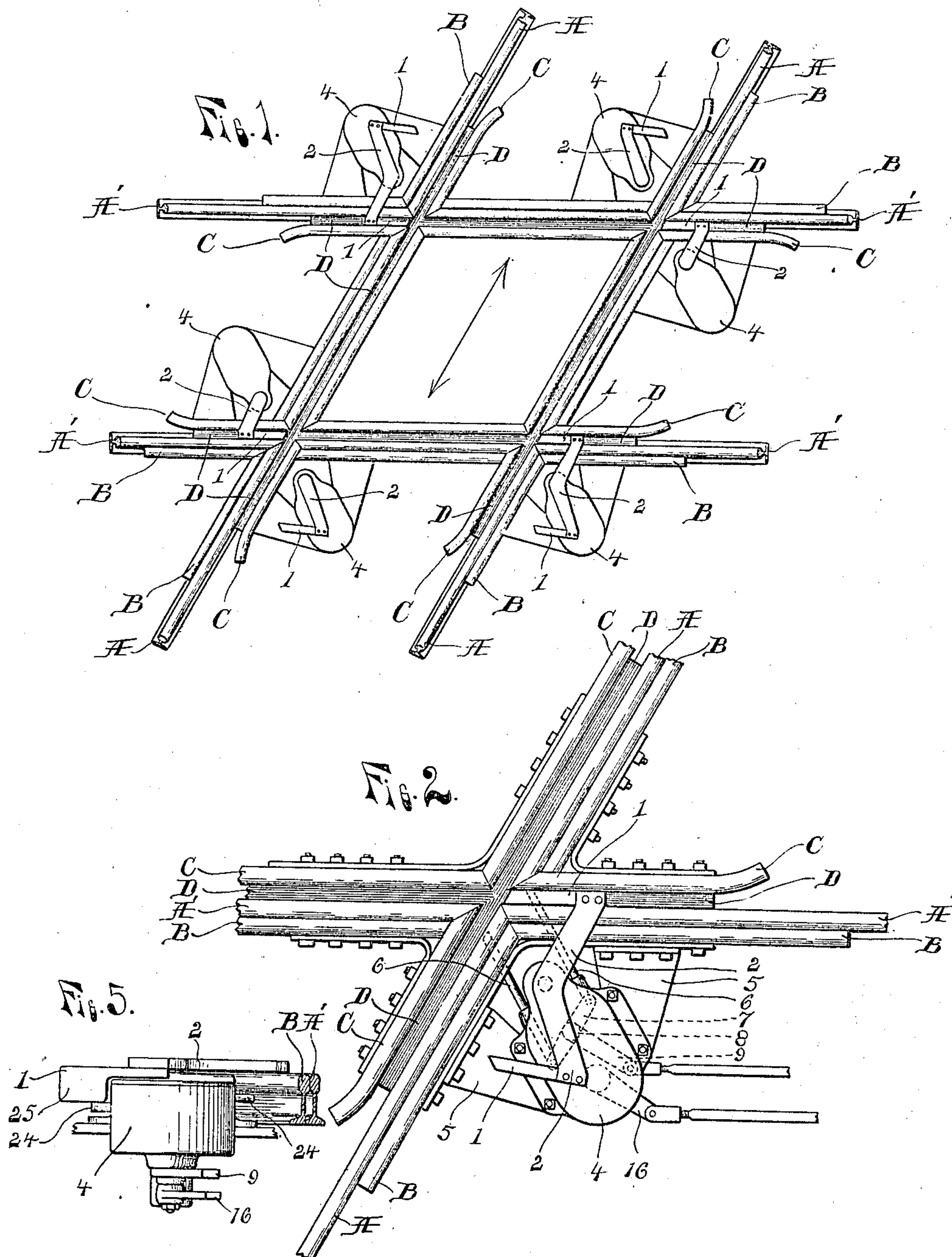


No. 837,575.

PATENTED DEC. 4, 1906.

