

No. 863,570.

PATENTED AUG. 13, 1907.

J. L. GRASS, W. K. COOK, C. W. FLETCHER & F. J. ARNDT.

ELECTRIC TIME ALARM.

APPLICATION FILED AUG. 1, 1906.

3 SHEETS—SHEET 1.

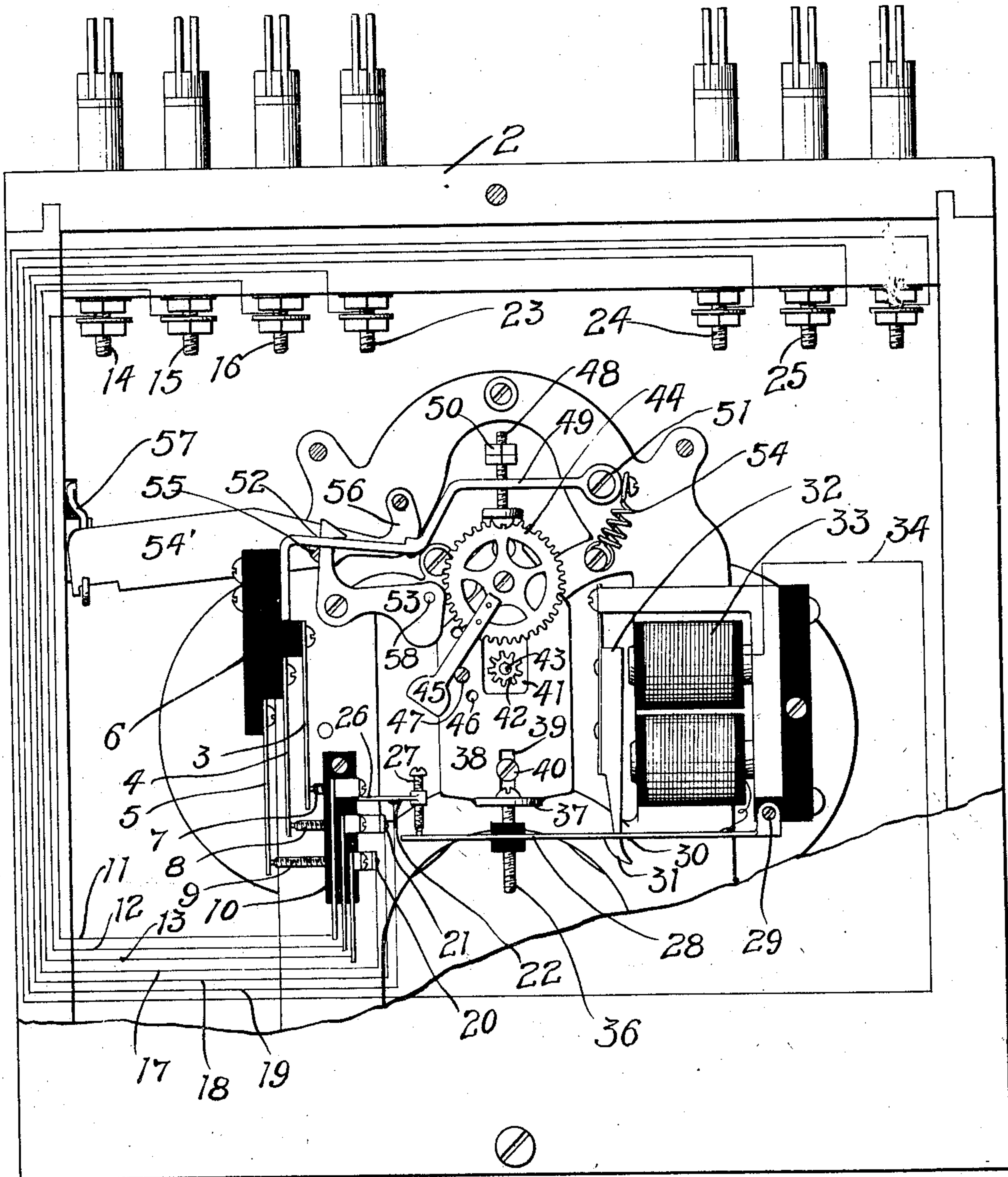


Fig. 1.

