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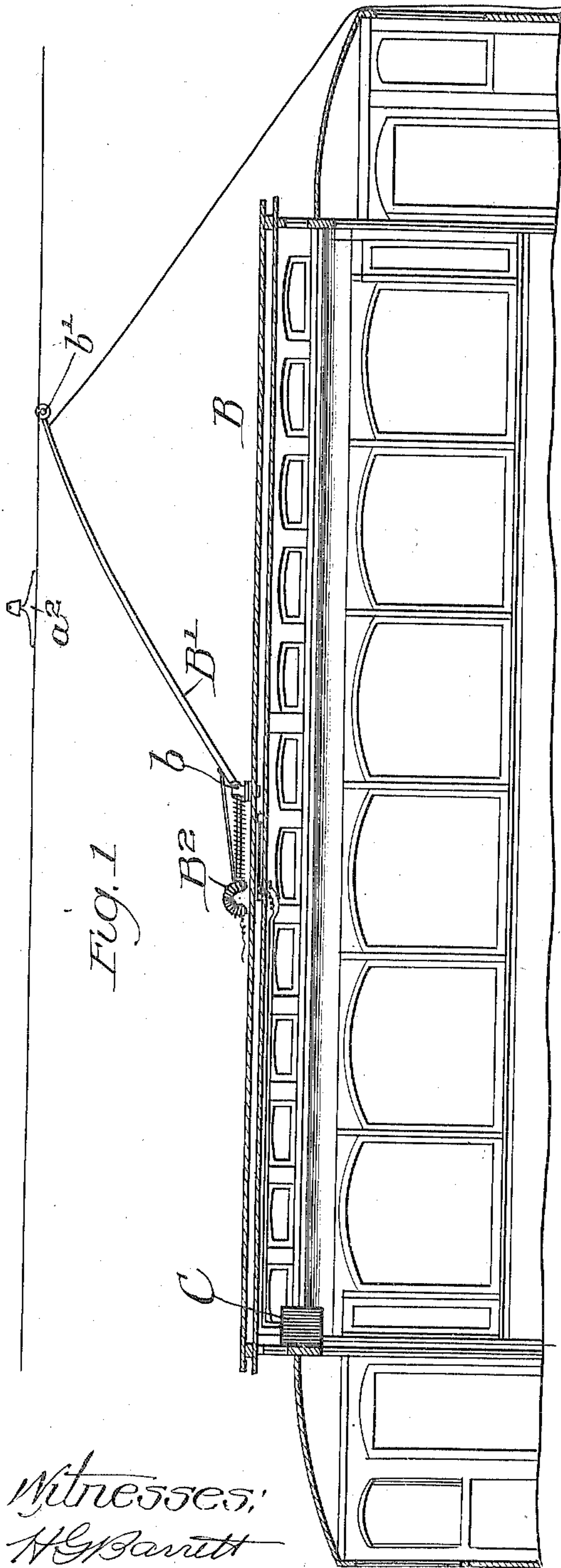
PATENTED FEB. 6, 1906.

A. D. CLOUD.

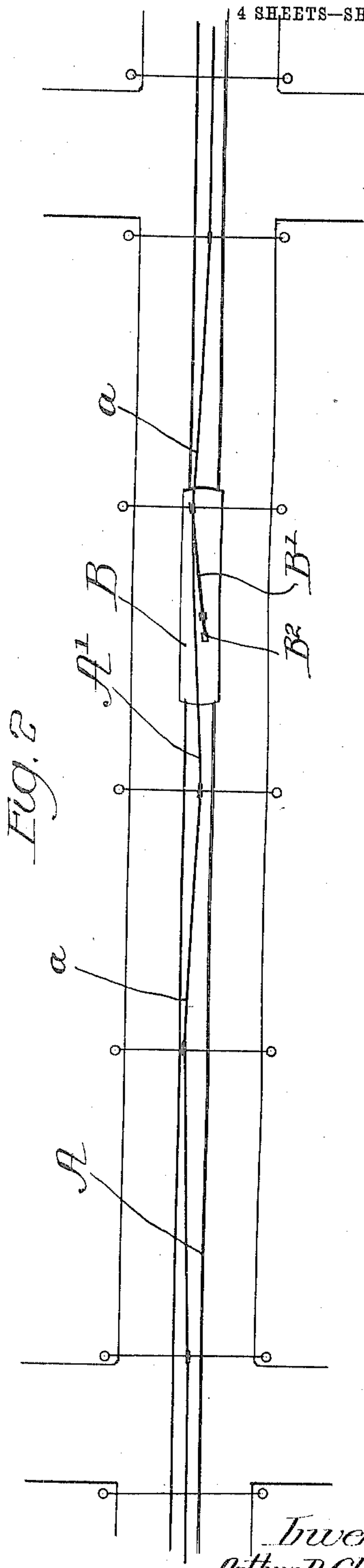
ANNOUNCING DEVICE FOR RAILWAY CARS.

APPLICATION FILED APR. 1, 1905.

