

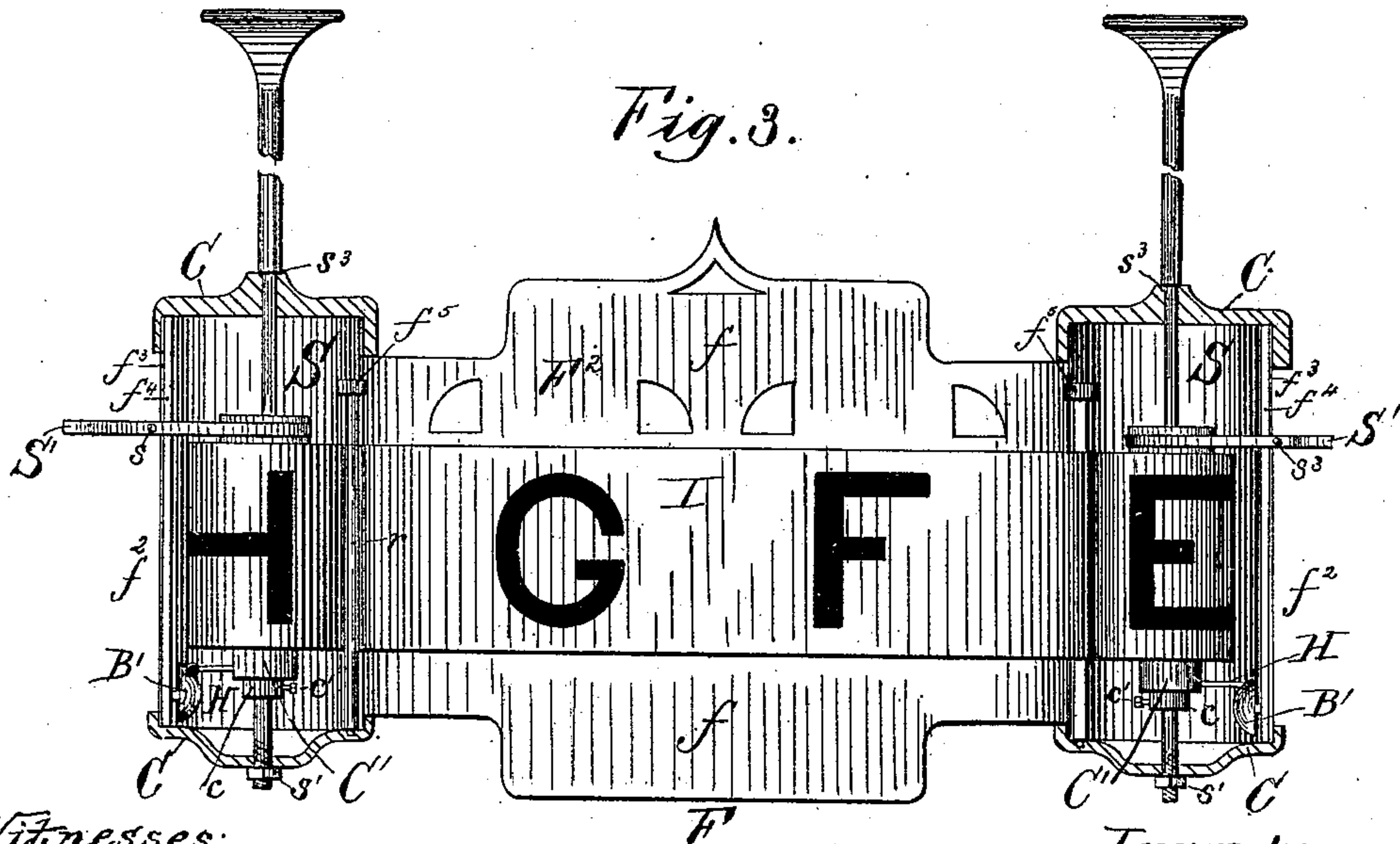
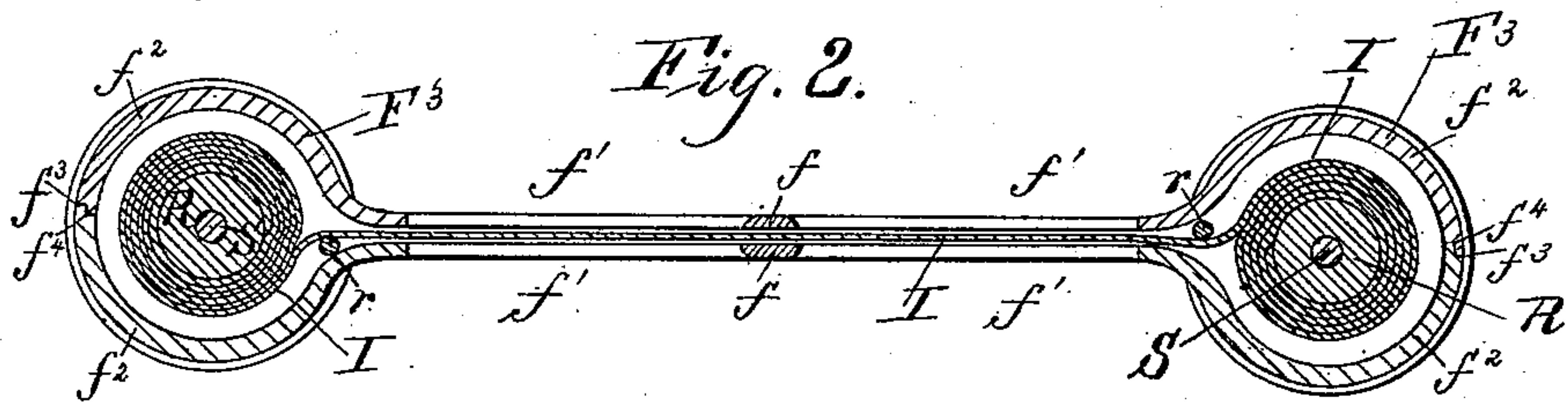
