

H. S. MILLS.

DOOR REGISTER FOR MAIL BOXES.

(Application filed Mar. 18, 1902.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

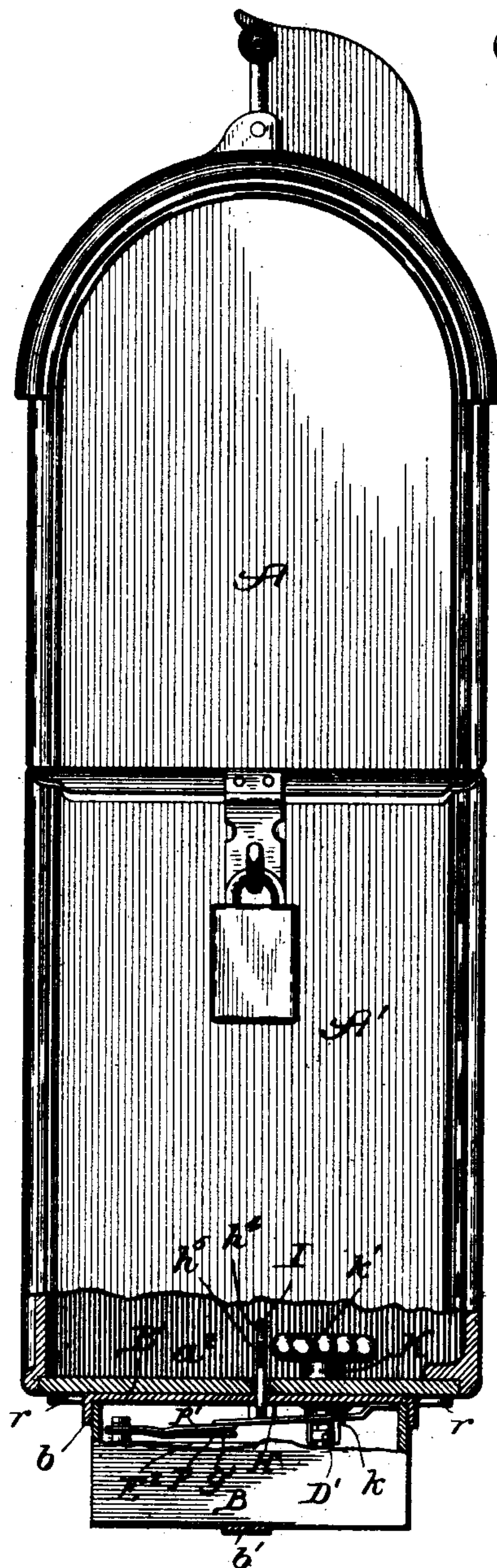
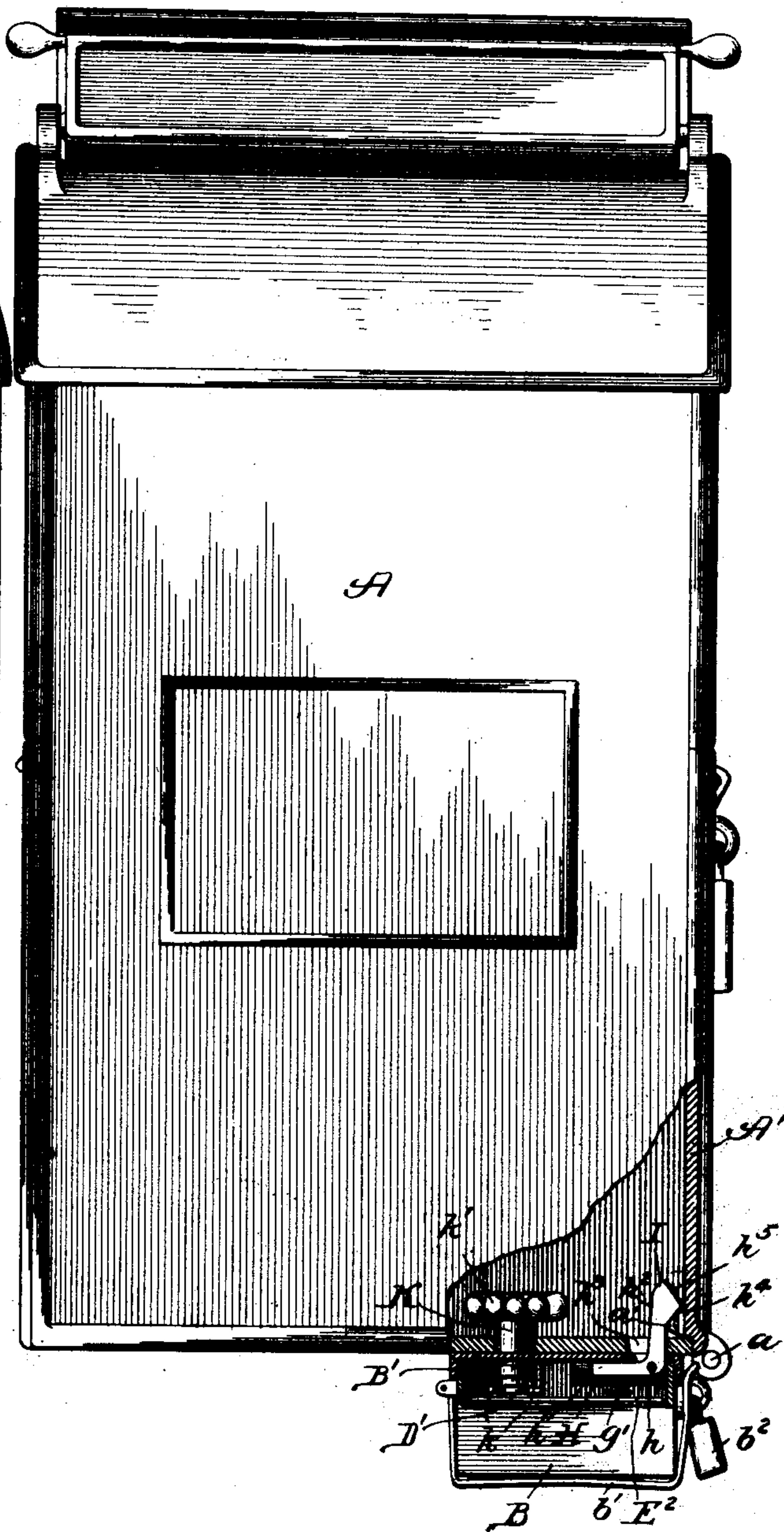