4 SHEETS—SHEET 1.



Witnesses:
H. G. Barrett
J. R. Wilkins



Inventor:
Arthur D. Cloud.
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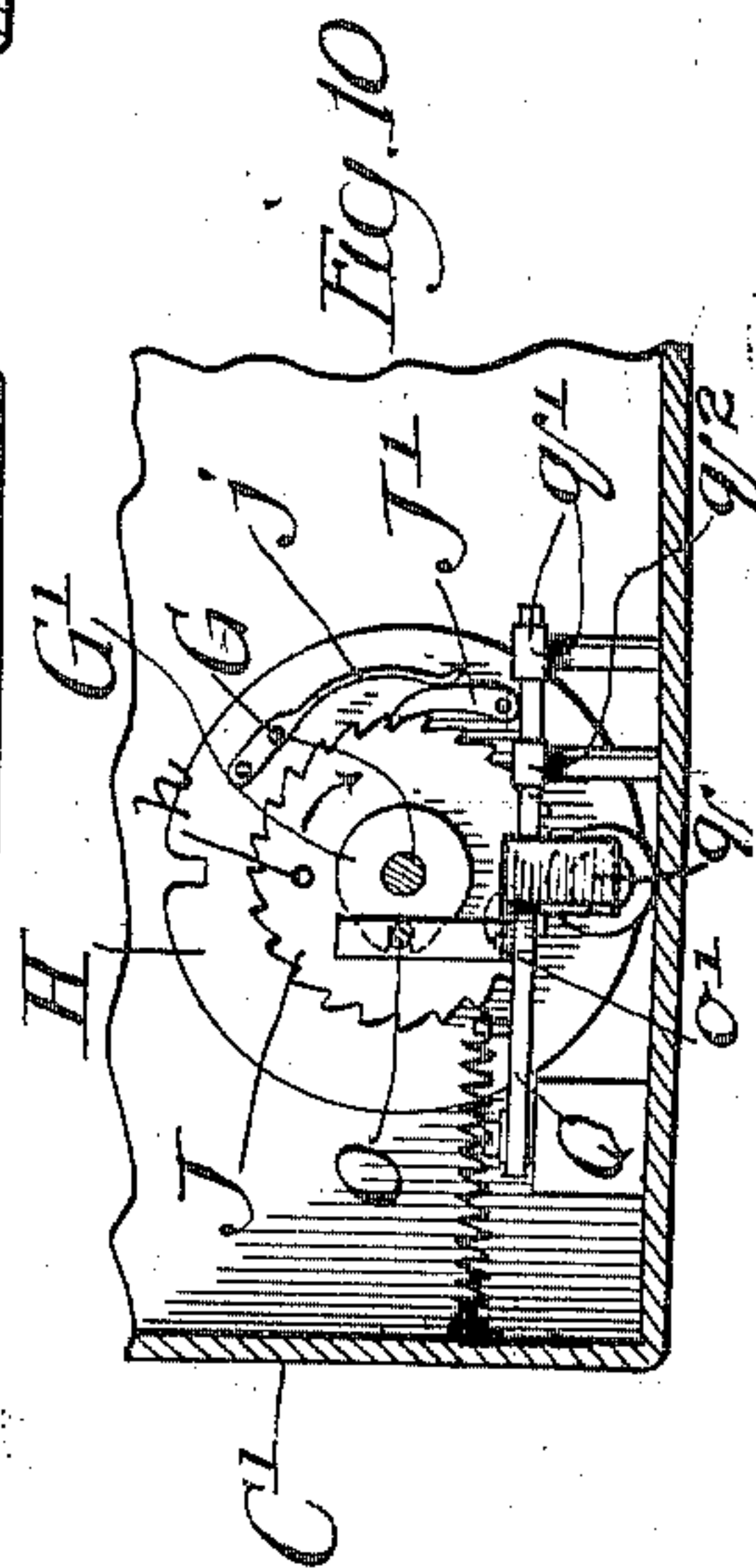
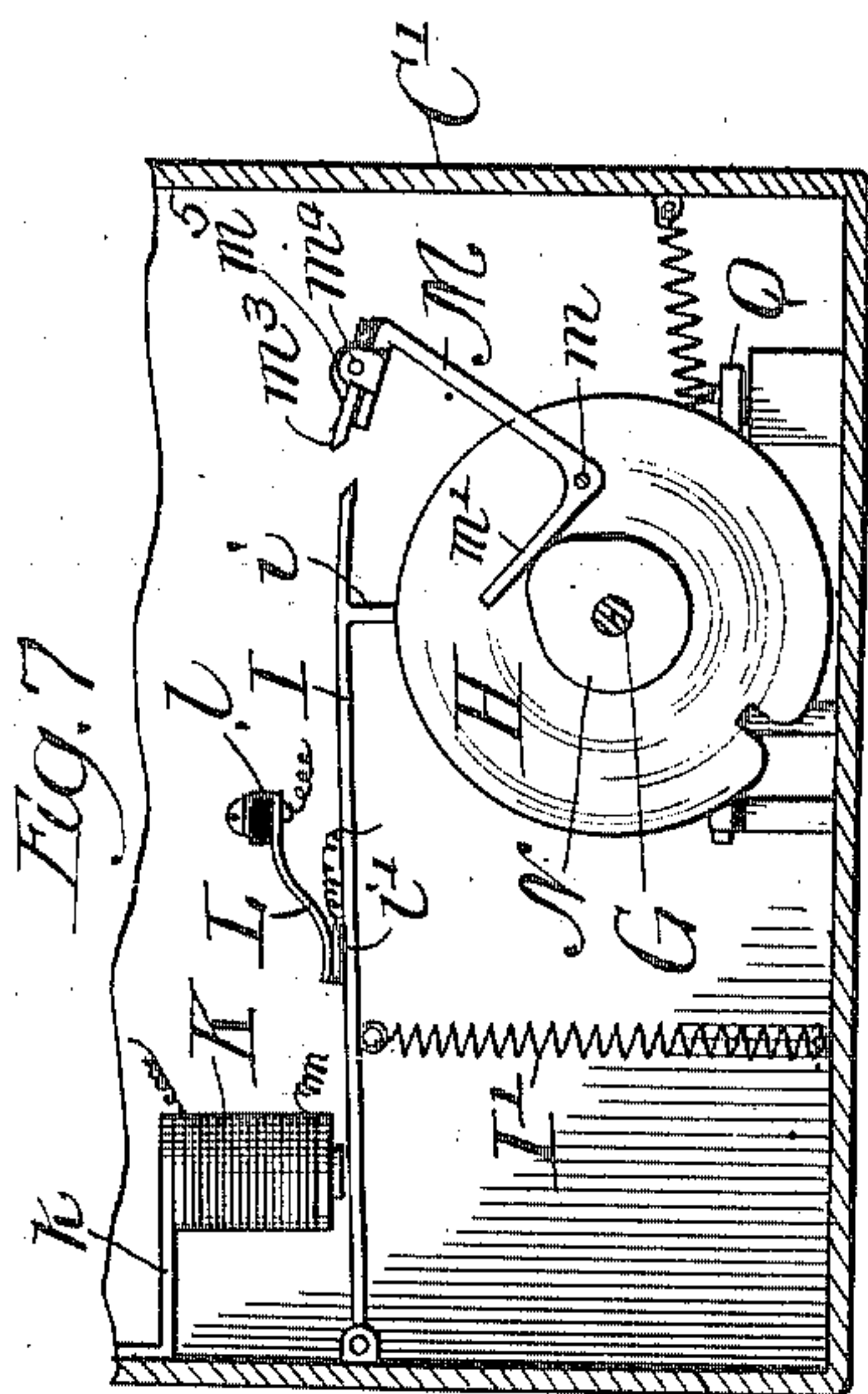