A. E. KALTSCHMIDT.  
RAILROAD CROSSING.  
APPLICATION FILED JAN. 15, 1906.

2 SHEETS—SHEET 1.



WITNESSES:  
Lewis E. Klandus  
Thos. G. Longstaff

INVENTOR.  
Albert E. Kaltschmidt  
BY *Barth & Barth*  
ATTORNEYS.

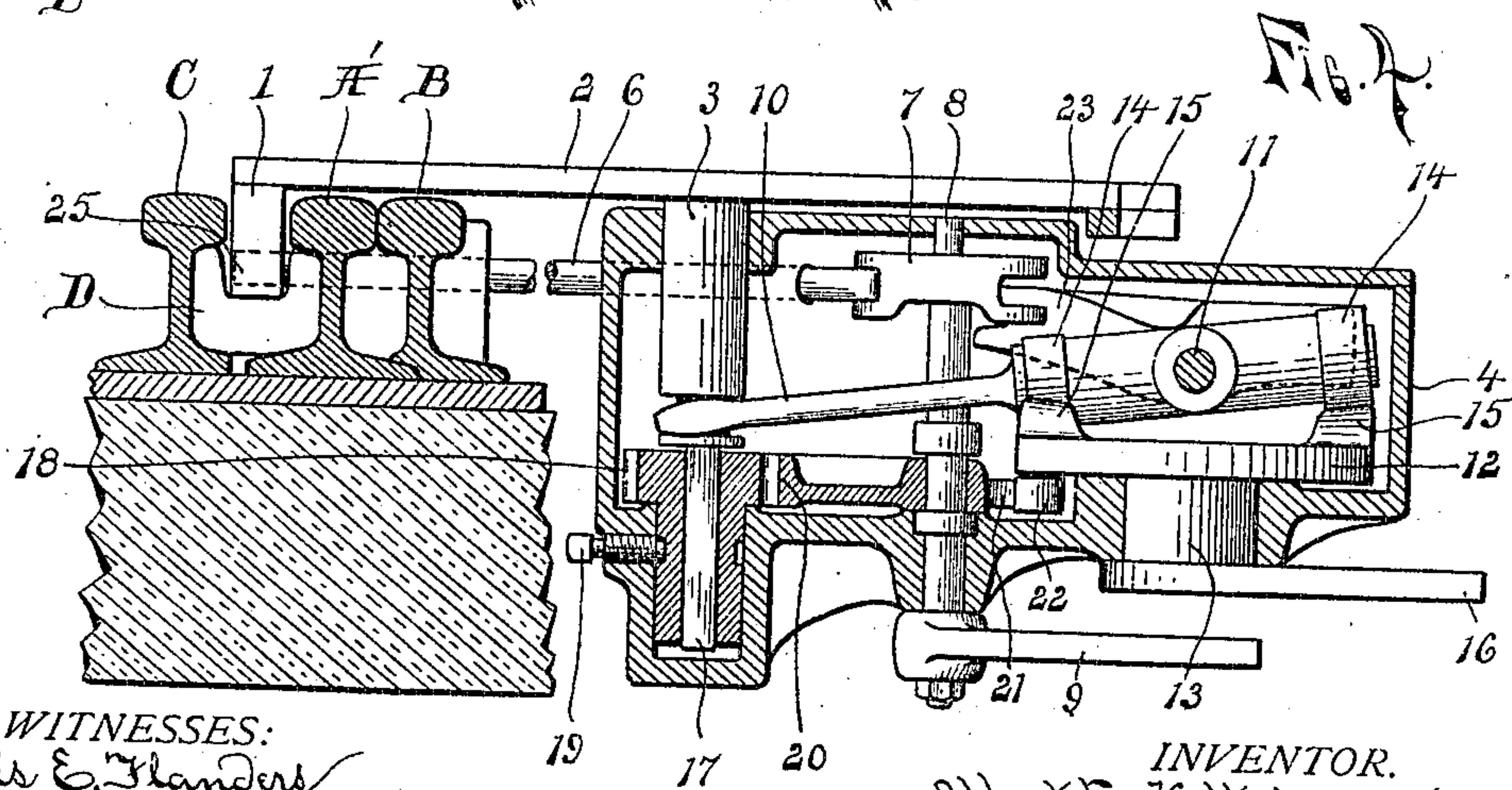
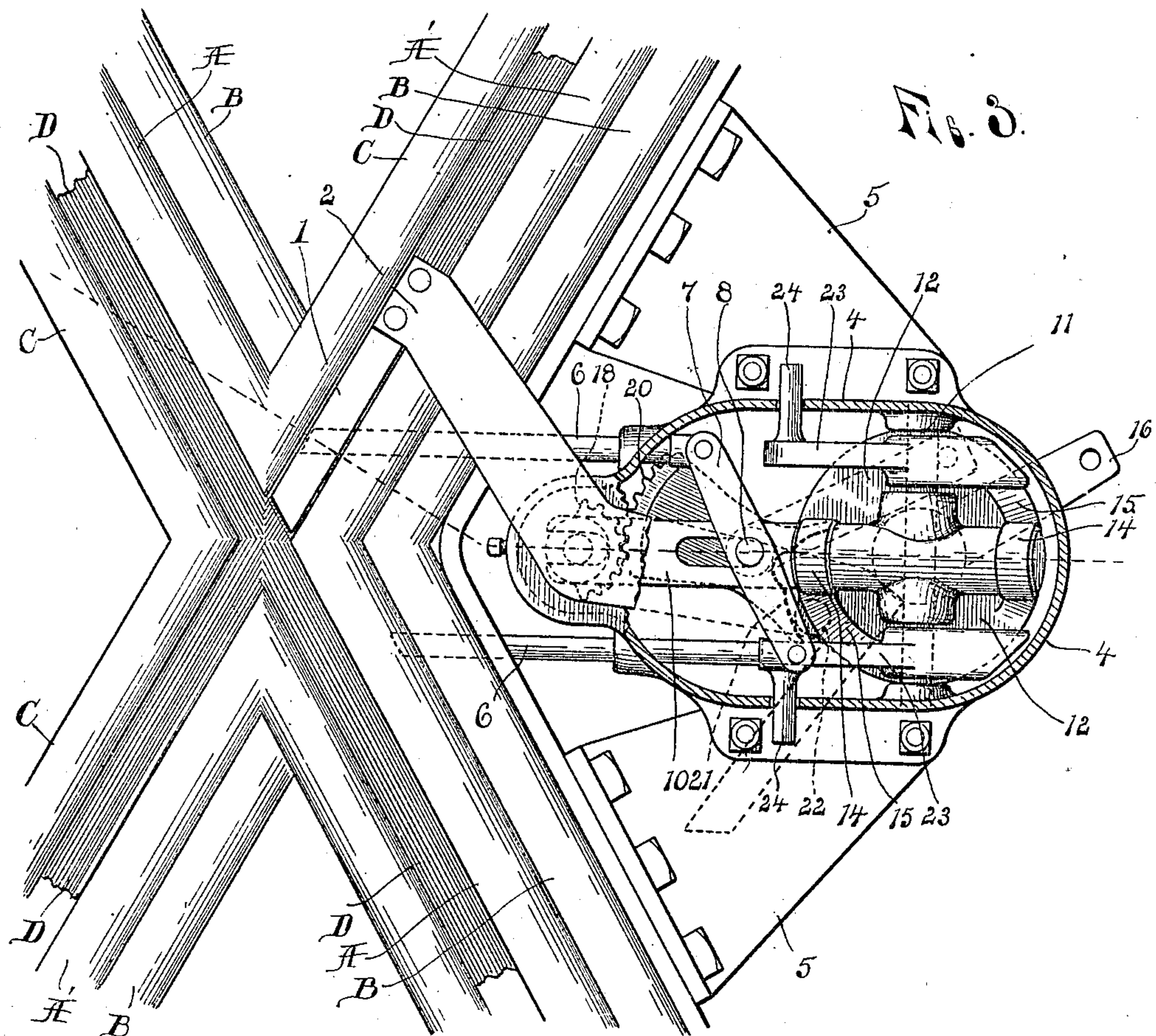


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2 SHEETS—SHEET 2.



