

(No Model.)

A. S. HIBBARD.
TELEPHONE CALL REGISTER.

No. 329,646.

Patented Nov. 3, 1885.

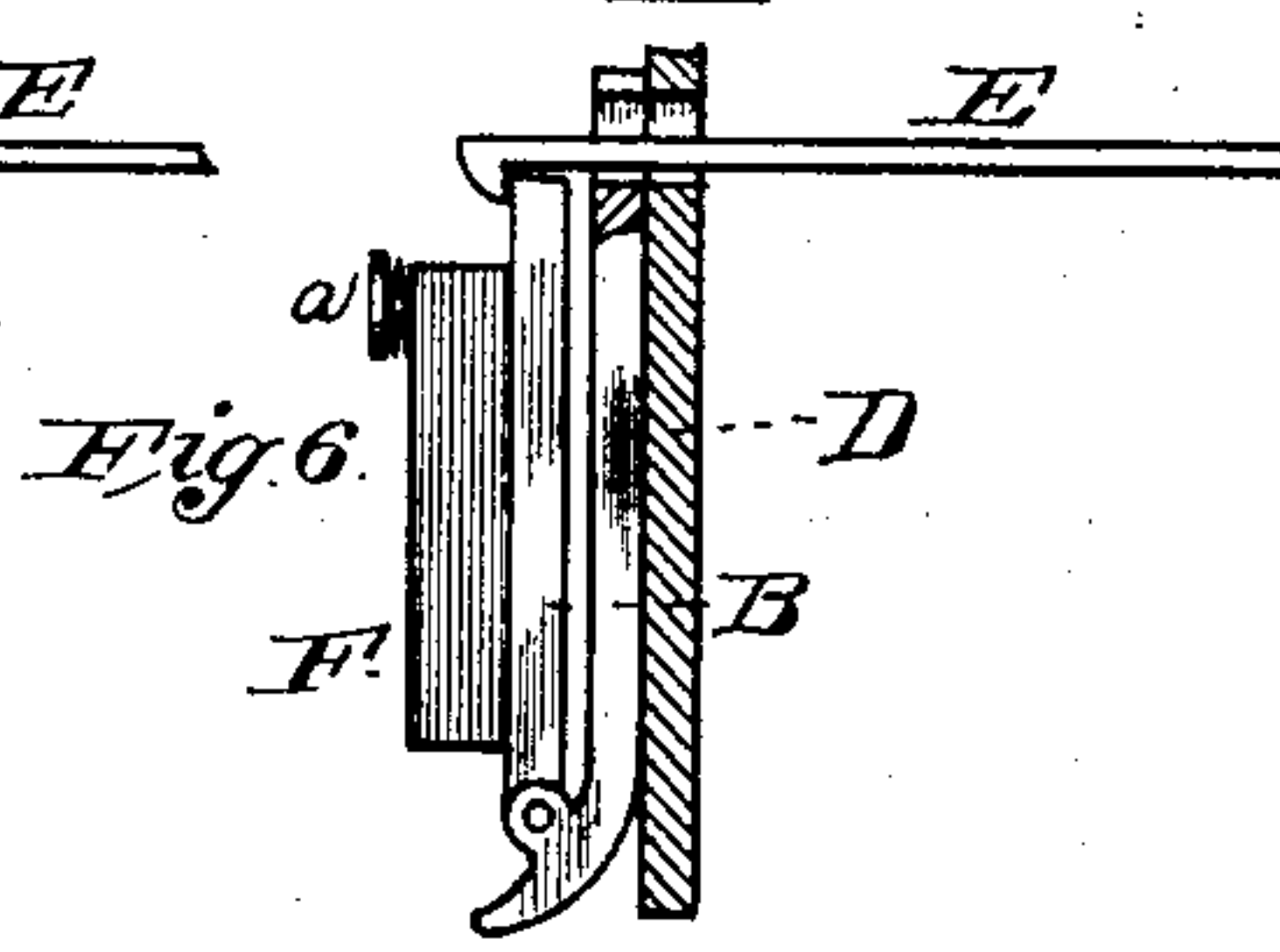
