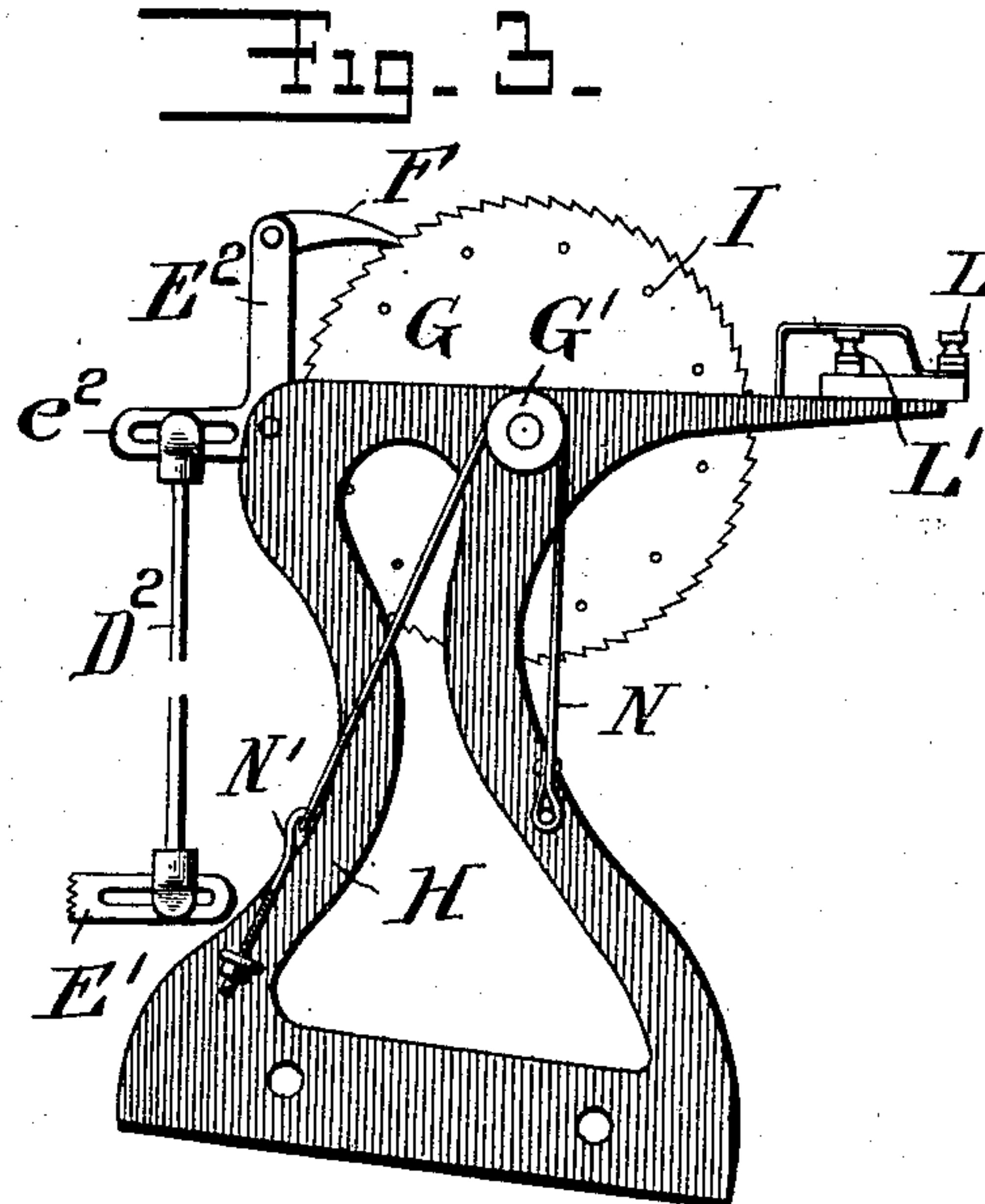
