

(No Model.)

2 Sheets—Sheet 1.

W. H. SOLEY.

ELECTRICAL AUTOMATIC FIRE EXTINGUISHER FOR BUILDINGS.

No. 461,087.

Patented Oct. 13, 1891.

Fig. 1.

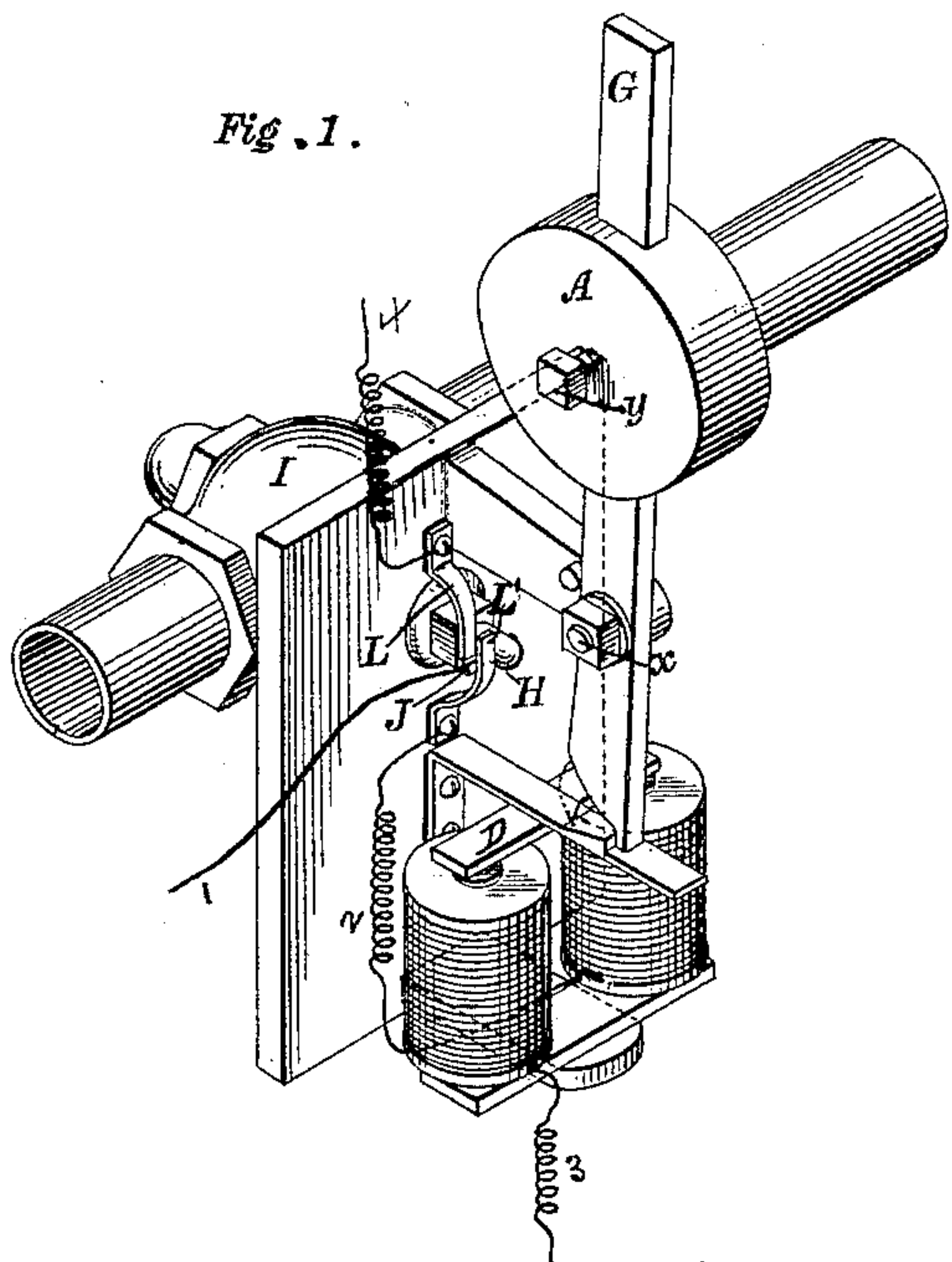


FIG. 2.

