

(No Model.)

F. M. & B. L. WELSHIMER.
STATION INDICATOR.

No. 591,941.

Patented Oct. 19, 1897.

Fig. 1.

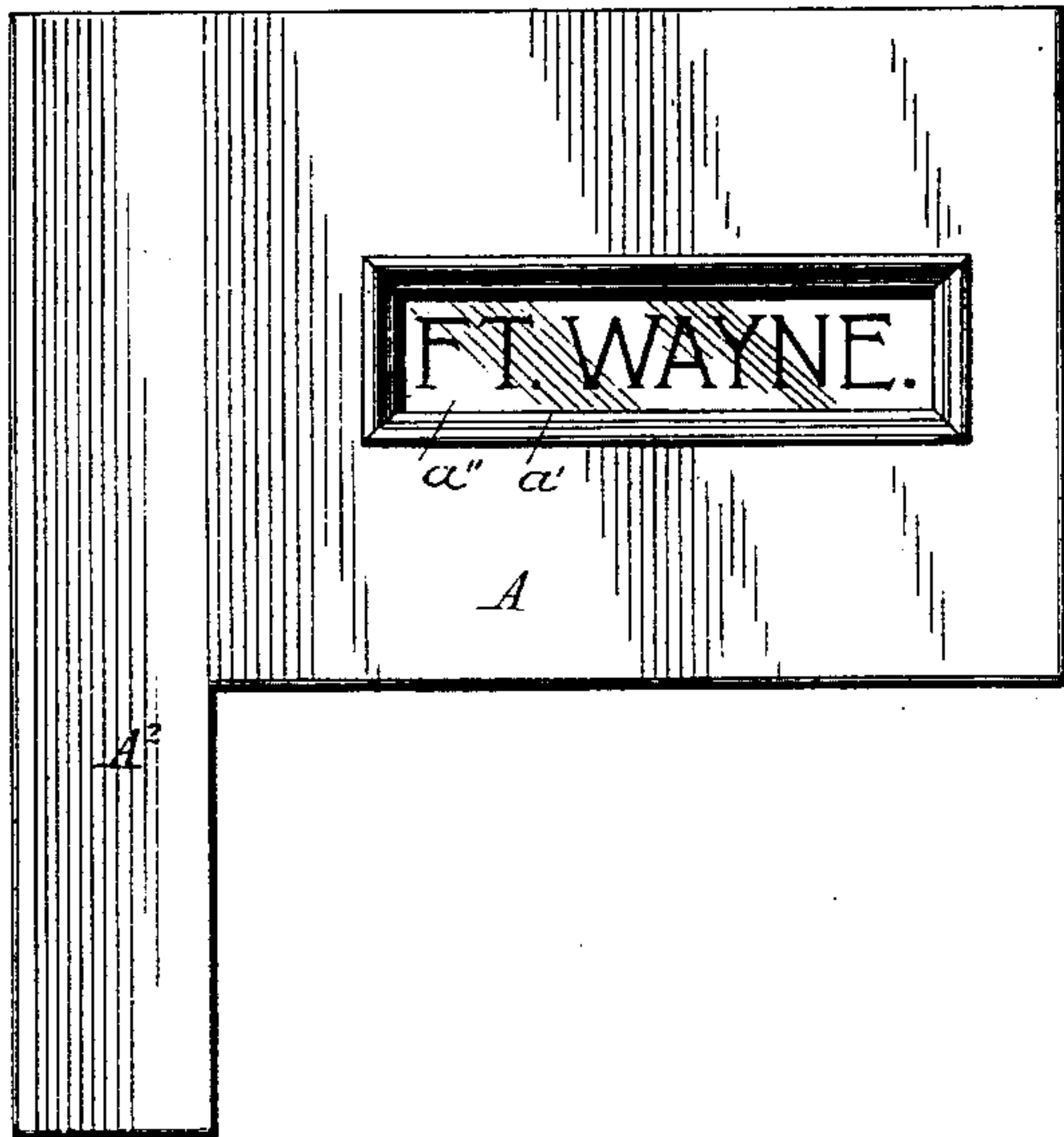


Fig. 2.

