

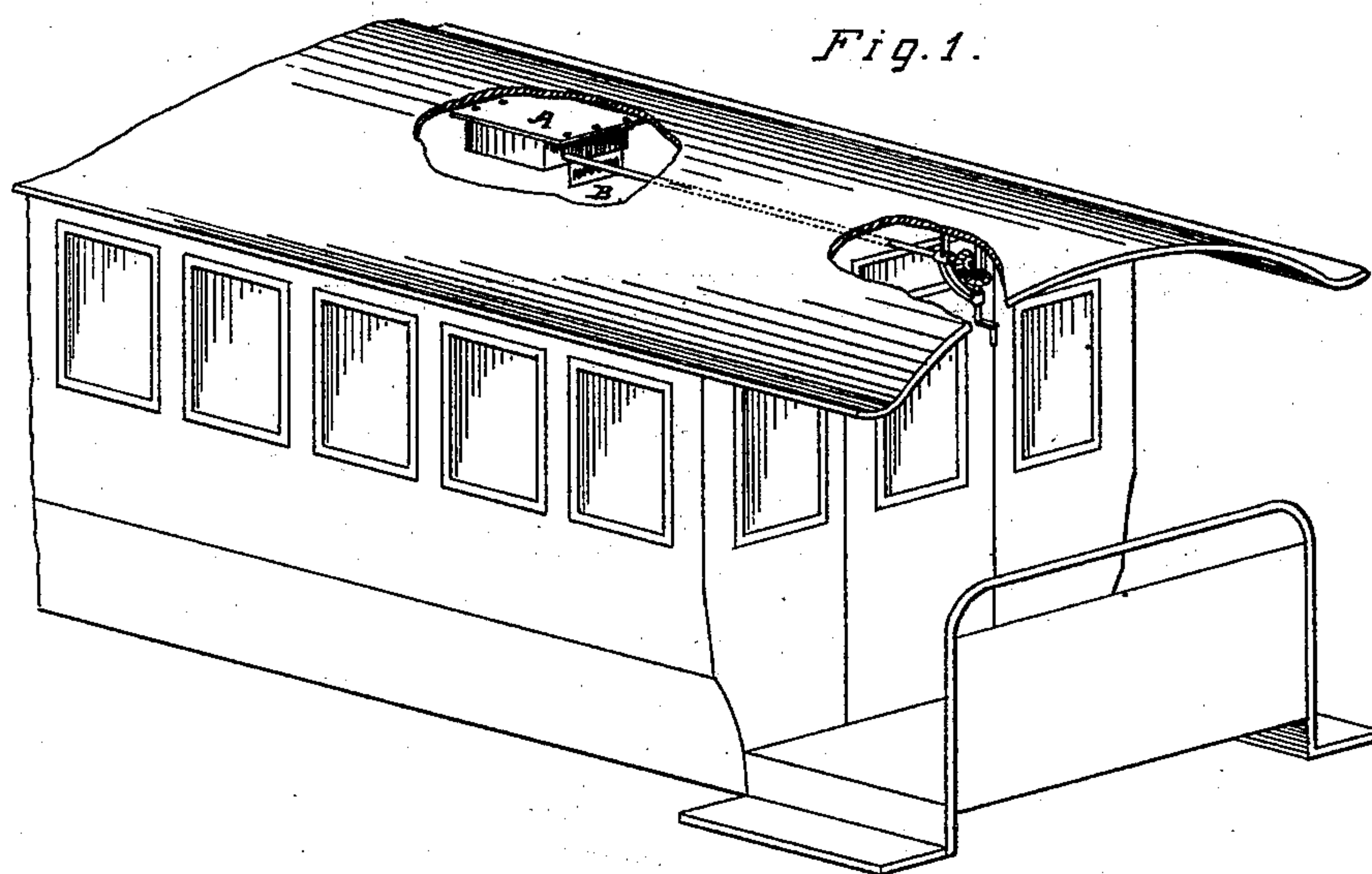
(No Model.)

