(No Model.) 3 Sheets—Sheet 1.

E. CURRIER.

RAILWAY GATE.

No. 493,577. Patented Mar. 14, 1893.

FIG. 1.

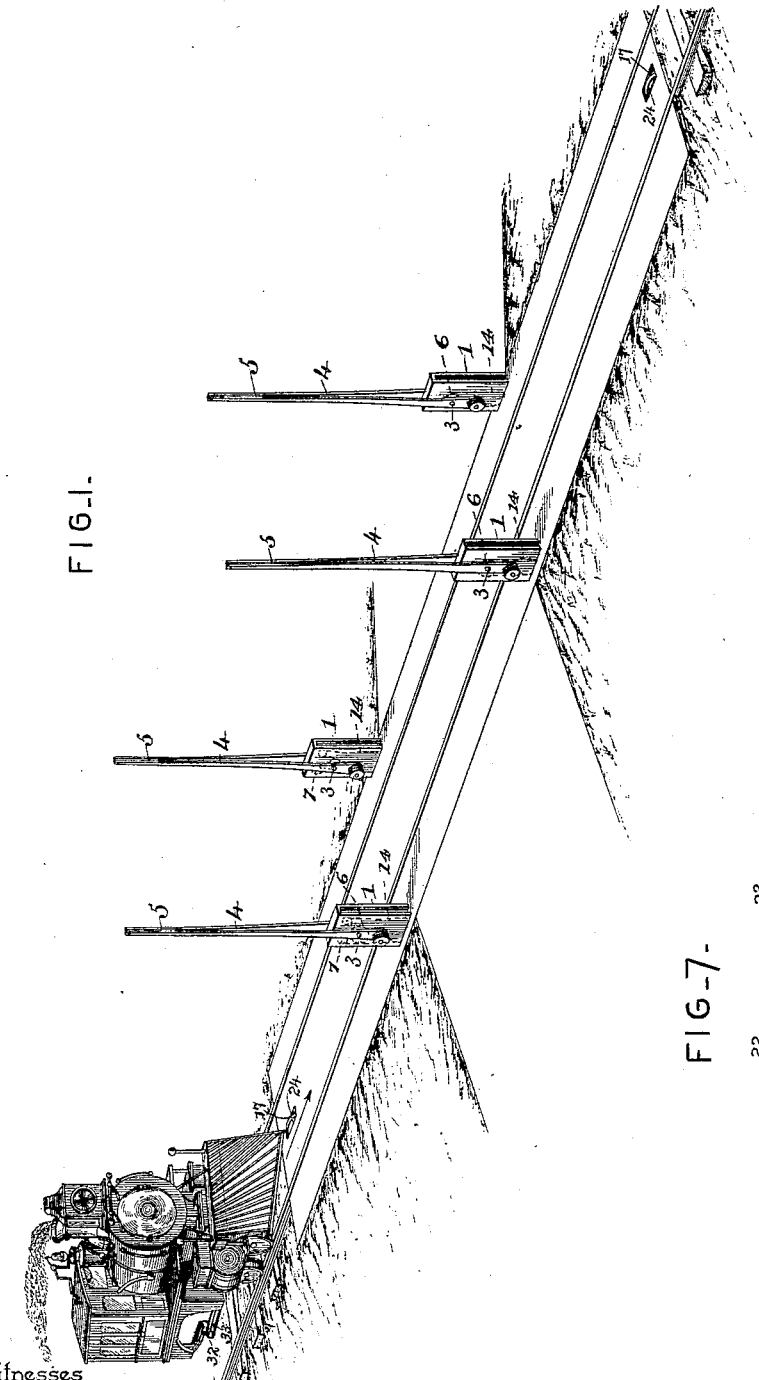
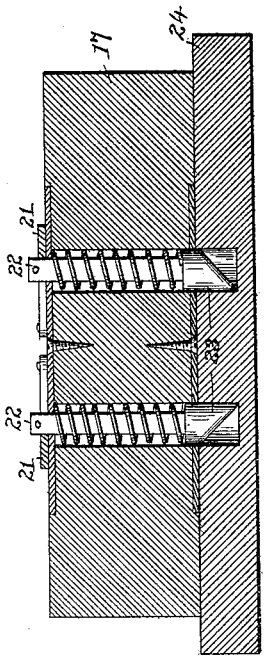


FIG. 7.



Witnesses

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(No Model.) 3 Sheets—Sheet 2.

