

No. 762,670.

PATENTED JUNE 14, 1904.

F. H. WEHRMANN.  
AUTOMATIC STREET CAR INDICATOR.

APPLICATION FILED OCT. 27, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.

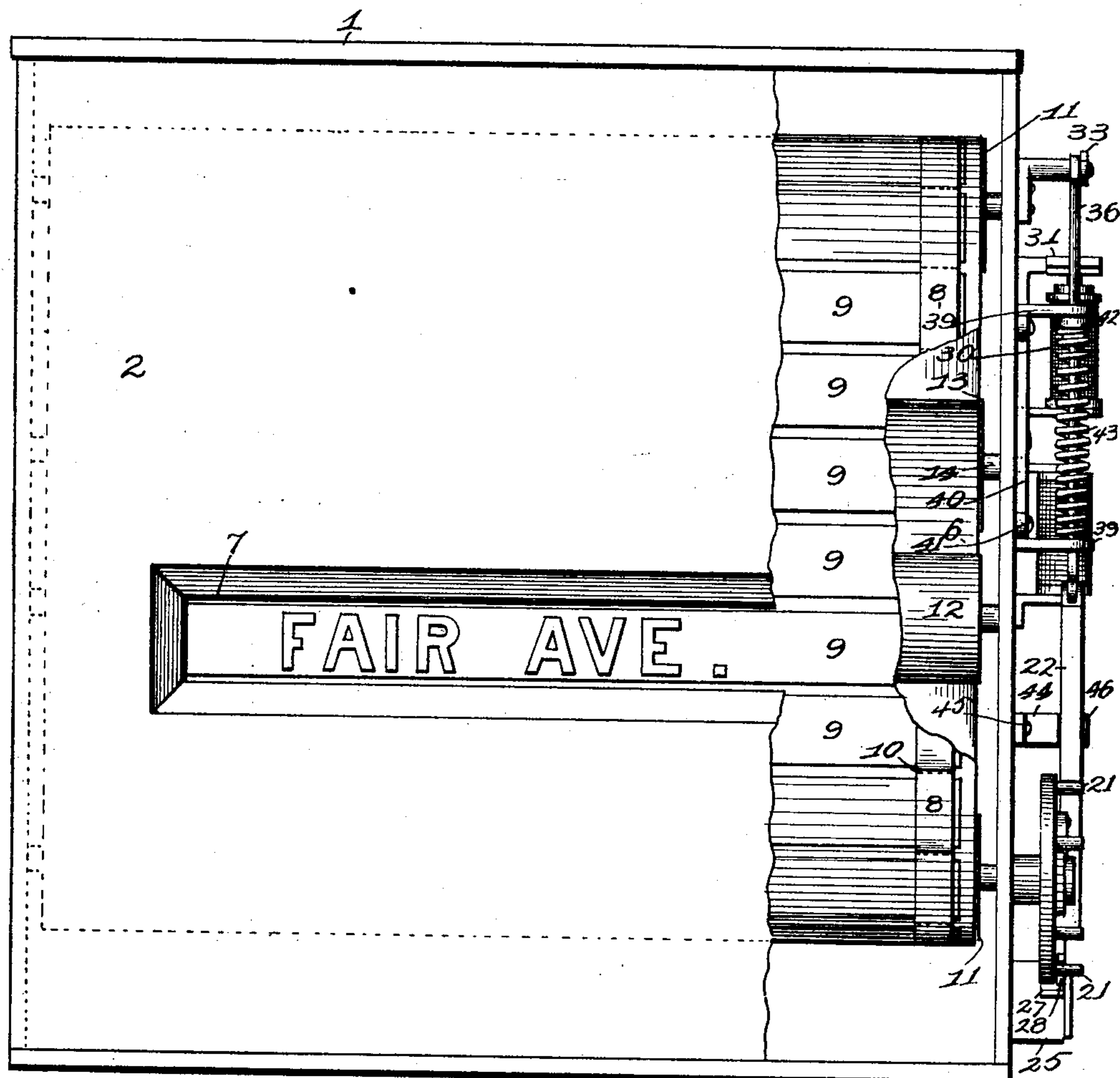
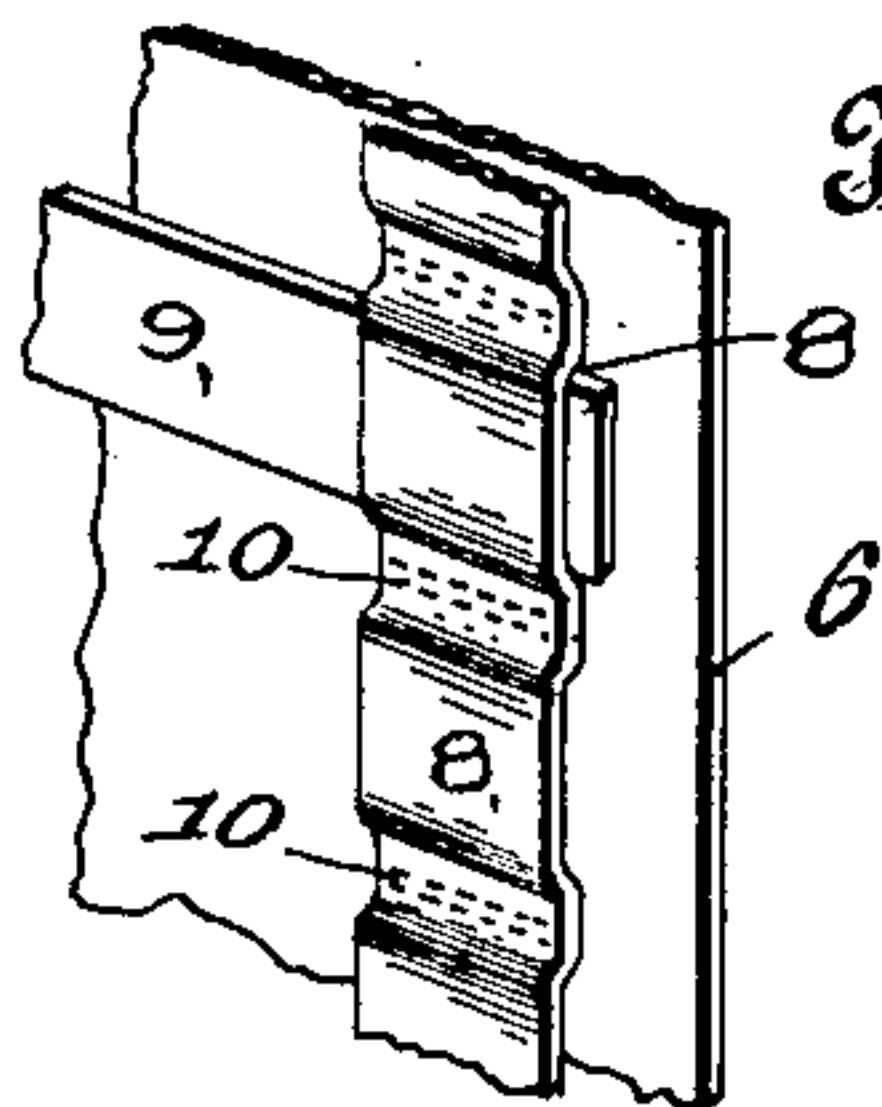