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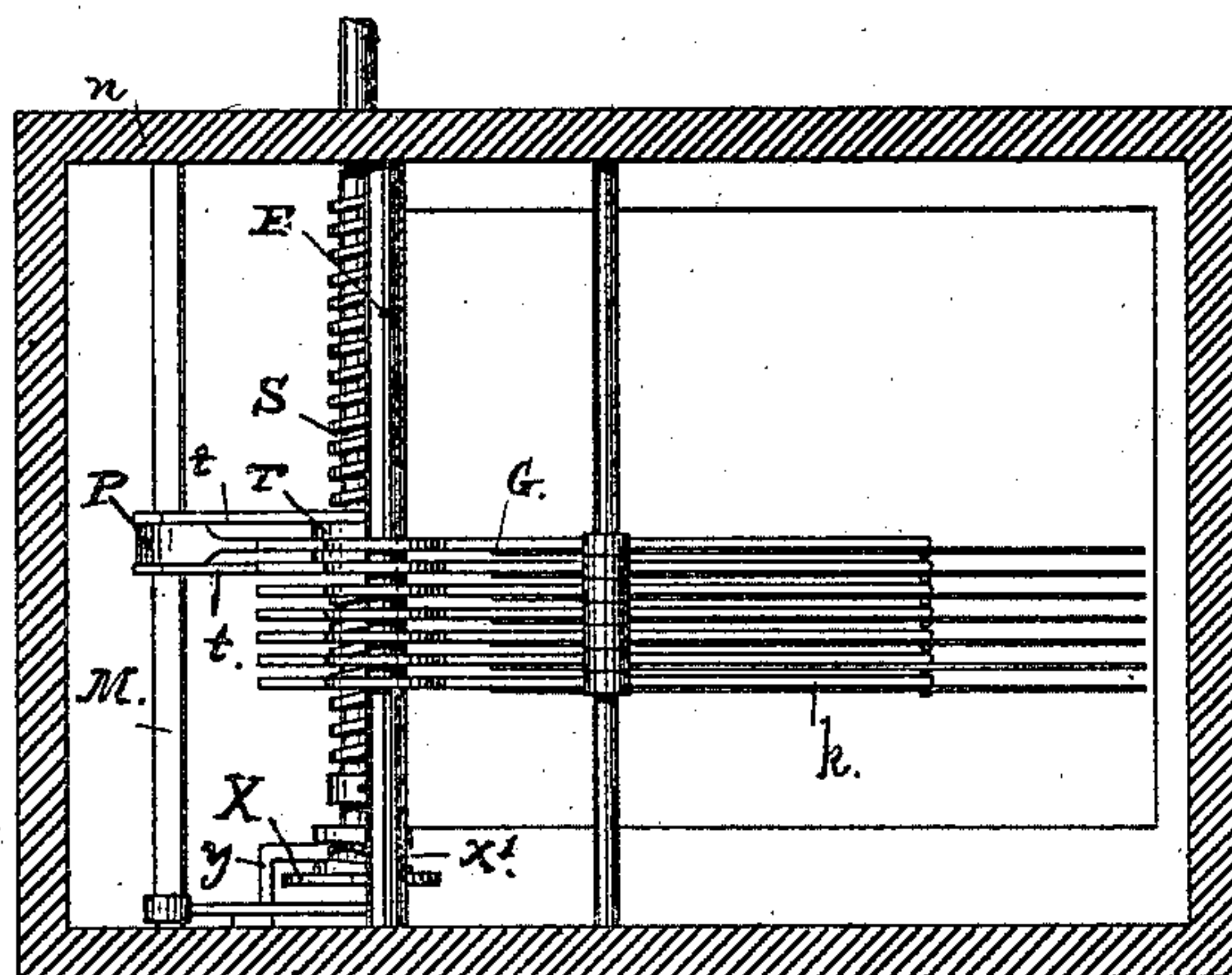
