

No. 771,235.

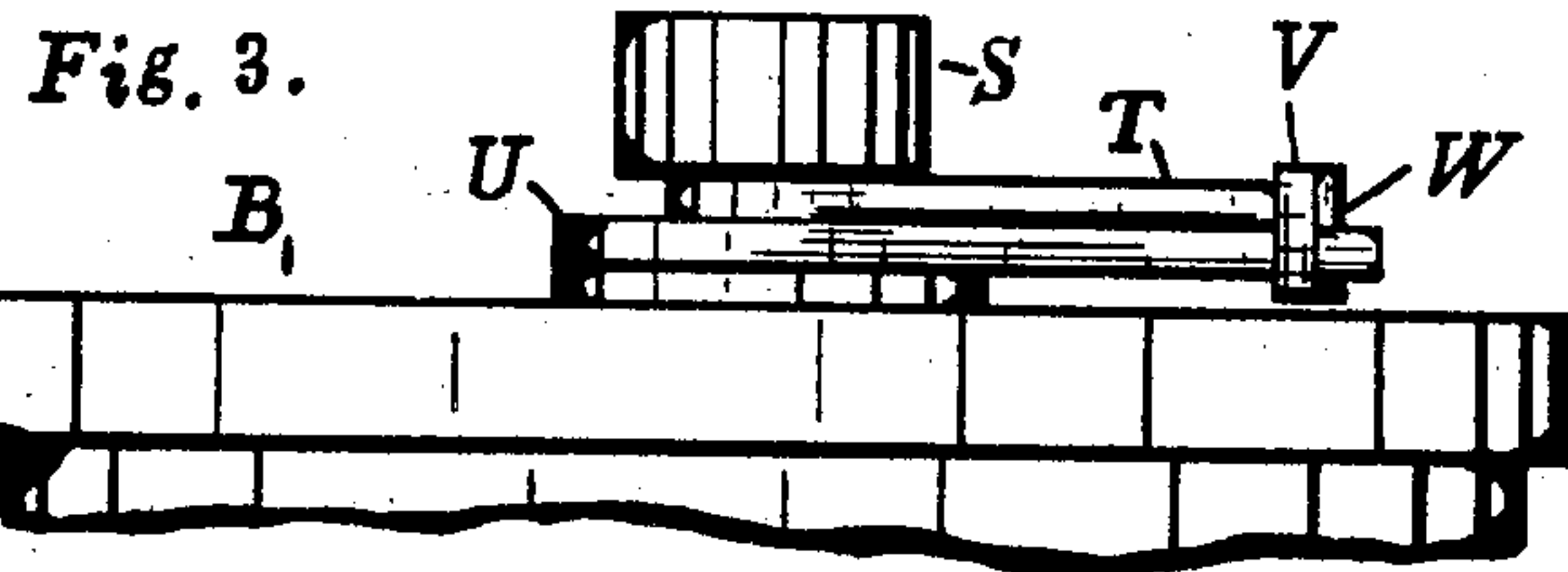