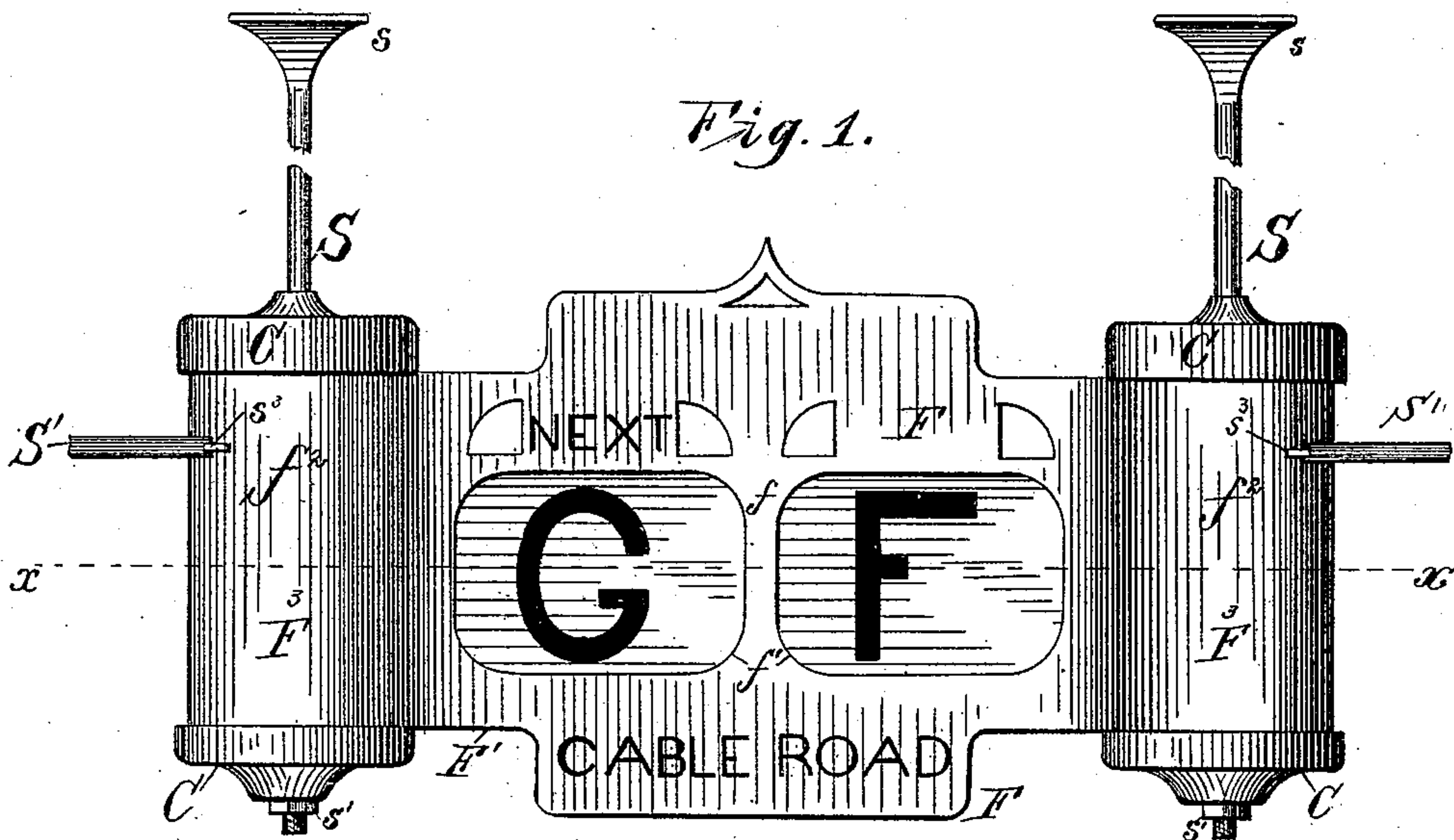
(No Model.)

