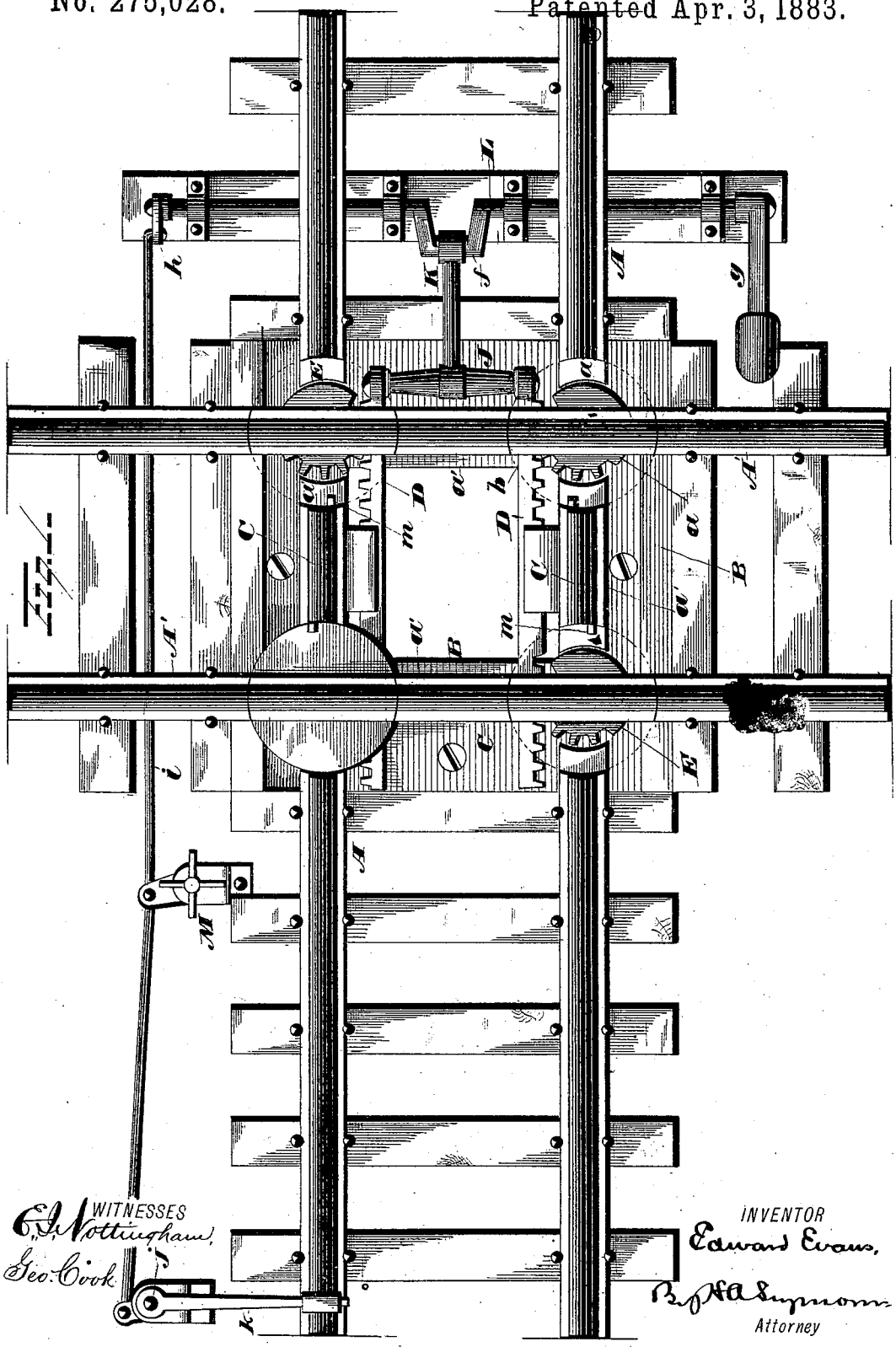
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E. EVANS.

RAILROAD CROSSING.

No. 275,028. Patented Apr. 3, 1883.



