

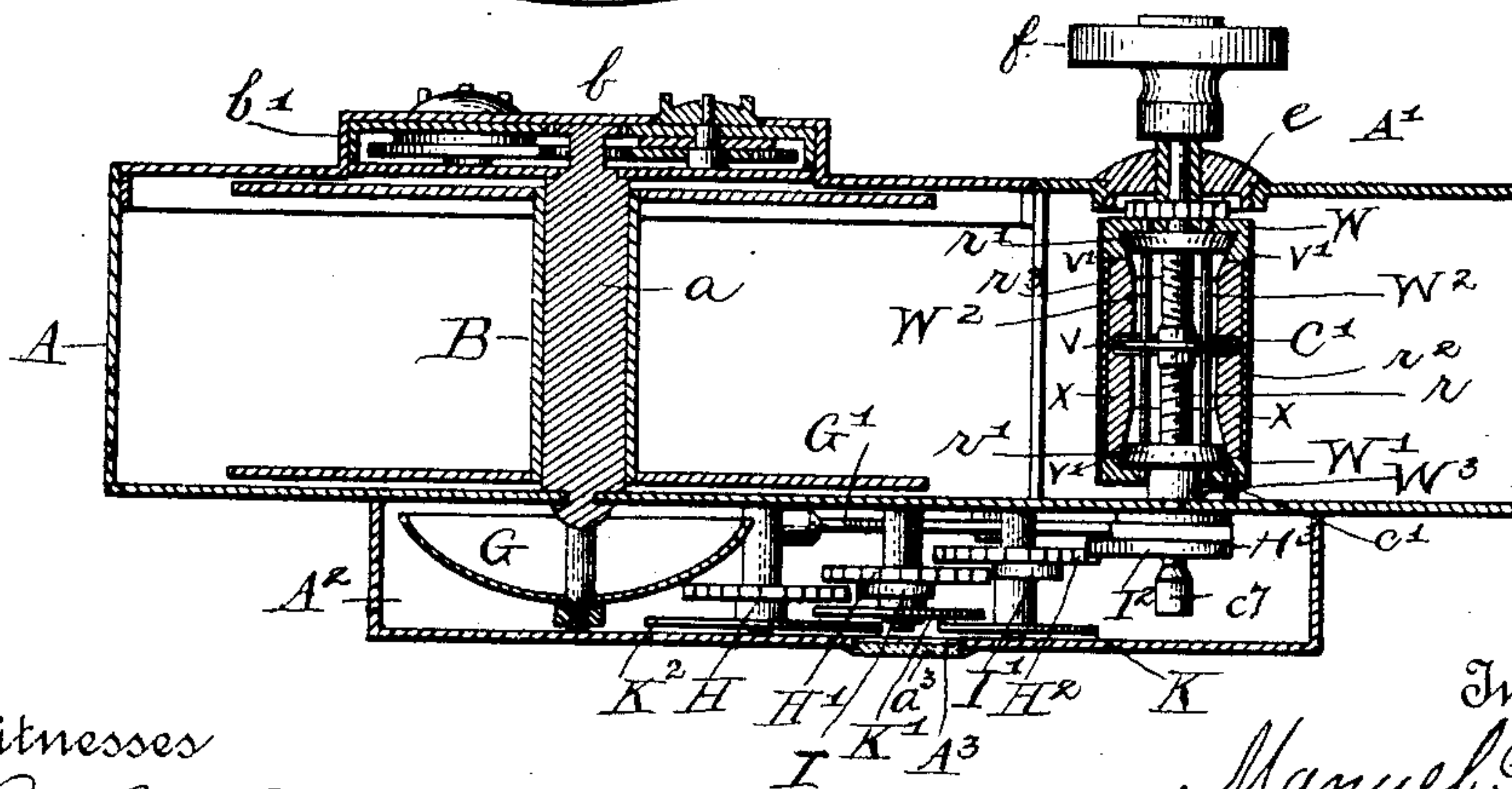
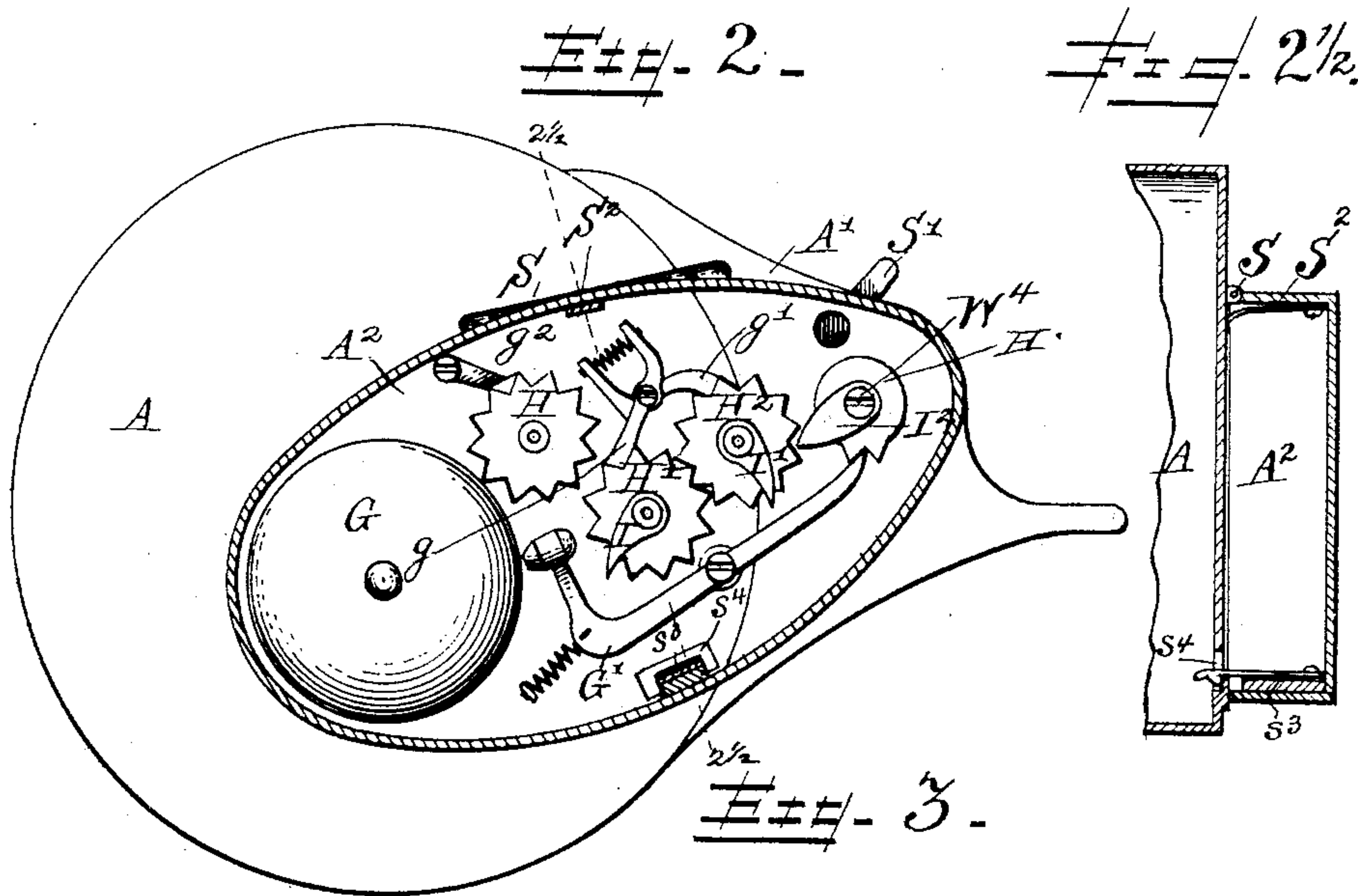
