

F. W. SCHIEFER.
WATCHMAN'S ELECTRIC TIME RECORDER.

No. 461,279.

Patented Oct. 13, 1891.

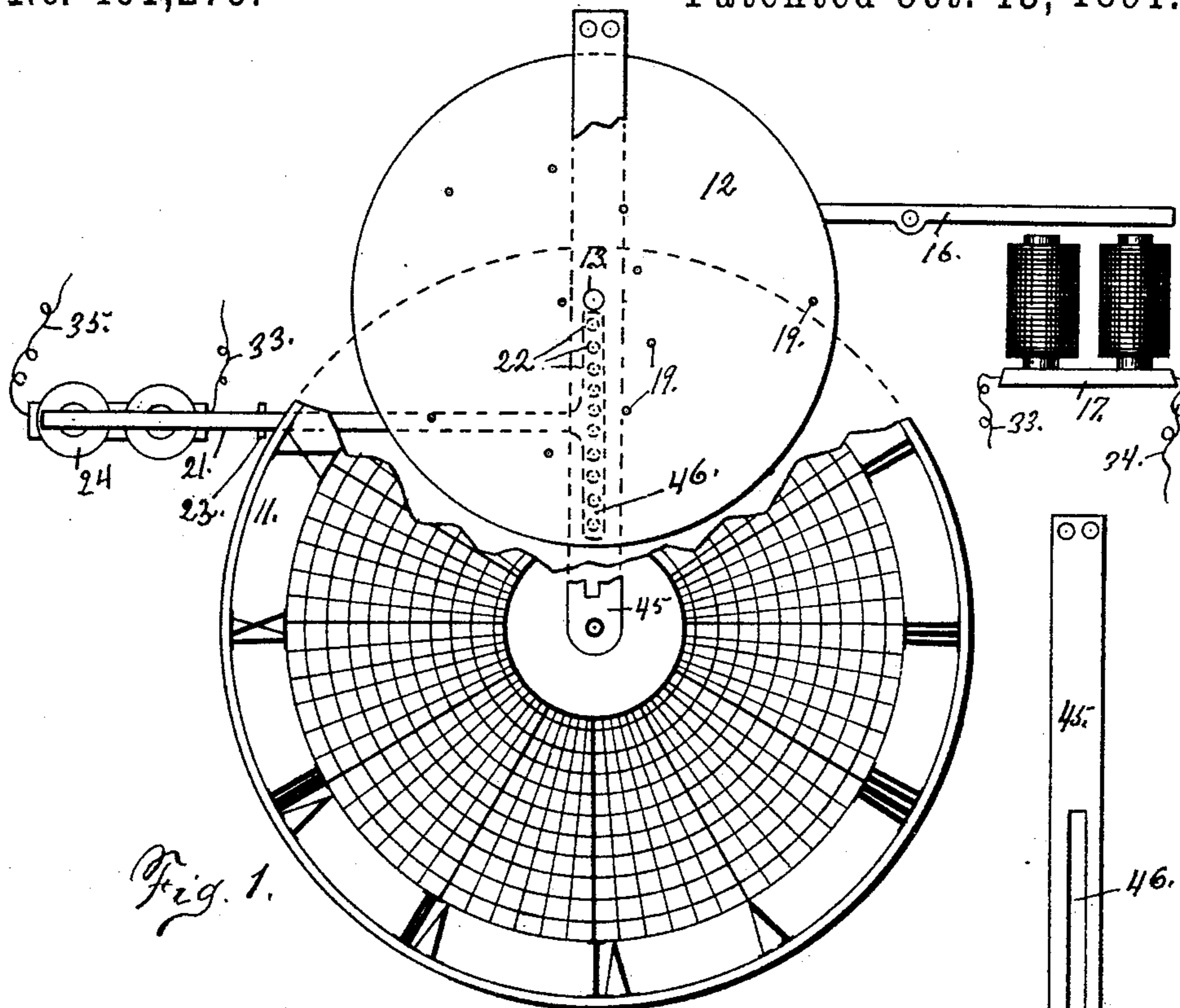


Fig. 1.

