

No. 709,039.

Patented Sept. 16, 1902.

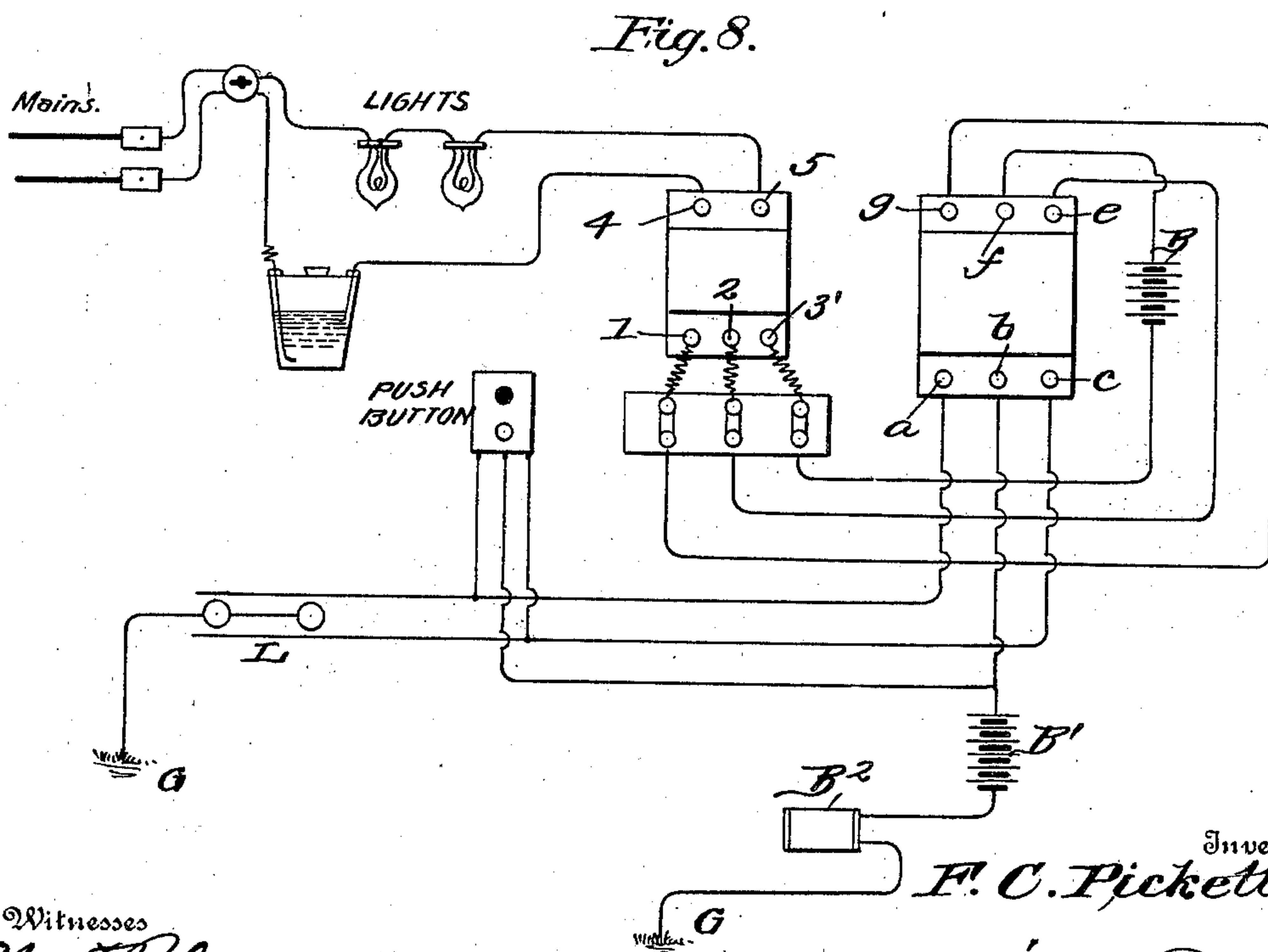
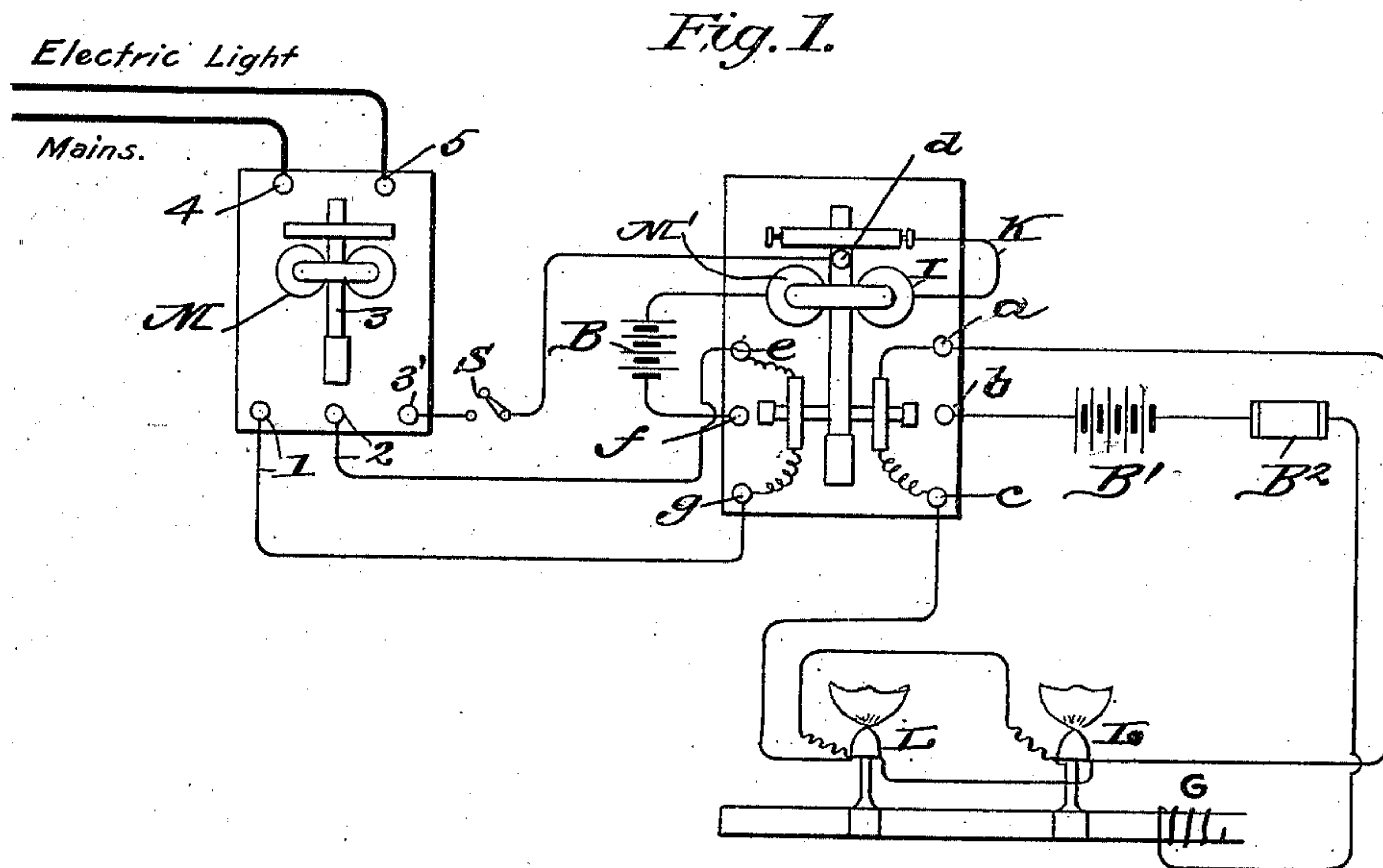
F. C. PICKETT.

