

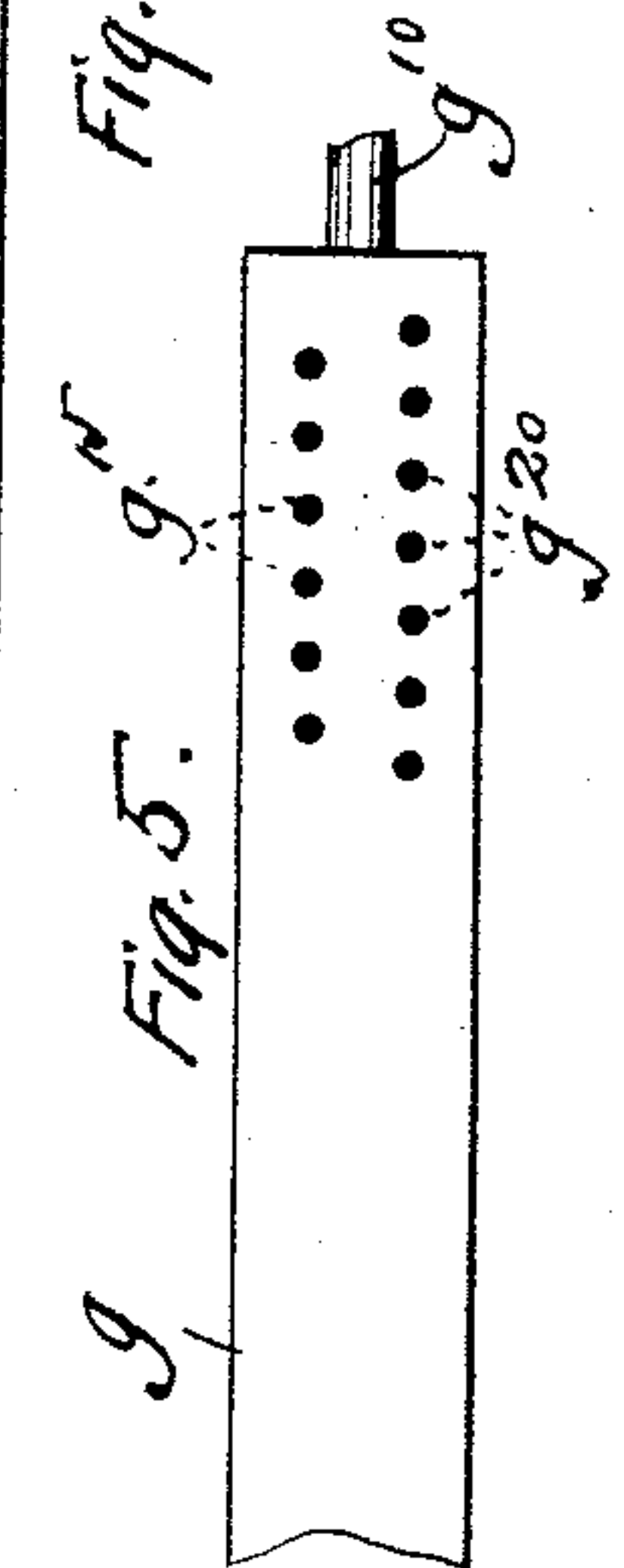
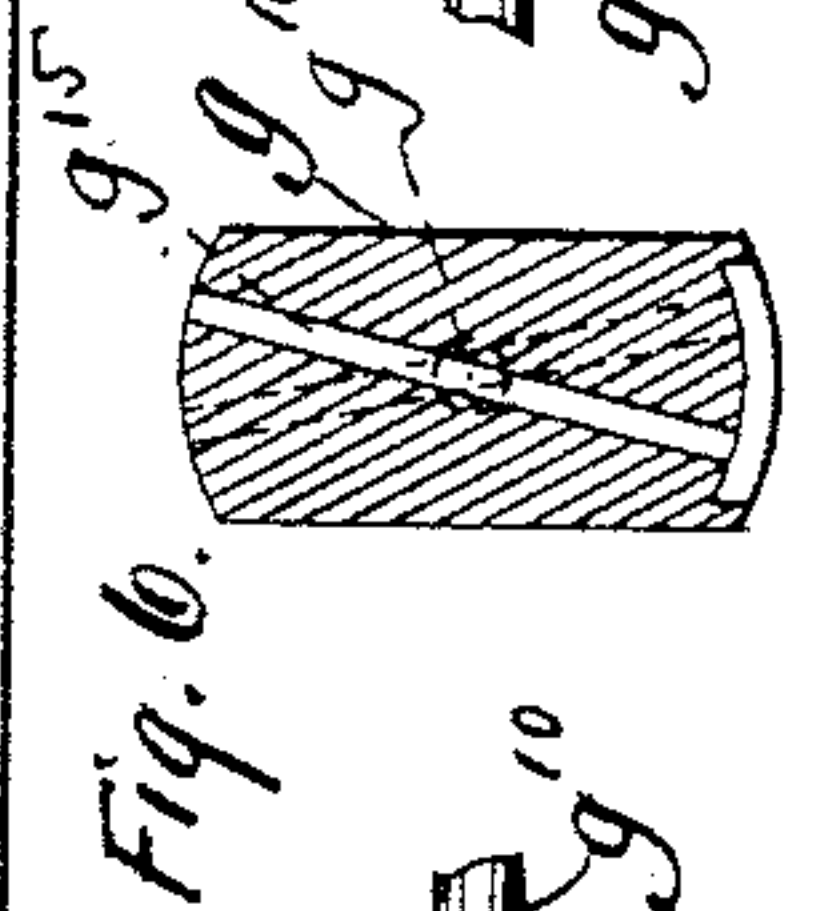