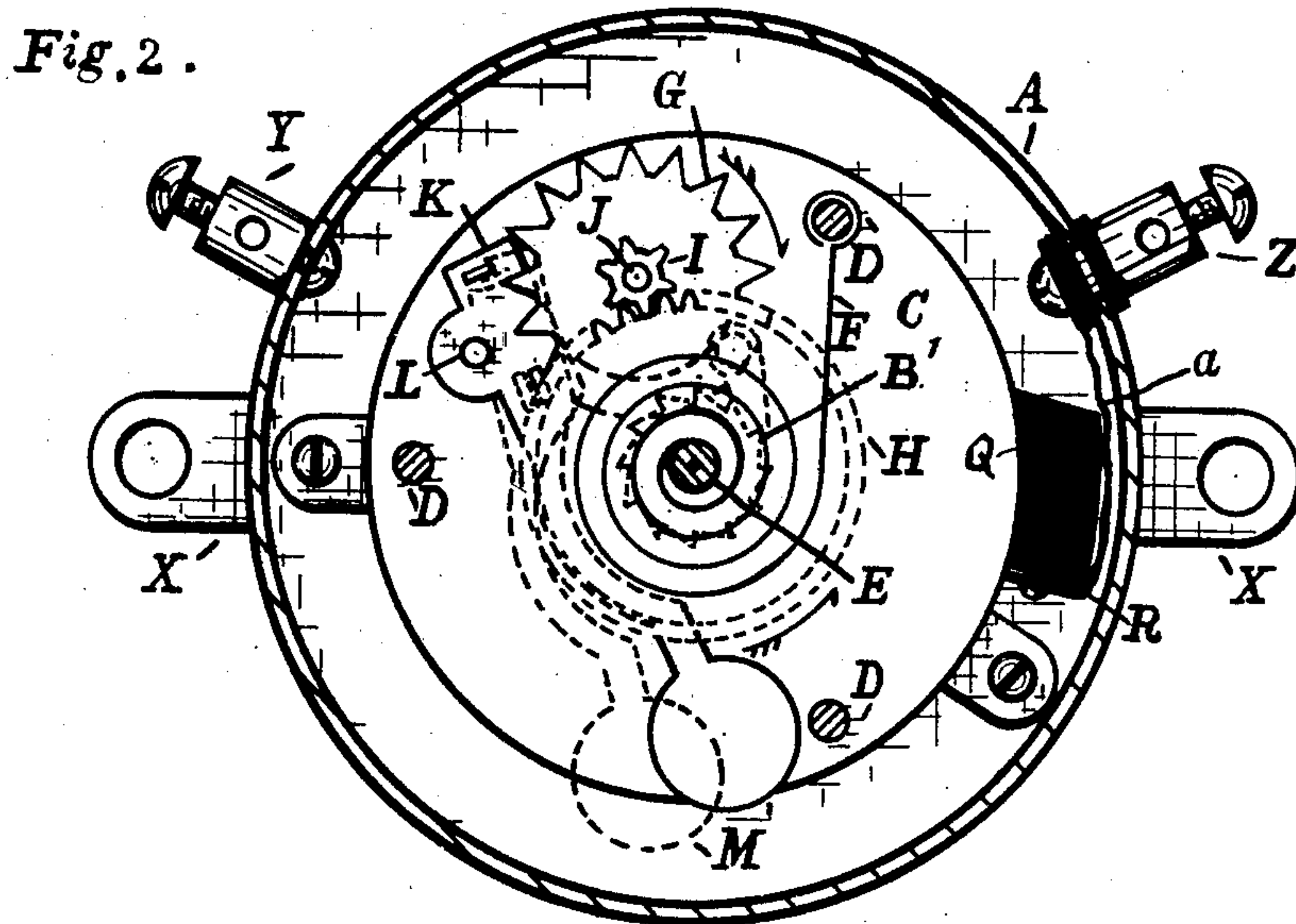