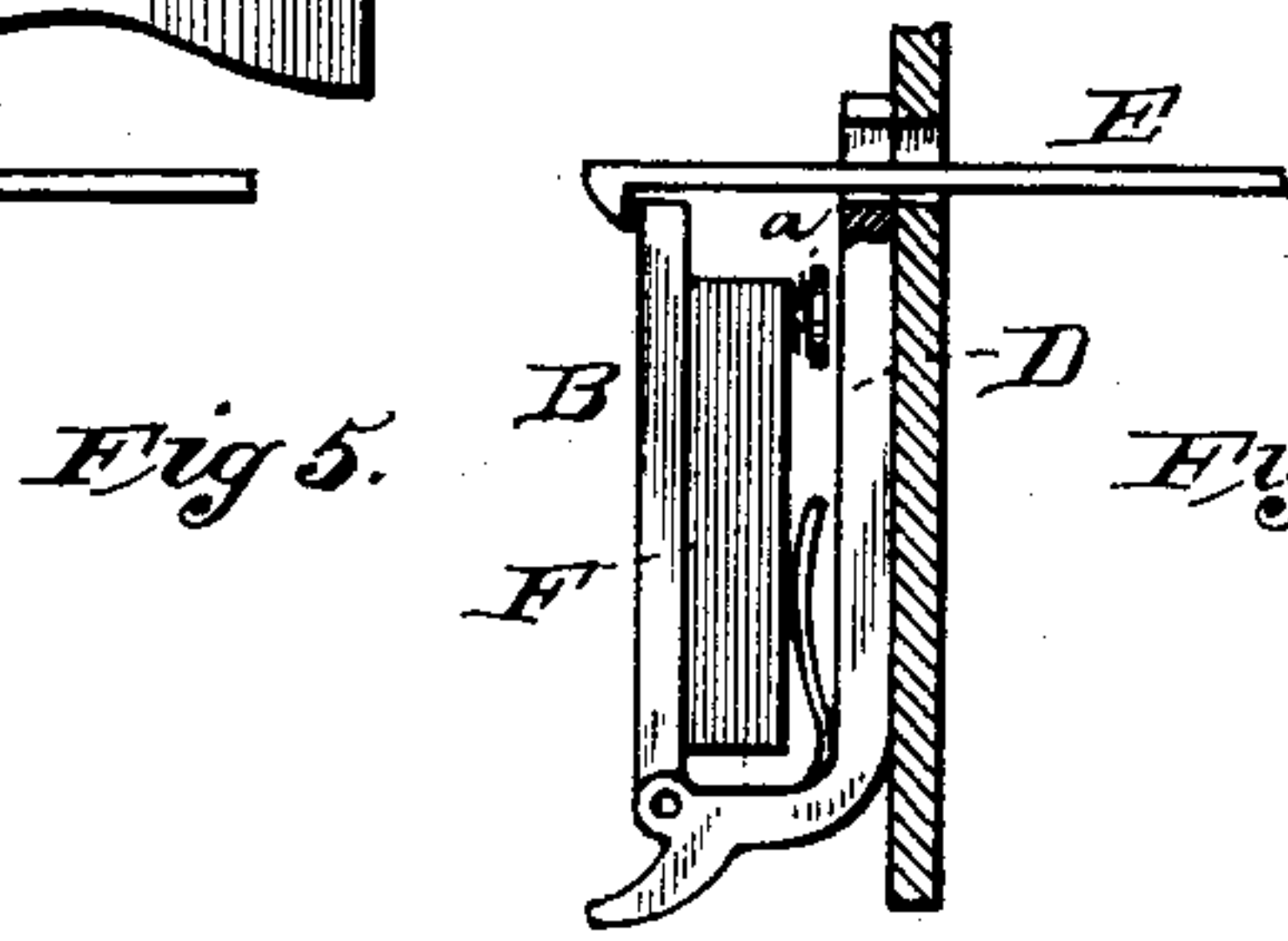
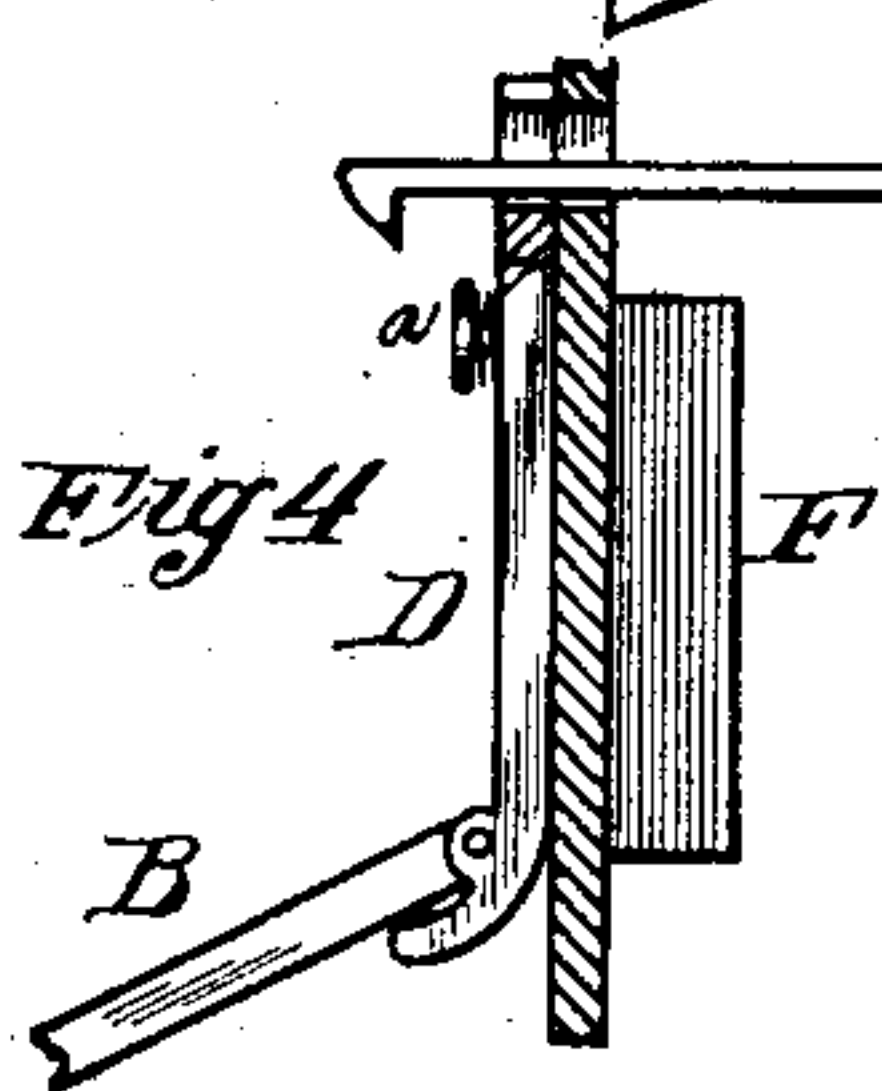