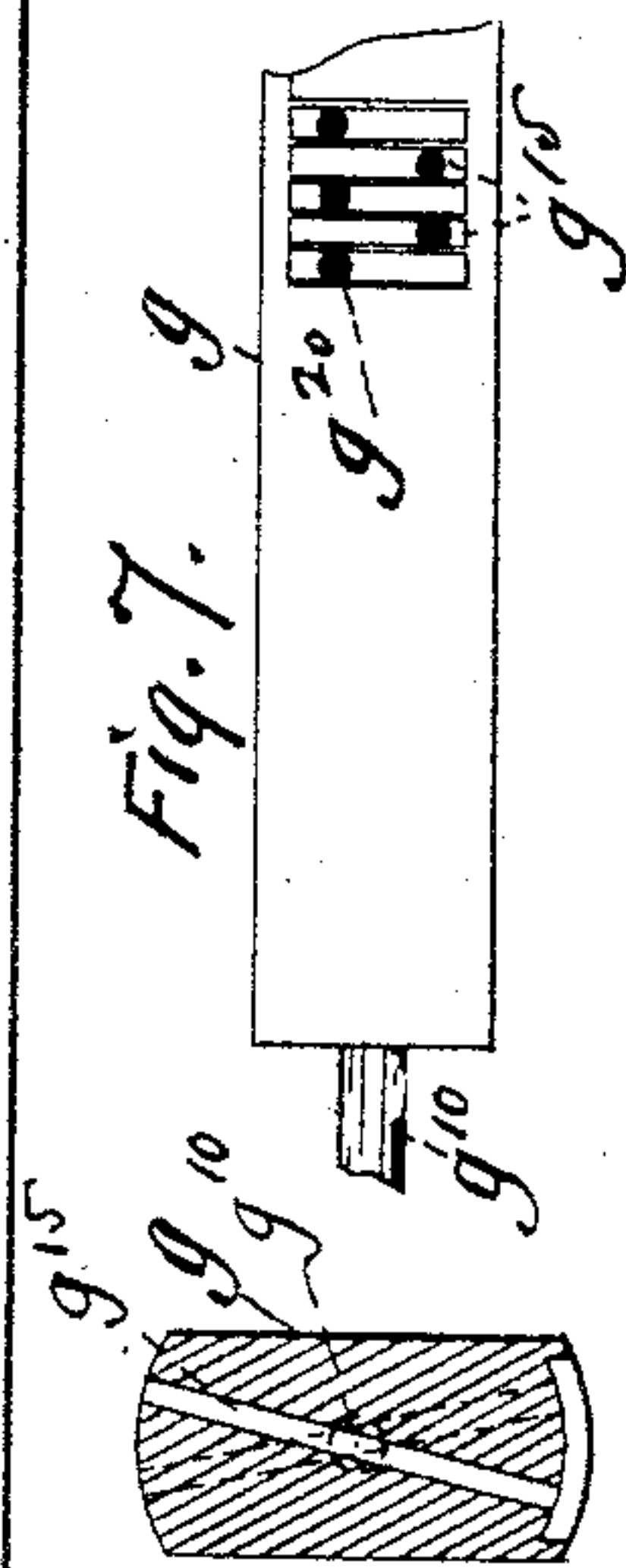
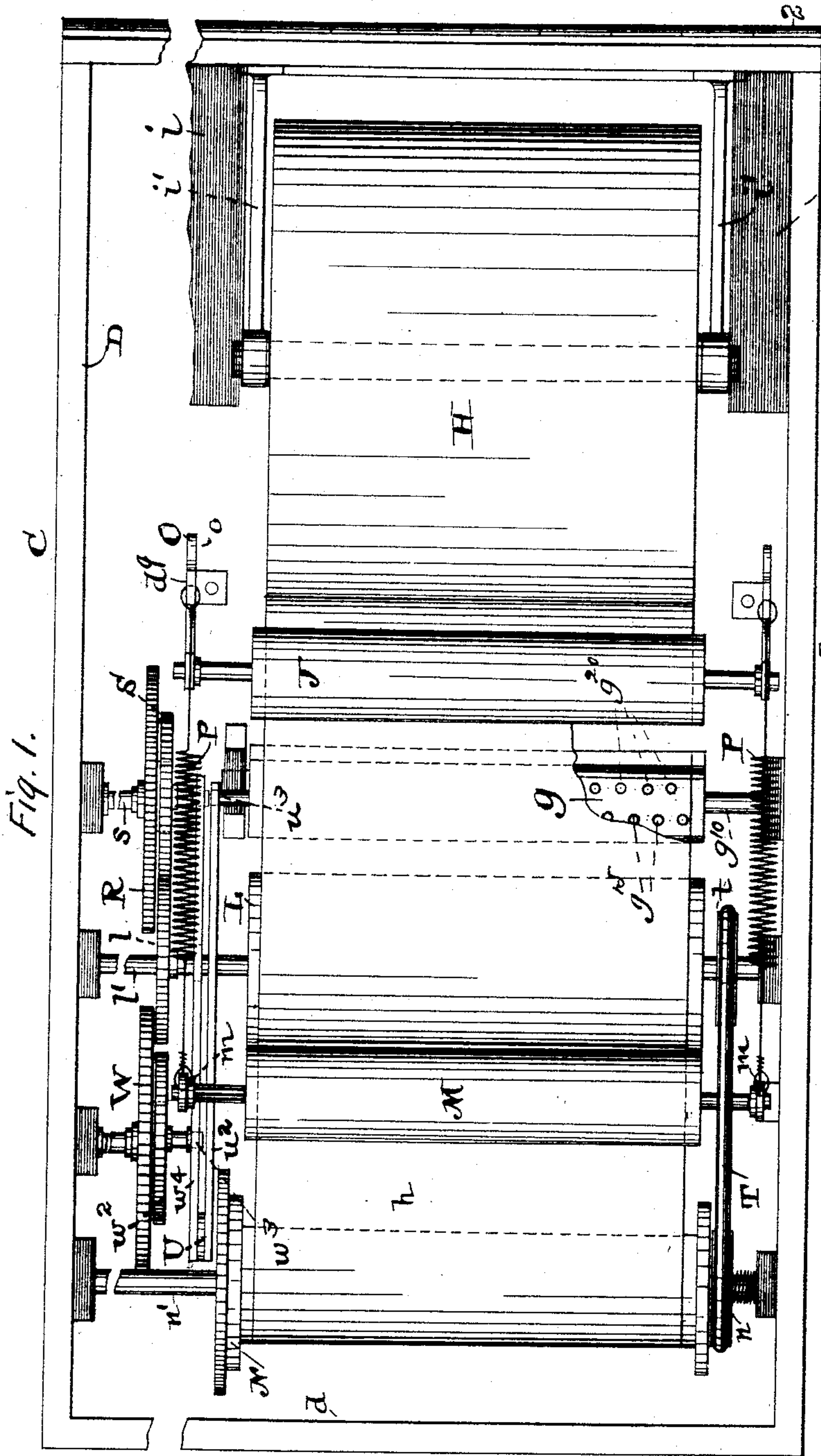
(No Model.)

