

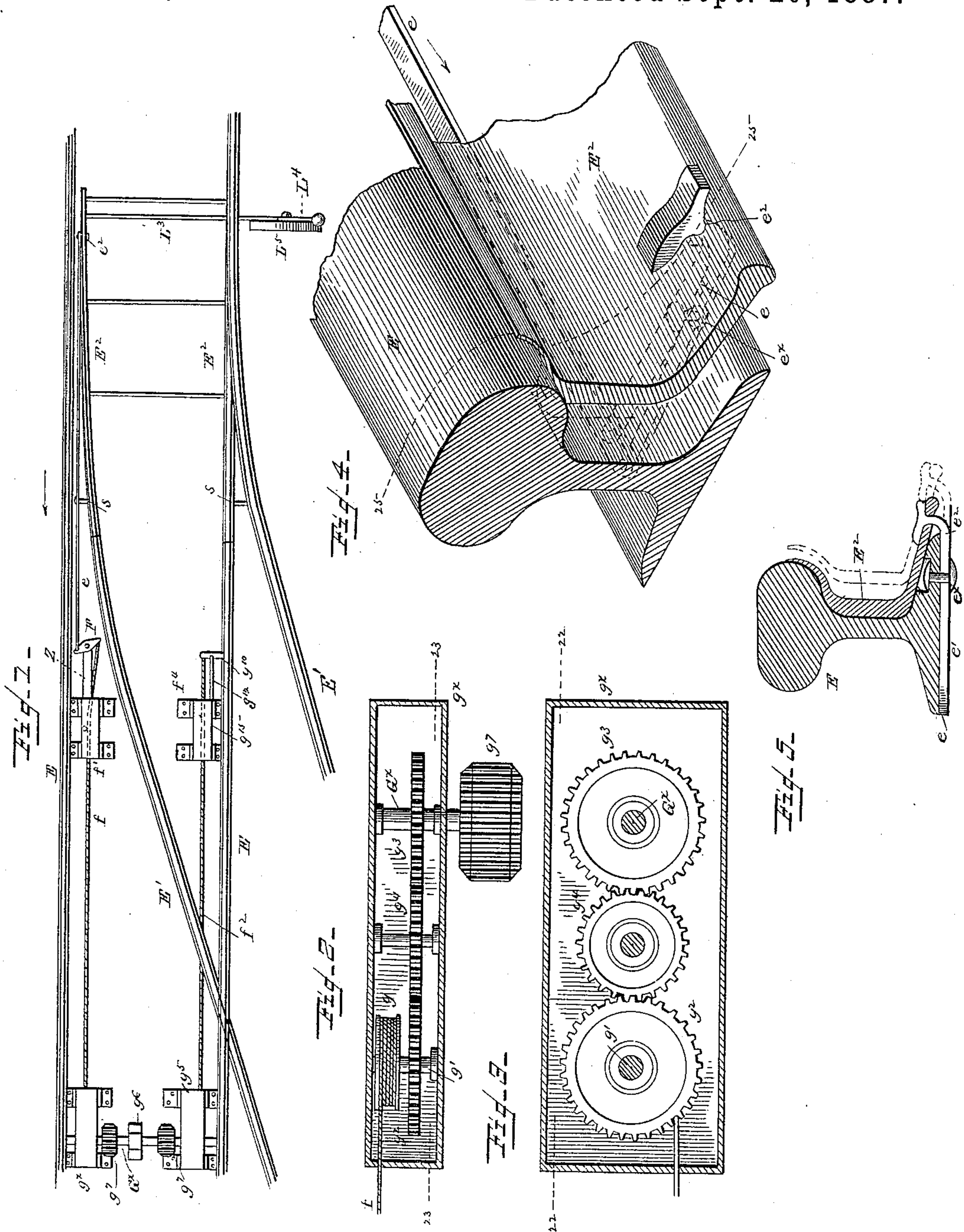
(No Model.)

3 Sheets—Sheet 1.

J. HAHN.  
RAILWAY SWITCH.

No. 370,189.

Patented Sept. 20, 1887.