Fig. 6.



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3 SHEETS—SHEET 2.

Fig. 2.

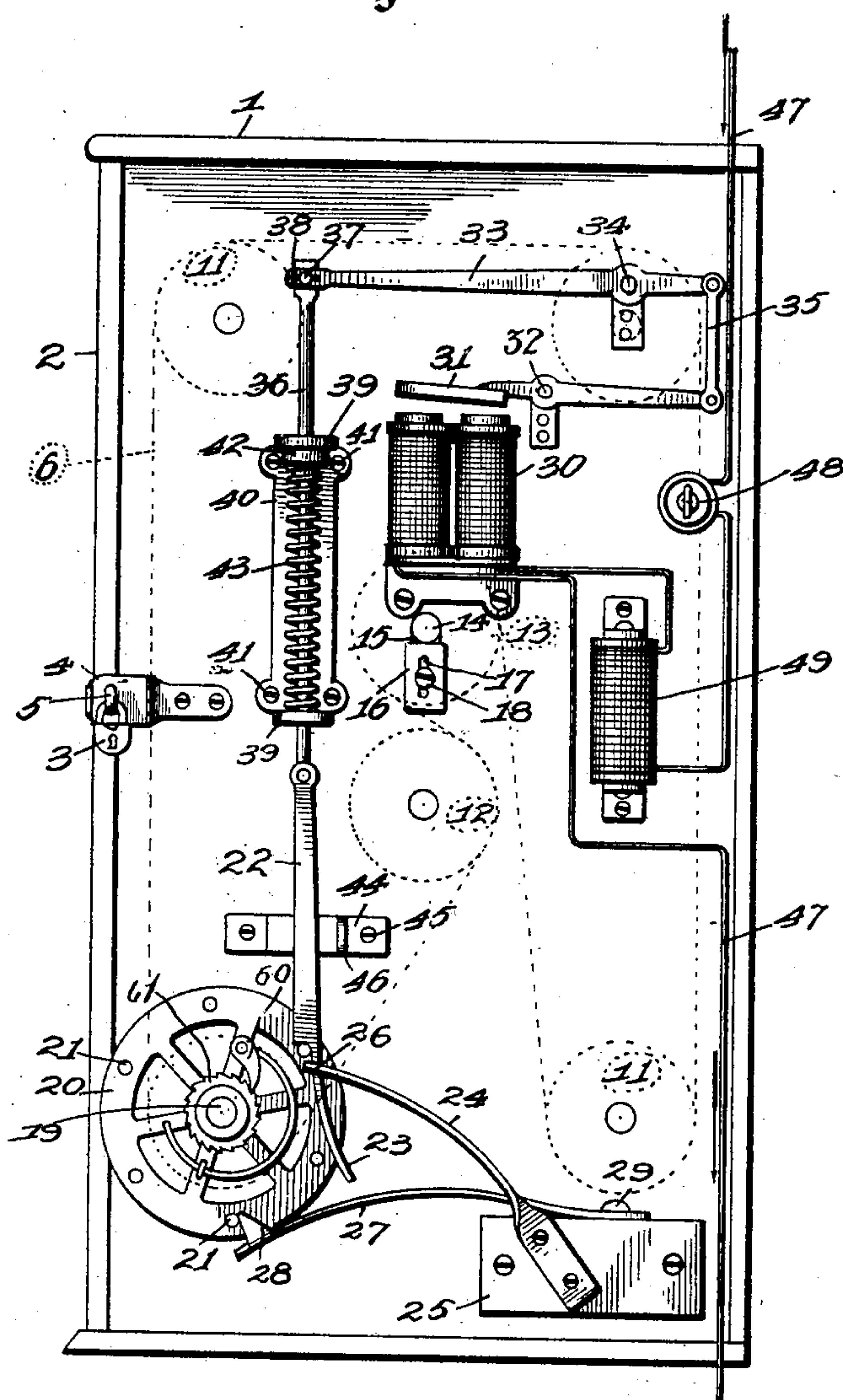
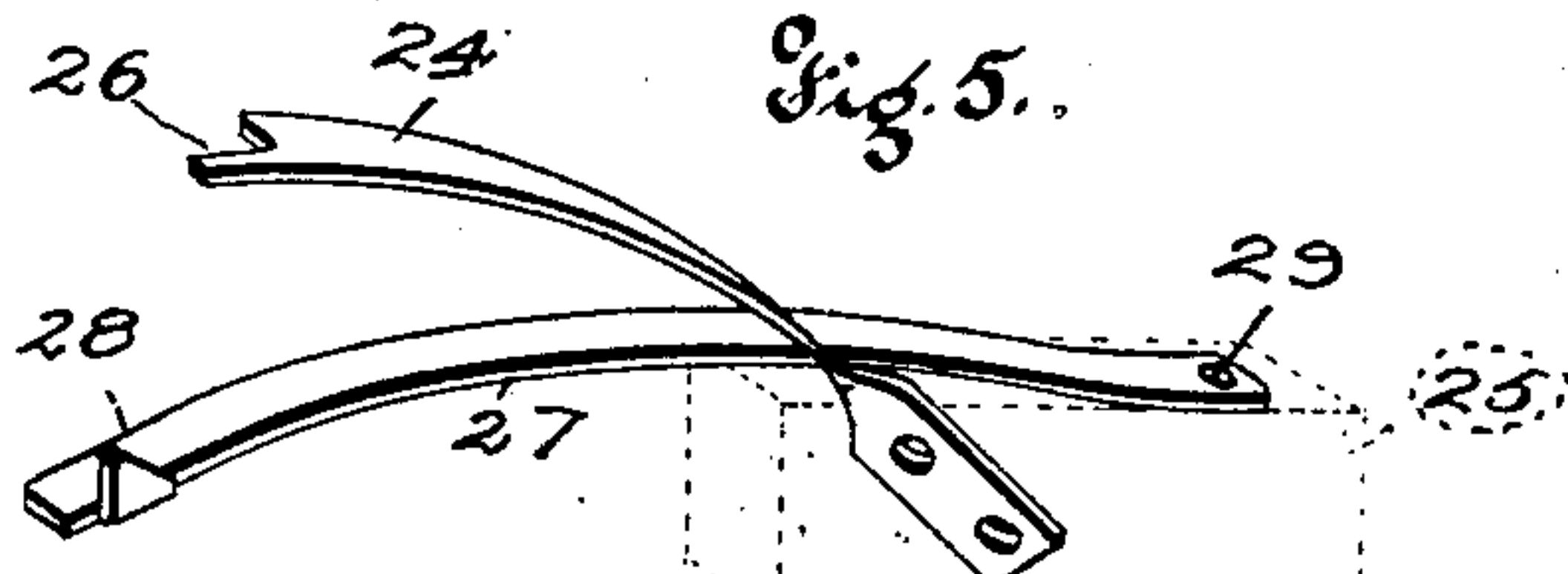