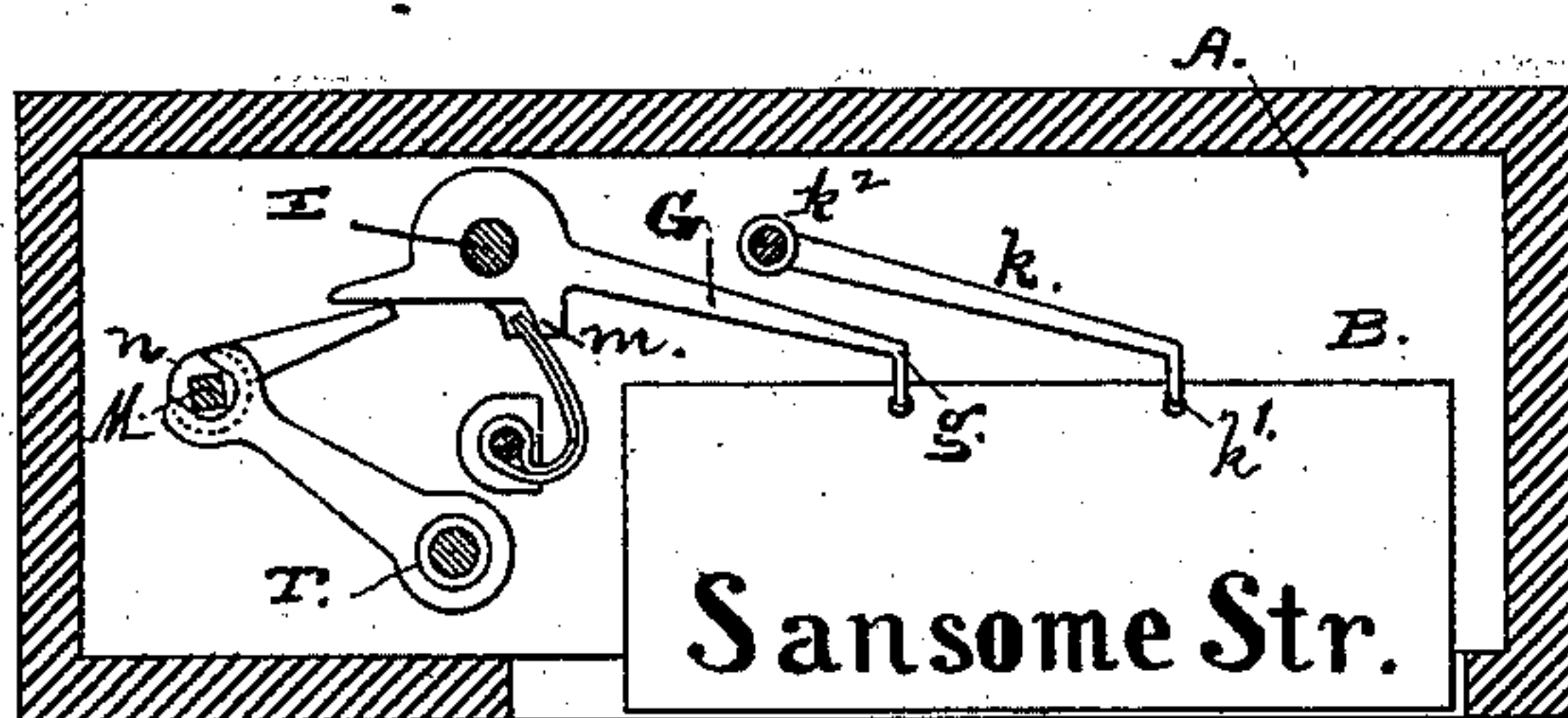
T. MELROSE.  
STATION INDICATOR.