COMBINED ELECTRIC AND GAS LIGHTING SYSTEM.

(Application filed May 25, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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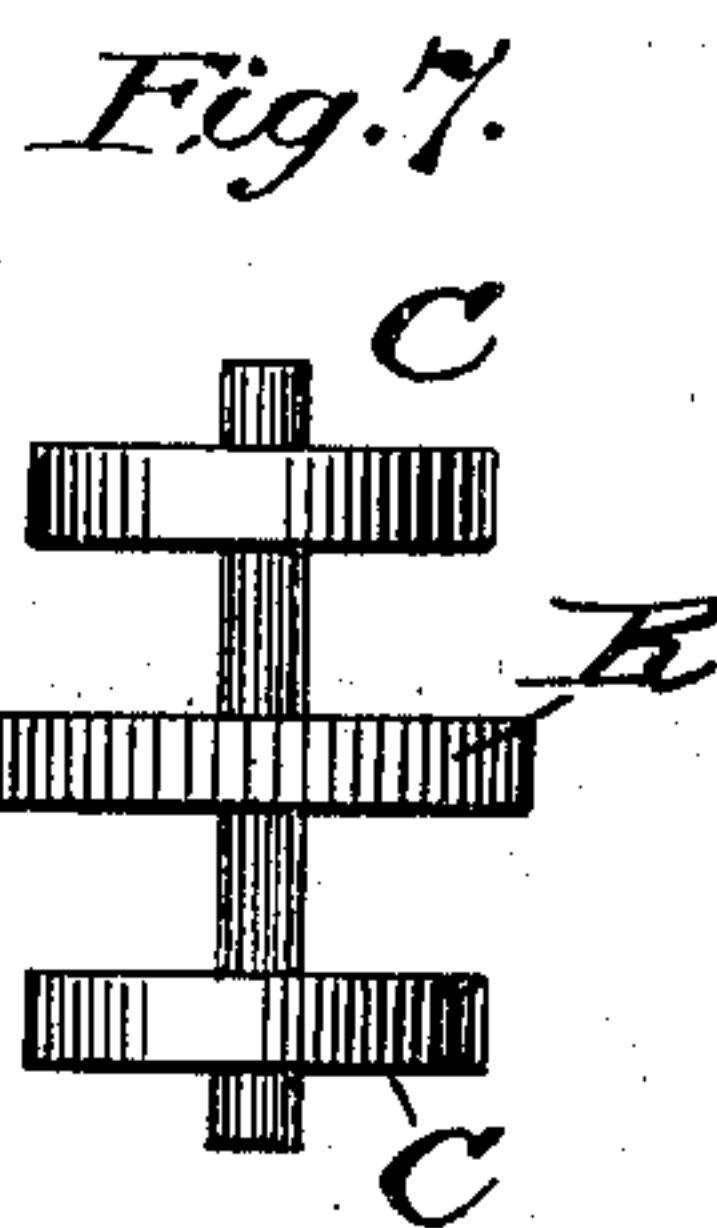
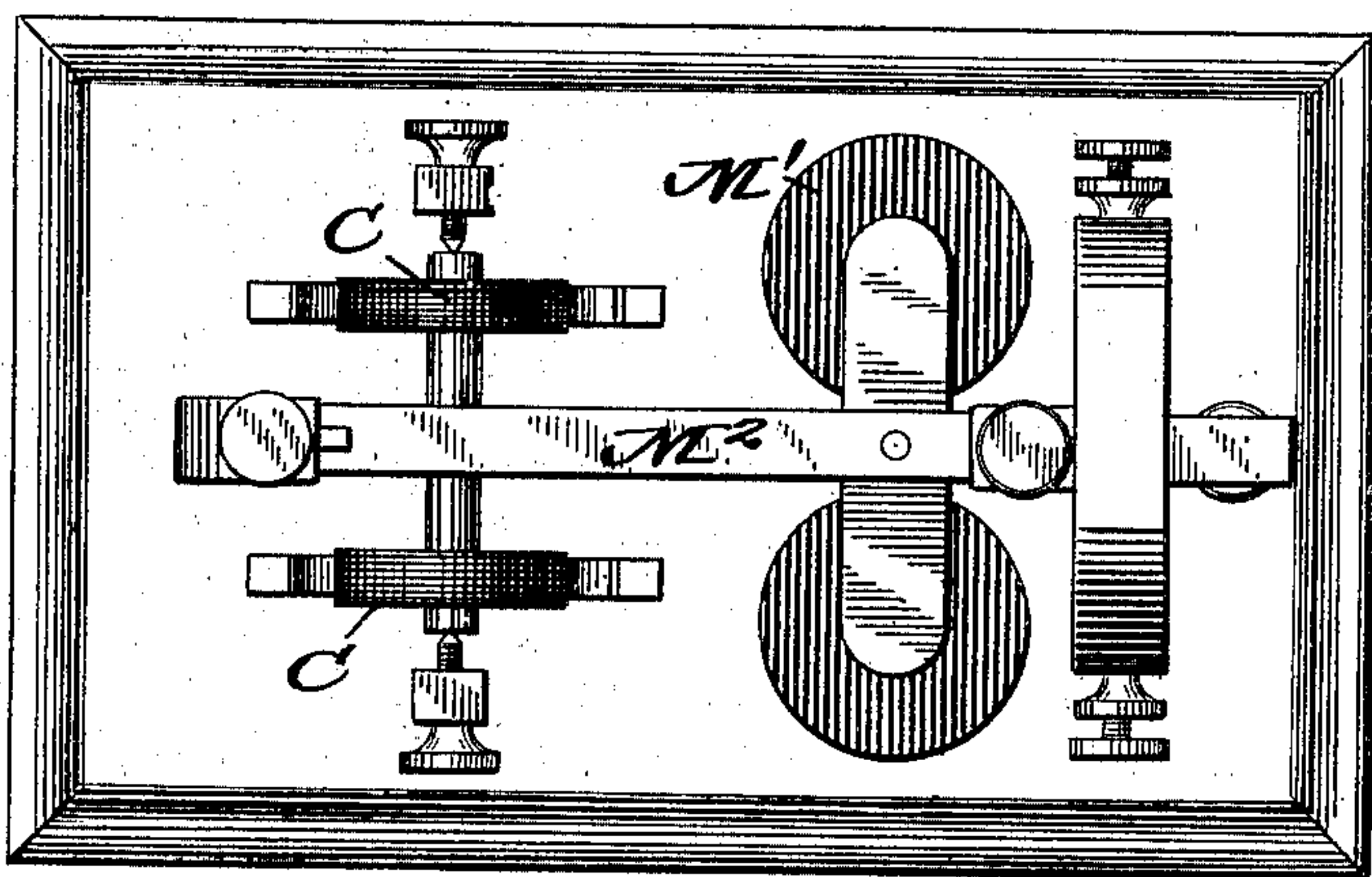
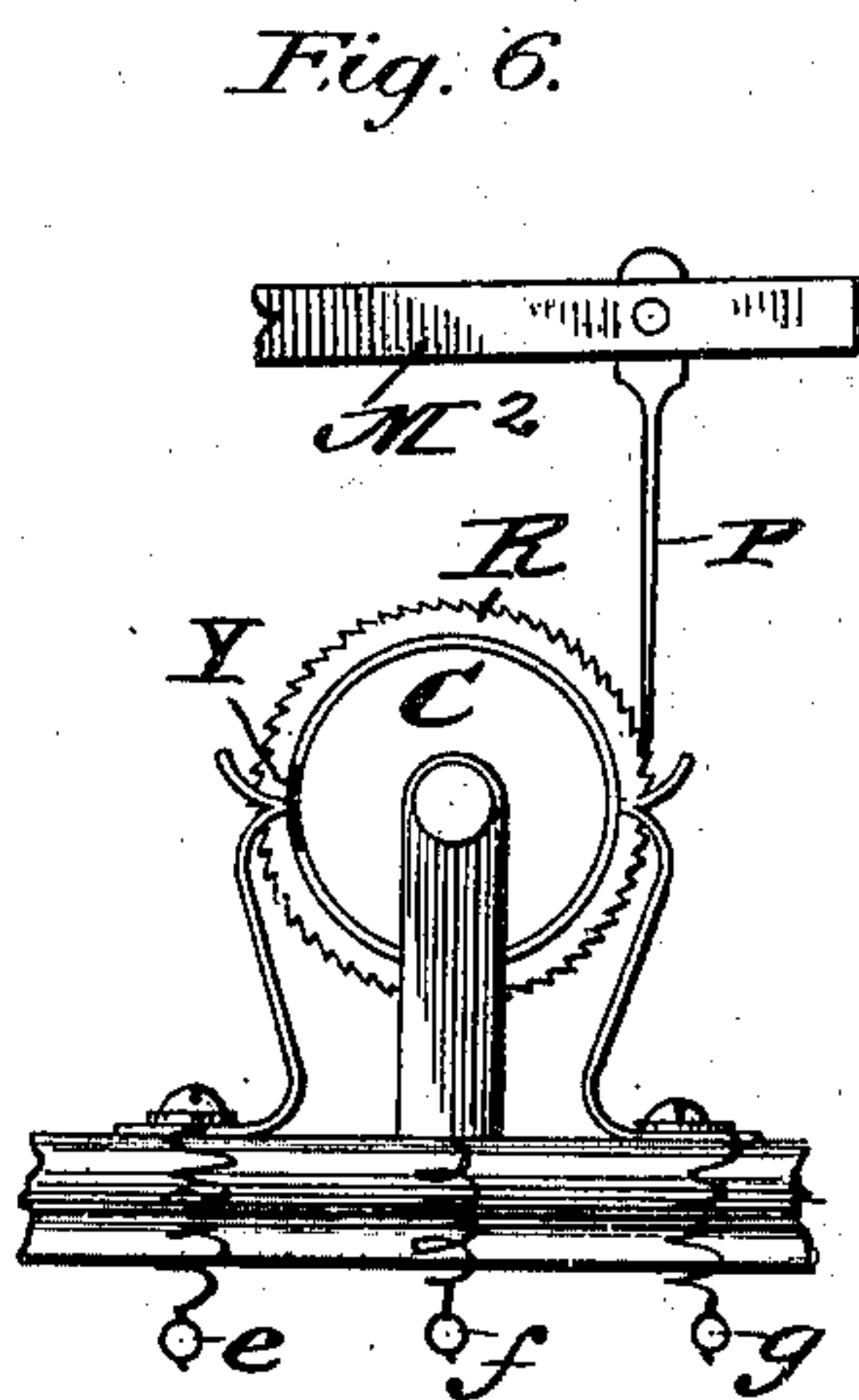
