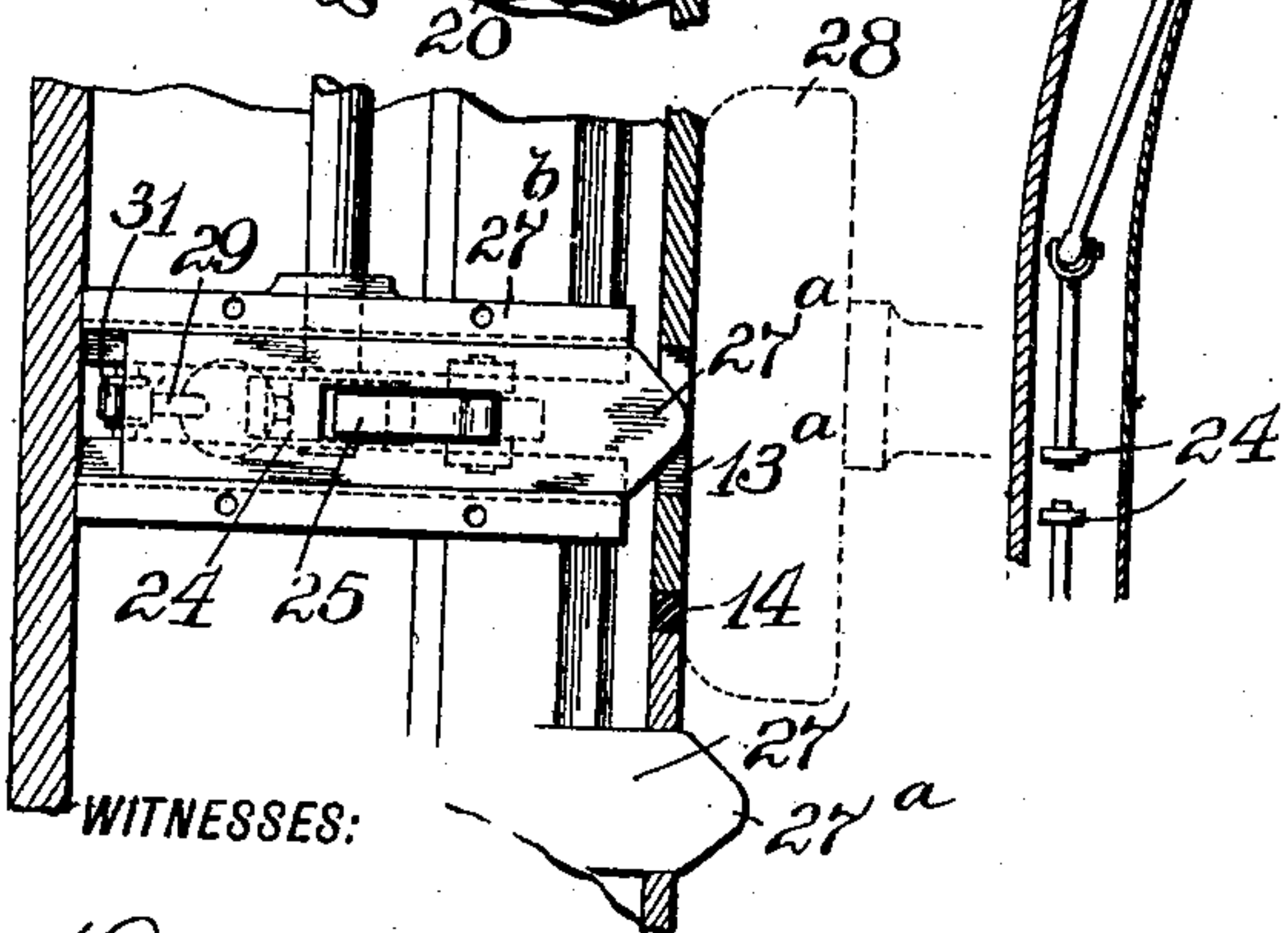