No. 285,499.

Patented Sept. 25, 1883.



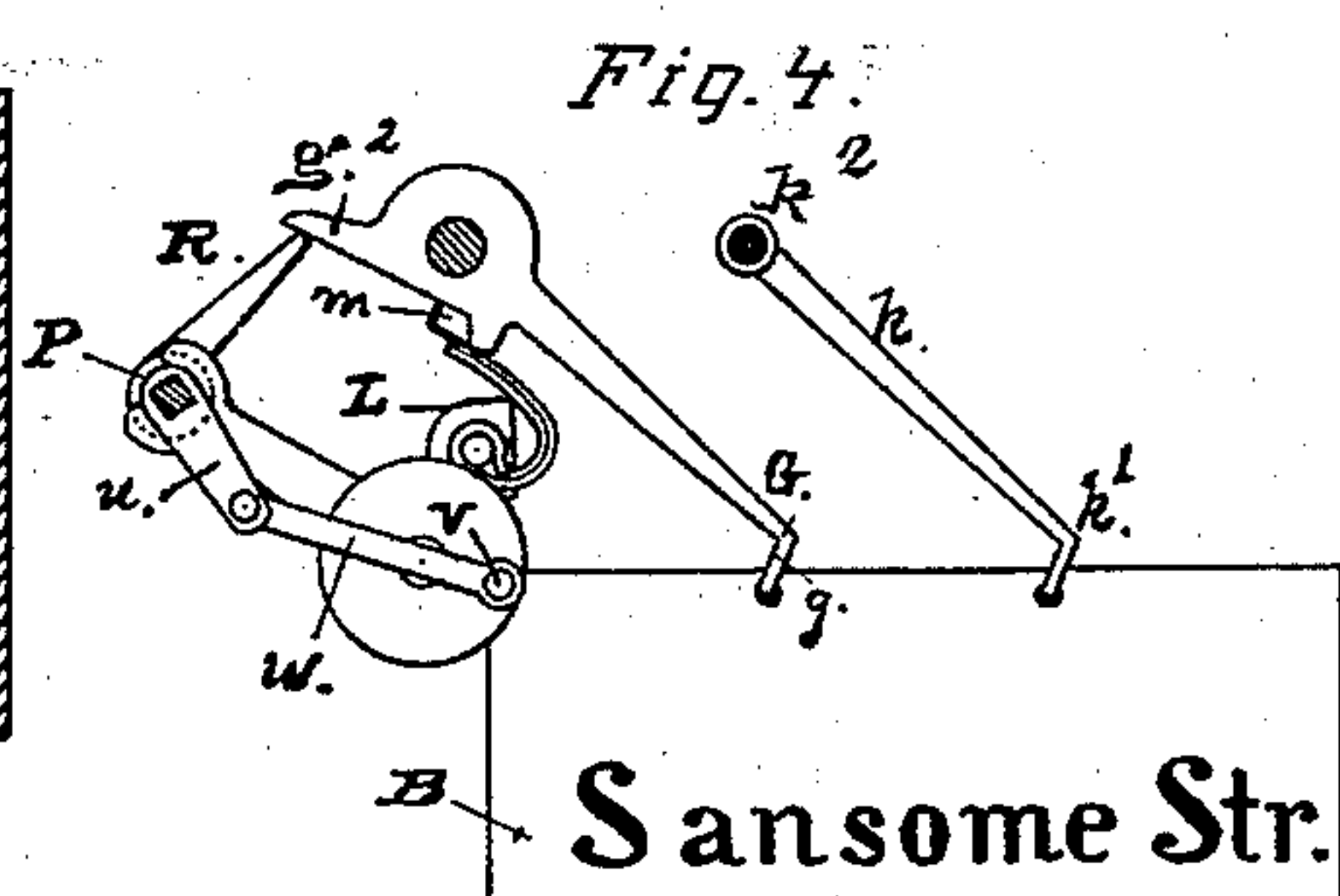
*Fig. 2.*



Witnesses:

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*Fig. 4.*



*Fig. 3.*

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By his Atty., *Edw. E. Osborn*

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Fig. 6.