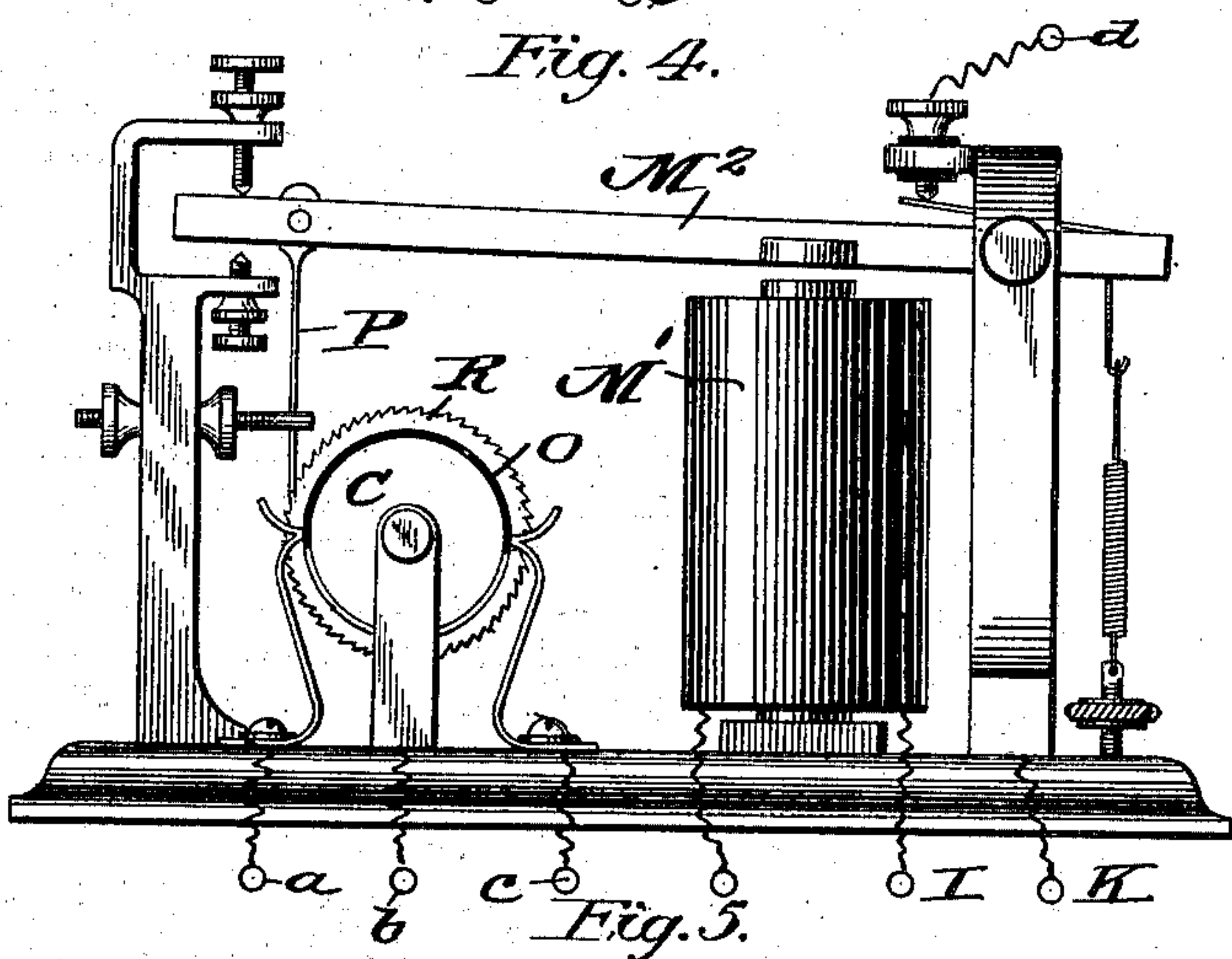
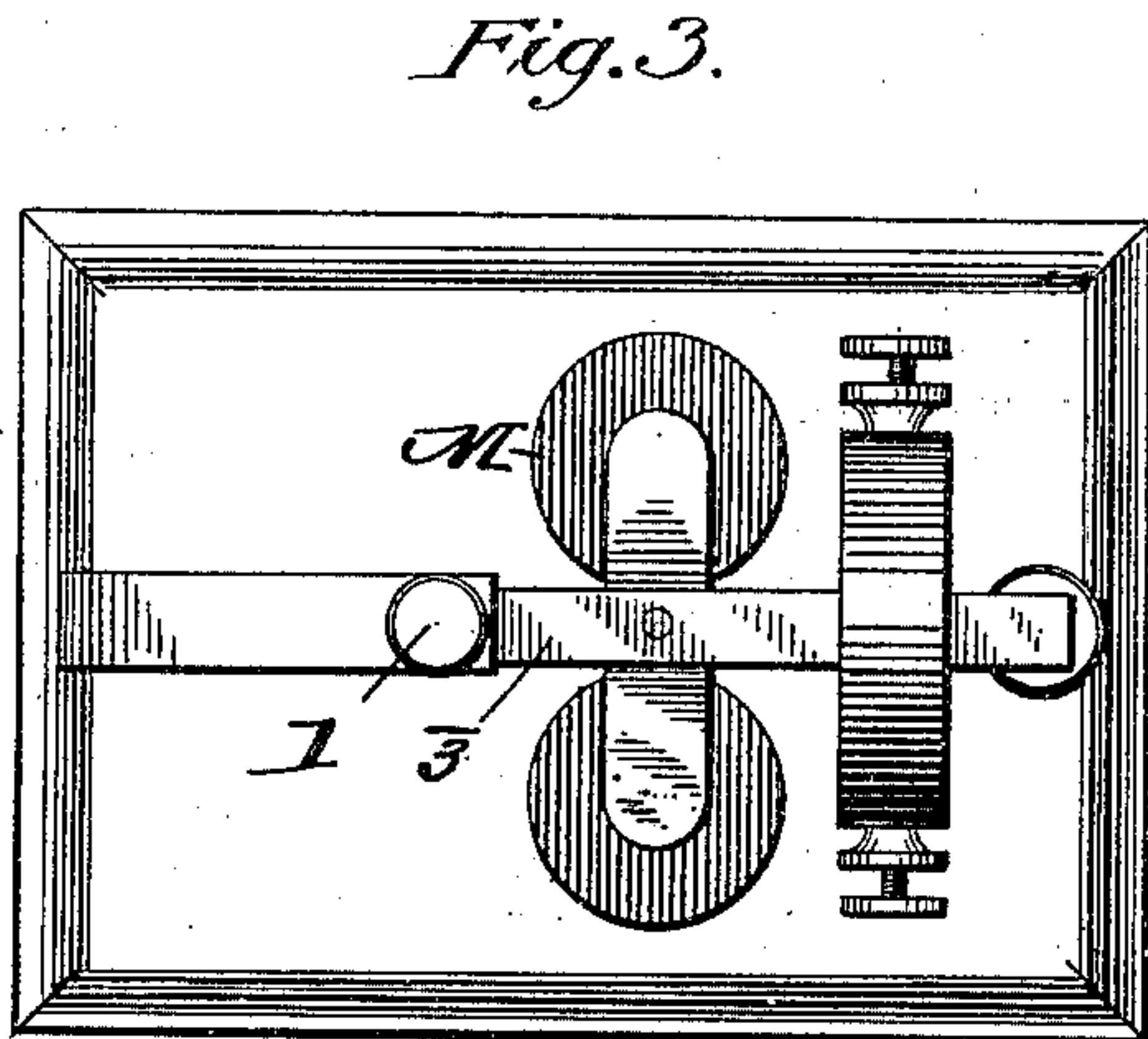
