

A. D. WHEELER.

AUTOMATIC FIRE ALARM SYSTEM.

No. 348,707.

Patented Sept. 7, 1886.

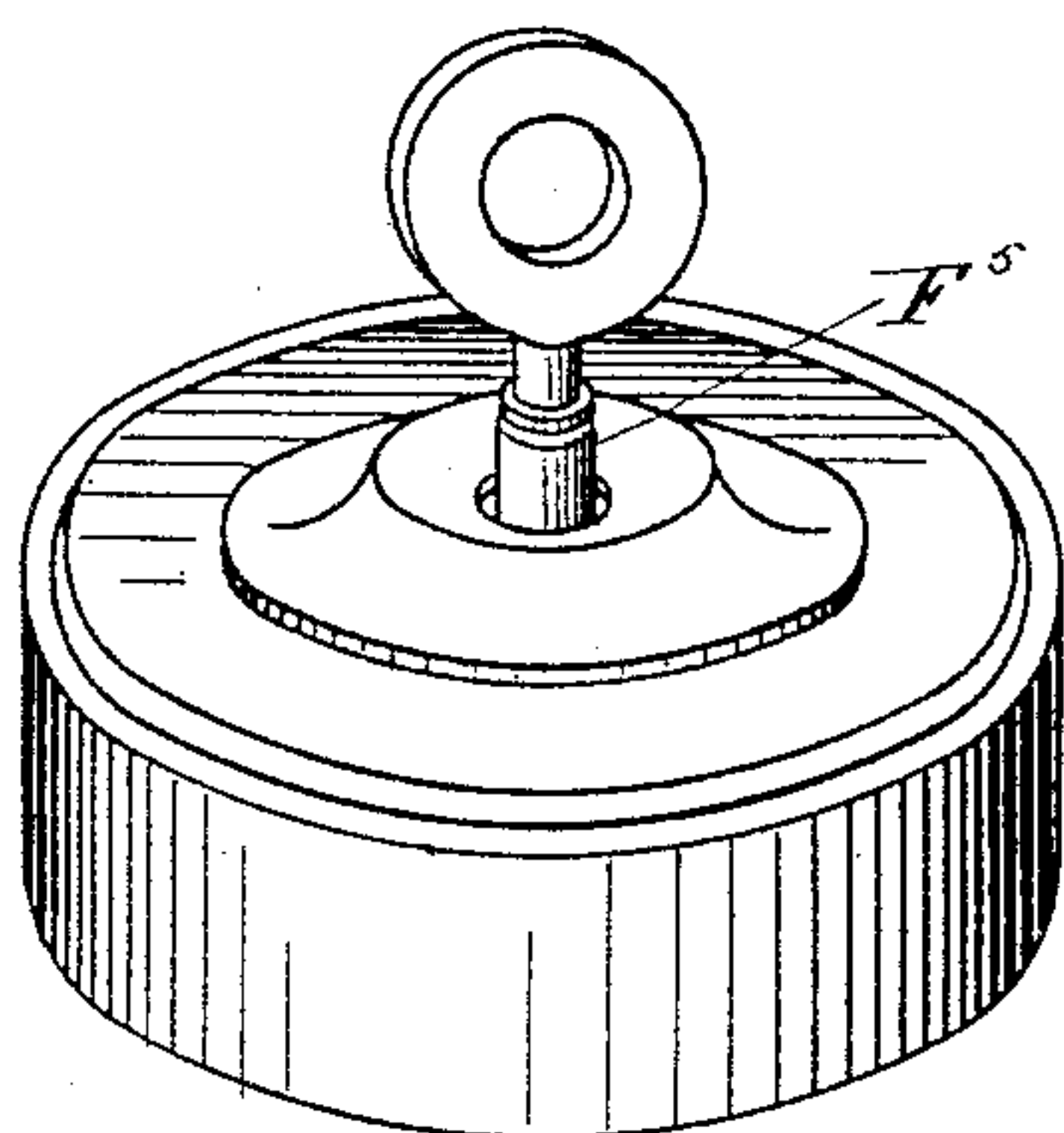


Fig. 1.