WITNESSES

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3 SHEETS—SHEET 2.

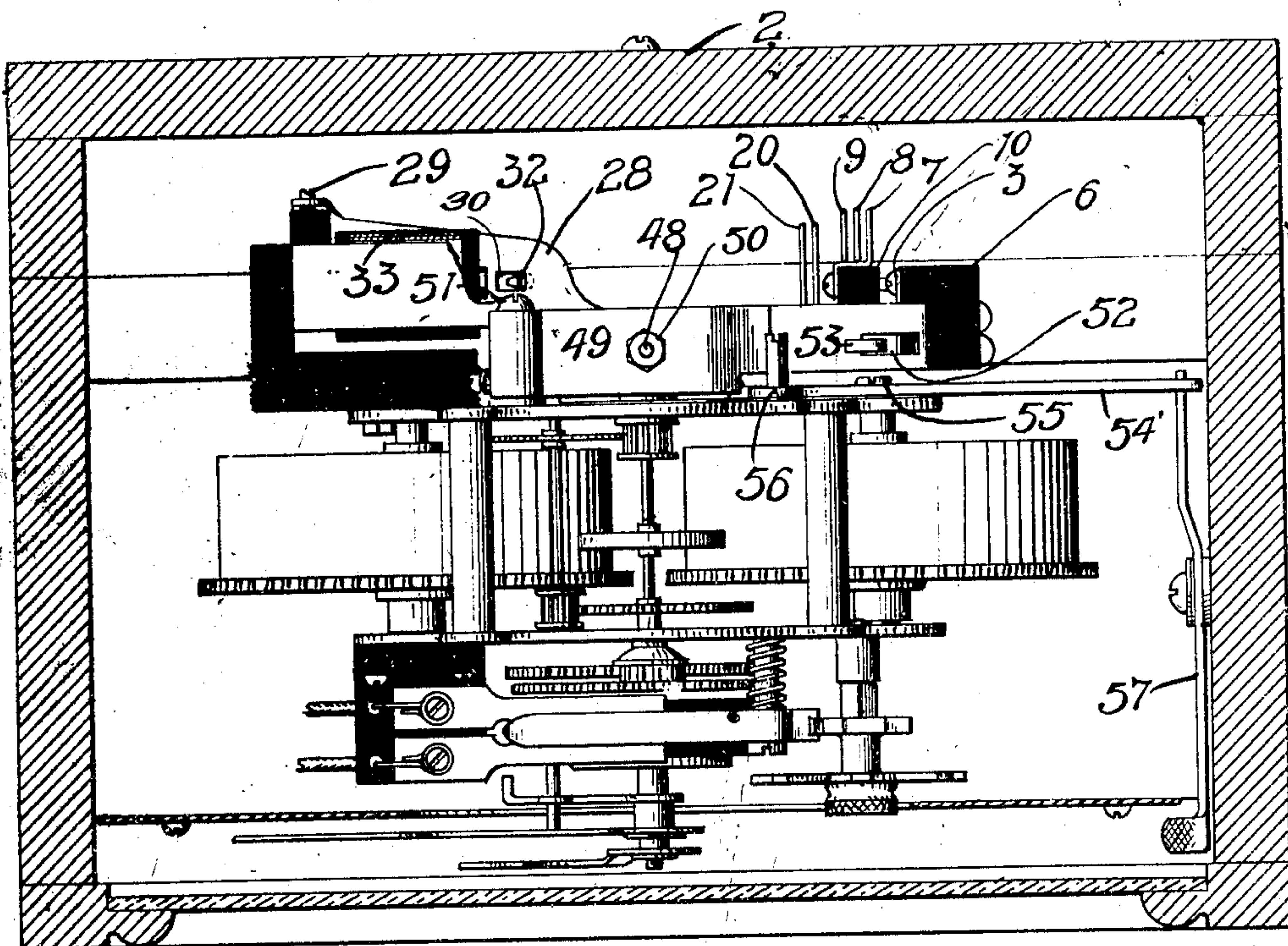


Fig 2.