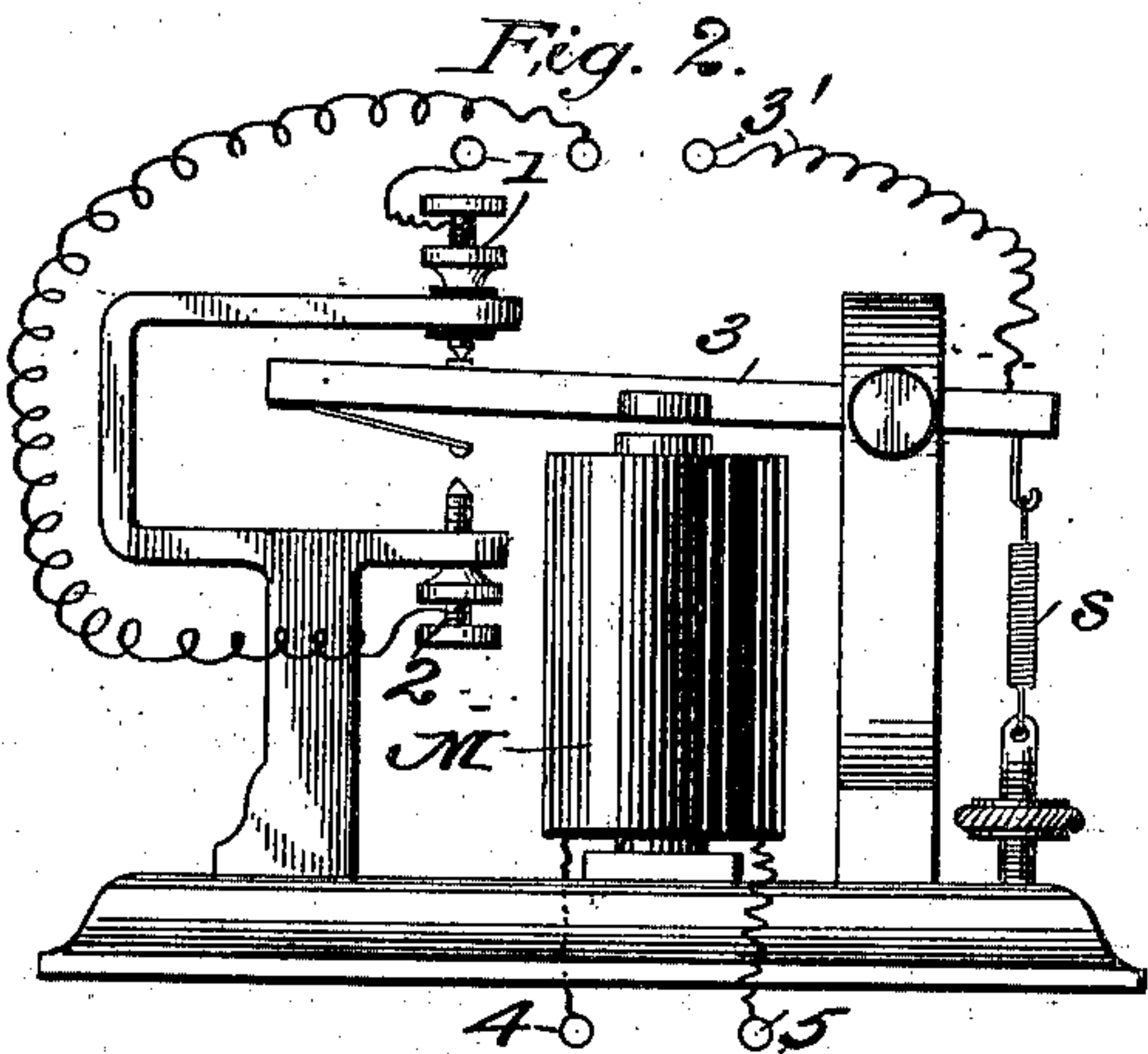
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