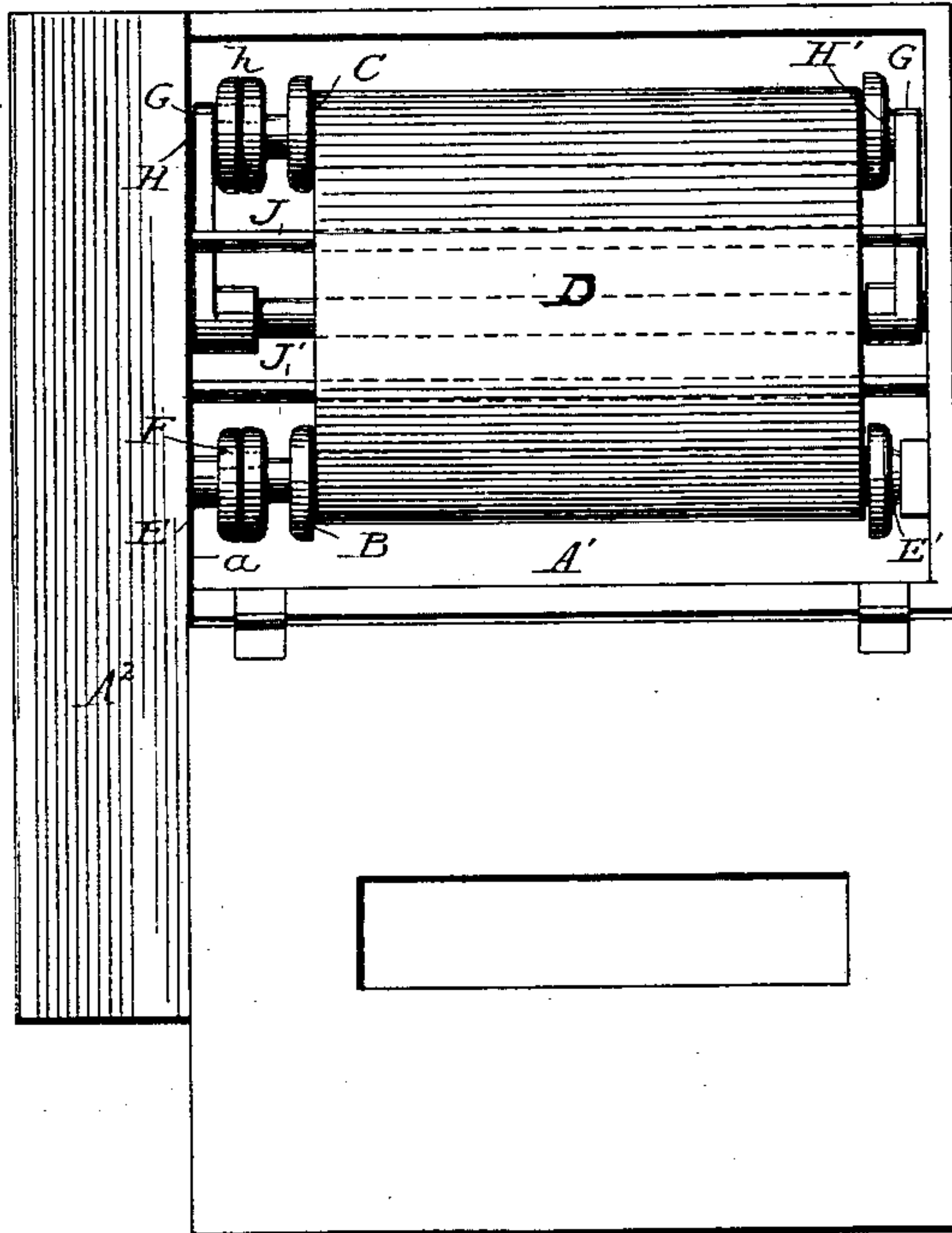


Fig. 3.