3 Sheets—Sheet 1.

F. S. WILSON.
STATION INDICATOR.

No. 446,120.

Patented Feb. 10, 1891.



Witnesses:

Henry Orth

B. H. Summers

Inventor

Frank S. Wilson

per: *Henry Orth*

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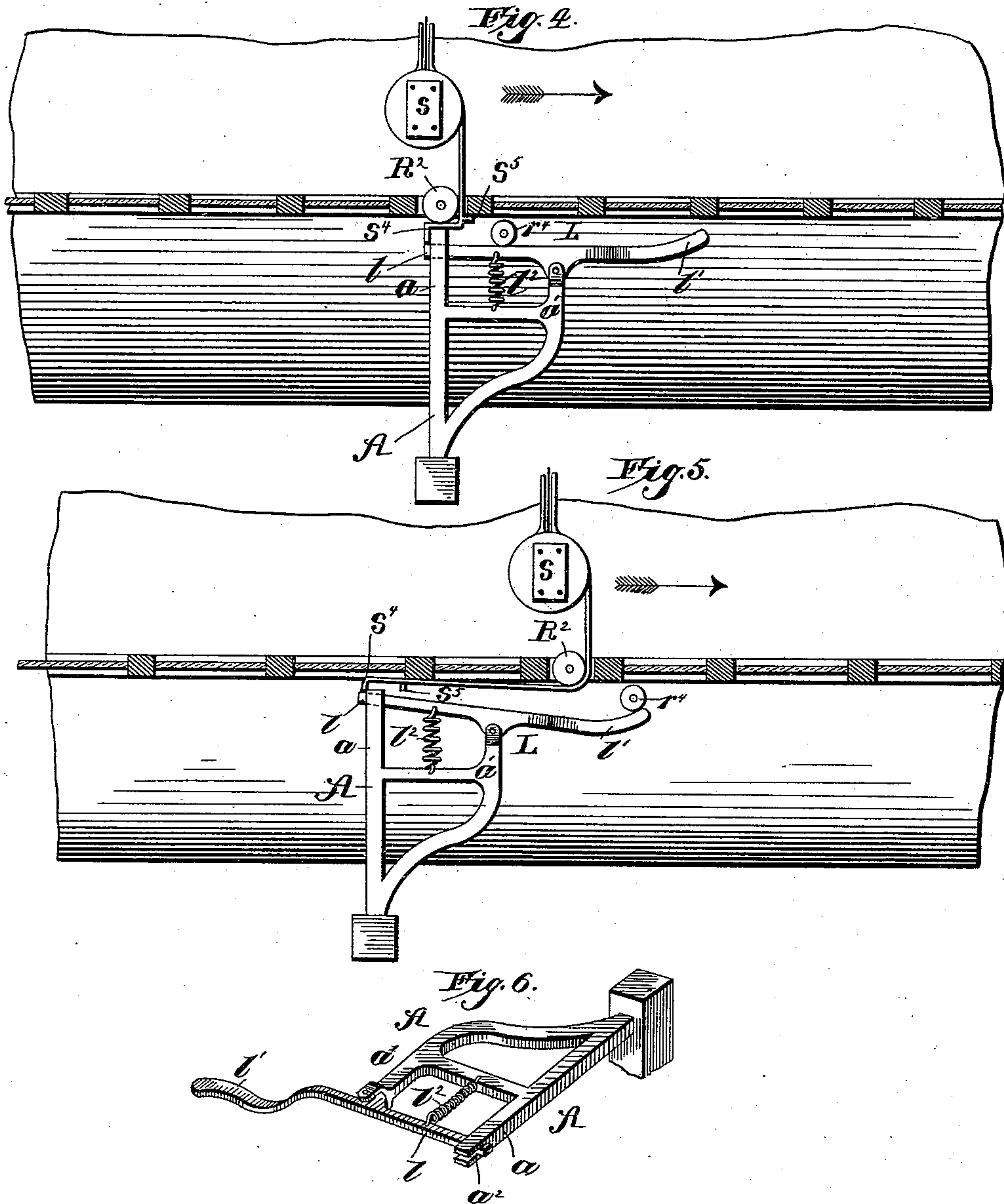
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Attorney:

(No Model.)

3 Sheets—Sheet 3.

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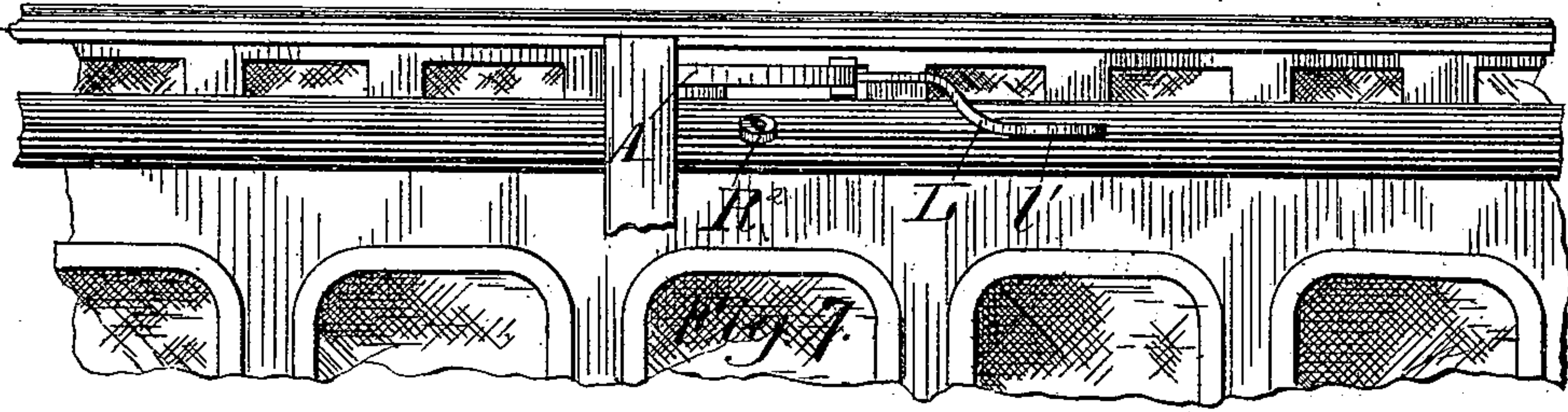