Fig. 5.



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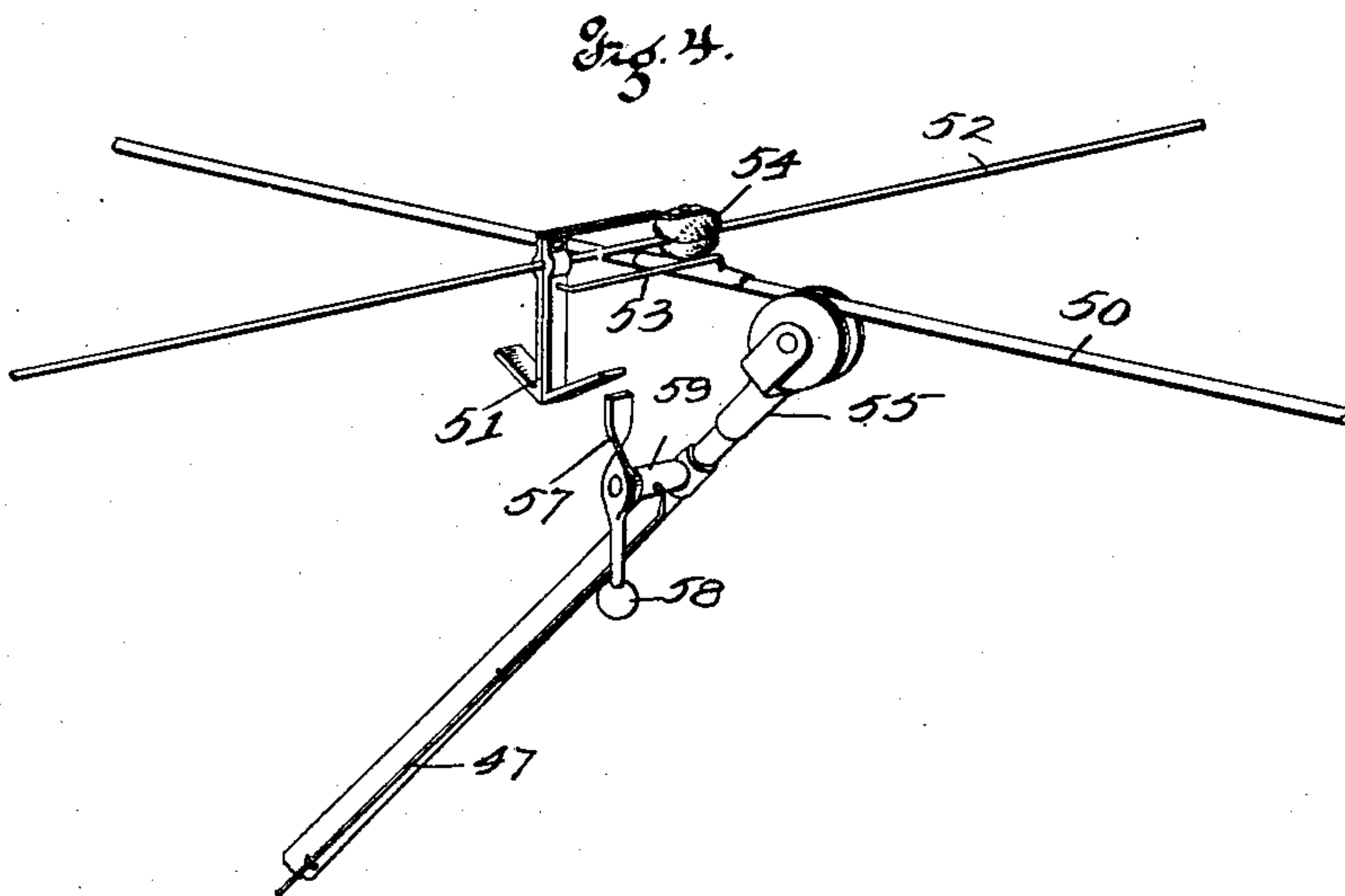