4 Sheets—Sheet 1.

O. E. MICHAUD.
RAILWAY MILEAGE RECORDER.

No. 438,933.

Patented Oct. 21, 1890.



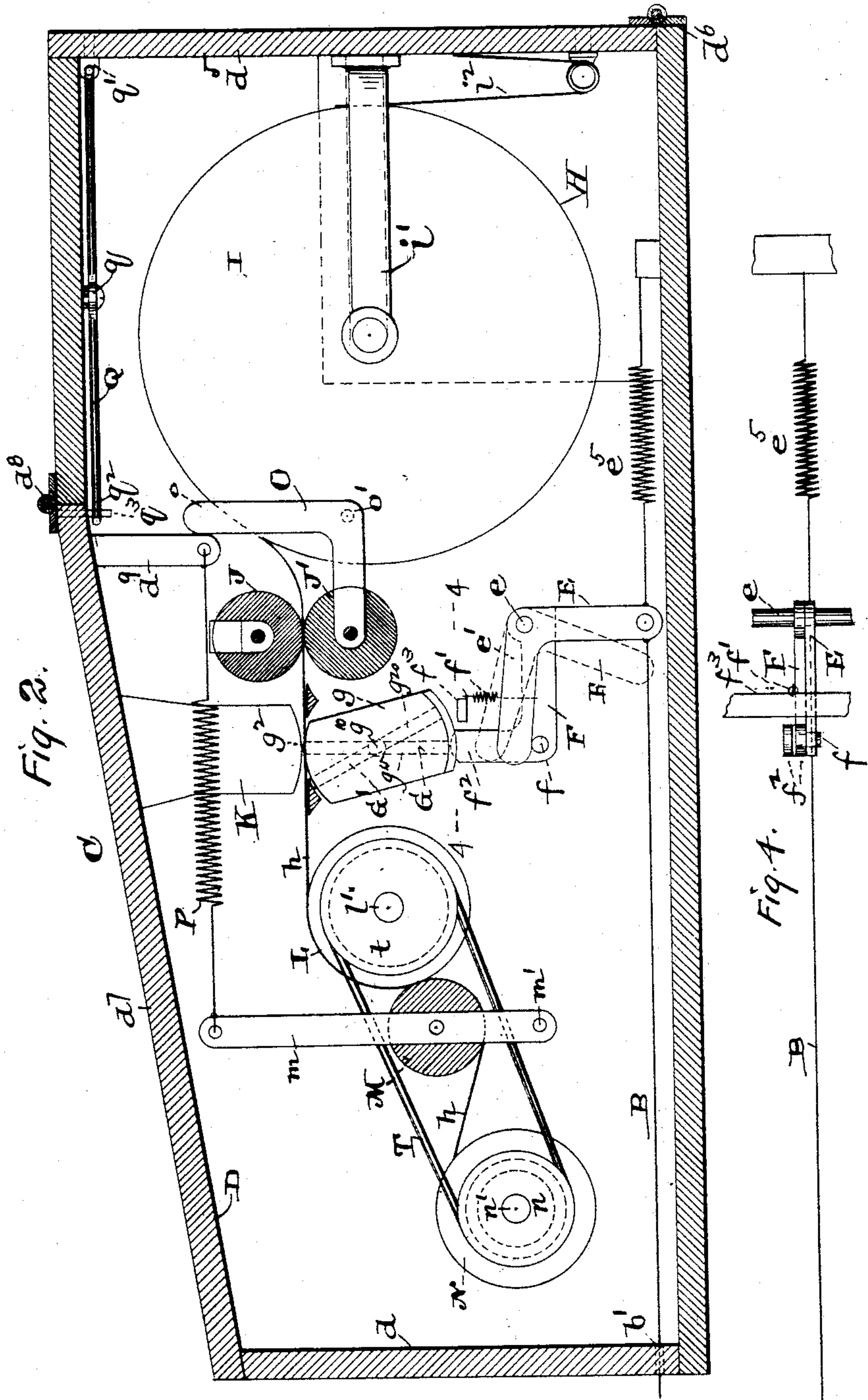