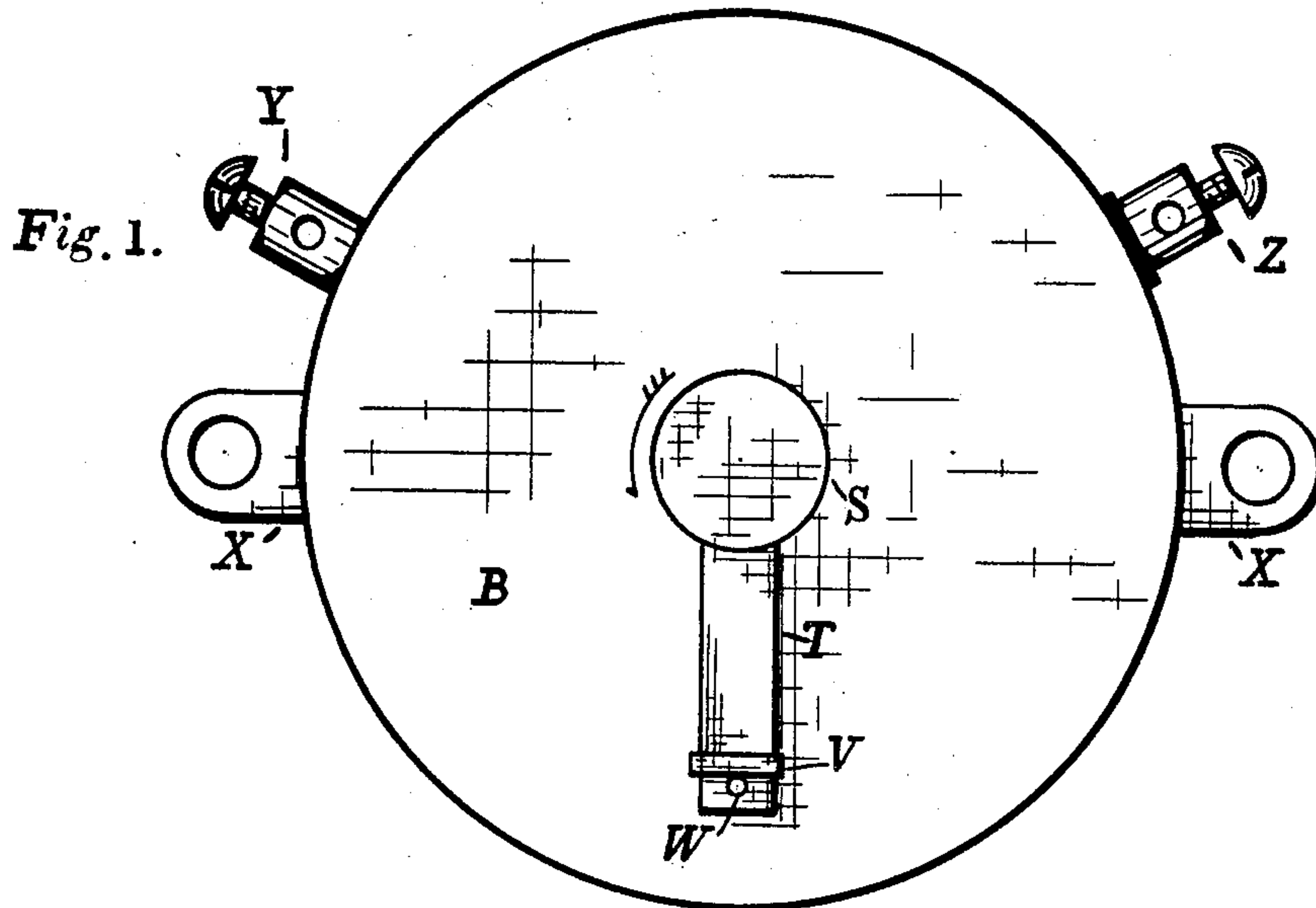
PATENTED OCT. 4, 1904.