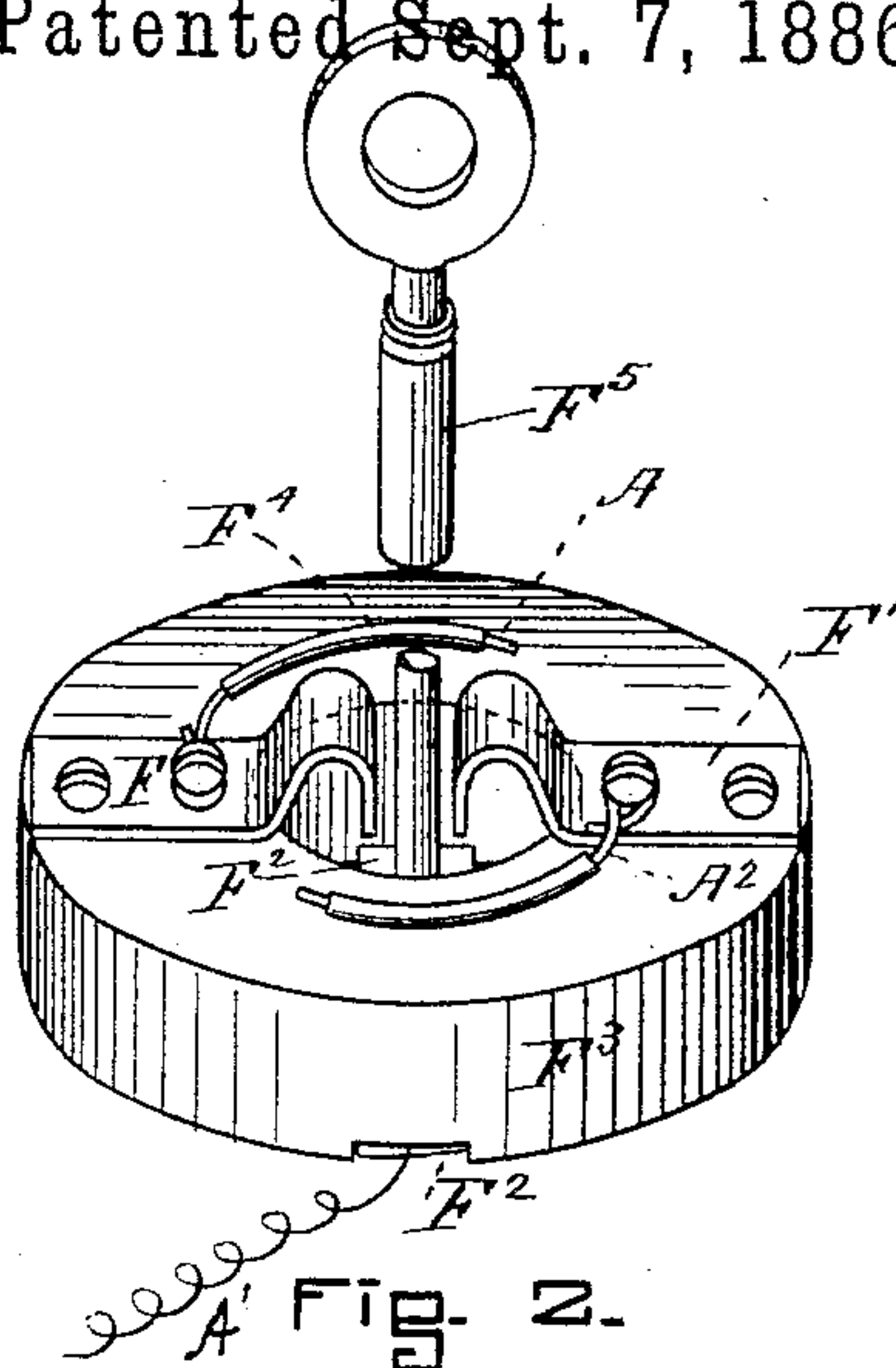


Fig. 2.

