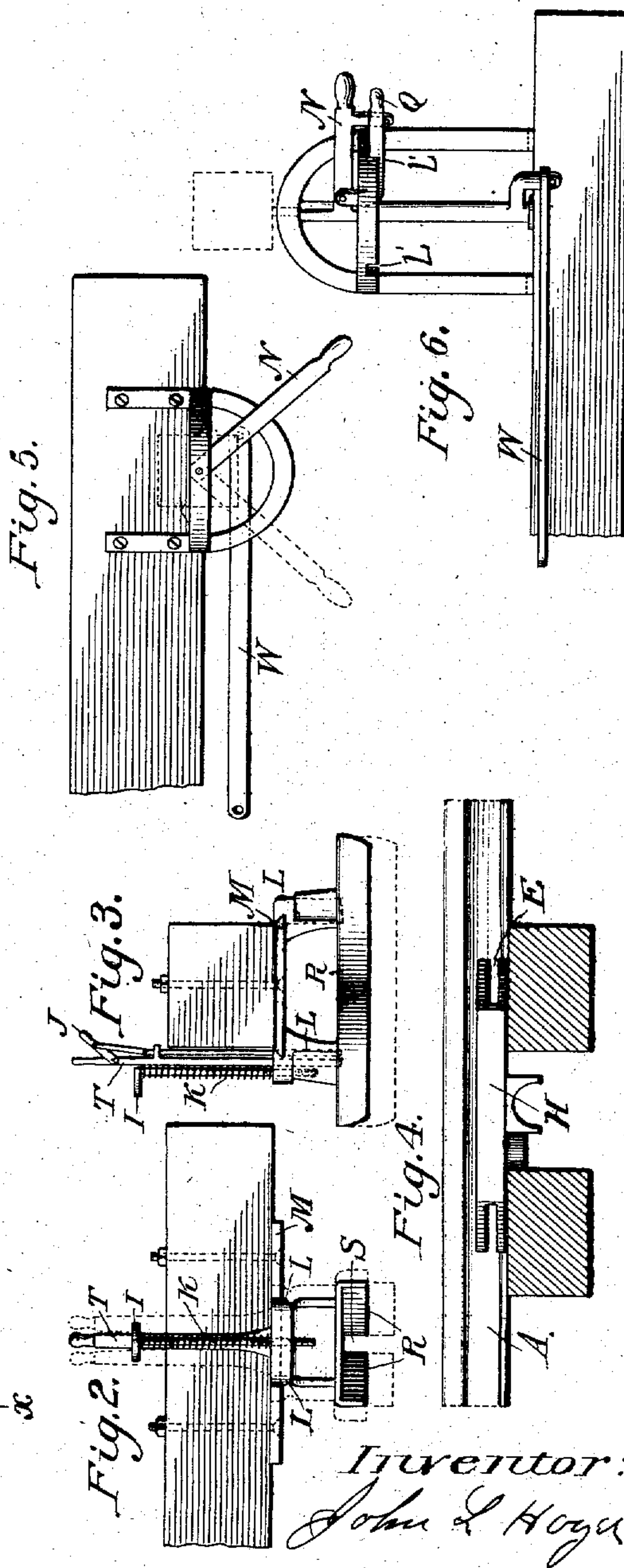
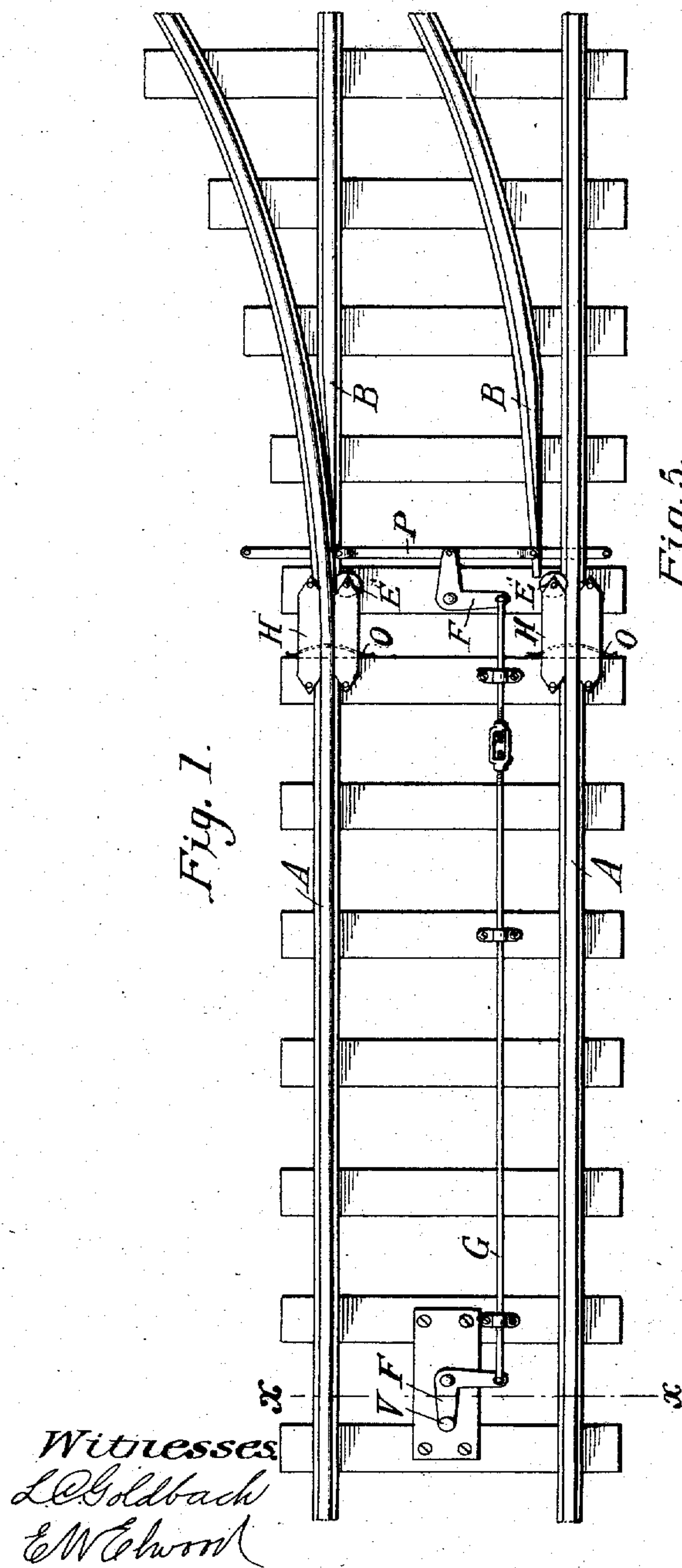


J. L. HOYER.

MANIPULATION OF RAILROAD SWITCHES, ELECTRICAL OR OTHER APPLIANCES.