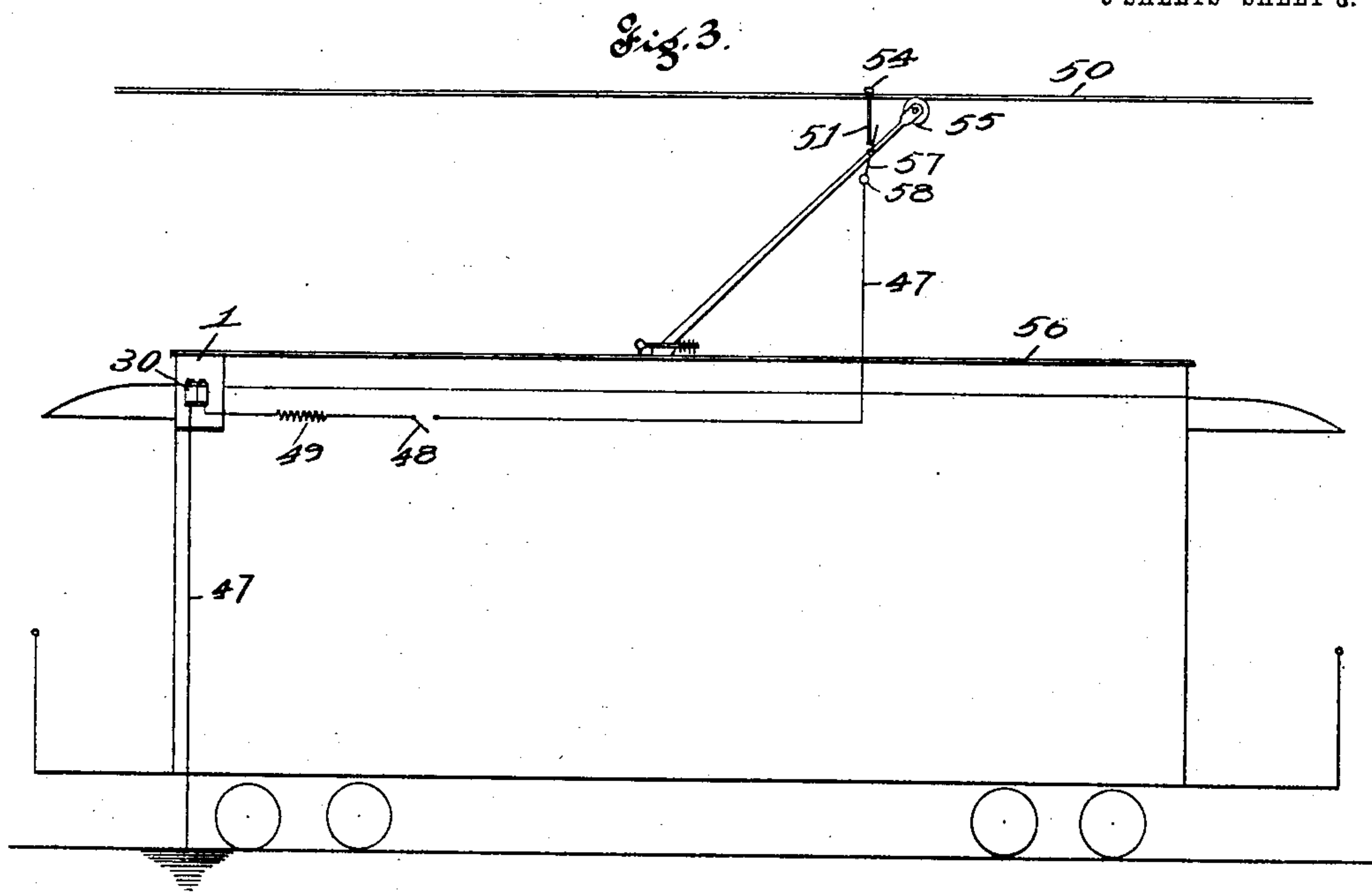
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NO MODEL.

