

No. 702,666.

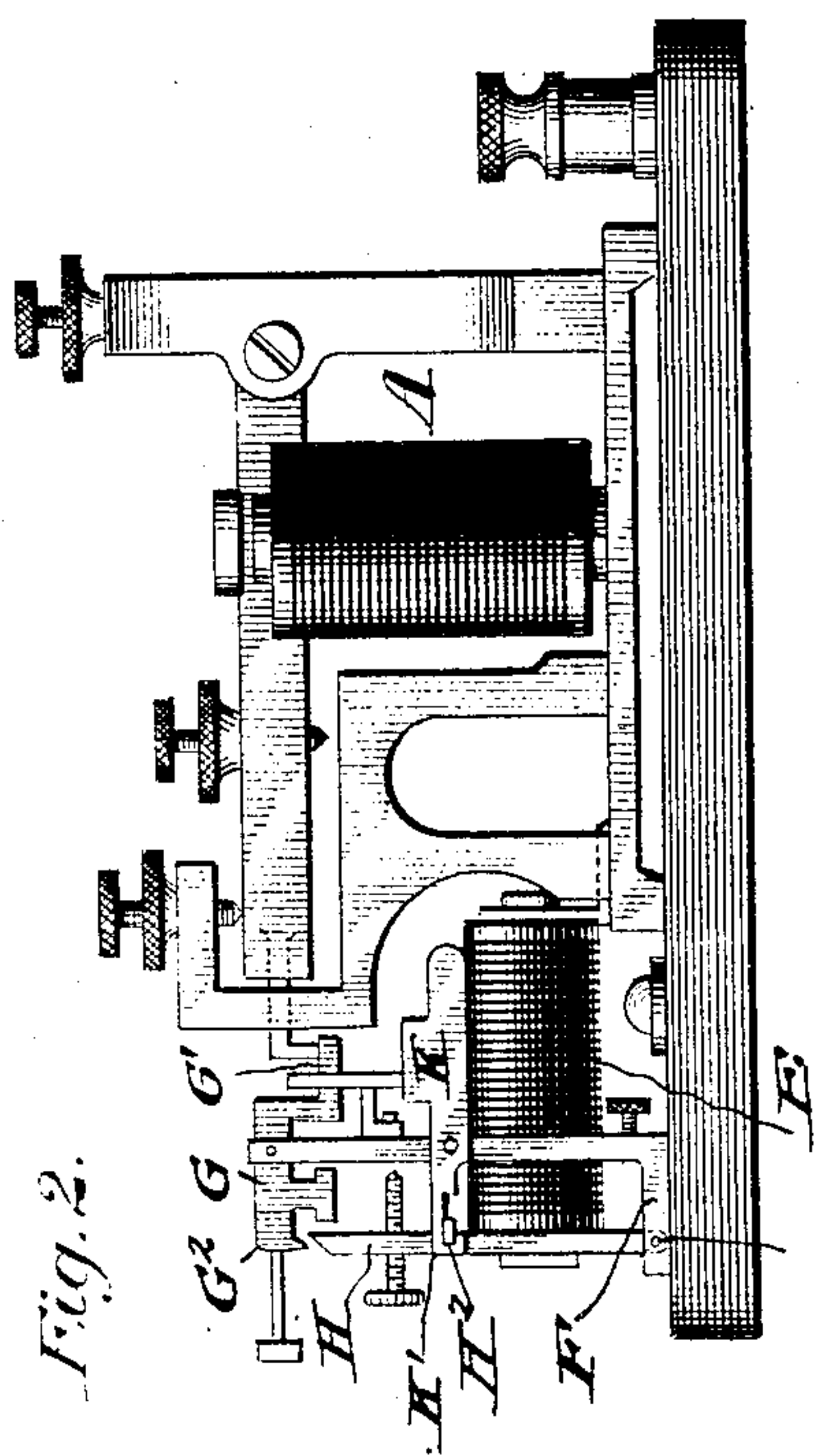
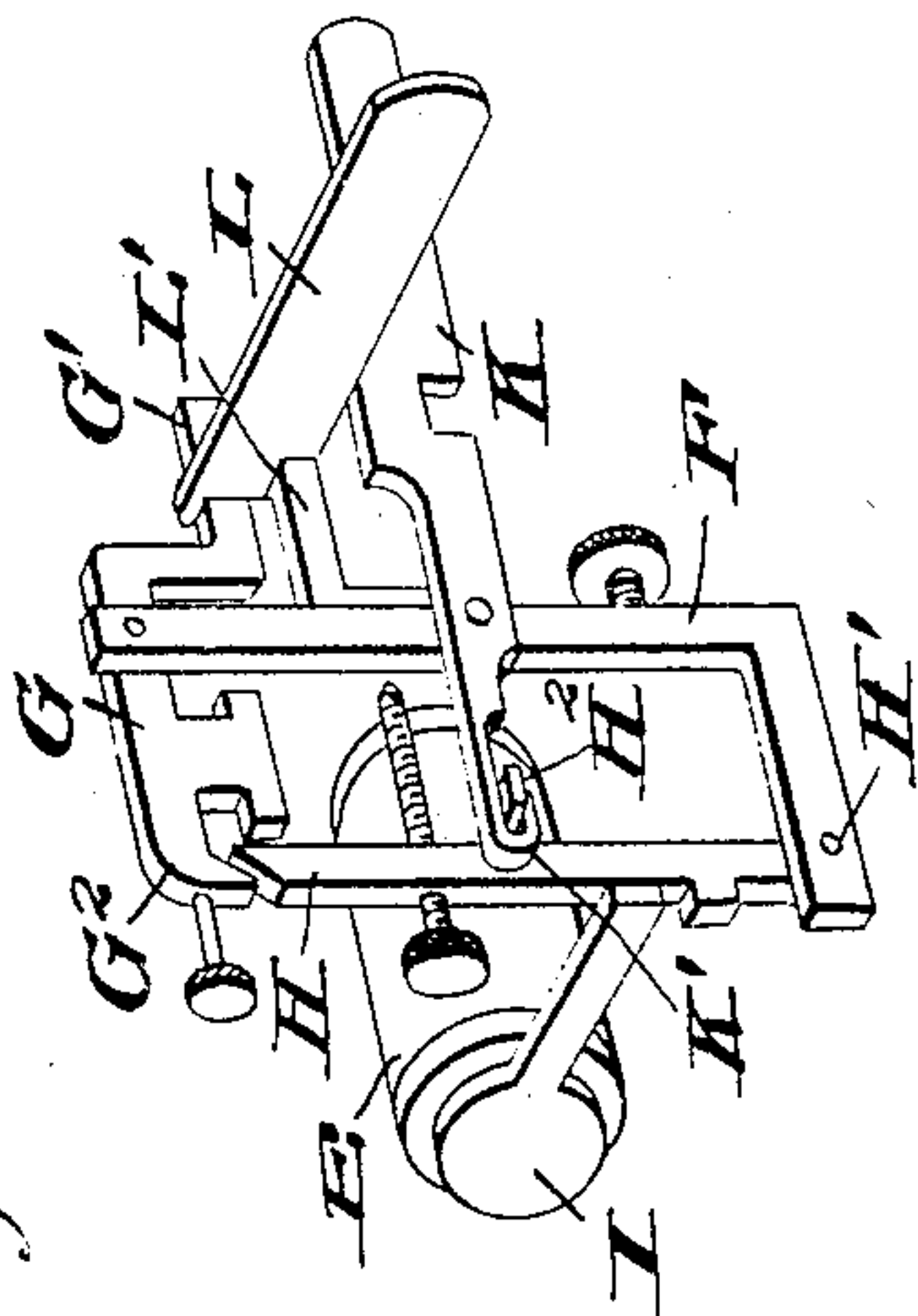