APPLICATION FILED APR. 25, 1904.

3 SHEETS—SHEET 1.



Inventor:
John L. Hoyer

J. L. HOYER.

MANIPULATION OF RAILROAD SWITCHES, ELECTRICAL OR OTHER APPLIANCES.

APPLICATION FILED APR. 25, 1904.

3 SHEETS—SHEET 2.

Fig. 7.

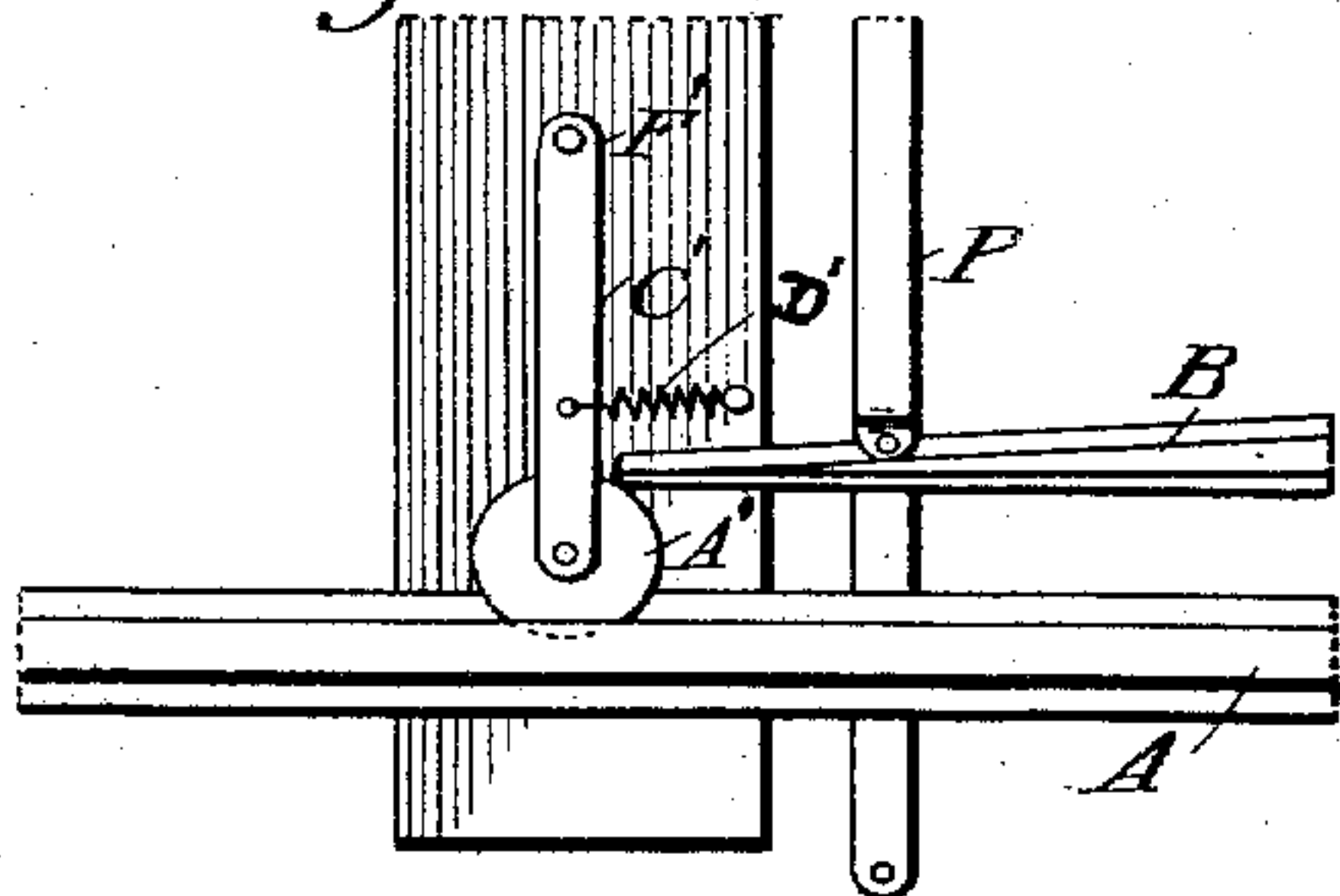


Fig. 8.

