

(No Model.)

2 Sheets—Sheet 1.

A. TORREY
PASSENGER RECORDER.

No. 432,003.

Patented July 8, 1890.

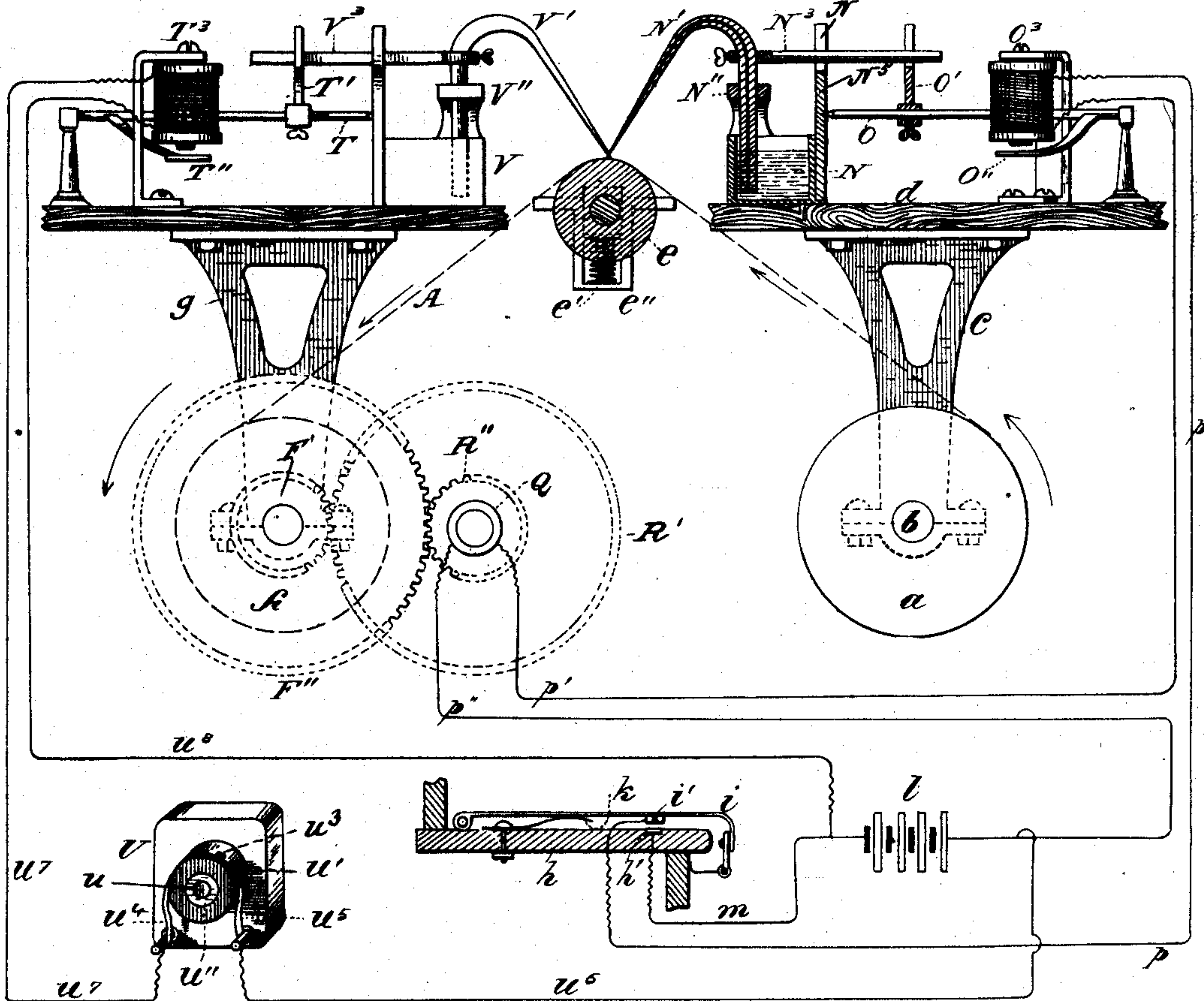


Fig. 1.