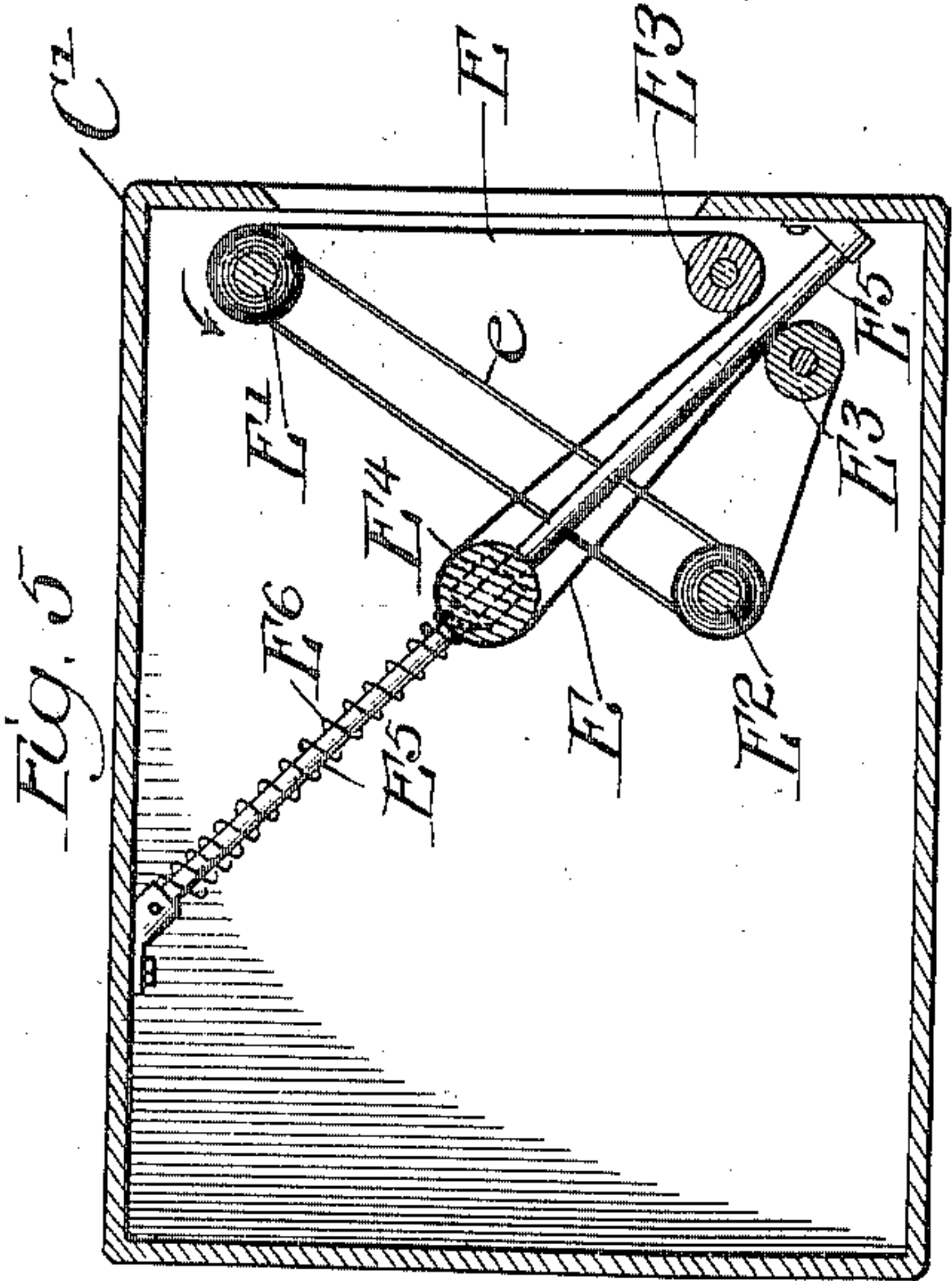
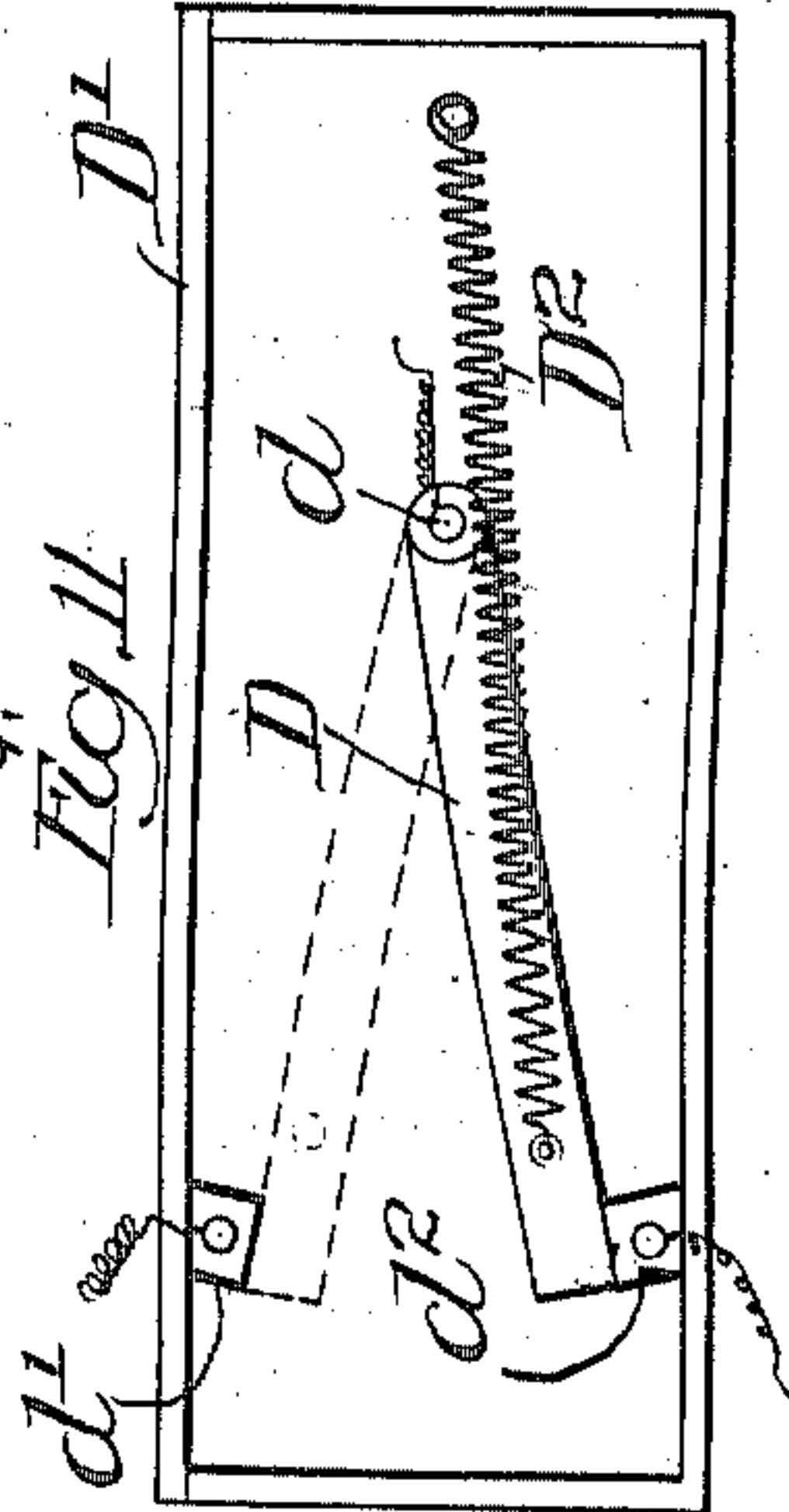
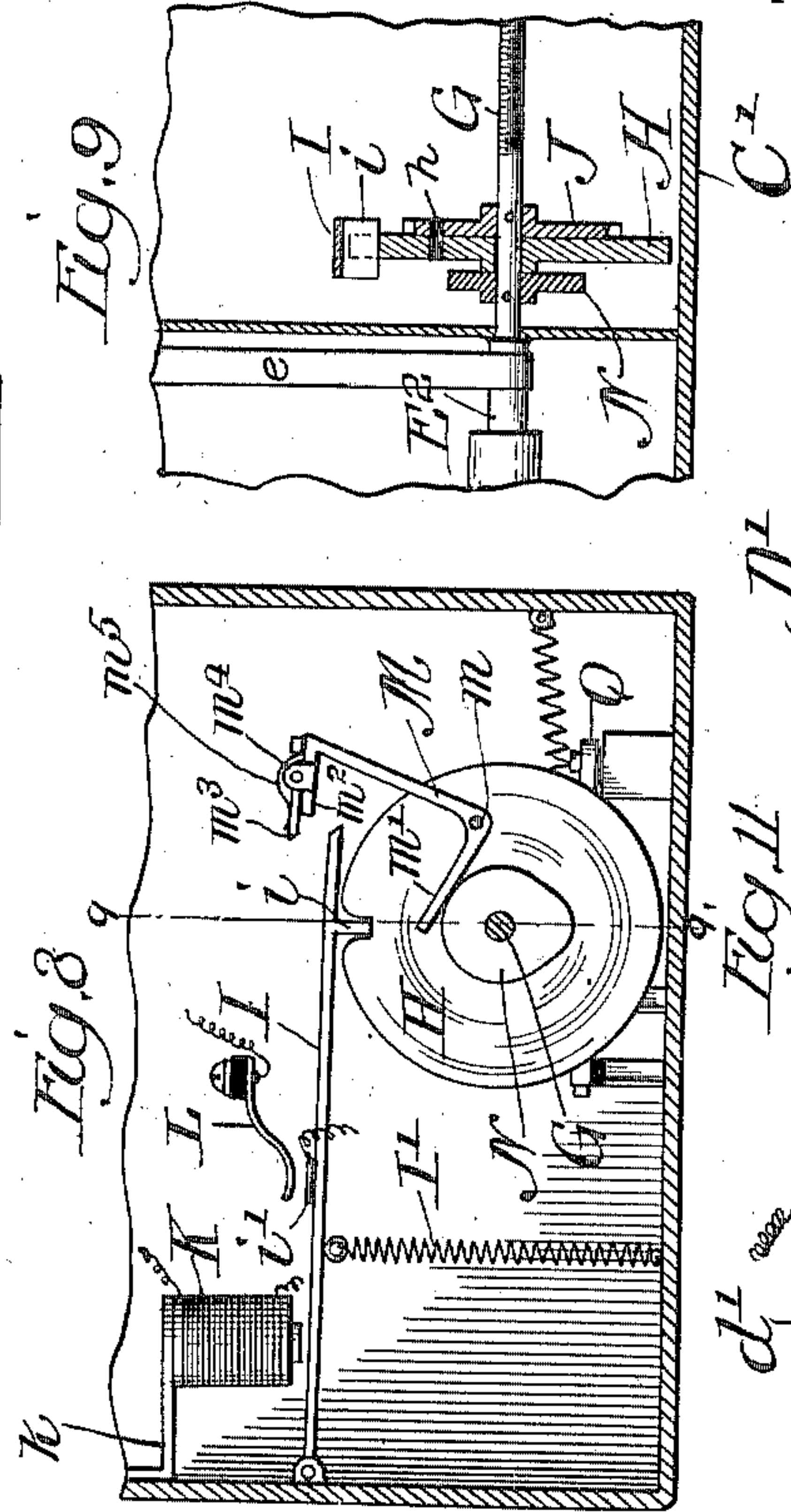
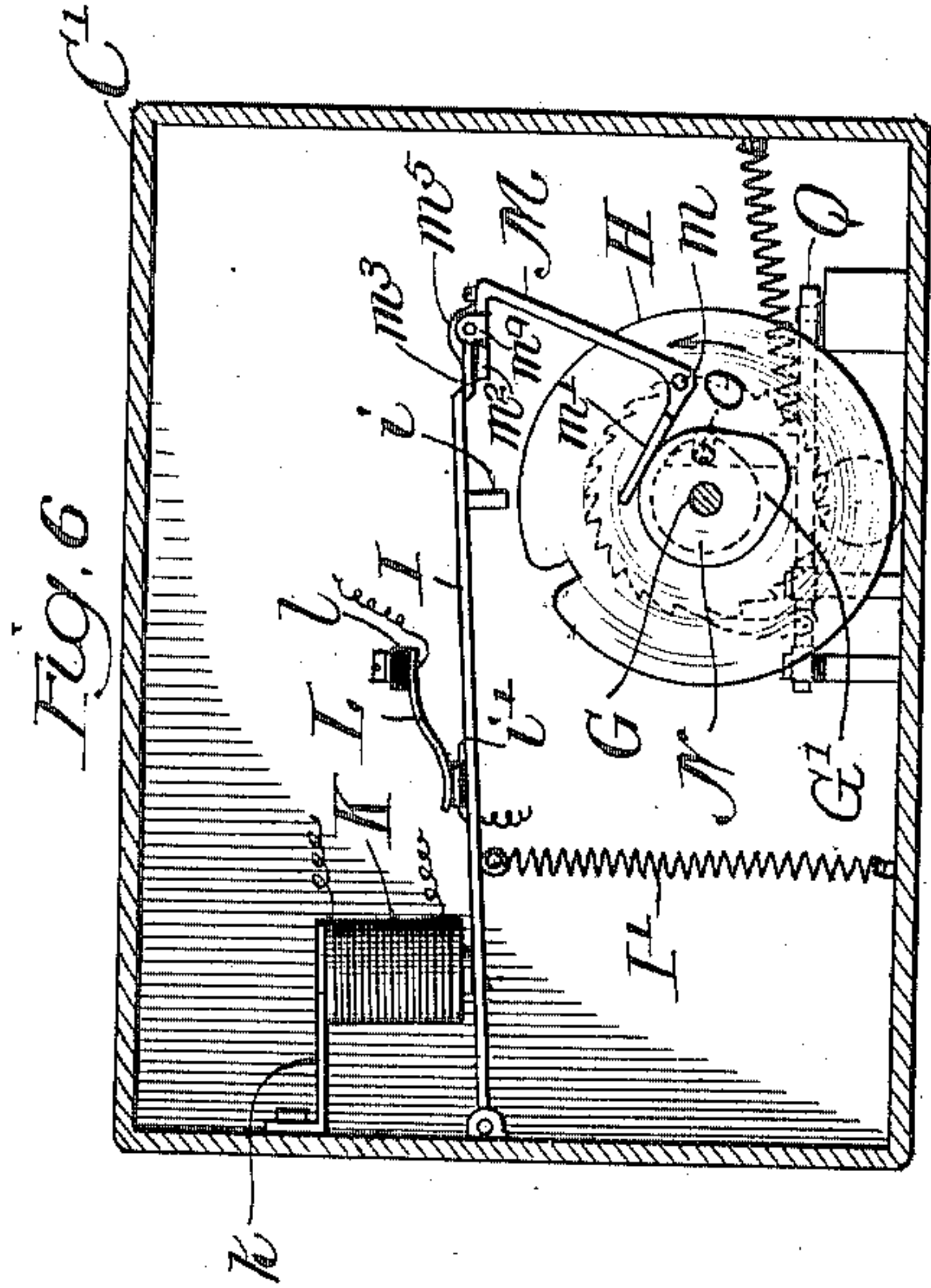
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4 SHEETS—SHEET 3.