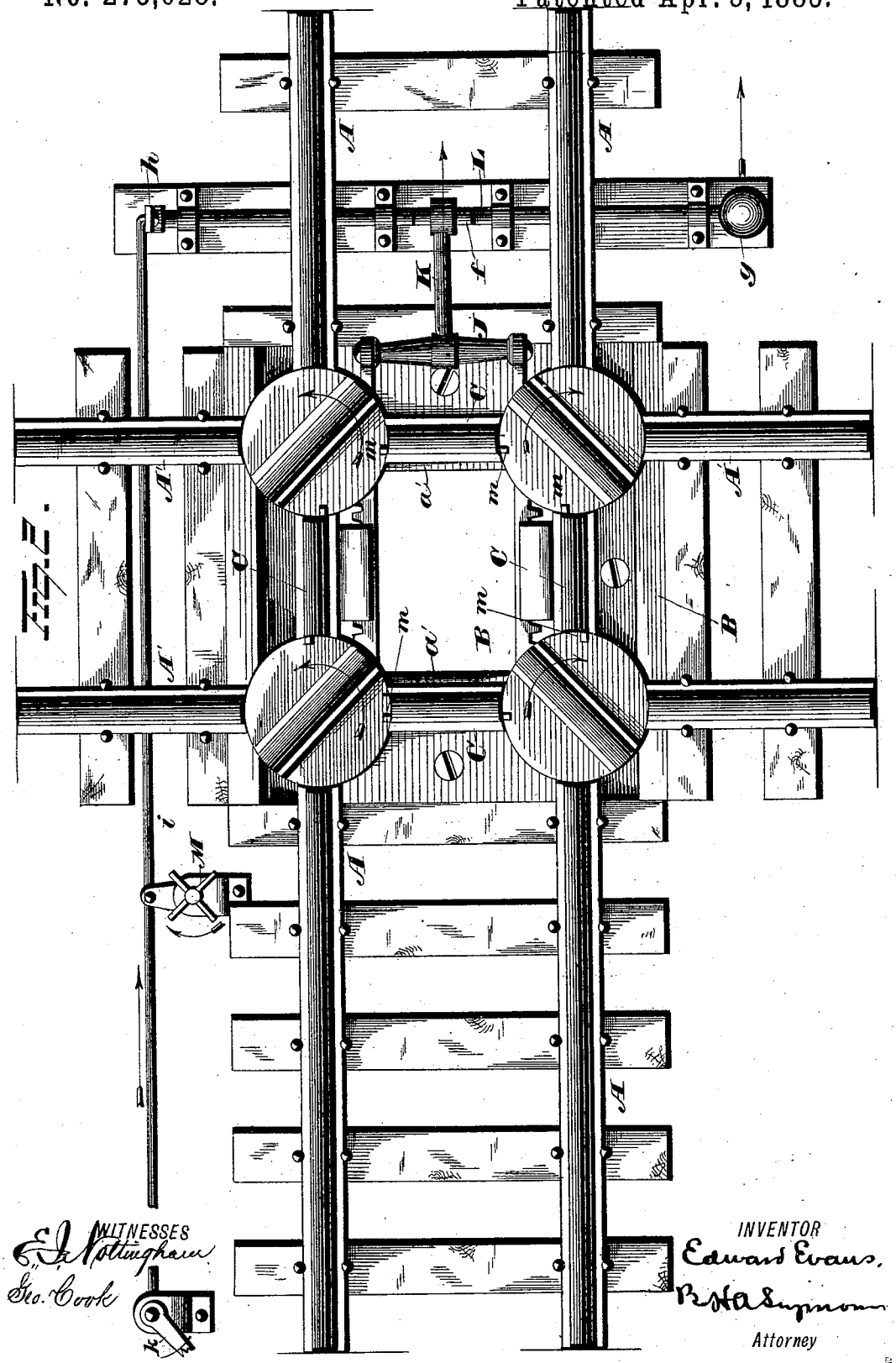
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Fig. 4.