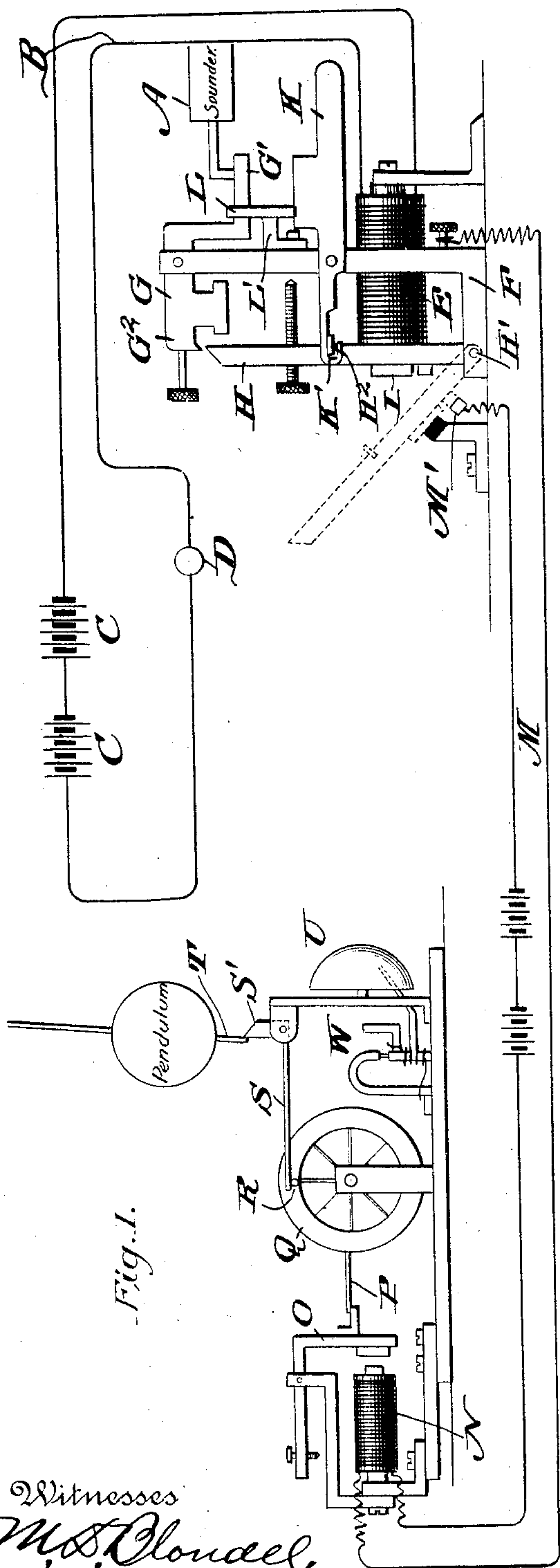
Patented June 17, 1902.