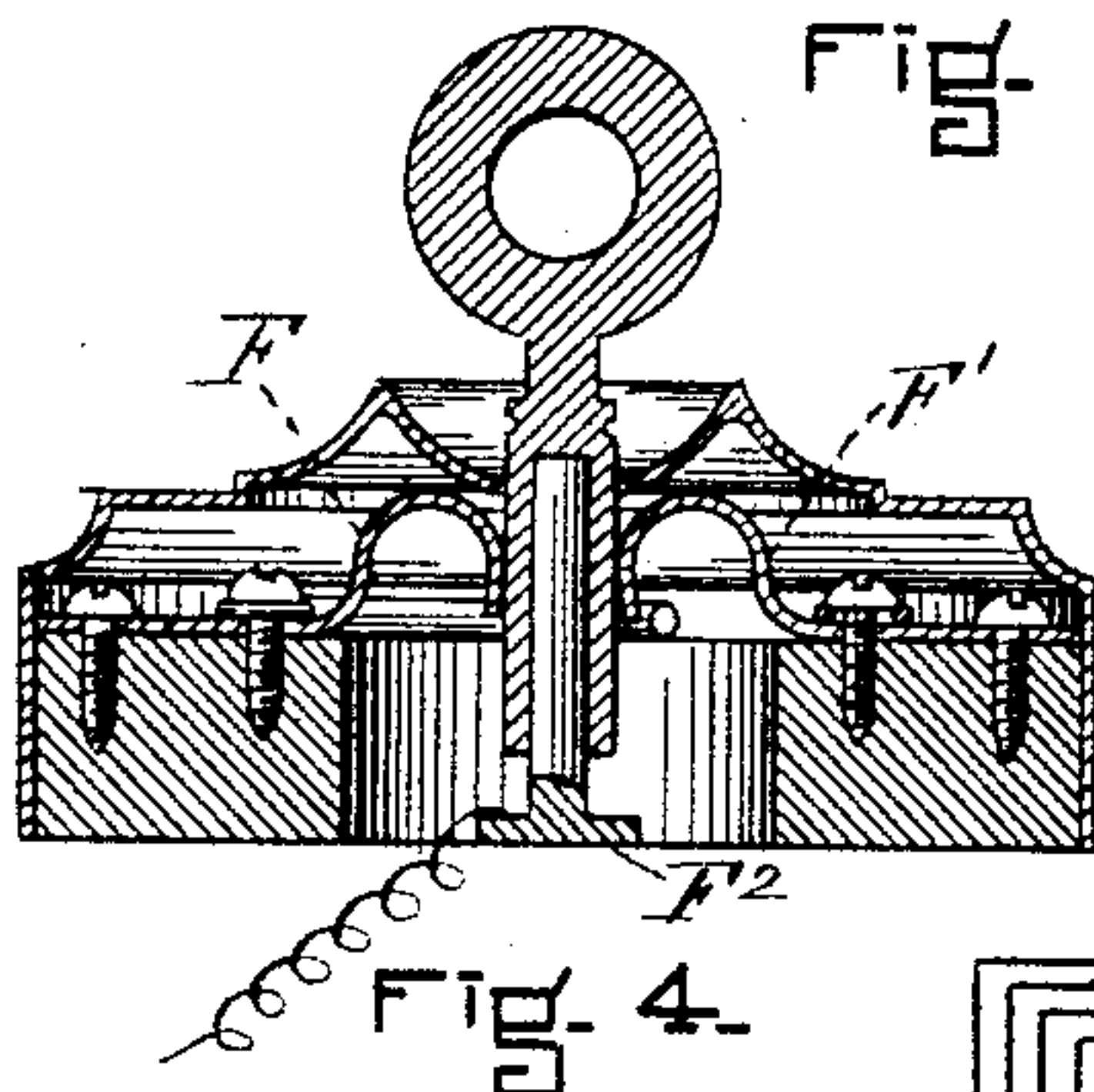


Fig. 4.

