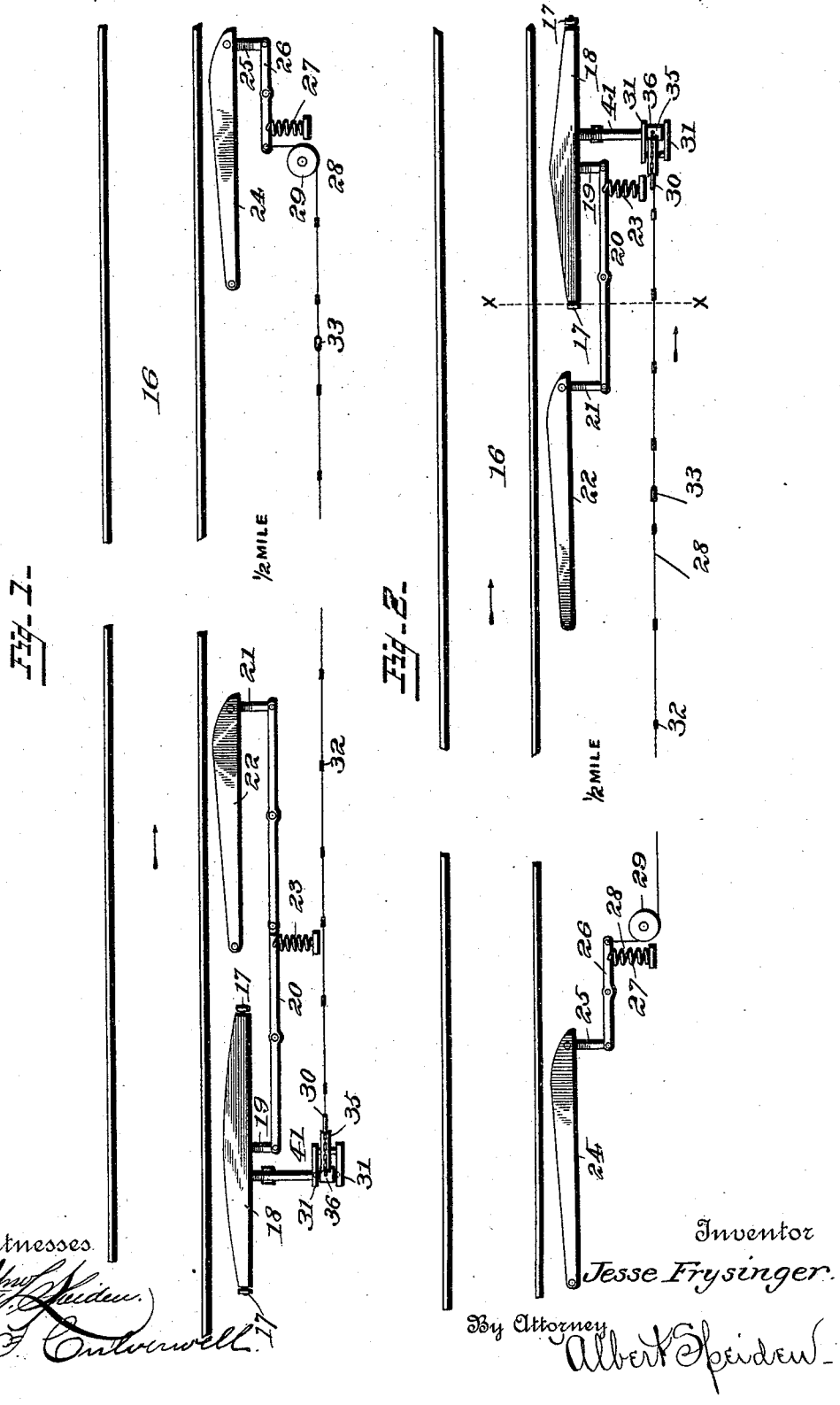
(No Model.) 2 Sheets—Sheet 1.

J. FRYSINGER.

AUTOMATIC RAILWAY TRAIN ARRESTER.

No. 492,153. Patented Feb. 21, 1893.



Witnesses.
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(No Model.) 2 Sheets—Sheet 2.

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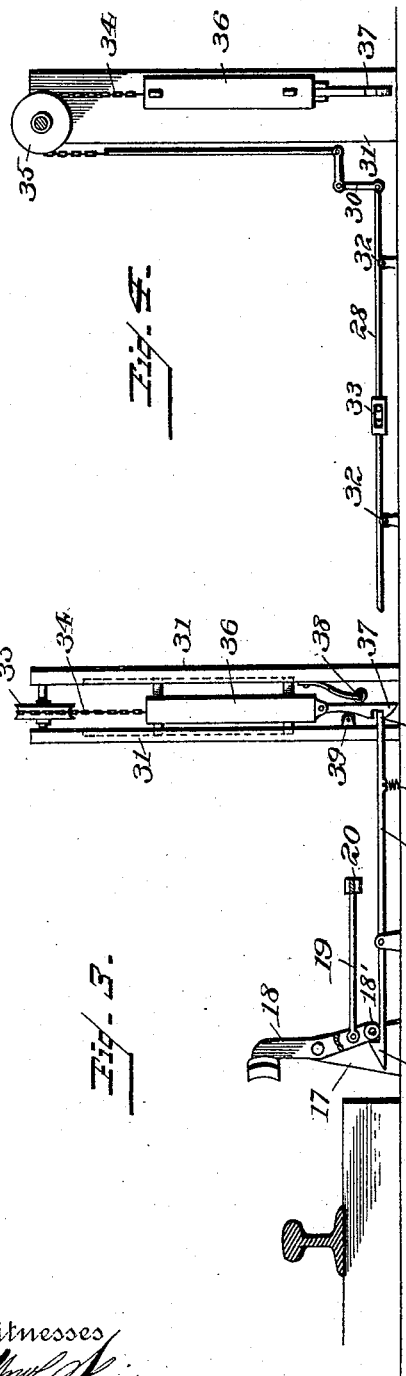