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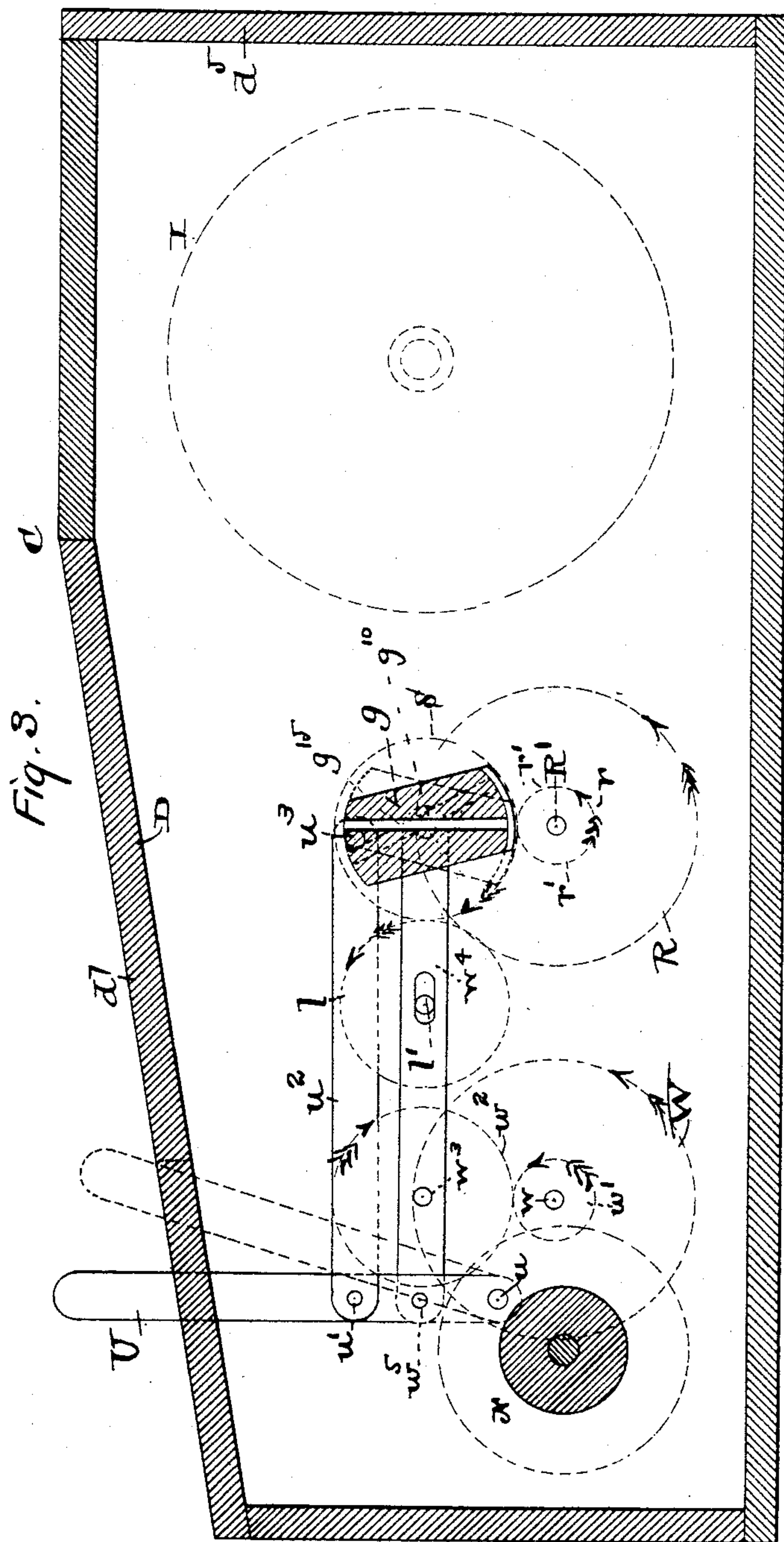
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4 Sheets—Sheet 3.