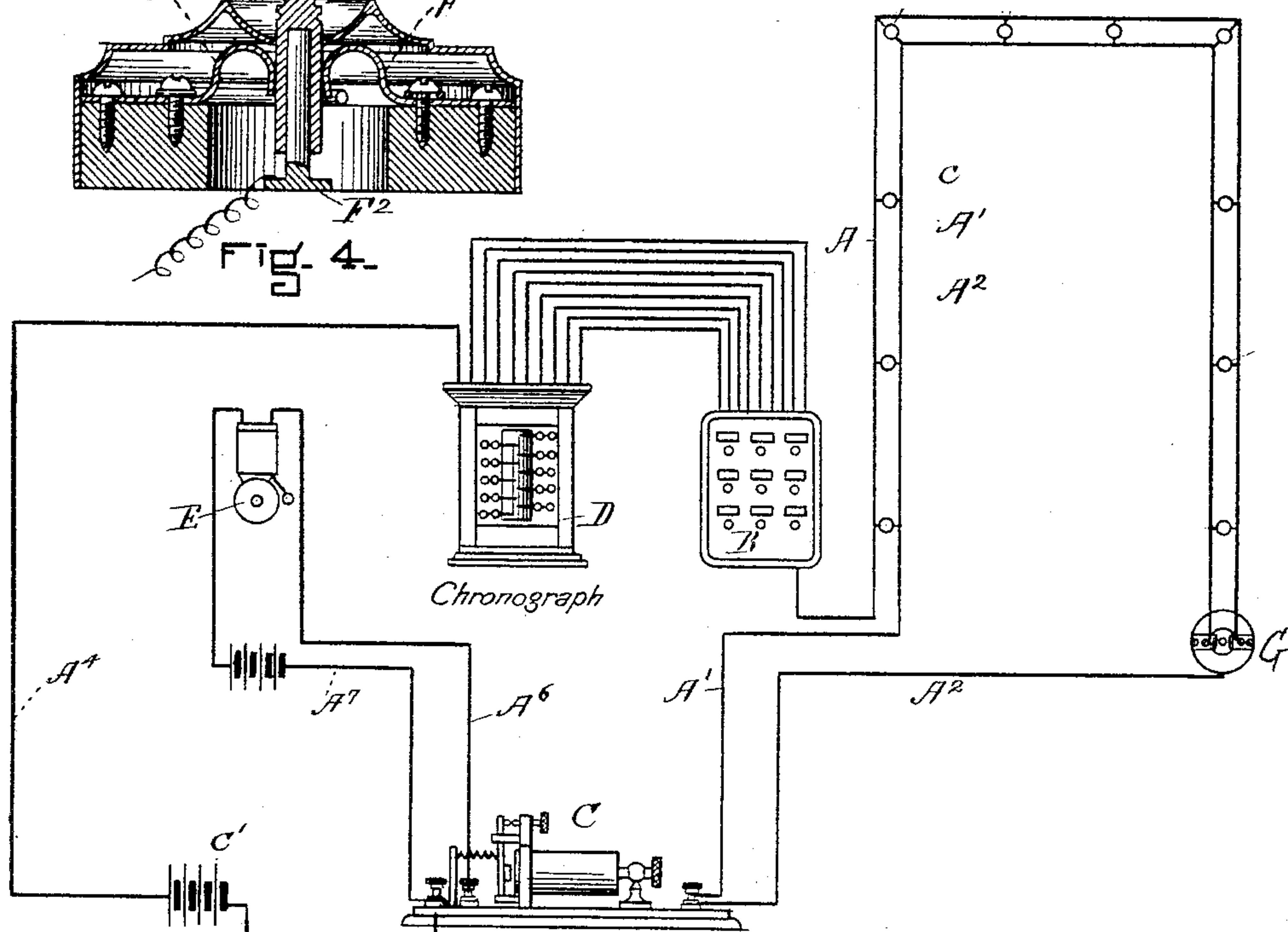


Fig. 5

WITNESSES.

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INVENTOR.

Alden S. Wheeler
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(No Model.)