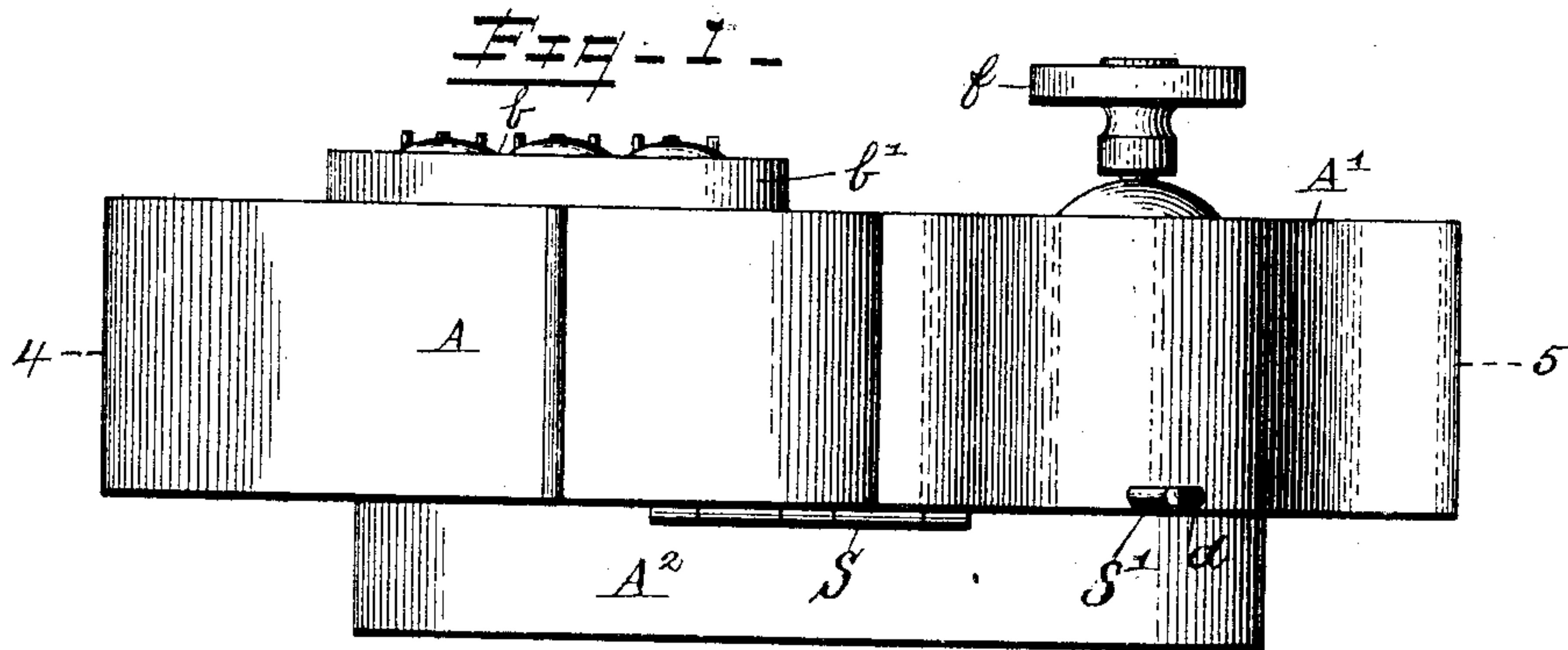
(No Model.)