W. L. DENIO.  
AUTOMATIC FIRE ALARM TRANSMITTER.

APPLICATION FILED JAN. 20, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

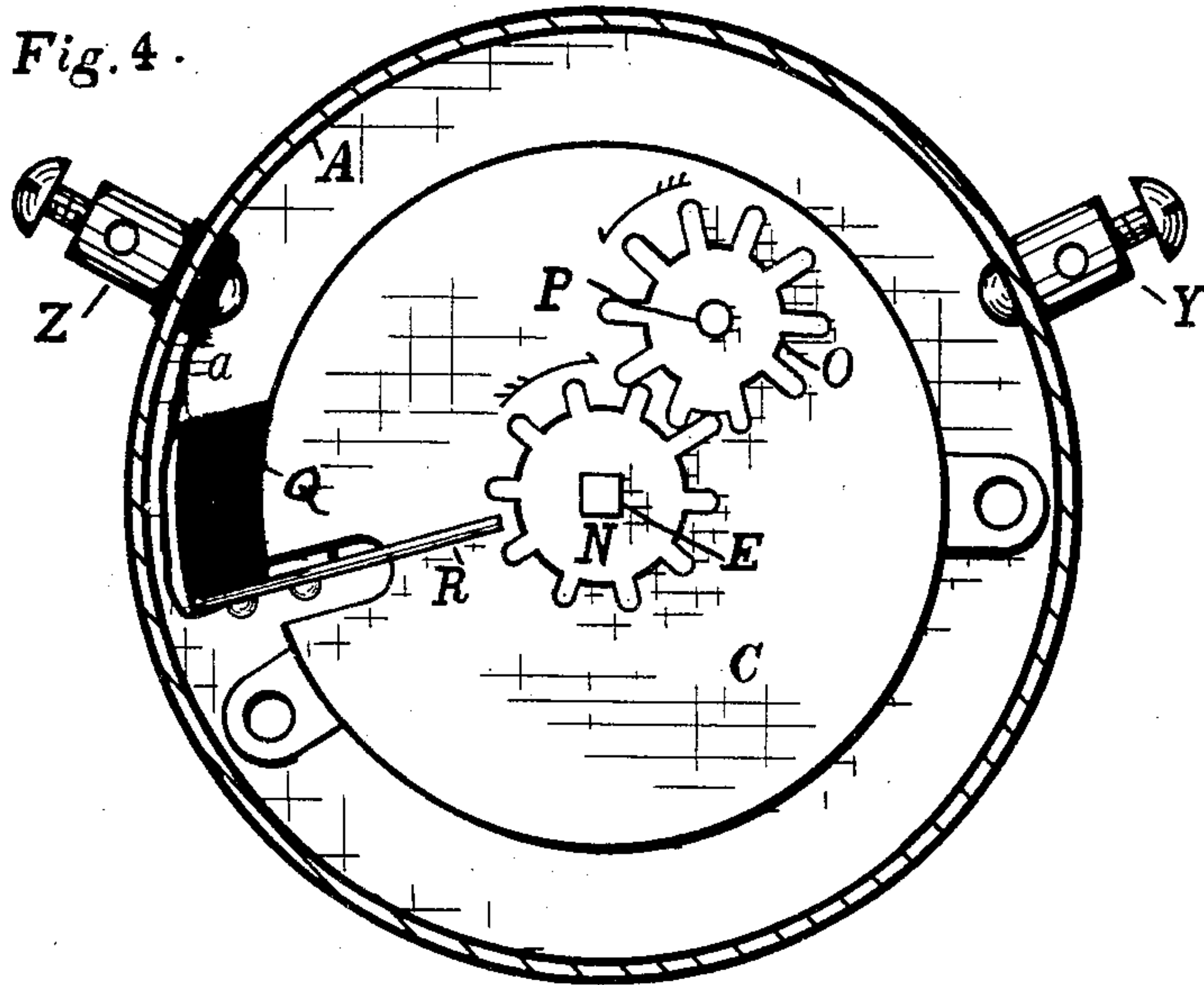


Fig. 5.

