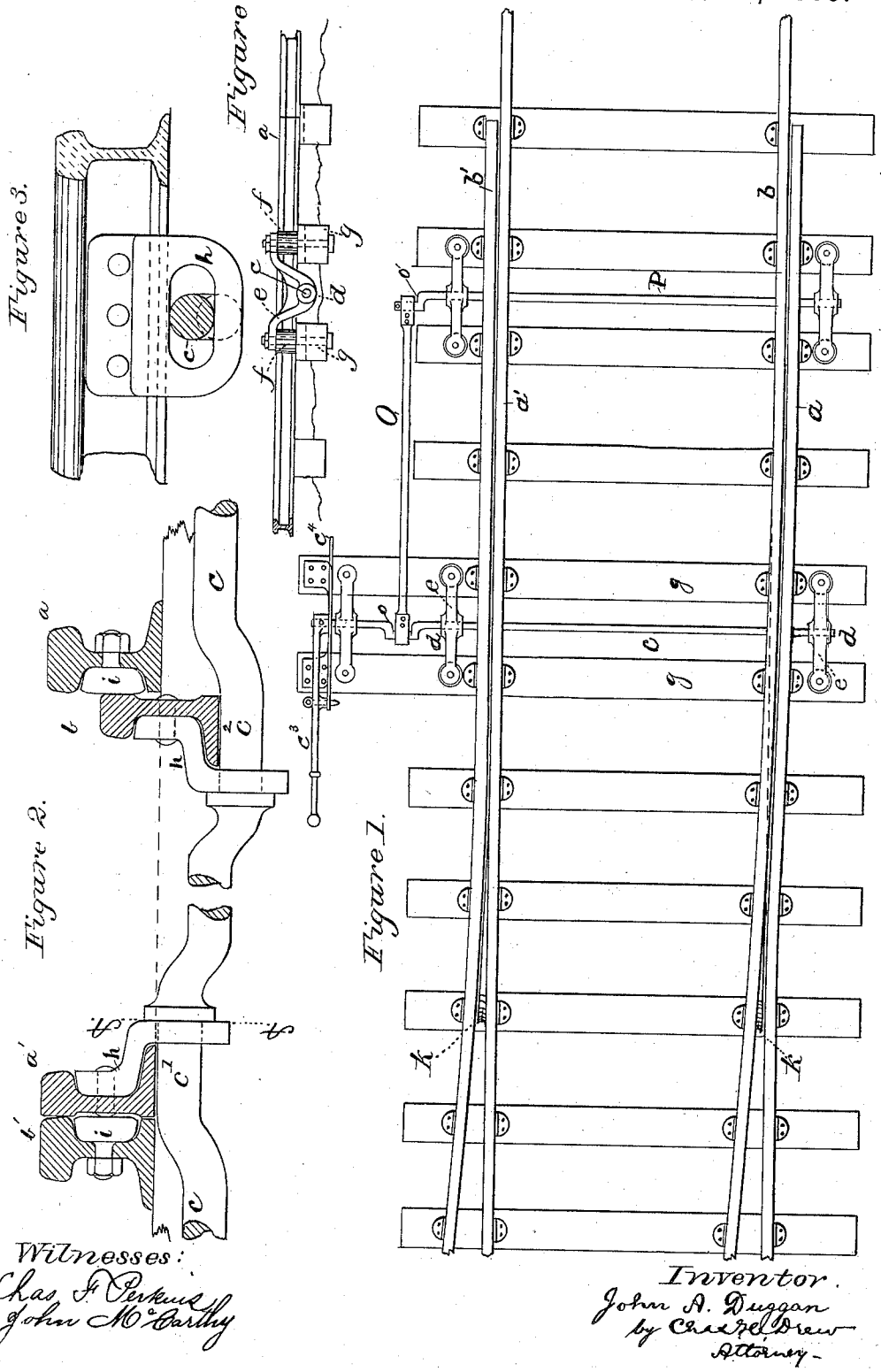
(No Model.)

J. A. DUGGAN.

RAILROAD SWITCH.

No. 330,878. Patented Nov. 24, 1885.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN A. DUGGAN, OF QUINCY, MASSACHUSETTS.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 330,878, dated November 24, 1885.

Application filed September 10, 1883. Renewed July 8, 1885. Serial No. 171,018. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. DUGGAN, of Quincy, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Railroad-Switches, of which the following is a specification.