2 Sheets—Sheet 2.

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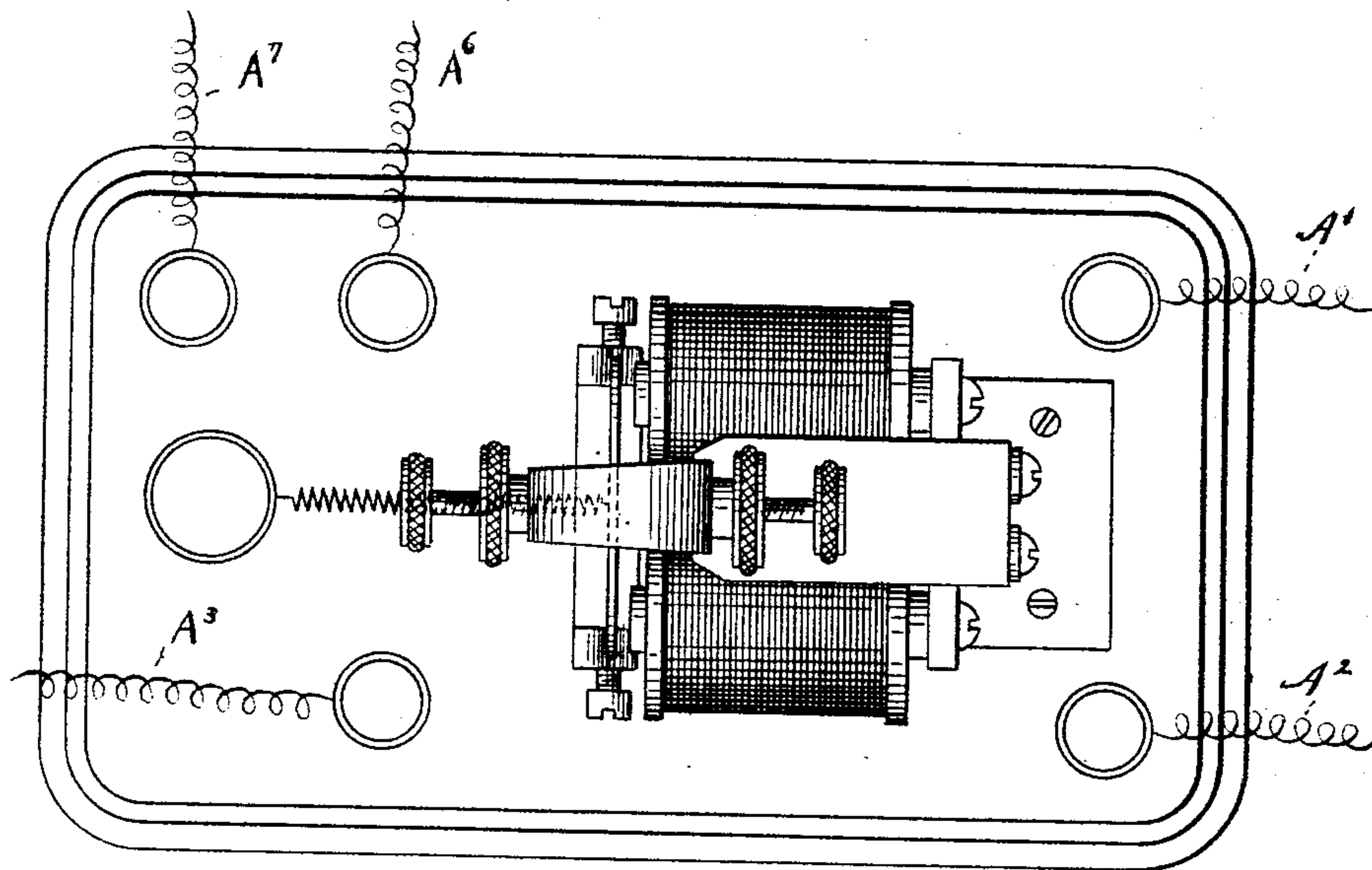


FIG. 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

ALDEN D. WHEELER, OF BOSTON, MASS., ASSIGNOR TO THE AMERICAN
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AUTOMATIC FIRE-ALARM SYSTEM.

SPECIFICATION forming part of Letters Patent No. 348,707, dated September 7, 1886.

Application filed August 17, 1885. Serial No. 174,574. (No model.)

To all whom it may concern:

Be it known that I, ALDEN D. WHEELER, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Automatic Fire-Alarm Systems, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

This invention is an improvement upon that described in the patent to James A. Tilden, No. 301,645, dated July 8, 1884; and it consists in means whereby the circuit may be tested by the watchman without sounding the alarm unless a wire should be broken or the circuit interrupted, in which event the alarm is sounded.

Referring to the drawings, Figure 1 is a perspective of the circuit-closer covered by its cap and the key in place. Fig. 2 is a perspective view with the key and cap removed to illustrate the construction. Fig. 3 is a view illustrating the system. Fig. 4 is a vertical section of the circuit-closer, and Fig. 5 is a plan view of the relay.