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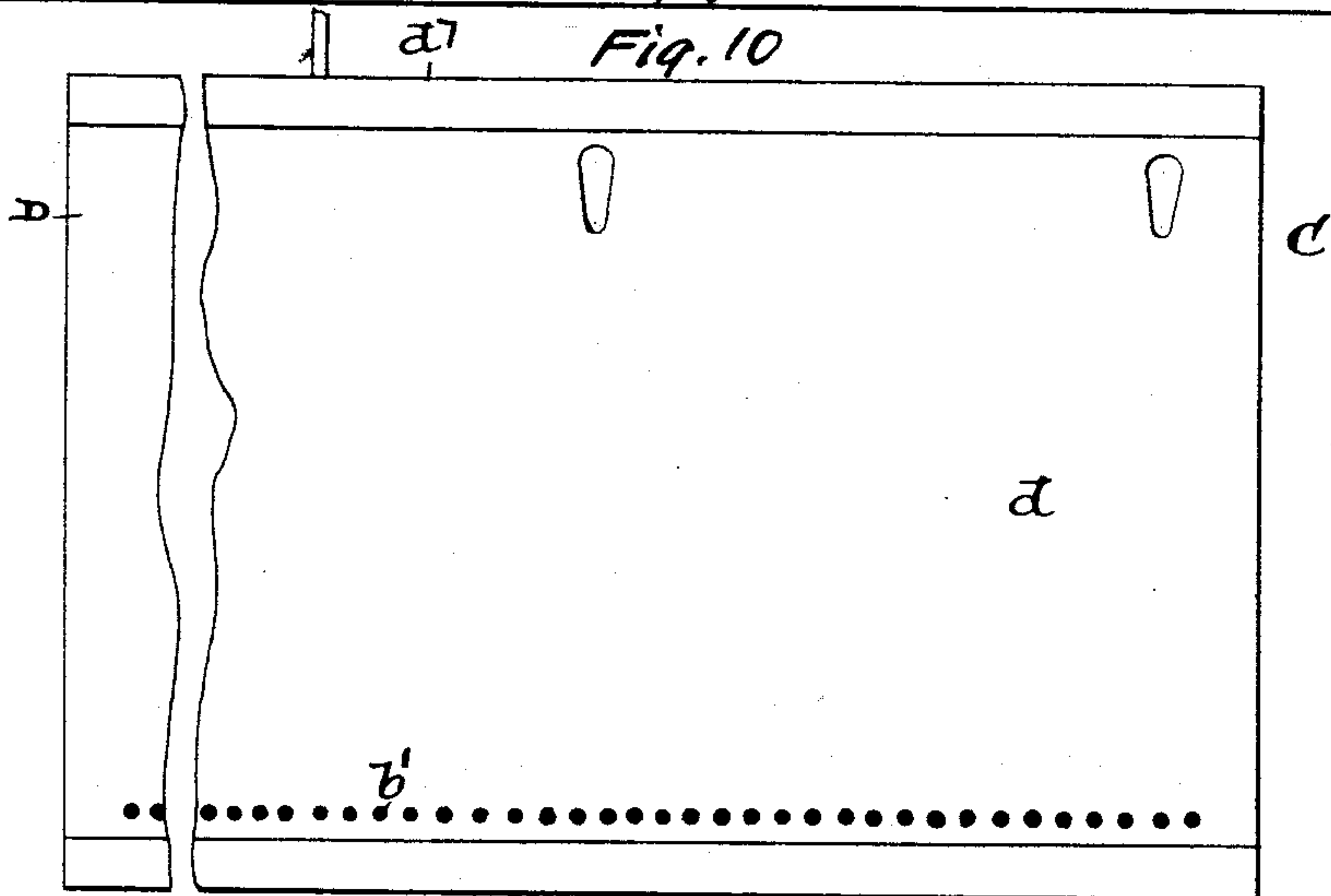
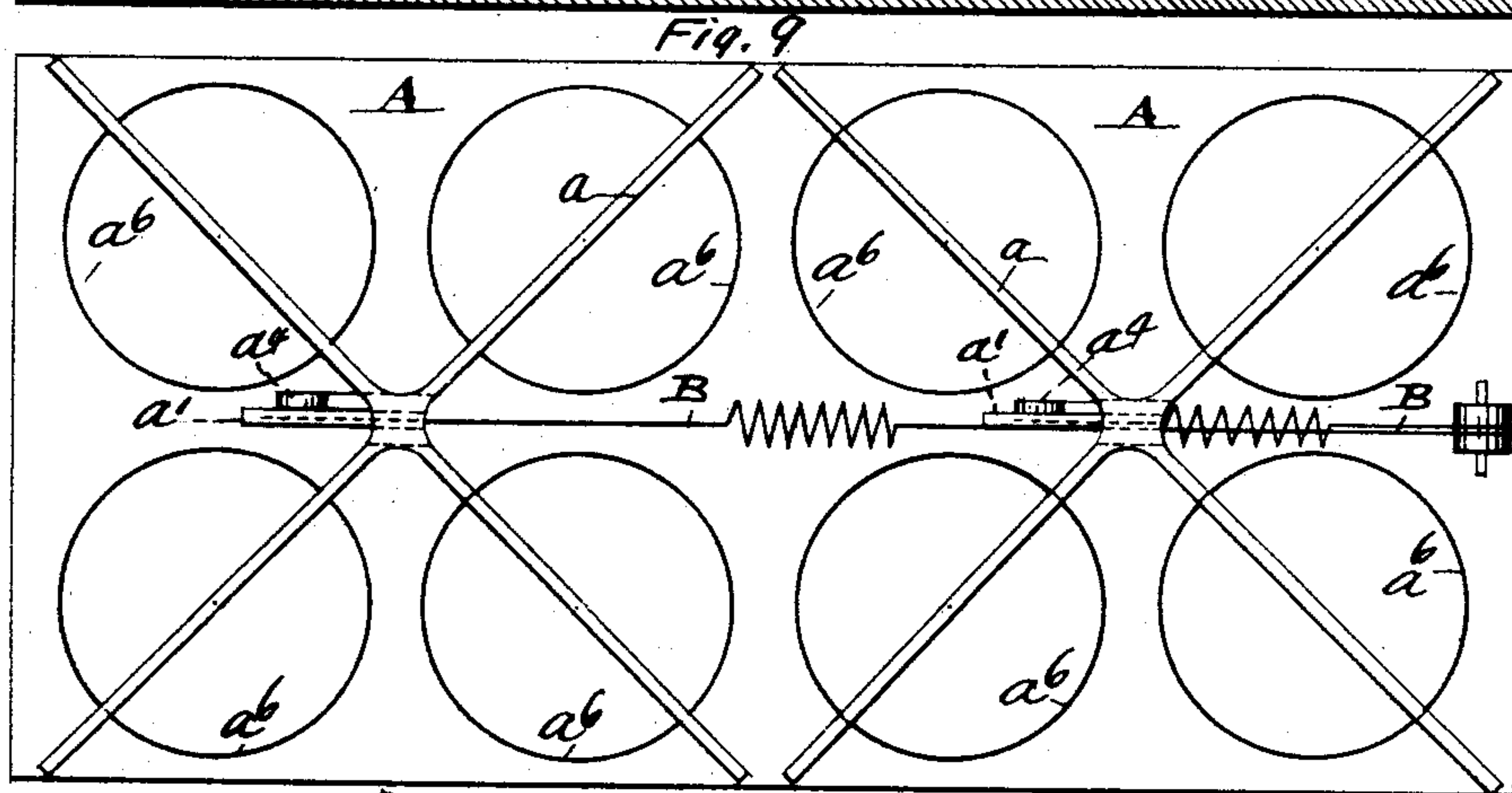