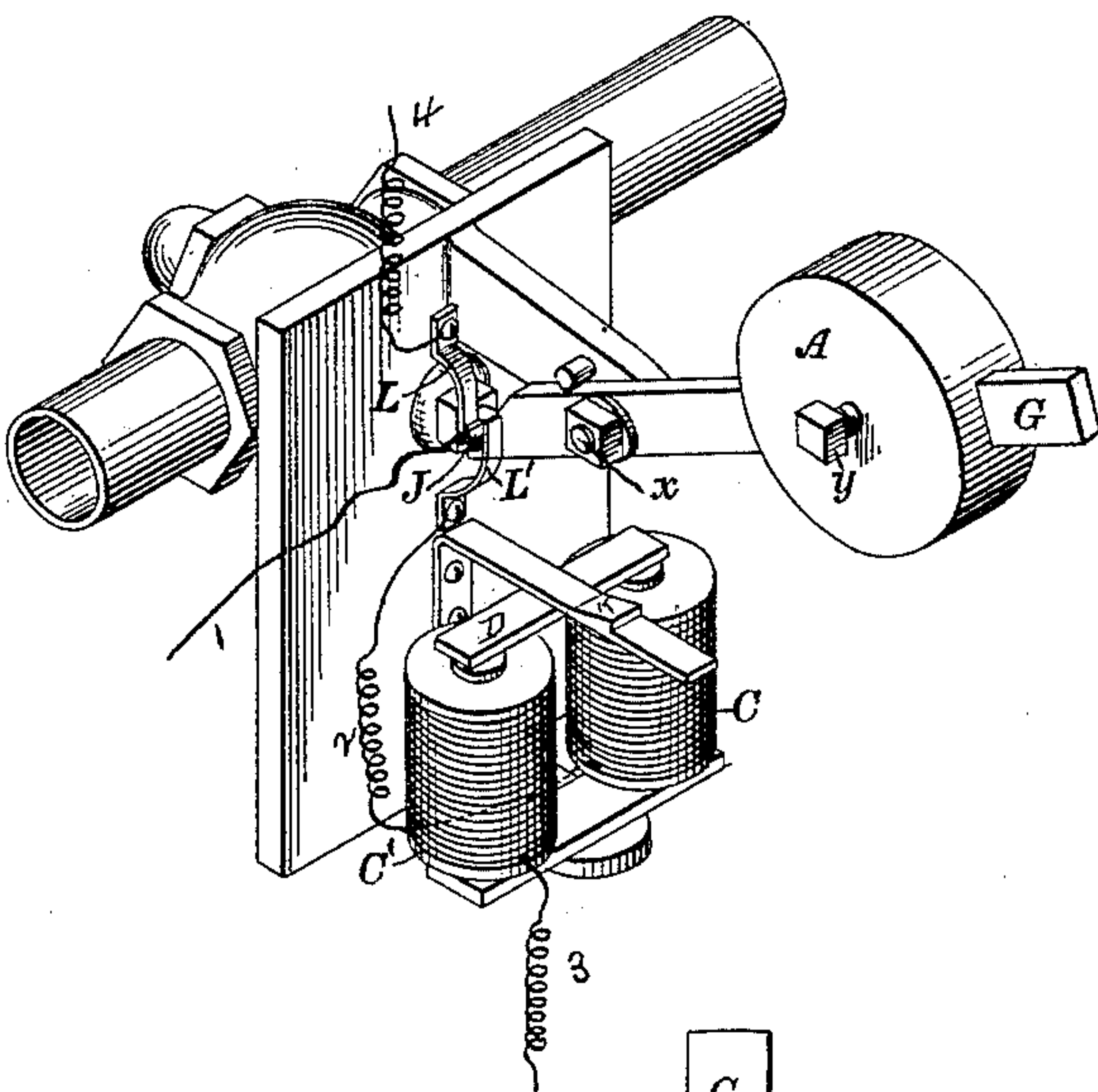


FIG. 3.