Fig. 3 represents one complete circuit, E, and indicated circuits between the clock and the annunciator. Each of these circuits is made up of the three wires A A' A². The wires A' A² connect the relay C with all the circuits. The wire A³ connects the battery C' with the relay, and the wire A⁴ the battery with the register-clock or chronograph-clock D and annunciator B. The alarm E is connected with the relay by the wire A⁶, and with the battery by the wire A⁷.

The armature of the relay is arranged so as not to be operated when the watchman turns the key unless one of the three wires A A' A² is broken or disarranged; and this result is produced by arranging two coils about the soft-iron core, one of which is connected with the wire A' and the other with the wire A², so that the currents shall run oppositely thereon and neutralize each other, and thus render the armature inoperative.

In order to establish a circuit between the wires A A' A² at G, one of the watchman's stations, I have connected the wire A with the

curved arm F, and the wire A² with the curved arm F', and the wire A' with the plate F², fastened to the block F³, from which plate projects the stud F⁴; and these arms F F' and stud F⁴ are so arranged in relation to each other that upon the insertion of the key F⁵ the circuit is established and the various wires connected. If, however, one of the wires A' A² is broken, it is obvious that the armature of the relay will operate, and the alarm be sounded as the watchman inserts the key.

The thermostats upon the circuits are indicated. It is of course obvious that upon the operation of the thermostats the alarm is sounded, as in the Tilden patented device, by using only one coil of the relay.

I would state that I do not confine this invention to use in automatic electric fire-alarm systems, but may employ it for any purpose or system wherever it is desired to render inoperative a certain part of the mechanism at a certain time by rendering inoperative the armature controlling the operation of said mechanism, as herein specified.

The binding-post on the relay to which the wire A' runs connects with a coil in the relay wound in one direction—say right-handed—and the binding-post to which wire A² runs connects with another coil on the relay wound in the other direction. The opposite ends of these two coils connect with the binding-post to which wire A³ runs. If, therefore, the circuits are in order, reverse currents will run on the relay, and no alarm will be sounded when the watchman tests the circuit at G; but a current will run through wires A A' A³, battery C', wire A⁴, chronograph D, and annunciator B, and if the circuits are not in order, wire A or A' being broken, but one current will be sent through the relay, and the armature will be attracted, the circuit A⁶ A⁷ closed, and the alarm sounded. So, also, if the wire A² be disconnected, as it must be unless the watchman's key be employed at G and connections between wires A and A' be made through the thermostats, but one current will run on the relay, and the alarm will be sounded.

The annunciator is worked as described in the patent referred to, and serves to show from which of the several line-circuits an alarm is

sent in. Its presence serves only to duplicate the indication on the chronograph in a more noticeable way.

Only one of the fire-alarm circuits of the
5 Tilden system is shown in the drawings, except as regards that part of it from the chronograph to the annunciator. Each of the wires between the chronograph and the annunciator has a fire-alarm circuit corresponding to it; but the wires from the chronograph
10 to the battery, from the battery to the relay, and from the relay to the circuits, are, as already stated, common to all the circuits.

Having thus fully described my invention,
15 I claim and desire to secure by Letters Patent of the United States—

1. The combination of an electric chronograph clock operated by any one of several compound circuits to record the closure of
20 said circuit, and an annunciator, a relay double wound interposed in all of said compound circuits and so connected that its armature will be neutral when both branches of any one or more of said compound circuits are closed, a

local circuit including an alarm controlled by
said relay, and a circuit-closer in each compound circuit, whereby when said circuit-closer is operated the relay will be inactive unless the integrity of the line-circuit is impaired. 25

2. The combination of a central electrical chronograph clock operated by any one of several compound circuits to record closures of said circuits, a relay double wound interposed in all of said compound circuits and
35 so connected that its armature will be neutral when both branches of any one or more of said compound circuits are closed, a local circuit including an alarm controlled by said relay, and a circuit-closer in each compound circuit, whereby when said circuit-closer is operated
40 the relay will be inactive unless the integrity of the line-circuit is impaired.

ALDEN D. WHEELER.

Witnesses:

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W. M. ATKINSON.