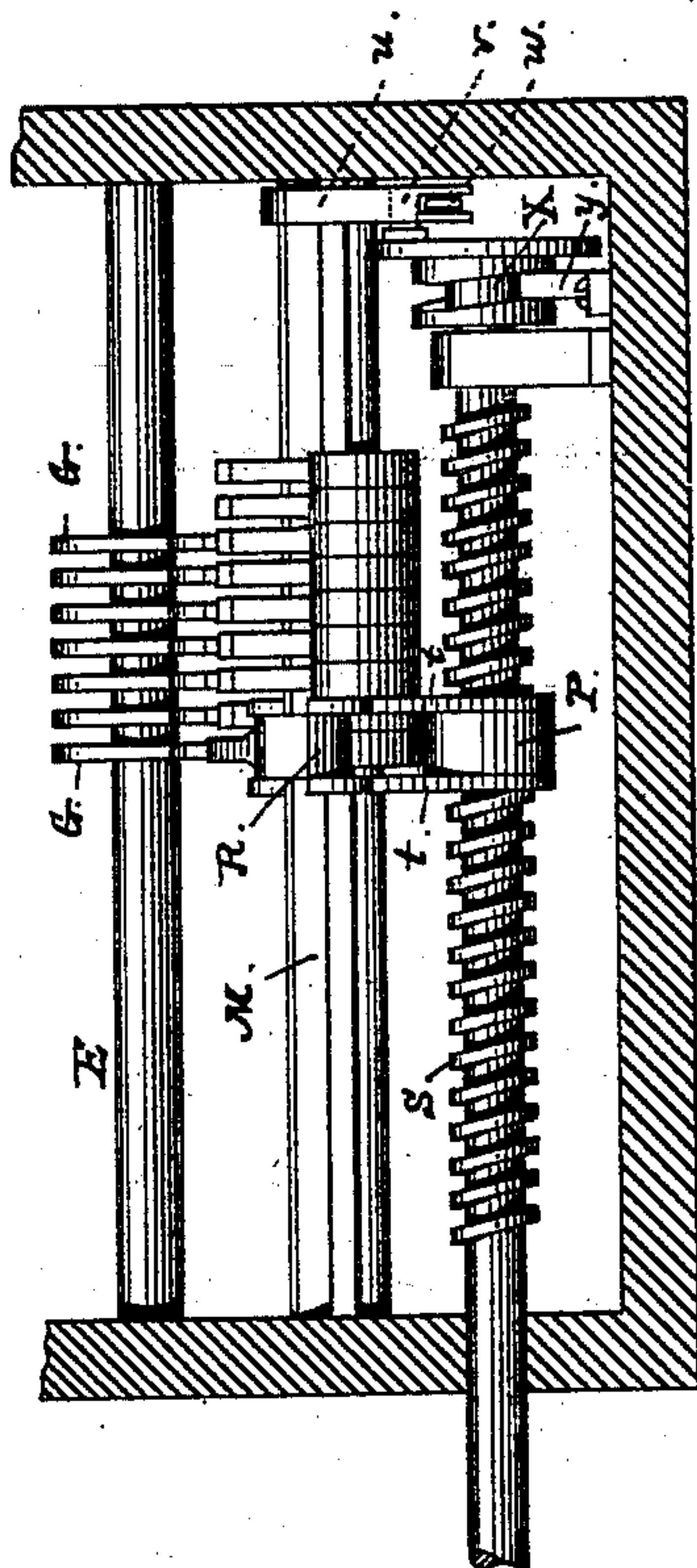


Fig. 5.