Fig. 9

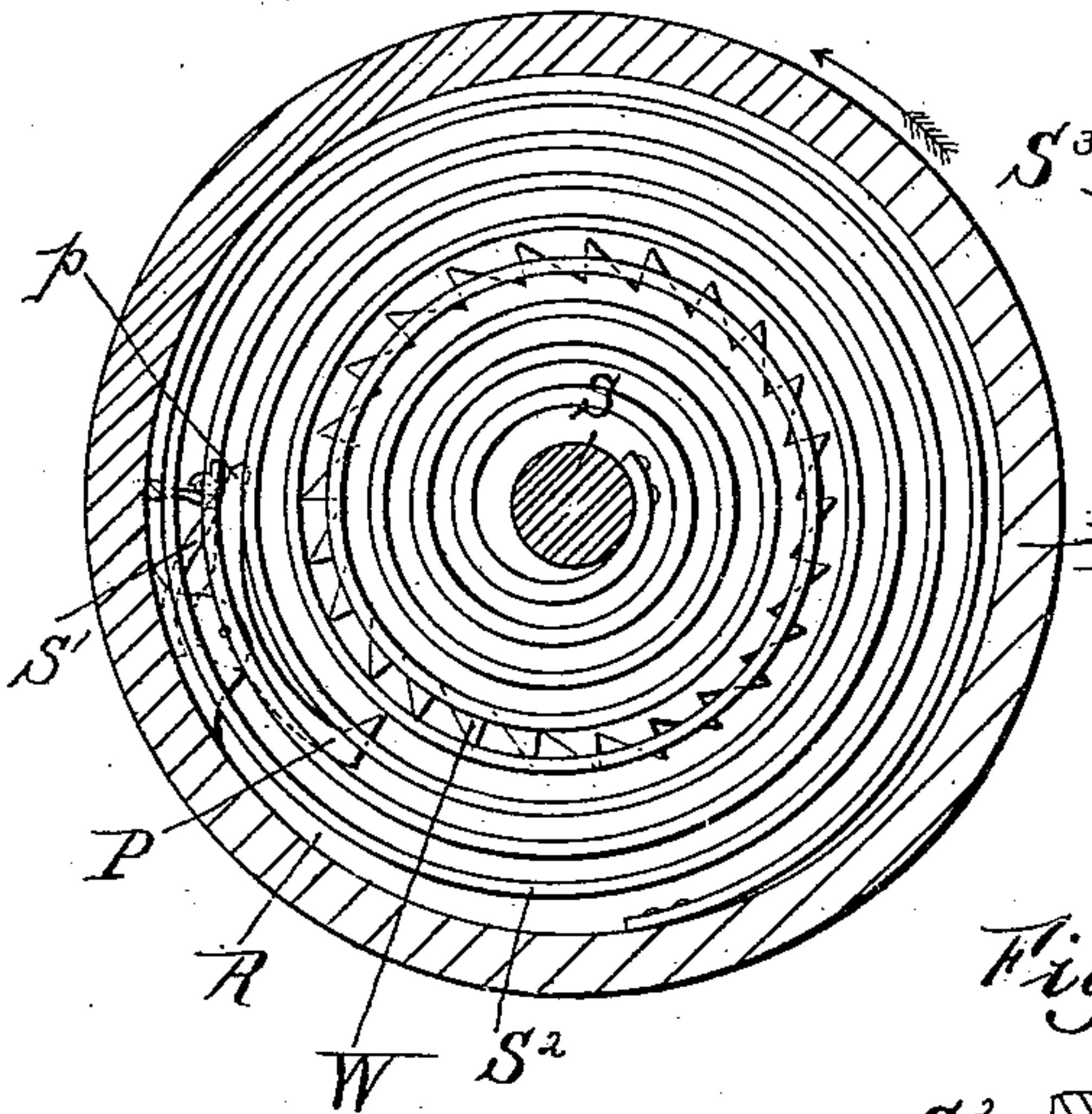


Fig. 10