Witnesses:
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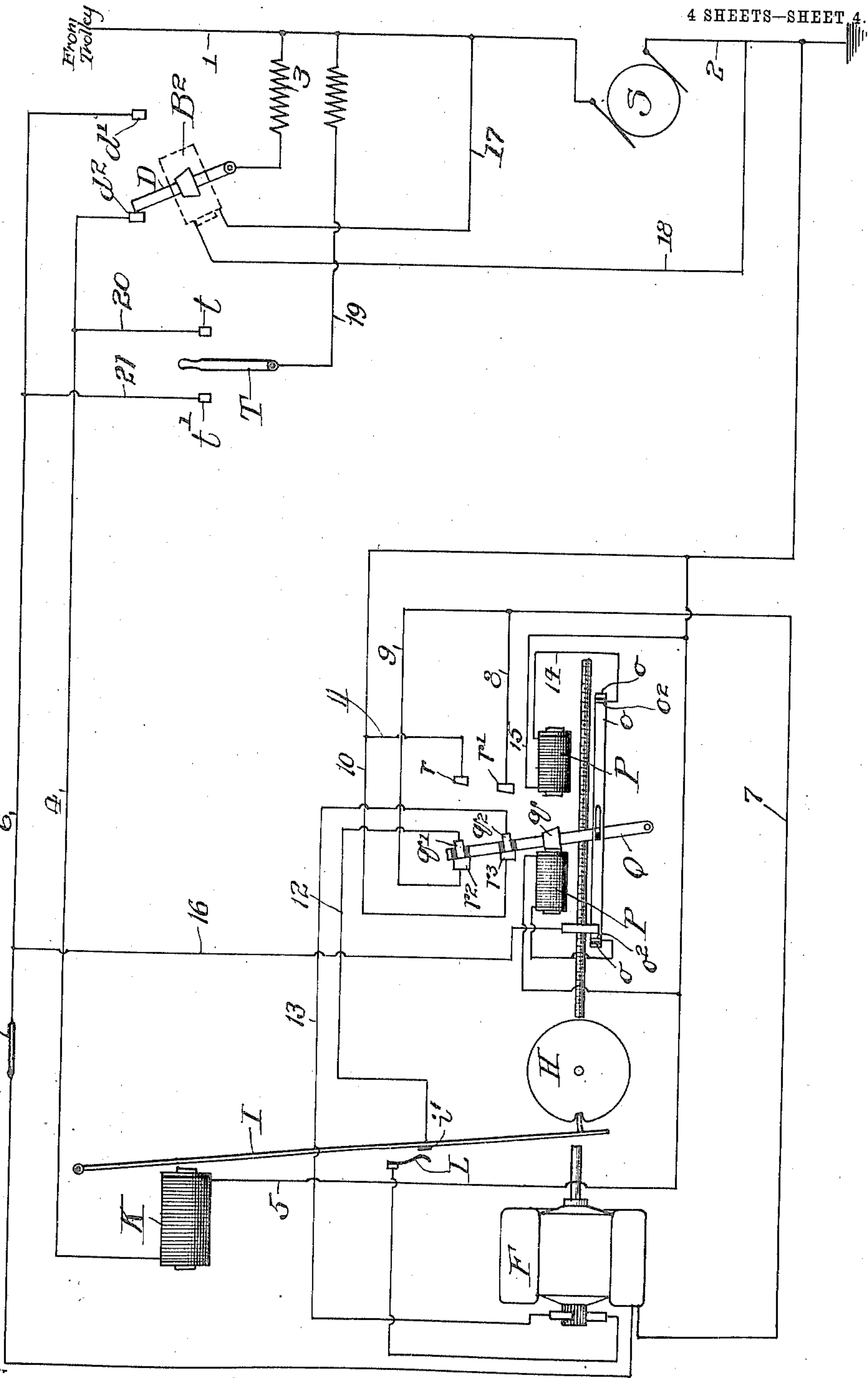
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4 SHEETS—SHEET 4.