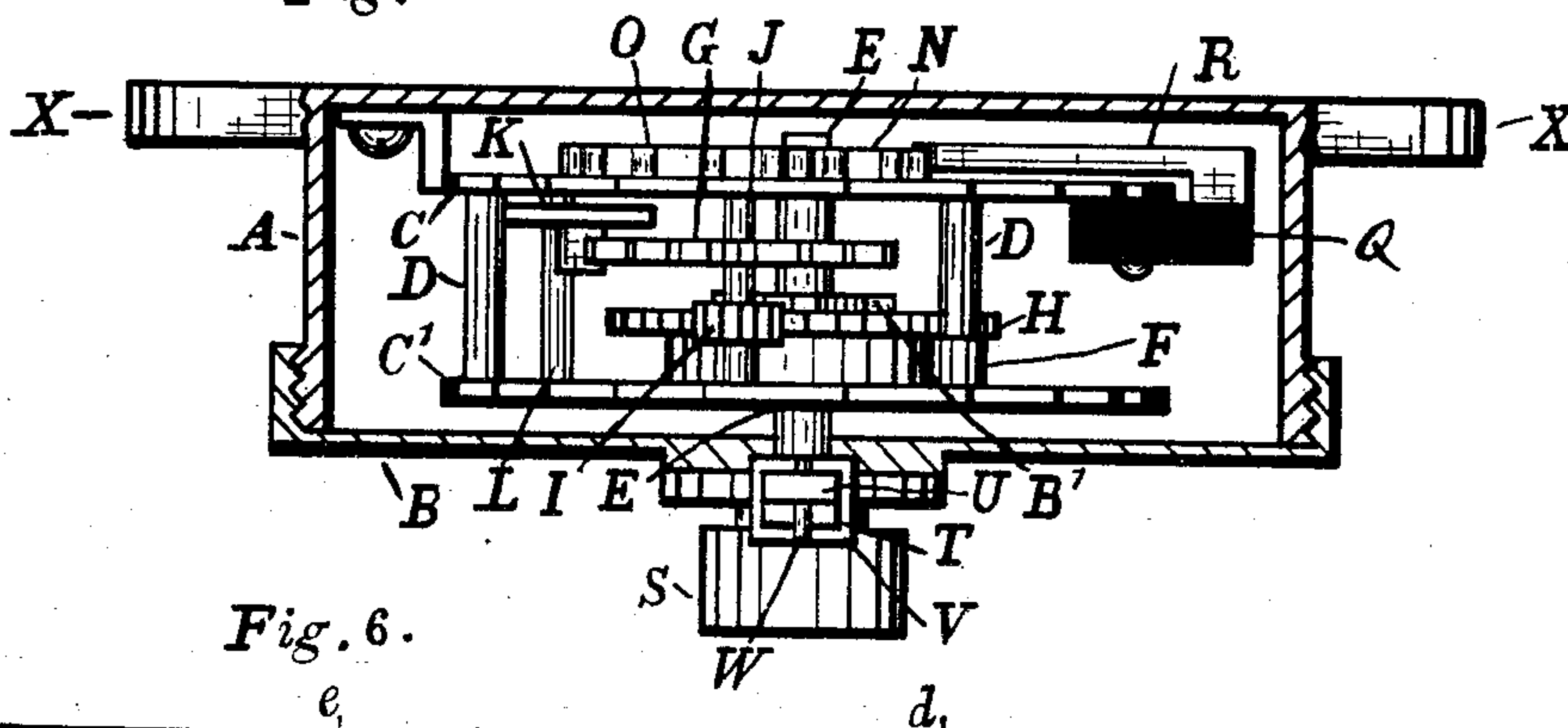
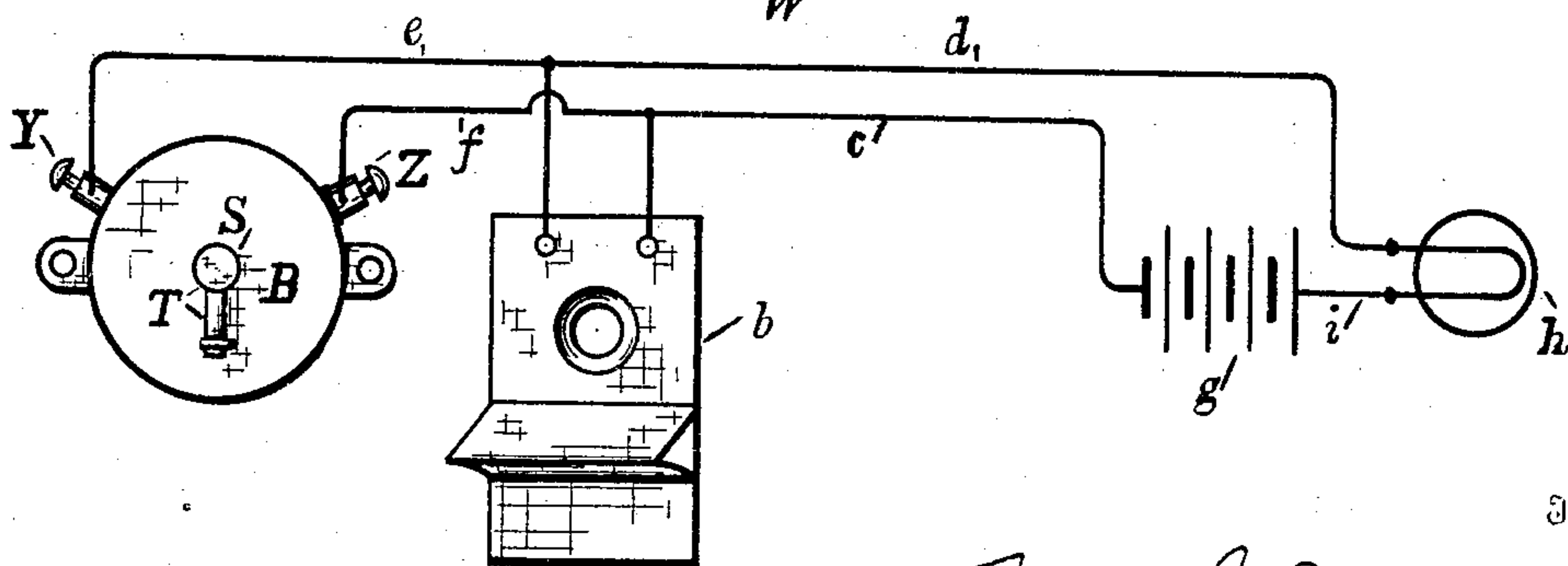


