No. 871,553. PATENTED NOV. 19, 1907.

F. J. ARNDT.

ELECTRIC TIME ALARM.

APPLICATION FILED AUG. 1, 1906.

2 SHEETS—SHEET 1.

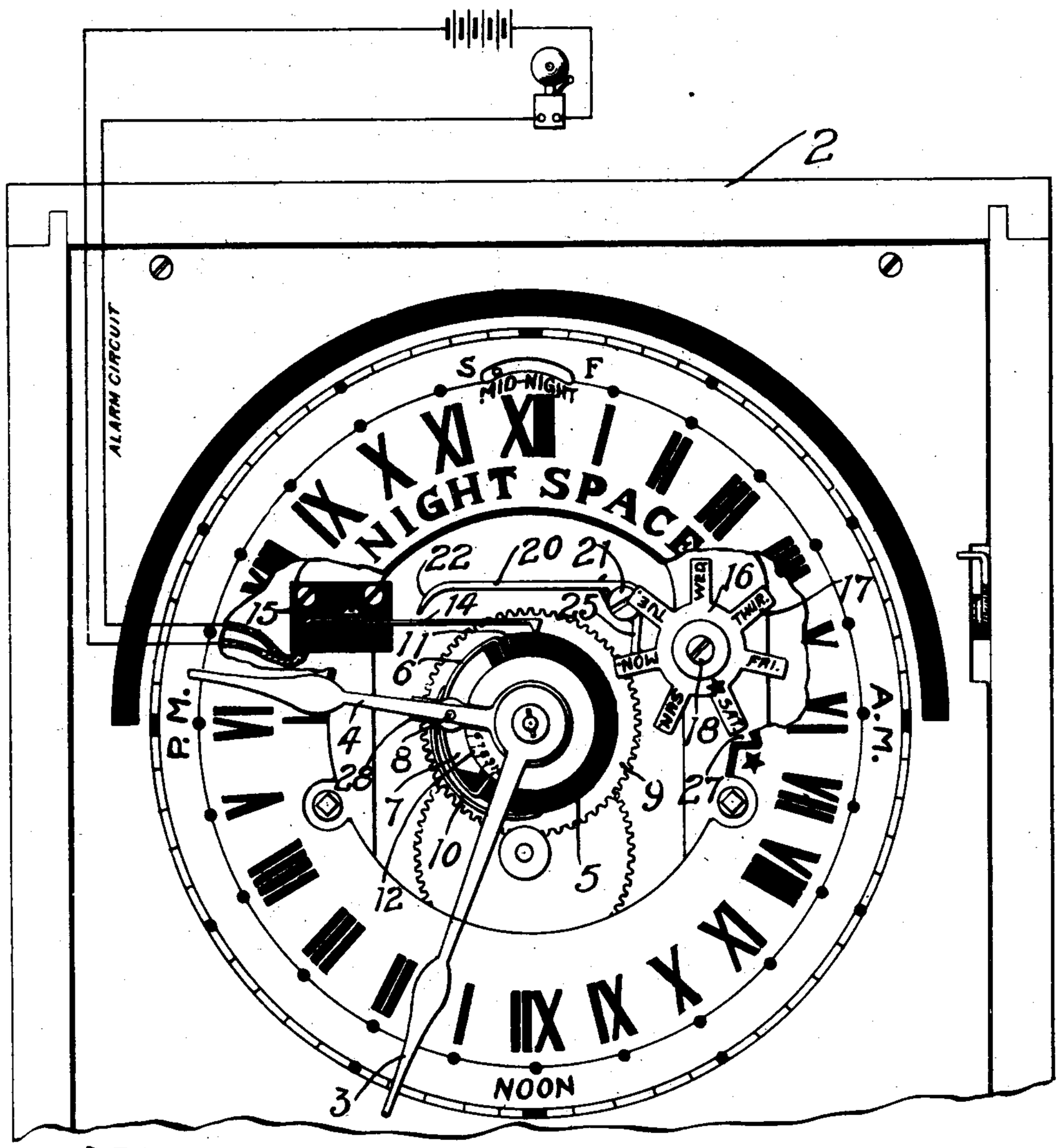

Fig 1.