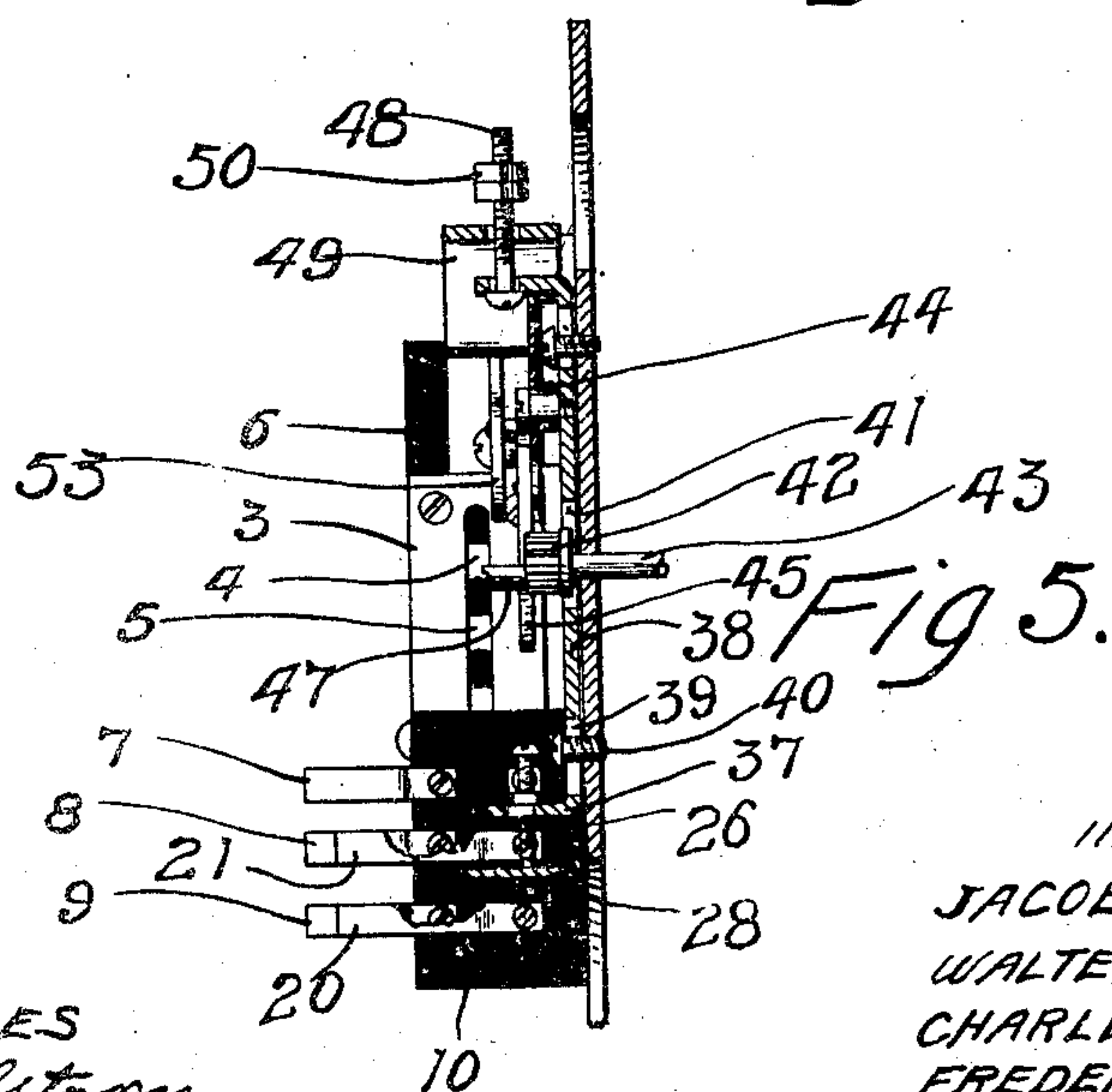


Fig 5.

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3 SHEETS—SHEET 3.