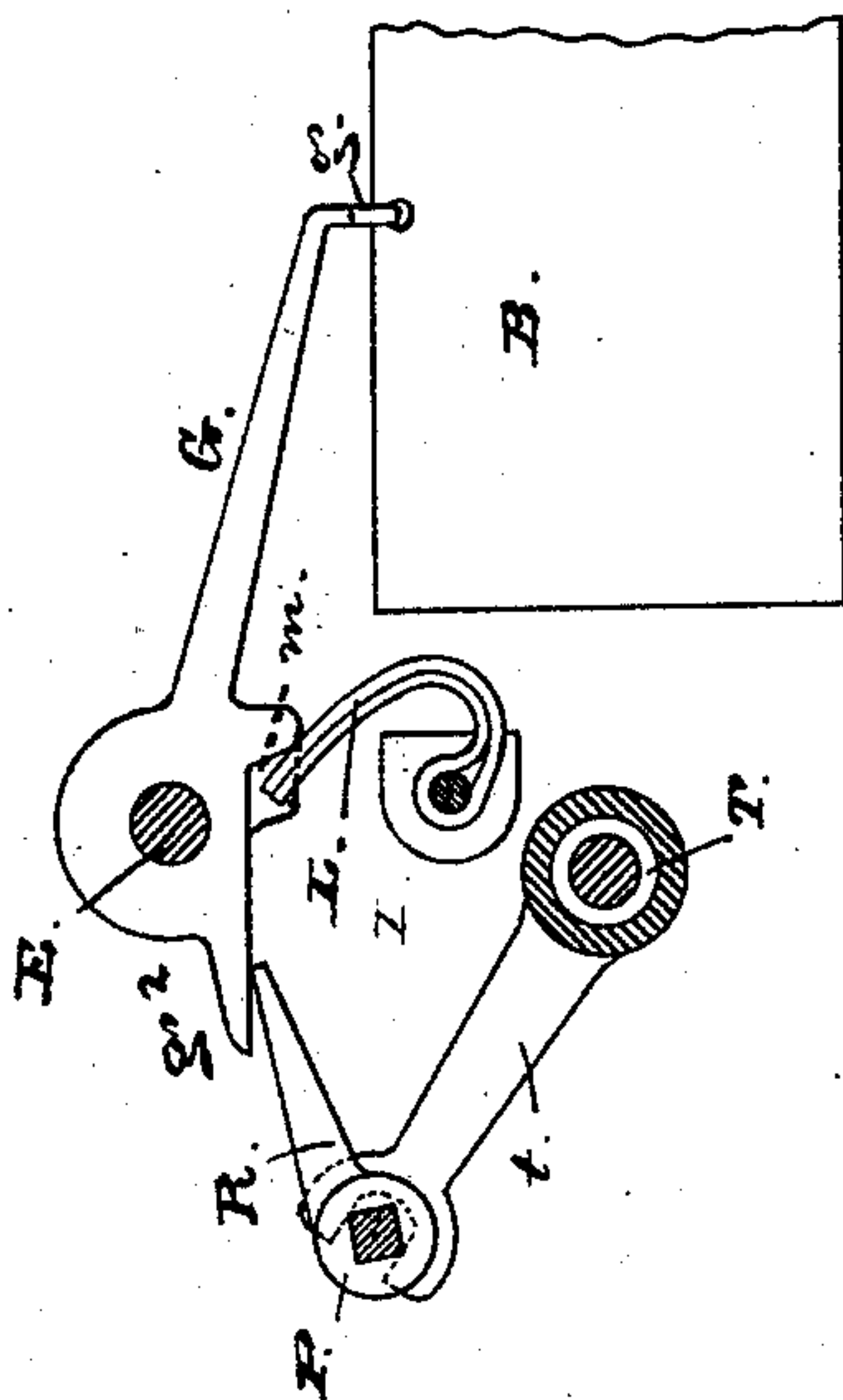
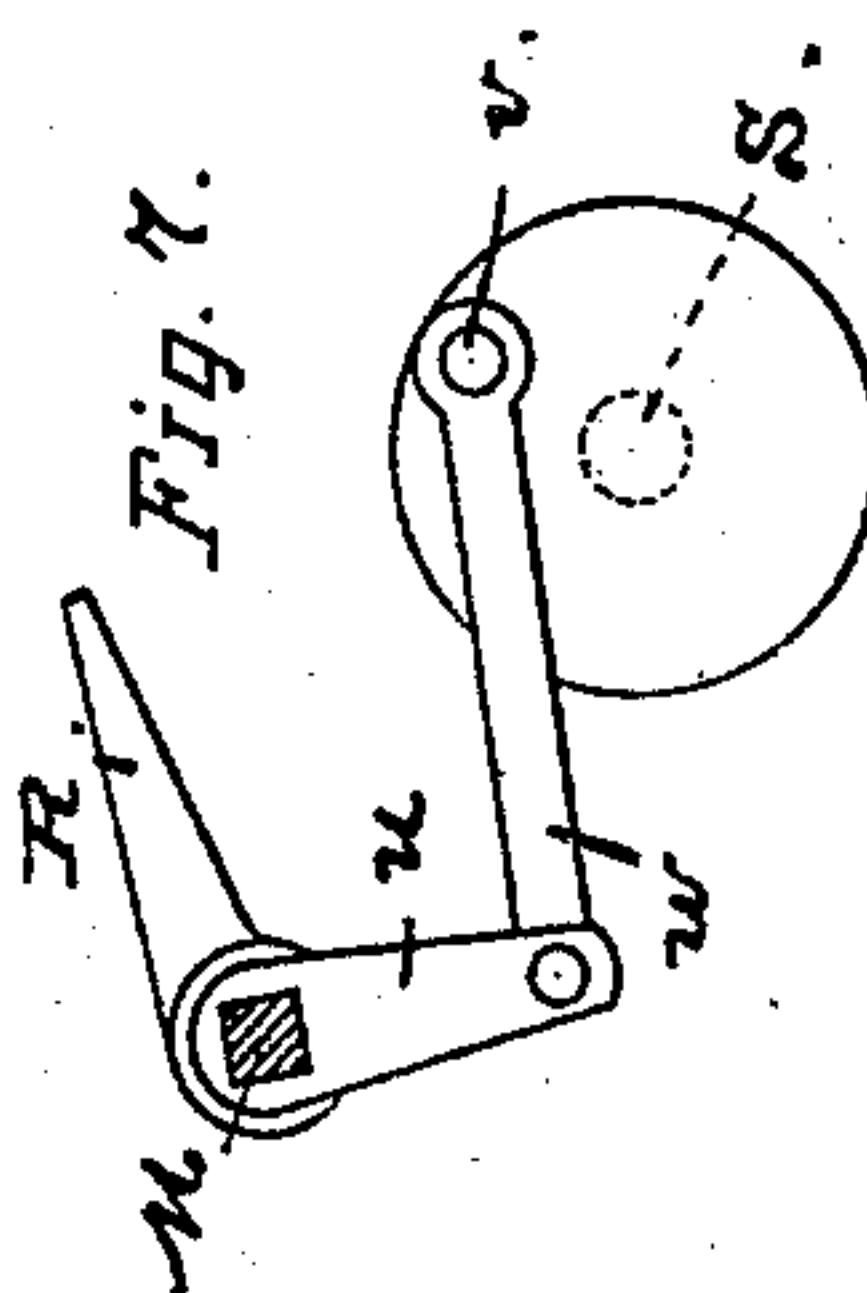