E. CURRIER.

RAILWAY GATE.

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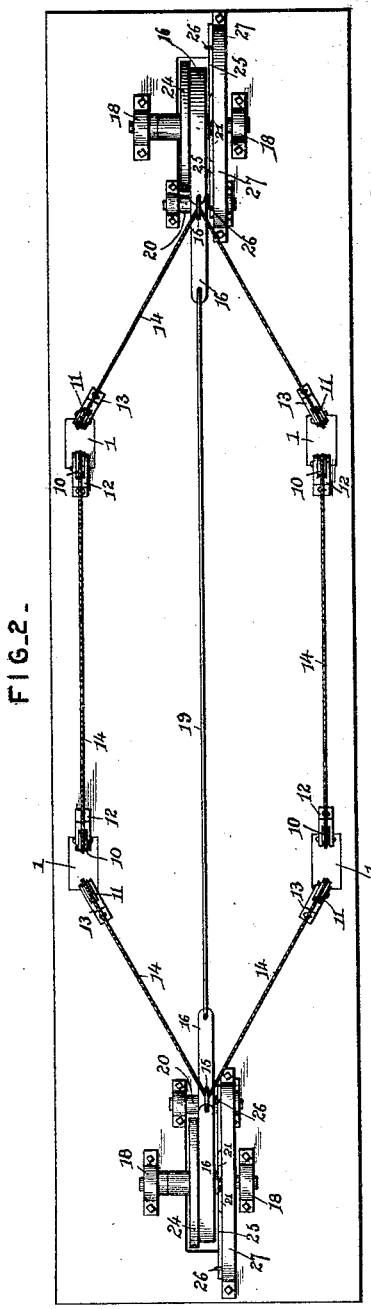

FIG. 2.

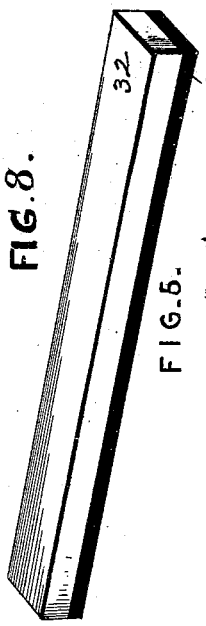

FIG. 8.

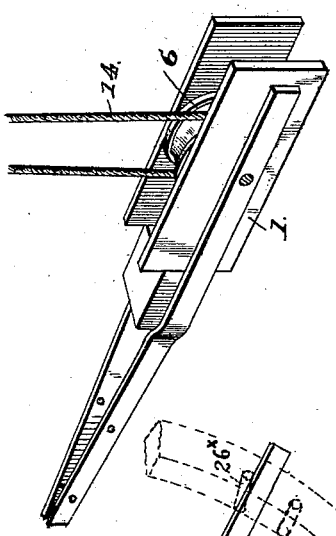

FIG. 5.

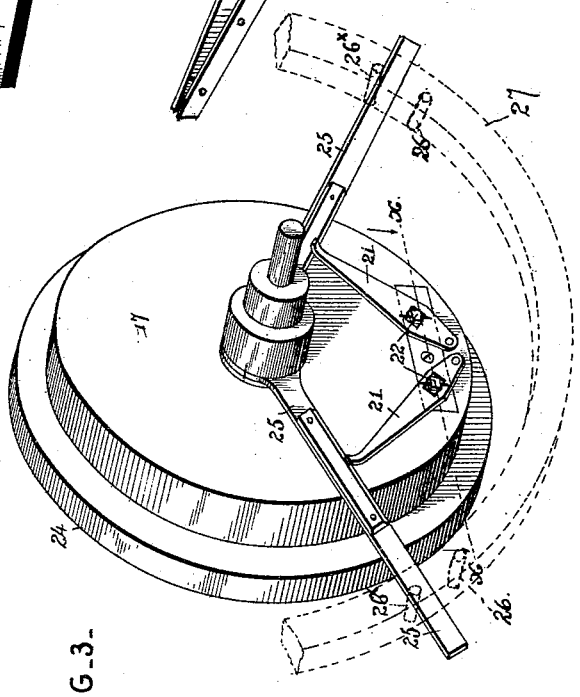

FIG. 3.

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(No Model.) 3 Sheets—Sheet 3.

E. CURRIER.

RAILWAY GATE.

No. 493,577. Patented Mar. 14, 1893.