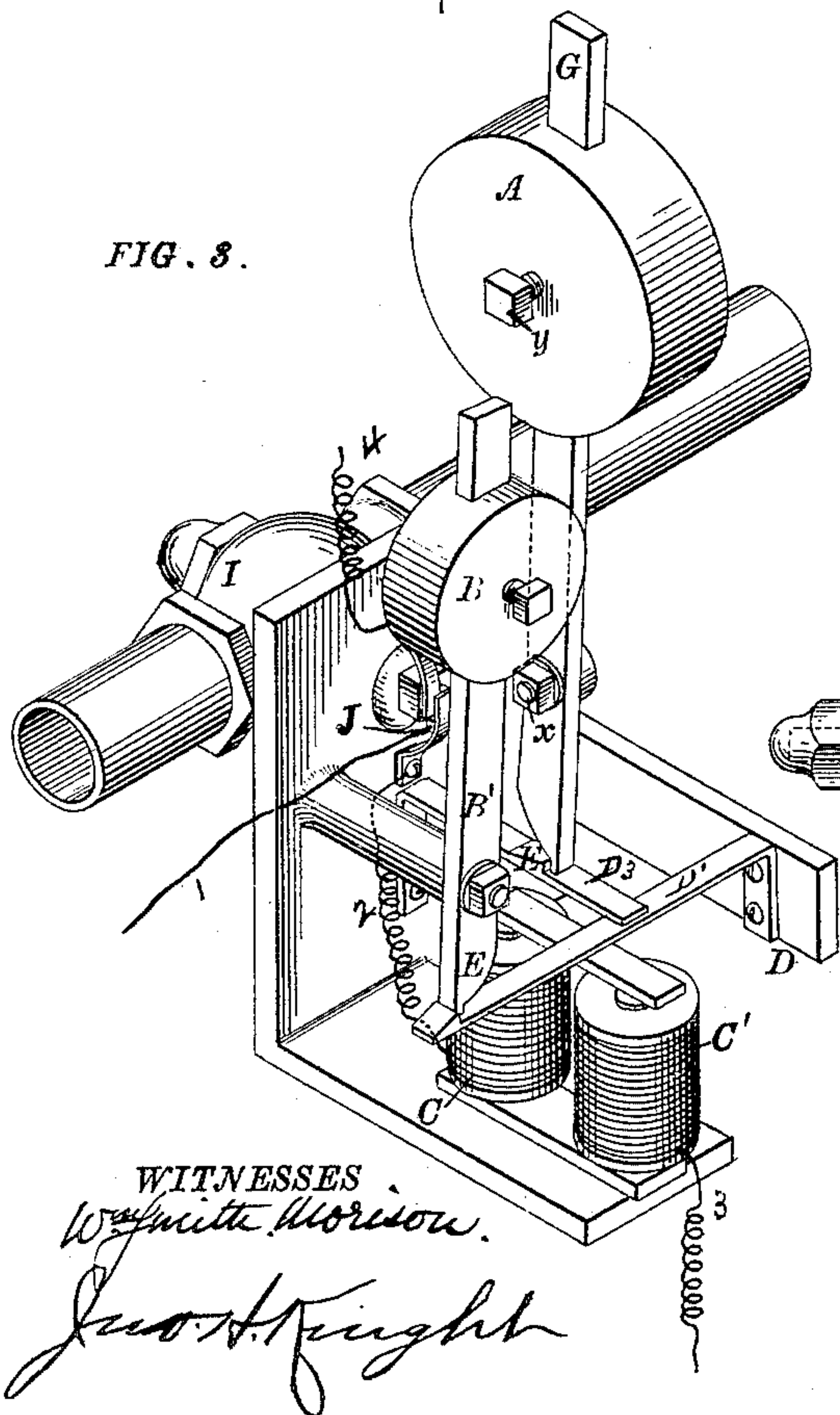
