

D. D. SAMAIA.
 TRAMWAY SWITCH.
 APPLICATION FILED FEB. 1, 1908.

951,151.

Patented Mar. 8, 1910.
 3 SHEETS—SHEET 1.

Fig. 1.

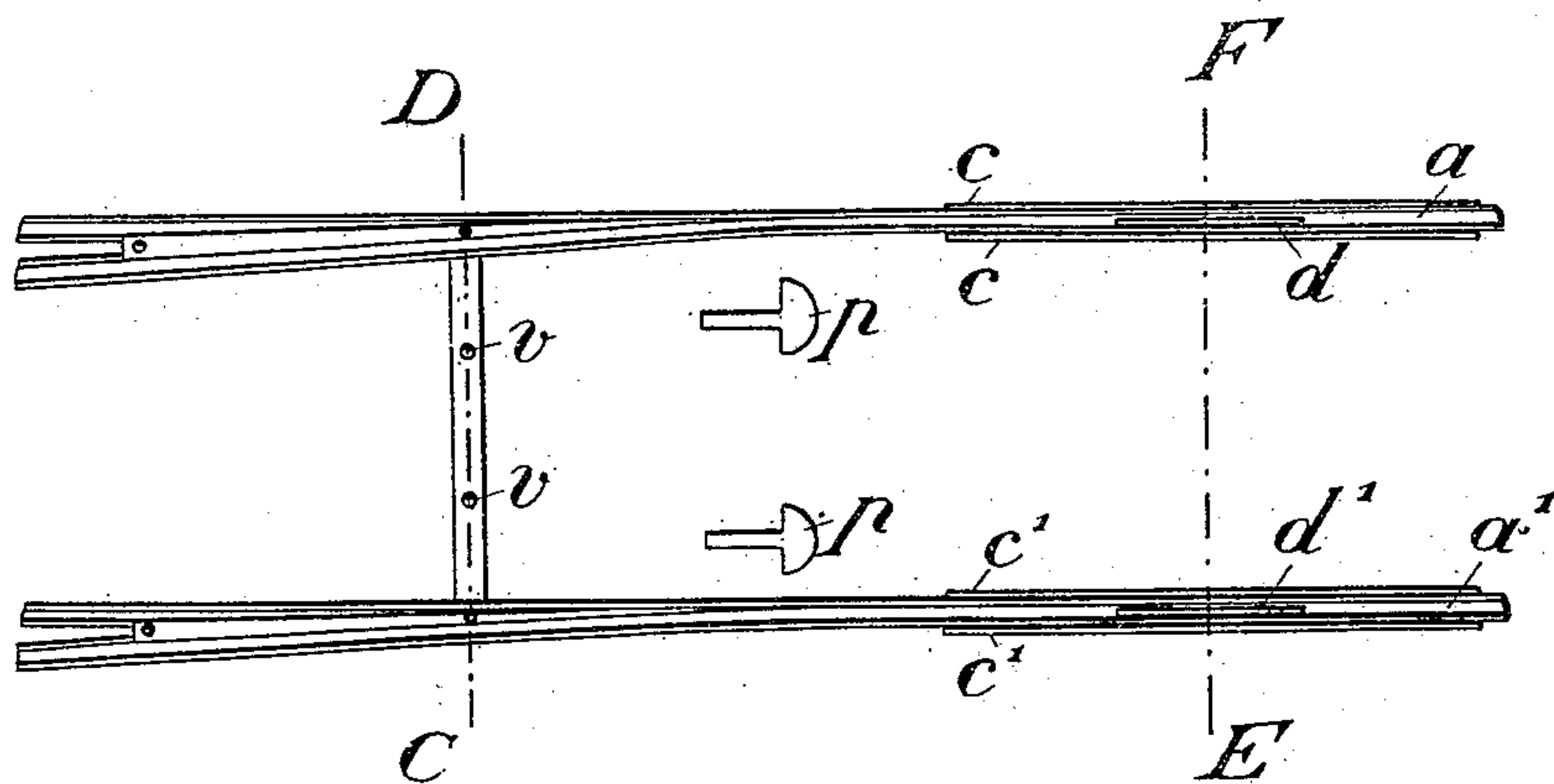


Fig. 2.