3 Sheets—Sheet 1.

M. FORTUNO.  
FARE REGISTERING DEVICE.

No. 471,540.

Patented Mar. 29, 1892.



Witnesses

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(No Model.)

3 Sheets—Sheet 2.

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Fig. 4.

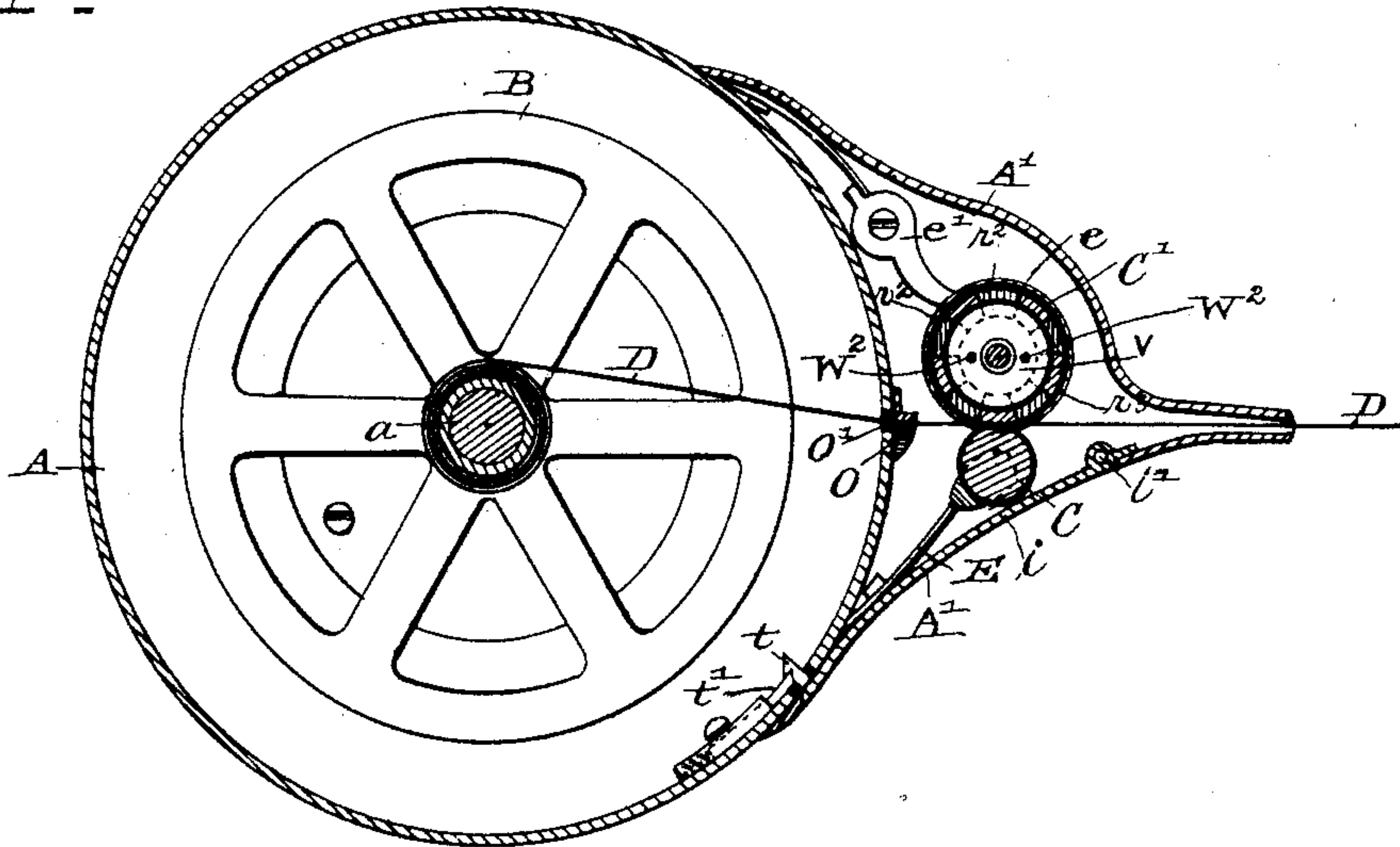
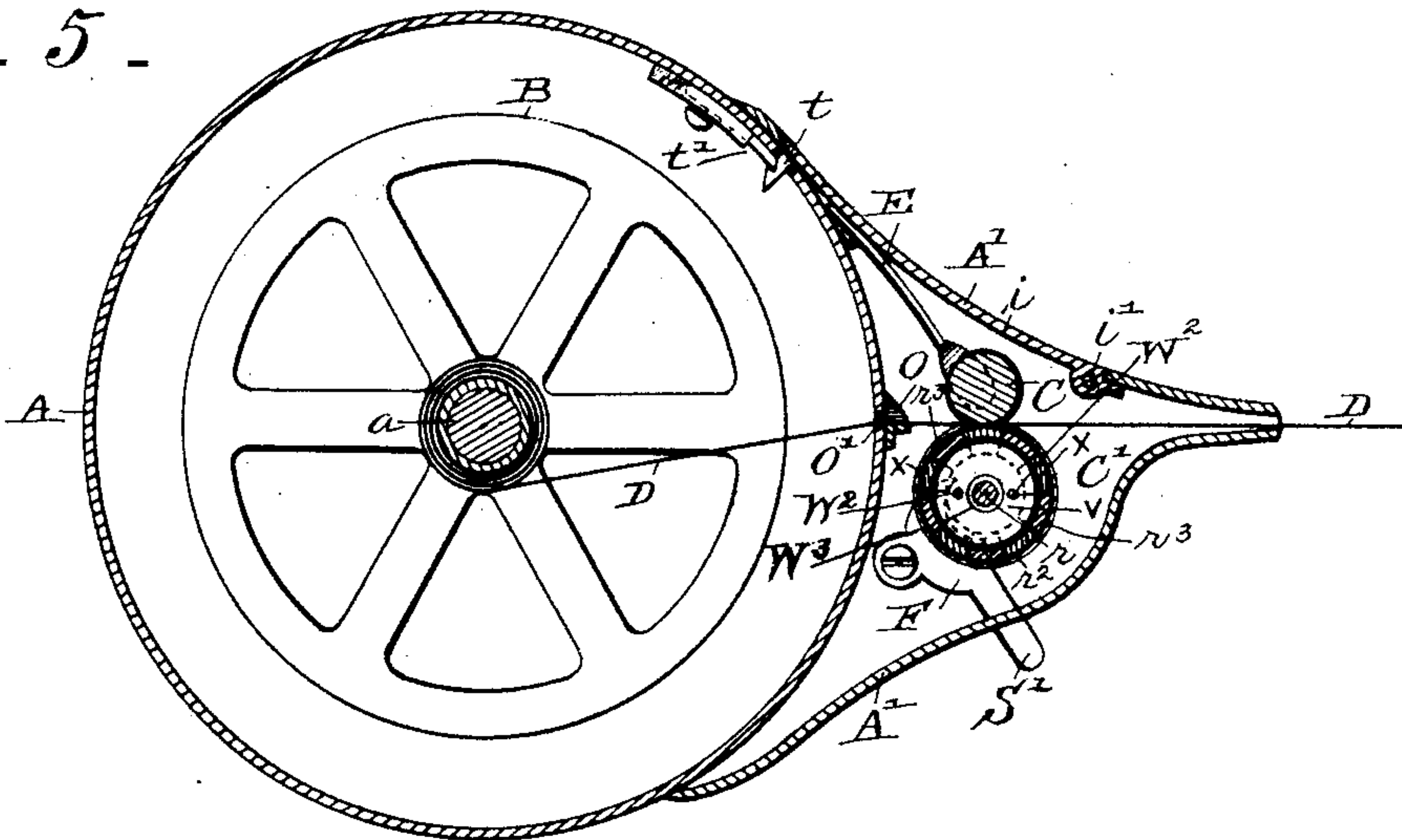


Fig. 5.