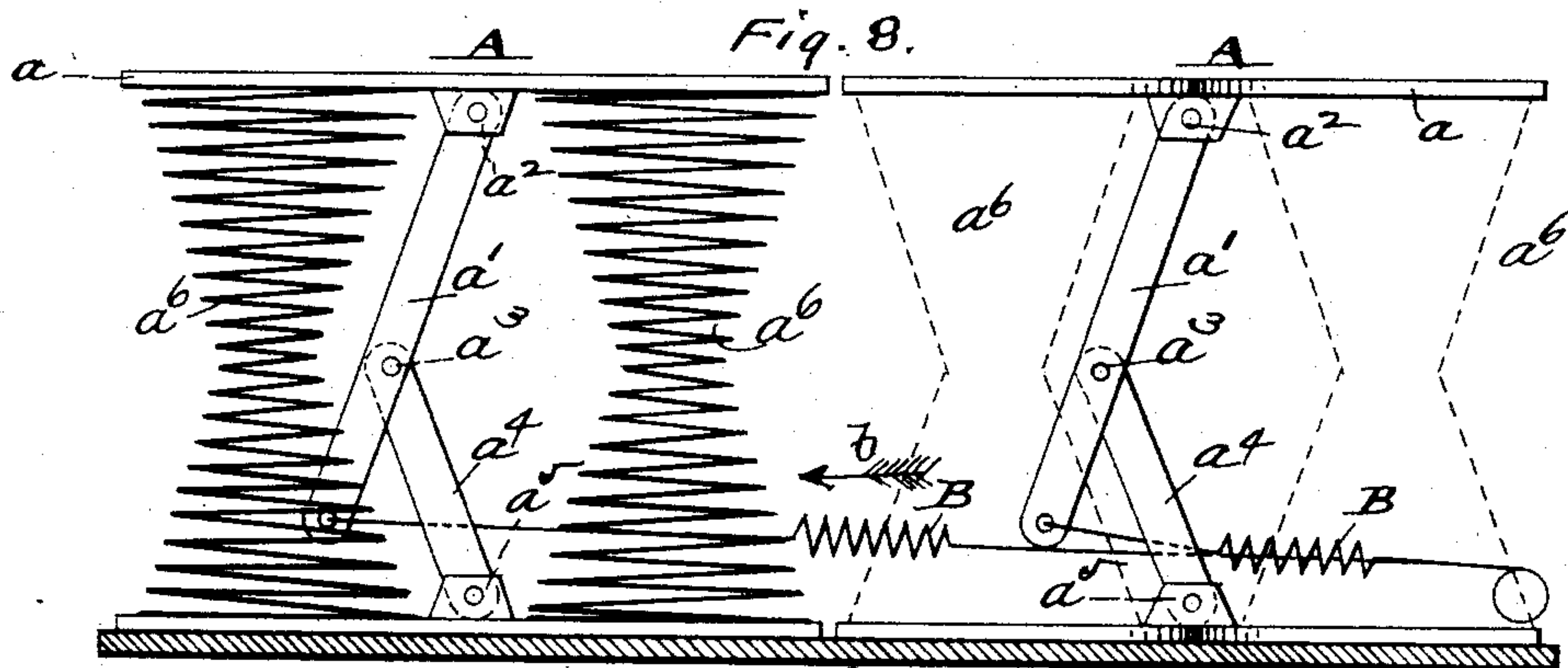
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UNITED STATES PATENT OFFICE.