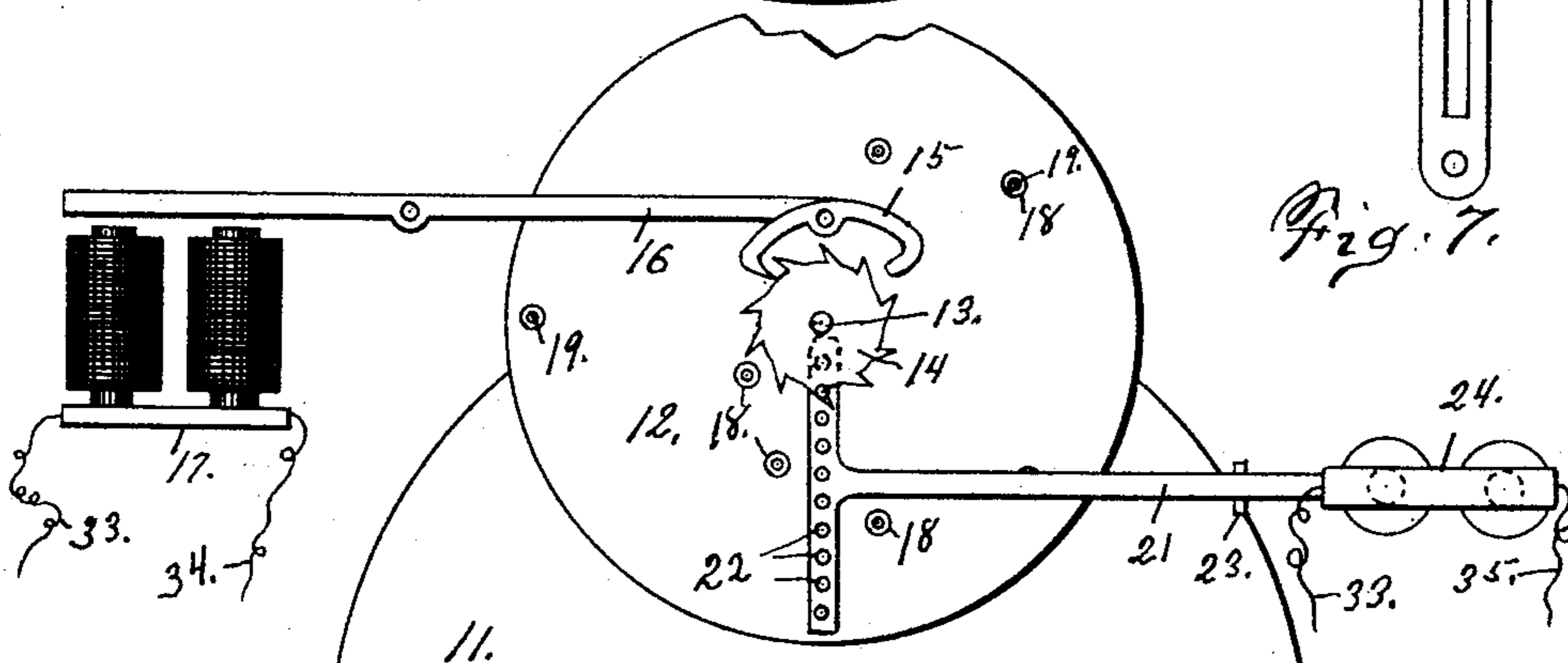


Fig. 2.

Fig. 7.