Fig. 2.



Witnesses:

East. Gaylord;
John Enders Jr.

Inventor:

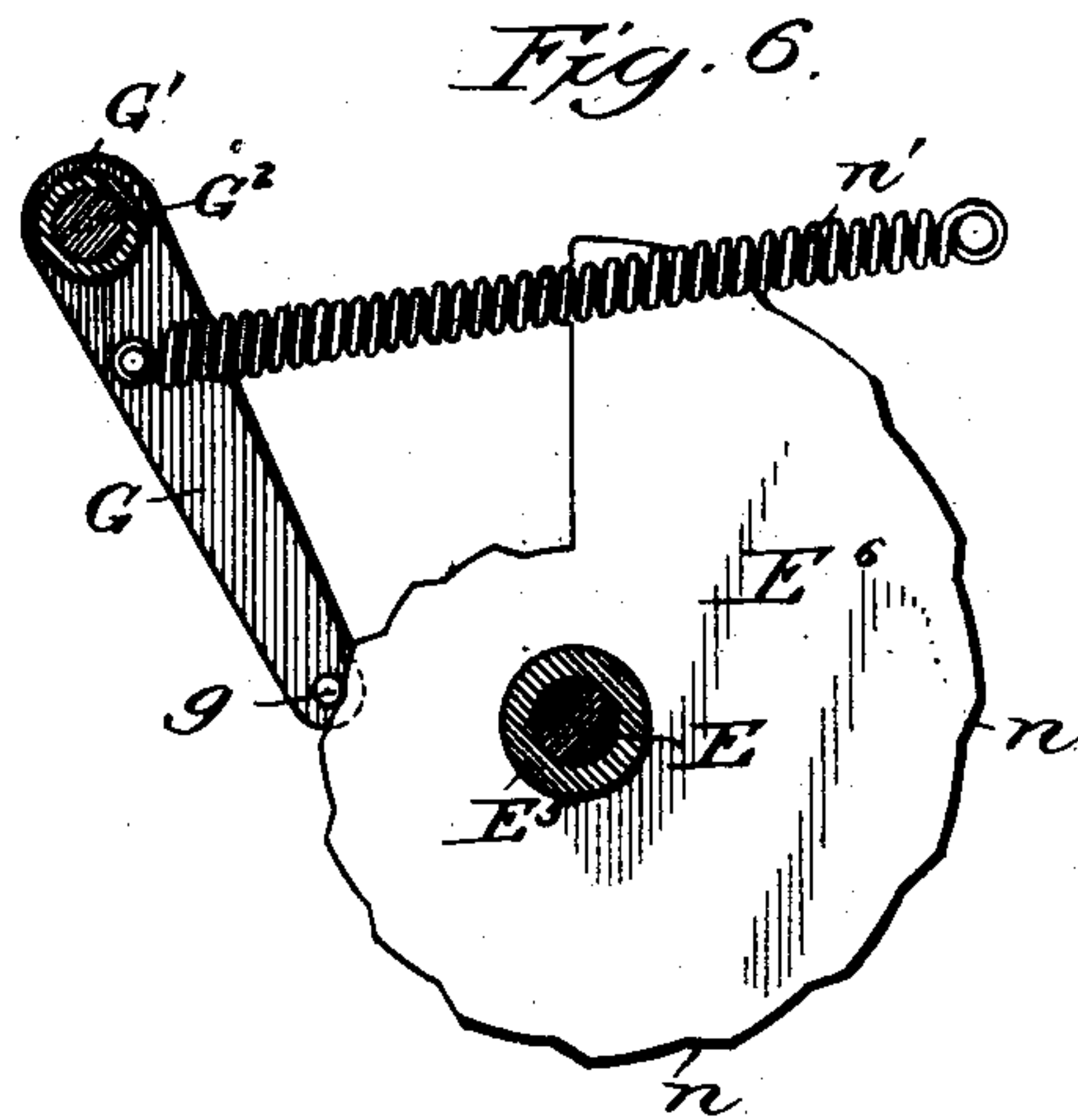