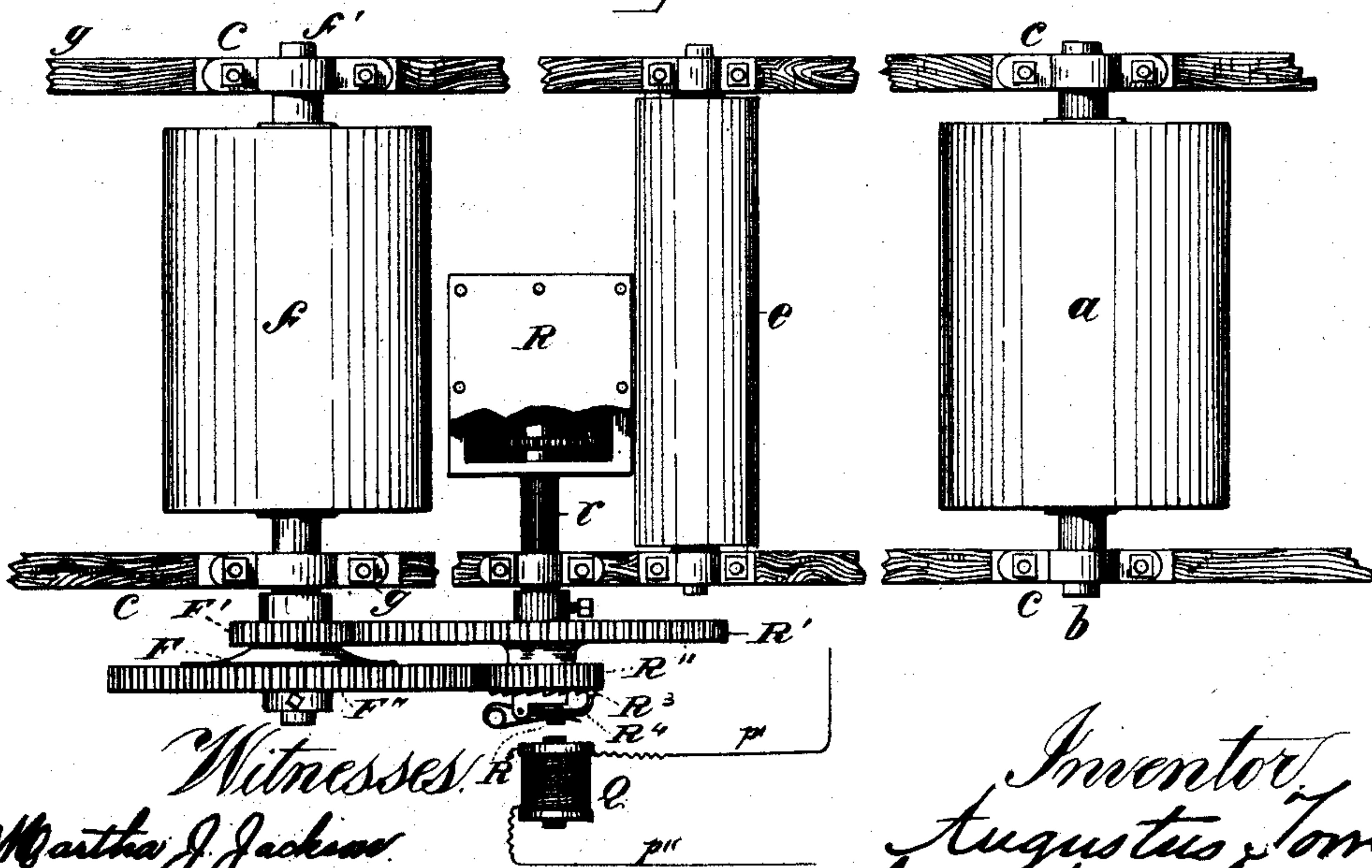


Fig. 2.