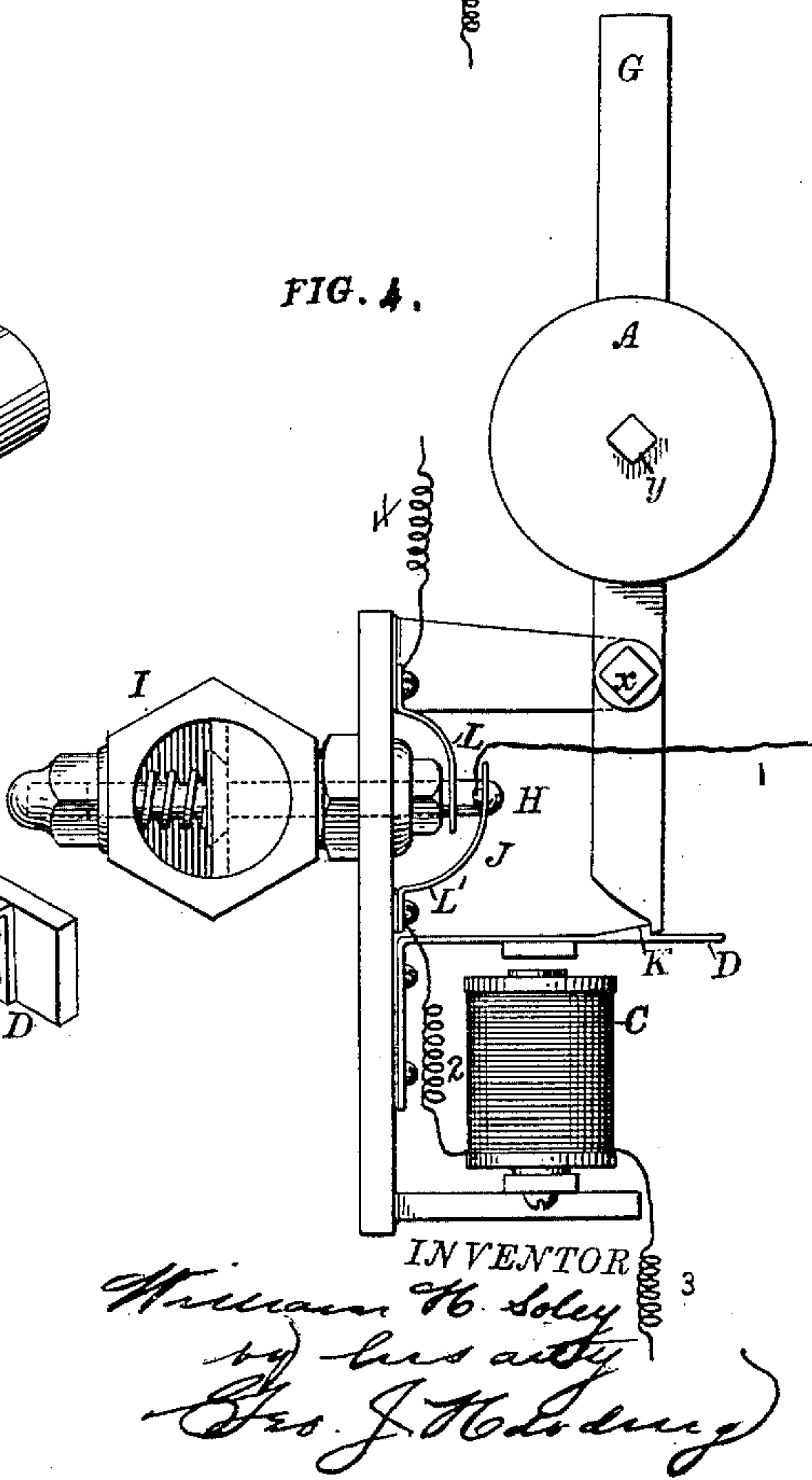