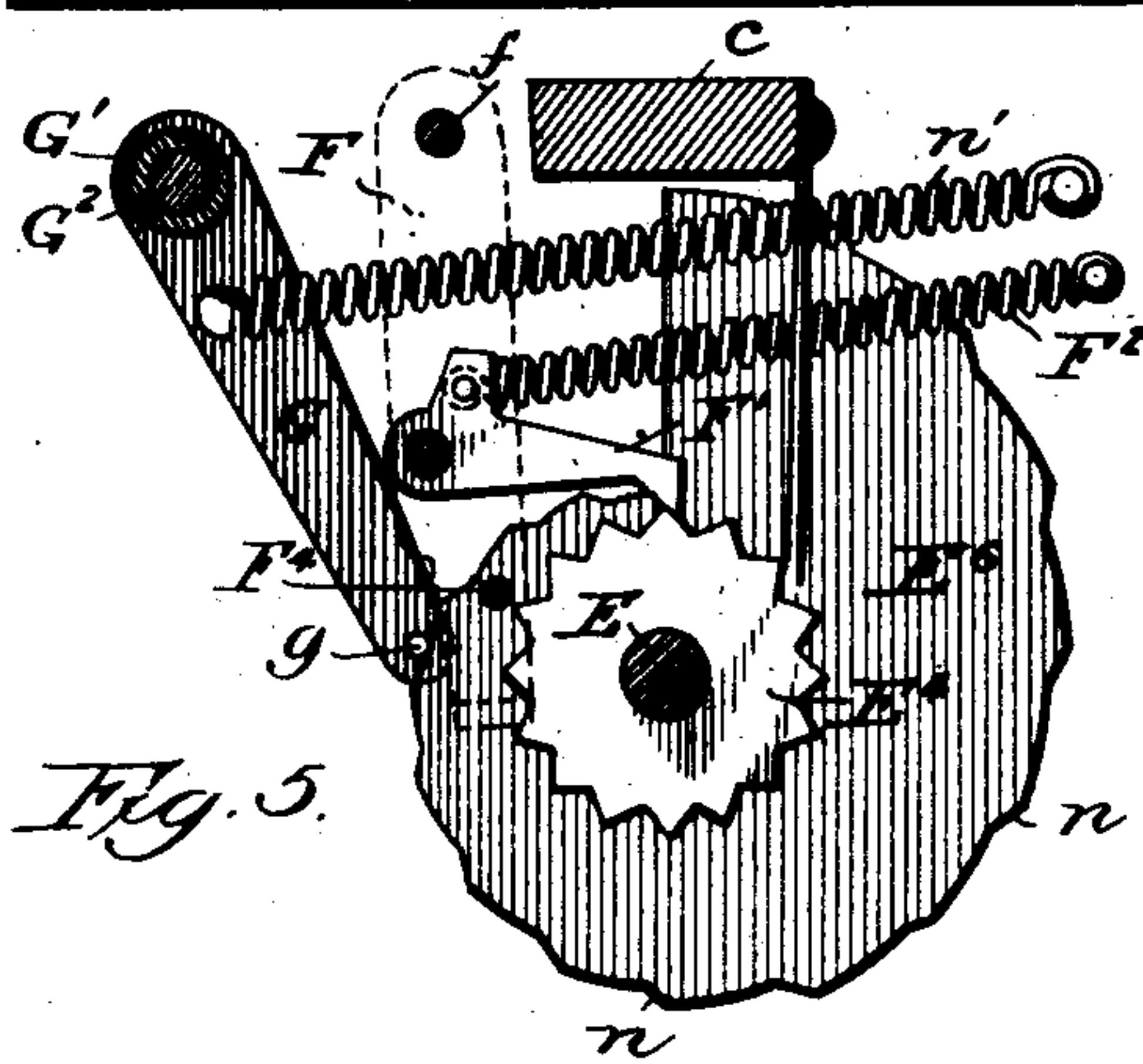
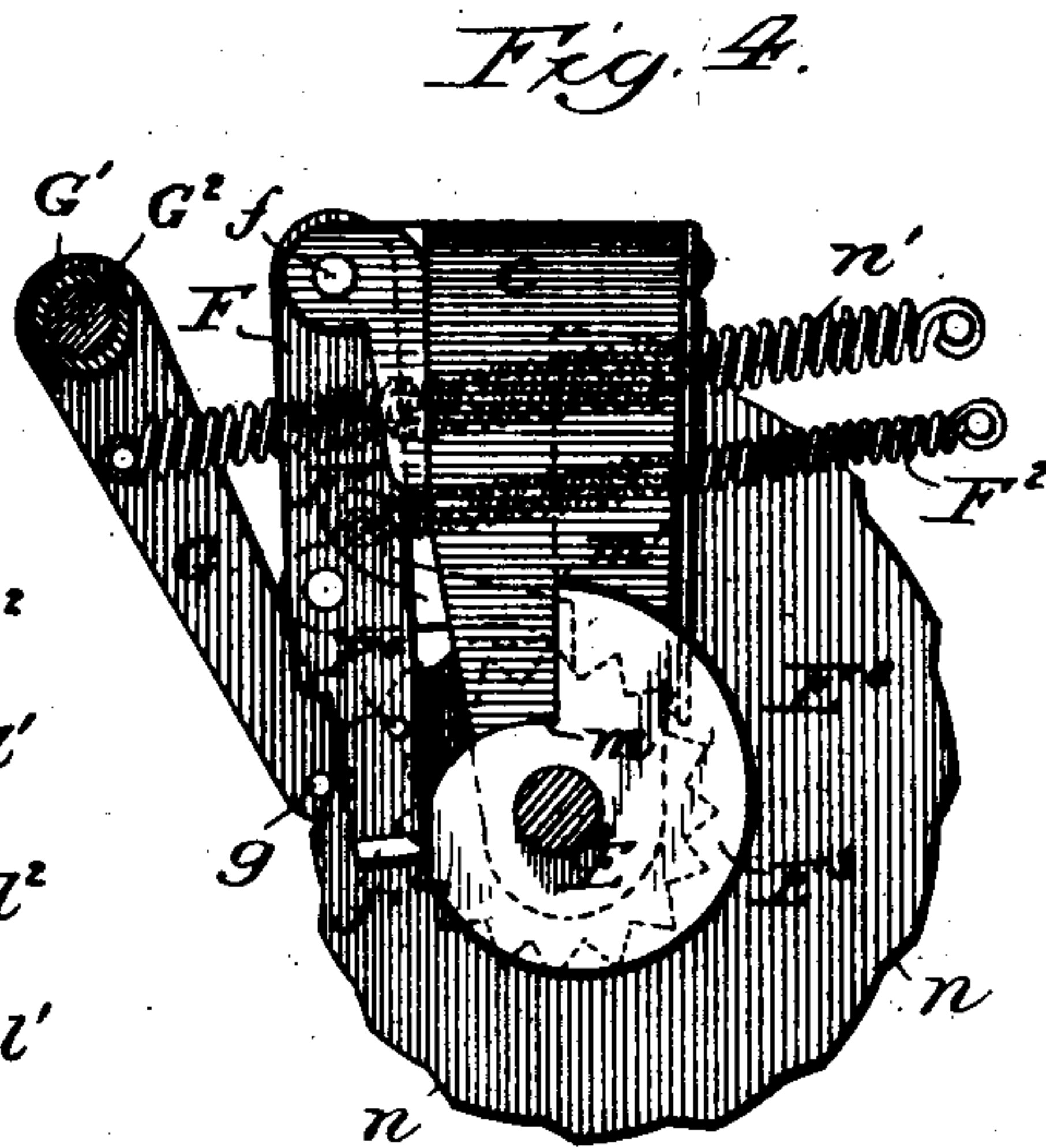
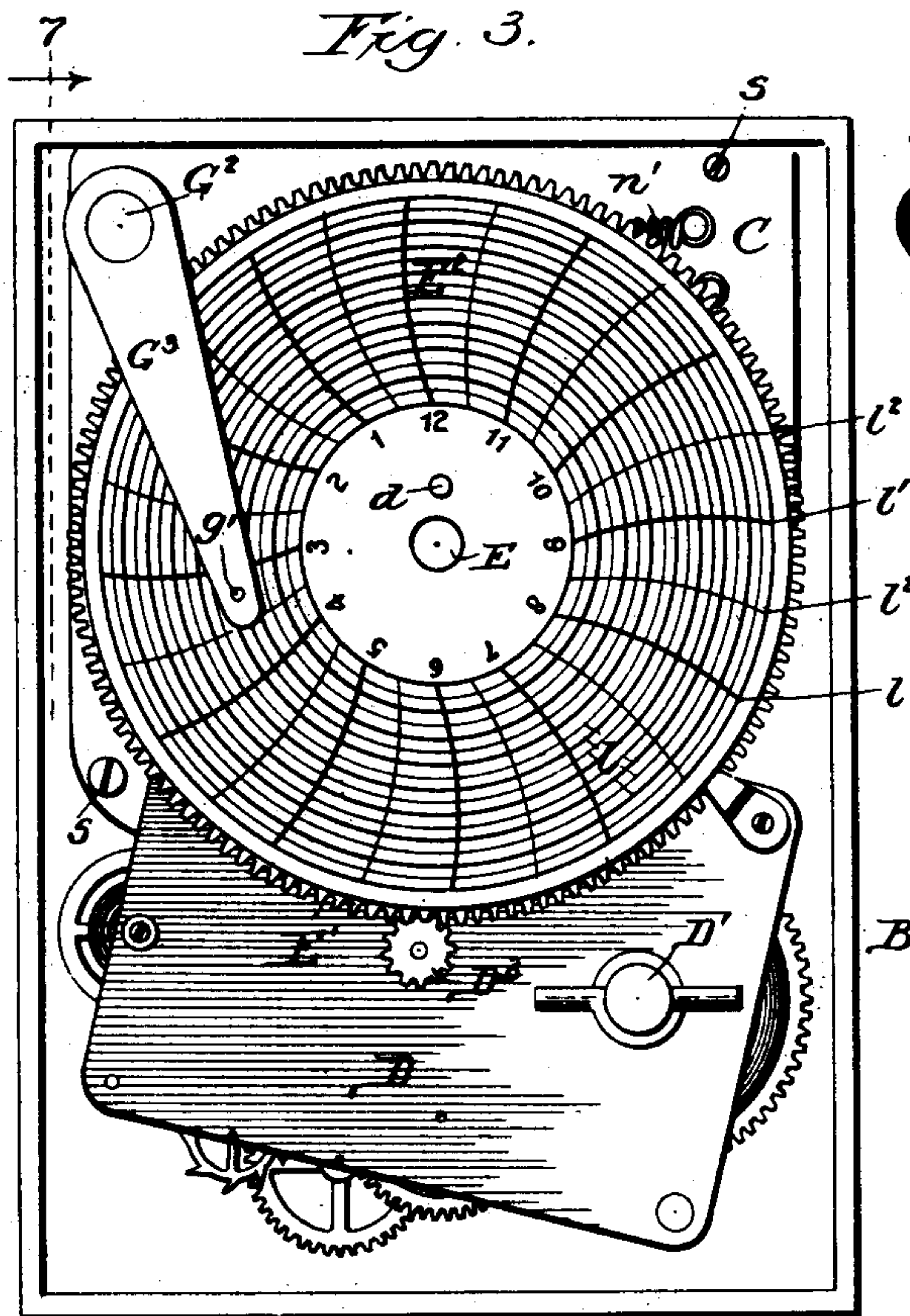
Herbert S. Mills,
By *Lyons & Lyons*,
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H. S. MILLS.
DOOR REGISTER FOR MAIL BOXES.