Fig. 7.



Witnesses:

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Inventor:

*Thomas Melrose*

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# UNITED STATES PATENT OFFICE.

THOMAS MELROSE, OF SAN FRANCISCO, CALIFORNIA.

## STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 285,499, dated September 25, 1883.

Application filed June 13, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS MELROSE, a citizen of the United States, residing in the city and county of San Francisco, in the State of California, have made and invented certain new and useful Improvements in Street and Station Indicators, of which the following is a full, clear, and exact description, reference being had by figures and letters to the accompanying drawings.

The object of my invention is to produce a simple, cheaply-constructed, and reliable indicator for street and railway cars.

In the construction of this indicator I dispense with actuating-springs, clock-work, endless belts or aprons, and other complicated mechanism, while it has the capacity to work backward or forward equally well, so that no special reversing mechanism or particular adjustment of parts is required to reverse its action.

The following description fully explains the manner in which I proceed to construct, apply, use, and carry out my said invention, the said drawings showing, in Figure 1, a view of the indicator applied to a street-car, and illustrating one mode of operating the shaft from the outside of the car. Fig. 2 is a vertical longitudinal section through the indicator-case and parts within. Fig. 3 is a horizontal section taken just above the shaft E. Fig. 4 is a detail view of the operating mechanism; Fig. 5, a vertical transverse section through the case, and Figs. 6 and 7 parts in detail.

The case to contain the mechanism is of rectangular shape, closed on the top, sides, and ends, but partly opened at the bottom. Its size is governed by the number as well as the size of the indicating-cards it is desired to use.

According to the proportions given in the principal figures of the drawings, the cards B are about three by eight inches, and the inclosing-case is about four inches deep and ten inches long, each, and having about one-eighth inch room. The cards, having the names of the street or station on one or both sides, are arranged in close order within the space, and so that their lower edges are about flush with the bottom of the opening. By means of the mechanism hereinafter described, these cards

are dropped down in succession, and at required intervals of time, below the bottom of the case in such manner that the name or matter on its face is exposed to view, and as one card is dropped and held for a certain time to view, it is then drawn up into the box at the time that the next card is exhibited. The mechanism to accomplish this is actuated by a rod; or, if required, a flexible cord can be used, and it is constructed substantially as follows: A fixed shaft, E, is placed across the space in the upper part of the box A, to carry a number of arms, G G, working loosely upon it. Fixed guide-plates *h*, carried by a second rod, I, below the shaft E, serve to regulate the distances between the arms G and keep them always in line. To the inner end, *g*, of each arm is attached a card B, and the rear end terminates in a foot or extension, *g*<sup>2</sup>. To the top of each card, at or near the front corner, there is attached a second rod or bar, *k*, having its inner end, *k*<sup>2</sup>, connected to the top of the box by a pivot or hinge joint. These two bars G *k* must be of equal length from the outer point of attachment to the points of oscillation, in order to produce parallel motion of the card. The spaces between these sets of rods and cards are sufficient to allow free movement up and down. To hold these cards up into the case, which is their normal position, and to draw them up out of action, I place beneath each arm, at the center, a spring, L, with the outer end working in a curved socket, *m*, on the under side of the arm and forward of its pivot.