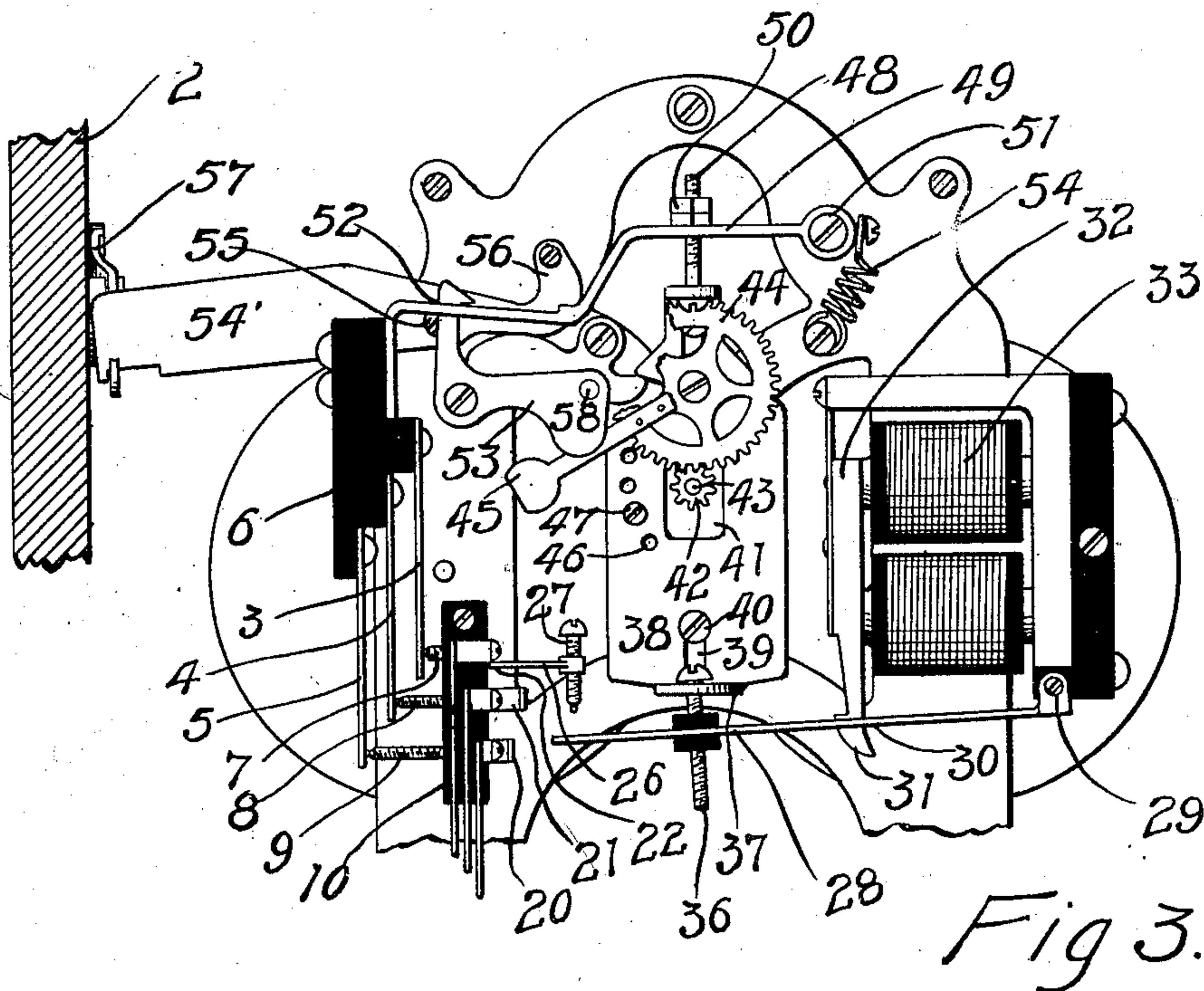


Fig 3.