3 SHEETS—SHEET 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

FRANK H. WEHRMANN, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO AMERICAN AUTOMATIC INDICATOR MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

## AUTOMATIC STREET-CAR INDICATOR.

SPECIFICATION forming part of Letters Patent No. 762,670, dated June 14, 1904.

Application filed October 27, 1903. Serial No. 178,796. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK H. WEHRMANN, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Automatic Street-Car Indicators, of which the following is a specification, containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an automatic electrical street-indicator for cars; and it consists of the novel construction hereinafter described and claimed.

The object of my invention is to provide an improved automatic electrical street-indicator for cars which shall possess points of excellence not heretofore known in the art.

In the drawings, Figure 1 is a front elevation of the endless indicator-box with parts broken away. Fig. 2 is a side elevation of same with the actuating electromagnet and its immediate connections located upon the exterior of the box and with the endless indicator and its rollers shown in dotted lines. Fig. 3 is a diagrammatic view of the electrical connections made use of in applying my invention to a car having an overhead trolley. Fig. 4 is a detail perspective view of the trolley and its immediate connections. Fig. 5 is a detail perspective view of a guide-spring and a spring-dog used in connection with a ratchet pin-wheel for actuating the endless indicator. Fig. 6 is a detail view of a portion of the endless indicator, showing the manner of applying the detachable name-cards thereto.

My invention is of course adapted for use upon all kinds of cars, whether street or railway cars, as its function is to indicate the several street-crossings or stations along the railway-line.

1 indicates the endless indicator-box, which in the present instance is of rectangular shape and provided with a front door 2, which is preferably mounted upon common hinges and secured by means of a padlock 3, hasp 4, and

staple 5. Within this box is mounted upon suitable rollers an endless web 6, which is caused to travel in the rear of a sight-opening 7, formed in the box 1. Said endless web 6 is provided upon its outer surface near each edge with a series of pockets 8 for receiving and holding the detachable name-cards 9, which latter may have the names of the various streets or stations printed upon their outer faces and are arranged in regular and reverse sequence, so that they will pass successively across the sight-opening 7 as the car moves forward and backward along the line. Said pockets 8 are formed by securing at intervals a strip of material to the front of the web 6, the fastening devices being indicated by the numeral 10. (See Fig. 6.) I preferably make use of four rollers 11, two rollers being located in the top of the box and two near the bottom thereof. I also use two additional intermediate rollers 12 and 13, which are mounted to revolve in a central position, and the roller 13 is made adjustable for the purpose of tightening or loosening the web when required. For such purpose its pintles 14 are mounted in vertical slots 15, so that they may be moved up and down, and such movement is limited by a bearing-block 16, having a vertical slot 17, in which is located a screw or bolt 18, so that when the latter is tightened said block will be fixed in position and support the pintle above it. The endless web 6 is passed over the four rollers 11 and is thence passed upwardly and over the roller 13 and at one side of the roller 12, as shown in Fig. 2. The principal function of the rollers 12 and 13 is to provide a support for a greater length of web than could be mounted upon the four rollers 11. It is therefore apparent that in some cases I may dispense with the rollers 12 and 13, &c. The pintle 19 of one of the lower rollers 11 projects through the end of the box and has fixed upon it a ratchet pin-wheel 20, which has projecting from its outer face a series of pins 21. These pins are adapted to be contacted by a recip-