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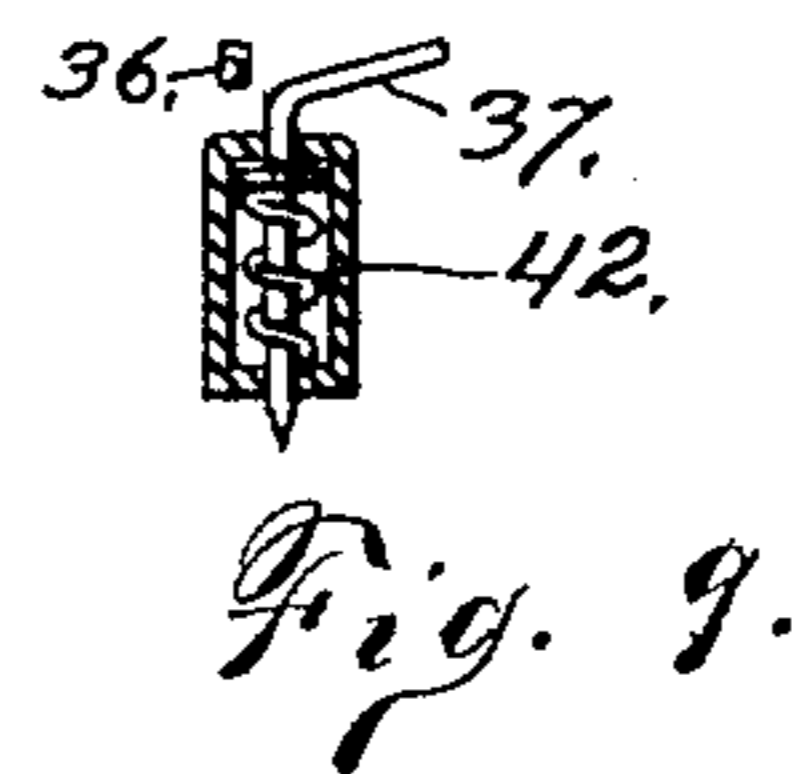