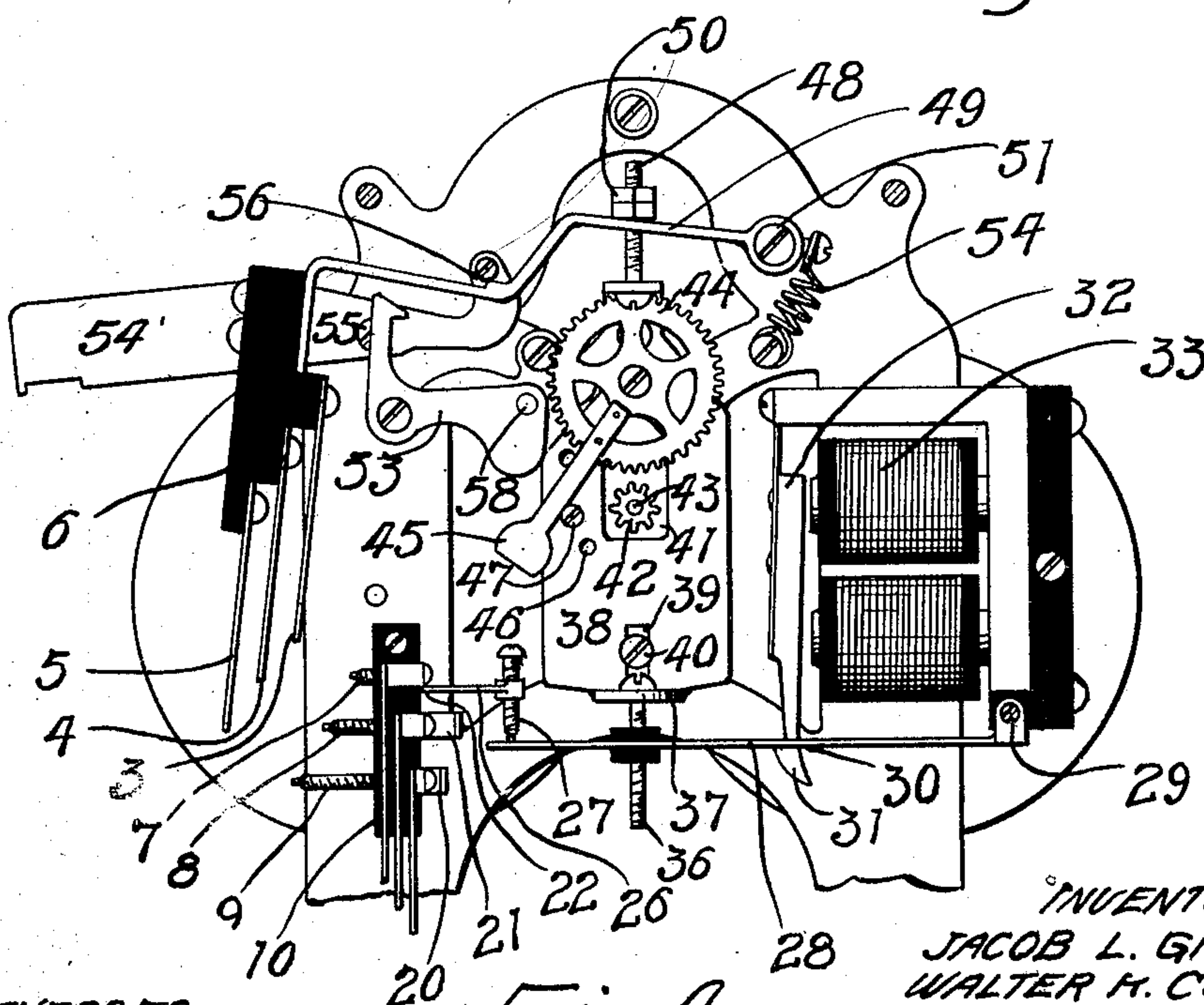


Fig 4.

WITNESSES

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# UNITED STATES PATENT OFFICE.

JACOB L. GRASS, WALTER K. COOK, CHARLES W. FLETCHER, AND FREDERICH J. ARNDT, OF MINNEAPOLIS, MINNESOTA, ASSIGNORS TO AMERICAN BANK PROTECTION CO., OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA.

## ELECTRIC TIME-ALARM.

No. 863,570.

Specification of Letters Patent.

Patented Aug. 13, 1907.

Application filed August 1, 1906. Serial No. 328,716.

*To all whom it may concern:*

Be it known that we, JACOB L. GRASS, WALTER K. COOK, CHARLES W. FLETCHER, and FREDERICH J. ARNDT, of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Electric Time-Alarms, of which the following is a specification.