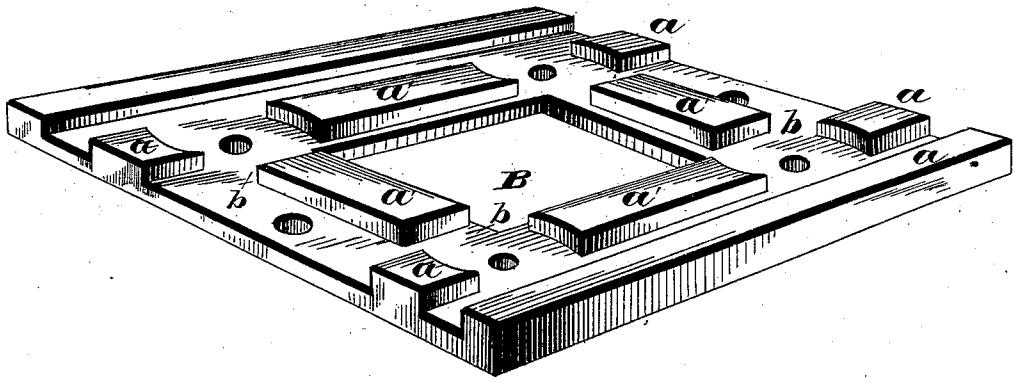


Fig. 3.

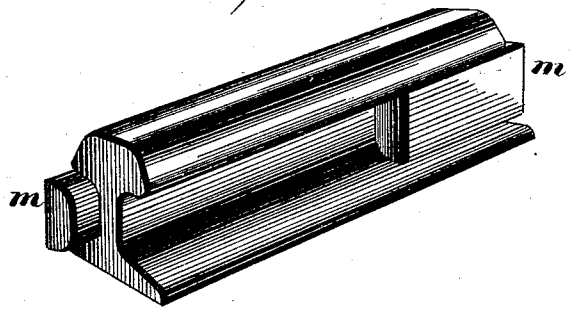
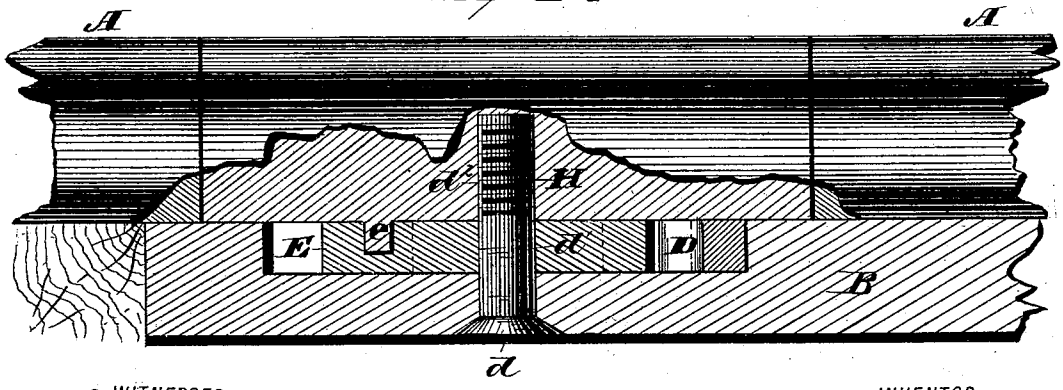


Fig. 5.



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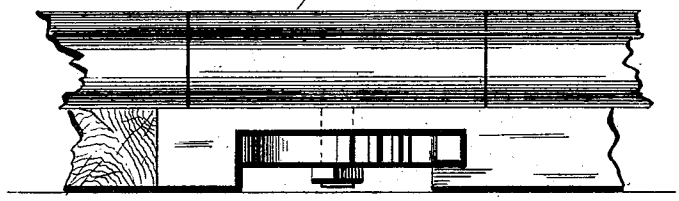
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RAILROAD CROSSING.

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Fig. 5.