C. F. MEARS.

ELECTRIC CLOCK SYNCHRONIZER.

(Application filed May 16, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

CHARLES F. MEARS, OF SILVER CITY, IOWA.

ELECTRIC CLOCK-SYNCHRONIZER.

SPECIFICATION forming part of Letters Patent No. 702,666, dated June 17, 1902.

Application filed May 16, 1901. Serial No. 60,581. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. MEARS, a citizen of the United States, residing at Silver City, in the county of Mills and State of Iowa, have invented a new and useful Electric Clock-Regulator, of which the following is a specification.

This invention is an attachment to be used in connection with a pendulum clock for the purpose of regulating the same.

The object of the invention is to provide an attachment which can be arranged at the base of any pendulum clock and connected to a telegraphic line, which in turn connects to a central regulating-station, so that by closing the circuit at the central station any and all clocks in electrical connection with the main line will be regulated or started synchronously.

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 the central-station mechanism arranged in connection with the sounder. Fig. 3 is a perspective view illustrating the mechanism detached from the sounder.

In carrying out my invention I employ an ordinary telegraphic sounder A, which is connected with the line B, having batteries C arranged therein and also a push-button or circuit-closer D. An electromagnet E is also arranged upon the sounder-frame and in electrical connection therewith. This electromagnet E is employed for the purpose of setting and releasing the regulating mechanism, which is electrically connected to one or more attachments arranged in connection with one or more pendulum clocks.