FRED CLARKSON PICKETT, OF KANSAS CITY, MISSOURI.

COMBINED ELECTRIC AND GAS LIGHTING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 709,039, dated September 16, 1902.

Application filed May 25, 1901. Serial No. 61,910. (No model.)

To all whom it may concern:

Be it known that I, FRED CLARKSON PICKETT, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a Combined Electric and Gas Lighting System, of which the following is a specification.

This invention is an improved apparatus adapted to be used in connection with a combined electric and gas lighting system, the object being to automatically light the gas upon the failure of the electric current to maintain the electric lines and also to automatically extinguish the gas-lights upon the reestablishment of the electric current and lights.

With these objects in view the invention consists in the peculiar construction of the various parts and in their novel combination or arrangement, all of which will be fully described hereinafter and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a diagrammatic view illustrating my invention. Fig. 2 is a side elevation of an apparatus which I designate the "initial circuit-closer." Fig. 3 is a top plan view of the same. Fig. 4 is a side elevation of an apparatus which I designate a "secondary circuit-closer." Fig. 5 is a top plan view of the same. Fig. 6 is a detail side elevation of a portion of the commutator. Fig. 7 is a top plan view of the commutator. Fig. 8 is a diagrammatic view illustrating a modification.

I shall first describe the electrical device by means of which my invention is carried out and will afterward outline the operations of the said device, and referring particularly to Fig. 2 it will be noted that I employ an electromagnet M, receiving its current through the binding-posts 4 and 5, which are connected with the electric-line mains. This electromagnet has an armature 3, which is normally held away from the magnet by means of a coil-springs. 1 and 2 indicate contact-points insulated from each other and adapted to be alternately brought into contact with the armature 3, which has a conductor-wire leading therefrom, the same as binding-posts 1 and 2, having wires leading therefrom. The wire 1 connects with the binding-post *g*, (shown in Fig. 6,) while the wire 2 connects with the

point *e*, and the wire 3' connects with the post *d*.