FIG. 4.

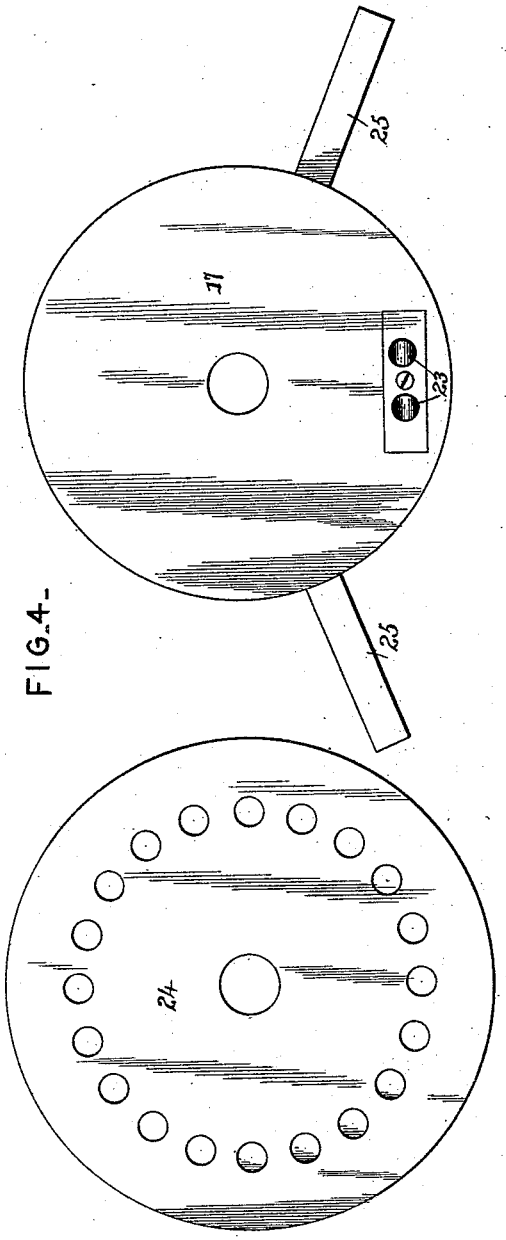
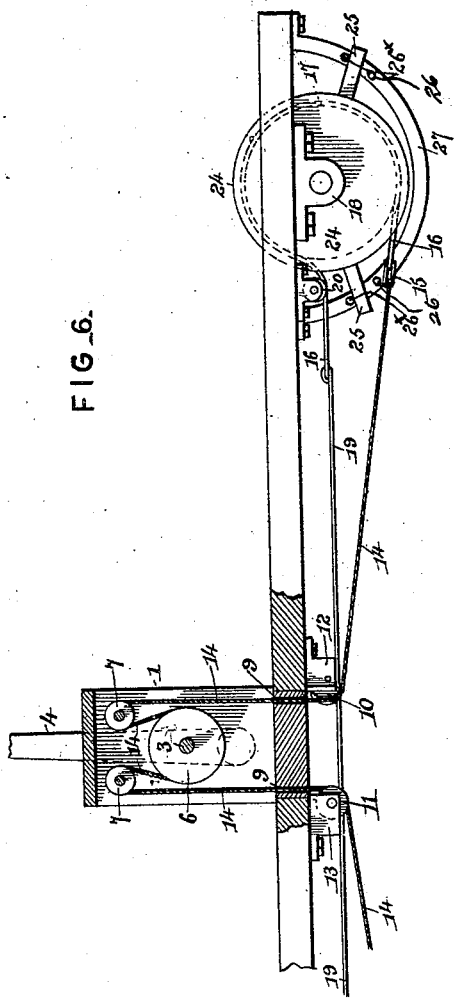


FIG. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

EDWARD CURRIER, OF FALL RIVER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO AIMÉ BARRÉ, OF SAME PLACE.

RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 493,577, dated March 14, 1893.

Application filed April 28, 1892. Serial No. 430,978. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CURRIER, a citizen of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented a new and useful Railway-Gate, of which the following is a specification.

This invention relates to railway gates, and especially that class which are automatically operated by the passage of cars over the track, as will be more fully hereinafter set forth.

The object of this invention is to provide a gate of the character set forth wherein the parts are automatic in their operation, and thereby to dispense with the employment and attendance of a flagman or operator for the gates, the parts being simple and effective in their construction and operation, strong and durable, easily handled and understood, and comparatively inexpensive.