Fig. 4.

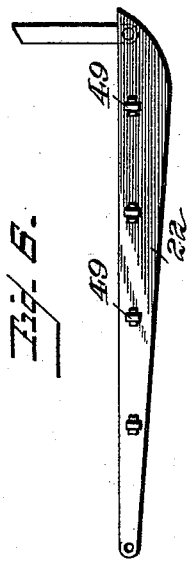

Fig. 6.

Fig. 7.

Fig. 3.

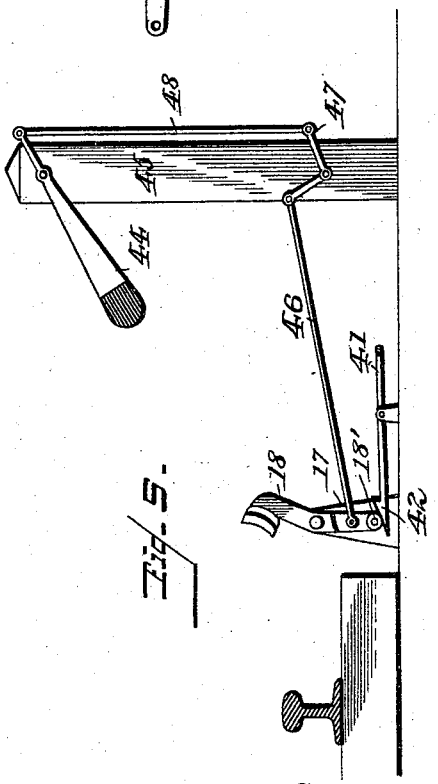

Fig. 5.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC RAILWAY-TRAIN ARRESTER.

SPECIFICATION forming part of Letters Patent No. 492,153, dated February 21, 1893.

Application filed August 2, 1892. Serial No. 441,955. (No model.)

To all whom it may concern:

Be it known that I, JESSE FRYSINGER, a citizen of the United States, residing at Hanover, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Railway-Train Arresters; 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 appertains to make and use the same.

My invention relates to certain new and useful improvements in automatic railway train arresters, and has for its object broadly, to prevent collisions between two trains running upon a single track.

One object of the invention is to provide means for keeping one train a predetermined distance behind the preceding one thereby preventing rear collisions and for stopping trains when running toward each other at such distances as to prevent front collisions.

A further object is to display visible danger signals which may be heeded by the engineer to prevent collisions.

The invention consists in certain details of construction and combinations of parts, all as more fully hereinafter described, shown in the drawings and then pointed out in the claims.

Referring to the drawings—Figure 1 is a plan view of a railway track showing the apparatus for preventing rear collisions. Fig. 2 is a similar view showing similar apparatus for preventing front collisions. Fig. 3 is a view on the line x—x Fig. 2, looking in the direction of the arrow, showing on an enlarged scale, the mechanism for locking and unlocking the contact bar. Fig. 4 is a side elevation of the same, one of the upright guides being removed. Fig. 5 is a detail view showing the operation of the visible signal. Fig. 6 is an under plan view of one of the track levers. Fig. 7 is a detail view of the lever used in the mechanism for preventing front collisions.

I will now proceed to describe the track apparatus for preventing rear collisions, as shown in Fig. 1.

At the proper distance from the railway track 16, and mounted in suitable standards 17, is the rocking contact bar 18. This contact bar is double inclined, its widest part being in the center and gradually tapering on a slight curve or straight line toward each end, its inner or contact face being preferably widened and grooved as seen most clearly in Fig. 3. For the use at curves, the flange of bar 18 may be made the proper shape to perform the same work as the convexity does on straight track. A short link 19 connects the bottom of contact bar 18 with one end of a compound lever 20, the other end of said lever 20 being connected by a link 21, to the free end of a pivoted contact-plate 22. Spring 23 drawing upon the center of the compound lever normally holds the contact face of the bar 18 away from the track and contact-plate 22 near the track. Situated at a distance from the parts just described, preferably about half a mile, is a second contact plate 24, the free end of which is connected by a link 25, with one end of a lever 26. A spring 27 holds said plate at its farthest throw toward the rail. Secured to the free end of lever 26 is a wire 28, said wire after passing over a guide pulley 29 follows the line of the track to a point about opposite the center of the contact bar 18, and is secured to one one end of a bell-crank lever 30 secured to one of the posts 31, as seen most clearly in Fig. 4. Small grooved rollers 32 support the distance wire 28 and any slack in the same is taken up by turn buckles 33. Secured to the free end of bell crank lever 30 is a continuation of wire 28, which terminates in a chain 34 which, passing over a grooved pulley 35, is secured to a weight 36 working in suitable guides or ways in the post 31. Pivotally connected to the lower end of weight 36, is a catch 37 upon the rear straight face of which bears a spring actuated roller 38, the front face of said catch being substantially cam-shape and bears against a friction roller 39. A notch 40 in the front face of the catch 37 receives one end of a pivoted lever 41, the other end of said lever having a head 42 for engaging the lower face of contact bar 18. A friction wheel 18′ allows bar 18 to ride freely over the head of lever 41. Spring 43 gives the required tension to lever 41.