Fig. 6.



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## AUTOMATIC FIRE-ALARM TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 771,235, dated October 4, 1904.

Application filed January 20, 1904. Serial No. 189,923. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM L. DENIO, a citizen of the United States, residing at Rochester, in the county of Monroe, in the State of New York, have invented an Improvement in Automatic Fire-Alarm Transmitters, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improved device which is fully described and illustrated in the following specification and the accompanying drawings, the novel features thereof being specified in the claims annexed to the said specification.

In the accompanying drawings, Figure 1 is a front view of my improved transmitter. Fig. 2 is a vertical section of the same viewed from the front. Fig. 3 is a partial side elevation. Fig. 4 is a vertical section viewed from the back. Fig. 5 is a horizontal section. Fig. 6 is a diagram of the circuit.

My improved transmitter is designed for attachment to the line-wires of an ordinary telephone, and upon exposure to considerable heat, as that of a fire, the releasing mechanism acts, allowing the contact-making device to open and close an electric circuit, causing a signal-receiving lamp at the telephone-exchange to flicker or vibrate, giving the signal for fire, the lamp burning steadily for a telephone-call.

While my improved transmitter is designed more particularly for use in hotels, it may be attached to any telephone-circuit.

My improved transmitter consists of a box or case A, provided with a cover B. The case A has attached to it the plate or frame C, which is connected to the frame C' by means of the posts D. The frames C and C' serve as bearings for the shaft E, on which is mounted the spring F, which drives the escapement-wheel G by means of the gear H, mounted on the shaft E, and the pinion I on the escapement-wheel shaft J. The teeth of the escapement-wheel G mesh with the escapement K, which is pivoted at L, so as to swing as shown by the dotted lines, the escapement K having attached to it the pendu-

lum-weight M, which serves to prevent the escapement from operating too rapidly.

The shaft E has a gear N attached to it, which meshes with the gear O, which revolves on a stud P, attached to the frame C. The gear N is provided with a long tooth adapted to strike a shallow notch on the gear O, as shown in Fig. 4, when the shaft E has made a predetermined number of revolutions in either direction, thus stopping the apparatus when the spring is almost unwound and preventing the spring from being wound so much as to break it. Attached to the frame C is a block of insulating material Q, to which is attached the contact-spring R, the spring R being so adjusted as to make and break contact with the teeth of the gear N when the shaft E revolves. The gears N and O are so arranged as to stop the shaft E when the spring is fully wound or run down with the contact-spring R out of contact with the teeth of the gear N.