(Application filed Mar. 18, 1902.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses:
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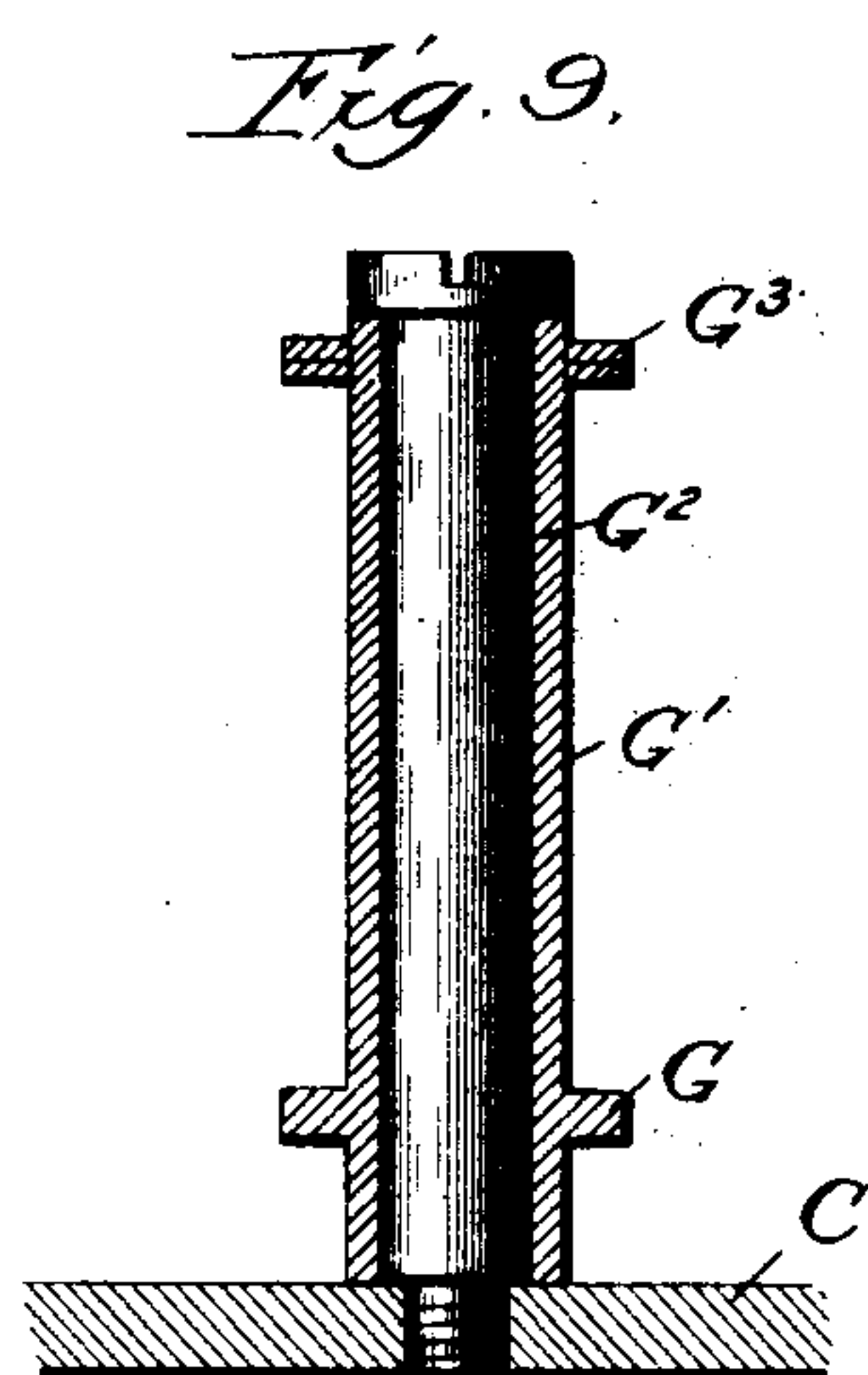
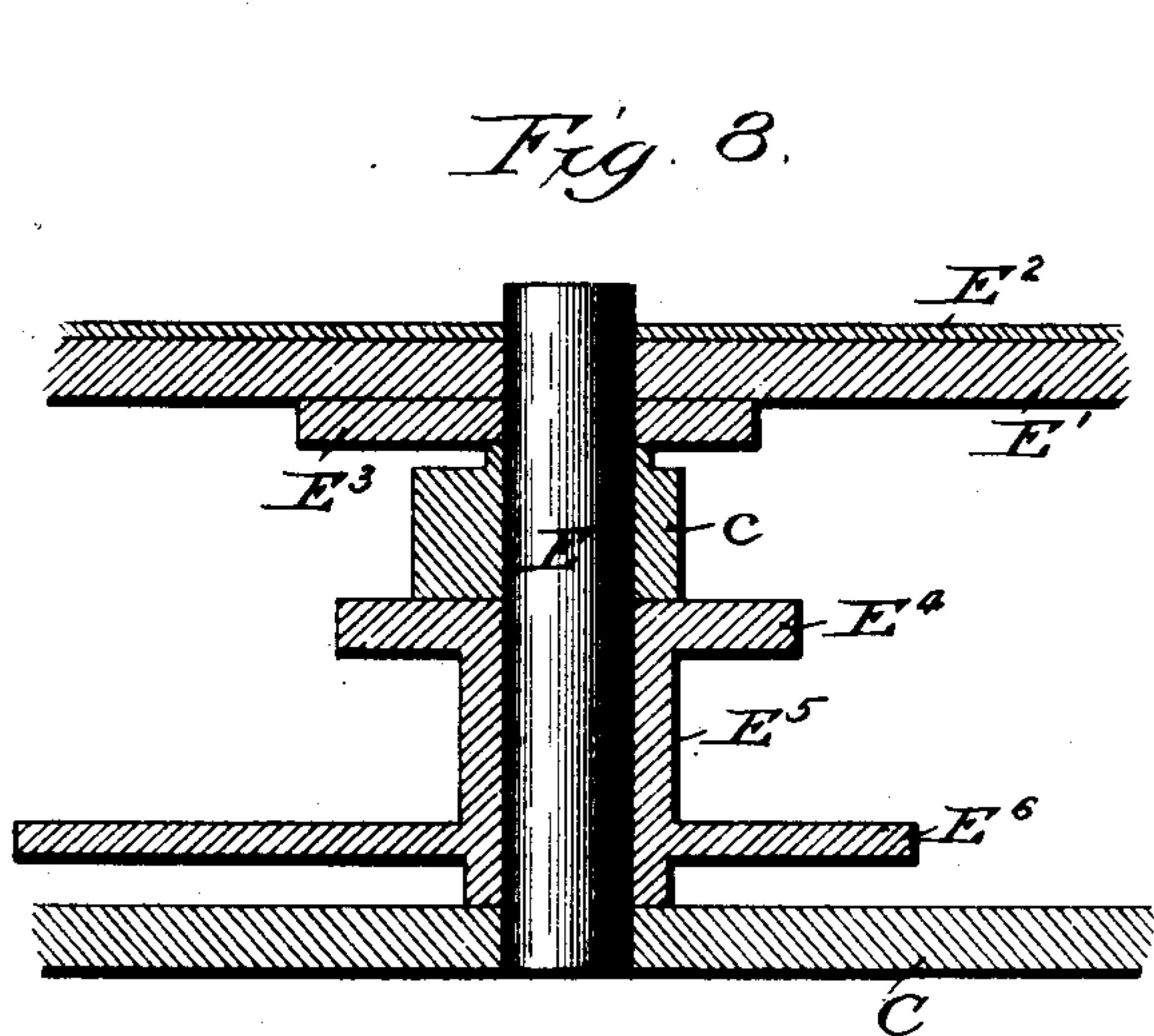
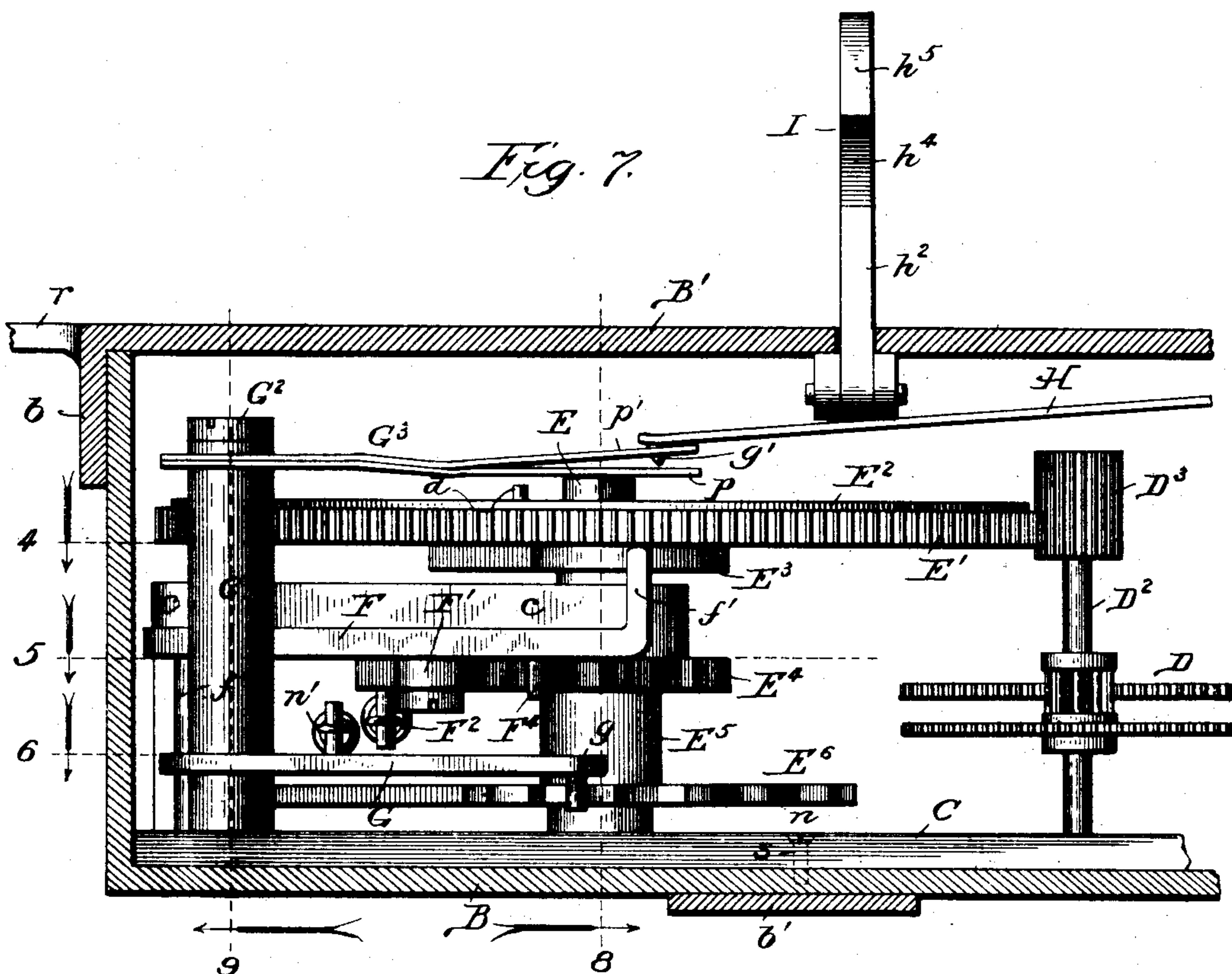
H. S. MILLS.