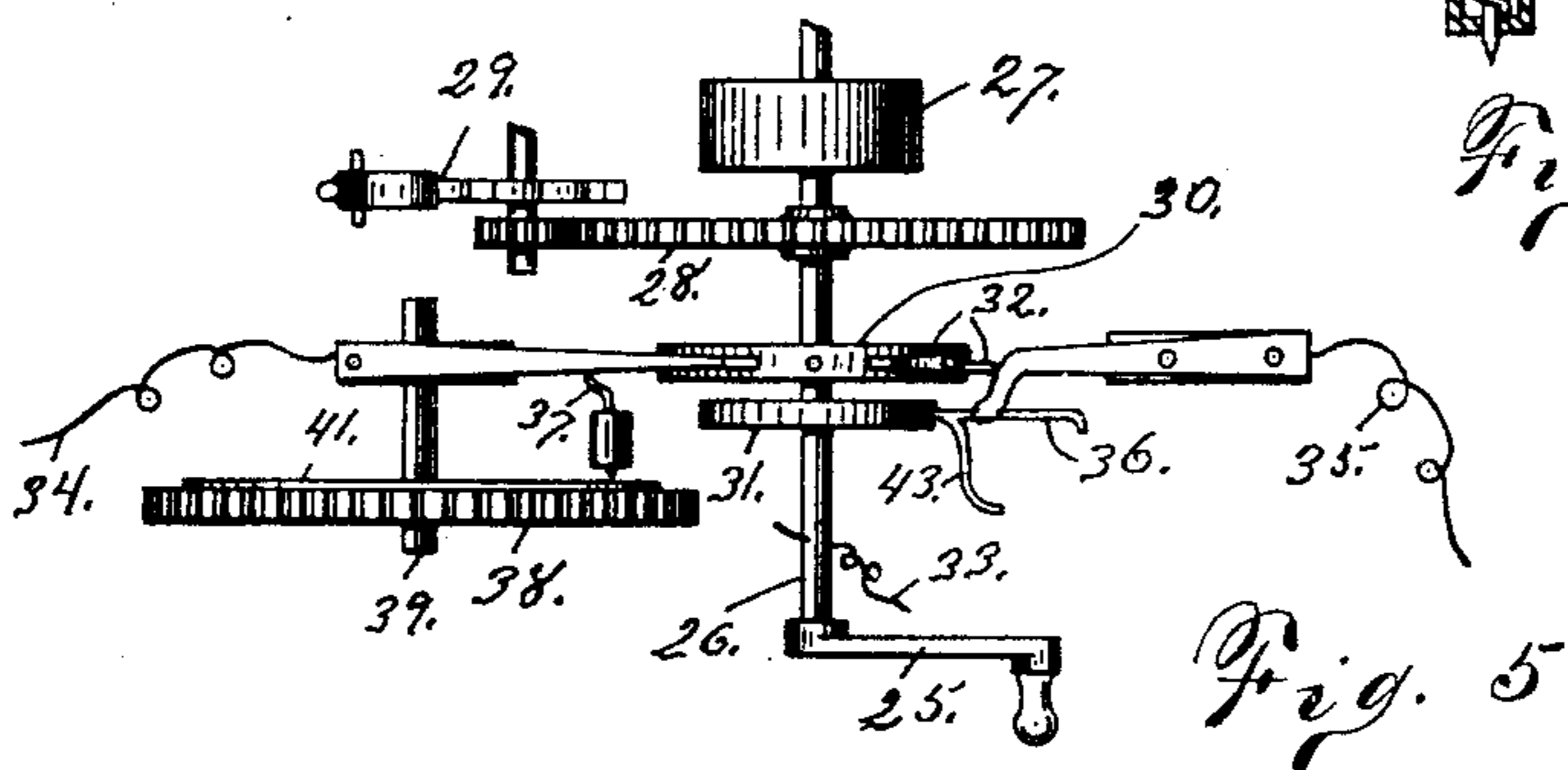