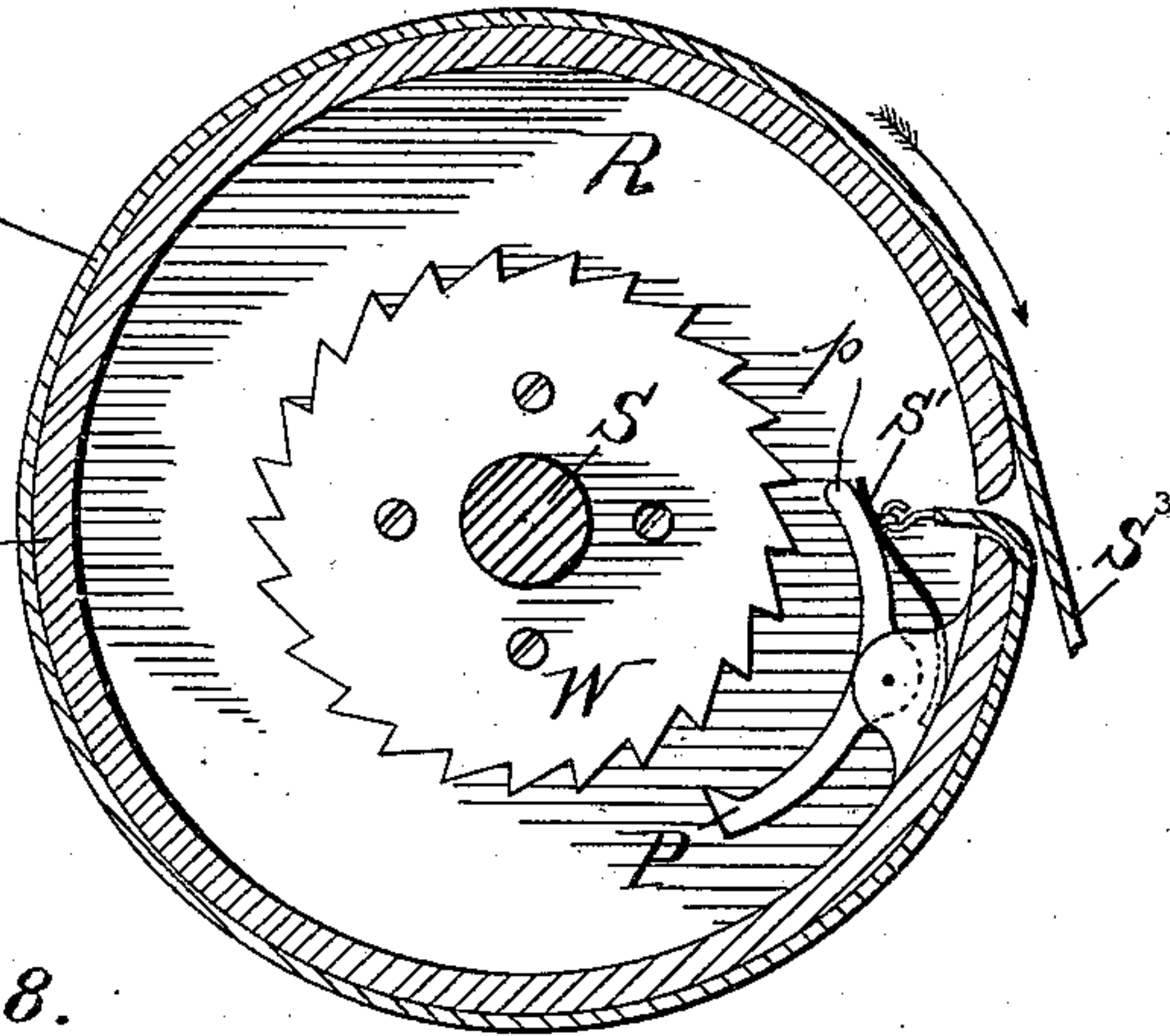
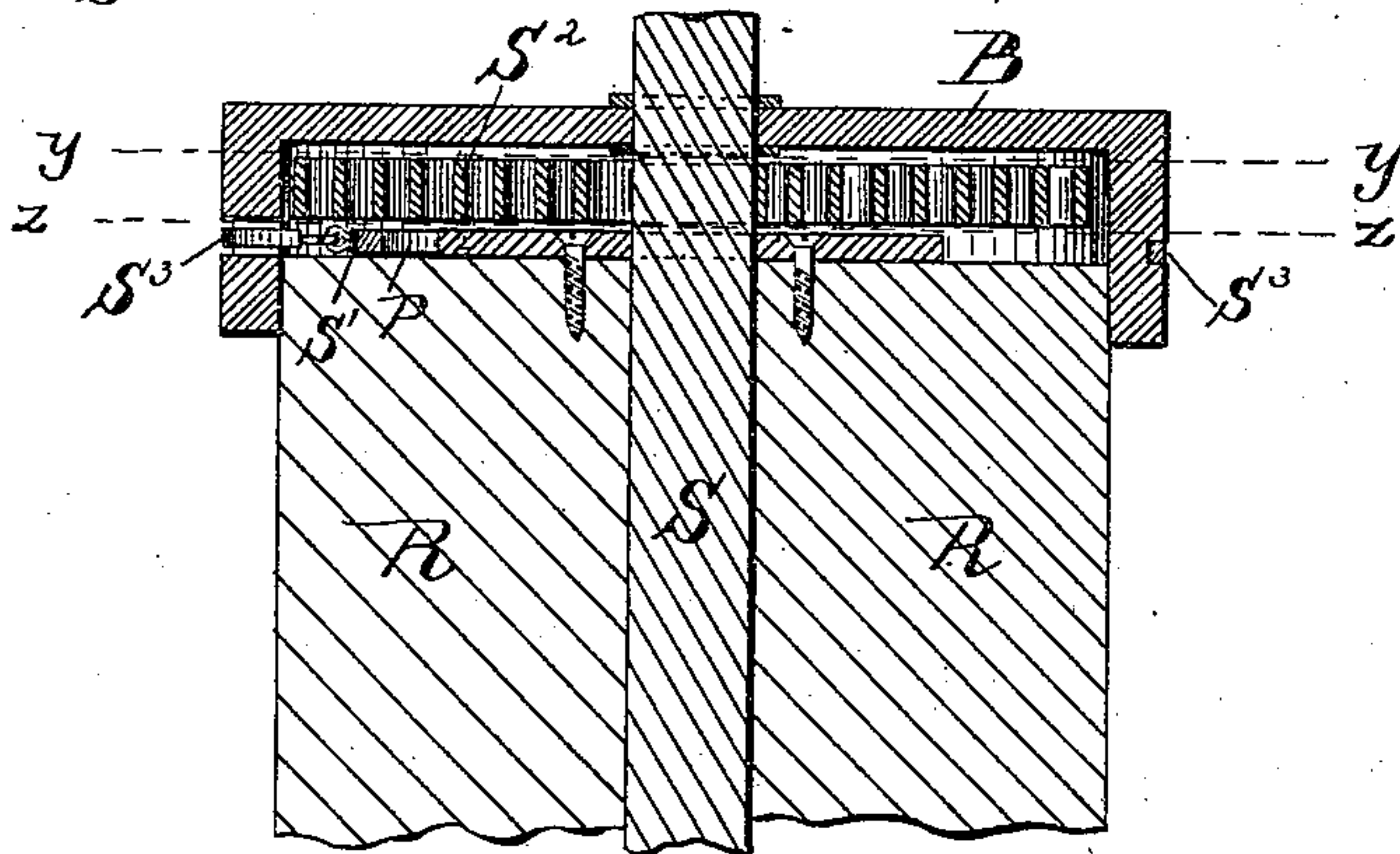