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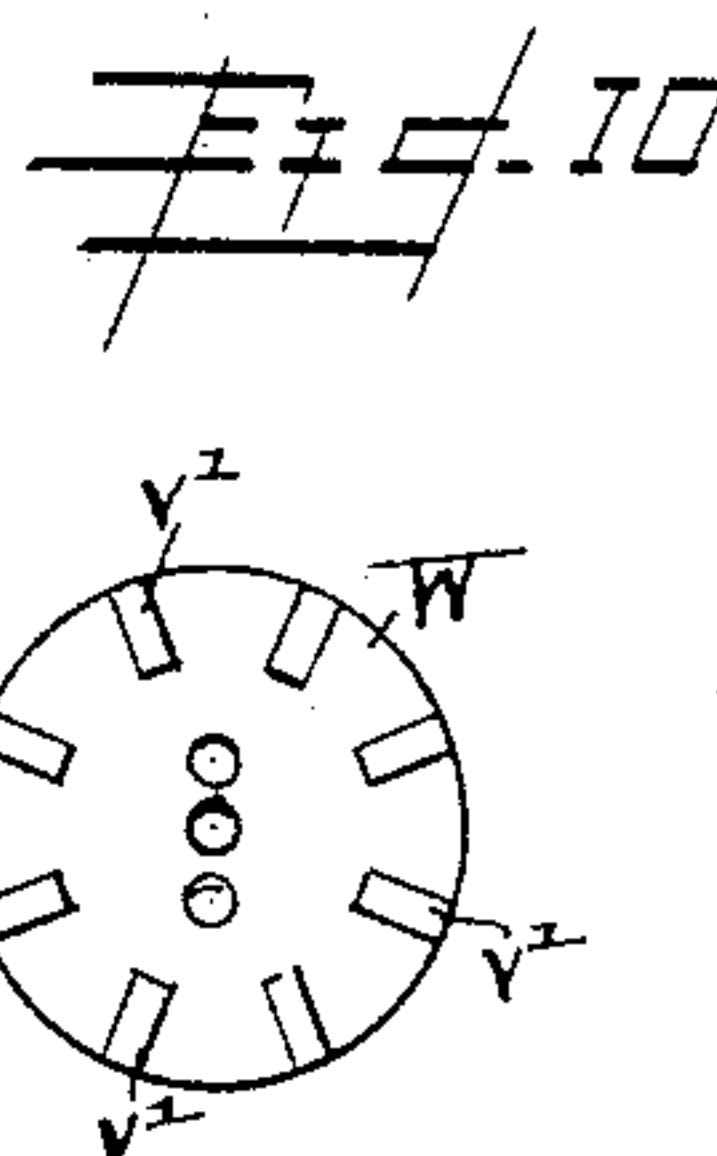
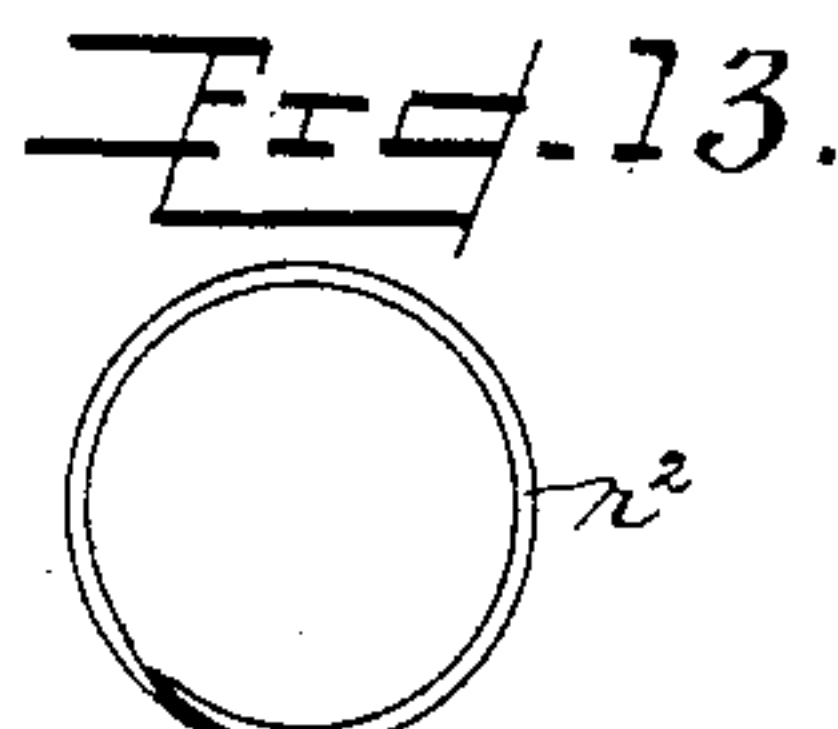