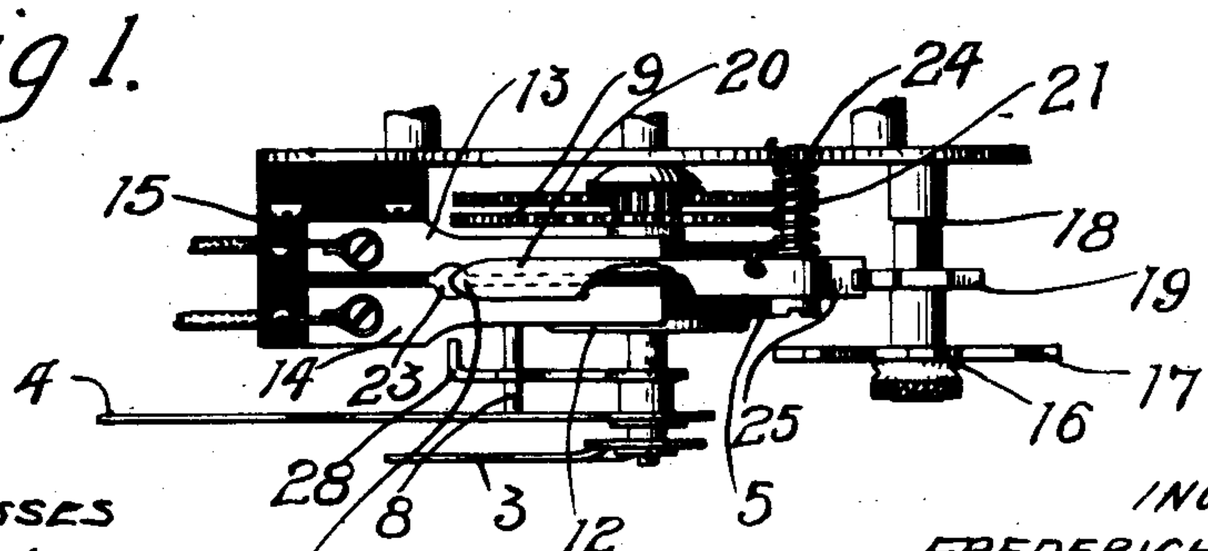

Fig 2.