In the apparatus illustrated in Fig. 4, M' represents the electromagnet, and M² the armature, said armature having a pawl P depending therefrom and operating upon the ratchet-wheel R, said ratchet-wheel having commutator-disks C arranged upon the shaft of the ratchet-wheel and upon the opposite sides of the said wheel. Two commutator-brushes are arranged for each commutator. One of the commutators, which is connected with the binding-posts *e*, *f*, and *g*, has a single section of insulation Y, so that one or both of said brushes will always be in contact with the commutator, whereas in the other commutator, which is connected with the posts *a*, *b*, and *c*, the insulation extends around at least one-half of the circumference, so that not more than one of the brushes can be in contact at a time and so that it is possible for both brushes to be out of contact at the same time. B indicates a battery arranged between the binding-post *f* and the magnet M', and B' indicates a battery arranged in a circuit extending from the binding-post *b*, and B² indicates a sparking coil, L the automatic lighting apparatus attached to a gas-jet, and G the ground connection.

In Fig. 8 I have shown a slightly-modified form of construction, in which fuse-blocks are arranged in connection with the mains and the current is reduced by means of a water-rheostat and one or more lamps before entering the initial circuit-closer. The other features of the invention are substantially the same as those already described in connection with Figs. 1 to 7, inclusive.

For the purpose of describing the operation of the various devices we will first suppose that the devices are arranged as shown in Figs. 1 to 7 and that the electric lamps are lighted. Upon the failure of the current the armature 3 springs up, contacting with the point 1, thereby closing the circuit between the points 1 and 3'. The armature M² is thereby caused to vibrate after the manner of an electric bell, inasmuch as the current starting at 1 passes to the post *g*, through the brush to the commutator, out at *f* to the battery B, and thence to the coil M', out to I, onto K, up the standard at the armature

to contact-pin *d*, back to 3. Thus the circuit-arms close before the armature M^2 , vibrating rapidly, operates upon the ratchet-wheel *R* by means of the pawl *P*, and thereby turns the armature-disks. As will be readily seen, this motion continues as long as the circuit is closed; but the circuit is broken at the completion of every half-revolution of the commutator by the insulating-segment *y*.

It will be seen that the commutator opposite moving in conjunction with the ratchet-wheel will have connected *c* and *b* and has also disconnected them, thereby lighting the gas, it being understood, of course, that it is only necessary to close the circuit in order to operate the automatic electric gas-lighting appliance connected to the gas-jets; but as these features form no part of my invention it is not necessary to illustrate or describe them.

It will thus be seen that upon the extinguishment of the electric lights the gas will be immediately and automatically lighted. In case the electric current should start up again and light the electric lamps the armature 3 will be drawn down, contacting with 2, and the current flowing from 2 to *e*, through the opposite brush to *f*, and from *f* to the battery, and from the battery to the coils, out to *I*, onto *K*, up the standard, out the armature to contact-pin *d*, back to 3, (when the switch *S* is open the electric lights can be turned off or on without lighting the gas,) and as the circuit-closer has operated upon the secondary circuit-closer *b* and *a* have been momentarily connected, turning off the gas. It will thus be seen that upon the reestablishment of the electric current and lighting the electric lamps the gas-lights will be automatically extinguished.

Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the kind described, the combination with an initial circuit-closer, of a secondary circuit-closer, a battery arranged between the initial and the secondary circuit-closers, a commutator arranged adjacent to the secondary circuit-closer and operated by the vibration of the armature of the said secondary circuit-closer, a sparking coil connected with the automatic lighting and extinguishing device, said sparking coil being also connected with the commutator of the secondary circuit-closer, and a battery interposed between said commutator and sparking coil, substantially as shown and described.

2. In a device of the kind described, the combination with a primary circuit-closer, of a secondary circuit-closer, having a vibrating armature, a double commutator arranged in connection with the secondary circuit-closer, a battery arranged between the primary and secondary circuit-closers, and a battery and sparking coil connected with the secondary closer, substantially as described.

3. In a device of the kind described, the combination with a secondary circuit-closer, having a vibrating armature, of the pawl attached thereto, the ratchet-wheel operated by the said pawl, the commutator-disks arranged upon the ratchet-wheel shaft, and the brushes arranged in connection with the said commutator-disks and the battery and sparking coil arranged in connection with the said commutator-disks, substantially as and for the purpose described.

FRED CLARKSON PICKETT.

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