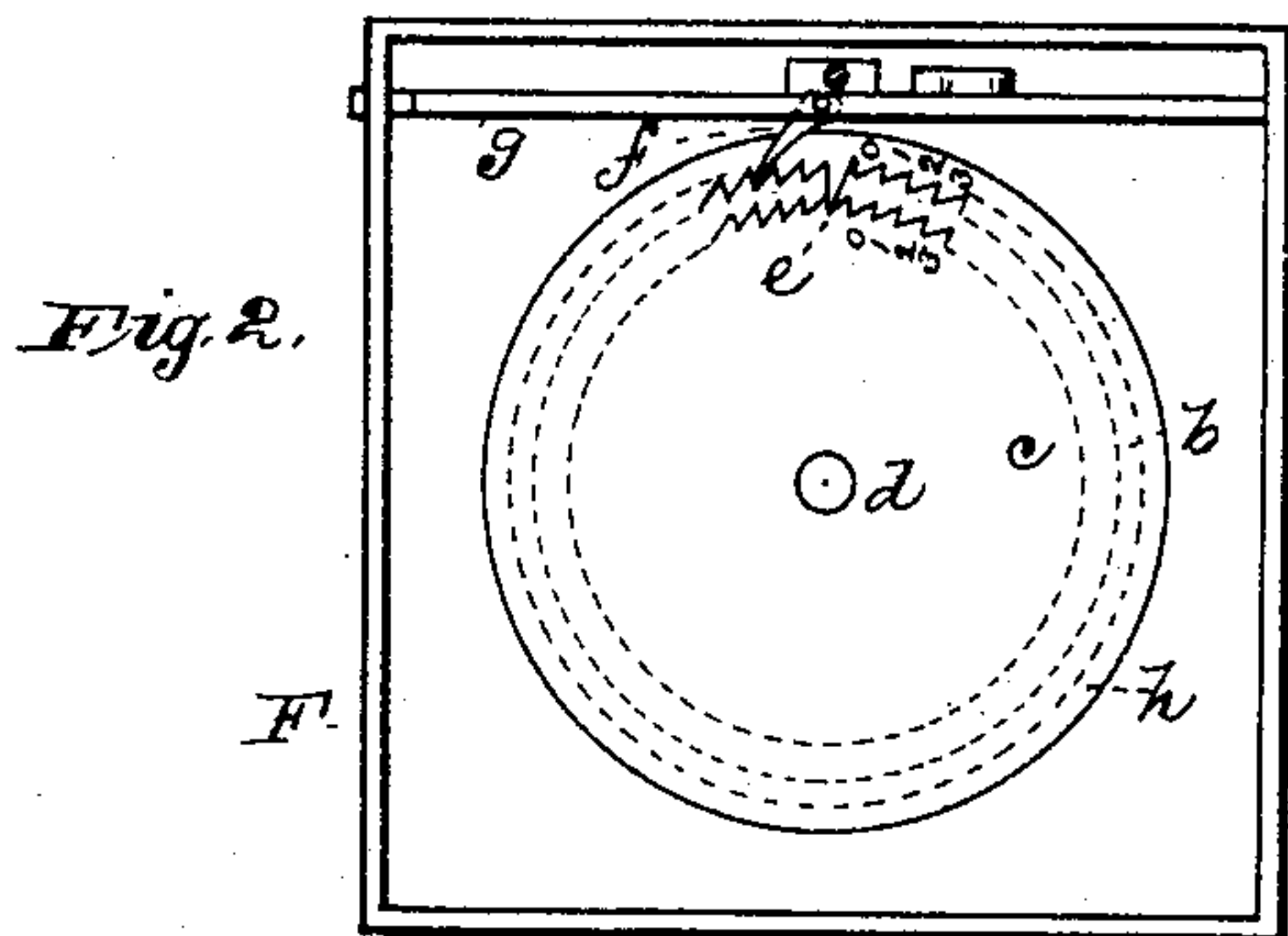
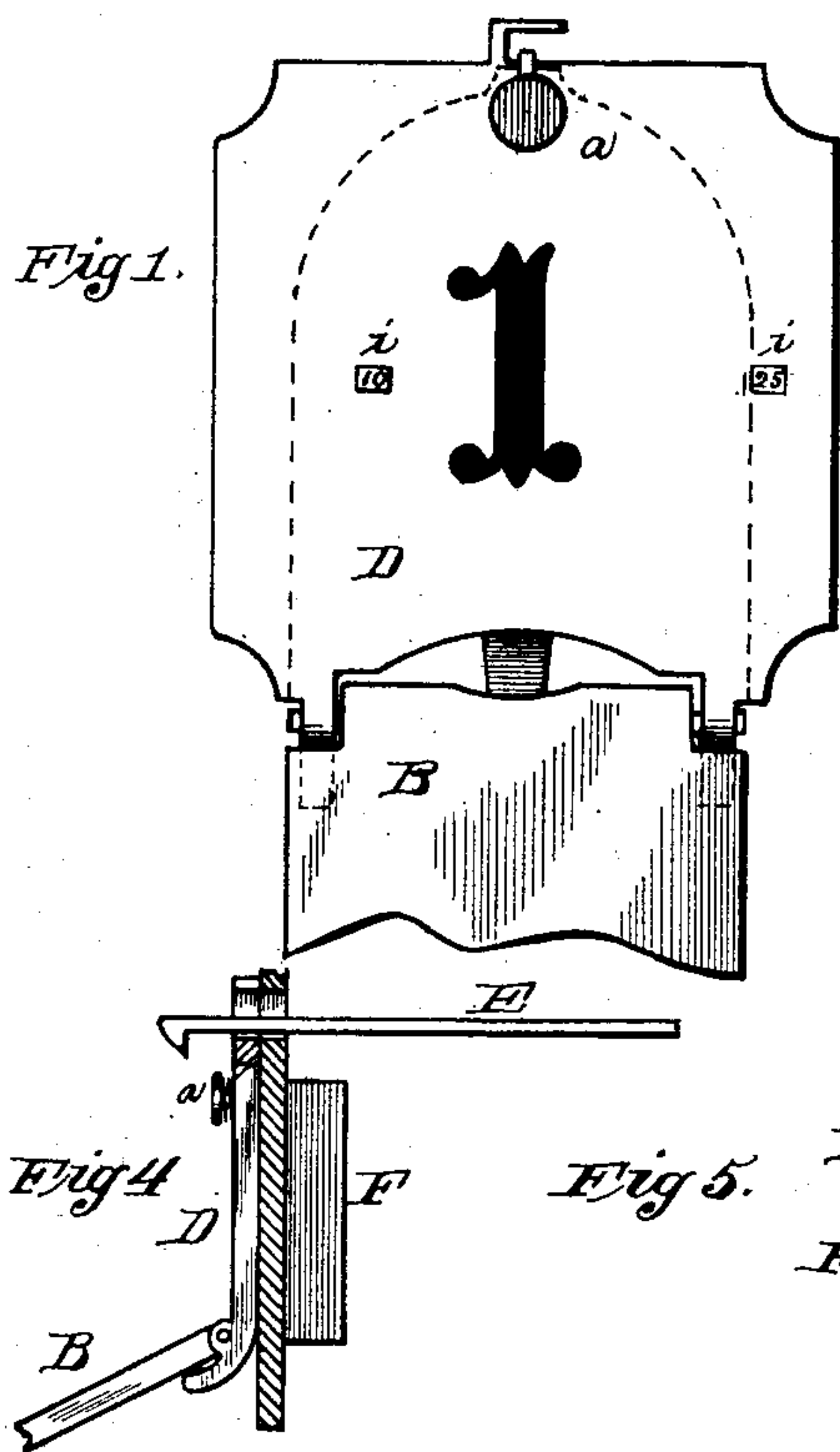