WITNESSES

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J. B. Era

INVENTOR

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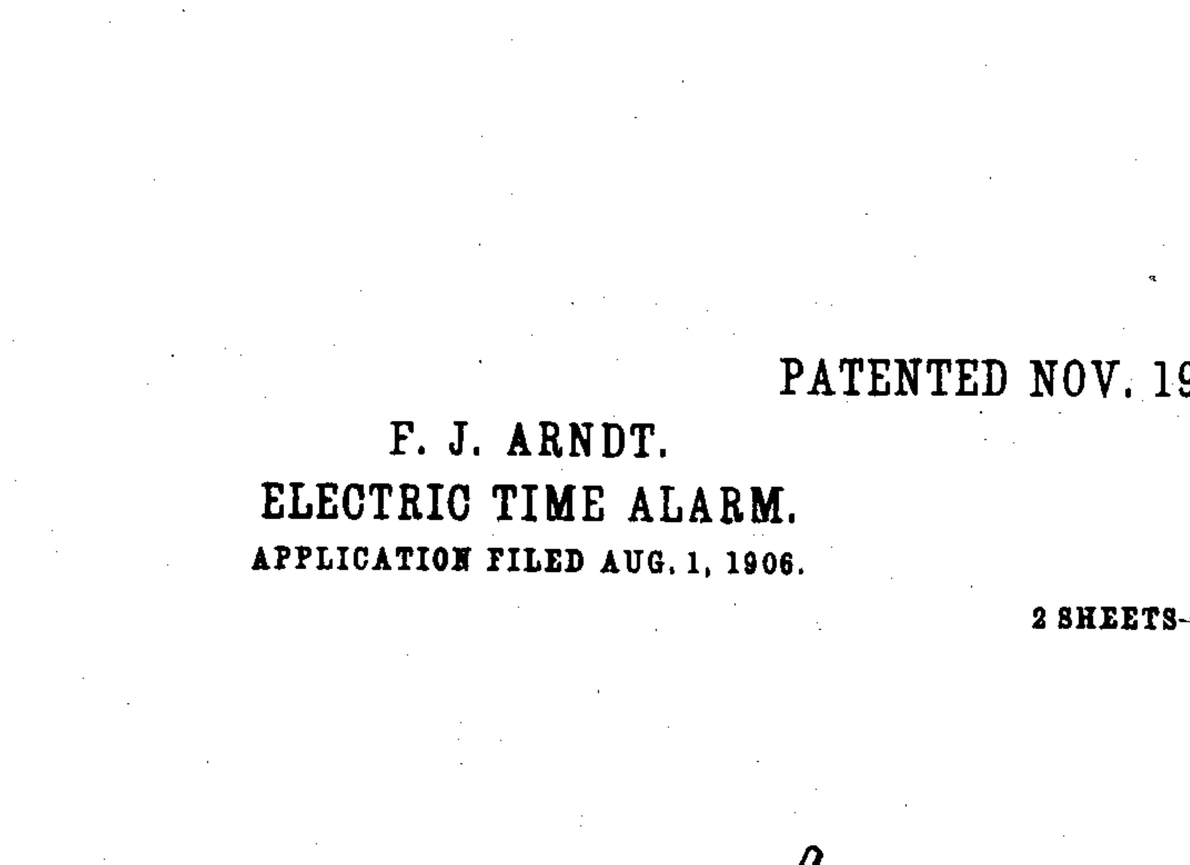

Fig 3.