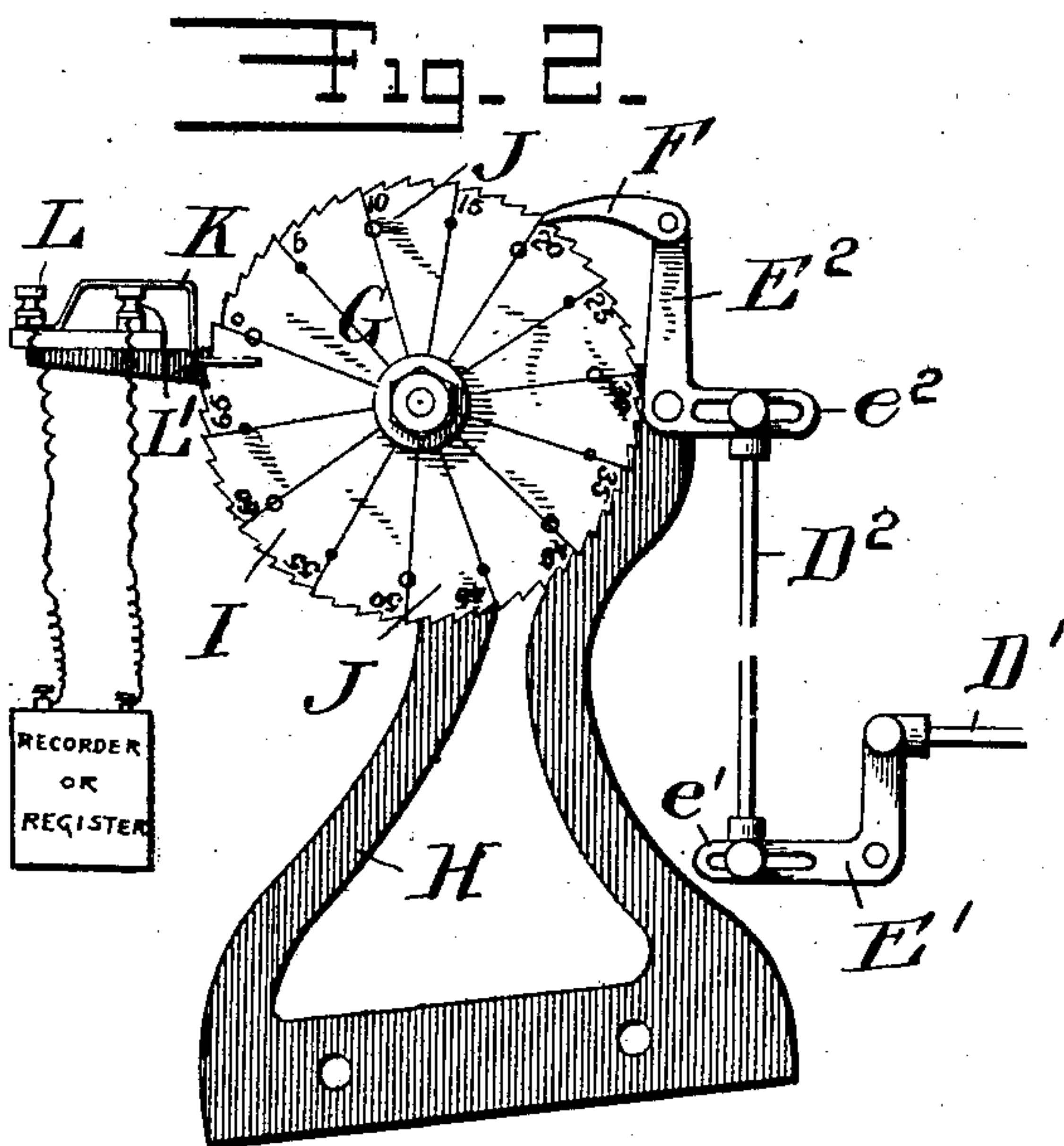