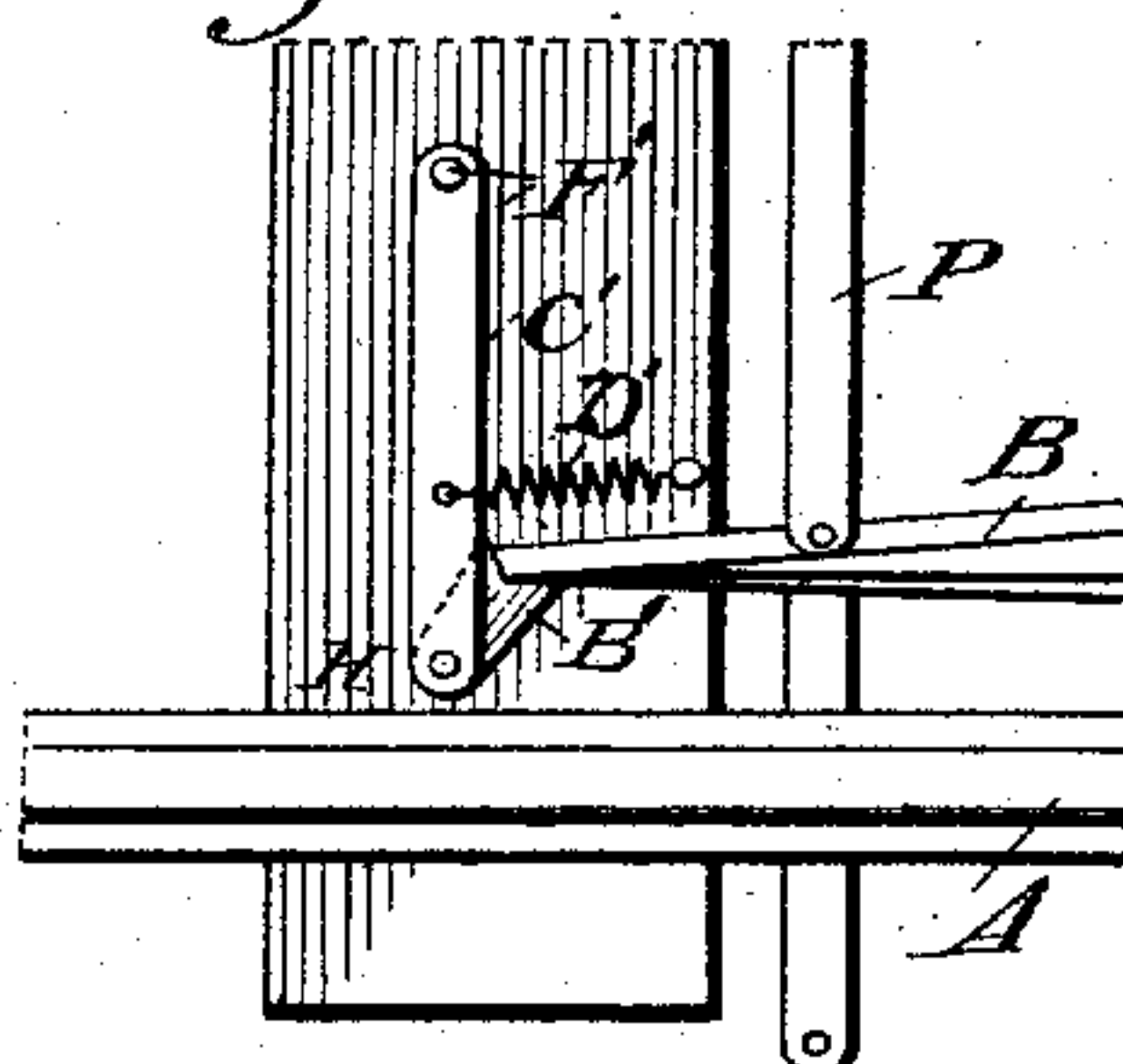


Fig. 9.

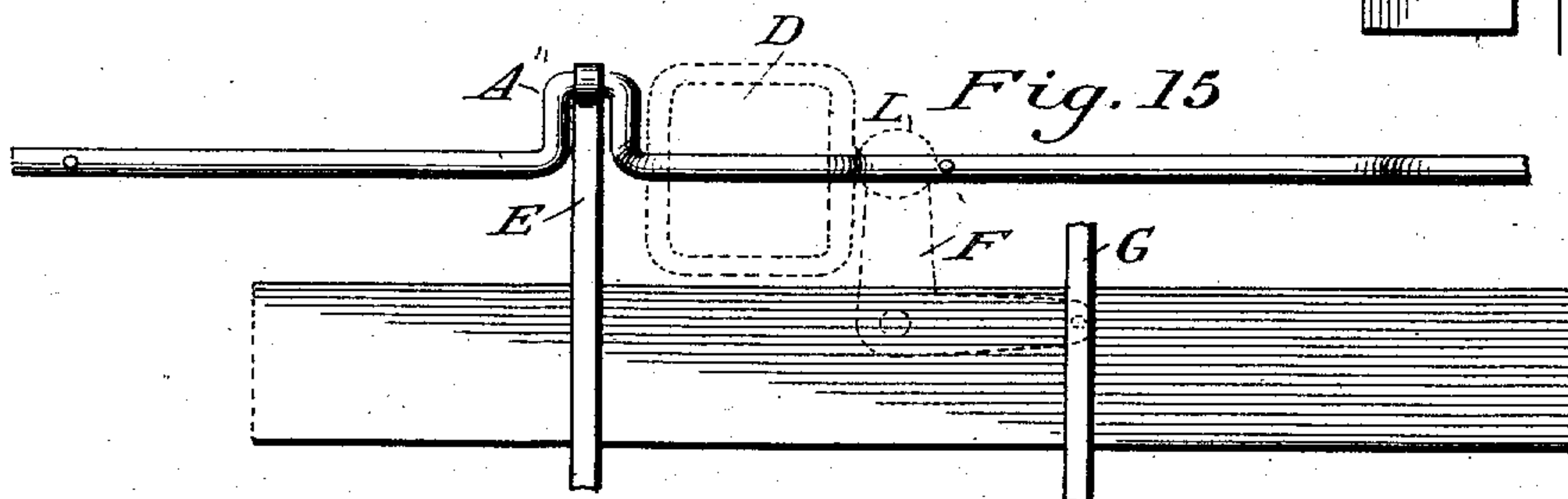
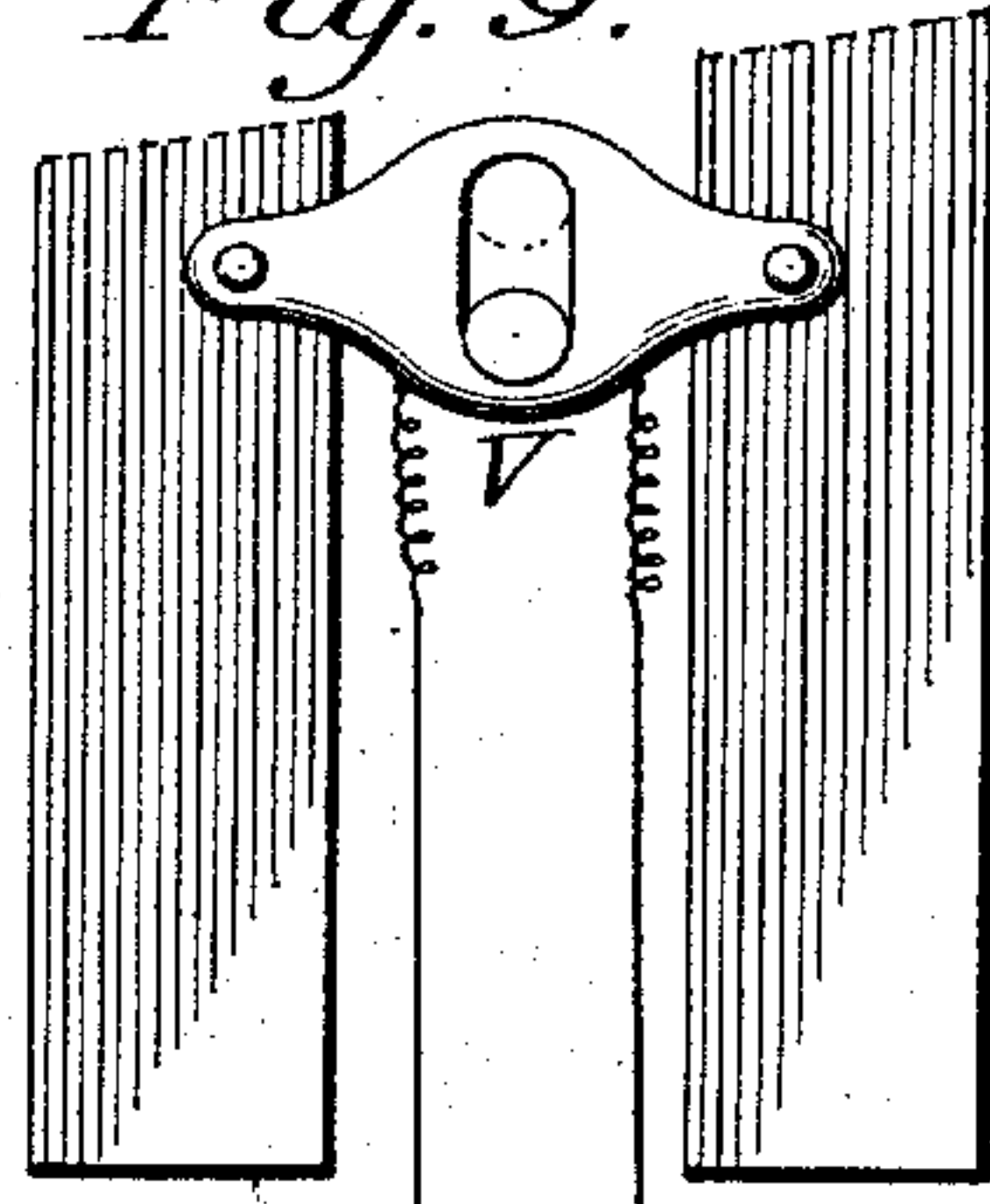