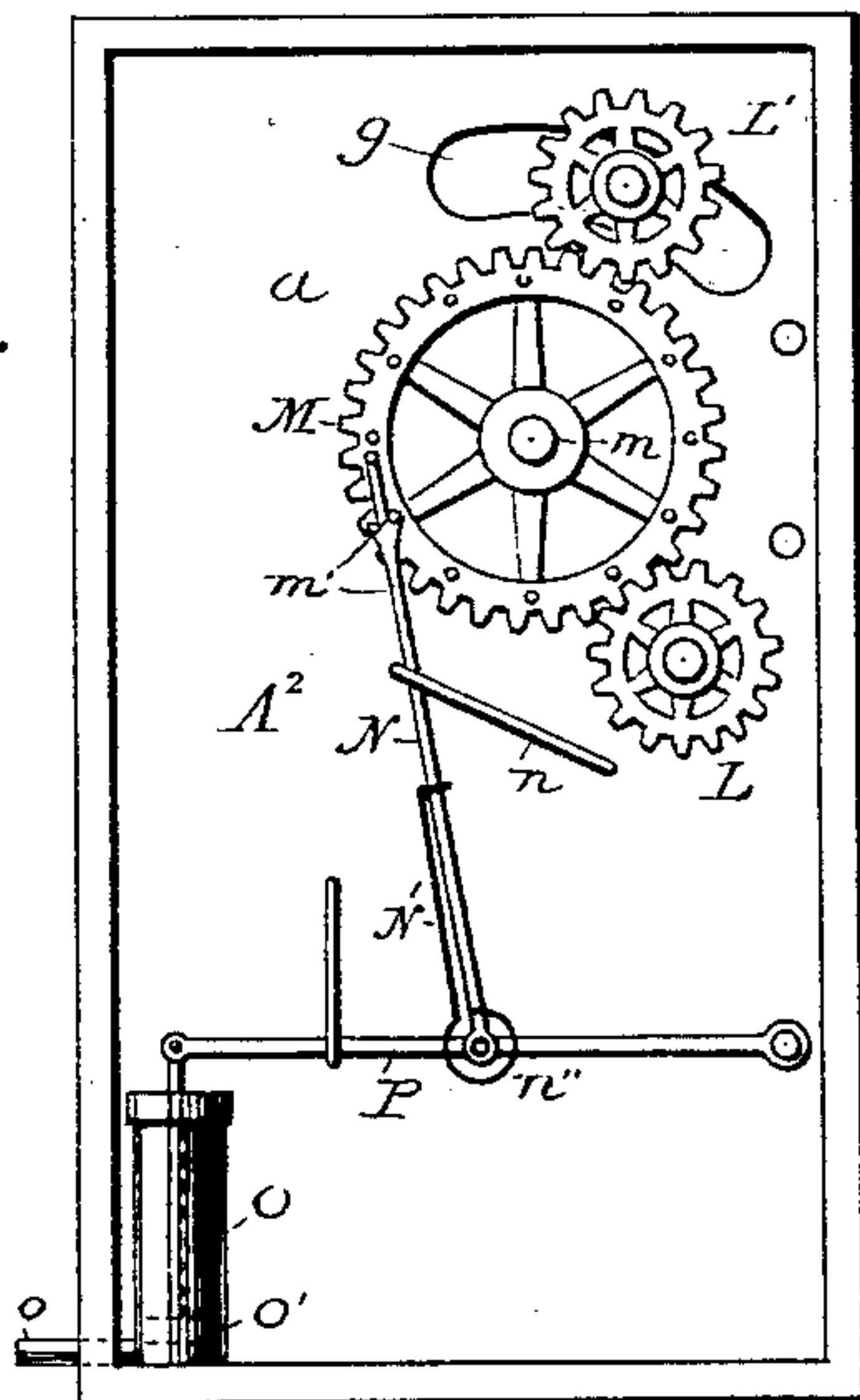