WITNESSES  
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T. Edmunds Turpin

INVENTOR  
John Hahn  
By James J. Sheehy  
Attorney

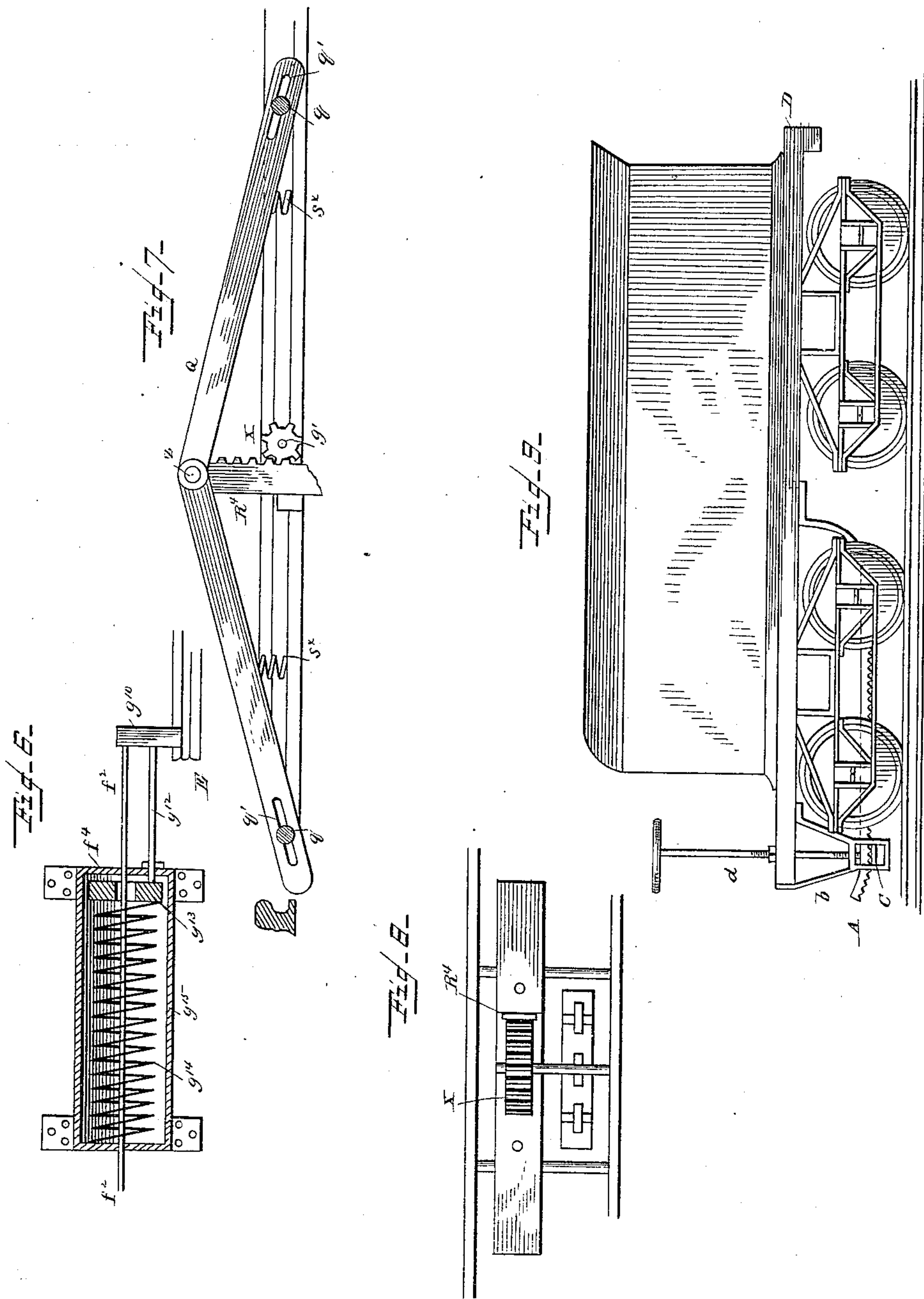
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