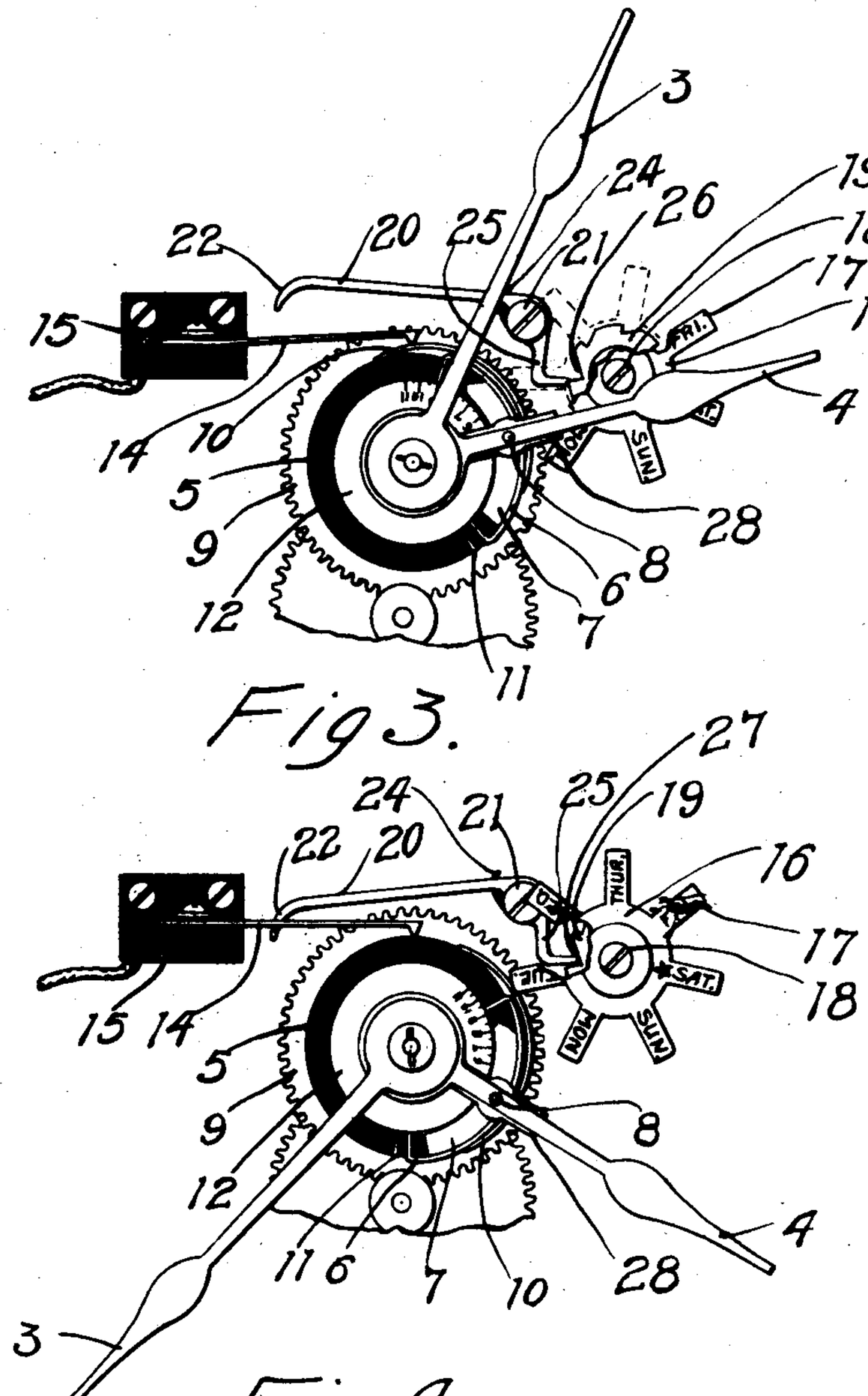

Fig 4.

WITNESSES
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UNITED STATES PATENT OFFICE.

FREDERICH J. ARNDT, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO AMERICAN BANK PROTECTION CO., OF MINNEAPOLIS, MINNESOTA.

ELECTRIC TIME-ALARM.

No. 871,553. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed August 1, 1906. Serial No. 328,710.

To all whom it may concern:

Be it known that I, FREDERICH J. ARNDT, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Electric Time-Alarms, of which the following is a specification.

My invention relates to burglar alarm systems of the clock or automatic circuit closer type, and the primary object of my invention is to provide an adjunct to the mechanism shown and described in Letters Patent of the United States issued to William H. Robins and John F. Jacoby, October 4, 1904, No. 771,748.

The invention consists generally in providing means for causing the alarm circuit to be kept "on" or in service on Sunday after the clock mechanism has passed out of service at the usual hour in the morning.

Further, the invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a detail view of a time piece with my invention applied thereto. Fig. 2 is a detail view showing the position of the alarm circuit brushes and the means for closing the circuit between them on Sunday. Fig. 3 is a detail view showing the brushes in the act of passing off the clock contact plates early Sunday morning and the mechanism about to close the gap between the brushes during the day. Fig. 4 is a similar view illustrating the circuit closer in contact with the brushes and closing the circuit between them.

In the drawing, 2 represents the clock dial having its face suitably marked to indicate the night space and 3 and 4 the minute and hour hands respectively arranged in substantially the same manner as shown in the patent above referred to. A rotating disk 5 is mounted in the rear of the hands and provided with a contact plate 6 and slot 7 through which a pin 8 extends connecting the hour hand with the gear 9 beneath. A contact plate 10 is mounted on the gear and is adapted to slip back and forth over the plate 6 for the purpose of increasing or decreasing the length of the contact surface. Reminder plates 11 are inserted in the periphery of the disk 5, all substantially as shown in the patent to Robins and Jacoby, and are for the purpose of closing an auxiliary circuit and sounding an alarm to remind the attendant or other person in charge of the vault that the general alarm circuit will soon be closed. A graduated disk 12 is provided, by the adjustment of which the time and length of contact is regulated. This is also shown in the above described patent and I make no claim to the same herein.