WITNESSES:  
Lewis E. Blanders  
Thos. G. Longstaff.

INVENTOR.  
Albert E. Kaltschmidt  
BY *Robert B. Smith*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

ALBERT E. KALTSCHMIDT, OF DETROIT, MICHIGAN, ASSIGNOR OF  
THIRTY-FOUR PER CENT. TO GEORGE W. WILLEBRANDS, OF  
DETROIT, MICHIGAN.

## RAILROAD-CROSSING.

No. 837,575.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed January 15, 1906. Serial No. 296,026.

*To all whom it may concern:*

Be it known that I, ALBERT E. KALTSCHMIDT, a subject of the German Emperor, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Railroad-Crossings, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in railway-crossings; and its object is to provide means for forming a continuous contact-surface and means for operating the same which may be easily applied to a crossing as ordinarily constructed without making any changes in its construction or cutting away any of its parts.

20 A further object of the invention is to provide means for inserting a solid block into the groove or space between the rails in such a manner that it will be firmly supported and to provide means for locking the block in position against possible displacement and so as to minimize the liability of breakage.

25 It is also an object of the invention to provide means whereby the device will be locked against operation and the operator thus notified should a part become broken or the space between the rails become filled with dirt, snow, or ice and to also provide a very simple and efficient device which may be quickly attached to the ordinary crossing, all as hereinafter more fully described, reference being had to the accompanying drawings, in which—

30 Figure 1 is a diagrammatic plan view of a crossing with the invention applied thereto; Fig. 2, an enlarged view of one corner of the same; Fig. 3, an enlarged view of Fig. 2 with parts broken away to show the construction; Fig. 4, a transverse vertical section of Fig. 3, and Fig. 5 a detail showing the manner in which the locking-dogs are unlocked.

45 A A are the main or stock rails of one track, and A' A' are those of the other track, which cross the former at an angle of less than ninety degrees, forming therewith an obtuse angle at one side of each rail and an acute angle at the opposite side.

50 B represents the reinforcing-rails, C the guard-rails, and D the fillers between the stock and guard rails, all constructed and arranged in the ordinary manner.

Supported within the obtuse angle at each corner of the crossing is mechanism for operating suitable blocks 1, adapted to fit in the groove or space between the guard and main rails, and thus form a continuous bearing-surface for the car-wheels. When the track is open for traffic in the direction of the arrows in Fig. 1, the blocks adapted to be inserted in the groove between rails A' and their guard-rails are in operative position, and the other set of blocks is swung to a position outside of and away from the rails. The mechanisms for moving the blocks are all the same, except that the mechanism in each of the two angles formed by the outer sides of the main rails is provided with a double arm and two blocks, one for each track, while the others have single arms and but one block, all being adapted to operate in a ninety-degree angle.

As shown in Figs. 2, 3, and 4, 1 1 are the contact-blocks adapted to fit in the groove or space between the main and guard rails and rest upon the filler-block D, which forms the support therefor when engaged by a car-wheel. These blocks are carried over the main rails and lowered into the grooves by arms 2, to the outer ends of which said blocks are secured, and these arms are secured to a vertical shaft 3, mounted in bearings in a suitable casing 4, which is supported upon brackets 5, secured to the outer sides of the reinforcing-rails B by the same bolts which pass through the rails and fish-plates to secure the same together.

Each block when in operative position within the space between the rails is securely locked therein by a longitudinally-movable rod 6, projecting through an opening in the forward end of the casing into a hole drilled through the rails and engages a hole in the block, a rod being provided for each block. These rods are pivotally attached at their inner ends to the ends of a rocker-bar 7, secured to the upper end of a vertical pin 8 rotatable in bearings in the top and bottom of the casing, the lower end of said pin projecting through the bottom of the casing and being provided with an operating-lever 9, to which may be attached in the usual manner a rod leading to the interlocking mechanism or to any other safety device the crossing is to be interlocked with.