If desired visible signal boards or lights 44 mounted upon suitable posts 45, may be arranged at proper intervals along the track, so as to give the engineer notice whether the track is clear before approaching the contact

bar 18. I have shown said signal in Fig. 5, as connected to the bottom portion of contact bar 18 through the medium of rod 46, bell-crank lever 47, and rod 48 in such a manner that when the contact bar is thrown toward the track to stop a train the signal board will be raised and will be lowered when said bar is thrown from the track, as will be readily understood.

As shown in Fig. 6, contact plates 22 and 24, may be provided on their under faces with rollers or wheels 49 upon which said plates may roll, thus rendering their operation more facile.

The mechanism for preventing front collisions, as shown in Fig. 2, is substantially the same as that for preventing rear collisions, with the exception that the parts are reversed as to the direction of the train and lever 20 is single and not compound, as shown in Fig. 1, consequently the tendency of spring 23, is to move the contact face of bar 18 to the rail rather than away, as in the former case.

The operation of my invention is as follows:—Suppose a train approaching in the direction of the arrow, Fig. 1, a contact wheel on the locomotive will first engage the contact-plate 22 and running along its inclined face will force it away from the track which action through the medium of the compound lever 20 will cause the contact face of bar 18 to be thrown toward the track until its lower edge rides over the head of lever 41 and is held in this position, as will be understood by an inspection of Fig. 3. The parts now remain in this position until the contact-wheel 15 engages plate 24 when through the medium of lever 25 and distance wire 28, weight 36 is raised, rocking lever 41 and releasing contact-bar 18, which will be drawn from the track by spring 23 thus leaving the track again clear. As catch 37 is raised with the weight 36 the roller 39 acting upon its cam face will force it back against the tension of the spring actuated roller 38 which causes the end of lever 41 to drop from notch 40, thus leaving said lever free to work independently of the weight should occasion require before the weight drops. But suppose a second train should approach in the same direction before the first train reaches the half-mile limit or contact-plate 24. The inclined contact face of bar 18 will still be at its farthest throw toward the rail, consequently as the train approaches, the said inclined face will operate a lever which will apply the brakes and stop the train, which should not proceed until bar 18 is withdrawn from the track, which will be indicated by the signal board 44. It will thus be seen that by means of the mechanism just described, it is impossible for one train to approach within half a mile or any other predetermined distance of the one in advance, thus preventing the danger of rear collisions.

I will now describe the operation of the front collision mechanism. Suppose a train approaching in the direction of the arrow Fig. 2. Contact wheel coming in contact with plate 24 will, through the medium of lever 26 draw on distance wire 28, thus raising weight 36 and releasing lever 41 which allows spring 23 to throw the contact bar 18 toward the track in which position it remains until the train reaches the plate 22 which will be forced outward by the wheel 15, thus re-setting bar 18 which is held in this position away from the track by the end 42 of lever 41, as seen in Fig. 7. Now, if a second train running in the opposite direction should approach bar 18 after it has been set by the first, its lever will come in contact with the inclined face of said bar and through the medium of the mechanism above described, the train will be stopped.

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

1. In an automatic railway train arrester, the combination, with the track arranged in block-system style, of a contact-bar arranged in parallel relation to the track near one end of the block and adapted to rock at right angles to the track, a contact-plate pivoted adjacent to the other end of the block, an intermediate pivoted contact-plate connected by interposed mechanism with the contact-bar, a lever carrying a detent located in the path of movement of the lower end of the said bar, a catch, and a distance-wire connecting the end contact-plate with the catch whereby to actuate the catch to release the detent or to lock the lever into engagement with the contact-bar.

2. In an automatic railway train arrester, the combination, with the track arranged in block-system style, of a contact-bar journaled at both ends in parallel relation to the track near one end of the block and adapted to rock at right angles to the track, a contact-plate pivoted adjacent to the other end of the block, an intermediate pivoted contact-plate connected by interposed mechanism with the contact bar, a lever carrying a detent located in the path of movement of the lower end of the said bar, a catch, and a distance-wire connecting the end contact-plate with the catch whereby to actuate the catch to release the detent or to lock the lever into engagement with the contact-bar.

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

JESSE FRYSINGER.

Witnesses:
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J. FRANK CULVERWELL.