The shaft E passes through a hole in the cover B and terminates in a knob S, by means of which the spring F is wound. One end of the spring F is attached to the shaft E. The other end is bent around one of the posts D, as shown in Fig. 2, a ratchet B' permitting the shaft E to be turned in a reverse direction in order to wind the spring F without turning the gear H and the escapement-wheel backward. Attached to the knob S is a lever or rod T, a similar rod U being fastened to the cover B, as shown in Figs. 3 and 5. The lever T revolves with the shaft E, while the lever U remains stationary. A metal link V, of some fusible material, is placed over the ends of the levers T and U, preventing the lever T and the shaft E from revolving. A pin W prevents the link V from becoming displaced. By having lever U project above the top of the case the link is more easily put on and is fully exposed, so as to quickly feel a rise in temperature. When exposed to sufficient heat, the link V melts and releases the lever T, allowing the spring F to revolve the escapement-wheel G and the gear N, which makes and breaks contact with the contact-spring, closing and opening the circuit.

In operation the transmitter is placed in



any desired position, such as the wall or ceiling of a room, by means of screws passing through the lugs X, which are cast integrally with the case A.

5 Y is a binding-post which is grounded on the case A and forms one terminal of the transmitter, the other terminal of which is formed by the binding-post Z, which is insulated from the case A, as shown in Fig. 2,  
10 and is connected to the insulated contact-spring R by means of the wire *a*.

In Fig. 6, *b* is an ordinary telephone having line-wires *c* and *d*, which are connected to the binding-posts Y and Z by means of the wires  
15 *e* and *f*. A suitable battery *g* and signal-lamp *h* are provided at the telephone-exchange.

When the transmitter is exposed to a considerable degree of heat, the fusible link V  
20 melts and allows the spring F to revolve the shaft E, the escapement-wheel G, and the gears N and O. The revolution of the gear N causes the contact-spring R to make and break contact with the teeth of said gear,  
25 closing and opening the circuit and allowing a current of electricity coming from the battery *g* to pass through the line-wire *c* and the wire *f* to the insulated binding-post Z, through the wire *a* to the contact-spring R, from the  
30 contact-spring R to the gear N, through the gear N, the frame C, and the case A to the binding-post Y. The current then passes through the wire *e* to the line-wire *d*, through the line-wire *d*, the incandescent signal-lamp  
35 *h*, and the wire *i* to the battery. When the transmitter is in operation, the contact-spring R and the gear N close and open the circuit with considerable rapidity, causing the signal-lamp *h* to flicker or vibrate, giving the signal  
40 for fire.

Several transmitters may be located in different portions of a building and connected to the line-wire of one telephone. As the  
45 gears N and O stop the apparatus with the contact-spring R out of contact with the teeth of the gear N when the spring F is fully

wound or has run down, the circuit through the thermostat remains open and does not interfere with the use of the telephone except  
50 when the transmitter is in operation.

I claim—

1. In a fire-alarm transmitter, the combination of a train of gears, a spring mounted on a shaft and adapted to revolve said gears, means  
55 for winding said spring, a rod attached to said shaft outside of the transmitter-case, a second rod secured to the case-cover, a link of fusible material engaging both of said rods when the spring is wound and adapted to prevent  
60 the shaft from revolving until released by the fusing of the link, and an insulated spring adapted to make and break contact with the teeth of a gear of the train, said last-named gear and the insulated spring forming part of  
65 an alarm-circuit.

2. In a fire-alarm transmitter the combination of a train of gears, a spring mounted on a shaft, and adapted to revolve said gears, means for winding said spring, a rod attached  
70 to said shaft, a rod fixed to and projecting above the top of the case, a link of fusible material normally holding the arms together, an insulated circuit making and breaking spring adapted to make contact with the teeth  
75 of one of the gear-wheels, and means for stopping the transmitter with said insulated spring out of contact with said gear-wheel.

3. In a fire-alarm transmitter the combination of a train of gears, a spring mounted on a shaft and adapted to revolve said gears, a  
80 rod attached to said shaft outside of the case, a second rod secured to the case-cover, a link of fusible material engaging both of said rods when the spring is wound and preventing the shaft from revolving, a pin W for holding  
85 the link on the rods, and a circuit making and breaking spring coöperating with a driven wheel in said transmitter.

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