F indicates an operating-arm to the upper end of which is pivoted a lever G. The end G' of said lever G is adapted for contact with the sounder-arm, while the end G² is made hooked and is intended to engage the bevel end of the arm H, pivoted at its lower end, as shown at H', and carrying an armature I, which is adapted to be attracted by the elec-

tromagnet E. A lever K is pivoted to the upright arm F about midway its height, the forward end of said lever being bent back upon itself, as shown at K', to provide a hook which engages a lug H², carried by the arm H, thereby holding the said arm in its proper upright position, and a lever L also rests upon the lever K, thereby holding the hooked end in contact with the lug H². The lever L is attached to a bracket L', which is pivoted to the upright arm F. One end of said lever bears upon the end G' of the lever G.

M indicates the line extending from the central station to the substation containing the clock to be regulated, said line being connected to the electromagnet N, which operates the armature-lever O, which in turn releases an arm P, arranged upon the wheel Q, said wheel having a laterally-projecting rest-pin R, upon which bears the long arm of the lever S, the short arm S' of which contacts or projects into the path of the pendulum-rod T.

U represents a bell, and W spring mechanism for sounding the same, said mechanism being operated by contact therewith of the long arm of the lever S as it falls after being released from the pin R.

In operating my invention the clock to be regulated is stopped a few seconds prior to the time of regulation and the pendulum swung to one side or out of plumb and held in that position by engaging with the short arm S' of the lever S, the long arm of said lever being supported by the pin R. The lever H is swung up into position in front of the magnet E and held there by swinging the lever K into its horizontal position and causing the hook K to engage with the lug H². This will necessitate the raising of the lever L until one end of it will engage with the end of the lever G and hold it down out of contact with the sounder at one end and hold the other end of the lever high enough to permit of the passage of the end of the lever H. At the same time that this arrangement of parts takes place the hands of the clock should be moved forward to the hour at which the clock is to be started. When the push-button D is pressed in advance of the time for regulation, the magnet E is energized, drawing the armature I thereto, and the lug H² is thereby

moved into a position which releases the lever
 K, and the weight of the lever L will throw
 the said lever K downwardly, and at the same
 time the lever G is released by the lever L,
 5 and the end G^2 will drop into engagement
 with the upper end of the arm H. At the
 hour of eleven or twelve or any other hour
 which may be selected as the time for regu-
 lation the circuit is closed by the operator at
 10 the central regulating-station, as Washing-
 ton, D. C., which will operate all the instru-
 ments upon the line, and the sounder of each
 instrument operating upon the end G' of the
 lever G raises the end G^2 , so that when the
 15 circuit is broken the arm H will drop and its
 contact-point H^3 will contact with the plati-
 num point M' , which forms one of the termi-
 nals of the line M. The circuit being thus
 closed, the magnet N is energized, attracting
 20 the armature O, which immediately releases
 the arm P, causing the wheel Q to rotate suf-
 ficiently to move the pin R from beneath the
 arm S, and the said arm dropping releases the
 pendulum and at the same time operates the
 25 striking mechanism and sounds the bell. The
 clock will thus be started and the bell sounded
 at the exact moment of sounding the signal
 from the main or central station, and it will
 of course be understood that any number of
 30 regulating mechanisms may be operated from
 one main or central station.

It will also be understood that the means
 for setting and releasing used in connection
 with the sounder may be changed or varied

somewhat without departing from the broad 35
 principles of my invention.

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 com- 40
 bination with the sounder, an electromagnet
 arranged in connection therewith, an arma-
 ture arranged in connection with the said mag-
 net, an arm carrying the said armature, a le-
 ver mechanism for releasing the said arm, 45
 the elbow-lever for checking the motion of
 a pendulum, the electromagnetic means for
 releasing the said lever, the line connecting
 the said electromagnetic device, and the
 sounder, the swinging arm carrying a con- 50
 tact-point adapted to close the circuit, sub-
 stantially as set forth.

2. The combination with a sounder, of an
 upright arm carrying a lever at its upper end
 and a lever intermediate its end, and a third 55
 lever adapted to hold the other levers in po-
 sition, a pivoted arm carrying an armature,
 and a contact-point, the line-wires and cir-
 cuit-closer, the electromagnet and its arma-
 ture, the rotating wheel carrying the arm and 60
 pin, and the elbow-lever adapted to rest upon
 the pin, and the bell and striking mechan-
 ism, all arranged and adapted to operate, sub-
 stantially as described.

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