DOOR REGISTER FOR MAIL BOXES.

(Application filed Mar. 18, 1902.)

(No Model.)

3 Sheets—Sheet 3.



Witnesses:

Edw. Gaylord,
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Inventor:

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UNITED STATES PATENT OFFICE.

HERBERT S. MILLS, OF CHICAGO, ILLINOIS.

DOOR-REGISTER FOR MAIL-BOXES.

SPECIFICATION forming part of Letters Patent No. 713,325, dated November 11, 1902.

Application filed March 18, 1902. Serial No. 98,823. (No model.)

To all whom it may concern:

Be it known that I, HERBERT S. MILLS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Door-Registers for Mail-Boxes, of which the following is a specification.

My invention relates particularly to registers for use in connection with mail-box doors or in similar situations.

My primary object is to provide an exceedingly simple, economical, and efficient register of this nature and connect the same with a mail-box in such manner that the times of opening the mail-box shall be automatically indicated on a small dial, particular attention being paid to securing compactness of form and facility of insertion of new dials.

In the preferred construction there are employed a removable rotary dial provided with concentric rings and with hour and half-hour divisions and operated by clockwork, an intermittently-moved arm carrying a marking or puncture point, means for automatically shifting the puncture-point from a position above one circle to a position above an adjacent circle every twelve hours, and means operated by the mail-box door for automatically depressing the puncture-point.

This invention is illustrated in the accompanying drawings, in which—

Figure 1 represents an end view of a mail-box with my improved door-register applied, a portion being broken away to show the manner of attachment; Fig. 2, a front view of the same, similarly broken; Fig. 3, a plan view of the main portion of the register mechanism in position in its detached casing, the top of said casing having been removed; Figs. 4, 5, and 6, plan sections of said mechanism and casing, taken as indicated at the corresponding lines of Fig. 7; Fig. 7, a broken vertical section taken as indicated at line 7 of Fig. 3, the top of the register-casing being in place; and Figs. 8 and 9, broken vertical sections taken as indicated at the corresponding lines of Fig. 7.

The preferred construction is as follows: A represents a mail-box, having a door A', pivoted at *a* and provided on its inner surface with a lever-actuating lug *a'*; B, a casing for the register mechanism provided with

a top B', permanently attached to the mail-box bottom *a*², the main body of the casing fitting at its upper portion within a flange *b*, with which the top is provided, and secured in place by a hinged metal strap *b'* and padlock *b*²; C, a frame on which is mounted the main part of the register mechanism and the clock mechanism employed for operating said mechanism; D, a clock-train having a winding-stem D' and serving to operate a spindle D², equipped with a pinion D³; E, a vertical spindle journaled in a frame member *c* and equipped at its upper end with a gear E', meshing with the pinion D³; E², a removable cardboard dial, having a central perforation for receiving the upper end of the spindle E and an adjacent perforation for receiving a short stud *d*, with which the upper surface of the gear E' is provided; E³, a cam moving with the gear E' and serving to actuate a pawl-actuating arm; E⁴, a pawl-actuated ratchet-wheel fixed to a sleeve E⁵ and serving to actuate a step-equipped cam E⁶; F, an arm connected with a suitably-journaled pivot *f* and having an upturned end *f'* bearing on the cam E³; F', a pawl engaging the ratchet-wheel E⁴ and pivotally connected with the arm F; F², a pawl-spring which serves also to retract the arm F and actuate the ratchet-wheel; F³, a spring secured to the upright portion of the frame member *c* and engaging the periphery of the ratchet-wheel; F⁴, a pin on the arm F for engagement with the notches of the ratchet-wheel; G, a cam-actuated spring-retracted arm provided with a pin *g*, engaging the cam E⁶ and serving through the medium of a sleeve G', journaled on a stud G², to actuate an arm G³, carrying a puncture-point *g'*; H, a spring-metal piece connected with the inner surface of the casing-top and serving to depress the point *g'*; I, a bell-crank lever pivoted on a pin *g* between lugs, with which the inner surface of the casing-top is provided, said lever having an arm *h'* engaging the upper surface of the spring-metal member H and an arm *h*² projecting upwardly through a slot *h*³ in the casing-top and provided with beveled surfaces *h*⁴ *h*⁵, acted upon by the lug *a'* on the door of the mail-box, and K a stem journaled in the casing-top and extending through the mail-box bottom, said stem being equipped at its lower end with

prongs k , engaging the key of the winding-stem D' and equipped at its upper end with a knob k' .

The dial E^2 is provided with concentric circles l and with the numerals "1" to "12," inclusive, indicating divisions of one hour. From the numerals emanate curved lines l' , which may be of black color, and the spaces between said lines are divided by lines l^2 , which may be of red color. These lines are struck on a radius $G^2 g'$, so that the point g' describes a similar curve as it swings outwardly.

The cam E^3 has a gradual rise, starting from a point m and ending at a point m' in radial alinement therewith, as shown in Fig. 4. Thus the free end of the arm F is swung outwardly to the point m' at each revolution of the gear E' (every twelve hours) and then abruptly drawn inwardly by the spring F^2 to the point m . During the outward movement a new tooth of the ratchet-wheel is engaged by the pawl F^2 , and during the inward movement the ratchet-wheel is moved one space. This moves the cam E^6 , which is provided with a series of steps n , following roughly the course of an evolute to bring a new step or rest beneath the pin g of the arm G , the spring n serving to hold said pin in engagement with the cam. Each of the steps is of sufficient height to cause the arm G^3 to swing from one circle of the dial to another when the arm G is actuated.

As shown, the arm G^3 comprises two spring members $p p'$, the free extremity of the latter carrying the point g , and the latter having a perforation p^2 receiving said point.