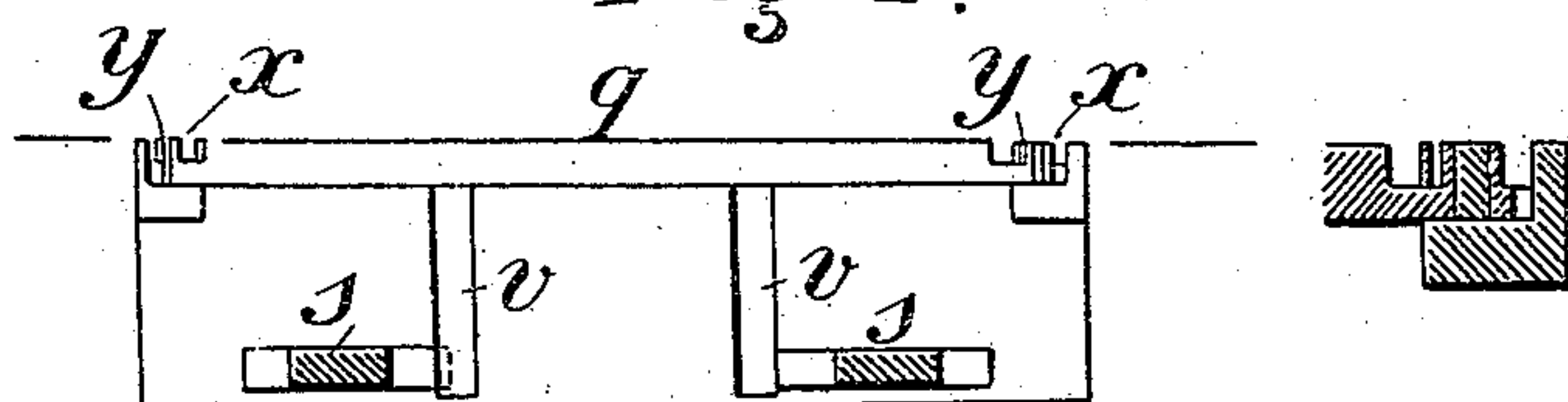
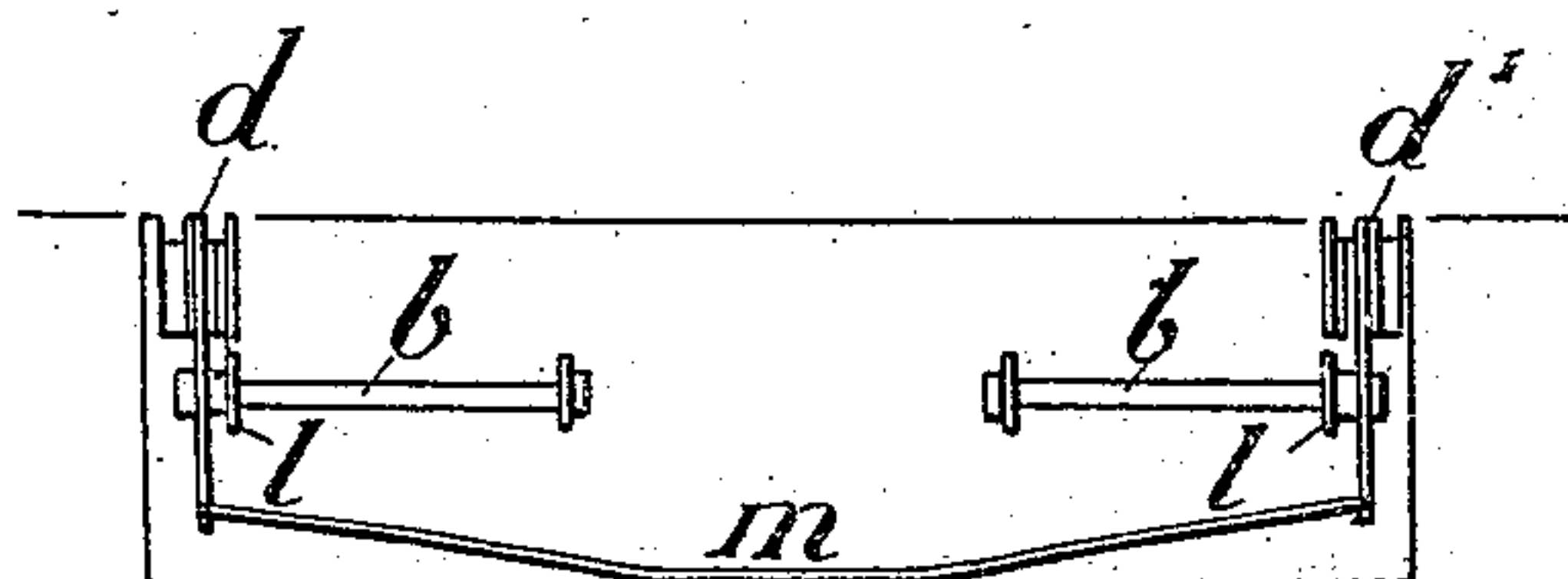