Witnesses
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Geo. W. White

Inventor
Augustus Torrey
by *Alfred Hendricks*

(No Model.)

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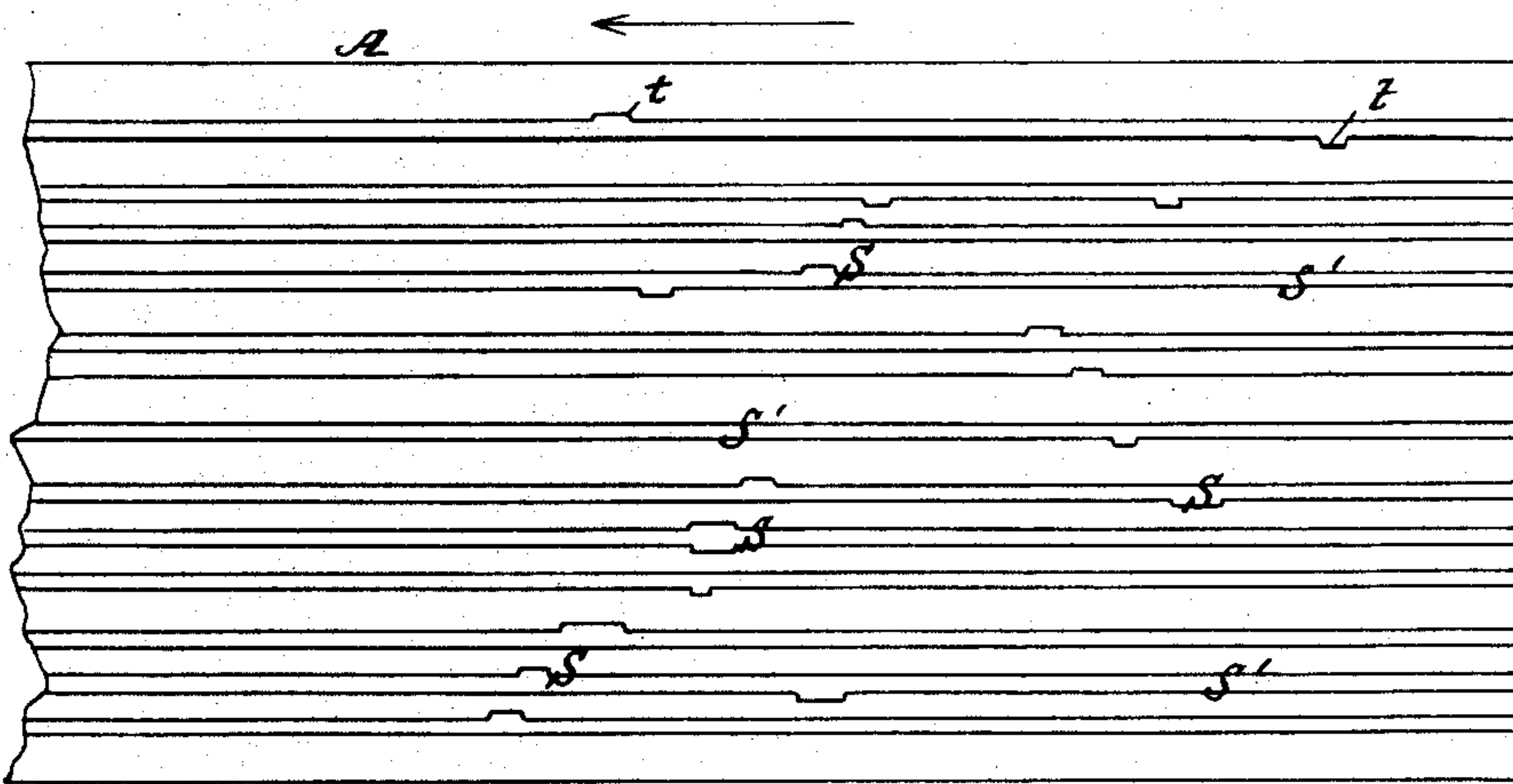
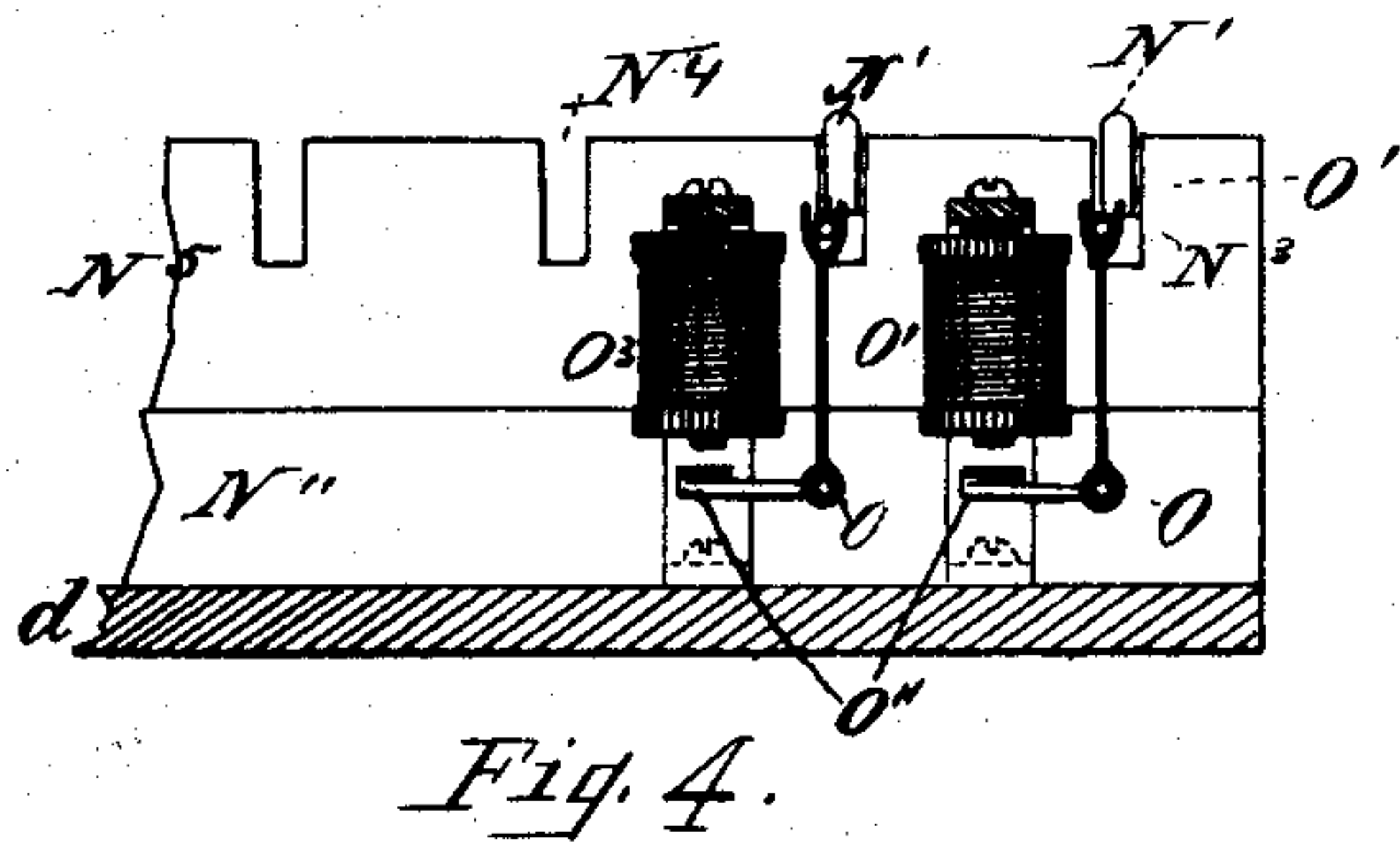
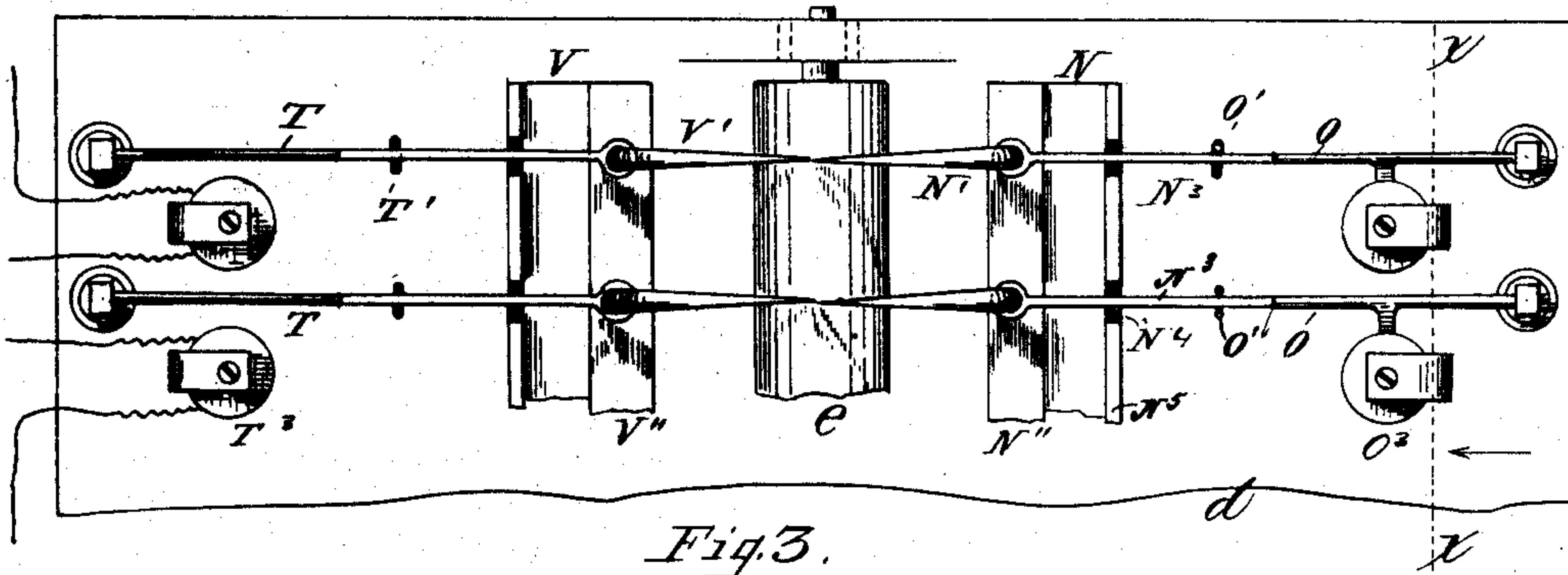