This invention relates to switches which operate by raising and lowering the rails, and it consists in the construction and combination of parts hereinafter set forth and claimed.

Figure 1 of the drawings represents a plan of a portion of a main track and siding provided with a switch embodying my invention; Fig. 2, an enlarged transverse section through the crank-shaft *c* in Fig. 1, the middle portion and ends being cut away; Fig. 3, a vertical section on line A A of Fig. 2; and Fig. 4, a side elevation of a part of a rail and proximate devices, showing the mode of mounting the crank-shaft.

The rails of the main track are designated by *a a'* and those of the siding by *b b'*, the rails *a* and *b'* being immovable and the rails *a' b* being vertically movable by means of the cranks *c' c''*, formed on a crank-shaft, *c*, to which they are respectively attached by means of slotted bars *h*, Figs. 2 and 3. This crank-shaft is the switch-shaft provided at one end with the usual switch-lever, c^3, and segment c^4, and it turns in bearings *d d*, which are formed in arms *e e* on opposite sides of the track. These arms are supported by elastic cushions *f f*, Fig. 4, which rest on the ties *g g* and are attached thereto, the office of said cushions being to prevent the shaft and connected devices from being injured by jars or strains while in operation or during the passage of a train. The cranks *c' c²* are in the same plane on opposite sides of the shaft, so that by turning the switch-lever c^3 a given distance in one direction the rail *a'* is lifted and the rail *b* lowered, and by turning the said switch-lever the same distance in the opposite direction the reverse operation will take place.

P designates a crank-shaft, which is parallel to crank-shaft *c* and a duplicate thereof in construction and operation, the two being connected together by a connecting-rod, O, which extends from a crank, *o*, of shaft *c* to a crank, *o'*, of shaft P, and causes them to operate as one for raising and lowering the rails, as described.

The immovable rails *a b'* have each a bolt passed through them, the flat outer face of the head *i* of each bolt being presented toward the proximate movable rail and serving as a guide for the latter. Wedge-shaped blocks *k k* are arranged, respectively, between rails *a'* and *b'* and rails *a* and *b*, one of said blocks being in each of said locations and secured to the ties. These blocks have inclined upper faces, and are in immediate proximity to the outer sides of movable rails *a' b*, respectively. When one of these rails has been lowered, the flanges of the wheels on that side will ride upon the proximate inclined block *k* until the tread of said wheels has been transferred to the neighboring main rail or siding-rail, as the case may be.

The operation is as follows: When the crank-shafts are turned so as to raise rail *a'* to the normal level of the road and depress rail *b* below the same, the main track is open for the passage of trains in both directions, but they will not pass from the main track to the siding. When the crank-shafts are turned so as to raise rail *b* and lower rail *a'*, trains may pass from the main track to the siding going from right to left, or they may pass from the siding to the main track going from left to right. If by accident either rail *a'* or rail *b* is depressed when it should be raised, the flange of each car-wheel will ride upon the inclined top of the block *k*, attached to the ties, (the cars passing from left to right,) until the wheel has passed to the proximate rail which has not been depressed.

I am aware that it is not broadly new to make use of vertically-movable rails in main track and siding and devices for raising and lowering the same to switch from one track to the other, and therefore I do not broadly claim the same; but

What I do claim, and desire to secure by Letters Patent, is—

1. The slotted bars *h*, attached to the vertically-movable rails *a'* and *b*, respectively, in combination with the fixed rails *a b'* and the crank-shaft *c*, having cranks *c' c''* which turn, respectively, in the slots of said bars *h*, as set forth.

2. The fixed wedge-shaped blocks *k*, having inclined upper faces and arranged in proximity to the outer sides of movable rails *a' b*, in

combination with said rails, devices for raising and lowering the latter, and the fixed rails *a b'*, substantially as set forth.

3. The bolts having flat-faced heads *i*, in combination with the fixed rails to which they are attached, the movable rails which the said heads guide in a vertical path, and devices for raising and lowering said vertically-movable rails, substantially as set forth.

4. The arms *e* on opposite sides of the track, having bearings *d* formed therein, in combination with the elastic cushions *f*, on which they are supported, and the crank-shaft *c*, which turns in said bearings for the purpose of raising and lowering the movable rails for switching, substantially as set forth.

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Witnesses:
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