Fig. 3.



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Fig. 4.

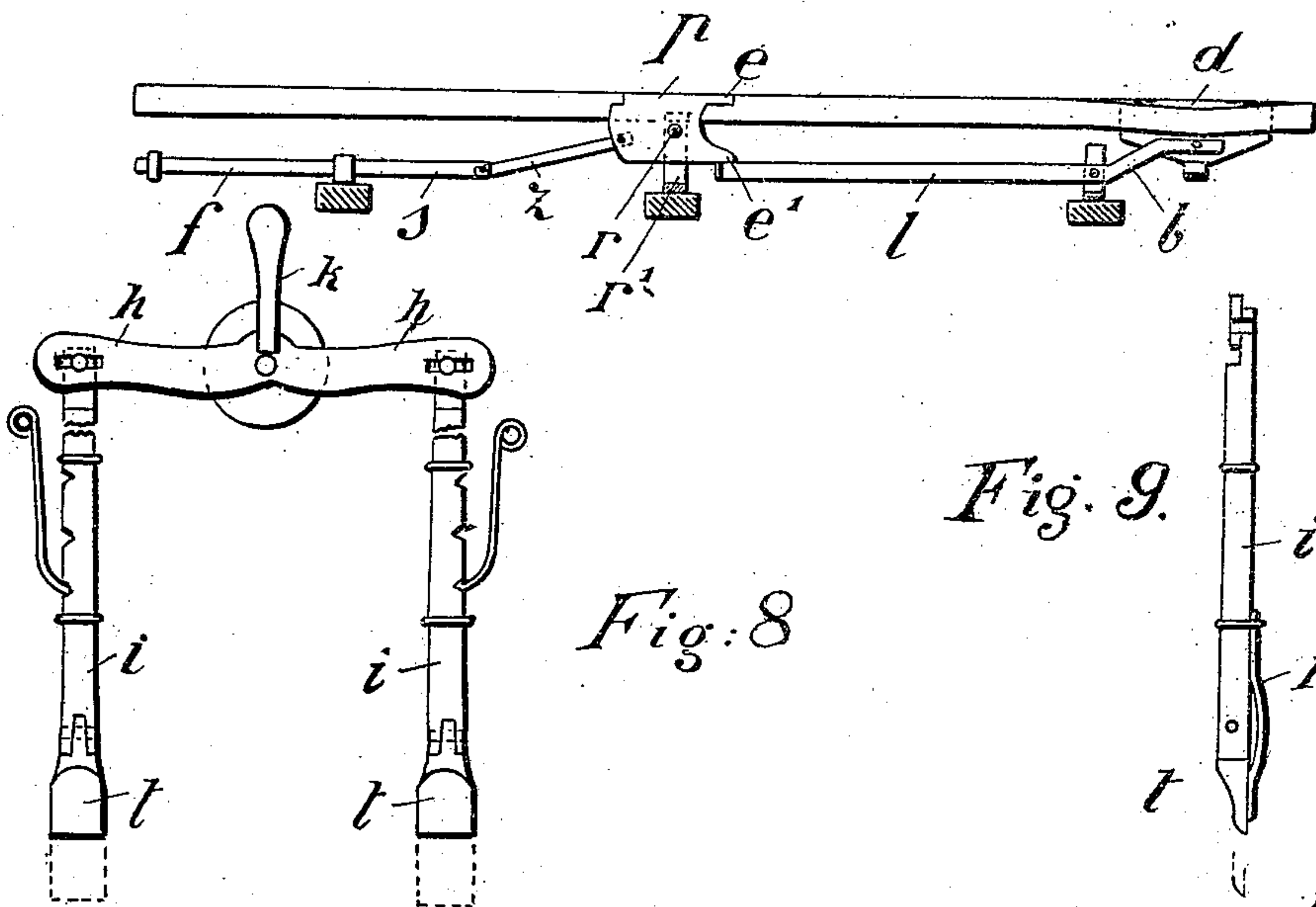


Fig. 9.