The manner of use will be understood readily from the foregoing detailed description. The casing-top B' is secured in any suitable manner, as by lugs r , to the bottom of the mail-box, the stem K and lever I extending through said bottom. The frame C is removably secured within the casing-body B by screws s passing into the bottom of the casing, so that the dial will be exposed when the casing-body is disconnected from its top. The clock, which may be an eight-day movement, is wound by means of the knob k' and serves to turn the dial every twelve hours.

When a dial is put in place, the mechanism is turned to bring the arms F and G into engagement with the low portions of their cams. This brings the point g' above the inner circle, (or ring, as desired.) The point remains in position to pierce the inner circle at any time during a period of twelve hours, and then is moved to the second circle, and so on. Thus the record for successive periods is found on successive circles, the points of puncture serving to indicate surely the times of opening of the mail-box door. As readily will be understood, there is a double actuation of the point g' as the mail-box door is opened and closed, producing practically but one puncture, owing to the shortness of the interval between actuations.

It will be observed that the marking or

puncture point is intermittently moved automatically across the dial to cover fresh surface, as required. Two concentric circles or rings are covered every twenty-four hours. Obviously the mechanism for accomplishing this may be varied. Obviously also the marking-point may be depressed in any suitable manner from a door or drawer of any chamber or compartment. The appended claims, therefore, are to be construed, broadly, to include the application to a drawer or door.

Changes in details of construction within the spirit of my invention may be made. Hence no undue limitation is to be understood from the foregoing detailed description.

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

1. In a device of the character described, the combination of a gear, a clock-train for actuating said gear, a removable dial applied to one face of said gear, an intermittently-moved marking device, and means for depressing said marking device, for the purpose set forth.

2. In a device of the character described, the combination of a suitably-driven gear, a dial carried thereby, a cam actuated by said gear, a pawl actuated by said cam, a ratchet-wheel actuated by said pawl, a cam actuated by said ratchet-wheel, a marking device intermittently moved by said last-named cam, and means for depressing the marking-point, for the purpose set forth.

3. In a device of the character described, the combination of a suitably-driven gear, a dial actuated thereby, a cam actuated by said gear, a pawl actuated by said cam, a ratchet-wheel actuated by said pawl, a cam intermittently moved by said ratchet-wheel, a yieldingly-held swinging arm intermittently moved by said last-named cam, a marking device intermittently moved through the medium of said arm, and means for depressing the point of the marking device, for the purpose set forth.

4. In a device of the character described, the combination of a suitably-driven gear, a dial, a cam actuated by said gear, a spring-retracted pawl actuated by said cam, a ratchet-wheel actuated by said pawl, a cam intermittently actuated by said ratchet-wheel and provided at its periphery with a series of steps, a yieldingly-held swinging arm provided with means bearing against said last-named cam, an arm projecting over said dial and actuated by said last-named arm and carrying a marking-point, and means for depressing said marking-point, for the purpose set forth.

5. In a device of the character described, the combination of a suitably-driven gear, a dial, a cam actuated by said gear, a swinging arm actuated by said cam, a pawl carried by said swinging arm, retracting means for said arm and pawl, a ratchet-wheel moved by said pawl, a cam intermittently actuated by said ratchet-wheel, a yieldingly-held swinging arm moved by said last-named cam, an arm pro-

jecting over said dial and moved by said last-named arm, a marking-point, and door-actuated means for depressing said point, for the purpose set forth.

5 6. In a device of the character described, the combination of a horizontally-disposed suitably-driven gear, a removable dial connected with the upper surface of said gear, a marking-point moving across the surface of
10 said dial to cause it to describe new circles as required, a bell-crank lever swinging in a vertical plane, and a door swinging on a horizontal pivot and equipped with means for actuating said lever, substantially as and for
15 the purpose set forth.

7. The combination with a mail-box of a casing attached to the bottom thereof, a bell-crank lever connected with said casing and projecting through an opening in the bottom
20 of the mail-box, means connected with the door of the mail-box for actuating said lever, a suitably-driven horizontally-disposed gear, a dial removably connected with the upper face thereof, and a marking device located
25 above said dial and depressed by said lever when the door of the mail-box is opened, for the purpose set forth.

8. In a device of the character described, the combination with a mail-box provided
30 with a suitable door swinging on a horizontal pivot, of a register comprising a suitable casing secured to the bottom of the mail-box, a horizontally-disposed gear, a dial connected with the upper surface of said gear, clock
35 mechanism for actuating said gear provided with a vertical winding-spindle, a winding-stem projecting through the bottom of the

mail-box and connected with said spindle, a marking device projecting over said dial, a lever serving to depress said marking device 40 and projecting through the bottom of the mail-box, and means carried by the door of the mail-box for actuating said lever, for the purpose set forth.

9. In a device of the character described, 45 the combination with a mail-box provided with a door having a horizontal pivot, of register mechanism comprising a casing-top permanently attached to the bottom of the mail-box, a casing-body removably connected with 50 the casing-top, a suitably-actuated dial mounted within said casing-body, a marking-point located above said dial, a lever serving to depress said marking-point and projecting through the bottom of the mail-box, and 55 means connected with the mail-box door for actuating said lever, for the purpose set forth.

10. In a device of the character described, the combination of a suitably-driven gear, a dial removably connected with said gear and 60 provided with concentric circles and with curved lines indicating hour-divisions, the curves being struck with a common radius, an automatically-moved arm pivoted at the center of curvature from which said curves 65 are struck and carrying a marking-point and door-actuated means for depressing said marking-point, substantially as and for the purpose set forth.

HERBERT S. MILLS.

In presence of—

ALBERT D. BACCI,
W. B. DAVIES.