rotating pawl 22 to rotate said wheel inter-  
 mittently step by step. Said pawl is pro-  
 vided at its lower end with a curved guide-  
 arm 23, which is yieldingly engaged by a  
 5 flat guide-spring 24, and thereby said guide-  
 arm is retained in contact at all times with  
 one or more of the pins 21, carried by said  
 ratchet pin-wheel. One end of said guide-  
 spring 24 is fixed to a block 25 or some other  
 10 portion of the box 1, and the opposite end of  
 said spring is provided with a guide-arm 26,  
 the purpose of which is to retain in proper  
 position said guide-arm 23 of the pawl 22.  
 Retrograde movement of the pin-wheel is pre-  
 15 vented by a spring-pawl 27, which is provided  
 at one end with a laterally-projecting lug 28  
 for engaging the pins 21, and the opposite  
 end of said spring-pawl 27 is fixed to the  
 20 block 25 by means of a suitable screw or rivet  
 29. Motion is communicated to the pawl 22  
 by the power of an electromagnet 30 and in-  
 termediate connections, which will now be  
 described.

31 indicates the armature of the magnet,  
 25 and the same is fulcrumed at 32.

33 indicates a lever fulcrumed at 34 and  
 having one end pivotally connected to the  
 outer end of the armature 31 by means of a  
 link 35. The free end of the lever 33 is con-  
 30 nected to the upper end of a vertical push-  
 rod 36 by means of a pin or bolt 37 working  
 in a slot 38, formed in the said lever 33. Said  
 push-rod 36 is mounted in bearings formed  
 in vertically-alined ears 39, projecting out-  
 35 wardly from a base-casting 40, which latter  
 is secured to the end of the box 1 by means  
 of suitable screws or other fastenings 41. 42  
 indicates a shoulder or enlargement located  
 upon said push-rod adjacent the upper ear 39.  
 40 43 indicates a coiled spring mounted upon  
 said push-rod between said shoulder 42 and  
 said lower ear 39.

44 indicates a guide-bracket fixed upon the  
 end of the box 1 by means of suitable screws  
 45 45, and said bracket is provided with a lat-  
 eral lug 46. The purpose of this bracket is  
 to guide the pawl 22 and retain it in proper  
 position with relation to the pins 21 of the  
 ratchet pin-wheel. The lower end of the  
 50 push-rod 36 is pivotally connected to the up-  
 per end of the said pawl 22.

Current is supplied to the magnet by means  
 of a conductor 47, which passes through the  
 top of the box and is connected to a common  
 55 snap-switch 48 and to a common resistance-  
 coil 49 and passes thence to the magnet 30.  
 The purpose of the said resistance-coil is to re-  
 duce the voltage of the current and adapt the  
 same to the resistance of the said magnet.  
 60 From the magnet the conductor 47 passes  
 downwardly out of the bottom of the box  
 and is connected to the ground in any known  
 manner, but preferably through the car-  
 wheels. Current is supplied to the conductor  
 65 47 from the usual overhead trolley-wire 50,

passing therefrom to an inclined two-way  
 contact device 51, suspended from the span-  
 wire 52, connected to the trolley-wire 50 by  
 means of a short conductor 53.

54 indicates the common insulator now in 70  
 use for suspending and insulating the trolley-  
 wire 50 from the span-wire 52. The span-  
 wire should of course be provided at its ends  
 with the usual insulators. (Not shown.)

55 indicates the wheel-trolley, which is con- 75  
 nected to the top of the car 56 in the usual  
 manner. Pivotally mounted upon the trolley,  
 near the upper end thereof, is a weighted con-  
 tact device 57, which is supplied with a weight  
 58 at its lower end or some equivalent yield- 80  
 ing device, whereby said contact device will  
 normally keep a vertical position. 59 indi-  
 cates a bracket upon which said weighted con-  
 tact device is mounted. Said weighted con-  
 tact device should of course be insulated from 85  
 the trolley-pole, and this may be done in any  
 common manner. The upper end of the con-  
 ductor 47 is connected to the said bracket 59  
 and is electrically connected to the said weight-  
 ed contact device. 90

A two-way contact device 51 should be lo-  
 cated just in advance of each street-crossing  
 or station along the line of railway, so as to  
 permit of actuating the street or station indi-  
 cator in advance of the arrival of the car at 95  
 each street-crossing or station. The weight-  
 ed contact device 57 is yielding or elastic, so  
 that it will yield when it comes in contact with  
 said two-way contact device 51 no matter  
 whether the car be moving forward or back- 100  
 ward.