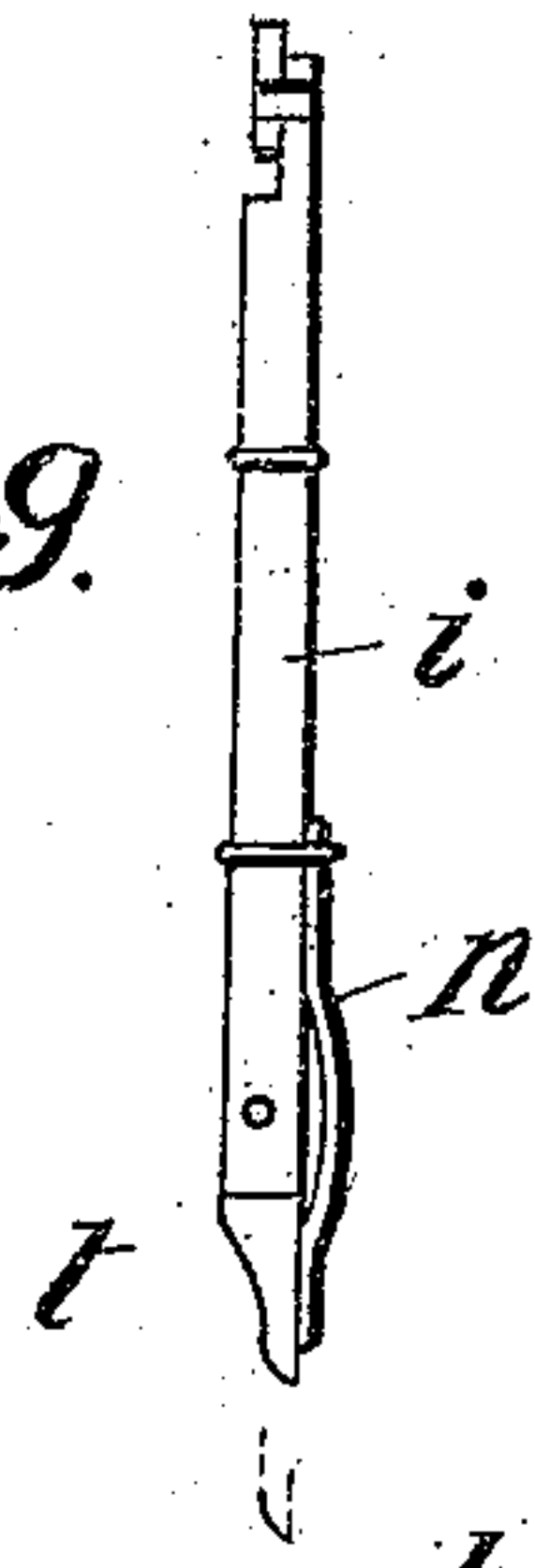


Fig. 8.