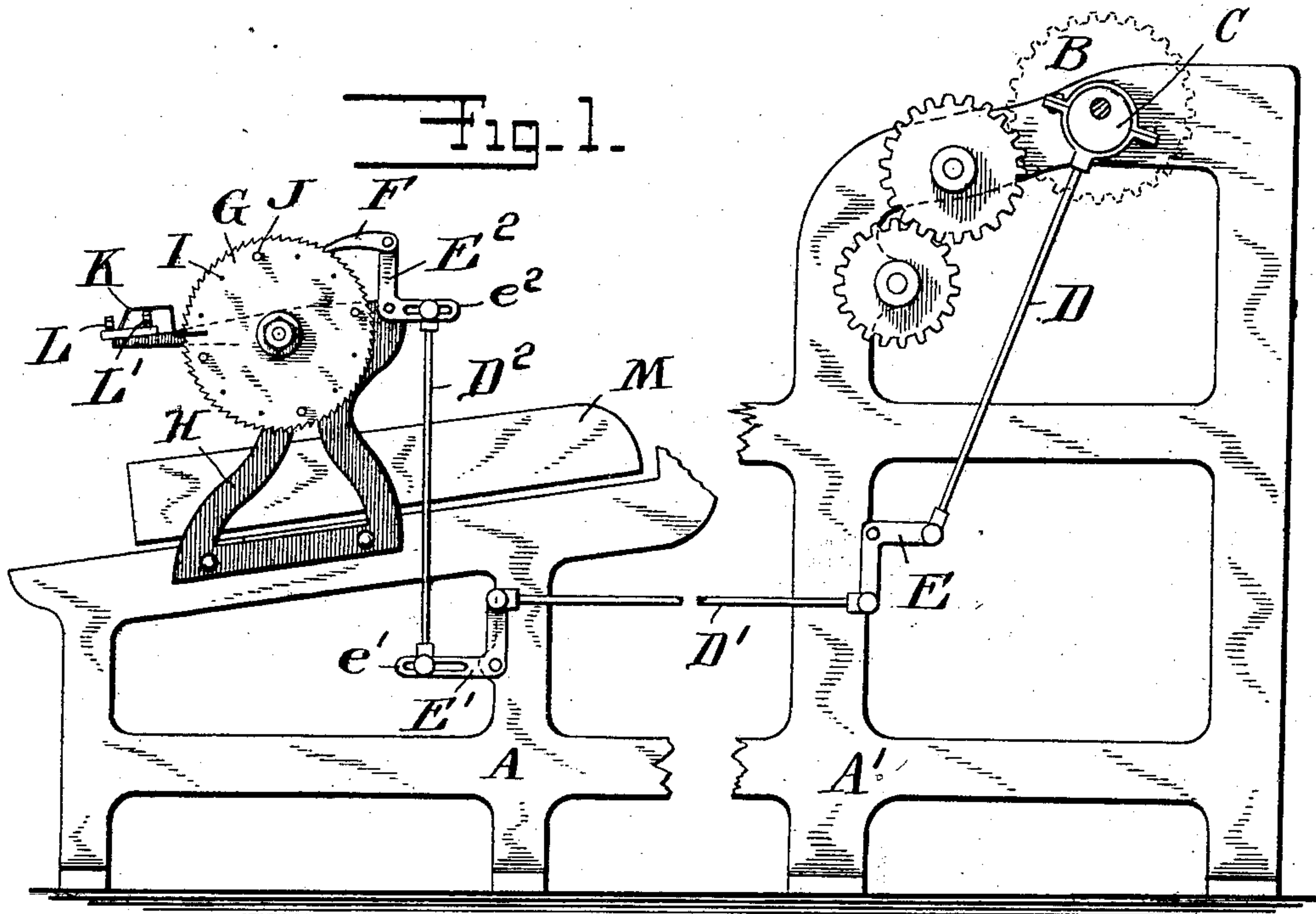