Fig. 12



Witnesses
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UNITED STATES PATENT OFFICE.

ARTHUR D. CLOUD, OF DAVENPORT, IOWA.

ANNOUNCING DEVICE FOR RAILWAY-CARS.

No. 811,903.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed April 1, 1905. Serial No. 253,377.

To all whom it may concern:

Be it known that I, ARTHUR D. CLOUD, of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Announcing Devices for Railway-Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in street-car announcing devices, designed more specifically for visually announcing the names of streets or other predetermined places where the car is scheduled to stop to receive and discharge passengers. The device may also be employed either primarily or incidentally for the purpose of displaying advertising subject-matter.

The invention herein shown has been designed for use in connection with electrically-operated cars wherein the motive current is received by the car from an overhead trolley; but certain of the improvements shown may be employed in connection with cars employing other means of receiving motive power.

Among the features of my invention when used in connection with an overhead trolley is to laterally displace or shift the trolley-pole of the car at predetermined locations along the track, by providing lateral offsets in the trolley-wire from a straight line, and to utilize the lateral motion of the pole for setting in operation the announcing device. Such offset portions of the trolley-wire are located adjacent to the intersecting streets or other places to be announced. A portion of the mechanism herein shown by which the announcing device is set in operation by movement of the trolley-pole is a switch which opens and closes an unlocking mechanism and a motor-circuit for the mechanism of the announcing device, and in some uses of the device the switch may be operated by any other acceptable actuating device.

Further objects of the invention are to improve and simplify the construction and operation of announcing devices in such manner as to render the same at all times accurate and adaptable for the work designed.

As shown in the drawings, Figure 1 is a partial longitudinal section of a car provided with a signaling device made in accordance with my invention. Fig. 2 is a plan view of a main and intersecting street, showing the

car-track thereon and the manner of laterally offsetting or displacing the trolley-wire. Fig. 3 is a vertical longitudinal section of the announcing mechanism proper and its inclosing casing. Fig. 4 is a longitudinal horizontal section thereof. Fig. 5 is a transverse section taken on line 5 5 of Fig. 3. Fig. 6 is a transverse section taken on line 6 6 of Fig. 3 looking in the direction indicated by the arrow. Figs. 7 and 8 are substantially the same part shown in Fig. 6, some of the elements being in changed positions to indicate the operation thereof. Fig. 9 is a fragmentary detail taken on line 9 9 of Fig. 8. Fig. 10 is a view of some of the parts shown in Fig. 6 looking from the opposite side of the locking-disk from that shown in said Fig. 6. Fig. 11 is a horizontal view of the switch controlled by the trolley-pole for setting the device in operation. Fig. 12 is a diagram of the several circuits for electrically operating the various parts of the apparatus.

As shown in the drawings, A, Fig. 2, designates a street-car track, B a car thereon, and A' the trolley-wire from which is received current to operate the car. The trolley-wire is laterally displaced or offset at *a*, such displacement being effected by locating the one or more of the hangers at one side of the center of the track.

B' designates a trolley-pole of any acceptable form, which is herein shown as pivoted to the car at *b* and provided with the usual trolley-wheel *b'*.

C designates as a whole my improved announcing device. It is located either at the end of the car above or at one side of the door thereof, as herein shown, or may be attached to the top of the car near the middle thereof.

The lateral displacement of the trolley-pole caused by the upper end thereof being swung laterally to one side of the center of the track, as indicated in Fig. 2, effects the operation of a switch carried by the car, the opening and closing of which controls the current by which the announcing device is operated. In the present instance current is supplied from the trolley-wire to operate the announcing mechanism. The switch D is shown in Fig. 11, and it is located between the roof and ceiling of the car. It consists of a straight bar which is pivoted at *d* in its casing D' and adapted for contact at its free end alternately with two terminals *d'* *d''*, included in the motor and lock-releasing circuits of the announcing device. The switch is included in a

shunt-circuit from the car-motor-operating circuit and is shielded from the operating-circuit by the interposition of a suitable resistance between the same and the operating-circuit. A spiral contractile spring D^2 , attached at one end to the free end of the switch and at its other end to the casing, insures a quick opening and closing of the switch. In the present instance the switch is swung from side to side by means of an electromagnet B^2 , carried by the part of the trolley which projects beyond its pivot. The movement of said electromagnet from side to side acts to swing the switch likewise from side to side, and the switch is quickly thrown to and held securely at either of its limits by a spring D^2 . As herein shown, the magnet B^2 is an electromagnet and is included in a circuit which receives current from the trolley.

My improved announcing device embraces in general terms a strip of thin inextensible material, upon which is displayed the names of the streets or other subject-matter to be announced, and said strip is wound about suitable directing and operating rollers operated by a suitable motor, whereby the strip is moved to successively display the names or characters carried thereby. The mechanism is contained within a suitable casing, one wall of which is provided with an opening through which the names on the strip are successively exhibited as the strip is moved past said opening. As herein shown, the casing is divided into three compartments separated by partitions $c\ c'$. One contains the strip and winding mechanism, another the motor, and the third controlling devices for the winding mechanism. The relative arrangement of the parts and of the casing may, however, be widely varied. The strip-winding mechanism is adapted to be normally locked so as to hold the strip in a predetermined position after it has been shifted by its motor to exhibit the name of a given street or the like, and means are provided for releasing such locking device just before the winding mechanism is actuated. In the construction shown two principal circuits are employed, including the two terminals $d\ d^2$, associated with the switch D , said switch acting successively to close the lock-releasing and motor circuits. As the parts are herein shown the strip is shifted to retire one name and exhibit another by one rotation of the motor-shaft, and after such rotation the parts are locked until the lock-releasing mechanism is again actuated to release the strip-winding mechanism preparatory to another operation of the same.