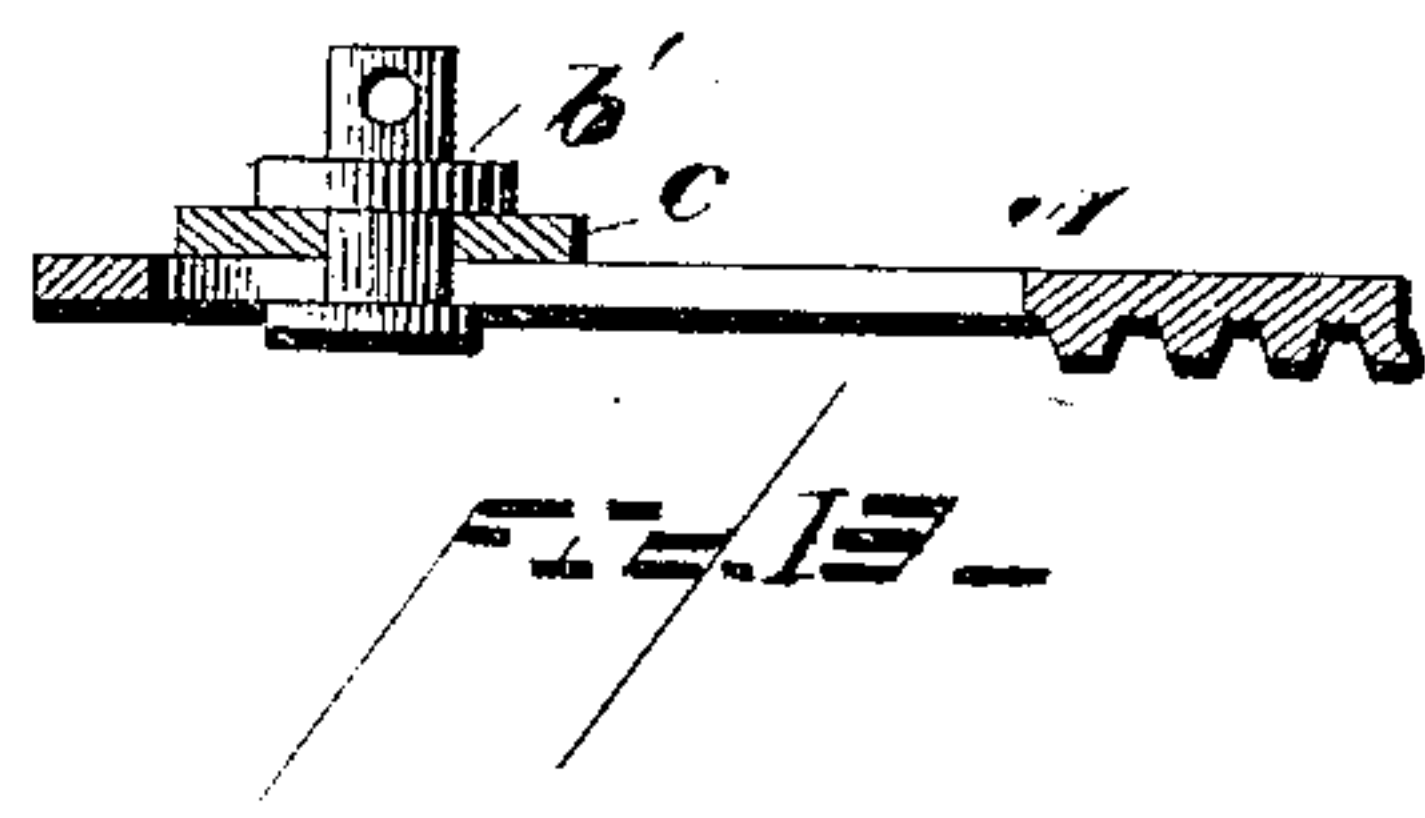
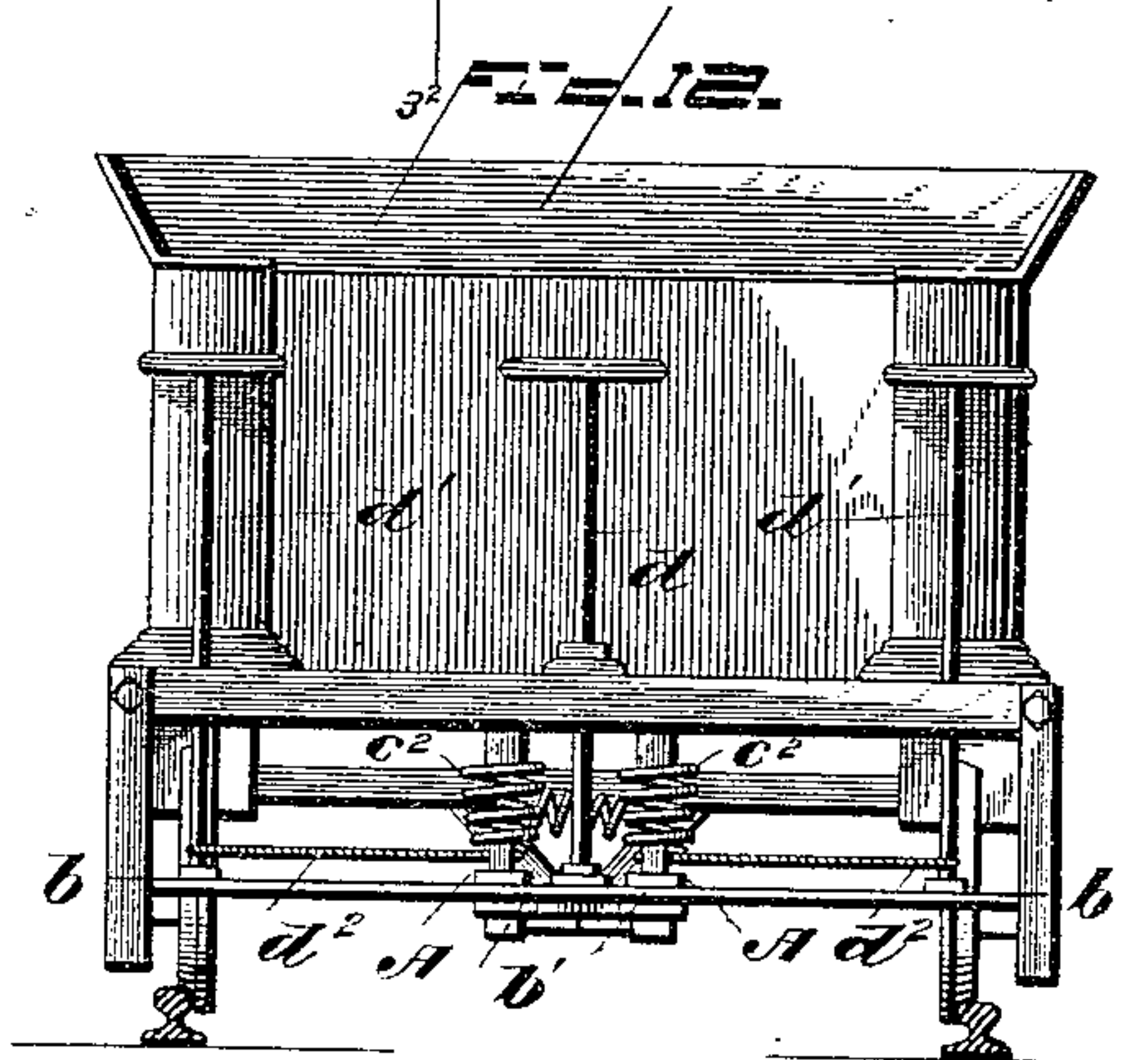