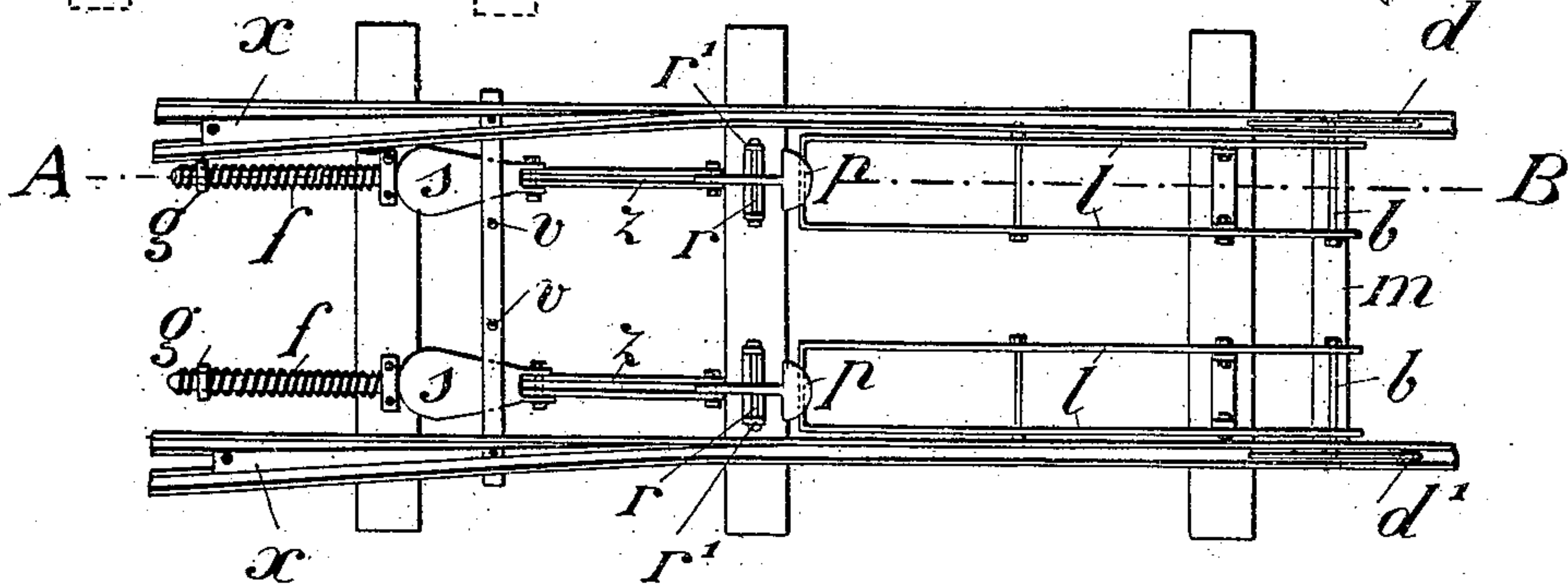


Fig. 5.

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 3 SHEETS—SHEET 3.

Fig: 6.