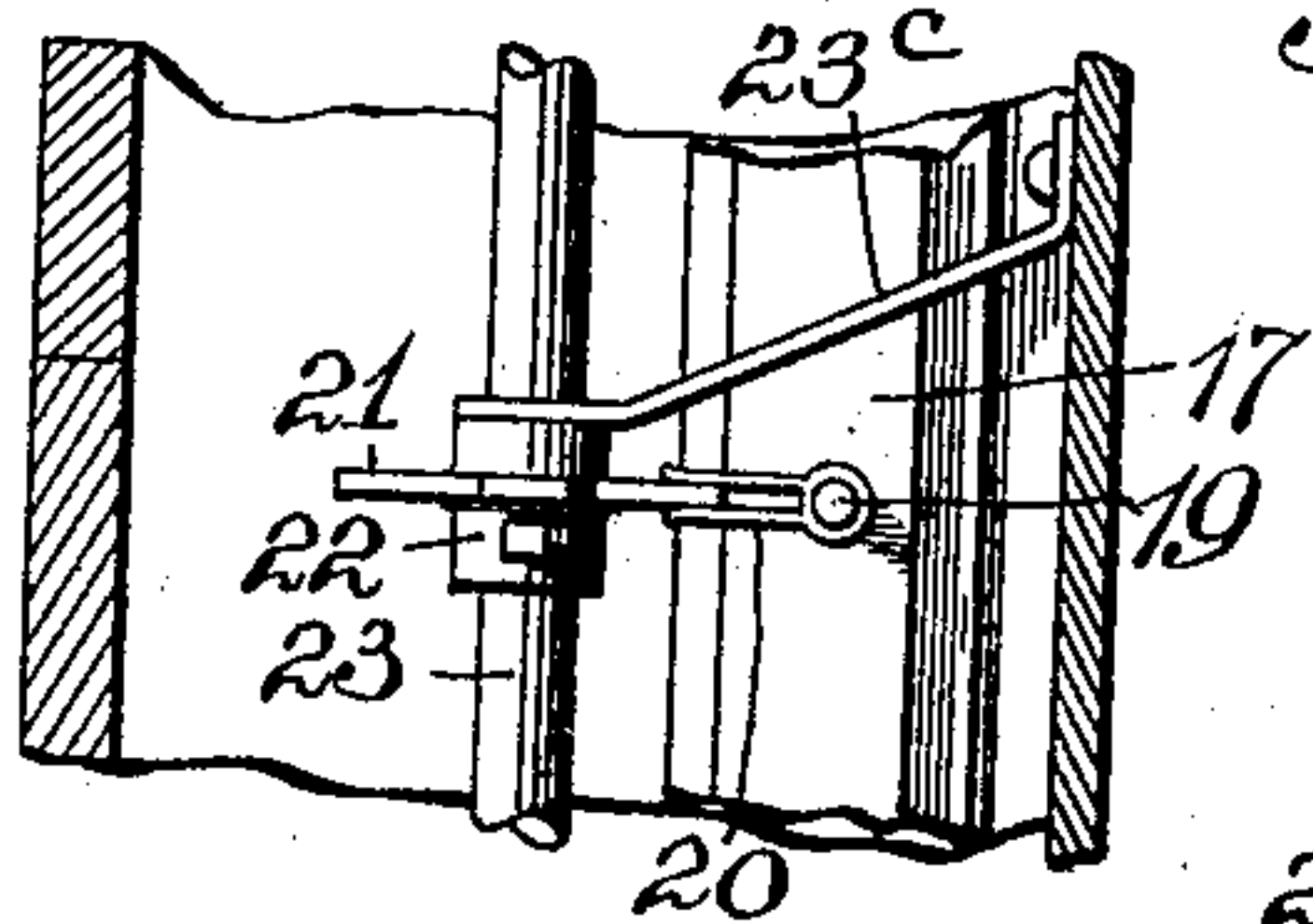