Our invention relates to electric alarm systems and particularly to those of the burglar alarm type. In these systems it is customary to provide a gong in connection with a time mechanism and an electric circuit for the purpose of ringing the gong and causing an alarm to be sounded should the system be tampered with by a burglar or any unauthorized person during the time when the clock is "on" or the circuit is closed there-through for the night. When the system is short-circuited and the gong begins to ring, it will continue to sound the alarm until the batteries are worn out or until someone has broken the circuit through the time mechanism. In cases of attempted burglary, when the alarm has been sounded, or when the gong has been rung through some accident to the system, a long period frequently intervenes between the initial ringing of the gong and the time when a person arrives with sufficient knowledge of the system to reset the clock and stop the gong. Such long continued ringing of the gong is undesirable as it not only weakens the battery but also causes an unnecessary disturbance. The object, therefore, of our invention is to provide means for automatically checking the ringing of the gong after a certain interval of time.

Our invention consists generally in providing means in connection with a general alarm circuit whereby when the gong has rung for a predetermined period of time the circuit will be broken and the gong stopped. Further, the invention consists in providing means whereby the ringing time or period of the gong may be varied.

In the accompanying drawing, forming part of this specification, Figure 1 is a rear view of a time piece with the casing broken away, illustrating the interior construction. Fig. 2 is a plan view looking down on the top of the circuit breaking mechanism. Fig. 3 illustrates the position of the parts after the drop circuit has been opened and the mechanism set in motion to open the general alarm circuit. Fig. 4 is a similar view illustrating the drop circuit closed and the general alarm circuit open. Fig. 5 is a sectional view illustrating the vertically moving frame which supports the mechanism for opening the alarm circuit.

In the drawing, 2 represents a time piece casing having its mechanism connected in any suitable way with the conductors of the general alarm system. The circuit is closed through this system by means of brushes

3, 4 and 5 arranged in pairs (see Fig. 5), and mounted on an insulating block 6 and adapted to engage contact points 7, 8 and 9, also mounted on a block 10 and connected with conductors 11, 12 and 13, which lead to suitable binding posts 14, 15 and 16, and from thence to the vault door or lining. We make no claim in this application to this general alarm system and hence it is unnecessary to illustrate or describe its complete system of wiring.

Conductors 17, 18 and 19 are also provided, leading to contact points 20, 21 and 22 from binding posts 23, 24 and 25. The contact point 22 has a plate 26 carrying a screw 27 which bears on a plate 28 hinged at 29 and having a notch or recess 30 to receive a hook 31 on the lower end of the armature 32 of the circuit closer 33. This circuit closer has its magnets cut into the alarm circuit through conductors 34 and plate 28, and a conductor leading from the said plate to the magnets, and when the alarm circuit is short-circuited and the current flows therethrough, the magnets of the circuit closer will be energized to attract the armature 32 and release the plate 28. This plate carries an adjustable screw 36 which engages a lug 37 on the lower end of a plate 38 that is vertically slidable by means of slots 39 and screws 40 passing therethrough. The plate 38 also has a centrally arranged slot 41 to receive a pinion 42 on the hour hand post 43 of the clock. An idle gear 44 is mounted on the plate 38 above the said pinion and is normally held up out of contact with the pinion, but when the plate 28 is released and is allowed to drop by gravity, the gear will engage the teeth of the pinion and be driven thereby. An arm 45 is rigidly mounted on the gear 44 and by means of holes 46 in the plate 38 and the adjustable pin 47 the position of the arm 45 with respect to its support can be varied, being either raised or lowered according to which hole 46 the stop pin 47 is thrust into.