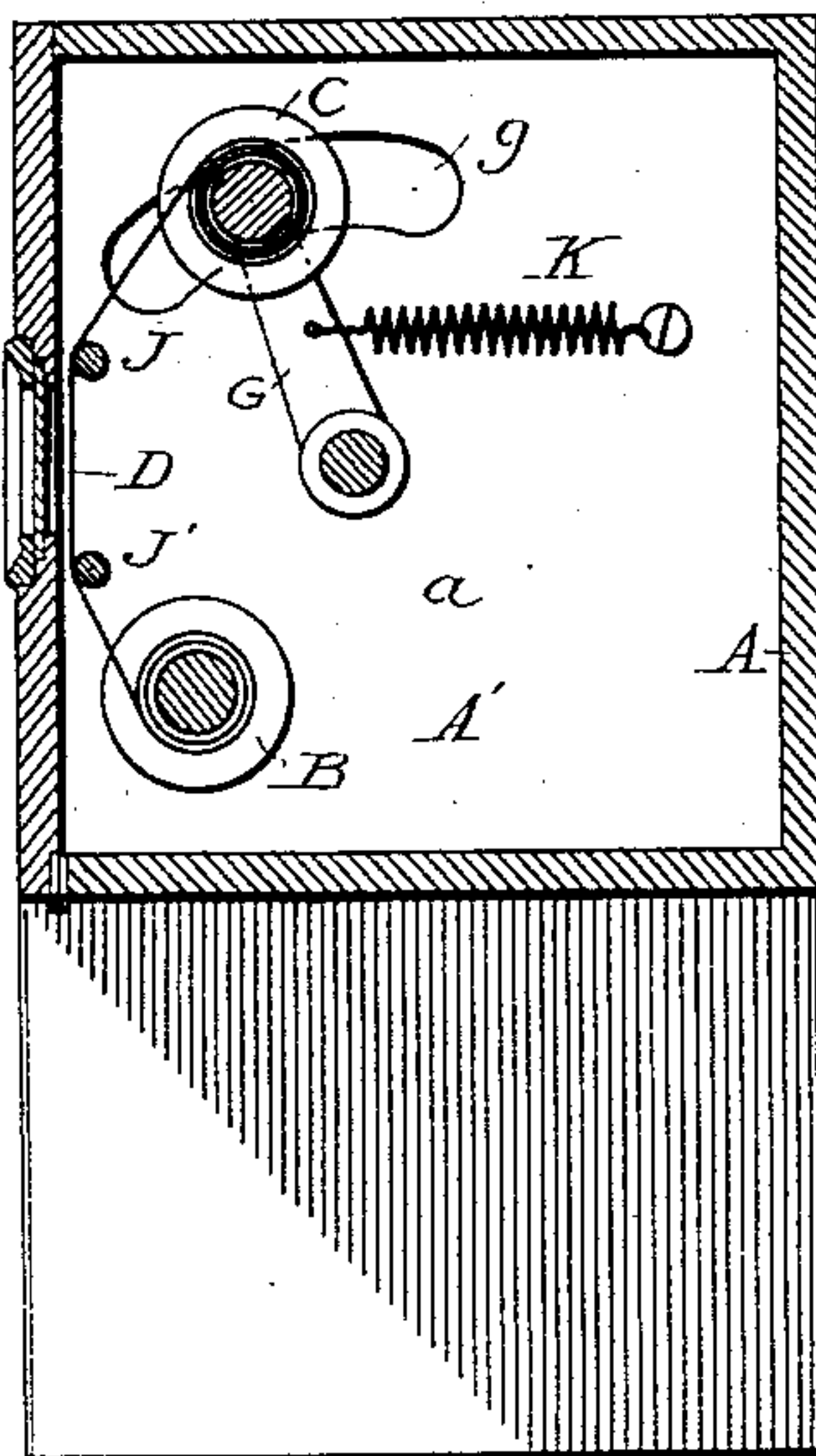