Fig. 16.

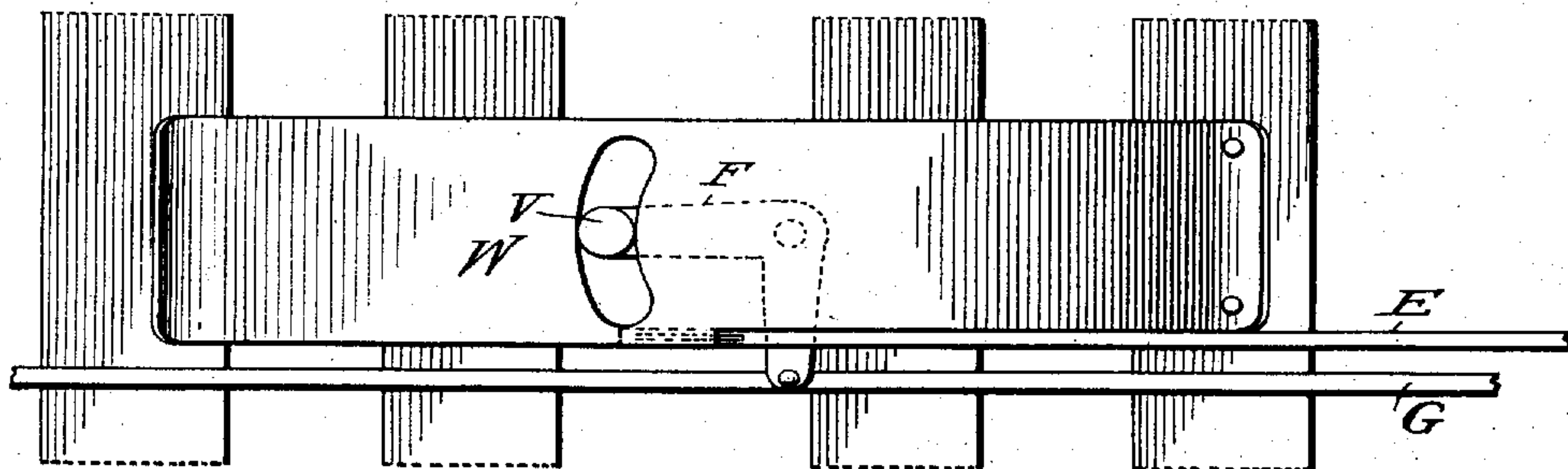
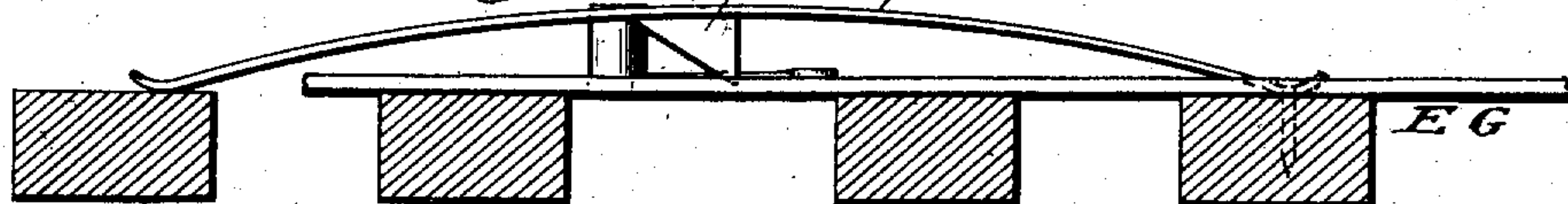


Fig. 17.



Witnesses:

L. Goldbach

E. W. Elwood

Inventor:

John L. Hoyer

J. L. HOYER.

MANIPULATION OF RAILROAD SWITCHES, ELECTRICAL OR OTHER APPLIANCES.

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3 SHEETS—SHEET 3.