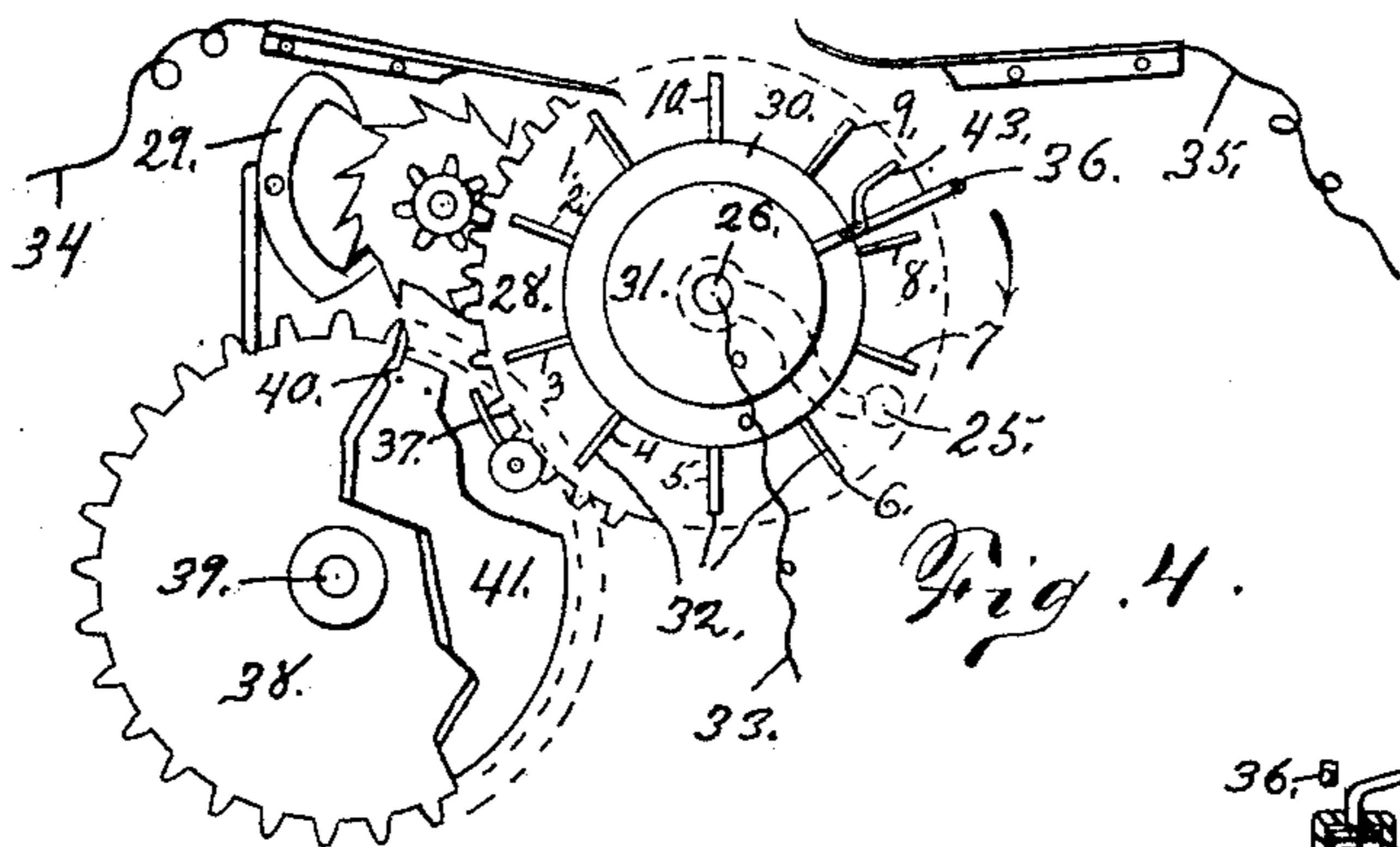
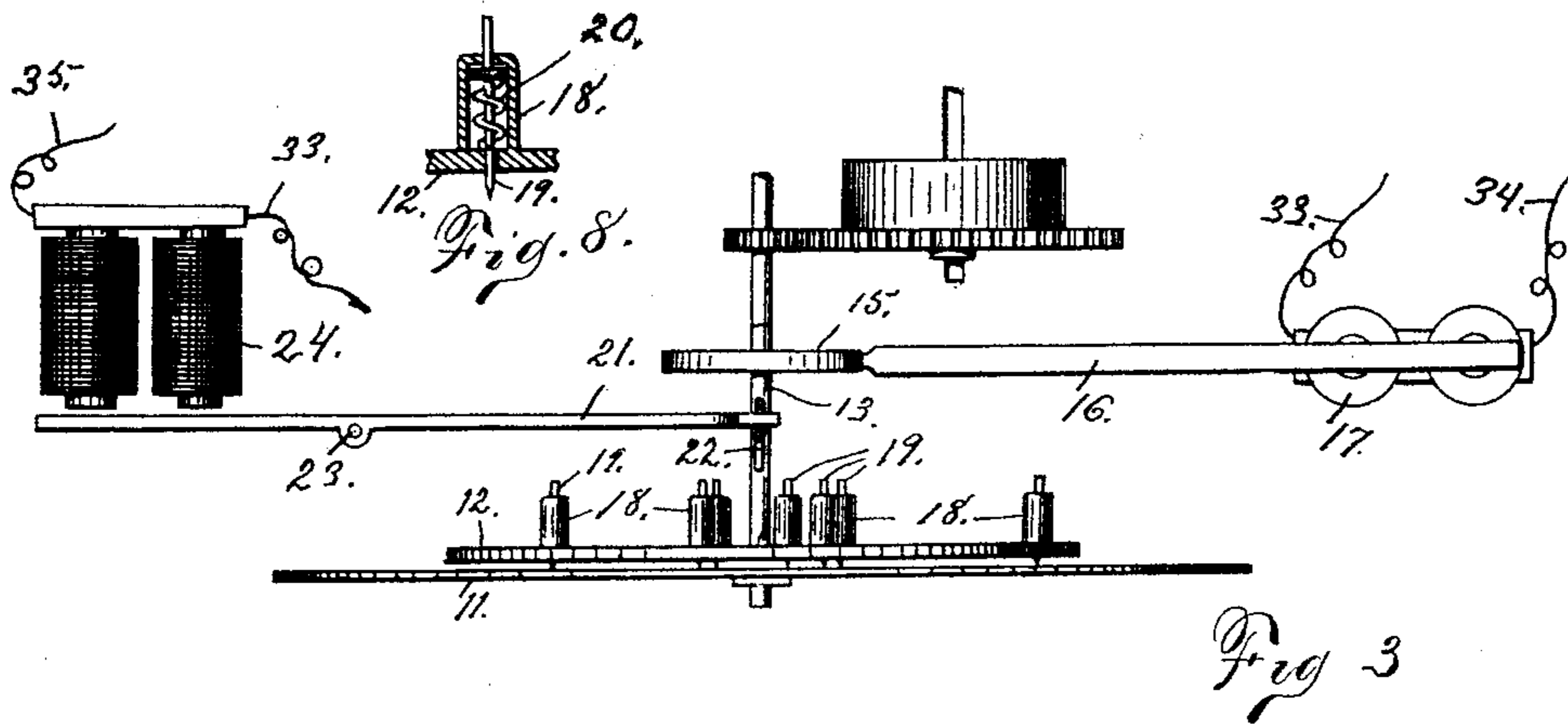
(No Model.)