The upper end of the plate 38 carries a screw 48 adapted to slide in a plate 49 and provided with lock nuts 50 for regulating its travel in said plate. The plate 49 is hinged at 51 at one end and carries the insulating block 6 at its other end and is provided with an intermediate notch 52 engaged by a dog 53. A spring 54 normally holds the plate 49, the insulating block 6 and the brushes thereon in an elevated position to break the general alarm circuit. A lever 54' is pivoted at 55 and has an arm 56 extending across the plate 49, said lever 54' being operated by means of a lever 57 which extends through to the front of the clock. When the operator grasps the lever 57 and raises the lever 54' the plate 49 will be forced downwardly until its brushes contact with the points below and the dog 53 engages the notch 52 and locks the plate in its depressed position against the tension of its spring. A pin 50 is provided in the dog



53 in the path of the arm 45 and when the gear 44 has rotated a predetermined distance the arm 45 will engage the pin 58, trip the dog 53 and release the plate 49 and the spring 54 will raise the plate 49 and break the  
 5 general alarm circuit. The upward movement of the plate 49 will bring it into engagement with the lock nuts 50 and cause the upward movement of the plate 38 and the separation of the gear 44 from the pinion 42. When the circuit closer magnets have been energized and the  
 10 plate 28 released the plate 38 will drop and allow the gear 44 to mesh with the pinion 42 and be revolved thereby. This closing of the circuit through the drop will occur the moment the gong begins to ring, and the plate 38 will drop and the gear 44 will begin to rotate  
 15 the same instant and the ringing of the gong will continue until the arm 45 has engaged the pin 58 when the general alarm circuit will be broken and the gong will cease ringing. By adjusting the stop pin and raising or lowering the arm 45 its travel may be varied to shorten  
 20 or lengthen the ringing period of the gong before the alarm circuit is broken.

We claim as our invention:

1. The combination, with a time piece, of a normally open electric alarm circuit means for closing said alarm circuit and causing the alarm to be sounded and means whereby said circuit will be opened and the sounding of the alarm automatically checked a predetermined interval after the initial operation of the alarm, substantially as described.
2. The combination, with a time piece, of an electric alarm circuit, a circuit closer having a drop connected with said alarm circuit and released by the passage of the current through said alarm circuit, and means whereby said alarm circuit will be broken and the sounding of the alarm checked a predetermined interval after the operation of said circuit closer and the release of said drop, substantially as described.
3. The combination, with a time mechanism of an electric alarm circuit closed through said time piece during predetermined intervals and arranged when short-circuited to sound an alarm, a circuit closer having a drop connected with said alarm circuit, and means released by the operation of said circuit closer for checking the sounding of said alarm a predetermined interval after its initial operation.
4. The combination, with a time piece, of an electric alarm circuit closed during a predetermined interval of

time, a gear mechanism normally inoperative but arranged to move into engagement with the time piece gear to be driven thereby, means actuated when the alarm is sounded for releasing said gear mechanism, and means controlled by the movement of said gear mechanism for checking said alarm after a period of time from its initial operation, substantially as described.

5. The combination, with a time piece having a revolving pinion, of an electric alarm circuit closed through said time piece during a predetermined period, a sliding frame, a gear wheel carried thereby and normally idle, an arm carried by said gear wheel, means operated by said arm for breaking said alarm circuit a predetermined interval after the engagement of said gear with said pinion and means connected with said alarm circuit and actuated when the initial alarm is sounded for releasing said frame and allowing said gear to engage said pinion, substantially as described.

6. The combination, with a time piece having a revolving pinion, of an electric alarm circuit, a sliding frame, a gear mounted thereon and adapted to engage said pinion, a circuit closer connected with said alarm circuit and having a drop arranged to normally hold said frame in an elevated position and said gear out of engagement with said pinion, an arm carried by said gear, and means in the path of said arm for breaking said alarm circuit when engaged thereby, substantially as described.

7. The combination, with a time piece, of an electric alarm circuit having a series of movable brushes and contact points therefor, a hinged plate supporting said brushes, a spring normally holding said plate in a raised position and said brushes out of contact with said points, a dog adapted to engage said plate and lock said brushes in engagement with said points, and means released upon the initial sounding of the alarm for tripping said dog and breaking said alarm circuit after a predetermined interval, substantially as described.

8. The combination, with a time piece, of an electric alarm circuit, a circuit closer arranged to be actuated by the passage of a current through said alarm circuit, and means whereby said alarm circuit will be opened and the alarm checked at a predetermined period after the operation of the alarm.

In witness whereof we have hereunto set our hand this 26th day of July 1906.

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Witnesses:

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