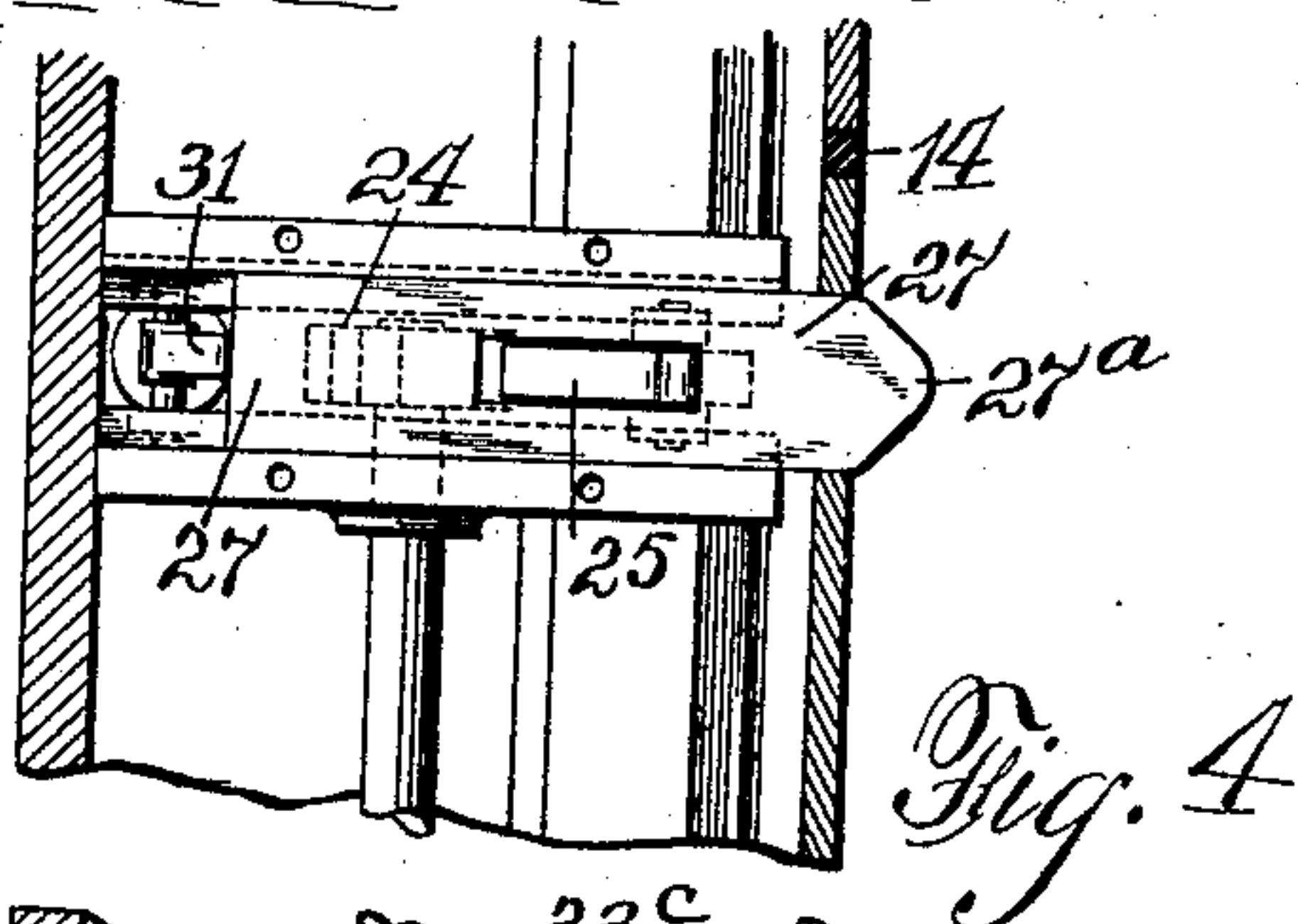
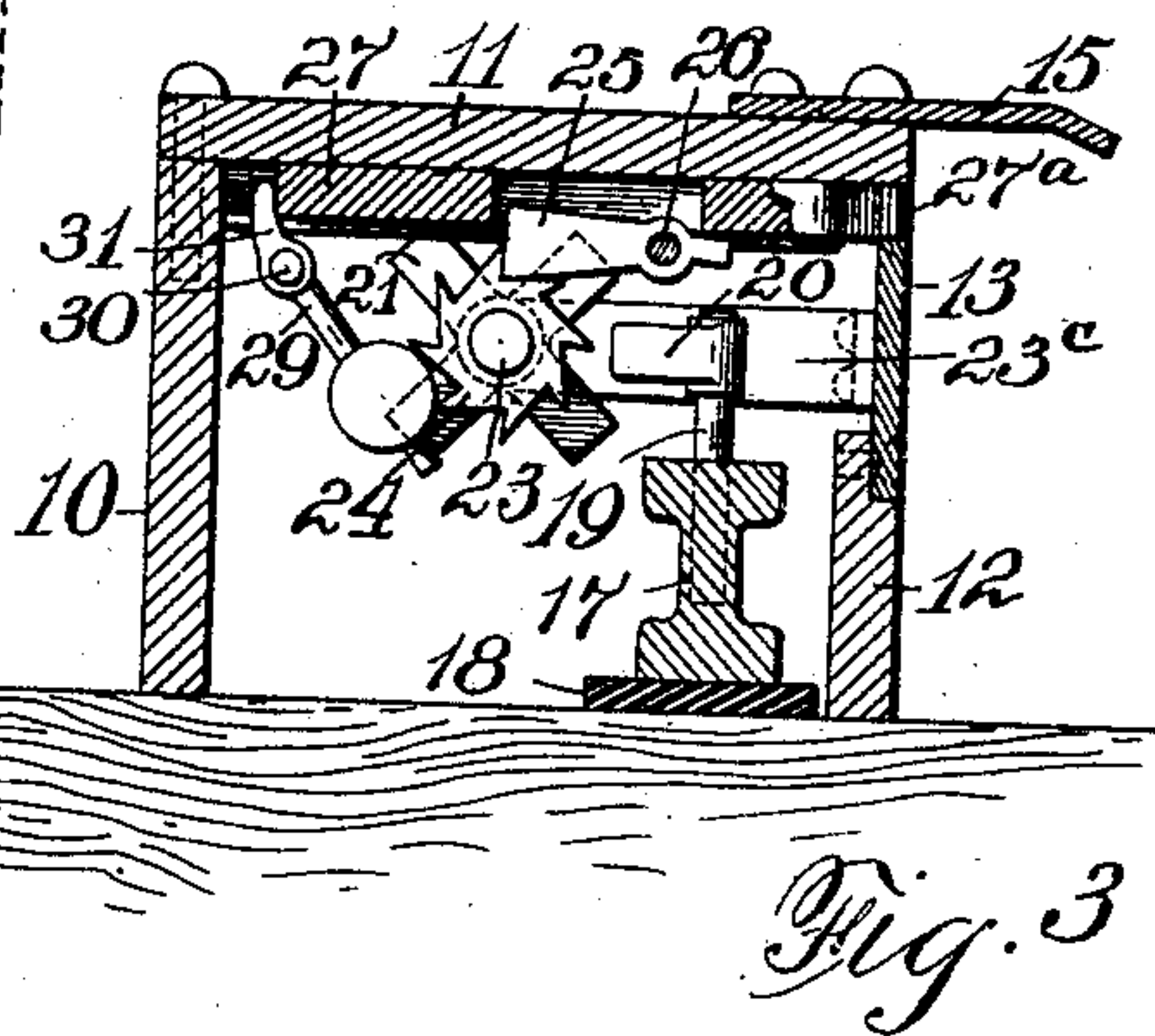