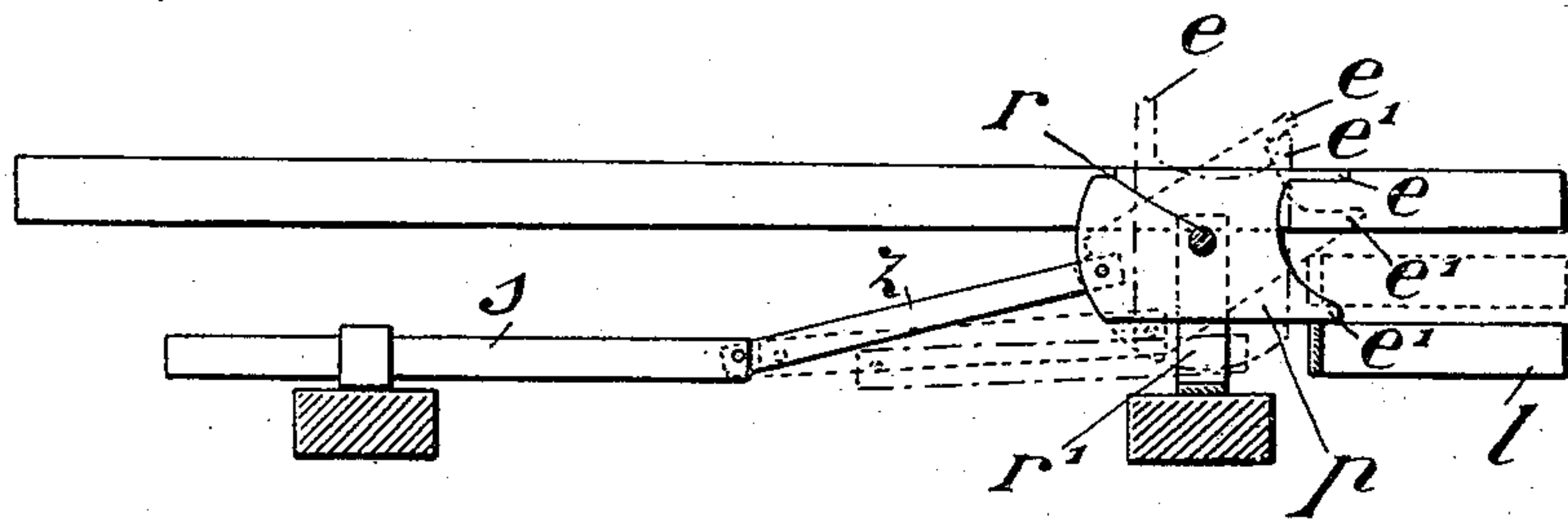
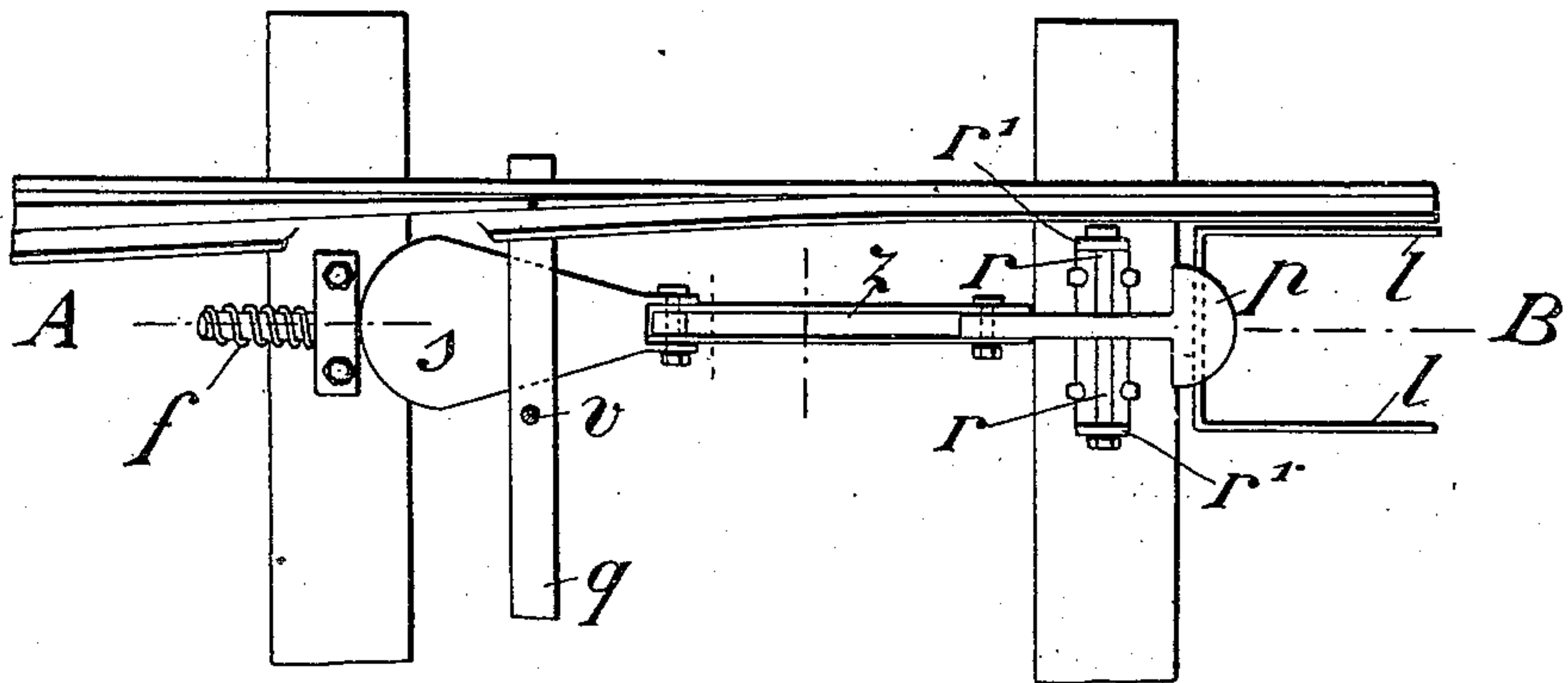


Fig: 7.