Fig. 8.



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UNITED STATES PATENT OFFICE

FRANK S. WILSON, OF NEW YORK, N. Y.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 446,120, dated February 10, 1891.

Application filed July 29, 1890. Serial No. 360,300. (No model.)

To all whom it may concern:

Be it known that I, FRANK S. WILSON, a citizen of the United States of America, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Station-Indicators; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

Referring to the drawings, Figure 1 is an elevation of a station-indicator embodying my improvements. Fig. 2 is a section taken on line xx of Fig. 1. Fig. 3 is an elevation of the indicator, one-half of the frame being removed and the cylinder-caps shown in section. Figs. 4 and 5 are sectional plan views of a portion of a car, illustrating the means for operating the indicator automatically. Fig. 6 is a detail perspective view of the detent-lever for releasing the strap that operates or sets the indicator. Fig. 7 is a side elevation of a part of the upper portion of a car, showing the devices for automatically operating or setting the indicator. Fig. 8 is a vertical section of a portion of one of the indicator-rollers, its ratchet-and-pawl mechanism, and the spring for returning the operating-strap into its normal position; and Figs. 9 and 10 are cross-sections taken, respectively, on lines yy and zz of Fig. 8, the ratchets in said Figs. 9 and 10 being reversed as they will be on the two rollers at the opposite ends of the indicator.

The invention relates to station-indicators for railway and street cars adapted to be arranged within the cars. All indicators of this class, so far as they have come to my knowledge, are invariably arranged at one end of the car, so as to display the indices in one direction only. The fact that the indices are displayed from one end of the car only has the disadvantage of being imperceptible to a large number of passengers when seated at the opposite end of the car, so that so far as those passengers are concerned the indicator may as well be absent, unless said passengers

leave their seats and go near enough to the indicator to enable them to read the indices displayed.

My invention has for its object to avoid the disadvantages referred to, and I attain this object by so constructing the indicator that its indices may be read from both sides, so that it may be suspended in or substantially in the center of a car from the roof or ventilator thereof, thus diminishing the distance by one-half from either end of the car to the indicator, and by providing means for operating the indicator or setting the station-indices automatically, whatever may be the speed at which the car or train of cars may be traveling, or by hand when the indicator is used on street-car lines.

To these ends the invention consists in an indicator provided with movable indices constructed to be suspended centrally of a car from the roof thereof and adapted to be viewed from either side of the indicator; in means for moving or automatically moving the index a predetermined distance to indicate successive stations, and in structural features and combination of parts or mechanisms, as will now be fully set forth, reference being had to the drawings hereinabove described, in which like letters indicate like parts wherever such may occur in the various figures thereof.

Referring to Figs. 1, 2, and 3, the indicator-frame F is composed of two parts F' F'' , which, with a view to economy, are preferably of cast-iron, each half of the frame having cast there-with at either end a semi-cylinder f^2 , each of which semi-cylinders is preferably provided with a tongue and rabbet f^3 f^4 along the vertical edge thereof, the tongue of one semi-cylinder engaging the rabbet of the other, as shown in Fig. 2, to form a smooth joint. The web f , that unites the two semi-cylinders f^2 , may have any desired ornamental form, and is provided with two openings f' , in one of which is displayed the station from which the car or train has just left and in the other the next succeeding station, the word "Next" being preferably applied above the aperture in the web that displays the name of said next station, as shown in Fig. 1.

Of course it will be understood that the ap-

ertures or openings f' in one frame-section register with the corresponding openings in the other frame-section, so that the indices may be displayed from both sides. The two frame-sections are united through the medium of the cylinders F^3 , which may be screw-threaded at their upper and lower ends for the reception of screw-caps, and, if desired, bolts and nuts or other suitable fastening devices may be used to secure the frame-sections together along the webs thereof.

To avoid the use of screw-caps, and thereby simplify the construction of the indicator, I employ the means hereinafter to be described for uniting the frames.