FIG. 4.



WITNESSES

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(No Model.)

2 Sheets—Sheet 2.

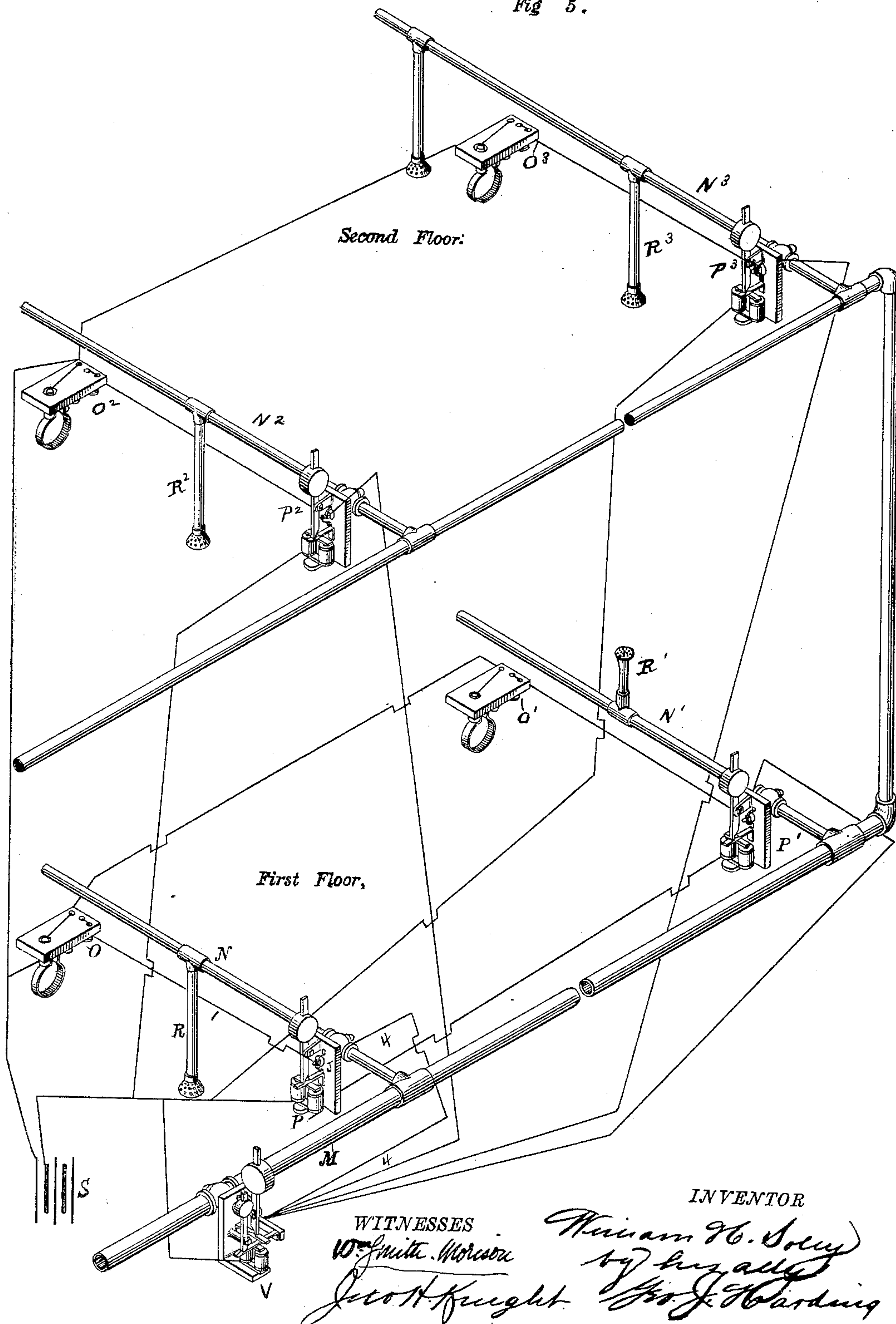
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Fig 5.