Fig. 5.

Witnesses:
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UNITED STATES PATENT OFFICE.

AUGUSTUS TORREY, OF DETROIT, ASSIGNOR OF TWO-THIRDS TO CHARLES MOORE AND DENNIS J. CASEY, BOTH OF BAY CITY, MICHIGAN.

PASSENGER-RECORDER.

SPECIFICATION forming part of Letters Patent No. 432,003, dated July 8, 1890.

Application filed August 10, 1889. Serial No. 320,371. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS TORREY, a citizen of the United States, and a resident of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Passenger-Recorders, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in passenger-recorders and similar devices for the purpose of automatically recording the number of passengers that pass in or out of railroad-cars or other public conveyances, as well as recording the time when such passenger entries and exits take place.

The invention, although particularly designed for railroad-cars, is, however, equally well adapted for steamboats, fair-grounds, or public places of amusements, or for similar purposes, where it may be desirable to automatically record the number of persons going in or out of such conveyances or public places.

The present invention is an improvement upon the patents granted for passenger-recorders to myself and Dennis J. Casey, dated April 7, 1885, No. 315,355, and September 28, 1886, No. 349,767, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a side elevation of the improved passenger-recorder, a portion of which is shown in section. Fig. 2 represents a plan view of the paper and guide rolls and accelerating mechanism for increasing the feed of the paper ribbon when the step-records take place. Fig. 3 represents a plan view of the time and step pens and electromagnets for their operation. Fig. 4 represents a cross-section on the line X X shown in Fig. 3; and Fig. 5 represents a plan view of a portion of the paper ribbon, showing the step and time records made thereon.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In my present invention I use one or more movable treadles arranged on top of one or more stationary steps, each such treadle and step being connected by means of wires to an electric battery, so as to close the circuit for

every time the movable treadle is depressed in a manner similar to what is shown and described in the patents above mentioned; and I also use a paper ribbon drawn by clock-work mechanism from a reel over a guide-roller and onto a second roller, in a manner substantially like what is shown and described in the said patents; but in other respects my invention differs from the said patents, it being constructed as follows:

a represents a paper-reel having its axle *b* loosely journaled in suitable bearings *c c*, preferably secured to a board or base *d*, or to any other suitable stationary object, as shown in Figs. 1 and 2.

A, Fig. 5, represents the paper ribbon leading from the reel *a* over a guide-roller *e* and to the roller *f*, that is secured to a shaft *f'*, journaled in bearings *g g*, secured to the plate *d* or other suitable stationary object, as shown in Figs. 1 and 2. The roller *f* is rotated by means of suitable clock mechanism, as will hereinafter be described.

The guide-roller *e* has its spindle supported on yielding springs *e'*, arranged in brackets or hangers *e'' e''*, for the purpose of automatically forcing said guide-roller upward with a yielding pressure against the marking-pens, so as to insure at all times a proper contact of the said pens with the paper ribbon carried over said guide-roller.

If the invention is to be applied to a railway passenger-car having in each of its ends a number of steps, I use a number of marking-pens equal to the number of steps, in a manner as shown and described in the above-mentioned patents; but in the accompanying drawings I have represented only one step and connecting devices to one step-pen, so as to make the description as plain and intelligible as possible; but I wish to state that in practice, when the invention is to be applied to passenger-cars, I use as many step-pens and step-markers as there are steps on the car or twice the amount of steps, if the latter are divided, as shown in the Patent No. 315,355.

In Fig. 1, *h* represents one of the stationary steps, and *i* represents the movable plate pivoted to it in a manner substantially as shown in the Patent No. 315,355, and *h' i'* represent

the metallic electrodes on said parts, which are normally disconnected by the influence of a suitable spring *k*, interposed between said step and plate, as shown in Fig. 1.

5 *l* represents a suitable electric battery, one pole of which is connected by means of the wire *m* to the step-electrode *h'*, and the other pole of said battery is connected by wires to the plate-electrode *i'*, as will hereinafter be described, it being sufficient to state that the circuit through the battery *l* is closed when the plate *i* is depressed sufficient to bring the electrodes *i'* and *h'* in metallic contact with each other.

15 The marking device connected with each of the steps is constructed as follows: *N* is an ink-containing tank or vessel, preferably secured to the plate or support *d*, as shown in Fig. 1. Through a perforation in the cover of said tank is loosely inserted the vertical portion of the tubular siphon-pen *N'*, the lower pointed leg of which is made to rest on the paper ribbon *A*, where it passes over the yielding guide-roller *e*. Above the tank *N* the vertical portion of the siphon-pen *N'* is journaled in a perforation in the bearing *N''*, so as to permit said pen to swing in the perforated cover of the vessel *N* and bearing *N''*. To the vertical part of the said siphon-pen *N'* is secured the wing or arm *N³*, which is inserted in a slit *N⁴* in the guide *N⁵*, as shown in Figs. 1, 3, and 4, and by means of this arrangement the siphon-pen and its wing or lever can be raised and detached from the tank *N* and its connections whenever so desired, for the purpose of cleaning said pen or repairing it in case it should be needed. The said siphon-pen is oscillated for the purpose of making the records *S S* (shown in Fig. 5) by means of an electro-magnet and connections, as will now be described.