A rock-shaft, M, mounted in bearings *n n*, carries a loose sleeve, P, upon which is fixed a finger, R, in such position that it projects forward beneath the line of arms G and under their projecting ends *g*<sup>2</sup>. This shaft is square in cross-section, and the sleeve is made to move along it from end to end by the action of a screw-shaft, S, and a traveling nut, T, having jaws or forked plates *t t*, that embrace the sleeve upon each side of the finger R. By applying rotary motion to this screw-shaft, the finger will travel along from one side to the other of the case a certain distance to each complete turn or revolution of the shaft. These movements bring the finger in succession beneath each one of the toes, and then by rock-



ing or oscillating the finger the rear ends of the arms will be thrown up and the outer ends depressed. This oscillating movement is imparted by means of a crank-arm, *u*, fixed on the outer end of the shaft, a wrist-pin, *v*, on the end of the screw-shaft S, and a connecting-link, *w*. Rotation of the screw-shaft S therefore produces the combined oscillating and traveling movements of the finger, one movement throwing the arm down and exposing the card, and the other movement bringing the finger from one toe to the next. By the double motion thus obtained from the single shaft, it becomes necessary to hold the nut T and sleeve at rest while the finger is being lifted, because the longitudinal movement of the nut T while the finger moves upward would otherwise carry the finger beyond or out of line with the toe. A stop motion is therefore applied to the screw-shaft, consisting of a cam, X, having a groove, *x'*, that is partly parallel with the pitch of the screw-thread and partly of a reversed pitch, to act upon a fixed point or stud, *y*, engaging with the groove of the cam. Now, at each revolution of the shaft this cam-groove for a certain part of the revolution gives a longitudinal sliding movement to the shaft in a direction contrary to the direction of the screw-thread, and the nut T is therefore held practically at rest during such time, because the travel in one direction produced by the screw-thread is counteracted by the backward sliding movement of the shaft S in its bearings. The cam X is so set that this stop takes place during each upward movement of the oscillating finger. The space between the arms, the pitch of the screw, and the lifting movement of the fingers must be so proportioned and adjusted that each length of travel of the nut must bring the finger exactly under and in line with an arm, and the downward movement of the finger is effected during the travel from one arm to the next. By giving the shaft a single complete turn the nut T is advanced, the finger depressed, and then raised up against the toe *g'* of the arm in line with it during the time of movement that the nut is held at rest. At the downward movement of the finger the card exposed is retracted by the spring, and the upward movement of the finger brings down the next card into view. One revolution of the shaft S thus brings a new card out of the case.

The operation of the mechanism is the same, whichever way the shaft is turned, so that by simply reversing it the cards will be exposed in contrary order. To operate the shaft S a counter-shaft geared into it on the outside of the car, in position to be operated by the driver or the conductor, may be employed; or connec-

tion with the case mechanism may be effected by a pull-cord to operate the indicator.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a street or station indicator, the combination, with a suitable case having opening in the bottom for the passage of cards, of the rocking arms G, to which are secured the cards having rearward-projecting toes *g'*, traveling fingers R, moving on shaft M, for engaging under the toes and lifting them, the screw-shaft S, arms *t*, spring L, operating to restore the arms G when the engagement between the fingers R and toes *g'* ceases, and a suitable stop motion for insuring engagement between finger and toe, as herein set forth.

2. In a street or station indicator, the combination of a suitable case having opening in bottom for the passage of cards, the card-carrying arms G, provided with spring L, for keeping card up inside of case, square shaft M, provided with traveling rocking fingers R, the screw-shaft S, nut T, working thereon, having the forked arms *t t*, for embracing and moving the finger R, the eccentric *v*, crank *u*, and link *w*, for rocking the shaft M, substantially as herein set forth.

3. In a street or station indicator, the combination, with the mechanism for holding and lowering the indicating-cards, of the screw-shaft S, traveling nut T and cam X upon said shaft, and fixed toe *y*, engaging with the cam to produce the stop in the movement of the parts when a card is down, as herein set forth.

4. In a street and station indicator, the combination of the rocking arm G and its attached card B, pivoted supplementary arm K, spring L, acting upon arm G to keep the card raised out of sight, and mechanism whereby said rocking arm is depressed and held down, and, after an interval of rest, is released, to be thrown up again by the spring, substantially as herein set forth.

5. In a street and station indicator, the combination of a suitable case, A, having an aperture in its bottom, the series of rocking arms G, carrying the cards, the screw-shaft S, having upon it the traveling nut T, which is provided with forked arms *t t*, sliding fingers mounted upon square shaft M and moved along by arms *t*, a cam on screw-shaft, crank *u* on shaft M, and connections to cam for rocking shaft M, substantially as herein set forth.

THOS. MELROSE. [L. S.]

Witnesses:

EDWARD E. OSBORN,  
F. M. DOWNEY.