WITNESSES

10. Smith, Worcester

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UNITED STATES PATENT OFFICE.

WILLIAM H. SOLEY, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRICAL AUTOMATIC FIRE-EXTINGUISHER FOR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 461,087, dated October 13, 1891.

Application filed January 17, 1889. Serial No. 296,616. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. SOLEY, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Electrical Automatic Fire-Extinguishers for Buildings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification.

The object of my invention is to provide a suitable automatic device, controlled by an electrical circuit, which can prevent any water from entering the pipes, but which in case of fire operates to turn on the water from the main and forces the water into the pipes and through the building as required, as will hereinafter be fully described.

In the drawings, Figure 1 is a perspective view of the automatic electrical device. Fig. 2 is a perspective view of the automatic electrical device, showing the valve open to allow the water to enter the building from the main. Fig. 3 is a modified form of Fig. 1. Fig. 4 is a side elevation of Fig. 1. Fig. 5 is a view showing the entire system of piping with the thermostats and the automatic electrical devices in place for operation on two floors of a building.

G is a lever pivoted at x , with an adjustable weight A upon it, said weight being adjusted by a thumb-screw y .

H is a rod which opens the valve I. Attached to said rod is a pin J, said pin being insulated from said valve-rod.

C is the magnet, and D the armature. Upon the armature D is a catch or latch K to hold the lever G in a perpendicular position until released by the electrical current.

L and L' are electrical contact-points.

Wire No. 1 is the wire running from the thermostat and connected to the pin J on the valve-rod H, said wire being the positive wire from the battery.

Wire No. 2 connects the electrical contact L' to the magnet.

Wire No. 3 runs from the magnet and connects with the negative wire of the battery.

Wire No. 4 runs from the electrical contact L to the electrical automatic device controlling the valve on the main pipe.

In Sheet 2, M is the main-line pipe, and N, N', N², and N³ are pipes branching off from said main-line pipe. O O' O² O³ are the thermostats; situated on the electrical circuit. P, P', P², and P³ are the automatic electrical devices, controlling the valves to allow the water to enter the pipes N, N', N², and N³. R, R', R², and R³ are the sprinklers and may be situated either on the under side of the pipe, as R, or on the upper side toward the ceiling, as R'. The sprinklers thus can be made to throw the spray of water toward the ceiling and also toward the floor, thereby getting double the effect. S is an electrical battery.

In Fig. 3 is shown a modified form of the automatic electrical device. It may be desired not to use such a strong electrical current as might have, to be used in the former device. To obviate this, I have used two weighted levers, one more heavily weighted than the other. The smaller weighted one operates the larger one. Referring to Fig. 3, when the thermostat is acted upon by the heat and the circuit completed the current passes through the thermostat to the pin J on the valve-rod H, which is against the electrical contact L'. The current then passes from the electrical contact L' through the magnet, attracting the armature D' down to it, thereby releasing the weighted lever B', causing it to fall over against the spring-catch D³, thereby releasing the weighted lever G and forcing it against the valve-rod H, and thereby opening the valve of the pipe. The electrical circuit is now broken and remains so until closed by the action of the heat on another thermostat. The wire No. 3 passes from the magnet C C' to the battery.