With this object in view the invention consists of the construction, arrangement, and combination of parts hereinafter described and claimed.

In the drawings:—Figure 1 is a perspective view showing the improved form of gate arranged in connection with a railway track and illustrating a locomotive thereon in the act of operating the mechanism to lower the gate. Fig. 2 is a bottom plan view of the mechanism. Fig. 3 is a detail perspective view of one of the combined drums and wheels employed for operating the device. Fig. 4 is a plan view showing the parts of the device represented in Fig. 3 separated. Fig. 5 is a detail perspective view of a portion of one of the standards or posts, and pulley therein, and cable, rope or chain thereon, and in inverted position. Fig. 6 is a sectional elevation showing the operating rope, cable or chain extending from one of the combined drums and wheels or pulleys and extending through one of the posts or standards supporting one of the mast-arms of the gate. Fig. 7 is a sectional view on the line x—x, Fig. 3. Fig. 8 is a detail perspective view of the device applied in connection with the engine for operating the gates and adapted to come in contact with the combined wheels or disks.

Similar numerals of reference indicate corresponding parts in the several figures of the drawings.

Referring to the drawings, the numeral 1 designates a series of posts or standards, which are made hollow and have shafts projecting exteriorly therefrom, as at 3, to which are connected mast-arms 4, having prop-arms 5, attached to the outer ends thereof, and each constituting one-half of a gate. The shaft 3 extending through each post or standard 1, has a grooved pulley 6 fixed thereto, and in half of the said posts or standards 1 smaller pulleys 7 are mounted above the said pulleys 6. The smaller pulleys 7 act in the capacity of idlers, and by their arrangement, as shown, above the pulleys 6 in a portion of the posts or standards, the proper movement of the mast-arms inwardly toward each other, or outwardly from each other, is accomplished, as it will be seen that if such pulleys were not used each of the pulleys 6 in the several posts or standards would all be turned in one direction, and thereby tend to lower only one-half of the mast-arms and force the remaining portion of the same more firmly against their upward limitation. Therefore, by the interposition of idlers the movement of the single pulleys 6 closes or opens the gates, and said operation is attained through the movement of the connecting rope, cable, or chain, the said pulleys 7 transforming the said movement of the said rope, cable or chain to make the latter properly operate the gates. The normal position of the mast-arms is in elevation and they are assisted in their movement by counterbalancing weighted ends, which is an ordinary construction well known in the art.

The working mechanism is situated below the surface of the ground and supported by a suitable framework that will be referred to from time to time to explain the connection of the several parts. Extending through said platform vertically from the bottom or base of the standards 1, are openings 9, having pulleys 10 and 11 adjacent thereto and mounted against the under side of the said posts or standards in suitable blocks 12 and 13, and arranged at such angles to accommodate the position of the other parts of the mechanism that will be more fully

hereinafter referred to. The openings 9 are arranged in pairs at each post or standard 1, and therethrough and around the several pulleys passes a rope, cable, or chain 14. A hook or connecting-link 15 is attached to each end of said rope, cable, or chain and is also connected in each instance to the end of a band or belt 16, that surrounds band-wheels 17. Each of these band-wheels has its shaft journaled in suitable bearings or boxes 18, adjacently situated thereto. Such band-wheels are located on opposite sides of the gates at any suitable and preferred distance therefrom, and the opposite end of the band or belt 18 is connected to the similar end of the oppositely-situated band or belt by a cable, chain, wire, or rod, as 19, to connect the two band-wheels for simultaneous action.

On the gate-side of each band-wheel 17 is mounted an anti-frictional roller 20, journaled in suitable bearings, on which the belt or band is adapted to bear and have movement. To the outer side of each band-wheel or pulley a pair of arms 21 are pivotally secured, having their free ends slightly flared, and pins or studs 22 are secured thereto and extend through and project from the inner side of the band-wheel or pulley. This construction is similar in each instance. The said studs or pins are spring-actuated and arranged close to each other and are formed with inner beveled ends 23, in such position that the bevels thereof will be located on the outside and present square shoulders or engaging portions at the inner parts thereof. These pins or studs form clutch-contacts and act similarly to pawls by taking into a series of recesses arranged adjacent to the periphery of a disk 24, that is mounted on the shaft of the band wheel or pulley and held closely against it. The disk 24 projects through an opening between or at one side of the rails, as the case may be, and is slightly elevated above the surface of the ground or bed of the track. Through the medium of the clutch-connection, between the band wheel or pulley and the said disk, the said parts are bound together so that when the disk is turned it will rotate the band wheel or pulley and operate the rope, cable, or chain through the connections hereinbefore set forth.