The shaft 3 is raised vertically to lift the



block 1 out of the groove or space between the rails after the rod has been retracted to release said block by a lever 10, having a forked end engaging a groove in the shaft 5 and pivoted intermediate its ends upon a horizontal shaft 11, mounted in bearings in the rear part of the casing. A horizontal cam-disk 12 is provided with a stub-shaft 13 to engage a suitable bearing in the bottom of the casing and is thus pivoted with its axis vertically below the shaft 11 and rear end of the lever 10, which lever is provided with rolls 14 to engage cam projections 15 on the upper face of the disk. On the lower and outer end of the stub-shaft 13 is secured an operating-lever 16, by means of which the disk is turned, an operating-rod being attached to said lever and to any suitable operating device situated some distance away.

After the arm 2 has been lifted to raise the block it is turned from over the rail by rotating the vertical shaft 3, said shaft being provided with a squared lower end 17, engaging a square axial hole in a pinion 18 and its downwardly-extending shank portion, which portion is journaled in a suitable bearing in the bottom of the casing. The shank is free to rotate in said bearing, but is prevented from being lifted therefrom by a set-screw 19, tapped through the bearing and engaging a groove in the shank. Loosely mounted to turn freely upon the pin 8 is a segmental gear 20 in mesh with said pinion 18, and formed integral with said segment at the opposite side of its pivot is an escapement-lever 21, extending rearwardly toward and beneath the disk 12, which is provided at its forward edge and on its lower side with a roll or stud 22 to engage the escapement-lever and operate the segment when the disk is turned.

Should the block 1 which is in the slot between the rails be broken off or the slot between the other rails become clogged in such a way as to prevent the other block from entering or being forced to its seat on the filler, gravity-dogs 23, mounted upon the shaft 11, are provided to engage and prevent the full operation of the locking-rods 6. At the rear side of the shaft these dogs are provided with enlarged ends and at their forward ends are provided with laterally-projecting pins 24, extending outward through slots in the sides of the casing, the enlarged or weighted ends operating by gravity to normally hold the dogs tilted with the pins in the upper ends of the slots. When said dogs are so tilted, their forward ends lie in the path of the rocker-bar 7, so that when said bar is turned to retract one of the locking-rods it will engage said dog when in its mid-position and be prevented from further operation until said dog is depressed out of its path. To so depress the dog, the block 1 is formed with a downwardly-extending end portion 25, as shown in Fig. 5, which when the arm is swung backward over

the casing and then lowered will engage the pin 24 and depress the dog.

The parts being in the position shown in Fig. 3 and the operator wishing to clear track A' and close track A, he will first move lever 9 to turn the rocker-bar until it engages the dog at that side, thus retracting the locking-rod and releasing the block and at the same time projecting the other rod a short distance, so that its end of the rocker will be moved from over its locking-dog. The lever 16 is then operated to turn the disk 12, the cam upon the forward side of which is in such a position that it will at once engage and rock the forked lever, lifting its forward end and raising the shaft 3 with its attached supporting-arms and the contact-blocks. This lifting of the blocks releases the dog which was depressed by the block lying over the casing, and thus the locking-rods are prevented from operation in either direction until one of said dogs is again depressed. Any accidental operation of lever 9 is therefore prevented until one of the contact-blocks is in place to receive the end of the rod, and its operation in the wrong direction is also prevented.

When the arm has been fully lifted by the forward cam, it is held in that position during the further turning of the disk, which brings the stud 22 into engagement with the escapement-lever and turns the same until the forwardly-projecting arm is swung back, bringing its block directly over the pin on the locking-dog at that side, and the arm projecting in the opposite direction is swung forward, bringing its block in position over the space between the rails. The forward cam then runs out of contact with the lever, and the rear cam engages the rear end of said lever, thus rocking the lever and lowering the block at one side into contact with the dog to depress said dog out of the path of the rocker-bar 7 and forcing the other block downward between the rails. The block being thus placed in position between rail A and its guard-rail and the dog at the opposite side of the casing depressed, the lever 9 is then turned to further retract the locking-rod at one side and project the locking-rod at the opposite side through its block, which is thus firmly held in place, closing the track formed by the rails A.