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UNITED STATES PATENT OFFICE.

DINO DAVIDE SAMAIA, OF VICENZA, ITALY.

TRAMWAY-SWITCH.

951,151.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed February 1, 1908. Serial No. 413,919.

To all whom it may concern:

Be it known that I, DINO DAVIDE SAMAIA, residing at Vicenza, in Italy, have invented a certain new and useful Improved Tramway-Switch, of which the following is a specification.

The present invention has for its object to enable the driver of a car to direct the course at a crossing of a line to the right or to the left at will without stopping the motion of the car. The operation of the mechanism includes two motions, firstly an automatic motion effected by the car itself under the influence of its own weight: the said motion rendering possible the second motion which the driver can effect in a simple and convenient manner.

The present invention relates to that type of point or switch operating mechanism for rail or tramways in which the wheels of the car at a certain point depress a lever device which acts to cause a connected part to project into the path of a depending operating rod manipulated by the driver, said rod, on coming in contact with the projecting part causing mechanism to be operated to move the points laterally in one or the other direction.

The invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

The accompanying drawing represents the construction of the apparatus.

Figure 1 shows a plan view of the track indicating diagrammatically the relative positions of the essential parts of the mechanism on the track. Fig. 2 shows a section on the line C—D of Fig. 1. Fig. 3 shows a section on the line E—F of the same figure. Fig. 4 is a section on the line A—B of Fig. 5. Fig. 5 is a plan view of the mechanism placed upon the track. Fig. 6 shows an elevation of the controlling mechanism of the points. Fig. 7 is a plan view. Figs. 8 and 9 are front and side views respectively of a device placed upon the vehicle for operating the controlling mechanism of the points.

In the rails a and a' of the track are formed longitudinal slots in which slide freely two plates d and d' which rest by their lower ends upon the ends of a leaf spring m arranged transversely in a cavity

formed between the rails, and prevent the plates d and d' from moving downward except under a heavy pressure such as that of a car or a locomotive. Each of these plates is articulated to a rod b placed transversely to the track and upon which there can oscillate a frame l which acts as a lever which can oscillate upon its supports. The plates d and d' can be depressed to the extent of, say, three centimeters beneath the level of the surface of the track, under the pressure of the passing vehicle, each plate being supported in the corresponding slotted portion of the rail. One centimeter depression of the plate is obtained by the passage of the flange of the wheel, and the depression to the extent of two centimeters farther is obtained by giving to the rails a suitable curvature, so that the rails themselves will be depressed at these points to the extent of two centimeters, by the weight of the passing car. Two counter-rails c (Fig. 1) permit of keeping the track absolutely level for the regular passage of vehicles over the line. The end of the frame lever l is arranged under two small plates p , each of which is placed close to the side of one of the rails and is able to oscillate upon a rod r supported in bearings r' . Each of these plates has two projections e and e' of which e' under normal conditions rests upon the end of the frame lever l . Toward the bottom of the part opposite to the two projections e and e' each plate is articulated to a rod z , which itself is connected to a pear-shaped plate s , and which plate is held in its extreme position (see Fig. 4) by means of a spring f . In this extreme position the pear-shaped plate rests against the screw g . Above these plates s there is arranged a crossbar q which is movable in the transverse direction, and possesses on its lower surface two cylindrical tenons v which descend into the track of the wide part of the plate s . This cross piece q is connected by the pivot y to the two points x and x' .

Upon the locomotive or the like there is placed within reach of the driver a striking mechanism which comprises a two-armed lever h having a controlling handle k , toward the ends whereof are attached two bars i , which bars can slide vertically in guides fixed to the locomotive, and bearing at their ends a piece t or t' hinged thereto, and which

can oscillate but is normally held in the line of the bar by means of a plate spring *n*. This mechanism which is controlled by the driver can have three positions, in the first or normal position of the parts *t* and *t'* are raised so as not to project beneath the lowermost parts of the vehicle; in the other positions one of the parts is raised and the other is lowered. The one which is lowered pushes the corresponding part *p* as soon as this has been lifted as will be hereinafter described.

The distance between the striking pieces *d* and *d'* and the parts *p* is so fixed that when the front wheels are above the said plate, the parts *t*, *t'* will be in striking position against the projections *e* of the plates *p*.