On the shaft of the band wheel or pulley 17 are loosely mounted two arms 25, adapted to take under the flared ends of the arms 21, and thereby release the pins or studs 22 from engagement with the recesses of the disk 24. It will be understood that only one of the pins or studs 22 is disengaged at a time from the disk 24, according to the direction of the movement of the said disk. When one of the studs is disengaged from the disk 24 the other studs permits the latter to have free movement, by virtue of the beveled head thereof through the medium of which the stud that is not drawn away from the disk is caused to move outward automatically against the action of its surrounding spring. It will be observed that the arms 25, through their loose mounting, are not affected by the movement of the disk 24, except, possibly, to a slight degree when they are in alternate engagement with the flared ends of the arms 21. When the disk is at rest, the said arms 25 are held out of engagement with the arms 21, by lower pins or studs 26, projecting inwardly from an adjacently situated arched or curved bracket 27, said bracket also having pins $26^{\times}$, above the said arms 25, to cause a forcible engagement of one of the said arms 26, with one of said arms 21, according as said disk is moved in one or the other direction to release either one or the other of the pins or studs 22.

In Fig. 8 is shown an attachment which is applied to the locomotive or to a car, either at the center or the side thereof, as will be determined by the position of the disk 24. This attachment consists of an elongated bar 32, which is fixed to the under side of the locomotive and is provided with a rubber covering 33, adapted to engage with the disks 24, that project slightly above the surface of the roadbed, as heretofore set forth. When the disks 24 are rotated in one direction, they operate to lower the gates, and when rotated in the opposite direction they act to open said gates; but the said disks are so arranged that a train coming in the direction of the arrow, Fig. 1, will engage the adjacent disk and close the gate, and when the opposite disk is reached it will be reversely operated to open the gate. These disks will be situated some distance from the gates in order that the latter may be closed sometime before the train reaches them, and also to permit the train to pass between them wholly before they are opened.

Having thus described the invention, what is claimed as new is—

1. In a railway gate, the combination of oppositely-disposed disks slightly projecting above the surface of a railway bed, band pulleys or wheels adjacently situated to said disks, bands thereover, a gate-operating rope, cable, or chain connected to one end of each band, a connection between the other ends of said bands, and a clutch for connecting the said band pulleys or wheels to the disks, substantially as described.

2. The combination of band wheels or pulleys having spring-actuated studs or pins extending therethrough and connected to pivoted arms, railroad gates connected to said band wheels or pulleys, disks adjacently situated to said band wheels or pulleys and adapted to be engaged by said pins or studs, arms adapted to engage the arms carrying said pins or studs, and connected bands surrounding and adapted to unitedly operate the said disks, substantially as described.

3. The combination of a series of posts or standards having pulleys therein, and mast-arms journaled thereto, a series of pulleys below the said posts or standards and arranged in pairs, a rope, cable, or chain passing over said pulleys and extending upwardly through

the said posts or standards, band wheels or pulleys arranged beyond the said posts or standards, a clutch in connection with said band wheels or pulleys, a disk situated adjacent to each of the said band wheels or pulleys and adapted to be engaged by the said clutch, a band surrounding the said band wheels or pulleys having one end thereof connected to the said rope, cable, or chain, and a connection for the opposite ends of the said bands, the said band wheels or pulleys and disks having one face of each loosely bearing against the adjacent face of the other, substantially as described.

4. In a railway gate, the combination of posts or standards having openings extending through the lower portions thereof, pulleys therein, and mast-arms journaled therethrough, pulleys arranged in pairs at the lower ends of the openings through said posts or standards, a rope, cable, or chain engaging said pulleys, band wheels oppositely situated and having bands thereon to which the said rope, cable or chain is connected at its opposite ends, a connection for the other ends of said bands, disks adapted to be interlocked with said band-wheels, arms for unlocking said disks from said band-wheels, and a contacting operating device for said disks consisting of an adjustable rubber-covered head which is adapted to be connected to a movable body, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDWARD CURRIER.

Witnesses:
T. Bt. Gaudreau,
Henry H. Earl.