Referring now to the specific construction of the announcing mechanism, it is made as follows:

E designates a strip on which is exhibited the street-names or other subject-matter to

be announced or displayed and is located in the middle compartment of the casing C' . Said strip is attached at its ends to upper and lower rollers $E' E^2$, respectively, which are journaled at their ends in the transverse partitions $c\ c'$. The rollers are driven at the same speed, they being connected by a belt e . One of the rollers—to wit, the roller E^2 , as herein shown—is connected with and driven by an electric motor F , which is reversible in order to reverse the direction of movement of the strip. The strip is engaged between its ends by the rollers $E^3 E^3 E^4$ of a tension device, Figs. 4 and 5, by which the exhibited part of the strip is maintained taut notwithstanding the varying diameter of the rolls upon which and from which the strip is wound and unwound. The rollers $E^3 E^3$ are stationary and are journaled at their ends in said partitions $c\ c'$ in any suitable manner. The roller E^4 is mounted in bearings $e' e'$, Figs. 3, 4, and 5, that are movable in a manner to maintain the roller E^4 parallel with the rollers E^3 and in a direction to take up the slack of the band or strip and to maintain taut the part of the strip exhibited through the opening in the casing. The part of the strip so exhibited is that between the upper roller E' and the upper one of the stationary rollers of the tension device, such part of the strip being parallel with the front wall of the casing. As herein shown, said bearings e' have endwise-sliding engagement with obliquely-disposed rods $E^5 E^5$, affixed to the casing one at each end thereof. Spiral contractile springs E^6 , surrounding said rods and attached at their upper ends to the stationary part of the casing and at their lower ends to said bearings e' , tend to draw the movable roller E^4 upwardly into the box in a manner to maintain a tension on the strip. The greatest slack of the strip occurs at a time the strip is contained in rolls of equal diameters on both winding-rollers $E' E^2$. As the diameter of the roll upon which the strip is being wound gradually increases the slack of the strip is taken up and the shifting tension-roller E^4 moves downwardly toward the stationary rollers E^3 . Conversely, when the strip is being wound upon a smaller roller from the larger roll the movable roller E^4 of the tension device moves inwardly to take up the slack strip. Thus a sufficient tension is maintained on the strip to keep the exhibited portion of the strip always taut.

The mechanism for locking the winding mechanism and the exhibited part of the strip stationary is made as follows: G designates a shaft which is made a part of or connected with the shaft of the roller E^2 to turn therewith and is located in the compartment formed between the partition c' and the end wall of the casing. H designates a disk mounted on the shaft G adjacent to the partition C' . Said disk is provided with a pe-

ripheral notch adapted for engagement by the finger *i* of a spring-pressed latch I, Figs. 6 to 8. As herein shown, the latch I is hinged at one end and is pressed yieldingly toward the periphery of the disk H by means of a spiral contractile spring I'. In some instances the disk H may be itself fixed to the shaft G. As herein shown, it is adapted to turn with the shaft in one direction, while free to rotate thereon in the other direction. The means for so locking the disk to the shaft consists of a ratchet-wheel J, which is fixed to the shaft, and a pawl J', which is pivoted to the disk and is adapted to engage the peripheral teeth of said ratchet-wheel. Said pawl is pressed against the ratchet-teeth by means of a light leaf-spring *j*. If the car on which said device is used be traveling on a single-track line and the trolley is reversed at each end of the line, the ratchet connection of the disk with the shaft may be omitted. If present, the ratchet-wheel may be permanently locked to the disk by a pin *h*, extending through aligned apertures in the disk and wheel, as shown in Fig. 9. In such event when the car reverses its direction the strip will be in position to display or announce the streets in the return-trip of the car in proper order upon the reversal of the winding mechanism of the strip. The pawl-and-ratchet construction herein shown is employed mainly where the car travels on a loop-track. In the latter event the strip is made sufficiently long to announce the stations for the entire distance around the loop, and when the car reaches its starting-point or the point upon which it enters the loop it will be necessary to entirely rewind the strip before starting on the next trip in order that the street-names appear in proper order for successive announcement. This is effected by reversing the motor and allowing the same to turn in a direction opposite to that of the locking direction of the movement of the ratchet-wheel. During such reversal of the strip the pawl merely rides around on the teeth of the ratchet-wheel, so that the disk remains stationary and does not arrest the winding mechanism until the strip is completely unwound.

Electrically-actuated devices are employed for successively releasing the mechanism and for closing the circuit of the strip-winding motor F at such time as the announcement of a street or display of an advertisement is to occur in order to properly wind the strip to exhibit the names thereon. The subject-matter to be displayed on the strip is so disposed that a single rotation of the shaft retires one name and moves another name into line with the display-opening of the case. Therefore the locking-disk in the construction shown is provided with but a single locking-notch and the shaft is rotated through one complete rotation in each operation of the device. The mechanism for so releasing

the locking-disk and operating to close the motor-circuit is made as follows: K designates a magnet located within the casing adjacent to the latch I and on the side thereof opposite the locking-disk. The magnet is supported on a bracket *k*, fixed to the rear wall of the casing. The latch I constitutes the armature of said magnet, so that when the magnet is energized the latch is drawn toward the magnet with the finger *i* of the latch disengaged from the disk. The magnet K is energized when a circuit is closed between the switch D and terminal *d*², and this occurs when the trolley-pole is laterally displaced, as before stated. When the trolley again takes its central position, the switch-bar is swung against the terminal *d*' and closes at this point the motor-circuit. Furthermore, when the latch I is drawn to the magnet K to release the locking-disk in the manner shown it closes the motor-circuit at another point between a terminal *i*', carried by the latch, and a terminal L, which is supported on a bracket *l*, attached to the partition *c*', said terminals being insulated from their supports. After the latch has been released from the locking-disk H it is necessary that the same be held out of engagement with said disk until the switch D is actuated to close the motor-circuit, for the reason that not until after said motor-circuit is closed will the shaft G begin to rotate. Furthermore, the magnet-circuit is opened before the motor-circuit is closed, so that if the latch were not restrained it would fall with its finger in locking engagement with the disk H. In order to hold the latch in its retracted position until the motor-shaft and the locking-disk begin to rotate, the following mechanism is provided: M designates a bell-crank lever, which is pivoted at its angle by means of a pivot-pin *m* to the adjacent partition *c*'. The short arm *m*' of said lever is widened, as shown in Figs. 3 and 4, and rides on the periphery of a cam N, that is affixed to the shaft G at the side of the disk H. The end of said bell-crank lever remote from the arm *m*' is provided with a rearwardly-directed part *m*², on which is pivotally mounted a trigger *m*³. Said trigger is pivoted between lugs *m*⁴, rising from the part *m*², in such manner that it may rise from its normal horizontal position, but cannot be depressed below such position. The said trigger is held in its lowermost position by a leaf-spring *m*⁵. When the latch is in its locking position, the trigger is located above the free end of the latch, so that when the latch rises it is free to pass the trigger. As soon as the latch passes the said trigger the trigger drops into its lowermost horizontal position and locks the latch in its elevated position out of engagement with the disk. When the motor-circuit is closed, the disk is rotated with its notch out of line with the finger of the latch, so that when said latch

subsequently drops the finger drops upon the smooth part of the disk and in position to re-engage the notch of the disk upon a complete rotation of the latter, and thereby arrest the winding mechanism. During such rotation of the shaft G and the locking-disk the cam N acts upon the lever M to throw the trigger out from beneath the latch and permit the latter to drop with its finger engaged with the periphery of the disk, as described. This action is repeated each time the switch D vibrates between the terminals d' d^2 .