20 *O* is a shaft supported loosely in suitable bearings, and to said shaft is secured a forked lever *O'*, the upper end of which embraces the rear end of the wing or lever *N³*, as shown in Figs. 1, 3, and 4. To said shaft is secured an armature *O''*, Figs. 1 and 4, adapted to be attracted toward the electro-magnet *O³* when an electric current is made to pass through said electro-magnet, and consequently the pointed free end of the siphon-pen will be caused to swing to one side whenever the electric current is made to pass through the said electro-magnet *O³*. One end of the coil of wire on the electro-magnet *O³* is connected to the movable plate electrode *i'* by means of the wire *p*, and the other end of said coil on the electro-magnet *O³* is connected to the electro-magnet *Q* by means of the wire *p'*, and from the said electro-magnet *Q* leads a wire *p''* to the battery *l*, as shown in Fig. 1. It will thus be seen that when the movable plate *i* is depressed sufficiently to bring the electrodes *i'* and *h'* in metallic contact the current through battery *l* is closed, causing the armature *O''* to be attracted toward the electro-magnet *O³*, by which the shaft *O* and forked

arm *O'* are rocked, causing the pointed end of the siphon-pen *N'* to be automatically swung slightly to one side, by which the recording-marks *S S* (shown in Fig. 5) are produced, it being understood that the ink or liquid flowing out from the pointed end of the siphon-pen *N'* produces a straight line *S'* on the moving paper ribbon *A* as long as the battery-current is open and the plate *i* raised above the step *h*, as shown in Fig. 5.

For the purpose of rotating the paper-roller *f*, I use a suitable clock mechanism *R*, of which *r* is the shaft, which latter is geared in a suitable manner to the paper-roll shaft *f'*. In practice, however, it is desirable that the paper-roll *f* should move comparatively slow when no record is being made, and move with an increase of speed when the records are being made, and for this purpose I use, in connection with the clock mechanism *R* and the paper-roll *f*, an accelerating device and mechanism, which is constructed as follows: To the clock-mechanism shaft *r* is secured firmly the gear-wheel *R'*, the teeth of which mesh into the teeth of the pinion *F'*, loosely journaled on the paper-roll shaft *f'*. Outside of the loose pinion *F'* is firmly secured to the paper-roll shaft *f'* the gear *F''*, the teeth of which mesh into the teeth of the pinion *R''*, loosely journaled on the clock-mechanism shaft *r*, as shown in Fig. 2. Between the gear *F''* and pinion *F'* is located, on the paper-roll shaft *f'*, the spring friction-plate *F*, as shown in Fig. 2. The face of the loose pinion *R''* is provided with a ratchet or toothed ring *R³*, and on the end of the clock-mechanism shaft *r* is pivoted the spring-pressed pawl *R⁴*, that is normally connected to the ratchet-ring *R³*. The pawl *R⁴* is provided with an armature *R⁵*, which is attracted toward the electro-magnet *Q* and disconnected from the ratchet-ring *R³* whenever the current is closed through the said electro-magnet *Q*. It will thus be seen that normally a slow motion is imparted to the roller *f* from the clock mechanism *R* by the pinion *R''*, meshing in the teeth of the gear *F''*, because said pinion *R''* is coupled to the clock-mechanism shaft *r* by means of the pawl *R⁴* and ratchet-ring *R³*, the pinion *F'* being made to revolve loosely on the paper-roll shaft *f'* during such motion of the pinion *R''*. As soon, however, as the current is closed and made to pass through the electro-magnet or accelerating-magnet *Q* the pawl *R⁴* is disconnected from the ratchet-ring *R³* on the loose pinion *R''*, and consequently the large gear *R'* will impart a quick rotary motion to the pinion *F'*, the frictionally-connected gear *F''*, and the paper-roll *f*, the pinion *R''* being made to run loosely on the clock-mechanism shaft *r* during such quick movement of the paper-roller *f*. In recorders of this kind it is also desirable that the time when the step-marks are made should be indicated on the paper ribbon *A*, and for this purpose I employ a time-piece *U*, (shown in Fig. 1,) having a spindle *u*, adapted to rotate one revolution every hour or more or

less, as may be desired. To said clock-spindle u , I prefer to secure a cylindrical disk u' , made of suitable insulating material. To the end of said insulated disk u is attached a metal ring or plate u'' , having peripheral projections u^3 laid down upon the periphery of the insulated disk u' , as shown in Fig. 1.