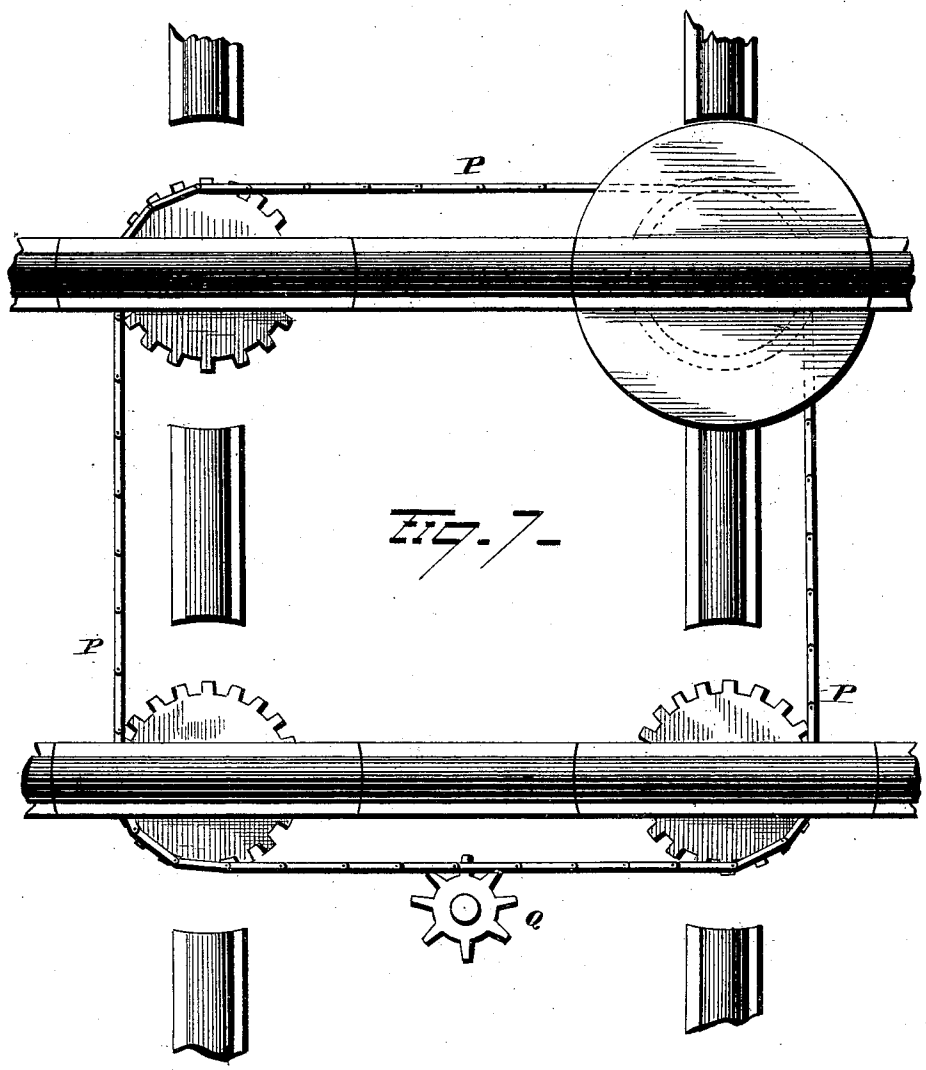


Fig. 7.

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UNITED STATES PATENT OFFICE.

EDWARD EVANS, OF MANSFIELD, OHIO.

RAILROAD-CROSSING.

SPECIFICATION forming part of Letters Patent No. 275,028, dated April 3, 1883.

Application filed October 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD EVANS, of Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Railroad-Crossings; 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 pertains to make and use the same.

My invention relates to an improvement in railroad-crossing, the object of the same being to dispense with the frogs ordinarily used and employ movable rail-sections adapted to register with the rails of the trackways and form continuous rails for either track.

A further object of my invention is to provide means for simultaneously opening one trackway for the passage of a train, closing the other, and placing detonating signals over the rails of the closed track for the purpose of warning the engineer.

With these ends in view my invention consists in the parts and combinations, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improvement. Fig. 2 is a similar view, showing the position the movable rail-sections assume while being turned. Fig. 3 is a detached perspective view of one of the cross or intermediate rails, showing the side ears. Fig. 4 is a view of the supporting-base. Fig. 5 is a view in vertical section through one of the cross-rails, movable-rail, rack-bar, segment-gear, and base. Fig. 6 shows another form of crossing, and Fig. 7 is a modification.