J. B. SLEEMAN & E. McC. AFRICA.

COUNTING MACHINE.

(Application filed Dec. 26, 1901.)

(No Model.)



Witnesses:

J. B. McGirr.  
Stephen J. Cox.

Inventors

James B. Sleeman and  
Elmer McC. Africa  
By William R. Baird  
their attorney



# UNITED STATES PATENT OFFICE.

JAMES B. SLEEMAN AND ELMER MCC. AFRICA, OF HUNTINGDON, PENNSYLVANIA, ASSIGNORS TO THE J. C. BLAIR COMPANY, A CORPORATION OF PENNSYLVANIA.

## COUNTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 714,958, dated December 2, 1902.

Application filed December 26, 1901. Serial No. 87,155. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES B. SLEEMAN and ELMER MCC. AFRICA, citizens of the United States, residing at Huntingdon, in the county of Huntingdon and State of Pennsylvania, have invented certain new and useful Improvements in Counting-Machines, of which the following is a specification.

Our invention relates to improvements in devices for measuring and recording the movements made by rotary portions of certain machines, and particularly of ruling-machines, where it is adapted to be attached to the feed-rollers and by accurately registering or recording the revolutions of the same keep a count on the number of sheets of paper which have passed therethrough. Its objects are, among others, to provide a simple and efficient means for counting off and registering or recording the revolutions of the said feed-rollers, which may be adjusted to record any given number of sheets at stated intervals and which may be attached to any desired registering mechanism operated mechanically or by electrical contact. It is preferred to employ electrical means, and such means are indicated in the drawings. The particular construction of recorder or register is not essential to the present invention.

Our improvements are illustrated in the accompanying drawings, in which—

Figure 1 is a general side view of a counting-machine embodying our improvements. Fig. 2 is an enlarged detail of the counting wheel or disk and the adjacent parts. Fig. 3 is a view of the reverse side of the same.

The frames A A', by which the counting device is supported, are the frames of the machine in connection with which it is used; the frame A supporting the lay-boy M and the frame A' the feed-rollers and other working parts thereof. The eccentric C is located on the shaft of one of the feed-rolls between the frame and the gear-wheel B. It is connected with the bell-crank lever E by the rod D. This lever is connected with the lever E' by the rod D', which lever is in turn connected with the lever E<sup>2</sup> by the rod D<sup>2</sup>, and in this manner the reciprocating motion caused by the revolution of the eccentric is communi-

cated to the pawl F on the upright arm of the said lever E.

The levers E' and E<sup>2</sup> have slotted horizontal arms e' and e<sup>2</sup>, respectively, to which the ends of the rod D<sup>2</sup> are adjustably secured, thus providing for a variation in the length of the thrust of the pawl F. The disk G is rotatably mounted on the frame H, fixed to the upper part of the main frame A. It is provided with a small drum or pulley G' on one end of its shaft, over which the band-brake N passes. This band-brake consists of a strap or band secured at one end to a pin on the frame G and at the other to the hooked end of a screw-bolt n', which passes through an eye fixed to said frame and has a nut on the end opposite the hook. By means of this nut the tension of the strap n is maintained over the pulley G and the disk G thus prevented from moving farther than the pawl F in one movement.

The ratchet-teeth in the periphery of the disk G may be of any desired number, and by regulating the thrust of the pawl F it may be made to have a movement equal to the length of one of the teeth, which vary in size according to the number of them in the periphery. With this arrangement disks of equal diameter, but provided with different numbers of teeth, may be used and the other parts of the device easily adjusted to them.

The disk G is provided with holes J, into which the pegs I are adapted to fit. The holes are numbered according to the number of teeth between them and the starting-point— as, for instance, "5, 10, 15," &c.

The pegs are adapted to engage the spring contact-strip K, which is secured to the binding-post L and passes over the other post L', so that when the free end is pressed down by one of the pegs the intermediate portion will come in contact with the top of the post L', and thus complete an electrical circuit adapted to operate a bell or other mechanism for registering or recording the count.

Any number of pegs may be used, according to the nature or extent of the count. Thus with a disk having one hundred and twenty teeth and one hole for each ten teeth one hundred and twenty may be counted or



any part thereof divisible by ten. By using a proper registering or recording mechanism the sheets passing through the machine may be told off in signatures of desired size and the total number of signatures properly registered or recorded.

It will be understood that each revolution of the eccentric and consequent thrust of the pawl F marks the passage of one sheet through the machine. Where a disk with divisions of ten or more is used and it is desired to count less than the number of one division thereof, the pawl may be adjusted to move the disk two spaces at one thrust, which will allow the counting of one-half the division number.

What we claim as new is—

1. In a counting-machine, the combination with a disk provided with ratchet-teeth in its periphery, means controlled by a device the movements of which are to be counted for actuating said disk a predetermined extent upon each movement of said device, said means including a pawl to engage the teeth of said disk and actuating connections for said pawl, of a device operated to communicate motion to a recorder or register and adapted for connection therewith, and a series of striking-pins carried by said disk and brought successively thereby into engagement with the last-mentioned device to thereby actuate the same.