Fig. 4.



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STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 591,941, dated October 19, 1897.

Application filed February 19, 1897. Serial No. 624,255. (No model.)

To all whom it may concern:

Be it known that we, FILLMORE M. WELSHIMER and BIRNEY L. WELSHIMER, citizens of the United States, residing at Columbia, in the county of Whiteley and State of Indiana, have invented certain new and useful Improvements in Station-Indicators; and we do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in indicators for use on railway-cars of that class which are known technically in the art as "station-indicators," although the invention is well adapted for street-railway cars to indicate the various streets or crossings as they are approached by the car.

The object of our improvement is to provide a simple, efficient, and reliable indicator which is equipped with means for notifying the passengers in the car of the stations or crossings as they are approached by the car, thus saving the conductor the labor of calling out the stations.

A further object of our invention is to so construct the indicator that the apron or carrier for the names may be readily connected with or detached from the operative parts of the indicator in order that aprons with various different arrangements of names may be readily supplied to indicators of our invention.

A further object of the invention is to provide the indicator with means whereby the name-carrying apron may be easily and quickly reversed when the car is making a return trip in order that the names may be shown up by the indicator in their proper order.

To the accomplishment of these ends our invention consists in the combination of a suitable inclosing case provided with an observation-slot, a pair of revoluble spools or shafts journaled within said case, an apron or belt provided with suitable inscriptions denoting the names of stations, crossings, or

streets and attached to said spools or shafts, a driving-wheel which engages with pinions on the spools or shafts to rotate them in opposite directions, a feed arm or pawl engaging with said driving-wheel, and means for operating said feed arm or pawl. The operating means may consist of a piston-cylinder adapted to receive from a suitable source of supply a quantity of compressed steam or air for the purpose of imparting an impulse to a piston in said cylinder sufficient to move a lever which in turn actuates the feed arm or pawl to move the driving-wheel and the rolls or spools a sufficient distance to display the name on the apron through the observation-slot. In lieu of this operating mechanism we may employ a spring or weight which may be operatively connected with the feed-pawl to move the latter at the proper time for setting the indicator in motion to display the inscriptions on the apron or belt.

Our invention further consists in making this feed arm or pawl reversible, so as to engage with either of two sides of the driving-wheel in order to impel the latter in either direction for the purpose of actuating the spools or shafts properly, so as to move the apron or belt in one direction when the car is on an outbound trip and then in the reverse direction when the car is homeward bound.

The invention further consists in providing the spools with couplings adapted to engage with short shafts which are mounted in the case, said spools carrying the apron and being detachable from the indicator in order that the pair of spools with one apron may be removed and replaced by another pair of spools with an apron containing different inscriptions; and the invention further consists in the novel combination of devices and in the construction and arrangement of parts which will be hereinafter fully described and claimed.

To enable others to understand our invention, we have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a front elevation of an indicator constructed in accordance with our in-

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vention. Fig. 2 is an elevation with the front of the casing open to show the interior mechanism. Fig. 3 is an end elevation with the end door open to show the mechanism for actuating the spools and for reversing the direction of the spools and the apron. Fig. 4 is a vertical transverse sectional elevation.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