Fig 7.

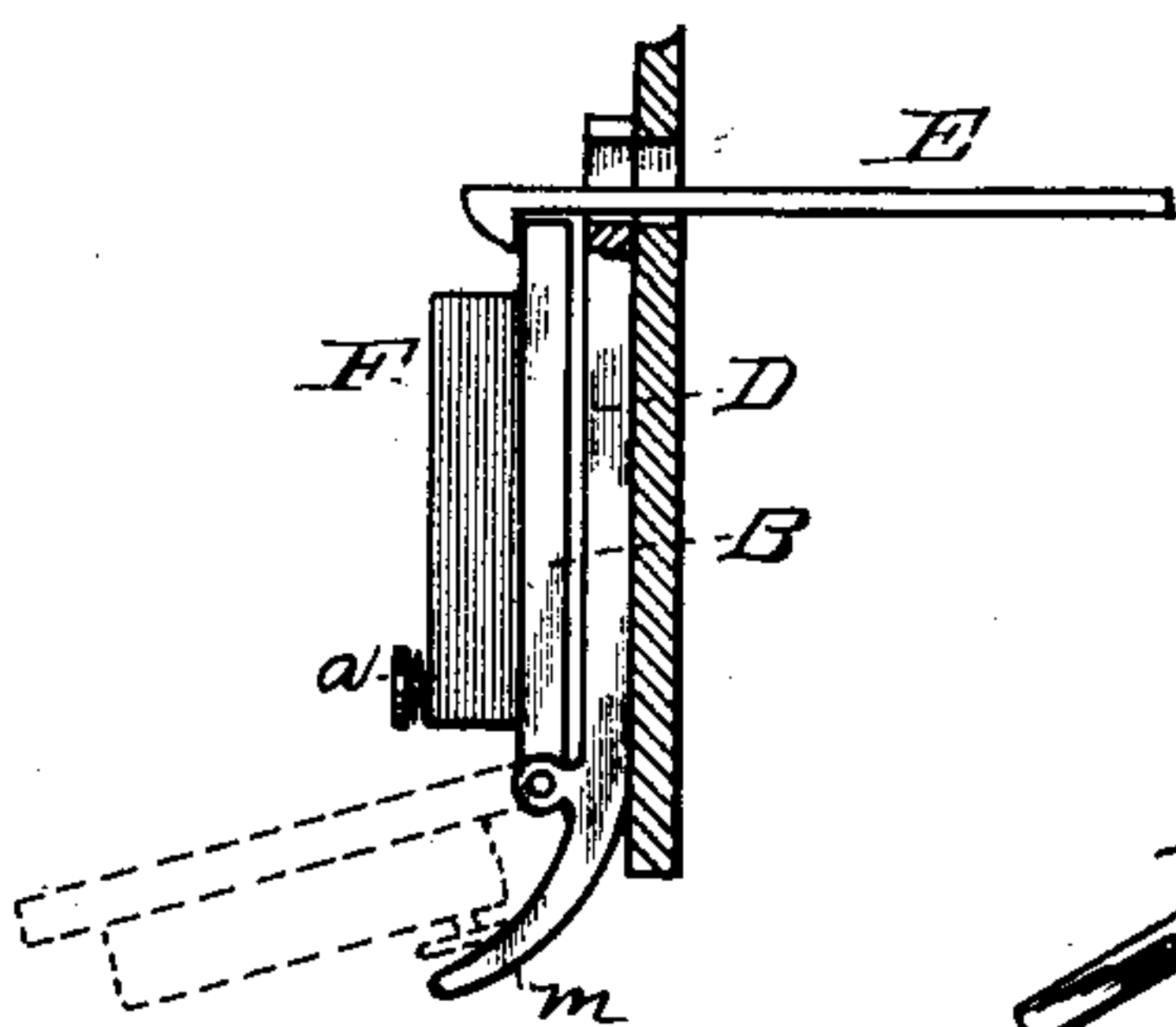
