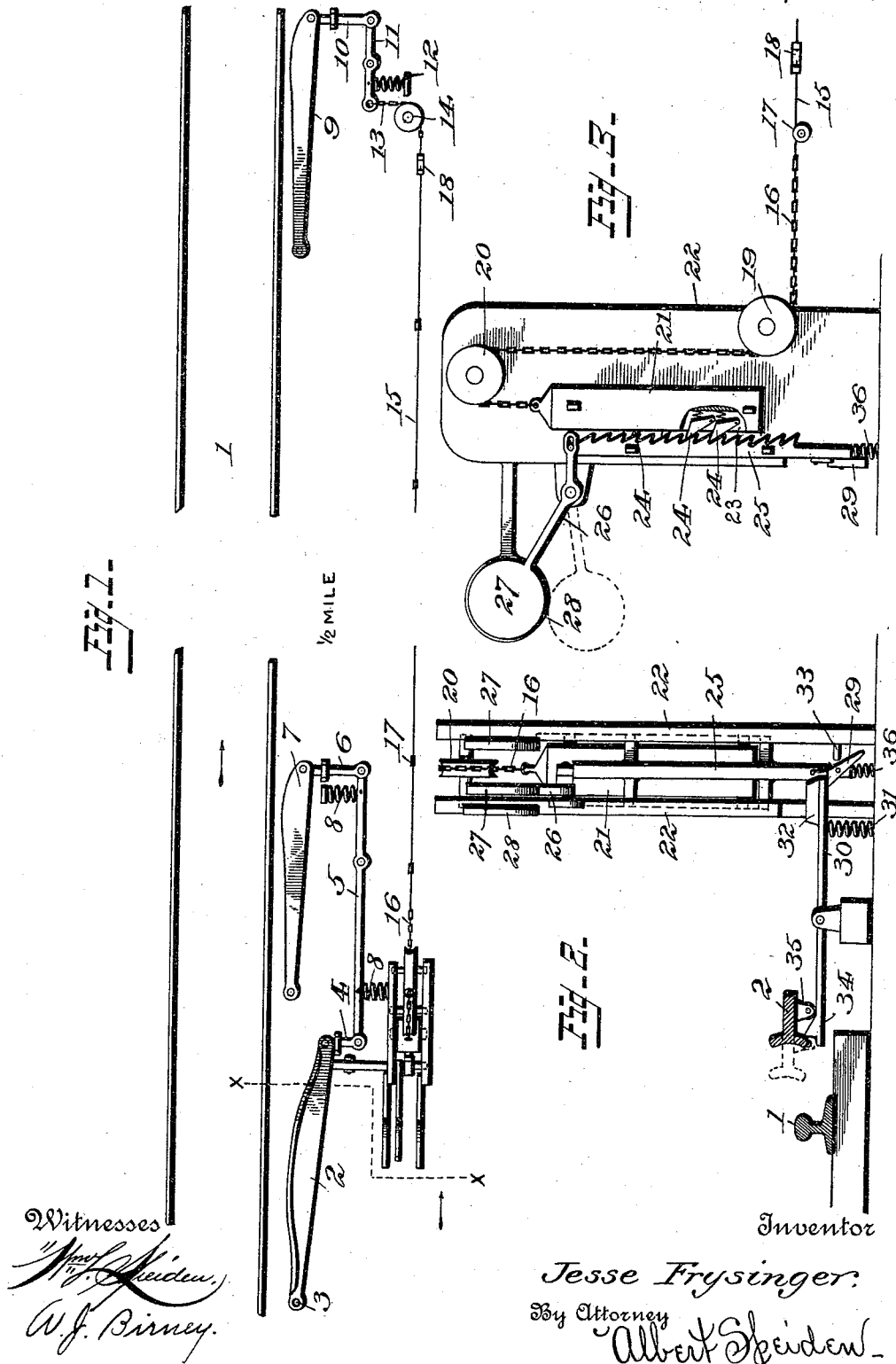


(No Model.)

J. FRYSENGER.

No. 492,155.

Patented Feb. 21, 1893.



UNITED STATES PATENT OFFICE.

JESSE FRYSSINGER, OF HANOVER, PENNSYLVANIA.

