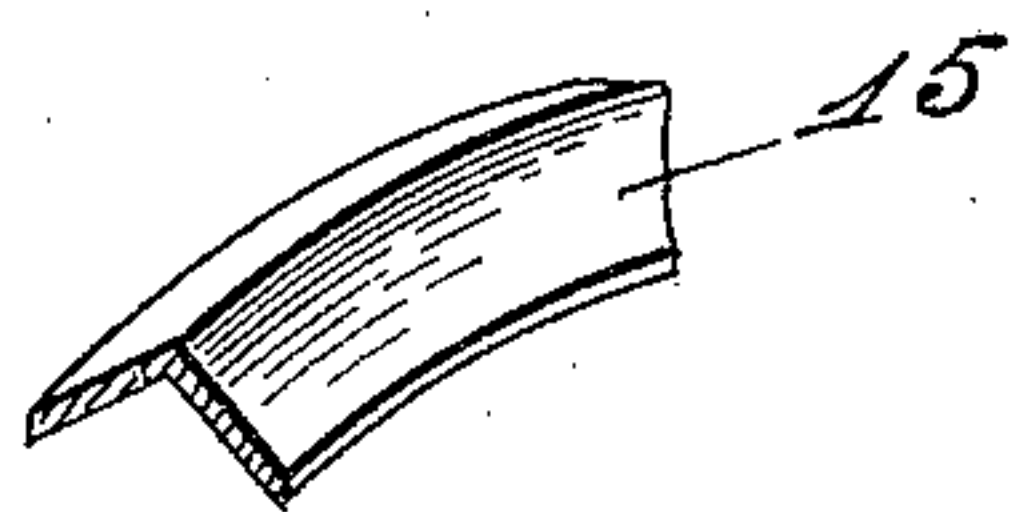


Fig. 6



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM W. BILLINGS, OF CHICAGO, ILLINOIS, ASSIGNOR TO HAHN AUTO CLOCK COMPANY, OF CHICAGO, ILLINOIS.

CLOCK.

990,697.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed April 25, 1910. Serial No. 557,439.

*To all whom it may concern:*

Be it known that I, WILLIAM W. BILLINGS, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Clocks, of which the following is a specification.

My invention relates to improvements in clocks, especially to rim-winding clocks and the object of the invention is to provide a clock of the nature set forth which shall be of simple construction and efficient in operation.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a sectional elevation of a clock embodying my invention, Fig. 2, a section on line  $x-x$  of Fig. 1, Fig. 3, a section on line  $y-y$  of Fig. 1, Fig. 4, a detail illustrating the construction for locking certain members of the clock together, Fig. 5, a section on line  $z-z$  of Fig. 4, and Fig. 6, a perspective view of a section of the sealing spring employed.

The preferred form of construction as illustrated in the drawings comprises a cup-like cylindrical casing 1 containing any usual or desired form of clock mechanism comprising a main spring 2. Main spring 2 is provided with a winding shaft 3 carrying a worm wheel 4 meshing with a worm gear 5 on a radially disposed shaft 6. Shaft 6 is rotatably mounted on the closing member 7 which is threaded into the open end of casing 1 and carries all of the operative mechanism of the clock. Shaft 6 carries a ratchet wheel 8 projecting outwardly through an opening in closing member 7 and engaging a spring pawl 9 secured to the outer face of member 7 and adapted to prevent retrograde movement of shaft 6. At its outer end shaft 6 also carries a pinion 10 projecting outwardly through a suitable opening in member 7. Member 7 and casing 1 are provided with registering openings adapted to receive a radially operating pin 11 carried by an annular spring 12 mounted on member 7, said pin serving to automatically lock said parts together when said

openings are brought to registering position. A crown gear member 13 is rotatably mounted on closing member 7 and provided with crown gear teeth 14 meshing with pinion 10. An annular spring 15 V-shaped in cross section is interposed between members 7 and 13 and serves as a sealing spring to exclude dust and a tension member to prevent rattling. A closing cap 16 is threaded to gear member 13 and carries the usual glass or crystal covering the face of the clock. Members 16 and 7 are threaded in the same direction and also in the direction in which tightening of said threads tends to cause positive rotation of crown gear member 13 and consequent winding of main spring 2. In the construction illustrated in the drawings this arrangement is such that both of said threads are left-hand threads.

In use, the clock is wound by turning closing cap 16 to the left or counter clock-handwise. The parts may be readily taken apart by turning cap 16 to the right which will unscrew the same from gear member 13. Then closing member 7 may be removed by depressing pin 11 and turning to the right. This construction will be found to provide a simple and effective rim-winding clock and one especially adapted for use on automobiles.

While I have illustrated and described the preferred form of construction for carrying my invention into effect this is capable of variation or modification without departing from the spirit of the invention. I therefore do not wish to be limited to the exact details of construction set forth but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. In a clock of the class described, the combination of a casing; clock mechanism, comprising a main spring, mounted in said casing; a worm wheel connected to wind said main spring; a worm gear meshing with said worm wheel; a radially disposed shaft carrying said worm gear; a pinion on said shaft; a rotatable closing cap for said casing; and a crown gear carried by said cap and meshing with said pinion, substantially as described.



2. In a clock of the class described, the combination of a cylindrical casing; clock mechanism, comprising a main spring, mounted in said casing; a worm wheel connected to wind said main spring; a radially disposed shaft carrying a worm gear meshing with said worm wheel; a closing member threaded in said casing; means for locking said closing member against rotation on said casing; a crown gear member rotatably mounted on said closing member; a pinion on said radial shaft meshing with said crown gear; and a closing cap threaded to said crown gear member, substantially as described.

3. In a clock of the class described, the combination of a cylindrical casing; clock mechanism comprising a main spring mounted in said casing; a closing member threaded in said casing, there being radial registering openings in said closing member and said casing; an annular spring carried by said closing member; a radially disposed pin carried by said spring and arranged to operate in said registering openings; a crown gear member rotatably mounted on said closing member; an annular sealing spring V-shaped in cross section and interposed between said closing member and said crown gear; an operative connection between said crown gear member and said main spring; and a

closing cap secured to said crown gear member, substantially as described.

4. In a clock of the class described, the combination of a cylindrical casing; clock mechanism comprising a main spring, mounted in said casing; a worm wheel connected to wind said main spring; a radially disposed shaft carrying a worm gear meshing with said worm wheel; a closing member threaded in said casing, there being radial registering openings in said closing member and said casing; an annular spring carried by said closing member; a radially disposed pin carried by said spring and arranged to operate in said registering openings; a crown gear member rotatably mounted on said closing member; an annular sealing spring V-shaped in cross section and interposed between said closing member and said crown gear member; a pinion on said radial shaft meshing with said crown gear; and a closing cap threaded to said crown gear member, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM W. BILLINGS.

Witnesses:

HELEN F. LILLIS,

JOSHUA R. H. POTTS.