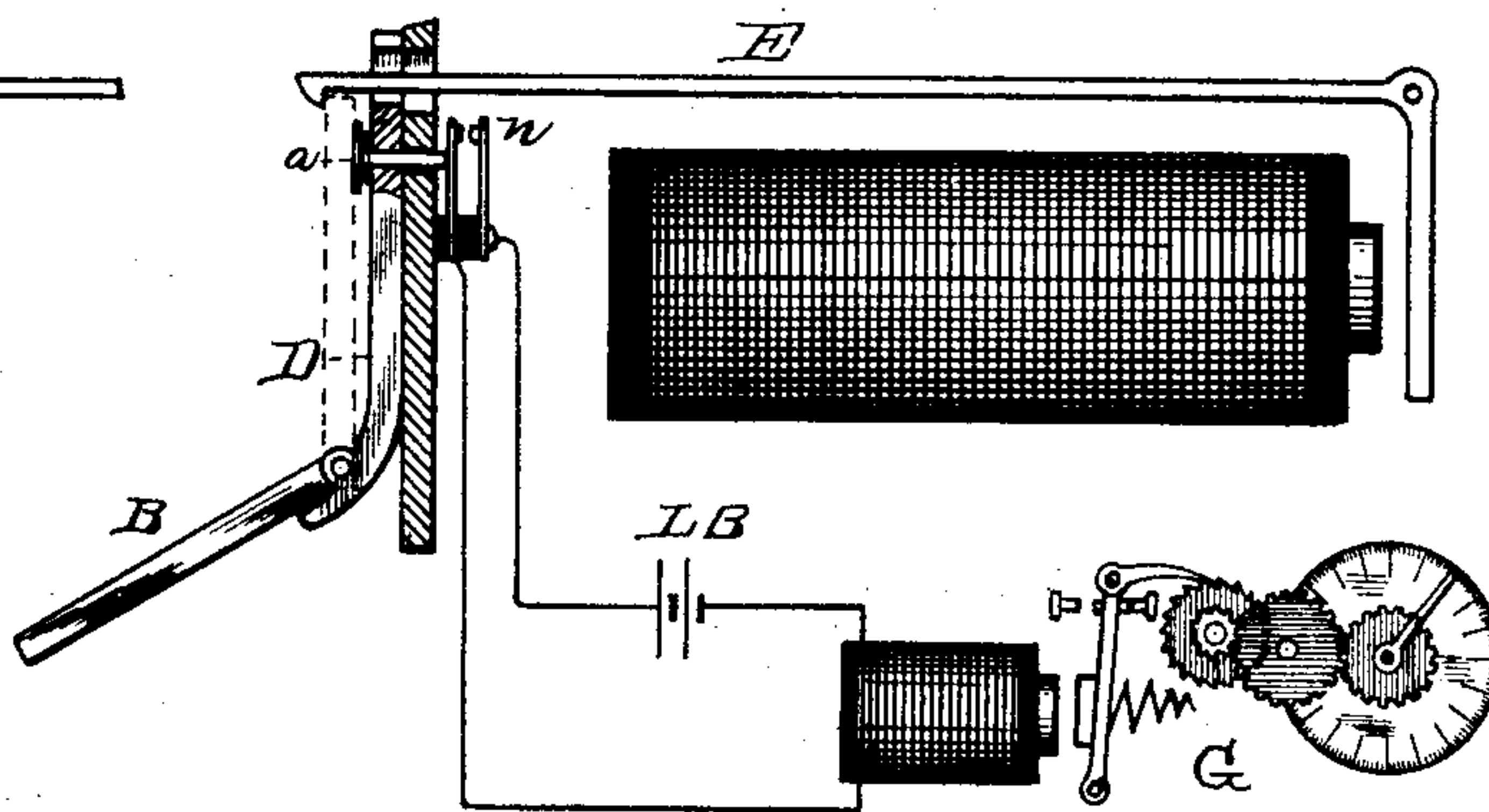