The alarm circuit brushes 13 and 14 are mounted on an insulating block 15 and are adapted to bear on the contact plates during the revolution of the disk, the contact plates serving to close the circuit between the brushes so that during the time the clock is "on" or in circuit at night, any tampering with the bolts or locks or the line wires will cause the alarm to be sounded at the gong. The insulating disk is set so that at a certain predetermined hour of the day, usually six o'clock, the brushes will pass on to the contact plates and the circuit will be closed between the brushes for a certain predetermined time, usually the next 12 hours or until six o'clock in the morning. At this time the brushes will pass off the contact plate and the clock will be out of circuit during the day. It is desirable, however, on such days as Sunday occurring at regular intervals each week, to provide some means for keeping the clock in circuit or "on" the entire day as well as the preceding and following nights. I therefore provide a star wheel 16 having a series of prongs 17 marked to indicate the days of the week. The wheel is mounted upon a shaft 18 and has a ratchet 19 in position to engage a circuit closing spring 20 mounted upon a pin 21 and having a downwardly turned point 22 adapted to enter a hole or socket 23 between the brushes 13 and 14 and close the circuit between them. A spring 24 normally tends to hold the circuit closing spring in engagement with the brushes. The opposite end 25 of the circuit closing spring engages the ratchet teeth and the spring is normally held in an elevated position out of contact with the brushes, but a notch 26 is provided in said ratchet, deeper than the others and consequently with every revolution of the ratchet the spring is allowed to drop lower than at other times and the notch is made sufficiently deep to allow

the spring to swing down between the brushes and contact therewith. The notch in the ratchet is so arranged that when the prong bearing the mark Sunday is opposite the notch 27 in the clock dial, the circuit closing mechanism of the clock will be on the point of passing out of circuit on Sunday morning and the circuit closing spring 20 will drop into the deeper notch and swing down between the brushes and close the circuit at that point. The star wheel is revolved automatically one step each day and to accomplish this I prefer to provide an arm 28 on the base of the hour hand in position to contact with the prongs of the star wheel and revolve it one step with each complete revolution of the hand on the dial.

From the foreoging it will be noted that when the star wheel is properly set the circuit will be closed between the brushes automatically Sunday morning just before the brushes pass off the contact plates and the clock goes out of circuit for the day, and the circuit between the brushes will remain closed during the day and the following night or until such time as the clock goes "off" the next morning, when the star wheel will be rotated one step and the notch of less depth will receive the end 25 of the spring and cause its opposite end to be lifted away from the brushes.

I do not wish in this application to be confined to the particular mechanism employed for automatically closing the circuit through the clock brushes every seventh day, as various modifications may be employed, particularly in the details of construction without departing from my invention.

I claim as my invention:—

1. The combination, with a time mechanism, of an electric circuit, a primary circuit closer having brushes normally insulated from one another and a rotary disk having insulating and conducting surfaces with which said brushes alternately engage, the length of said conducting surface determining the time during which the circuit is closed through said time mechanism, and a secondary circuit closer including a pivoted spring arranged to bear on said brushes and adapted to close the circuit by day at predetermined intervals and when the circuit is broken through said primary circuit closer.

2. The combination, with a time mechanism, of an electric circuit, a primary circuit closer having brushes normally insulated from one another, and a rotary disk having insulating and conducting surfaces with which said brushes alternately engage, the length of the conducting surface determining the time during which the circuit is closed through said time mechanism, the circuit closing device having a uniform regular movement during six days of the week and an abnormal movement on the seventh day, and means actuated from the hour hand post for operating said circuit closing device and imparting a normal and abnormal movement thereto, substantially as described.