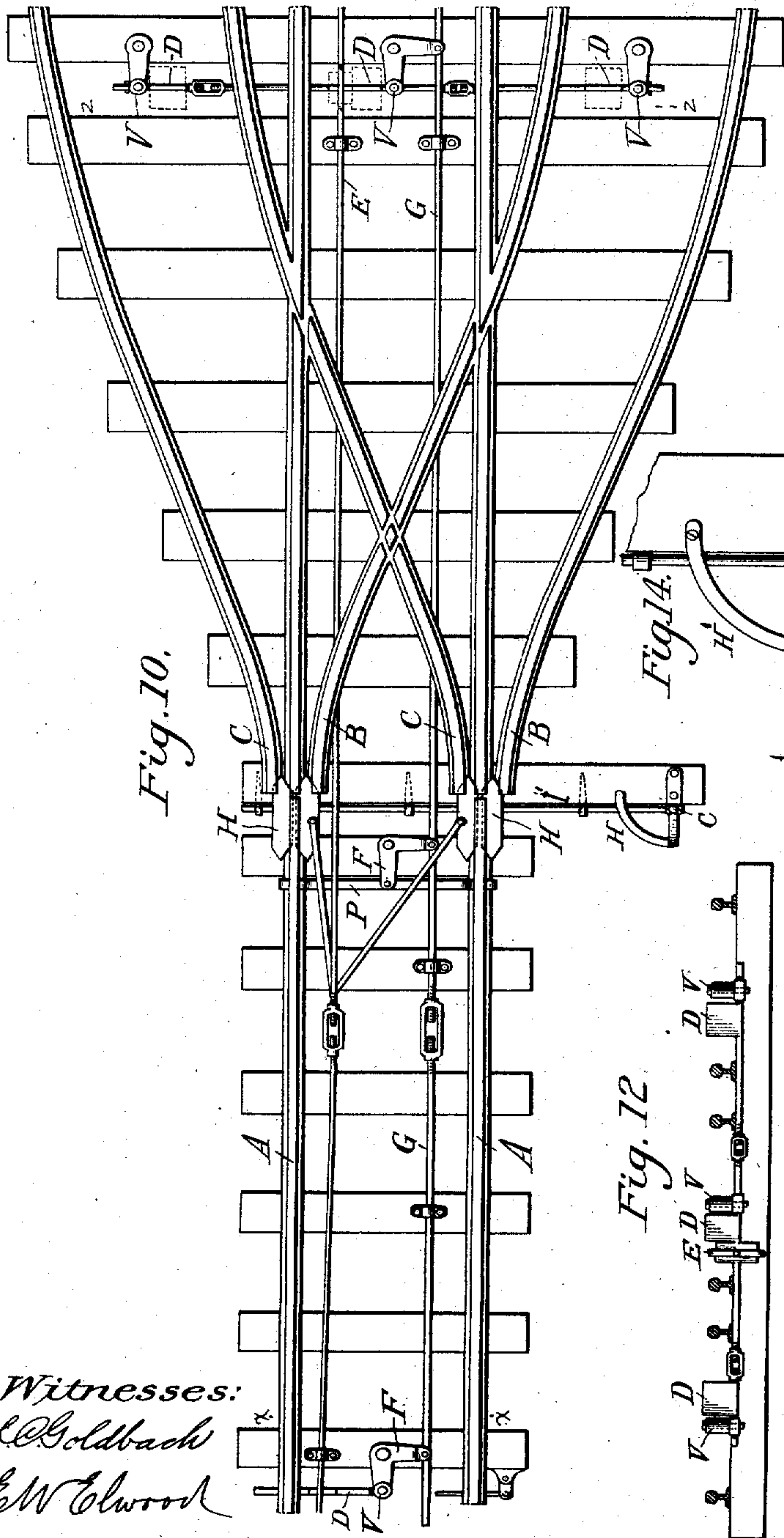


Fig. 10.

Witnesses:
L. Goldbach
E. W. Elwood

Fig. 12.



Fig. 14.

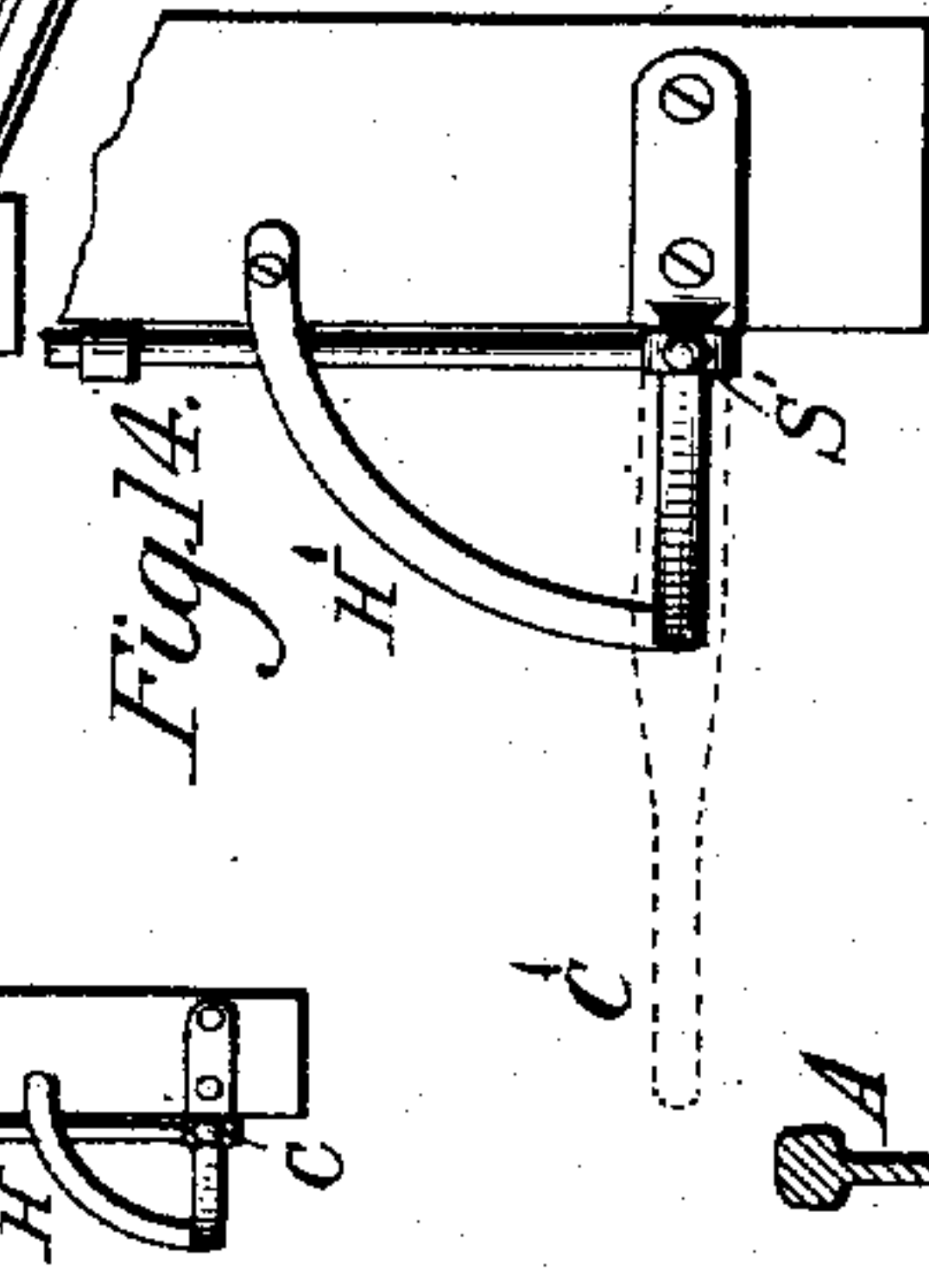


Fig. 11.