Fig 8.



ATTEST:
E. C. Rowland.
A. M. Fiddle.

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Angus S. Hibbard
By *[Signature]*
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UNITED STATES PATENT OFFICE.

ANGUS S. HIBBARD, OF MILWAUKEE, WISCONSIN.

TELEPHONE CALL-REGISTER.

SPECIFICATION forming part of Letters Patent No. 329,646, dated November 3, 1885.

Application filed July 6, 1885. Serial No. 170,711. (No model.)

To all whom it may concern:

Be it known that I, ANGUS S. HIBBARD, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain
5 new and useful Improvement in Call-Registers for Telephone-Lines, of which the following is a specification.

Heretofore in telephone exchanges where the charges for use of telephones are not fixed
10 irrespective of service, but are based upon and are proportionate to the number of calls made by each subscriber, it has been customary for the operators to enter the calls upon blotters, from which they are transferred to ledgers;
15 but on account of the additional work thus thrown upon the exchange-operators many calls are not noted during busy hours, and the noting of such calls may serve to confuse the operator or detract from the promptness of
20 the service.

The object I have in view is to produce a register which will answer the requirements for carrying out a system of telephone-charges based upon service. I have determined it to
25 be essential that a register for this purpose cannot be entirely automatic, since it is desired to register only calls actually made; but at the same time that it is subject to the volition of the exchange-operator, it should be arranged for
30 operation so as to require the smallest possible additional work, as by being convenient for working in connection with one of the operations necessarily performed by the operator in giving the service—as, preferably, by the ma-
35 nipulation of the drop—and it should also be preferably a mechanical register, in order not to add to the number of wires in the exchange, although an electrically-operated register comes also within the scope of my invention.

40 In carrying out my invention I provide, in connection with a telephone switch-board, a register for each line running thereto. The preferred method is to arrange a register in connection with each drop, in such manner
45 and of such construction that the drop may fall and be set without working the register; but the operator can, when setting the drop, by an additional movement work the register.