Preferably means are provided which operate at the end of the run of a car for automatically reversing the current through the motor, and thereby reversing the motor and the direction of motion of the announcing-strip. In case the direction of the car is reversed at the end of each trip such reversal of the motor occurs just before the time of the announcement of the next street from the street at which the direction of the car is reversed, and thereafter the display of the street-names occurs during the return-trip of the car in an order the reverse of that occurring in the outgoing trip. In case the entire unwinding of the strip occurs at one time at a point on a looped track preparatory to beginning the next trip mechanism similar to the pawl-and-ratchet mechanism may be used to permit the backward rotation of the shaft G without rotating the locking-disk H, so that the unwinding of the strip continues without interruption until completed. A convenient means of so reversing the current through the motor is herein shown and is made as follows: The shaft G is screw-threaded and receives a screw-threaded nut G', which is electrically connected with the feed side of the motor-circuit. Said nut G' has guiding engagement with a bar or rod O, fixed in the casing parallel with the shaft G, in a manner to prevent rotation of the nut, whereby the nut travels endwise of the shaft as the shaft rotates. The nut G' is provided with a laterally-opening notch, as indicated in dotted lines in Fig. 6, which receives the bar O to provide the interlocking engagement referred to. Mounted on said bar O are two arms o o , connected by an integral bar o' , the whole being made of a single metal bar that is folded upwardly at its ends to constitute said arms. The arms are apertured for the passage of the guide rod or bar therethrough, and said parts are adapted for slight longitudinal movement of the bar o' relatively to the shaft G. Said arms carry at their upper ends insulated terminals o^2 o^2 , one adapted for engagement by the nut G' at each limit of movement of the nut. The said terminals o^2 o^2 are in circuit with two opposed magnets P P, between which is located a horizontally-swinging switch Q, that reverses the motor. One of the magnet-circuits is closed at the

time the nut G' engages one of the terminals o^2 , and the switch is thrown over to reverse the direction of flow of the current to the motor. Said switch-lever carries a pole-piece q , common to both magnets, and near its outer end two separated and insulated contact-pieces q' and q^2 , extending laterally from both sides thereof and connected by wires with the armature-circuit of the motor. Said pair of contacts q' q^2 are adapted for alternate contact at the limits of the throw of the switch with two opposed pairs of terminals r r' and r^2 r^3 , which are included in the field-circuit of the motor. When the car has reached the end of its trip, the nut G' is brought into engagement with one of its terminals o^2 and the circuit of one of the magnets P is closed, thereby energizing said magnet and drawing the switch Q toward the same and closing the motor-circuit between two of the terminals r and r' or r^2 and r^3 and reversing the flow of current through the motor, and thereby reversing the motor. The switch Q is placed under the influence of a spring Q', that serves to quickly throw the switch and holds the same at either limit of its throw. The switch-bar Q is provided with a pin q^3 , that operates loosely in a short longitudinal slot in the bar o' , and the length of said slot is such that the pin engages one end of said slot when the switch-arm is thrown to one limit of its movement and serves to shift the bar and arms o and the terminals o^2 , carried by said arms, slightly in the direction of movement of the switch-arm. The purpose of so shifting the terminals o^2 is to separate the same from the nut G' and break the magnet-circuit as soon as said magnet has performed its function to reverse the switch Q.

In Fig. 12 is shown diagrammatically the outlay of the several circuits by which the several parts of the mechanism are operated. As shown in the drawings, 1 designates the feed-wire leading from the trolley to the car-motor S, and 2 the return-wire grounded to the return-rail. The feed-wire is connected through a suitable resistance 3 with the switch D. 4 designates a wire leading from the terminal d^2 of the switch D to the tripping-magnet K, and 5 a wire leading from said magnet to the return-wire 2. 6 is a wire leading from the terminal d' of the switch D to the field-magnets of the motor, and 7 a wire leading from the field and terminating in two branches 8 and 9, leading to the terminals r' r^2 of the opposing pairs of terminals associated with the reversing-switch. The other terminals r and r^3 of each pair, between which vibrates the switch Q, are connected by branches 10 and 11 with the return-wire 2. The terminals q' q^2 of the reversing-switch are included in the armature-circuit of the motor, being connected with the brushes of the commutator by wires 12 and 13. One of

said armature-circuit wires—to wit, the wire 12, as herein shown—is broken by the switch consisting of the parts i' L, before referred to, one located on the locking-latch of the disk H, whereby when said parts are separated the motor-circuit is open. 14 and 15 designate the wires included in the circuits of the reversing-switch-operating magnets P, a wire 14 leading from each of the contact-pieces o^2 to one end of its associated magnet-coils and a wire 15 leading from the other end of each magnet-coil to the wire 5, and thereby connected with the return-wire 2. The nut G' is connected by a wire 16 with the motor-feed wire 6. The electromagnet B^2 is included in a circuit receiving current from the trolley-wire through a wire 17 and the current is completed by the wire 18, leading to the return-wire 2.

A supplemental switch is provided by which the lock releasing and winding motor-circuit may be opened and closed in the same manner as through the switch D, but at a time when it is not convenient to use the latter switch. T designates such supplemental switch. It receives current from the trolley-wire through a wire 19 and vibrates between terminals $t t'$, which are connected by branch wires 20 and 21 with the feed-wires of the releasing-magnet and motor-circuits. Said switch is provided for the purpose of readjusting the winding mechanism in case the announcing-strip should become deranged relatively to the streets to be announced. It will of course be understood that the switch D may be manually operated in the manner of switch T and the latter omitted; but the switch T is preferably provided, inasmuch as it may be conveniently located for operation by the conductor. A switch U is placed in the feed-wire of the motor-circuit at a point convenient for manual operation for the purpose of cutting the motor out of the circuit when it is desired to suspend the operation of the announcing device, as when the car is running over another track than for which the announcing device has been designed.

The operation of the apparatus has been sufficiently indicated in the foregoing description, but may be briefly recapitulated as follows: The electromagnet B^2 throws the switch D from side to side as the trolley-pole laterally vibrates in its travel on the laterally-displaced wire. When the trolley-pole is thus laterally displaced, the switch is thrown over to the terminal d^2 , whereby the unlocking-circuit is closed and the latch I released from the locking-disk H and held in its releasing position by the mechanism described. When the trolley-pole again passes to the straight or central wire, the switch D is thrown over to the contact d' and closes the motor-circuit. At this time the motor-circuit is closed between the contacts L and i' on the latch, the latch

being held retracted, as before stated, and the motor rotates through one cycle. The motor-circuit remains closed so long as the finger of the latch rides on the periphery of the disk H. Upon the completion of one rotation of the motor-shaft the finger of the latch drops into the notch of the disk and the motor-circuit is opened between the terminals i' and L. Any other form of quick-opening switch may be employed that is automatically operated to open at the completion of the rotation of the motor. Upon the completion of each rotation, therefore, of the motor-shaft and the shifting of the announcing-strip to retire one street-name or the like and display the next succeeding name the finger of the latch engages the notch of the locking-disk and arrests the motor and winding mechanism and holds the same locked until again released. This operation of the device is repeated throughout the trip at each lateral displacement of the trolley-wire. At the end of the trip the nut G' strikes one of the terminals o^2 and closes the circuit of one of the magnets, by which the reversing-switch is thrown over, whereby the strip-winding motor is reversed and the announcing-strip wound in an opposite direction, either during the next ensuing trip, as where the car returns on the same track, or in one continuous operation, as where the car is starting on its next trip on a loop-track. The lateral displacements of the trolley-wire in practice will be located some distance from the intersecting street to be announced through the medium of such displacement, so that the visual announcement will be seen for a practically long time to enable passengers to prepare to leave the car. In case cars operate in both directions on a single line of track and it is necessary, therefore, that there be two displaced or offset portions of the trolley-wire between two adjacent intersecting streets the announcing-strip may be arranged to announce at one of said displacements other information than a street-name, as an advertisement. Moreover, when using two trolley-poles or a single pivoted pole and when returning on the same track two switches D will be employed, one for each pole in the case of two poles or one at each side of the pivot in case of a pivoted or rotative pole.