The caps C are provided with axial bearings for the passage of a stationary shaft S , that performs the function of hanger, said shafts being provided at their upper ends with a plate s to be bolted to the car-roof, each shaft carrying a nut s' at its lower end. In the lower screw-cap for the section F' of the frame is formed a step for the foot of a vertical guide-roll r , that has its bearing at the upper end in a lug f^5 , cast with said section, a like roller being provided for section F^2 of the frame, as shown in Figs. 2 and 3.

As shown in Figs. 1 and 3, the hanger-shafts S are of greater diameter above the upper screw-cap to form an abutment or shoulder s^3 , against which said caps bear, the frame-sections being united by means of the nuts s' only, as shown in Fig. 3, so that by removing said nuts, the lower screw-caps C , and the adjustable collars c , hereinafter to be referred to, the frame cannot only be stripped off the hanger-shafts, but the frame-sections can be taken apart, or, in fact, will come apart, so that access can be readily had to the devices contained in the frame-cylinders. On the other hand, the construction of the indicator is made extremely simple, yet can be made very strong and durable.

Upon each hanger-shaft S is mounted a roller R for the index-strip I , which strip bears upon both sides similar indices arranged in the same order, so that when the strip is caused to move in either direction the same indices will be displayed on opposite sides of the indicator. The rollers R are seated upon collars C' , adjustable on the hanger-shafts by means of a set-screw c' . The index-strip I has its ends secured to the rollers R , and is wound from one roller onto the other, according to the direction of motion of the car, the various stations being marked in their regular order on both sides of the strip, so that the preceding as well as the succeeding stations or streets will be displayed in the right and left hand openings f' , respectively, of the indicator, as shown in Fig. 1, in which F street is the street just passed by the car and G street the next succeeding street toward which the car is traveling.

When used in street-cars, the indicator is or may be operated by hand, and whether operated by hand or automatically the same de-

vices are employed, with the exception that when operated by hand the strap S' has a ring or pull instead of a hook, as hereinafter described. This operating mechanism consists of a ratchet-wheel W for each roller R , said ratchet-wheels being rigidly secured to the upper face of the rollers, and, as will be readily understood, the teeth of the ratchets are reversed; of a spring-barrel B that is loose on the hanger-shaft and has a pawl P , that is held out of engagement with the teeth of the ratchet W by means of a spring S' ; of a spring S^2 , one end of which is secured to the barrel B and the other to the hanger-shaft S , and of a strap S^3 , one end of which is secured to the tail p of the pawl and the free end thereof passes through a slot in the cylinder f^2 , as shown in Figs. 7, 8, and 9, and in Fig. 1, respectively. The arrangement of these devices is such that, assuming the car to be traveling in a given direction and that said car has just left F street, the conductor pulls the strap S^3 at the right of the frame, and as said strap is connected with the tail of the pawl P the said pawl will be brought into engagement with the teeth of its ratchet, and as said ratchet is rigidly secured to the roller said roller will be revolved, thereby pulling the index-strip from left to right, winding said strip on said right-hand roller. The index G street will thus be moved to the right-hand opening f' and the index H street next following to the left-hand opening, thus indicating that the street just left by the car is G street and that the next will be H street. In pulling the strap S^3 the spring-barrel B is revolved against the stress of the spring S^2 , and as the strap is released the said spring will return to its normal position—that is to say, the spring will wind the strap up again—and in order that the said strap may be more or less slack on the cap B , so as to pull on the tail of the pawl and bring the same into engagement with the teeth of its ratchet, the caps or rollers, or both, are so proportioned that one revolution thereof, or even less, will move the trip I the required distance.

To prevent an excessive length of strap being wound on the spring-barrel B when said strap is released after pulling the same, I provide a stop s^3 , secured to said strap, as shown in Figs. 1 and 3.

Inasmuch as the teeth of the ratchet-wheels on the two rollers are set in reverse directions, and inasmuch as the pawls P are normally held out of engagement with the said ratchets, the movement of the index-strip I may be readily reversed by reversing the rotation of the rollers whenever this should become necessary from any cause or whenever the car or train has reached the end of its route.

For the purposes of calling attention to changes in the indicator I employ a bell or gong B' , secured within the cylinder F^3 in the path of a hammer H on the bearing-sleeve C' , Fig. 3.

It will readily be understood that the oper-

ating mechanism above the rollers may be arranged below the same, according to the height of the car or according as convenience may require this.

5 When the indicator is used on steam-cars—as, for instance, on elevated steam-roads or other steam-roads where a train of cars is usually run—the operation of the indicators in the various cars by hand would be very laborious, and in this case I prefer to operate
10 the indicators automatically. To this end I arrange in the roof of the car a guide roller or pulley R^2 , over which the strap S^3 travels, said strap having a hook or catch-plate s^4 and
15 a stop s^5 . At the entrance of or exit from each station is arranged a bracket A, whose arm a projects into the path of the catch s^4 on strap S^3 , so that as the car passes, the arm will engage the strap, as shown in Fig. 4, and
20 as the car moves along the arm will pull the strap S^3 out, as shown in Fig. 5, to set the index. When the strap has been pulled out the required distance, it is disengaged from the arm by a detent-lever L, pivoted to arm
25 a' of bracket A, one end l of said lever extending through a slot a^3 in arm a , while the other end l' of said lever is bent down, as shown in Figs. 6 and 7, and engages a tripping-roller r^4 on the car, whereby the lever L
30 is tripped, its end l engaging the catch-plate s^4 of the strap S^3 and throwing it off the arm a , as shown in Fig. 5.