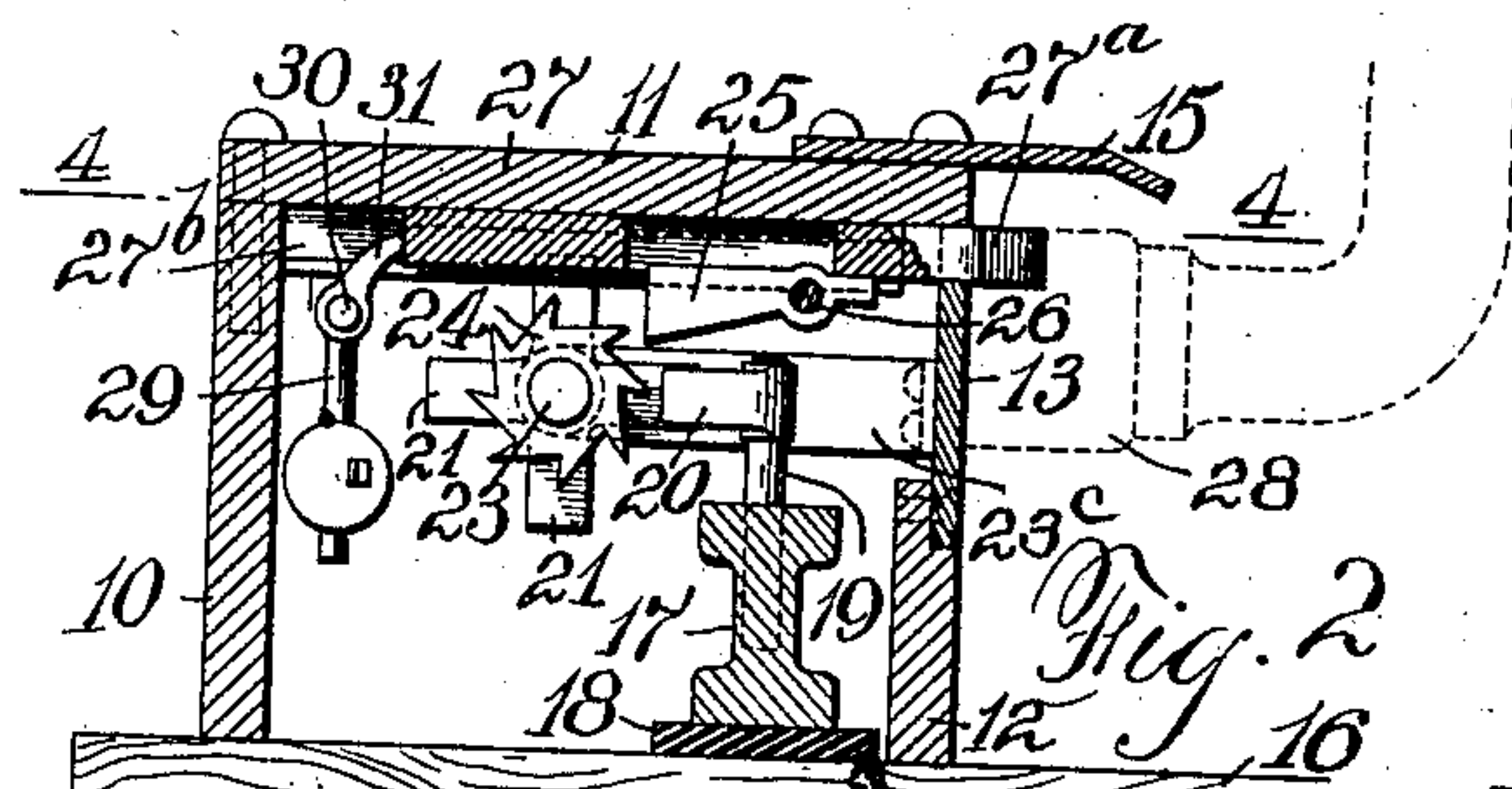