Should one of the contact-blocks become broken, it will not depress its dog when swung back over the casing, and the turning of the rocker-bar beyond its mid-position will be prevented, thus indicating to the operator that the device is out of order, and if the lowering of the block is prevented by dirt or other obstruction in the slot between the rails the dog will not be operated by the other block, and the operator will thus be notified of the fact by reason of being unable to engage the locking-rod with the apertured block.



Having thus fully described my invention, what I claim is—

1. The combination with a block adapted to fill the space between the rails of a railway-crossing, of means for lifting said block vertically out of said space and moving the same laterally out of the path of the wheels along the rails.

2. The combination with a block adapted to fill the space between the rails of a railway-crossing, of means for moving said block vertically into and out of said space and laterally of said rails.

3. The combination of a block adapted to fill the space between the rails of a railway-crossing and having a transverse hole, means for moving said block vertically from said space, a rod adapted to be projected through an opening in the rail into the opening in the block to lock the block in place, and means for moving said rod.

4. The combination with a block adapted to fill the space between the rails of a railway-crossing, a pivoted arm to which the block is secured, and means for raising the arm vertically and turning the same laterally on its pivot out of the path of the wheels along the rails.

5. The combination with a block adapted to fill the space between the rails of a railway-crossing, of an arm to which said block is secured adapted to be pivotally supported at one side of the rails to turn across the same and having a limited vertical movement, and means for turning said arm.

6. The combination with a block adapted to fill the space between the rails of a railway-crossing, of an arm adapted to be pivotally supported at one side of the rails to turn horizontally over the same and having a limited vertical movement, and means for turning said arm.

7. The combination with a block adapted to fill the space between the rails of a railway-crossing, of a vertically-movable arm adapted to be pivotally supported at one side of the rails to turn in a horizontal plane over the same, means for turning said arm, and means for raising and lowering said arm in timed relation to its rotating movement.

8. In a railway-crossing, in combination with the rails thereof, of an arm pivotally supported at one side of the rails to turn in a horizontal plane and having a limited vertical movement, a block adapted to fill the space between the rails and secured to said arm, brackets secured to the rails, a casing supported by said brackets, and mechanism within said casing for turning the arm and for moving the same vertically.

9. In a railway-crossing, in combination with the rails thereof, of a vertical shaft at one side of said rails adapted to be rotated and moved vertically, an arm on said shaft, a block adapted to fill the space between the

rails, a lever to raise and lower said shaft, means for rotating said shaft, and means for operating said lever and rotating means in timed relation.

10. In a railway-crossing, in combination with the rails thereof, of a vertical shaft at one side of said rails adapted to be rotated and moved vertically, an arm on said shaft, a block adapted to fill the space between the rails, a lever pivoted intermediate its ends and having an extended end engaging said shaft, a horizontal disk below the pivot of said lever, cam projections on said disk to engage and rock said lever, and means for rotating said shaft operated by the turning of said disk.

11. In a railway-crossing, in combination with the rails thereof, of a casing supported at one side of said rails, a vertical shaft mounted in bearings in said casing and having a squared portion, an arm on the upper end of said shaft, a block to fit between the rails on the end of said arm, a pinion having a square opening within which the squared portion of the shaft is adapted to move longitudinally, a gear-segment engaging said pinion, an escapement-lever on said segment, a disk, a stud on said disk to engage the escapement-lever, and means operated by the turning of said disk for moving said shaft vertically.

12. In a railway-crossing, in combination with the rails thereof, of a casing supported at one side of said rails, a vertical shaft having a squared lower end mounted in bearings in said casing, an arm on the upper end of said shaft, a block to fit between the rails secured to the end of said arm, a pinion having an extended hub portion formed with a square axial opening to receive the square end of the shaft and mounted in a bearing in the bottom of the casing to turn freely, a gear-segment to engage the pinion, an escapement-lever on said segment, a disk having a stub-shaft mounted in a bearing in the bottom of the casing, a stud on said disk to engage the escapement-lever, a transverse shaft mounted in bearings in the casing and extending across the axis of said disk, a forked lever engaging a groove in the vertical shaft and secured to the transverse shaft, and cam projections on said disk to engage and operate the lever.