A designates the casing of our improved indicator. This casing has one end thereof provided with a vertical partition *a*, which divides the interior of the casing into two compartments A' A², one of which compartments A' is adapted to contain the spools B C and the traveling apron or belt D, while the other compartment A² contains the mechanism for operating said spools and the apron. In the lower part of the casing is journaled a pair of short shafts E E', which are situated near the ends of the casing and at a sufficient distance from each other to receive between themselves the lower spool B, and this lower spool and the lower pair of short shafts E E' are rigidly, but detachably, coupled together by the couplings F and suitable dowel-pins, in order that the spool may be readily connected to, or detached from, the lower shafts. On one end wall of the casing, and on the partition *a*, near the other end of the casing, are pivoted the swinging arms G G, in the upper ends of which are provided suitable journal-bearings to receive a pair of short upper shafts H H', which are spaced apart a distance sufficient to receive between themselves the upper spool C, said shafts H H' and the spool C being rigidly, but detachably, coupled together by means of the couplings *h* and suitable dowel-pins in order that the shafts and upper spool may be readily separated to permit of the removal of the spool C and its replacement by another spool. It will thus be seen that we provide a simple construction and arrangement of parts whereby a pair of spools may be easily connected to the shafts E E' and H H', and as readily disconnected therefrom whenever it is desired to change the spools in order to supply to the indicator a belt or apron containing inscriptions of a different character from the apron or belt which is displaced.

D designates the apron or belt, which is fastened at its ends to the pair of upper and lower spools B C, and which is adapted to travel in either direction in order that it may be wound first on one spool and then on the other for the purpose of indicating the names of the stations, crossings, or streets on the outward-bound and homeward-bound trips of the car in which the indicator is installed. This apron or belt passes over two guide rolls or rods J J', attached within the compartment A' of the casing and arranged closely adjacent to the observation-slot *a'*, which is covered by a glass pane *a''*, provided in the front door of the casing. These guide rolls

or rods serve to hold the apron or belt close up to the observation-slot in the casing for the purpose of displaying the inscriptions on said apron in a manner that they may be readily observed and read through the slot.

The short upper shafts H H', which are carried by the pair of swinging arms, work or play in arc-shaped slots *g g*, provided in the end and partition *a* of the casing, and to these swinging arms G are connected the coiled spring K, which is fastened to the casing and serves to pull the arms G in a direction away from the lower spool B in order that the spool C may serve as a tension-roller to keep the apron or belt in a taut, stretched condition. It will be observed that the springs act on the arms and shafts H H' in a manner to pull the roller C away from the roller B, journaled in the stationary shafts E E', and thus the apron or belt I is kept taut and made to present a smooth appearance back of the observation-slot *a'* in the casing.

We will now proceed to describe the mechanism for operating the spools in order to wind the apron and to impel it in either direction. The shaft E' extends through the partition *a* and is provided with a gear-pinion L, and one of the shafts H' projects through one slot *g* in the partition *a* and is likewise provided with a gear-pinion L'.

M designates the driving-wheel in the form of a master-gear, which is journaled on a shaft *m*, attached to the partition *a* at a point between the shafts E' H' and the gears L L' thereon, whereby the gears L L' mesh with the driving-wheel or master-gear on opposite sides thereof. This arrangement causes the spools B C to rotate in opposite directions simultaneously, and thus the apron is caused to unwind from one spool while it is wound on the other spool, and vice versa. On the face of this driving-wheel or master-gear is provided a series of pins or ratchet-teeth *m'*, and with said pins or teeth of the wheel or gear engages the pronged end of a feed arm or pawl N, which is reversible or adjustable in order that it may engage with either side of the driving-wheel or master-gear. This feed pawl or arm is fitted in a loop-shaped keeper or guide *n*, which is fastened to the partition *a* of the casing, and the pawl or arm is held in position by a spring N', which engages with the arm or pawl, as shown by Fig. 3. This arm or pawl is adapted to be moved by mechanism which imparts an impulse to the apron or belt sufficient to move the same a distance to display a new inscription thereon through the observation-slot. One embodiment of this mechanism consists of a pressure-cylinder O, having a pipe *o* connected thereto, which pipe leads to a suitable source of supply of air or steam, which may be admitted through the pipe to the cylinder. A piston O' is fitted in said pressure-cylinder, and the stem of this piston passes through a head of the cylinder in order that it may be pivoted to one end of a lever P, hung or ful-

crumed at its opposite end to the partition *a*, and having the feed arm or pawl *N* pivoted thereto, as at *n''*, at a point between the fulcrum of the lever and the pivotal attachment of the piston stem or rod thereto. In lieu of this described operating mechanism for the feed pawl or arm we may use a weight or spring with suitable governing mechanism for throwing the same into and out of operation at proper intervals; but as such mechanism will readily suggest itself to a skilled mechanic we have not deemed it necessary to illustrate the same herein.