The term "motor for actuating the announcing winding-strip mechanism" is not employed in a restricted sense, but is designed to embrace any form of actuating device by which the winding mechanism is actuated to displace the announcing-strip in the manner stated for the purpose of successively displaying the street-names or other subject-matter carried by the strip.

I claim as my invention—

1. In automatic announcing apparatus for electrically-propelled cars, the combination

with a car provided with a laterally-swinging trolley-pole, an announcing device carried by the car, and means operated by the lateral swing of the trolley-pole for operating the announcing device.

2. In automatic announcing apparatus for electrically-propelled cars, the combination with a car provided with a laterally-swinging trolley-pole, an electrically-actuated announcing device carried by the car, a switch for controlling the circuit that operates the announcing device, and an electromagnet carried by the trolley-pole for operating said switch.

3. In automatic announcing apparatus for electrically-propelled cars, the combination with a car provided with a laterally-swinging trolley-pole, an announcing device carried by the car, a trolley-wire provided with laterally offset or displaced portions along which the trolley-wheel passes, and means operated by the lateral swing of the trolley-pole for operating the announcing device.

4. In automatic announcing apparatus for electrically-propelled cars, the combination with a car provided with a laterally-swinging trolley-pole, an electrically-actuated announcing device carried by the car and a trolley-wire provided with laterally offset or displaced portions along which the trolley-wheel passes, and a switch operated by the lateral swing of the trolley-pole for controlling the circuit that operates said announcing device.

5. In automatic announcing apparatus for electrically-propelled cars, the combination with a car provided with a laterally-swinging trolley-pole, an electrically-actuated announcing device carried by the car, a trolley-wire provided with laterally offset or displaced portions along which the trolley-wheel passes, a switch carried by the car for controlling the circuit that operates the announcing device, and an electromagnet carried by the swinging trolley-pole for operating said switch.

6. An announcing device for the purpose set forth, comprising an announcing-strip, a winding mechanism comprising rollers about which said strip is wound, and a locking mechanism for locking the winding mechanism, comprising a shaft which rotates with the winding-rollers, a disk on the shaft provided with a peripheral notch, a spring-pressed latch provided with a finger adapted to engage said notch to arrest the winding mechanism, means for retracting the latch from the disk, means for temporarily holding the latch away from the disk comprising a pivoted lever provided with a pivoted trigger which permits the latch to move past the same, but acts as a stop to hold the latch away from the disk, and a cam on said shaft acting on said lever to release the trigger from the said latch to permit the latter to interlock with the disk.

7. An electrically-actuated announcing de-

vice comprising an announcing-strip, winding mechanism embracing rollers about which the strip is wound, a motor for driving said winding mechanism, a locking mechanism for locking the winding mechanism comprising a disk which rotates with the winding-rollers, a spring-pressed latch adapted for locking engagement with the disk, a magnet for retracting said latch from the disk, means for temporarily holding said latch away from the disk and constructed to subsequently release the same, circuits in which said motor and magnet are included, and a quick-acting switch in the motor-circuit comprising a terminal carried by said latch adapted to be brought into contact with an associated terminal of the circuit when the latch is retracted from the locking-disk and to be separated to open the circuit when the latch again engages the locking-disk, a cam, a lever actuated by said cam and provided with a pivoted trigger past which the latch is moved when retracted from the disk, and which supports the same until said disk begins to rotate, the cam afterward acting on said lever to release the latch to permit it to drop into contact with the disk.

8. An electrically-actuated announcing device for the purpose set forth, comprising an announcing-strip, winding mechanism embracing rollers to which the ends of said strip are attached, a reversible electric motor for operating said winding mechanism, a locking device for arresting the winding mechanism and for releasing it preparatory to a further movement of the announcing-strip, and electrically-actuated means for reversing the motor to reverse the direction of movement of said strip, comprising opposing magnets, a switch located between and alternately acted upon by said magnets, normally open circuits in which said magnets are included, and a traveling terminal adapted for alternate engagement with the terminals of said normally open magnet-circuits.

9. An announcing device for the purpose set forth comprising an announcing-strip, winding mechanism embracing rollers to which the ends of said strip are attached, a reversible electric motor for operating said winding mechanism, a locking mechanism for arresting the winding mechanism at the end of a predetermined movement of the strip and for releasing the winding mechanism preparatory to a subsequent winding movement thereof, and a reversing-switch for reversing said motor embracing a swinging switch, opposed magnets on the opposite sides thereof, terminals carried by said switch adapted for engagement with opposing pairs of terminals of the motor-armature circuits, normally open circuits in which the actuating-magnets are included, and a traveling terminal adapted for alternate engagement with the terminals of said normally opened magnet-circuits.

10. An announcing device for the purpose set forth, comprising an announcing-strip, winding mechanism embracing rollers to which the ends of the strip are attached, a
5 reversible electric motor for actuating said winding mechanism, a locking device for locking the mechanism at the end of a predetermined movement of the strip, and for releasing said locking mechanism preparatory to a
10 subsequent movement of the strip, embracing a shaft which rotates with the winding-rollers, a stop-disk on said shaft, an electrically-releasable locking-latch engaging said disk and a reversing-switch mechanism com-
15 prising a swinging switch provided with terminals adapted for alternate engagement with opposing pairs of terminals of the armature and field-magnet circuits, two opposing magnets included in normally open circuits
20 by which said switch is swung on its pivot, said shaft being screw-threaded and a screw-threaded nut on said shaft which travels endwise of the shaft as the shaft revolves, and constituting a terminal of the normally open
25 magnet-circuits adapted to engage stationary terminals of said magnet-circuits to close the same.

11. An announcing device for the purpose set forth, comprising an announcing-strip, a
30 winding mechanism embracing rollers to which the ends of the strip are attached and upon which it is wound, an electric motor for actuating said winding mechanism, a stop device for arresting the winding mechanism,
35 electrically-actuated means for releasing said

stop device, normally open circuits in which said motor and releasing mechanism are included, and having adjacent terminals and a switch vibrating between said terminals for alternately opening and closing the motor 40 and lock-releasing circuits.

12. An announcing device for the purpose set forth comprising an announcing-strip, a winding mechanism embracing rollers to which the ends of the strip are attached and
45 upon which it is wound, an electric motor for actuating said winding mechanism, a stop device for arresting the winding mechanism, electrically-actuated means for releasing said stop device, normally open circuits in which
50 said motor and releasing mechanism are included and having adjacent terminals, a switch vibrating between said terminals for opening and closing the releasing mechanism and motor-circuits, said motor-circuit being
55 provided adjacent to the locking device with a normally open switch which is closed when the locking device is operated to release the winding mechanism, and is opened when the locking device is again brought into action to
60 arrest the winding mechanism.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 22d day of March, A. D. 1905.

ARTHUR D. CLOUD.

Witnesses:

C. F. HOLMES,
F. A. MURPHY.