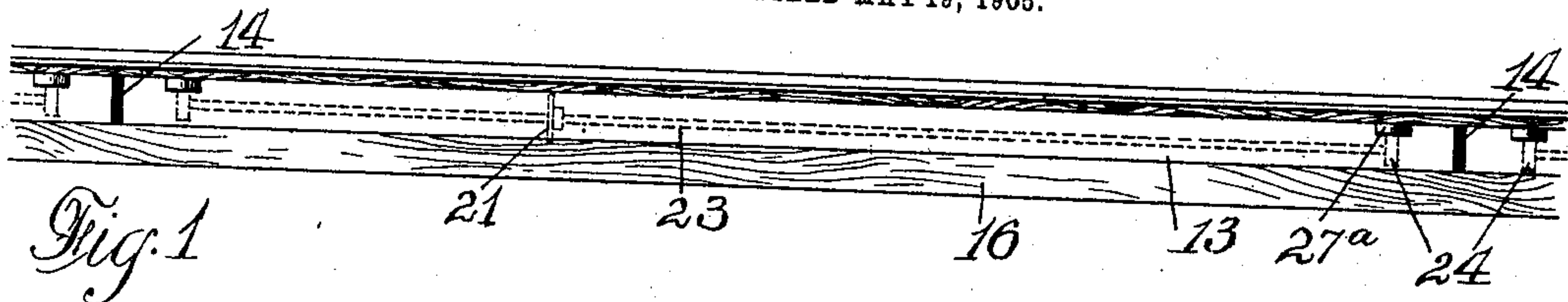