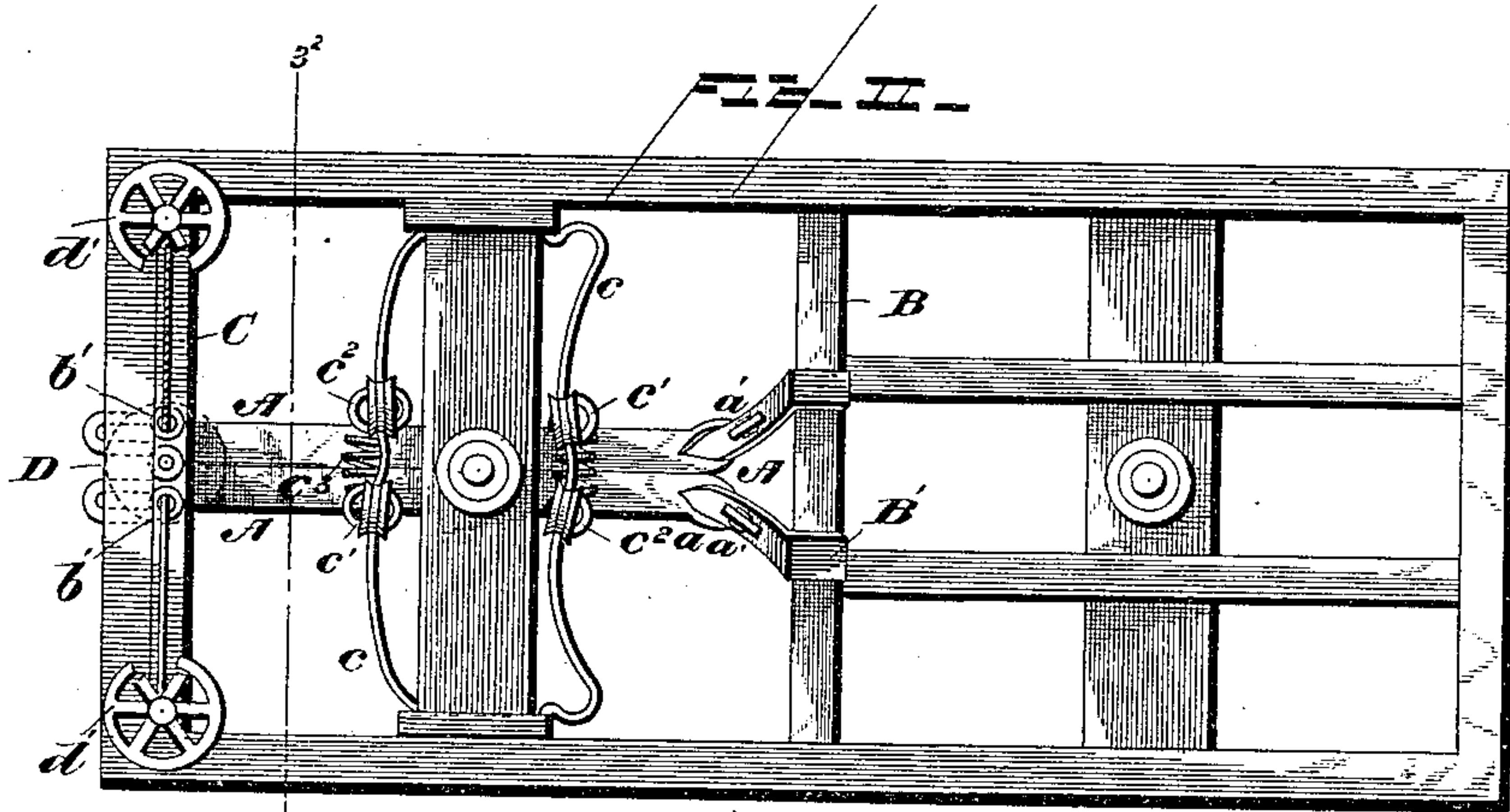
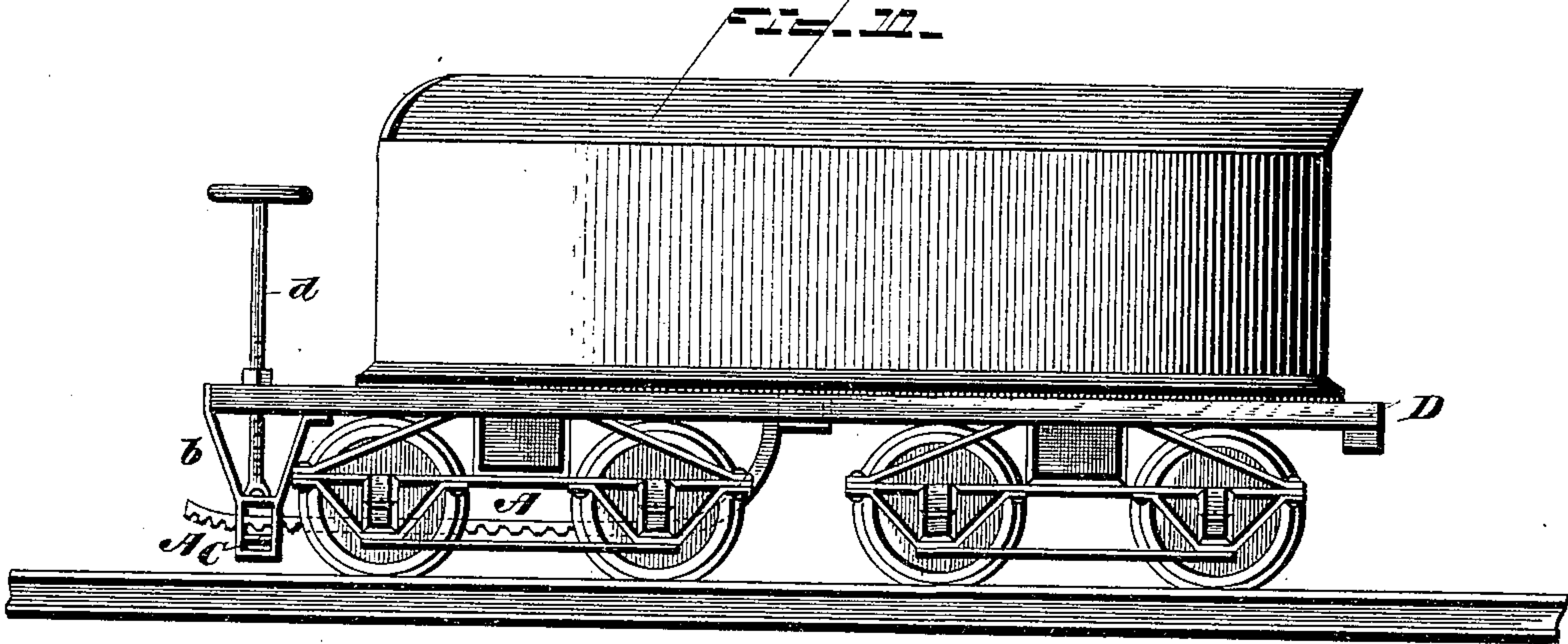
3 Sheets—Sheet 3.