The operation is as follows: Upon the pas-  
 sage of the car carrying the trolley 55 the  
 weighted contact device 57 will make contact  
 with the two-way contact device 51, and cur- 105  
 rent will thereupon pass from the trolley-wire  
 50 through the short conductor 53 to the said  
 two-way contact device 51, and thence through  
 the weighted contact device 57 to its bracket  
 59; thence to the conductor 47, thence to the 110  
 switch 48, thence to the resistance-coil 49,  
 thence to the magnet 30, and thence to the  
 ground. Such passage of the current will im-  
 mediately actuate the armature 31 and force  
 downwardly the pawl 22, and it will move the 115  
 ratchet pin-wheel 20 one step, and the same  
 will be held against retrograde movement by  
 the spring-pawl 27, and such movement will  
 move the endless web 6 a corresponding dis- 120  
 tance and expose a street or station name-card  
 9 through the sight-opening 7. The pins 21  
 strike and primarily tilt downwardly the lug  
 28 of the spring-pawl 27 when the pin-wheel  
 is moved by the pawl, and such movement is  
 permitted by the resiliency of the spring 27, 125  
 which compels said lug to act as a cam with  
 respect to said pins, or, in other words, said  
 pins strike said lug and tilt the same out of  
 its normal position, and then said pins slide  
 over the same, and thereby depress said lug 130



below the path of said pins, after which the lug will be returned to its normal position by the power of said spring 27, which carries said lug. Should it be desirable to remove the armature 31 a greater distance from the poles of the magnet 30, all that is necessary is to detach the common screws which hold the fulcrum 32 and move said fulcrum upwardly a slight distance and then reinsert said screws and secure the fulcrum in position, as before. The fulcrum 34 of the lever 33 may be also adjusted in the same manner. Another way of accomplishing the same thing is to make the connecting-rod 35 somewhat longer, as it is evident that I am not limited to any length of such rod, as its elongation is a mere matter of degree. As the car approaches another station the above-described operation will be repeated. If the movement of the car be reversed, the above-described operation will also be repeated no matter in what direction the car may move. The car should of course travel from one end of the line to the other, and in so doing the names of the streets or stations will be successively exposed through the sight-opening 7, beginning with, say, station No. 1 and ending with station No. 50; but when the car is reversed the names of the stations will appear at the sight-opening in reverse sequence, although the endless web continues to move in the same direction whether the car be moving forward or backward. As soon as the weighted contact device 57 runs off of the two-way contact device 51 the circuit will be broken through the magnet 30 and its armature will be released, and thereupon the spring 43 will cause the parts to resume their normal position, which is that in which they are shown in Fig. 2.

60 61 indicate a pawl-and-ratchet connection between the pin-wheel 20 and its pintle 19, whereby said wheel may move in one di-

rection only upon said pintle; but this pawl-and-ratchet connection is not necessary, and I prefer not to use the same, as it is only necessary to fix said pin-wheel rigidly upon said pintle. 45

It will be obvious from the above description that the device is capable of much modification without material departure from the spirit of the invention, and for this reason I do not wish to be understood as limiting myself to the precise form and arrangement of the several parts herein set forth. 50

What I claim is— 55

An automatic, electric, street or station indicator; comprising the combination with a supply-conductor, of suitable contact devices, an electromagnet, an armature 31, a wheel having a series of pins 21, a pawl 22 provided at its lower end with an outwardly-curved guide-arm 23, a flat guide-spring 24, having at its free end the guide-arm 26 and yieldingly engaging said guide-arm of said pawl, a guide-bracket 44 for said pawl, a push-rod 36, a base-casting 40 having vertically-alined perforated ears in which said push-rod is mounted to slide, a shoulder 42 on said push-rod between said ears, a spring mounted upon said push-rod between the lower ear and said shoulder, the lower end of said push-rod being pivotally connected to the upper end of said pawl, suitable connections between the upper end of said push-rod and said armature, and an endless web carrying name-cards and adapted to be actuated by the armature, substantially as described. 60 65 70 75

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

FRANK H. WEHRMANN.

Witnesses:

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JOHN C. HIGDON.