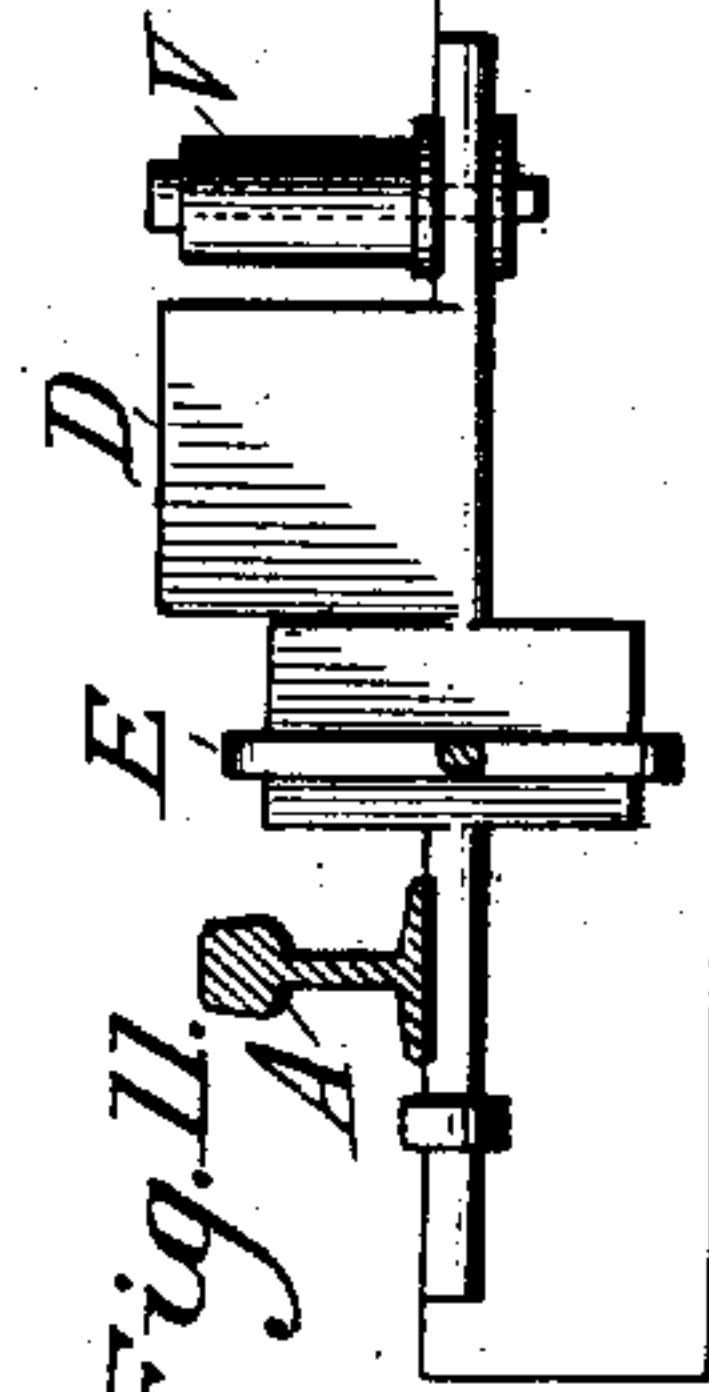
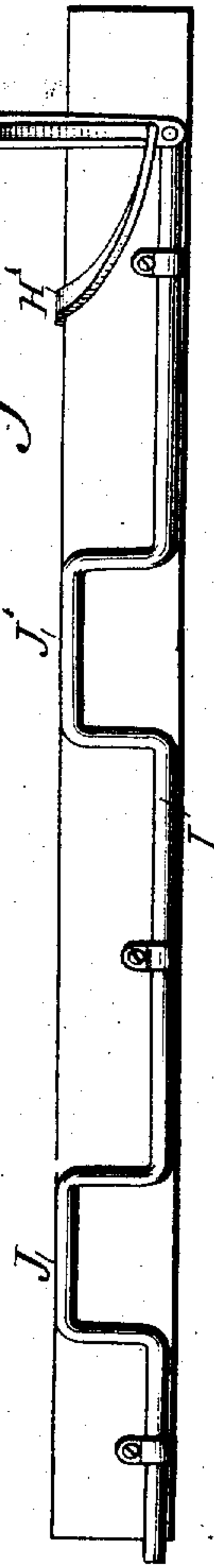


Fig. 13.



Inventor:
John L. Hoyer

UNITED STATES PATENT OFFICE.

JOHN L. HOYER, OF CLEVELAND, OHIO.

MANIPULATION OF RAILROAD-SWITCHES, ELECTRICAL OR OTHER APPLIANCES.

SPECIFICATION forming part of Letters Patent No. 794,103, dated July 4, 1905.

Application filed April 25, 1904. Serial No. 204,924.

To all whom it may concern:

Be it known that I, JOHN L. HOYER, a citizen of the United States, residing in the city of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in the Manipulation of Railroad-Switches, Electrical or other Appliances, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

Figure 1 is a plan view of the split-switch plant and my device applied thereto. Figs. 2 and 3 are front and end views of the cross-beam of the truck and the actuating device carried thereon. Fig. 4 is a detailed view of the switch-lock. Figs. 5 and 6 are top and side views of the split-switch stand. Figs. 7 and 8 show a wheel and fractional part of a wheel at the points of split switches. Fig. 9 is a lug between the track-rails by which electrical block, electrical time-clock, and electrical danger signals are set. Fig. 10 is the plan view of a stub-switch plant and my device applied thereto. Figs. 11 and 12 are sectional views taken on lines *xx* and *zz*, Fig. 10. Figs. 13 and 14 are front and top views of the stub-switch stand. Fig. 15 is a trip or crank shaft. Figs. 16 and 17 are top and side views of an elliptic spring between the track-rails of the stub-switch.