The mechanism operates as follows:—In the first phase of the operation for the purpose of changing track, the front wheels of the vehicle cause by their weight the lowering of the striking plate *d* and *d'*; this lowering by about 3 centimeters is multiplied according to the difference of the relative lengths of the lever arms *l*; consequently the end of this lever will be raised by some 12 centimeters and will raise the projection *e'* of the plate *p* so that this latter takes the inclined position shown in dotted lines on Fig. 6. At the approach to the crossing the driver lowers the part *t* or the part *t'* of that side to which he wishes to direct the vehicle. At the moment when this part strikes the projection *e* of the corresponding plate *p*, the latter swings completely into the upright position shown in broken lines on Fig. 6; in this motion the heart-shaped plate *s* participates, moving toward the right of the drawing under the influence of the plate *p*, and pushes the adjacent rod or projection *v* and cross-piece to one side. This cross piece adjusts the points for the passage of the car or the train in the direction required. When the plate *p* which has been actuated, is stopped in its motion by the plate which effects the change of the track, the part *t* or *t'* in surmounting the resistance of its spring *n* releases itself from the projection *e*. The spring *f* restores the apparatus to its original position when the plate *p* has been disengaged from the part *t* or *t'*.

By aid of the device above described the driver on approaching the points can effect the adjustment without needing to consider whether the track has been already adjusted, because in such case the tenons *v* will not be in any way actuated and the adjustment remains the same. This system is specially adapted to lines of rails without a separate track, in which it is necessary that there shall be no organs projecting normally above the surface of the track. For lines having their own track it is not necessary to have the striking plates *d* and *d'* nor the lever *l*.

The characteristic of the invention consists in that it can be utilized for the shunt-

ing of goods wagons by aid of a simple device applied to the right or the left of each wagon.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a switch a switch-operating bar, a longitudinally movable lever device adapted to engage and move said bar transversely, a pivoted lever connected at one end to said device, a projection at the other end of said pivoted lever adapted to be acted upon by a manually operated lever on the car and automatic means for raising the projecting end of said pivoted lever into the path of the manually operated lever substantially as set forth.

2. In a switch a switch-operating bar, a longitudinally movable lever device adapted to engage and move said bar transversely, a pivoted lever connected at one end to said device, a projection at the other end of said pivoted lever adapted to be acted upon by a manually operated lever on the car, a pivoted lever engaging said projection at one end and a depressible plate engaging the other end of said lever, said plate being operable by the wheel of a passing car, substantially as set forth.

3. In a switch a switch-operating bar, a longitudinally movable lever device adapted to engage and move said bar transversely, a pivoted lever connected at one end to said device, a projection at the other end of said pivoted lever adapted to be acted upon by a manually operated lever on the car, a pivoted lever engaging said projection at one end and a spring supported depressible plate engaging the other end of said lever, said plate being operable by the wheel of a passing car, substantially as set forth.

4. In a switch, a switch-operating bar, a longitudinally-movable spring-operated lever device adapted to engage and move said bar transversely, a pivoted lever connected at one end to said device, a projection at the other end of said pivoted lever adapted to be acted upon by a manually-operated lever on the car, a second pivoted lever engaging at one of its ends with the projecting end of the first lever, and a depressible plate engaging the other end of the second lever, said plate being operable by the wheel of a passing car, substantially as set forth.

5. In a switch a plate adapted to be depressed by a passing car wheel, a spring supporting said plate, a pivoted lever one end of which is adapted to be depressed when the said plate is pressed down, a pivoted plate having at one end a rounded head resting on the other end of said lever and adapted to be partially raised thereby, a connection attached to the other end of said pivoted plate and comprising a pivoted lever, a pear-shaped plate and a spring, and a switch operating bar and projections

thereon adapted to be engaged by said pear-shaped plate and moved laterally on the longitudinal movement of said pear-shaped plate substantially as set forth.

5 6. In a switch a spring supported plate adapted to be depressed by a passing car wheel, a pivoted plate adapted to be turned so as to project into the path of an operating device carried on the car, a transversely
10 movable bar attached to the switch points and operating connections between the

spring supported plate and the pivoted plate and between the latter and the transversely movable bar substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

15

DINO DAVIDE SAMAIA.

Witnesses:

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