3 Sheets—Sheet 2.

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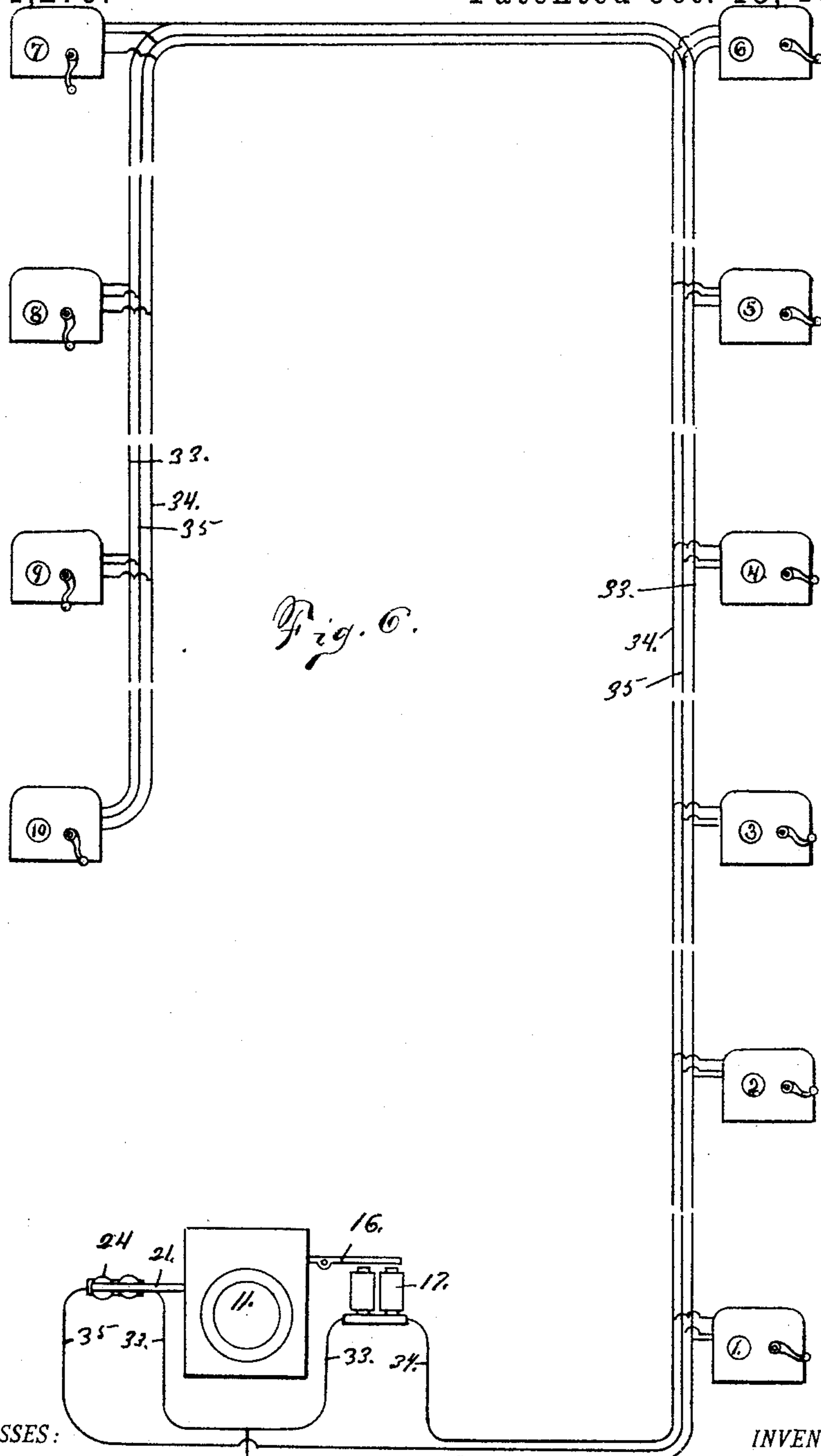
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UNITED STATES PATENT OFFICE.