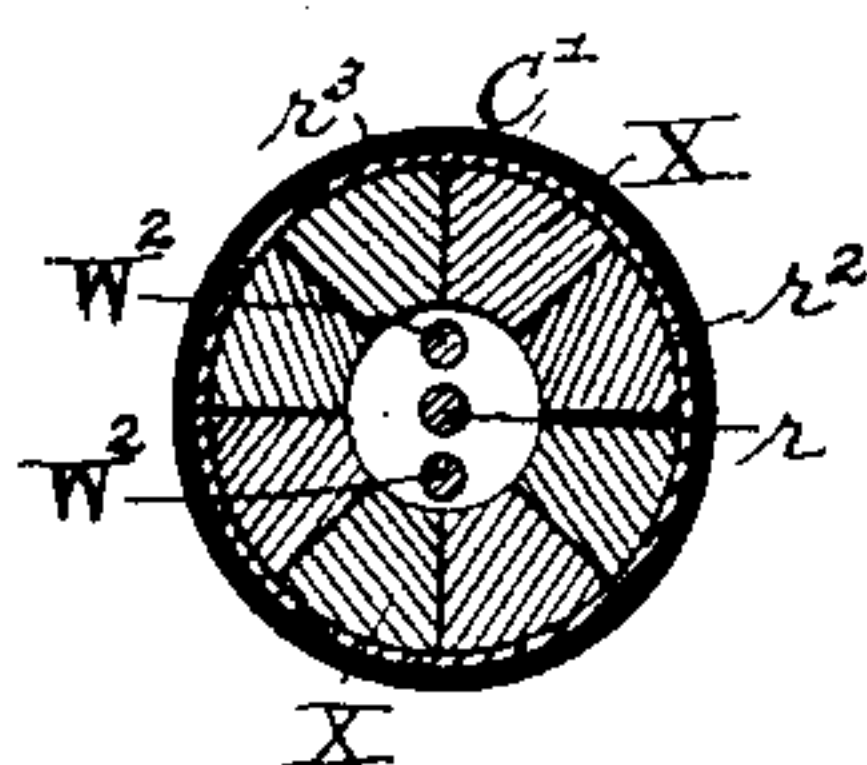
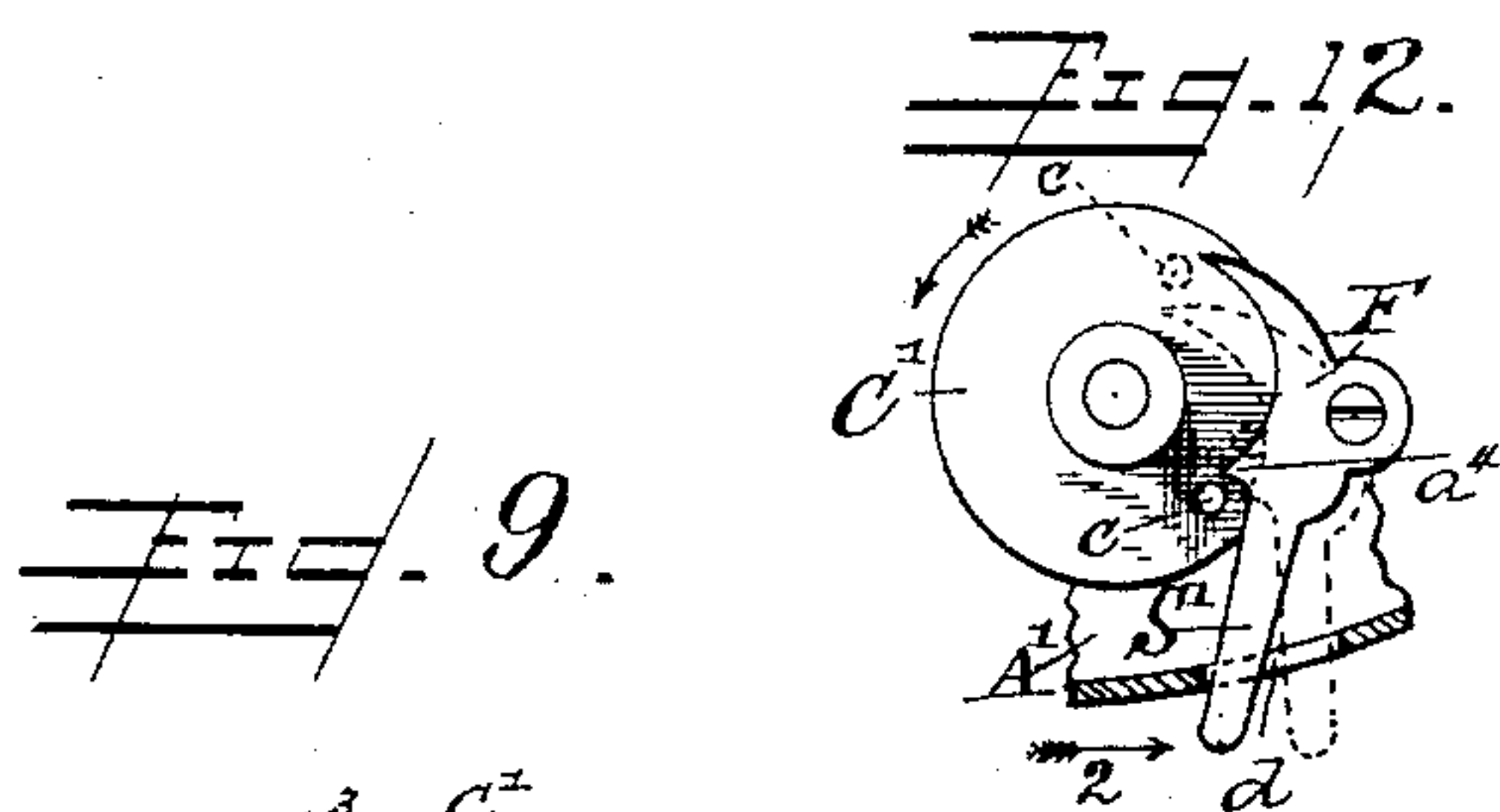
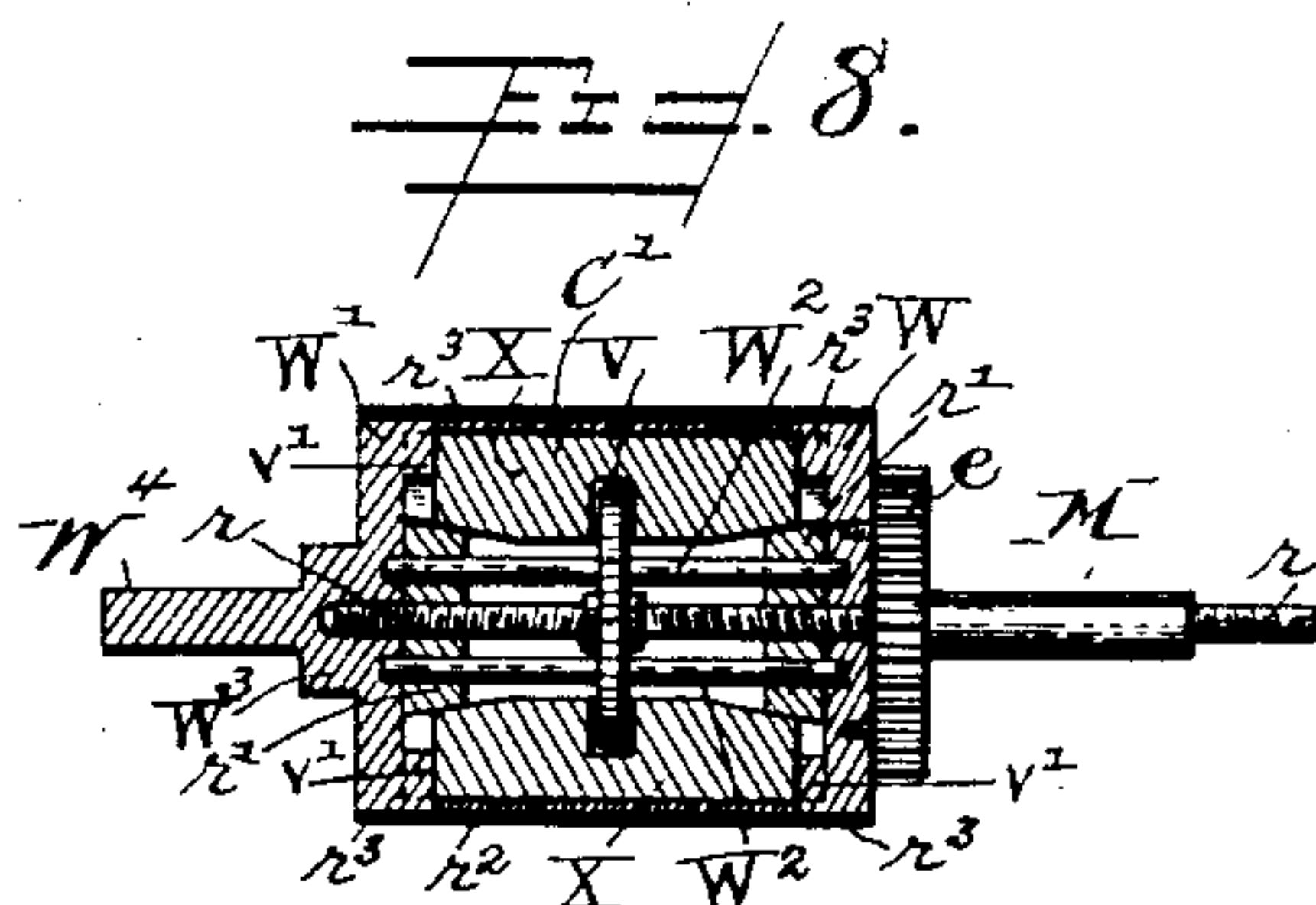