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RAILWAY SWITCH.

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Patented Sept. 20, 1887.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JOHN HAHN, OF ST. LOUIS, MISSOURI.

## RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 370,189, dated September 20, 1887.

Original application filed May 18, 1886, Serial No. 202,594. Divided and this application filed April 25, 1887. Serial No. 236,073.  
(No model.)

*To all whom it may concern:*

Be it known that I, JOHN HAHN, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain  
5 new and useful Improvements in Railway-Switches; and I do 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  
10 same.

This invention relates to certain novel improvements in railway-switches, which are adapted to be controlled by the engineer on his locomotive or on a tender, and certain  
15 mechanism upon a locomotive or car for operating the switches, the same being a division of my application for Letters Patent for improvements in mechanism for operating railway gates and signals, filed May 18, 1886,  
20 and having for its Serial No. 202,594.

The following description of my switch, when taken in connection with the claims and the annexed drawings, will enable others skilled in the art to fully understand the same.

25 In the annexed drawings, Figure 1 is a plan view of the improved switch. Figs. 2 and 3 are views of the winding-up and unwinding mechanism. Fig. 4 is a perspective view of the end of a main-track rail, in section, showing an end view of one of the switch-rails and  
30 its angular lever. Fig. 5 is a vertical cross-section through dotted line 25 of Fig. 4, showing one end of the switch-rail in full lines hugging the main-track rail, and also showing the  
35 switch-rail in dotted lines adjusted away from the main-track rail. Fig. 6 is a sectional detail of the take-up device, illustrated in a plan view, Fig. 1. Figs. 7 and 8 show a modification of the switch-actuating device. Fig. 9  
40 shows an actuating-rack applied to a car-bed. Figs. 10, 11, and 12 are views showing the manner of mounting the racks, together with the means of operating them, applied to the bed of the tender; and Fig. 13 is a sectional  
45 detail showing the free end of one of the said racks attached to a transverse supporting-bar.