Heretofore switching, signaling, and other means of handling trains have been done from the side of the track. In this device they are governed by mechanism placed in the center of the track as well.

The leading feature of my invention consists of a lug upon an angle-lever for the split switch, Fig. 1, lug, angle-lever, and trip for the stub-switch, Fig. 10, and lug or both lug angle-lever for other purposes located between the track-rails, which are moved at will by the double-flanged shoe suspended from beneath the truck or any suitable means of support, which is adjusted by an upright bar or lever held in position by a catch engaging suitable notches or holes corresponding to the track or purposes intended.

A A, Fig. 1, represent the main-track rails; B B, the rails of the side tracks of a split switch. V is the lug (opposite which

and attached thereto is a target) upon an angle-lever F, to which rod G is attached, said rod G extending to angle-lever F, which is connected to switch-bar P. H H are sliding locks, in the ends of which are mortised roller-wheels E' E'. O O are spiral or elliptic springs forcing the lock-plates H H forward.

Figs. 7 and 8 show a wheel and fractional part of a wheel and subserve the same purpose as sliding locks H H. Figs. 5 and 6 show the switch-stand, and when placed at the side of the tracks the whole is shifted by hand.

A A, Fig. 10, represent the main-track rails; B B and C C, the rails of the side tracks of the stub-switch plant. D is the trip or crank shaft. E is the rod, at one end diverging so as to connect with the sliding locks H H. V is the lug attached to angle-lever F, to which lever rod G is attached. Rod G is again connected to angle-lever F, which is attached to switch-bar P. H H are sliding locks, with the outer sides a little flush and slanting to a little below the tread of the rails at the ends, (not shown in drawings,) with roller-wheels, which are made to embrace the webs and flanges of two or more adjoining rails, and thus hold them securely in position.

Figs. 16 and 17 show an elliptic spring placed between the track-rails and subserve the same purpose as trip or crank shaft D, Figs. 10, 11, 12, and 15. Figs. 13 and 14 show the stub-switch stand, and when placed at the side of the tracks the whole is shifted by hand. Fig. 15 shows another form of trip or crank shaft.

Figs. 2 and 3 represent the front and side of the operating-shoe beveled or flaring outwardly. S is the central opening there-through; T, a lever or stem made fast to the transverse plate and extending into the car or engineman's room, by means of which it is shifted to the right or left and securely held by suitable catches in bed-plate M. At any time by riding foot-plate I or any suitable pressure the shoe is forced down the guides LL to a stop. (Not shown in drawings.) By releasing the pressure the spring K returns the shoe to its former position. When action

is wanted, the shoe is lowered and engages the lug V on angle-lever F, which causes rod G to move the fly-rails B B to the right or left, thus forcing locking-plates, with roller-wheels E' E', back against springs O O sufficiently to allow the points of the rails to pass the center, after which the springs (now set up) force the lock-plates forward to their former position with the rails on the opposite side, thus making a tight joint.

The trip or crank shaft D, Fig. 10, consists of a plate standing in an erect position at right angles with the track-rails, (see Figs. 10 11, 12, and 15,) pivoted with an eyebolt beneath lug V, so as to allow freedom of motion. To trip D is connected rod E with a square eye, (or otherwise, as at A'', Fig. 15,) which in turn is connected to locking-plates H H. By riding the foot-plate I or any suitable pressure the shoe is lowered to a stop, first upsetting the trip D, which is attached to rod E, which proportionately draws back lock-plates H H a sufficient distance to allow them to pass the ends of the fixed rails. Then the lug V, simultaneously guided by and passing through opening in shoe S, causes rod G to move the switch-rails the required distance, according to the notches or holes in the plate M, after which the springs O O throw the locks forward and make a continuous rail.

Figs. 13 and 14 show the stub-switch stand, and consists of a bar of round iron so bent at J J' and fastened to the tie with eyebolts as to allow of a rolling and lateral motion. Bar C' is a lever of suitable length with an eye through which is passed a gooseneck H' H', also made of round iron and securely fastened to the tie. By withdrawing the key-bolt at S' the lever is permitted to fall forward, which rotates the bar I', to which the lock-plates H H are attached, after which by shifting the whole to the right or left and then raising the lever and crowding back to its erect position the lock-plates H H follow and embrace the webs and flanges of two or more adjoining rails, making a continuous joint.

Figs. 5 and 6 are top and side views of the split-switch stand made of a curved bar of round iron, with feet securely spiked to the tie. At any suitable distance from the feet is a half-circle, beneath which are suitable notches corresponding to the position of the fly-rails. In the center of circle is an upright shaft, to which bar W and lever-bar N, supporting drop-bar Q, are attached. When said bar Q is permitted to drop down, it allows freedom of motion of the fly-rails from any given point and when lifted again into the notch right or left is securely locked at L'.

Figs. 16 and 17 show a suitable elliptic spring placed between the track-rails of the stub-switch, Fig. 10, through which lug V can pass and have freedom of motion, to which

spring a perpendicular plate Y, beveled on one edge, is attached and passing through a corresponding slot in bar E, and when compressed by the shoe beveled plate Y is forced through slot in bar E, which accordingly draws lock-plates H H off the fixed rails, as before, and is available.

Figs. 7 and 8 show a wheel and fractional part of a wheel revolving around the ends of split-switch rails made of a bar of iron, forked, of any suitable length, and fastened with a swinging motion at F', in which fork is a wheel or fractional part of a wheel A' and B', the latter slotted. Spring D' is connected by eyebolt, which passes through bar C', with a nut, by which tension is adjusted. (Not shown in drawings.) When the rails are shifted, the springs are elongated and rails forced to the other side.

Figs. 2 and 3 consist of a beveled plate of iron M M, securely bolted to the beam of the truck or any suitable means of support, a second transverse plate to match M, with upright guides L L, stem T, and thumb-latch J, and, lastly, the shoe with guides to match the upright guides L L, pressure-bar I, and spring K for lowering the same.

Fig. 9 shows a lug sliding between machined guides or attached to an angle-lever pivoted to the tie between the track-rails and of sufficient height to engage the shoe while passing for the purpose of opening or closing circuits, by which electrical block, electrical time-clock, and electrical danger signals are set.