13. In a railway-crossing the combination with the parallel rails thereof, of a casing supported at one side of said rails, an arm pivotally supported by said casing and movable vertically, a block on said arm adapted to fill the space between the rails and provided with a transverse hole, mechanism within the casing for lifting and turning the arm, a horizontally-extending rod mounted in a bearing in the casing to be projected therefrom through an opening in the rail into the opening in the block, and means within



the casing for projecting and retracting said rod.

14. In a railway-crossing, the combination with parallel rails, of a casing supported at one side of said rails, an arm pivotally supported by said casing and movable vertically, a block on said arm adapted to fill the space between the rails and provided with a transverse hole, mechanism within the casing for lifting and turning the arm, a horizontally-extending rod mounted in a bearing in the casing to be projected therefrom through an opening in the rail into the opening in the block, means for operating said rod, and means to engage and prevent the operation of the rod operated by said arm and block.

15. In a railway-crossing, the combination with parallel rails, of a casing supported at one side of said rails, arms pivotally supported on the casing and extending in opposite directions from their pivot, a block on each of said arms to fill the spaces between the rails and each provided with a transverse hole, longitudinally-movable rods to be projected from the casing through openings in the rails into the holes in the blocks, a vertical pin in the casing, a rocker-bar on said pin to the ends of which bar the rods are attached, and dogs adapted to engage said rocker-bar when in one position and adapted to be engaged and moved from that position by the said blocks.

16. In a railway-crossing the combination with parallel rails, of a casing supported at one side of said rails, a vertical shaft mounted in bearings in said casing, arms on said shaft extending laterally in opposite directions, a block on the outer end of each of said arms to fill the space between the rails and having transverse holes, a transverse shaft in the casing, a lever having a forked end to engage the vertical shaft pivotally supported intermediate its ends upon the transverse shaft, a disk having cam projections to rock said lever, means operated by said disk for turning the vertical shaft, a rocker-bar pivoted in the casing, rods attached to the ends of said rocker-bar and adapted to extend through bearings in the casing and openings

in the rails into the holes in the blocks, and gravity-dogs mounted to turn freely on the transverse shaft and adapted to engage and limit the movement of the rocker-bar and to be depressed out of the path of said bar by the engagement therewith of one of the blocks when swung on the casing by its arm.

17. In a railway-crossing, the combination with parallel rails, of brackets bolted to said rails, a casing supported by said brackets, a vertical shaft in bearings in the casing having a groove and a squared lower end, arms on the upper end of said shaft extending laterally therefrom in opposite directions, blocks to fill the space between the rails secured to said arms, a pinion having a hub portion formed with a square axial opening and engaging a bearing in the bottom of the casing to turn freely therein, a vertical pin mounted in bearings in the casing, a gear-segment engaging the pinion and sleeved on said pin to turn freely thereon, an escapement-lever on said segment, a horizontal disk, a stub-shaft to which the disk is secured engaging a bearing in the bottom of the casing, an operating-lever on the outer end of said stub-shaft, a stud on the disk to engage the escapement-lever, a transverse shaft extending over the disk, a lever having a forked end to engage the groove in the vertical shaft and secured to the transverse shaft, cam projections on the disk, rolls on the lever to engage said projections, a rocker-bar on the upper end of the pin, rods attached to the ends of said bar to be moved longitudinally thereby through bearings in the casing and openings in the rails into the holes in the blocks, gravity-dogs pivoted on the transverse shaft to engage the ends of the rocker-bar, and pins on said dogs projecting through slots in the casing and adapted to be engaged by the blocks.

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

ALBERT E. KALTSCHMIDT.

Witnesses:

GEO. W. WILLEBRANDS,  
OTTO F. BARTHEL.