Referring to the annexed drawings by letter, A A indicate two longitudinal racks, which I have shown applied to a tender, although the same may be applied to a locomotive. Each rack is arranged longitudinally,

with its teeth down and its front end curved upwardly, as shown. The rear end of each rack A is connected to a cross-beam, B, which may constitute part of the tender-frame or bed  
55 of a tender. This connection consists of a clip, B', rigidly secured to the said beam, having an eye, *a*, formed, as shown, with its end keyed to itself and linked to an eye, *a'*, formed on the upturned end of the rack A. The free  
60 or forward ends of the racks are supported upon a horizontal cross-bar, C, guided by hangers *b*, and connected to this bar by means of collared studs *b'*, the necks of which pass freely through slots made through the racks,  
65 and also through the cross-bar C. The racks A are also sustained and guided by means of curved rods *c c*, secured at their ends to the car-bed, upon which grooved wheels *c'* are free to roll, from which wheels the racks are  
70 suspended, as shown in Fig. 11. Springs *c<sup>2</sup>* are also employed in connection with the racks for keeping them down, and springs *c<sup>3</sup>* are used for retracting the racks laterally, so that normally they will assume the parallel position  
75 shown in Fig. 11. These racks A are vertically adjustable, and are raised out of action from certain spurred wheels between the rails on the road-bed, and also caused to engage  
80 therewith by means of a vertical screw-threaded shaft, *d*, provided with a hand-wheel and tapped through a nut, which may be secured to the tender-bed D, and connected by a swivel  
85 to the transverse supporting-bar C at the middle of its length, as shown in Fig. 12.

I also employ two vertical shafts, *d' d'*, provided with hand-wheels, and connected by chains *d<sup>2</sup> d<sup>2</sup>* to the collared studs *b' b'*. By turning these shafts a person can wind the chains upon them and move the racks later-  
90 ally, so as to bring them into alignment with the spur-wheels on the road-bed between the rails. When the said shafts are turned so as to unwind the chains *d<sup>2</sup>*, the springs *c<sup>3</sup>* will retract the racks.

95 E E designate the main-track rails; E' E', siding-rails, and E<sup>2</sup> E<sup>2</sup> the switch-rails, which latter are tied together and their tapered free ends are allowed to receive lateral movement toward or from the main-track rails. The  
100 free or tapered ends of the said switch-rails are shaped to lie snugly against the inner sides of



the main-track rails when adjusted thereto, as indicated in Figs. 1 and 5. In Fig. 1 the switch-rails are represented as adjusted for a clear main track.

5 F designates a lever which is pivoted on an arm,  $h$ , and which has pivoted to it one end of a rod,  $e$ , the opposite end of which rod is pivoted to a short laterally-arranged lever,  $e'$ , that is pivoted to the base of the rail E at  $e^x$ , and  
10 also pivoted to the tapered free end of one of the switch-rails  $E^2$ . Thus it will be seen that by vibrating the short lever F the said switch-rails will also be vibrated and adjusted toward or from the main-track rails, as may be de-  
15 sired by the engineer. The endwise movement imparted to the rod  $e$ , as described, will impart sufficient vibration to the free tapered ends of the switch-rails  $E^2$  to effect a proper operation thereof.

20 It is obvious that the switch-rails only require to be moved laterally a very short distance, which movement is effected as above described.

The short lever F has a chain,  $f$ , connected  
25 to one of its arms, which chain passes through a case,  $f'$ , inclosing suitable guides, and is continued along the track a suitable distance, and is wound upon a flanged drum,  $g$ , keyed on a shaft,  $g'$ , bearing a spur-wheel,  $g^2$ . This  
30 spur-wheel receives rotation from a spur-wheel,  $g^3$ , keyed on horizontal shaft  $G^x$ , acting through an intermediate gear,  $g^4$ . This shaft  $G^x$  has its bearings in the case  $g^x$ , and a similar case,  $g^5$ , and also in a stool,  $g^6$ , and on this shaft are  
35 suitably keyed two spur-wheels,  $g^7$ , which have their ends beveled, as shown in Fig. 2, for the purpose of insuring an easy and positive engagement of a rack, A, adjustably applied on a car-bed. The case  $g^5$  incloses a winding-  
40 drum and gearing like those in case  $g^x$ , and the drum  $g$  in case  $g^5$  is connected by a chain,  $f^2$ , to a sliding guide,  $g^{10}$ , which impinges against the inner side of a main-track rail, and is connected by a rod,  $g^{12}$ , to a follower,  $g^{13}$ , in a case,  
45  $g^{15}$ , rigidly fixed to the road-bed, and acted on by a tension-spring,  $g^{14}$ , as clearly shown in Fig. 6, which device I denominate the "take-up," for the reason that after the shifting of the switch to leave the side track clear, the  
50 spring  $g^{14}$ , being already compressed, will act through the medium of the device above described to turn the drums and take up the slack in the connection  $f$ , thus leaving the automatic switch mechanism in a suitable position to be operated by a passing train.