What I claim is—

1. The double-flanged shoe-operating mechanism, the stem, thumb-latch, pressure-plate with set-stop and spring, and suitable guides upon which it can be moved laterally and perpendicularly beneath the truck, in combination with one or more angle or bell-crank levers, pivoted to the ties at different distances apart for shunting cars, between the track-rails of a split switch, the home lever attached to the tie-bar of said switch, the distant levers provided with lugs of sufficient height to engage said shoe while the car is moving, with a distant target connected to a lug, denoting the position of said switch, the fixed rails provided with sliding locks, rollers and springs, at the points of the fly-rails, the switch-stand with the drop-bar, catches, and a suitable target, with a positive connection to the fly-rails for shifting by hand and for locking.

2. The double-flanged shoe-operating mechanism of the nature described, having a stem, a thumb-latch to engage suitable notches, a pressure-plate with stop and spring, and machined guides upon which it can be moved laterally and perpendicularly beneath the truck, or other suitable means of support, the said shoe when depressed first coming in contact with the trip or crank shaft opposite a lug, the upsetting of which

draws the sliding locks off the fixed rails, the said trips being connected by one continuous rod leading to said locks, said locks being provided with rollers, and springs, with the
 5 outer sides a little flush, and slanting to a little below the tread of the rails at the ends, and embracing the webs and flanges of two or more adjoining rails, angle-levers opposite each above-mentioned trip, pivoted to the
 10 ties at different distances apart and connected by one continuous rod, the home lever attached to the tie-bar, the distant levers provided with lugs between the track-rails of sufficient height to engage said shoe,
 15 when depressed by a passing engine, of a switch, with a suitable target connected to a distant lug denoting the position of said switch, the lever at the side of the track, the gooseneck therethrough, the rocker-bar with
 20 a suitable target connected therewith, by which the whole is shifted by hand and locked.

3. The double-flanged shoe mechanism, of the nature described, the stem, the thumb-
 25 latch to engage suitable notches, pressure-plate stop and spring, and suitable guides upon which it can be moved laterally and perpendicularly beneath the truck; in combination first; with an elliptic spring having
 30 an opening therein above all lugs, the perpendicular beveled plate attached thereto engaging the rod leading to the sliding locks, with rollers and springs; a second combination of angle-levers pivoted to the ties at dif-
 35 ferent distances apart, with lugs of sufficient height to engage said shoe when said elliptic spring is depressed, while the engine is pass-

ing, between the track-rails of a stub-switch, with any distant target connected to a lug, the lever at the side of the track, the goose-
 40 neck therethrough, rocker-bar, and a suitable target connected therewith, by which the whole can be shifted by hand and locked.

4. The split-switch mechanism of the nature described, having sliding locks, rollers
 45 and springs, the forked bar with eyebolt and spring for tension, a device for holding said rollers, and fractional parts of rollers slotted, at the points of the rails, in combination
 50 with the switch-stand having a positive connection to the fly-rails at the side of the track, the lever, the drop-bar and catches, and a suitable target; when the said switch
 55 is trailed through with the drop-bar of the stand disengaged, the springs elongate to allow the rails to pass to the other side without damage to the points.

5. The rail-lock-operating mechanism of the nature described, with the outer sides a
 60 little above in the center, and slanting to a little below the tread of the rails at the ends, provided with rollers, embracing the webs and flanges of two or more adjoining rails, in
 65 combination with the lever at the side of the track, through which is passed a gooseneck, the rocker-bar with a positive connection to said locks, and a suitable target connected therewith for shifting the same by hand and for locking.

JOHN L. HOYER.

Witnesses:

ROBERT T. MORROW,
 THOMAS AINGWORTH.

Correction in Letters Patent No. 794,103.

It is hereby certified that in Letters Patent No. 794,103, granted July 4, 1905, upon the application of John L. Hoyer, of Cleveland, Ohio, for an improvement in the "Manipulation of Railroad-Switches, Electrical or Other Appliances," an error appears in the printed specification requiring correction, as follows: In line 40, page 1, before the word "angle-lever," the word *and* should be inserted; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 29th day of August, A. D., 1905.

[SEAL.]

E. B. MOORE,
 Acting Commissioner of Patents.

draws the sliding locks off the fixed rails, the said trips being connected by one continuous rod leading to said locks, said locks being provided with rollers, and springs, with the outer sides a little flush, and slanting to a little below the tread of the rails at the ends, and embracing the webs and flanges of two or more adjoining rails, angle-levers opposite each above-mentioned trip, pivoted to the ties at different distances apart and connected by one continuous rod, the home lever attached to the tie-bar, the distant levers provided with lugs between the track-rails of sufficient height to engage said shoe, when depressed by a passing engine, of a switch, with a suitable target connected to a distant lug denoting the position of said switch, the lever at the side of the track, the gooseneck therethrough, the rocker-bar with a suitable target connected therewith, by which the whole is shifted by hand and locked.

3. The double-flanged shoe mechanism, of the nature described, the stem, the thumb-latch to engage suitable notches, pressure-plate stop and spring, and suitable guides upon which it can be moved laterally and perpendicularly beneath the truck; in combination first; with an elliptic spring having an opening therein above all lugs, the perpendicular beveled plate attached thereto engaging the rod leading to the sliding locks, with rollers and springs; a second combination of angle-levers pivoted to the ties at different distances apart, with lugs of sufficient height to engage said shoe when said elliptic spring is depressed, while the engine is pass-

ing, between the track-rails of a stub-switch, with any distant target connected to a lug, the lever at the side of the track, the gooseneck therethrough, rocker-bar, and a suitable target connected therewith, by which the whole can be shifted by hand and locked.

4. The split-switch mechanism of the nature described, having sliding locks, rollers and springs, the forked bar with eyebolt and spring for tension, a device for holding said rollers, and fractional parts of rollers slotted, at the points of the rails, in combination with the switch-stand having a positive connection to the fly-rails at the side of the track, the lever, the drop-bar and catches, and a suitable target; when the said switch is trailed through with the drop-bar of the stand disengaged, the springs elongate to allow the rails to pass to the other side without damage to the points.

5. The rail-lock-operating mechanism of the nature described, with the outer sides a little above in the center, and slanting to a little below the tread of the rails at the ends, provided with rollers, embracing the webs and flanges of two or more adjoining rails, in combination with the lever at the side of the track, through which is passed a gooseneck, the rocker-bar with a positive connection to said locks, and a suitable target connected therewith for shifting the same by hand and for locking.

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