ONESIME E. MICHAUD, OF ST. LOUIS, MISSOURI.

RAILWAY MILEAGE-RECORDER.

SPECIFICATION forming part of Letters Patent No. 438,933, dated October 21, 1890.

Application filed December 23, 1889. Serial No. 334,617. (No model.)

To all whom it may concern:

Be it known that I, ONESIME E. MICHAUD, a citizen of the United States, residing at St. Louis, Missouri, have made a new and useful Improvement in Railway Mileage-Recorders, of which the following is a full, clear, and exact description.

This improvement is designed to be used upon passenger railway-cars. By means of it a record of the occupancy of the car-seats is readily obtained.

It consists, substantially, in the means hereinafter set forth and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a plan of the recorder, its cover being removed; Fig. 2, a longitudinal section of the recorder on line 2 2, Fig. 1; Fig. 3, a longitudinal section employed to illustrate the operation of the pencil-holder and showing only the immediate parts, and the gearing being indicated by the broken circular lines; Fig. 4, a plan on the line 4 4 of Fig. 2; Figs. 5, 6, and 7, details, being, respectively, a top view, a vertical cross-section, and a bottom view of the pencil-holder; Fig. 8, a vertical section of one of the car-seats; Fig. 9, a plan of the car-seat, and Fig. 10 a view of the front end of the recorder.

The same letters of reference denote the same parts in all the figures.

To facilitate an understanding of the improvement, its construction and operation will be described together.

A, Figs. 8 and 9, represents one of the car-seats of a car equipped with the improvement. Its seat-frame a by being spring-supported, substantially as shown, is vertically movable. When the car-seat is occupied, the seat-frame a is depressed, causing a lever a' , which at its upper end is jointed to a bearing a^2 , connected with the seat-frame, and between its end is jointed at a^3 to an arm a^4 , in turn jointed to a fixed bearing a^5 to draw a wire B in the direction of the arrow b . Each car-seat has a similar wire similarly connected and operated. When the occupancy of the seat ceases, the springs a^6 act to lift the frame a to its original level, and the lever a' thereby to be moved back again into its position, as shown in Fig. 1; but as long as the seat is

used the wire B remains drawn in the direction described.

The wires B lead from the car-seats, respectively, to the recorder-case C, Figs. 1, 2, 3, 55 and 10. The recorder-case may be located in any part of the car suitable for carrying out the improvement. The car is not shown, its nature being well understood. The wires B enter the recorder-case through the openings b' in the end d of the recorder-case and are therein attached, respectively, to a series of bell-crank levers E, Figs. 2 and 4. The series is arranged transversely in the recorder, and the levers are pivoted on a bearing e . But one of these levers is shown, the others being similar. When a wire B is drawn, as described, its lever E is turned on its pivot into its position. (Indicated by the broken lines, Fig. 2.) A series of bent levers, or "thrust-bars" F, as they may be termed, are also pivoted on the bearing e . The thrust-bars and the levers E are alternately arranged upon the bearing e , there being a thrust-bar for each lever. One of the thrust-bars is shown in Figs. 2 and 4. The others are similar. Each thrust-bar is provided with a projection f , above which the arm e' of its lever E comes. As long as the lever E remains in its position (shown in the full lines, Fig. 2) the thrust-bar F belonging to that lever E cannot and does not turn on the bearing e ; but when the car-seat is occupied and the wire B belonging to that seat draws the lever E into its position (indicated by the broken lines, Fig. 2) the lever-arm e' is thereby raised from off the projection f and the thrust-bar F is free to be turned upon the bearing e . A spring f' then acts to raise the free end of the thrust-bar and to cause the upright portion f^2 of the thrust-bar to be moved upward to act upon a pencil G in the pencil-holder g , Figs. 1, 2, 3, 5, 6, and 7. Each thrust-bar is similarly adapted to be raised by a spring. The springs at the upper end thereof are attached to a suitable fixture f^3 and at the lower end thereof to the thrust-bars, respectively.

The pencil-holder is essentially a frame adapted to hold two series of pencils G and G', either of which series by turning the frame on its bearings can be brought into position to act upon the paper H. In Figs. 2 and 3

the frame is adjusted to bring the series G into position to act, and the series G' is not in position to act. By rotating the frame on its center the series G is displaced and the series G' adjusted to act.

The paper H is originally wound upon the spool I, and the machine is threaded by carrying the end *h* between the rolls J J', thence between the pencil-holder and an upper bearing K, thence over a roll L and between it and a pulley M, and thence to a spool N, upon which it is wound. The motion of one of the car-axles (not shown) is utilized to effect the unwinding of the spool I and the winding of the spool N, and the paper thereby drawn between the pencil-holder and the bearing above it. The length of the paper bears a fixed relation to the length of the trip the car makes, and in width the paper is wide enough to provide a space for each car-seat, and the leading feature of the improvement is the means whereby the occupancy of a car-seat is made known by a line traced upon the described paper along that space thereon belonging to that seat.