No. 819,293.

PATENTED MAY 1, 1906.

M. A. LAZAREFF.
ELECTRIC RAILWAY.
APPLICATION FILED MAY 19, 1905.



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ELECTRIC RAILWAY.

No. 819,293.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MATHIAS A. LAZAREFF, a resident of the city, county, and State of New York, have invented a new and Improved Electric Railway, of which the following is a full, clear, and exact description.

My invention relates to improvements in electric railways, and especially to the construction which is adapted for use as a surface or elevated structure or in a subway, as distinguished from the conduit or overhead trolley systems.

The object of my invention is to produce a simple and practical electric railway in which the main conductor is absolutely housed in, so that no one is likely to be injured by coming in contact with it and so as to prevent the conductor from being interfered with by rain, snow, ice, dirt, or other obstructions.

My invention is also intended to construct a housing which will permit a collecting-shoe of any suitable design to be used and in which the housing will be normally dead, but will have a conductive surface which is automatically cut in and out of circuit as a train progresses.

With these ends in view my invention consists of certain features of construction and combinations of parts, which will be herein after described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken side elevation of my improved construction. Fig. 2 is a cross-section with the contact-strip of the housing in circuit. Fig. 3 is a section similar to Fig. 2, but with the contact-strip out of circuit. Fig. 4 is a broken sectional plan of my invention, and Fig. 5 is a diagrammatic section, showing how the invention can be applied to a curve.

My invention comprises a housing which is preferably of generally rectangular shape, and this can be made of any suitable material, though wood can be used to advantage in the greater part of its make-up. It comprises a back 10, a top 11, and a front 12, this latter being formed in part also by a contact-strip 13, and the housing is preferably made up in sections insulated from each other, as shown

at 14—that is to say, the contact part 13 is preferably made up in such sections, and if the housing is of conductive material the insulation will of course be carried all around it. No novelty is claimed for this feature, however.

Projecting from the upper part of the housing is a guard 15, which extends outward, so as to shield the contact-strip 13 and prevent it from being touched easily or from having anything come into contact with it excepting the collecting-shoe. The whole structure rests on a suitable sleeper or support 16.

Within the housing and extending longitudinally thereof is a conductor 17 for carrying the electricity, and this may be of any approved form, and it rests on a suitable insulation 18. Rising from the conductor at necessary intervals are posts 19, which carry switch-arms or contact-arms 20, these being preferably, though not necessarily, in pairs, as shown, so that they will make a good connection with the contacts 21, which are carried by a hub 22 on the shaft 23, and extend radially from the shaft, so as to pass between the switch-arms 20. It will be understood that while this structure 20 and 21 is preferred it is not absolutely essential, and any equivalent structure can be used which by the rotation of the shaft will bring the stationary and movable contacts in touch.

The shaft 23 extends longitudinally of the housing and where a curve occurs the shaft may be made up of sections 23^a, connected by universal joints 23^b, or instead of this the ordinary flexible shaft or any well-known similar contrivance can be used, it being understood that I do not claim the shaft except in combination. The shaft is supported on brackets 23^c, which extend inward from the part 13 and serve the double purpose of supporting the shaft and also carrying current to the contact-strip. The current is also carried by the contact slide-bars 27, to be hereinafter referred to. Each shaft-section 23 is provided, near its ends, with ratchet-wheels 24, which are engaged by a dog 25, which is pivoted, as shown at 26, on the slide rod or bar 27, and the latter is adapted to project at one end through a hole 13^a (see Fig. 4) in the contact-strip 13, this protruding end being preferably rounded, as shown at 27^a, so that