A A′ represent two trackways running at right or any other suitable angle toward each other, and B is a supporting-base interposed at the meeting point of the two trackways. In the crossing shown in Fig. 1 the base is made of cast metal, is square in shape, and provided with elevations *a a′* for the adjacent ends of the rails composing the trackways A A′ and the cross-rails C to rest on, and depressions *b* for the rack-bars D and the segment-gears E to move in. The four internal elevations *a′* are for the cross-rails C, which latter are divided into pairs and so situated as to form portions of the two trackways A and A′, respectively. From the foregoing it will be seen that when the rails composing the trackways A and A′ (including the cross-rails C) are secured in position, four open spaces between the adjacent ends of the rails are formed, and it is in these open spaces that four movable sections of rails are secured, which are adapted to register with the rails of either trackway and form a continuous and unbroken track, and thereby avoid the jarring experienced while crossing over frogs. In this present instance the segment-gears G rest on the top of the base, in the space between the rails, and are centrally perforated for the passage of the pivotal bolts H, which latter are passed upward from the under side of the base-plate. These pivotal bolts are each provided with a head, *d*, adapted to rest and bear against the under side of the plate, the body *d′*, which loosely rests within an opening in the plate and the corresponding opening in the segment-gears, and the screw-threaded end d^2, which latter is screwed into the under side of the movable rail-section. This construction binds all the parts down to the base B, but it leaves the segment-gears free to revolve without the rail-sections secured thereon, and to overcome this I have provided a lug, *e*, on the upper face of each segment-gear, adapted to fit in a corresponding recess of its respective rail-section. Thus it will be seen that when the segment-gear is partly rotated the section of rail above the same is also moved simultaneously therewith. The body *d′* of the pivotal bolt passes loosely through the base-plate and segment-gear, and are consequently allowed to turn with the movable rail-sections.

I are two parallel rack-bars, preferably running in a line parallel and between the rails of one of the tracks, and in the depressions in the base-plate provided therefor. The front ends of these rack-bars are connected together by the cross-head J, to which latter one end of the pitman K is loosely secured, the opposite end of the pitman being secured to the cranked portion *f* of the operating-lever L. This operating-lever runs transversely across one of the trackways, under the rails thereof, and

is provided on one end with the hand-lever *g* and on the opposite end with the crank *h* by which the signals are operated. In the drawings I have only shown one signal-rod for operating one target-signal and the detonating signal; but I intend to have arms for holding detonating signals and target-signals placed alongside of the four approaches to the crossing, and adapted to be turned so as to bring the torpedoes on or off the rails of the track and the signals in view simultaneously as the movable rails are turned. One target-signal, M, is situated near the crossing, so as to be readily observed from either of the four approaches, and is operated by the rod *i*, connecting it with the crank *h*. The target-signal arm is provided with a horizontal extension, to which one end of a long link or a series of links is connected. This link (or series of links) extends down the track for about two thousand five hundred feet, and is connected at suitable intervals apart to small upright arms *j*, (to one or more of which target-signals, if desired, are secured,) having laterally-extending fingers *k*, to the outer ends of which latter the detonating signals or torpedoes are secured. These fingers *k* are situated in a horizontal plane slightly above the tops of the rails, and are adapted to be turned on and off the rails by the operating-lever before referred to. If, when approaching the crossing from either direction, the engineer, through negligence or color-blindness, should fail to observe the target-signal, the torpedoes will warn him if if the track is closed. If the track is open, the torpedoes will rest outside of the rails. The racks before referred to are adapted to move longitudinally a sufficient distance to turn the movable rails from one trackway to another, and the cross-rails are provided with the ears *m*, which form the limits of movement of the movable rails. By this means a continuous and unbroken trackway is formed, which enables the cars to pass over without jarring. When the movable rails are turned in either direction a sufficient space between the sides thereof and the ends of the rails resting at right angles thereto is left for the passage of the flanges of the car and locomotive wheels. When this construction is employed—that is, when the operative parts are situated above the bearing-plate—the rack-bars and segment-gears are completely housed in by the plates *n* and *o*, respectively, which completely protects them from the weather. The plates *o* are secured on the upper faces of the segment-gears and turn therewith.