Suppose the car to be in motion and a car-seat therein occupied. The paper is moving past the pencil-holder, and the spring *f'* is acting to lift the portion *f*² of the thrust-bar belonging to that car-seat. The upper end of the portion *f*² encounters the pencil G belonging to that thrust-bar and thrusts and upholds it to cause its point *g*² to bear against the paper. The result is the tracing of a line upon the paper, and the line continues to be so traced as long as the car-seat is occupied, and when the occupancy of the car-seat ceases the pencil drops and the line ends upon the paper. By this means the occupancy of the car-seat is recorded upon the paper. The bearing K supplies a support to the paper while it is being written upon. A similar record is made of the occupancy of each of the car-seats. The case C has a door *d*⁵ hinged at *d*⁶, by opening which access to the spools I is provided to enable it to be slipped into or withdrawn from its place upon the slides *i i*, Fig. 1. The door *d*⁵ when closed comes against an arm *i'*, attached to the spool, and thereby braces the spool I in place. The tension-spring *i*² regulates the unwinding of the paper. The recorder-case has a cover *d*⁷ hinged at *d*⁸. The cover has an arm *d*⁹, which when the cover is closed presses against the upper end *o* of a bell-crank lever O, pivoted at *o'* and sustaining the roll J'. The effect is to lift the roll J' and the paper to be held properly between the rolls J J'. The arm *d*⁹ also by means of the springs P exerts a tension upon the arms *m* which sustain the pulley M. The arms *m* are pivoted at *m'*, and when the cover is closed the pulley M acts to bind the paper against the roll L, and the paper is thereby drawn along. Q, Fig. 2, represents a hook pivoted at *q* and engaging in an eye *q'* in the case-door *d*⁵. The opposite end *q*² of the hook when the cover *d*⁷ is closed is

confined by a pin *q*³ upon the cover. By locking the cover, which can be done by means of a hasp (not shown) or in any ordinary way, access is barred to the interior of the recorder-case, and by opening the cover the end *h* of the paper is no longer held tightly between the various described rolls, and it can be unthreaded therefrom.

Motion can be transmitted in various ways from the car-axle to operate the paper, as described, and as this has no special connection with the principle of the improvement it is not exhibited. Suppose the motion has been by any suitable means transmitted through the gear R to the shaft R', Fig. 3, to cause that shaft to rotate in the direction of the arrow *r*. The shaft has a gear *r'*, which engages with a gear S upon the shaft *s*. This gear S engages with a gear *l* upon the shaft *l'*, which carries the roll L. This last-named roll, in combination with the pulley M, becomes the means for drawing the paper past the pencil-holder. A belt T, leading from a pulley *t* upon the shaft *l'* to a pulley *n* upon the shaft *n'* of the spool N, drives that spool, and thereby effects the winding of the paper thereon.

There are, preferably, two series G and G' of pencils—one to be used when the car is traveling in one direction and the other when the car is traveling in the opposite direction. Accordingly the pencil-holder has to be adjusted from time to time to bring the other series of pencils into position. This is effected, preferably, by the lever U, pivoted at *u* and having jointed to it at *u'* a rod *w*², which in turn connects with the pencil-holder *g* at *w*³. By moving the lever U the parts can be shifted, as indicated by the two positions shown, respectively, in the full and the broken lines, Fig. 3.

W represents another gear receiving motion from the car-axle. It is fastened to the shaft *w*, which also carries the gear *w'*. This last-named gear is in engagement with a gear *w*², which is journaled at *w*³ in an arm *w*⁴, that at *w*⁵ is jointed to the lever U. The arm extends to the shaft *s*, which carries the gear S. When the lever U and pencil-holder are shifted into the position of the broken lines, the gear S is disengaged from the gear *l*, and the gear *w*² is brought into engagement with the gear *l*, by which means the roll L is caused to rotate in the same direction irrespective of the position of the pencil-holder. This last-named part is by means of the shaft *g*¹⁰ suitably journaled, so that it can be adjusted as described. The pencils G and G' are respectively held in the perforations *g*¹⁵ *g*²⁰ and so that they cannot drop out of the holder, but so that they can be raised, as described, by the thrust-bars F, whose portions *f*² are suitably forked, as shown in Fig. 4, to enable each thrust-bar to raise its two pencils G and G'. Springs—such as *e*⁵, Figs. 2 and 4—serve to draw the levers E back again into their original position.

I claim—

1. The combination of the seat having the movable seat-frame, the springs, the lever a' , the arm a^4 , and the wire B, operated by the movement of the seat-frame and mechanism connected therewith, as described, with the recorder-case C and the pencil and connecting mechanism whereby said pencil is operated, substantially as described.
2. In a recording device as described, the combination of the wire B, actuated as described, with the levers E of the recorder and thrust-bars F, alternately arranged on the bearing e and the spring f' , each of said levers having an arm and each of said bars having a projection f , and the pencil-holder, whereby said thrust-bar is caused to act upon the pencil-holder, substantially as described.
3. In a recording device as described, the combination of the cover d' , having an arm d^9 , with the bell-crank lever O, pivoted at o' , the springs P, the pivoted arms m , acted upon by said springs and the pulley M, and the rolls J and J', between which the paper passes, whereby when the cover is closed the pulley

M acts to bind the paper H against the roll L and the paper is thereby drawn along.

4. The pencil-frame rotatable on its center and carrying the two series of pencils G and G', combined with the bearing K and the thrust-bar F, operated substantially as described.

5. In a recording device as described, the combination of the cover d' , arm d^9 , bell-crank O, and the rolls J J', whereby when the cover d' is closed the roll J' is lifted so as to hold the paper properly between the two rolls, substantially as described.

6. In a recording device as described, the combination of the cover d' , arm d^9 , springs P, arms m , pulley M, and the roll L, whereby when the cover d' is closed the pulley M acts to bind the paper against the roll L, substantially as described.

Witness my hand this 7th day of December, 1889.

ONESIME E. MICHAUD.

Witnesses:

C. D. MOODY,
C. C. LOGAN.