u^4 is a metal spring secured in an insulated manner to the clock-case U and having its free end pressing lightly against the metal disk or ring u'' , and u^5 is a similar metal spring, also secured in an insulated manner to said clock-case U , and having its free end pressing lightly against the periphery of the insulated disk u' and the metal projections u^3 , as shown in Fig. 1. The spring u^5 is connected by means of the wire u^6 to one pole of the battery l , and the spring-bar u^4 is connected by means of the wire u^7 to the time electro-magnet T^3 , from which leads the wire u^8 to the other pole of said battery l , as shown in Fig. 1. When the current is closed through the electro-magnet T^3 , an armature T'' is attracted toward said magnet. The armature T'' is attached to a shaft T , journaled in suitable bearings, and to said shaft is attached a forked lever T' , in the upper end of which rests the rear end of the vane or lever V^3 , the forward end of which is secured to the vertical portion of the siphon-pen V' , which latter is loosely journaled in perforations in the bearing V'' and cover of the ink-receptacle V , in a manner substantially like the arrangement of the step-recorder pens N' , heretofore described, and, like the latter, the time-pen V' has its lower pointed end adapted to rest on the paper ribbon A , where it passes over the guide-roller e , as shown in Figs. 1 and 3. The operation of the time-recording pen V' is substantially like that of the step-recording pen or pens N' —that is, whenever the electric current is made to pass through the electro-magnet T^3 , its armature causes the marking end of the pen V' to be swung to one side, and thereby producing the time-marks $t t$ on the paper ribbon A , as shown in Fig. 5.

I have only shown one time-recording pen and connecting devices to a time-piece and battery; but I may, if so desired, use two or more such time-recording pens—one to record every five minutes, another for every quarter of an hour, and another to indicate the hours or other intervals of time, as may

be desirable, according to the purpose for which the invention is used.

The step and time recording pens $N' V'$ are automatically returned to their normal positions as soon as the current through their electro-magnets is broken by the weight of their respective armature-levers acting on the forks that operate the pen wings or vanes; or, if so desired, springs or equivalent devices may be used for this purpose.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. In a passenger-recorder, the combination of the tank N , the siphon marking-pen N' , journaled in the bearing N'' , the guide N^5 , having a slit N^4 , and a wing or arm N^3 , inserted in said slit, whereby the said pen may be detached from the tank N for purposes of cleaning, substantially as described.

2. In a passenger-recorder, the combination with the movable treadle i , of the tank and siphon marking-pen, the slitted guide N^5 , the lever N^3 , the forked lever O' , the shaft O , loosely supported in suitable bearings, the armature O'' , secured to said shaft, the electro-magnet O^3 , and electrical connections to the movable treadle i , whereby the said marking-pen is oscillated or swung to one side, substantially as described.

3. In a passenger-recorder, the paper-winder roll f , having the pinion F' loosely arranged on its shaft and the gear F'' fixed thereon, with a spring friction-clutch F arranged between them, combined with the clock mechanism R and its shaft r , having fixed on it the gear R' , meshing in the pinion F' , and having loose upon it the pinion R'' , meshing in the gear F'' , said pinion R'' being provided with a ratchet R^3 , and said shaft r being provided with a spring-pressed pawl R^4 , an electro-magnet Q , adapted to release said pawl from said ratchet, and connecting devices to a battery and step and treadle, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 3d day of August, A. D. 1889.

AUGUSTUS TORREY.

Witnesses:

CHRISTOPHER ROGGE,
R. I. MARR.