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WATCHMAN'S ELECTRIC TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 461,279, dated October 13, 1891.

Application filed April 15, 1891. Serial No. 388,982. (No model.)

To all whom it may concern:

Be it known that I, FRED. W. SCHIEFER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Watchmen's Time-Detectors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in watchmen's time-detectors, and more particularly to that class of watchmen's time-detectors in which station-boxes are arranged at different locations within a building, and as a report is made from any particular station the time of such report and location of such station is indicated on a dial known as the "central station," which is electrically connected to all the stations.

Its object is to produce an electrical time-detector for large public buildings and factories which cannot be tampered with, is simple in its construction, and records the report made at a station both on a general dial and at the station itself where such report is made.

It consists in a series of spring-pressed pins arranged upon a disk, which is made to revolve by electrical connection in such a manner as to present a pin in position to pierce a revolving dial operated by clock-work, thereby indicating the station from which the report is made and the time of day that such report is made.

My invention further consists in other details of its construction, all of which I will now proceed to more fully describe and claim.

In the drawings, Figure 1 is a front face view with portions broken away, of what I will herein call the "central station." Fig. 2 is a rear view of the same. Fig. 3 is a top plan view of the same. Fig. 4 is a detail view showing the arrangement of what I term a "reporting-station." Fig. 5 is a top plan view of the same. Fig. 6 shows the general arrangement of my improvement; and Figs. 7, 8, and 9 are detail views.

Referring to the drawings, 11 is the dial,

which is operated by any well-known clock-work. To the rear of this dial is arranged the disk 12, mounted upon the axle 13. An escapement-wheel 14 is also rigidly mounted upon the axle 13, and is operated by the escapement-lever 15, having the lever-arm 16, which in turn is operated by the magnet 17. On the disk 12 are arranged the short cylinders 18, having pointed pins 19 passing through them, (a detail of which is shown in Fig. 8,) the pointed ends of the pins facing toward the dial 11, (which is preferably made of paper,) but prevented from piercing same until required by the short spiral springs 20. These pointed pins and cylinders as the disk 12 is made to revolve pass successively under the lever-arm 21, having the short projections 22. These short pins or projections are adjustably secured to the T-shaped end of the lever-arm 21 by means of their threaded ends, as shown in Fig. 3. This lever-arm 21 is pivoted, as at 23, and operated by the magnet 24. The magnets 17 and 24 are so arranged (as will be hereinafter more fully described) that when a certain station is reported ten distinct currents of electricity are made to pass through the magnet 17, thus giving a complete revolution to the disk 12; but as the pin assigned to the station reported from is directly under the lever-arm 21 then a single current of electricity is made to pass through the magnet 24, causing the lever-arm 21 to depress the pin which is under one of its projections 22. The pin when so depressed pierces the dial 11, which is so divided by radiating and circular lines that the location of the hole made by the pin will indicate the time of making the report and the station from which the report was made.