The operation is as follows: Supposing the fire to originate under or near the thermostat O, the action of the heat on the thermostat closes the circuit, it being connected to the positive line of the battery. The current passes along the wire 1 to the pin J in the automatic electrical device P and through the electrical contact L' to the magnet. The magnet then draws the armature D down to it. The catch K releases the lever G, causing the lever G, which is weighted by the weight A, to fall and force itself against the valve-rod H, forcing the valve-rod back. The in-

sulated pin J on the valve-rod G is thus forced
 against the electrical catch L, thereby mak-
 ing the circuit again complete. The current
 passes along the wire No. 4 and to the insu-
 5 lated pin on the valve-rod H of the automatic
 electrical device V, situated on the main pipe
 M, and from the pin J of the automatic elec-
 trical device V the current passes through the
 electrical contact L', through wire No. 2 to
 15 the magnet C and C', drawing the armature
 D' down against it, thereby releasing the
 smaller lever B', which operates the larger
 lever G, causing the larger lever G to fall and
 force the valve-rod H back and allow the
 15 water to enter the main pipe. The wire No.
 3 from the magnet C and C' of the device P
 and V is attached to the negative line of the
 battery. As the fire increases and proceeds
 as far as the thermostat O' the action of the
 20 heat on this thermostat will again close the
 circuit and operate the automatic electrical
 device P' in the same manner as in the auto-
 matic electrical device P, and so on through-
 out the whole system, the object being to have
 25 the circuit so formed that the action of the
 heat on any one of the thermostats will close
 the circuit, open the valve of the small pipe,
 and at the same time open the valve on the
 main-line pipe and allow the water to enter
 30 the building and to be used at the point of
 the fire.

The thermostats, automatic electrical de-
 vices, and sprinklers are to be so arranged on
 the electrical circuit and piping that they
 35 will operate so as to act on the fire at any
 local point without destroying or flooding any
 place except at or about where the fire exists.

Instead of using automatic electrical de-
 vices, as shown in Figs. 1, 2, and 4, on all the
 40 pipes, the automatic electrical device shown
 in Fig. 3 can be used on all the pipes.

I do not limit myself to the exact system
 of piping, as many different arrangements of
 piping could be used without departing from
 45 my invention.

Having now fully described my invention,
 what I claim, and desire to protect by Letter
 Patent, is—

1. In an electrical valve-opening device, in
 combination, a source of current-supply, a 50
 thermostat in electrical connection with said
 source of current-supply, a rod, as H, at-
 tached to the valve, an electro-magnet, a
 catch upon the armature of said magnet, a
 weighted lever, as G, adapted to be held nor- 55
 mally in a perpendicular position by the
 catch, an insulated pin, as J, upon said valve-
 rod, electrical connection between said pin
 and the thermostat, and electrical connection
 from the magnet to the source of current- 60
 supply, said rod being in the line of travel of
 the lever G when the catch is released.

2. In combination, a main-line pipe or
 branch pipe, a source of current-supply, a 65
 thermostat in electrical connection with said
 source of current-supply, a valve on the
 branch pipe, a rod, as H, attached to the valve,
 an electro-magnet, a catch upon the armature
 of said magnet, a weighted lever, as G, adapted
 to be held normally in a perpendicular posi- 70
 tion by the catch, an insulated pin, as J, upon
 said valve-rod, electrical connection between
 said pin and the thermostat, electrical con-
 nection from the magnet to the source of
 current-supply, said rod being in the line of 75
 travel of the lever G when the catch is re-
 leased, contact-spring, as L, electrical connec-
 tion between said contact-spring L and the
 magnet, a valve-opening device on the main-
 line pipe, and electrical connection between 80
 the valve-opening device and the contact-
 spring L.

In testimony of which invention I have
 hereunto set my hand, at Philadelphia, Penn-
 sylvania, this 13th day of July, A. D. 1888.

WILLIAM H. SOLEY.

Witnesses:

RICH'D. S. CHILD, Jr.,

JNO. H. KNIGHT.