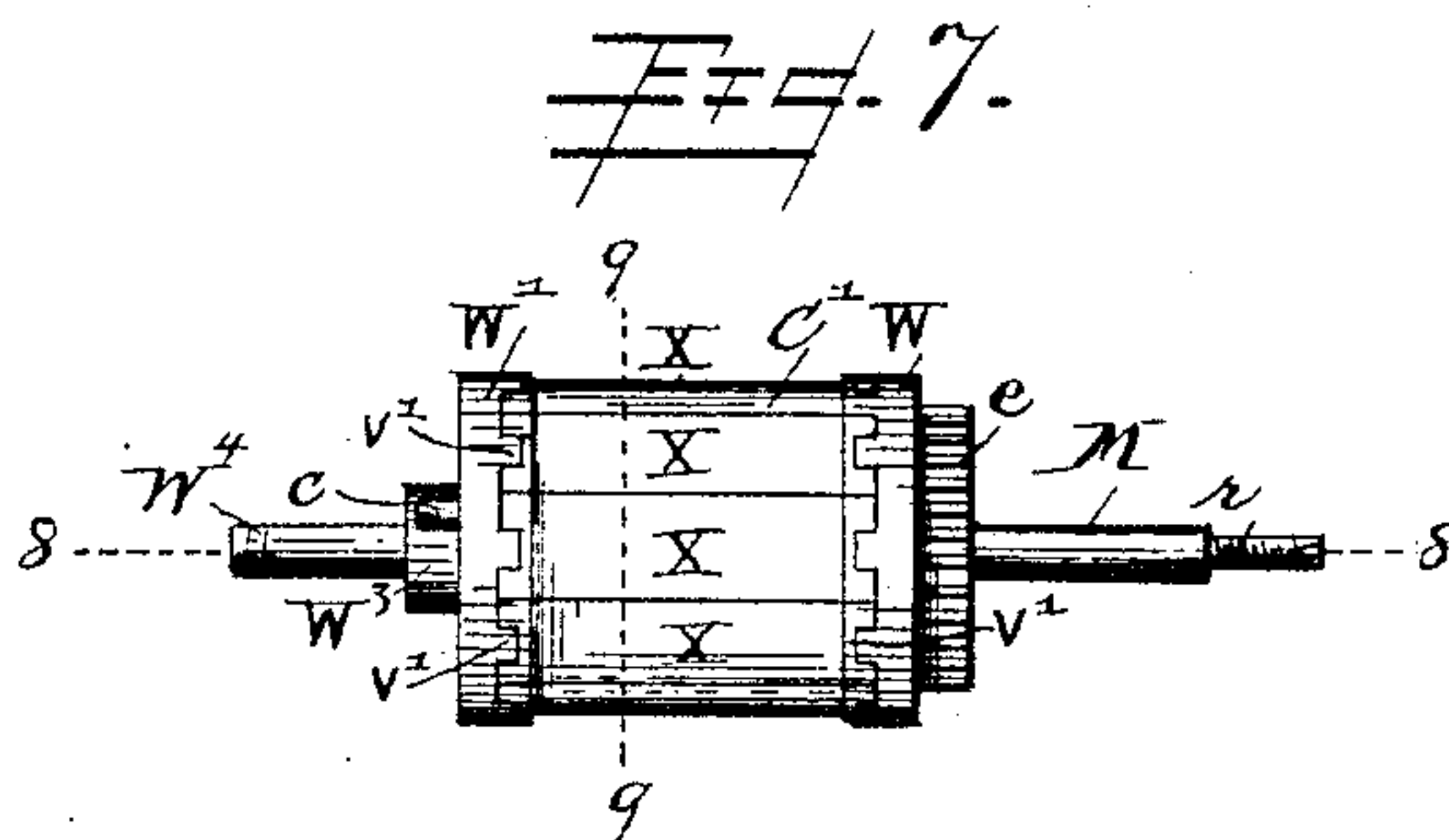
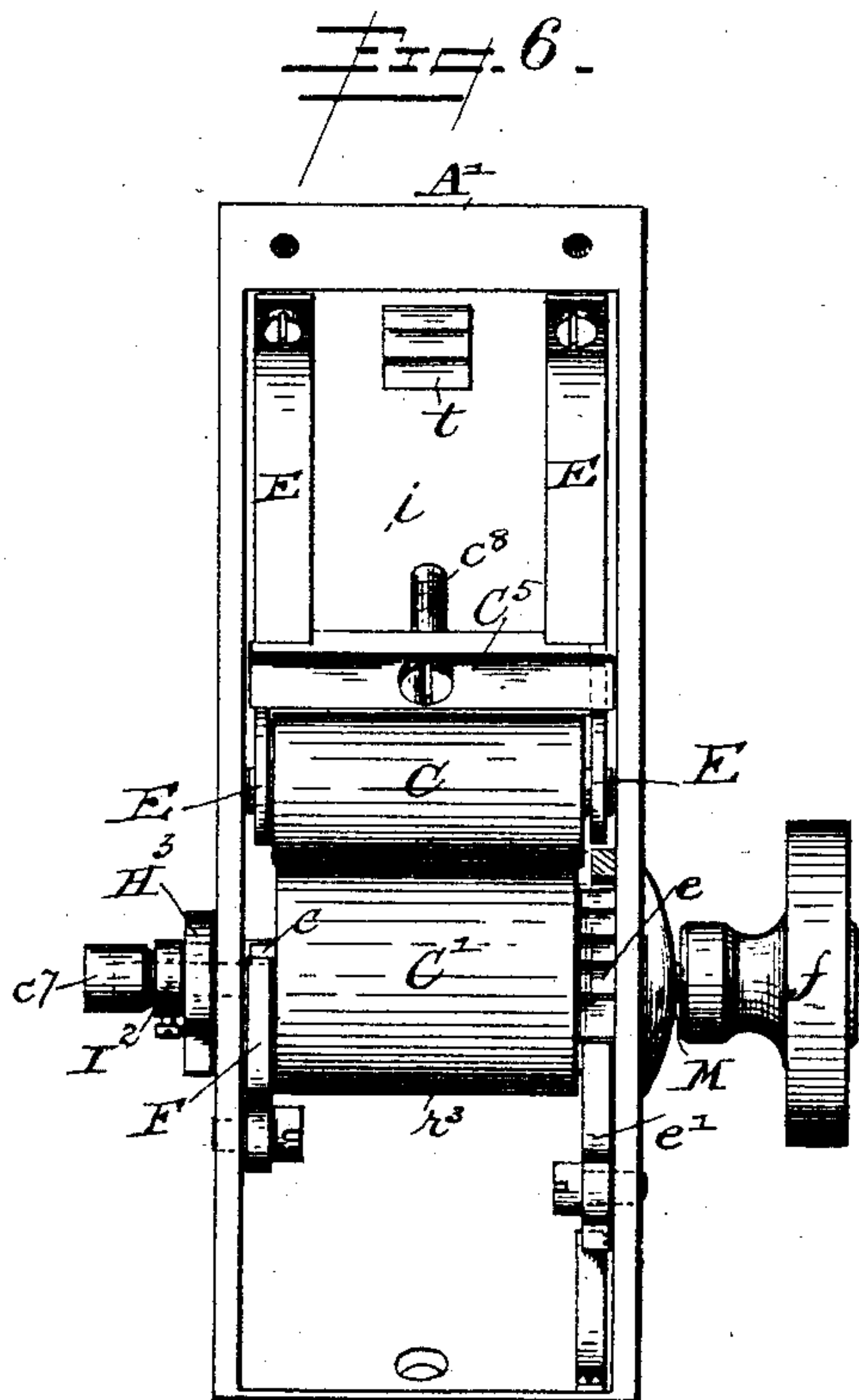
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3 Sheets—Sheet 3.