3. The combination, with a time mechanism, of an electric alarm circuit, a primary circuit closer arranged to close the circuit through said mechanism by night and open it by day, an arm connected with the hour hand post a revolving device having means representing the days of the week and located in the path of said arm and actuated thereby one step with each revolution of said hand, and means controlled by the movement of said revolving means for closing said alarm circuit through said time mechanism once with every revolution of said revolving means or every seventh day.

4. The combination, with a time mechanism, of an electric alarm circuit, a primary circuit closer comprising a rotary disk having insulating and conducting surfaces and brushes forming the terminals of said alarm circuit arranged to bear on said insulating and conducting surfaces, the length of said conducting surface determining the time during which the circuit is closed through said time mechanism, said disk being adjustable to permit the hour in which the circuit is first closed through said mechanism to be varied, and a secondary circuit closer arranged to close the circuit by day at predetermined intervals and when the said circuit is broken through said primary circuit closer.

5. The combination, with a time mechanism, of an electric alarm circuit, a primary circuit closer arranged to close the circuit through said mechanism by night and open it by day, a star wheel located near the hour hand post and having a series of prongs representing the days of the week and engaged by means on said post and moved one step with each revolution of the hour hand, and means controlled by the movement of said star wheel for closing the alarm circuit through said time mechanism at predetermined intervals during the day, substantially as described.

6. The combination, with a time mechanism, of an electric alarm circuit, a primary circuit closer comprising a rotary disk having insulating and conducting surfaces and brushes forming the terminals of said alarm circuit arranged to bear upon said disk, the circuit being broken between said brushes when they are in contact with said insulating surface and closed between said brushes when they are in contact with said conducting surfaces, and said primary circuit closer normally closing the circuit by night and opening it by day, a circuit closing spring normally out of contact with said brushes,

and means whereby at predetermined intervals said circuit closing spring will be released to contact with said brushes and close the circuit between them, substantially as described.

7. The combination, with a time mechanism, of an electric alarm circuit, a primary circuit closer, having brushes normally insulated from one another and a rotary disk having insulating and conducting surfaces with which said brushes alternately engage, a star wheel having prongs representing the days of the week and in the path of the hour hand and actuated thereby one step with each revolution of said hand, a ratchet provided in connection with said star wheel and having seven notches, one of them being deeper than the others and a pivoted circuit closing spring having one end in engagement with said ratchet and normally held thereby out of contact with said brushes but adapted to drop into engagement therewith once with every revolution of said ratchet, or every seventh day, substantially as described.

8. The combination, with a time mechanism, of an electric alarm circuit, a primary circuit closer arranged to close the circuit through said mechanism by night and open it by day, a secondary circuit closer comprising a revolving device actuated by the movement of the hour hand post, a ratchet provided in connection with said revolving device and having a series of notches, one of them deeper than the others, and means in engagement with said notches and arranged to close said alarm circuit once with every revolution of said ratchet or when said means engages the deeper notch, substantially as described.

9. The combination, with a time mechanism, of an electric circuit, a primary circuit closer having brushes normally insulated from one another, and a rotary disk having insulating and conducting surfaces with which said brushes alternately engage, means actuated one step with each revolution of said hand, a circuit closing spring arranged to engage said brushes, and means interposed between said spring and said actuated-means for normally holding said spring out of engagement with said brushes but permitting its contact therewith at predetermined intervals, substantially as described.

10. The combination, with a time mechanism, of an electric alarm circuit, a primary circuit closer arranged to close the circuit through said mechanism by night and open it by day, and a secondary circuit closer comprising means actuated one step with each revolution of the hour hand, a circuit closing spring, means normally holding said circuit closing spring out of contact with said primary circuit closer, and said means being actuated by the movement of said actuated-means for permitting the contact of said spring with said primary circuit closer at predetermined intervals.

In witness whereof, I have hereunto set my hand this 26th day of July 1906.

FREDERICH J. ARNDT.

Witnesses:
RICHARD PAUL,
J. B. ERA.