50 The operative or controlling part of the register may be a moving stem projecting forward through the drop-plate, which stem will be

moved by an additional backward pressure on drop in setting; or the register-stem may be directly on drop, and may project from its rear side for engagement with drop-plate; or
55 the stem may be on front of drop, in position to be pressed by the operator's finger in setting drop; or the register-stem may project from the front of drop in position to rest on a projecting arm when drop is down, the weight
60 of drop in falling not being sufficient to work register, and an additional downward pressure on drop being required for this purpose. If an electrically-operated register is em-
65 ployed, the movement of stem will be utilized to close or open a local register-circuit, the register being located at any convenient point, near at hand or distant. I prefer, however, a mechanical register of any suitable construction. A simple form of mechanical register
70 has been devised by me, consisting of two wheels placed close together on same spindle, and loose thereon. One wheel is slightly larger than the other, and both are provided with fine ratchet-teeth, the larger wheel having in
75 addition a single deeper tooth or notch. A pawl wide enough to cover both wheels is worked by the movement of the register-stem, produced as before described. This pawl rests
80 on larger wheel and turns it, being kept there by out of contact with smaller wheel; but when the pawl reaches the deep tooth of the larger wheel it falls far enough to catch a tooth of the smaller wheel, and both wheels are
85 moved one tooth together. The two wheels carry numbers presented at proper openings, and these numbers may be arranged in any suitable and convenient way to indicate the calls registered.

In the accompanying drawings, forming a
90 part hereof, Figure 1 is an enlarged view of a drop-plate with drop down, showing head of register-stem and register-number openings; Fig. 2, a view of register partly developed, with drop-plate removed; Fig. 3, a top view
95 of register with top of case removed; Figs. 4, 5, 6, and 7, side elevations of drop and drop-plate, with supporting-strip in section, showing different arrangements of mechanical register; and Fig. 8, a similar view, including
100 drop-magnet, showing an electrical register.

B represents the usual telephone switch-

board drops. The drops are hung on drop-plates D, and are held set by hook-levers E.

My call-register is operated or controlled by a stem *a*. The register is preferably a mechanical register, F, which may be composed of two wheels, *b c*, located close together on spindle *d*, and capable of turning independently. Wheel *b* is larger than *c*, as shown. Both wheels have small ratchet-teeth, while wheel *b* has one deeper tooth or notch *e*. A pawl, *f*, carried by transverse slide *g*, is wide enough to cover both wheels. It is held out of engagement with wheel *c* by wheel *b*, except when deep tooth *e* is reached, when it engages with and turns both wheels one tooth and is again raised from wheel *c*. Wheel *c* carries numbers on its face, while a number-disk, *h*, is secured to wheel *b*. The numbers appear at openings *i*. The stem *a* moves a wedge, *k*, which, engaging with a pin on slide *g*, moves it transversely. Springs *l l'* return the stem and slide to first position. The register F may be back of drop-plate, as shown in Figs. 1 and 4, or on back of the drop itself, as shown in Fig. 5. With these arrangements the drop may be set without working register; but by pressing drop back to an additional extent the stem *a* will be forced in and the register operated. The register F may be on face of drop, the stem *a* being pressed by operator's finger, Fig. 6; or the stem *a* may be arranged to rest on arm *m* when drop is down, Fig. 7, the drop

being given an additional downward pull to work register; or the stem *a* may control the circuit of any suitable electrical register, G, and local battery L B, as shown in Fig. 8.

In the construction shown the movement of stem *a* forces contacts *n* together, closing the register-circuit.

What I claim is —

1. The combination, with a telephone switch-board drop, of a call-register arranged in connection therewith and operated by the movement thereof, substantially as set forth.

2. The combination, with a telephone switch-board drop, of a call-register arranged in connection therewith, and having an operating-stem arranged in the line of movement of the drop, substantially as set forth.

3. The combination, with a telephone switch-board drop and a register-operating stem arranged in the line of movement of the drop, of two ratchet-wheels of different sizes, and the pawl and its operating parts, the larger wheel having a deep notch for permitting the pawl to engage with smaller wheel at intervals, substantially as set forth.

This specification signed and witnessed this 26th day of June, 1885.

ANGUS S. HIBBARD.

Witnesses:

GEO. D. PERRINE,
A. W. KIDDLE.