M. FORTUNO.  
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# UNITED STATES PATENT OFFICE.

MANUEL FORTUNO, OF MEXICO, MEXICO.

## FARE-REGISTERING DEVICE.

SPECIFICATION forming part of Letters Patent No. 471,540, dated March 29, 1892.

Application filed July 16, 1891. Serial No. 399,734. (No model.)

### *To all whom it may concern:*

Be it known that I, MANUEL FORTUNO, a citizen of the Republic of Mexico, residing at the city of Mexico, Republic of Mexico, have invented certain new and useful Improvements in Fare-Registering Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a combined ticket slip and register for use particularly in street-railway cars, although it is adapted for service wherever a system of tickets for analogous purposes is employed. It serves as a check against the repeated use of the same car-ticket, so undesirable for reasons patent to the public. It provides a combination of a ticket ribbon or slip and register to avoid the practice of fraud in the sale of tickets and for certain other advantages that will be described hereinafter.

My invention consists in certain improvements in a machine which forms the subject of my patent, No. 457,264, of August 4, 1891, and which machine is adapted to permit the feeding or reeling off a length of ribbon or slip previously printed upon to represent tickets of equal length and to provide for the simultaneous registration of such lengths of ribbon or slip so reeled off and finally severed or cut off.

In order to fully illustrate and describe my present improvement, the parts constituting my said patented machine are also herein shown and described.

In the accompanying drawings, which illustrate my invention, Figure 1 is a plan, the apparatus being held edgewise, similarly viewed. Fig. 2 is a side view showing the closure or chamber containing the alarm and registering mechanism in section; Fig. 2½, a section on line 2½ 2½ of Fig. 2, showing the spring hinge and catch of the closures A A²; Fig. 3, a horizontal section showing the internal pinion mechanism of the register, the gong or bell with hammer, the means for actuating the latter being exposed to view, the spring retaining-pawls of Fig. 2 being omitted. Figs. 4 and 5 are longitudinal sectional views on line 4 5 of Fig. 1, showing the device, locking in opposite directions; Fig. 6,

an open edge view in elevation of a chamber containing the rolls for feeding the ticket-slip out of the machine; Fig. 7, an outside view of an expanding ticket-cylinder; Fig. 8, a section on line 8 8 of Fig. 7; Fig. 9, a transverse section on line 9 9 of Fig. 7; Fig. 10, an inside end view of the head of same cylinder; Fig. 11, an end view of one of a pair of cones; Fig. 12, a detail of pawl and lever attachment for holding and releasing a feeding-roll. Fig. 13 is an end view of the steel expanding strip or tube.

Before describing the particular improvements constituting my present invention a description of what I employ in common therewith, and which is set forth in my patent, No. 457,264, will be briefly given.

A is a suitable casing, within which at about the center is a spool or reel B, held upon a shaft or axis *a*, one end of which extends through one side of casing A and is adapted to be controlled by a combination-lock mechanism *b*, inclosed by a cap *b'*, held upon the said casing or closure.

In an annex A' of the casing or closure A are two feeding cylinders or rolls C C', mounted on shafts which bear in the sides of the casing. The shaft M of the main cylinder C', which is the larger one, has secured on one end outside of the closure or annex A' a button or thumb-nut *f*, adapted to be actuated by the fingers for turning said cylinder in feeding forward or reeling off the ticket ribbon or slip D. The circumference of this cylinder C' is exactly equal to the length of a ticket previously printed or stamped on the ribbon or slip of material D, wound or reeled on the hub of spool or reel B. The other or smaller roll or cylinder C is held firmly in contact with the aforesaid cylinder or roll C' by means of stout springs E, which carry the cylinder C at their inner ends. Thus the ticket ribbon or slip D, which is passed on its way out through a slit in the converging or tapering end of the annex A', is firmly held in place between the rolls C C'.

C⁵ is a cross-piece bearing on the springs E, having a set-screw *c*⁸ passing through it, by means of which the tension of the spring is regulated.

F is a locking cam-lever pivoted in the annex A' and having noses to engage a stud or projec-



tion  $c$  on one end of the cylinder or roll  $C'$  and a handle  $S'$ , projecting through a slot  $d$  in the lower side of said annex, for convenient manipulation. At the opposite end of the roll or cylinder  $C'$  is a ratchet  $e$ , engaged by a spring-pressed pawl  $e'$ , secured to the casing, to prevent reverse movement of said roll or cylinder.

In a third closure or chamber  $A^2$  is arranged the gong or bell  $G$  or other sounder, secured to the side of the casing  $A$ , the gong-hammer  $G'$ , suitably pivoted to the side of the casing  $A$ , and a series of pointed tooth-pinions  $H H' H^2$  and pawls  $I I' I^2$ , the latter one carried on one end of a shaft  $W^4$ , which is hereinafter described.

On the hub  $W^3$  of this shaft is secured a mutilated pinion  $H^3$ , adapted to engage or actuate the gong-hammer  $G'$  for sounding the gong as the ticket slip or ribbon is reeled off and for calling attention to that fact, as usually practiced. The closure  $A^2$  has a peep-hole  $A^3$ , with a glass cover  $a^3$ , to permit observation of the registering mechanism. The pinions  $H H' H^2$  are held against reverse movement by means of the spring-pressed retaining-pawls  $g g'$  and the gravity-pawl  $g^2$ , respectively. As described in said patent, the ticket slip or ribbon has printed upon it at certain intervals along its length the word "Free," furnishing a free ride or admission to the person who should happen in actuating the device to secure possession of such ticket or portion of said slip or ribbon and for other purposes, as set forth in former patent.

The improvements which constitute my present invention relate to the construction of the main feeding-roll for feeding the ticket-strip forward, a guide for said strip, and to the means for securing together and giving access to different chambers, which will now be described.