Of course it will be understood that one of the automatic operating devices is arranged
35 on each side of the track on single-track lines in order to actuate the indicator-straps, whether the car moves in one direction or the other. The detent-lever is returned to its normal position after having been moved out
40 of it by a spring l^2 , as shown in Figs. 4, 5 and 6.

In practice, in order that the indices may be visible at night as well as in day-time, I use a more or less transparent or, more properly, translucent material for the index-strip
45 I, so that when the indicator is hung between two lights the indices will be plainly visible from either side of the indicator. For indicators operated by hand a strap S^3 of leather may be employed; but when operated auto-
50 matically I prefer a steel band.

Having described my invention, what I claim is—

1. A street-car indicator comprising two housings connected by open-work webs arranged to form between them a narrow slot
55 or passage, a hanger-rod extending into each housing, a roller mounted on each hanger, and an indicator-strip having the streets or stations marked on both faces in the same
60 order and adapted to have motion from one roller to the other between said webs, for the purpose set forth.

2. A street-car indicator comprising a frame composed of two cylinders connected together
65 by open-work webs arranged to form between them a narrow slot or passage, and a hanger-rod extending into each of said cylinders, in

combination with a roller mounted on each of said hangers, and a transparent indicator-strip having the streets or stations marked
70 thereon and adapted to have motion between the webs from one roller to the other, for the purpose set forth.

3. A street or station indicator comprising a frame composed of two housings provided
75 with bearings and connected by open-work webs, hangers for suspending the frame centrally of a car, a movable roller mounted on the bearings of each housing, and an indicator-strip connected with and adapted to be
80 moved by said rollers between the connecting-webs and having the streets or stations marked thereon on both faces in the same order, substantially as and for the purpose set forth.
85

4. A street or station indicator comprising a frame composed of two sections consisting of two semi-cylinders connected together by an open-work web, said parts being arranged
90 so that when the sections are united the frame will have a cylindrical housing at each end connected by a narrow passage formed by and between the webs, a hanger-rod extending through each housing, a roller movable
95 on each of said rods, and an indicator-strip having the street or stations marked thereon on both faces in the same order, said strip being connected with and adapted to be moved by said rollers between the connect-
100 ing-webs, substantially as and for the purpose set forth.

5. A street or station indicator and mechanism for operating the same, consisting of a frame provided with hangers for suspending
105 the same centrally of a car from the roof thereof and with openings front and back in register with each other at each end of the frame, and an indicator-strip having the streets or stations marked thereon on both
110 faces in the same order, said strip being connected with and adapted to be moved by said rollers between and across the openings, a ratchet-wheel secured to the roller, a pawl held normally out of engagement with the
115 ratchet and having independent motion about the same, a pull connected with the pawl and operating to move it into engagement with the ratchet and revolve the roll, and a return-spring for returning the pull and pawl to
120 their normal positions, as set forth.

6. A street or station indicator and mechanism for operating the same, consisting of a frame provided with hangers for suspending
125 the same centrally of a car from the roof thereof and with openings front and back in register with each other at each end of the frame, and an indicator-strip having the streets or stations marked thereon on both
130 faces in the same order, said strip being connected with and adapted to be moved by said rollers between and across the openings, a ratchet-wheel secured to the roller, a pawl held normally out of engagement with the ratchet-wheel and having independent motion

about the same, a pull connected with and adapted to move the pawl into engagement with the ratchet, said pull extending out of the car, a return-spring operating to return
5 the pawl and pull to their normal position independently of the roller, and a tripping device secured to the car, in combination with a catch in the path of the pull, and a tripping-lever in the path of the tripping device oper-
10 ating to release the pull from the catch, substantially as and for the purpose set forth.

7. A street or station indicator comprising an indicator-strip having the streets or stations marked thereon on both faces in the
15 same order, a frame adapted to be suspended centrally of the car from the roof thereof and having openings arranged to simultaneously display the indices on both faces of the strip, means for imparting motion to the strip, com-
20 prising a vertical winding-roller at each end of the frame for imparting lateral motion to the strip, a ratchet-wheel secured to said roller, the said ratchets being arranged with their teeth in reverse directions, a pawl for
25 each of said ratchets, held normally out of engagement with the teeth thereof, a spring-barrel to which said pawl is pivoted and which has independent motion on the roller-journal, and a pull on the spring-barrel, connected
30 with the pawl for imparting motion to said

barrel and for bringing the pawl into engagement with its ratchet, substantially as and for the purposes specified.

8. The combination, with a car, of a street or station indicator comprising an indicator-
35 strip having the streets or stations marked on both faces in the same order, a frame adapted to be suspended centrally of the car from the roof thereof and having openings arranged to simultaneously display the indices on both
40 faces of the strip, a vertical revoluble roller at each end of the frame for imparting lateral motion to the strip, a pawl-and-ratchet mechanism for imparting motion to the rollers, a pull having a catch-plate at its free
45 end, adapted to impart motion to the pawl-and-ratchet mechanism, said catch-plate lying outside of the car, and a return-spring for returning the pawl and pull to their normal position independently of the roller, in
50 combination with a fixed stop in the path of the catch-plate and adapted to engage the same, a detent-lever adapted to disengage the catch-plate from the fixed stop, and a tripping device secured to the car to trip the detent,
55 substantially as and for the purpose described.

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Witnesses:

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SARAH MAYER.