2. A counting mechanism, embracing, in combination, a disk provided with ratchet-teeth in its periphery; means, controlled by a device the movements of which are to be counted, for actuating said disk a predetermined extent upon each movement of said device, said means including a pawl, a bell-crank lever to one arm of which said pawl is pivoted, a second bell-crank lever, and a rod having one of its ends adjustably secured to one arm of one of said levers and its other end adjustably secured to one arm of the other of the same and by its adjustment on said arms controlling the thrust of said pawl; means carried by said disk and projecting therefrom; and a device located in the path of said projecting means and operated thereby to communicate motion to a register or recorder, said device being adapted for connection with said register or recorder.

3. In a mechanism for counting the revolutions of a shaft, the combination with a ratchet-disk having a series of striking-pins projecting from it, a pawl for actuating said disk, means controlled by the shaft the revolutions of which are to be counted for actuating said pawl, said means being constructed to convert revoluble movement of the shaft into reciprocatory movement for the pawl, and devices controlled by said disk for actuating a register or recorder, said devices being arranged in the path of said pins and operated by the same successively.

4. In a counting mechanism, the combination with a rotatable disk, and means controlled by the machine with which the coun-

ter is connected for rotating said disk, of an electrical circuit, a spring-plate having one end connected with a terminal of said circuit and its other end normally free and its intermediate portion normally above and out of contact with the other terminal of said circuit, and means controlled by rotation of said disk for actuating said plate to close said circuit at predetermined steps in the movement of said disk, consisting of striking-pins arranged to successively engage the free end of said plate and by their movement in engagement therewith to lower the intermediate portion thereof into engagement with said other terminal to thereby close the circuit.

5. In a machine of the character described, the combination with suitable framework and means for converting the motion of the rotary parts of the machine into reciprocating motion, of a disk provided with ratchet-teeth in its periphery, a pawl connected with said converting means by means which includes a rod adjustable to vary the thrust of the pawl, pins carried by said disk and projecting therefrom, an electrical circuit having its terminals adjacent to said disk, and a spring contact-plate having one end located in the path of said pins, its other end engaged with one of said terminals and its intermediate portion above the other terminal of said circuit and normally disengaged therefrom and lowered into contact therewith by the engagement of the pins with its free end.

6. The combination with a feed-roller of a ruling-machine, of mechanism for counting the number of revolutions thereof, embracing means adapted when operated to actuate a counting device, and devices for actuating the latter means, said devices consisting of a series of striking-pins for engaging said latter means successively, a ratchet operated to bring said striking-pins successively into engagement with said means, a pawl for turning said ratchet intermittently, and mechanism actuated by said feed-roller for reciprocating said pawl, said mechanism including means by which it may be adjusted to vary the thrust of said pawl.

7. The combination with a feed-roller of a ruling-machine, of means for counting revolutions thereof, consisting of a ratchet-disk having a series of striking-pins, a reciprocatory pawl for imparting intermittent movement to said ratchet-disk, means actuated by said feed-roller for reciprocating said pawl and including a pair of bell-crank levers and a connecting-rod having one of its ends adjustably secured to one arm of one of said levers and its other end adjustably secured to an arm of the other of the same, and devices arranged in the path of said striking-pins and operated thereby to communicate movement to the indicating parts of a register or recorder, said devices being adapted for connection with a register or recorder.

8. The combination with a feed-roller of a ruling-machine, and an eccentric thereon, a



rod actuated by said eccentric, a bell-crank lever to one member of which one end of said rod is connected, a second bell-crank lever, a rod connecting the other arm of the first bell-crank lever with an arm of said second bell-crank lever, a third bell-crank lever, a rod having one end adjustably secured to an arm of said second lever and its other end adjustably secured to an arm of said third lever, a pawl attached to an arm of said third lever, a ratchet-disk engaged by said pawl, a series of striking-pins partaking of the intermittent movement imparted to said disk by said

pawl, and a device arranged in the path of said pins and actuated by the same to impart movement to the indicating mechanism of a register or recorder, said device being adapted for connection with a register or recorder. 15

Witness our hands this 23d day of December, 1901, in the presence of two subscribing witnesses. 20

JAMES B. SLEEMAN.

ELMER McC. AFRICA.

Witnesses:

JOHN W. KAUFFMAN,

JAS. S. WOODS.