The operation of our indicator may be described as follows: With the pair of spools properly connected to the short shafts, and the feed pawl or arm adjusted to engage with the pins or teeth on one side of the driving-wheel or master-gear when the car is on the outbound trip, steam or air is admitted to the piston-cylinder in order to raise the piston, which in turn lifts the lever *P* and the feed-pawl, so that the latter turns the wheel or gear *M* in one direction for a limited distance. The wheel or gear *M* thus rotates the gears *L* *L'* and the shafts *E'* *H'* sufficiently to move the apron a distance proper for the display of the inscription on the apron. This operation is repeated each time the car passes a crossing, station, or street and before it reaches the next crossing, the steam or air being permitted to escape through a suitable exhaust-port in the cylinder when the piston shall have reached the limit of its upstroke. When the car completes its outbound trip and is ready to start on the home trip, the conductor opens a door in the end of the casing, thus exposing the compartment *A*² and the operating mechanism, so that the conductor may readily shift the feed pawl or arm to the opposite side of the master-gear or driving-wheel, whereby the pawl or arm serves to impel the master-gear or wheel in the reverse direction, and thus the apron is moved in the opposite direction to display the inscriptions thereon in reverse order during the home trip of the car.

We are aware that changes in the form and proportion of parts may be made by a skilled mechanic without departing from the spirit of our invention.

What we claim as new is—

1. In an indicator, the combination with a casing provided with an observation-slot, of a pair of short lower shafts journaled in said casing, a lower spool fitted between and coupled to said lower shaft, a pair of short upper

shafts journaled in arc-shaped slots in the casing, an upper spool fitted between the short upper shafts and coupled thereto, an apron attached to said spools, and mechanism connected with the short shafts for intermittently rotating the spools and thereby feeding the apron from one spool to the other.

2. In an indicator, the combination of a casing provided with an observation-slot, a pair of spring-controlled arms pivoted within the casing, a pair of short shafts journaled in said arms and having their ends extending through arc-shaped slots in the casing, a gear-wheel located on the end of one of the shafts, a spool removably journaled in the shafts, a relatively stationary spool journaled in another pair of short shafts, a gear-wheel on the end of one of said shafts, an apron connected to the two spools and normally held in a taut condition, a master gear-wheel journaled between the two spools and geared thereto, the said master-gear being provided on its outer face with pins, a reversible feed arm or pawl engaging with the pins of the master gear-wheel, a lever attached to said pawl for raising the same, and means for intermittently operating the lever and thereby the gearing mechanism.

3. In an indicator, the combination of a casing provided with an observation-slot, a pair of spring-controlled arms pivoted within the casing, a pair of short shafts journaled in said arms and having their ends extending through arc-shaped slots in the casing, a gear-wheel journaled in the shafts, a relatively stationary spool journaled in another pair of short shafts, a gear-wheel on the end of one of said shafts, an apron connected to the two spools and normally held taut by the spring-controlled arms, a master gear-wheel journaled between the two spools and geared thereto, the said master-gear being provided on its outer face with pins, a reversible feed arm or pawl engaging with the pins, a lever attached to said pawl for raising the same, and a pressure-cylinder having its piston connected with the lever for operating the same; whereby the apron-carrying spools may be intermittently rotated.

In testimony whereof we affix our signatures in presence of two witnesses.

FILLMORE M. WELSHIMER.
BIRNEY L. WELSHIMER.

Witnesses:

GEORGE W. JONES,
ED SHARP.