At each station is arranged the crank-lever 25, which when given a complete revolution constitutes a report. This crank-lever 25 is mounted upon a shaft 26. A coil-spring 27, which is tightened as the crank-lever 25 is turned, is attached to the shaft 26, and as the crank is released it is brought back to its normal position by the spring 27, which action is regulated by the gear 28 and escapement 29. Two small wheels or disks 30 and 31 are rigidly mounted upon the shaft 26. The disk 30 has arranged upon its periphery as many pins 32 as there are stations connected to the

central station, (in this instance I have shown ten, with a corresponding dial.) As seen in Fig. 4, the circuit between the wires 33 and 34 is broken, the wire 33 being connected to any part of the station, and the wire 34, being insulated as it enters the station, has its end resting between two of the pins 32. These pins I have numbered successively from 1 to 10 as they pass the end of the wire 34.

To the disk 31 is secured the Y-shaped pin 36. This pin 36 is placed upon the disk 31, so as to connect the wire 33 to the wire 35 at such a time as the circuit between the wire 33 and 34 is broken. The pin 36, as seen in Fig. 4, is arranged on a line just beyond the pin 8, which also designates that the reporting-station shown is station 9. A spring-pressed pin 37 (shown in detail in Fig. 9) is arranged just to the rear of the gear-wheel 38. This gear-wheel 38 is removably mounted upon the shaft 39 and has an annular groove or recess 40 on its inner surface, over which a paper disk 41 is placed. As the crank-arm 25 is turned the pins 32 on the disk 30 connect the circuit between the wires 33 and 34, and just after the pin 9 has made the ninth connection between the wires 33 and 34 the pin 36 on the disk 30 connects the circuit between the wires 33 and 35. Before this connection is made, however, the pin 36 on its passage to the wire 35 is made to pass over the inclined surface of the pin 37, which is pressed downward thereby and pierces a hole in the paper disk 41 on the gear-wheel 38. As the pin is released it is withdrawn from the disk by the spiral spring 42, and a short auxiliary arm 43, secured to the pin 36, intermeshes with one of the teeth of the wheel 38, revolving the wheel and disk sufficiently to receive the next report. The wire 33 after passing to the battery 44, as shown in Fig. 6, leads from the battery and is divided into two separate conductors, one leading to 17 and the other to the magnet 24, and the wires 34 and 35, the circuits of which are broken, (when the crank-arms 25 are in their normal position,) are respectively connected to the magnets 17 and 24.

The reporting-stations are all of similar construction to that shown in Figs. 4 and 5, the only difference being in the location of the pin 36, which is necessarily arranged on a line between two different succeeding pins of the wheel 30.

Projecting one-half way across the dial and securely held in place is the plate 45, having the elongated slot 46 just opposite the

end of the T-shaped lever 21. This plate 45 serves to hold the dial in place, and at the same time acts as a die-plate for the pins as they pierce the dial.

I claim—

1. A watchman's time-detector consisting, essentially, of a central station having a paper clock-dial mounted upon the hour-hand of an ordinary clock-movement, said dial being divided by radiating and circular lines, spring-pressed pins arranged upon a disk located at the rear of said dial, and two magnets, one of which is employed for revolving the disk bringing the pins in place and the other for driving said pins into the dial, a reporting-station to which a wire leading from the two magnets is connected, said wire being so arranged that an intermittent electrical connection can be made to one of the magnets, and a signal connection to the other magnet, all arranged and operating substantially as shown and described.

2. In combination with a watchman's time-detector, spring-pressed pins operating within cylinders and located upon a revolving disk, said pins being made to pierce a dial by the action of a lever operated by an electrical magnet, substantially as and for the purpose stated.

3. In combination with a watchman's time-detector, a disk located at the rear of a dial, said disk having pins arranged upon its surface for piercing the dial at different distances from its center, and an escapement-wheel mounted upon the same shaft with the disk and operated by an escapement connected to an electrical magnet, substantially as and for the purpose stated.

4. In a watchman's time-detector, a mechanical reporting-station operated by a crank-lever connected to a combination of wheels and springs, by means of which electrical connection is made to a central station, where the report is received upon a dial, and a spring-pressed pin arranged within such reporting-station and having an inclined end, over which a revolving arm is made to travel, causing the pin to pierce a disk located upon a revolving wheel, substantially as shown.

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

FRED. W. SCHIEFER.

Witnesses:

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RICHARD B. HOFFMAN.