55 The switch may be adjusted for a siding in any suitable manner.

An ordinary hand-switch-actuating device,  $L^3 L^4 L^5$ , (shown in Fig. 1,) may be adopted for  
60 shifting the switch.

When toothed or rack bars A, above referred to, are dispensed with, I employ adjustable bars on the locomotive or its tender, which have no teeth, in which case I employ  
65 the devices represented in Figs. 7 and 8, which consist of two levers, Q Q, jointed at Z and

slotted lengthwise at  $q' q'$ . Through the slots  $q'$  are rods, which are rigidly secured to the rails and may serve as the rods therefor. The joint is thus allowed to move in a plane per- 70 pendicular to the road-bed. To this joint, at Z, I attach a rack,  $R^4$ , which is suitably guided and engages with the spur-wheel X on the shaft. (Shown in Fig. 7.) By these means the switch and its adjuncts are actuated by a 75 direct frictional contact of the said bar on a locomotive, which, when it is caused to impinge on either one of the levers Q, will depress the joint Z and cause the rack  $R^4$  to rotate the wheel X, which is suitably connected 80 to the winding-up and unwinding devices above described. The springs  $S^x S^x$  raise the said levers when they are relieved from pressure.

The levers Q, which I show exaggerated in 85 relative proportions to the rail, should be at their angle Z only about four inches above the tread of said rail. The said levers may be used either on the side or middle spur-wheel. The side spurred wheels are especially de- 90 signed for yard-switching at slow speed. The engineer need not stop his train or leave it for changing a switch, as the devices are arranged in opposite directions in the road-bed, or on the side thereof, and do not interfere with each 95 other, as the laterally-sliding rail is long enough to connect at both ends with said devices and the tension-spring will compensate for retraction in either direction.

Having described my invention, what I 100 claim is—

1. The combination, with a car-bed, of a vertically-movable rack, means for moving this rack, one or more spur-wheels keyed on a shaft located in the road-bed and bearing a 105 winding-drum, a chain connecting this drum with a lever, and a lever-rod pivoted to a rail of the main track, and also to a switch-rail, substantially as described.

2. The combination, with a switch-rail, of a 110 spur-wheel keyed on a shaft bearing winding-drums located in the road-bed, and adjustable device on a car-bed for actuating said devices, a chain connecting one of said drums to a retracting-spring, a connecting-rod, and a 115 chain connecting the other drum with a switch, substantially as described.

3. The combination, with the switch-rails of a railway-track, of a vertically-movable bar, A, adjustably applied to a car-bed, a spur- 120 wheel keyed on a shaft,  $g'$ , on the road-bed, adapted to be actuated by said bar A when adjusted by the engineer, a winding-drum connected to a lever, F, a lever pivoted to the main-track rail and also to a switch-rail, a rod, 125  $e$ , connecting said levers, and a retracting-spring,  $g^{14}$ , acting through the medium of chains and winding-drums, substantially as described.

4. The combination of vertically and later- 130 ally movable rack-bars with their link-connections to a carriage-bed, the supporting



cross-bar for said racks, the windlass-shafts, and a screw-threaded elevating-shaft, substantially as described.

5 5. The combination, with a carriage, of a vertically-movable rack linked to the frame of said carriage and provided with a raising device, and a depending spring, substantially as described.

10 6. The combination, with the racks A, linked to the carriage-frame so that they can receive vertical and lateral adjustment, of a vertically-raising device, laterally-adjusting devices, depressing-springs, and spreading-springs, substantially as described.

7. The combination, with the carriage- 15 frame, of the laterally and vertically adjustable racks for the purpose described, the adjusting devices therefor, and the suspension-rods and rolling supports, substantially as and for the purpose described. 20

In testimony whereof I affix my signature in presence of two witnesses.

JOHN HAHN.

Witnesses:

C. FR. OPFENRING,  
JNO. D. HURCK.