it may make easy contact with the shoe 28. The contact slide or bar 27 moves in a suitable guideway 27^b. The collecting-shoe 28 is adapted to extend beneath the guard 15, so as to contact with the strip 13, and it can be of any approved construction. When the slide rod or bar 27 is pushed inward, it causes the ratchet-wheel 24 to be turned a distance of one tooth, thus turning the shaft 23 and bringing the contacts 21 into engagement with the contacts 20, as in Fig. 2, and so the current passes through the said contacts, the shaft 23, the bracket 23^c, and also through the ratchet-wheel 24, the pawl 25, and the rod 27 to the contact-strip 13. The inward movement of the next slide-rod and pawl turns the ratchet-wheel another tooth and brings the contacts 20 and 21 out of touch, as in Fig. 2. The slide rod or bar 27 can be returned to its first position after being pushed inward by the shoe by a spring or any suitable mechanism, but I prefer to use a weighted arm 29, as being more reliable, and this arm is pivoted, as shown at 30, and has a dog 31, extending into the path of the slide rod or bar 27. When the slide-rod is pushed in, the weighted lever is swung inward, as in Fig. 2, and when the shoe 28 passes the end of the slide-rod the weighted arm swings back and causes the slide-rod to be returned.

It will be seen that as the train moves along the shoe 28 of a car or a train, as the case may be, will push in the slide-rod 27, so as to energize the contact-strip 13 beneath the train, so that the collecting-shoe can pick up the current as usual, and when it strikes the next slide-rod it turns the shaft another step, as described, cutting out the current, and so by having the slide-rods and ratchet mechanism in pairs a single shoe serves to collect the current and cut it in and out of the contact-surface of the housing.

From the foregoing description it will be seen that I provide a very simple and practical means of covering the live conductor, so that the housing is normally dead, and that I also provide an efficient means of cutting the contact-strip 13 of the housing in and out of circuit. It will be understood, too, that many of the details of this structure can be departed from without affecting the principle of the invention.

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

1. In an electric railway, the combination of the conductor, the housing inclosing it, the collecting-shoe; the said housing having a contact-surface for the collecting-shoe, slide-rods movable in and out of the contact-surface of the housing by the action of the shoe, and mechanism operated by successive slide-

rods to cut the conductor in and out of circuit with the contact-surface of the housing.

2. In an electric railway, the combination with the collecting-shoe, the conductor, the housing inclosing it and a rigid contact-surface of the housing, of slide-rods movable in and out and connected with the contact-surface and adapted to be operated by the face of the collecting-shoe, a shaft within the housing, means for turning the shaft by the movement of the slide-rods, and connections between the shaft and the conductor whereby one movement of the shaft cuts the conductor into circuit with the contact-surface of the housing and a further movement of the shaft cuts the said contact-surface out of circuit.

3. In an electric railway, the combination with the collecting-shoe, the conductor, the housing inclosing it and the rigid contact-surface of the housing, of slide rods or bars adapted to be operated by the face of the collecting-shoe and arranged in pairs in the contact-surface so as to move in and out of the housing, and a switch mechanism operated by the slide-rods and arranged so that the movement of one slide-rod cuts the conductor into circuit with the contact-surface of the housing and the movement of the next slide-rod cuts the said contact-surface out of circuit.

4. In an electric railway, the combination with the collecting-shoe, the conductor, its containing-housing and the slide-rods movable in and out of the housing and adapted to be operated by the face of the collecting-shoe, of a shaft in the housing, contacts carried by the shaft and adapted to touch contacts on the conductor, and connections between the slide-rods and the shaft whereby the movement of one slide-rod brings the contacts of the shaft and conductor in touch and the movement of the next slide-rod breaks connection between the said contacts.

5. In an electric railway, the combination of the collecting-shoe, the conductor, its containing-housing and the contacts on the conductor, of the shaft-section journaled in the housing parallel with the conductor, contacts on the shaft to connect with the conductor, a pair of ratchet-wheels on the shaft, and slide-rods operated from outside the conductor by the face of the collecting-shoe, and adapted to engage the ratchet-wheels and turn the shaft.

6. In an electric railway, the combination with the conductor and its projecting contacts, of the rotary contact-arms spaced apart and adapted to successively engage the contacts of the conductor, a housing inclosing the conductor and contact-arms, and having a sectional contact-surface, slide-bars mov-

ing in and out through the contact-surface of the housing, and means for turning the contact-arms by the slide-rods.

5 7. In an electric railway, the combination of the conductor, the housing inclosing it, the said housing having a sectional contact-surface, slide-rods moving in and out through the contact-surface and mechanism operated

by the slide-rods to make and break the circuit between the conductor and the contact-surface. 10

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WILLIS A. BARNES.