The construction of the main feed-cylinder  $C'$  is such as to permit the adjustment of its circumference to agree accurately with the length of ticket in use, so that when the roll shall have been rotated one complete rotation it will feed out a full ticket. This effect is obtained in the following manner: The body of the cylinder is made of two circular end plates  $W W'$ , united by longitudinal rods  $W^2$ , which rods carry a central disk  $V$ . With the disk  $W$  is cast a shaft or axis  $M$ , actuated by the thumb-nut  $f$ . On the circular plate or disk  $W'$ , forming the opposite end of the cylinder  $C'$ , is cast a hub  $W^3$ , having a short shaft  $W^4$  extending therefrom. A rod  $r$  is passed centrally through both end plates  $W W'$  and the central disk  $V$ , through the shaft  $M$  at one end, and into the hub  $W^3$  at the other end, turns in said bearings, and is screw-threaded to the right and left of the central disk  $V$ . Two segments of cones  $r'$  surround the screw-rod  $r$ , and through them pass the longitudinal rods  $W^2$ , on which the cones are moved to and fro by the screw-rod. The edges of these cones bear against inner opposite in-

clined faces of longitudinal segmental bars or sections  $X$ , and which bars are provided with a central and end grooves. The central groove fits on the central disk  $V$ , and the end grooves engage with pins  $V'$  on the inner faces of the end disks  $W W'$ . By turning the screw-rod  $r$  at its head by means of a screw-driver or other suitable means these two segments of cones are made to approach toward or recede from each other, raising or lowering the sections  $X$ , thus enlarging or reducing the size of the cylinder  $C'$ , according to the length of the ticket, the circumference of this cylinder being exactly equal to the length of a ticket. The cylinder  $C'$  is inclosed in a thin steel expanding-strip  $r^2$  or other suitable material. If a steel strip is used, the ends are not united, so as to admit of expansion to hold the sections in place, and on the tube  $r^2$  may be placed or wrapped a roughened rubber tube  $r^3$  to afford a suitable nipping-surface for the passage of the ticket ribbon or slip  $D$ .

A portion of the top surface or side of the annex  $A'$  is hinged at  $i'$  near the converging or tapering portion to form a lid  $i$ , and the opposite end of this part or lid is locked to the case  $A$  by a toothed catch  $t$ , which engages a spring-catch  $t'$  within the casing or closure  $A$ , and which catch is operated by a button thereon. Thus by opening this part and raising it the cylinder  $C$  may be withdrawn from contact with cylinder  $C'$  and easy access to and adjustment of the ticket ribbon or slip  $D$  to a proper and correct position be had.

The feed-roll  $C$  is carried in the inner ends of spring-bars  $E$ , and the opposite or outer ends of said bars are riveted to the lid  $i$ .

$O$  is a guide fastened upon the outer surface of the closure or casing  $A$  at the slit  $O'$ , through which the ticket-ribbon passes on its way to the rolls or cylinders  $C C'$  and which serves to keep said ribbon straight and in position. As in the said patent, when the pawl  $I^2$ , carried by the shaft  $W^4$ , makes with the latter a complete rotation as one ticket is reeled off said pawl will strike a tooth of the pinion  $H^2$ , effecting a movement of the indexed disk  $K$ , carried on shaft of pinion  $H^2$ , and effecting a registration of a unit on said disk. When the pinion  $H^2$  has made one revolution or registered ten, its pawl  $I'$  will engage a tooth of the pinion  $H'$ , and thus give the latter a fractional turn with its pawl  $I$  and make a corresponding registration through its index and dial  $K'$ , registering ten. A like action will ensue between the pawl  $I$  and the teeth of the pinion  $H$ , the movement to the extent of one tooth of the latter indicating the registration of one hundred on the hundreds-dial  $K^2$ , and so on.

The third closure or chamber  $A^2$ , covering the gong and registering mechanism, is attached to the back of the closure or casing  $A$  by means of a suitable hinge  $S$  and has a spring-catch  $s^3$ , extending through an opening  $s^4$  into the closure or casing  $A$ . On pressing against and releasing the spring-catch  $s^3$  the



closure A<sup>2</sup> will spring open by action of a spring-bar S<sup>2</sup>, pressing on the hinge S. By thus opening the chamber A<sup>2</sup> the registering and gong mechanism and the cap c<sup>7</sup> of screw-rod r are exposed for convenient manipulation, when necessary, and each of the dials of the register may be conveniently revolved and properly set by hand and without moving the same by the thumb-nut f whenever any remaining part of a ticket-ribbon is to be removed or replaced by another.

It will be seen by reference to Fig. 12 that the cylinder or roll C' is stopped at the close of each revolution by reason of the stud c thereon coming in contact with the projection a<sup>4</sup> on the lever-pawl F, and thus the movement of the said roll or cylinder and the feeding or reeling off of the ticket strip or ribbon carried thereon is arrested. The stud on the lever-pawl is thrown out of engagement with the projection on the roll C' by moving the said lever-pawl by hand in the direction of the arrow 2 and to the position shown in dotted lines. The stud c, riding on the curved portion of the pawl F, when it reaches the point as shown in dotted lines and is just leaving the end of the pawl automatically returns the said pawl to its normal position, as shown in full lines, ready to again engage the projection c on roll C'. The lever-pawl F after this, in order to permit the cylinder or roll C' to be again turned or rotated, is pressed by the handle S', so as to disengage it from the stud c, as indicated in dotted lines in the same figure.

Having thus described my invention, what I claim is—

1. The combined ticket-strip and registering apparatus comprising three closures A, A', and A<sup>2</sup>, the closure A containing a ticket-

strip reel, the closure A' ticket-feed rolls, and the closure A<sup>2</sup> a registering and gong mechanism, a spring-hinge connecting the closures A A<sup>2</sup>, the closure A<sup>2</sup> having a spring-catch extending into closure A, the chamber A' provided with a hinged lid and a catch extending into chamber A, a spring-bar in closure A to engage the catch on said lid, whereby the closures A' and A<sup>2</sup> are unlocked from within closure A, substantially as described.

2. In a ticket-strip and registering apparatus, the feed-cylinder C', consisting of circular end plates W W' and longitudinal rods uniting said plates, in combination with a central screw-rod, cones on said screw-rod, longitudinal sections X, having inclined faces to engage with said cones, and a central disk V to engage and hold in place said sections, screw-rod, and longitudinal rods, substantially as described.

3. A ticket-registering apparatus comprising the inclosure A', hinged lid i, and the spring-arms E, secured to the said lid, the cylinder C, carried by said arms, the bar C<sup>5</sup> and set-screw for regulating the tension of the spring-arms, the roller C', having end plates W W', the plate W provided with a shaft, on which is secured the thumb-nut f for turning the roller C', and the other end plate W' provided with a hub W<sup>3</sup>, shaft W<sup>4</sup>, and a mutilated pinion H<sup>3</sup> on said hub for operating the gong-hammer G', and a pawl on the said shaft for starting the registering mechanism, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

MANUEL FORTUNO.

Witnesses:

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F. G. GODDARD.