Another form of crossing, which can be made cheaper than and is as effective as the one heretofore described, is shown in Fig. 6. In this crossing the base B is made with a flat top, and the rails, both movable and rigid, rest thereon, while the rack-bars and movable gears are situated underneath the same, and are completely housed thereby. When this construction is employed the rack-bars can be held up against the under side of the base in any suitable bearings, and the gears are rigidly secured to the body of the pivotal bolt below the base-plate, and the movable tracks rigidly secured to the upper ends of the pivotal bolts above the base-plate, the portions of the screw-bolts passing upward through and resting in the base-plate, being free to turn therein as the rack is turned.

In the two forms of crossings just described the same parts and mechanism are employed, with the exception of the lugs *e* on the segment-gears and the recesses in the movable tracks; but this is not essential in the first construction, as it is evident that the bolt can be rigidly secured to the segment gears and rails, as described in the latter form of crossing.

In the modification shown in Fig. 7 the parallel rack-bars are dispensed with and a continuous link-rack, P, employed in their stead. This rack P is supported on the under side of the plate in engagement with the segment-gears, and is operated by the pinion Q, which in turn can be operated by the operating-lever referred to in the previous constructions. When this endless rack is employed the side ears on the cross-rails prevent the movable tracks turning more than the required distance.

The base-plate B, instead of being made in a single piece, as shown and described, can be made in as many separate pieces as desired, and these pieces can be secured together or left independent, as deemed expedient.

It is evident that numerous changes in the construction and relative arrangements of the several parts might be resorted to without departing from the spirit of my invention, and hence I would have it understood that I do not limit myself to the exact forms of construction nor the exact position of the several parts, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a railroad-crossing, the combination, with movable sections of rails interposed between the adjacent ends of the rails of the trackways A and A′ and the cross-rails, of segment-gears and racks meshing with the segment-gears and adapted to operate the movable sections of rails simultaneously.

2. In a railroad-crossing, the combination, with movable sections of rails interposed between the adjacent ends of the rigid rails, segment-gears rigidly secured to the movable rails, and racks for turning the movable rails, of a target-signal, mechanism for holding detonating signals, and a bar and levers for simultaneously turning the movable rails and moving the detonating signal on the closed track and moving them off the open track, as described.

3. In a railroad-crossing, the combination, with a suitable supporting base-plate and rigid

rails, of segment-gears rigidly secured directly or indirectly to movable rail-sections interposed between the adjacent ends of the rigid rails, and rack-bars engaging therewith for turning the movable rails.

4. The combination, with a supporting-base, the cross-rails rigidly secured thereto, and the trackways A A′, of four movable sections of rails interposed between the cross-rails and the rails of the trackways A A′, a segment-gear secured to each movable section of rail, and parallel rack-bars for turning the movable sections of rail simultaneously.

5. The combination, with a base-plate situated at the crossing-point of two trackways and cross-rails secured thereto, the latter being provided with side ears, as shown, of movable sections of rails adapted to be turned so as to open either trackway, segment-gears secured to the movable rail-sections through the intervention of pivotal bolts, which latter also secure the gears and movable rail-section to the base-plate, and parallel rack-bars for turning the movable rails.

6. The combination, with a railroad-crossing provided with movable rail-sections adapted to register with either trackway, of vertical arms, each having a horizontal finger secured thereto, to which detonating signals are to be removably secured, an operating-rod, and connecting links or levers for simultaneously opening one track and closing the other and moving the detonating signals over the rails of the closed track and off the open track.

7. In a railroad-crossing, the combination, with a suitable base-plate, of segment-gears resting on said base-plate, parallel rack-bars operating the segment-gears, rail-sections rigidly secured to the segment-gears, and pivotal bolts for binding the segment-gears and movable rail-sections to the base.

8. In a railroad-crossing, the combination, with the supporting-plate provided with elevations for the rails to rest on and depressions for the segment-gears and rack-bars to move in, of the trackways A A′, the cross-rails provided with ears, segment-gears interposed between the adjacent ends of the rails of the trackways A A′ and the cross-rails, rail-sections rigidly secured to the upper faces of the segment-gears, bolts for loosely securing the movable rail-sections and gears to the base-plate, and racks and levers for operating the movable rails.

9. The combination, with the base-plate and rigid rails secured thereto, of the segment-gears, rack-bars, movable rails, pivotal bolts, and the housing or coverings for the gears and racks.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

EDWARD EVANS.

Witnesses:
HENRY C. HODGES,
M. E. DOUGLAS.