AUTOMATIC RAILWAY-TRAIN ARRESTER.

SPECIFICATION forming part of Letters Patent No. 492,155, dated February 21, 1893.

Application filed August 30, 1892. Serial No. 444,581. (No model.)

To all whom it may concern:

Be it known that I, JESSE FRYSSINGER, 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 more particularly to certain minor details of construction of a like invention filed by me in the United States Patent Office, August 12, 1892, Serial No. 442,882.

In the application above referred to, no provision was made whereby to provide for the variation in the length of the distance-wire caused by the different changes in temperature. I have found that such variations are apt, in some instances, to interfere with the perfect working of the contact-bar, and in order to overcome such obstacles the details of construction set forth in the present application are presented; and to this end the invention resides specifically in means for compensating for the expansion of the distance wire owing to a change in the temperature, or from undue strain, and to display visible signals whereby the engineer is informed of a sufficient contraction in the wire to render the apparatus inoperative.

The invention further consists in certain details of construction and combination 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 my apparatus as applied thereto. Fig. 2, is a section taken on the line $x x$ of Fig. 1, showing on an enlarged scale the mechanism for locking and unlocking the contact-bar and also the means for compensating for the expansion of the distance wire. Fig. 3, is a side elevation of the same, one of the upright guides being removed.

Referring to the details of the drawings, 1 designates the railway track, at the proper distance from which is a contact-bar 2, pivoted

at one end as at 3. 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. 2. A short link 4, connects the free end of the contact-bar 2, with one end of a lever 5, the other end of said lever being connected by a link 6, to the free end of a pivoted contact-plate 7. Springs 8, drawing upon lever 5, normally hold the contact face of bar 2 away from the track and contact-plate near the track.

Situated at a distance from the parts just described, preferably about half a mile, is a second contact-plate 9, the free end of which is connected by a link 10, with one end of a lever 11, a spring 12 holds said plate at its farthest throw toward the track. Secured to the free end of lever 11, is a chain 13, said chain after passing over a guide pulley 14, is secured to one end of a distance wire 15, which follows the line of the track to a point about opposite the end of the contact-bar 2, and is secured to one end of a chain 16. Small grooved rollers 17, support the distance wire 15, and any slack in the same is taken up by turn-buckles 18. Chain 16, after passing under a grooved pulley 19, passes up and around a similar pulley 20 and is secured to the upper end of a weight 21, working in suitable guides or ways in the uprights 22. Secured in a recess 23, in the weight 21, are the pawls 24, which may be spring-pressed, as shown, or gravity-actuated, and project beyond the face of said weight and engage the teeth of the rack-bar 25, sliding in suitable guides or ways, in the uprights 22. These pawls are so arranged with relation to said teeth that as one pawl occupies the whole tooth the second will occupy a half, the third a quarter tooth and so on, which always insures one pawl in full engagement with a tooth of the rack-bar, or in other words are arranged out of time with relation to each other.

Connected to the upper end of the rack-bar 25, is a lever 26, to which is attached a signal-board 27, which may be of any desired shape or color, or for night use a light may be used. When the apparatus is in operative position, board 27, is hid from view between screens 28, secured to the uprights 22.

Secured to the lower end of rack-bar 25, is a spring-pressed or gravity-actuated pawl 29, which engages one end of a lever 30, said lever being held in operative position by a spring 31, or, if desired, the spring may be dispensed with and a weight 32, employed, or both may be used. A pin 33, projecting from one of the uprights 22, in the path of travel of the pawl 29, is for a purpose which will hereinafter appear. A detent 34, carried by the end of lever 30, engages a lug 35, on the under face of the contact-bar 2.

A spring 36, secured to the lower end of the rack-bar 25, keeps the latter always at its farthest downward throw.

The operation of my invention is as follows: Suppose a train approaching in the direction of the arrow, Fig. 1, a suitable projection on the locomotive or one of the cars will first engage the contact-plate 7, and running along its inclined face will force it away from the track which action through the medium of the lever 5, will cause the contact-bar 2, to be moved toward the track until the lug 35, rides over the detent 34, and is held in this position as will be understood by an inspection of Fig. 2. The parts now remain in this position until the projection on the locomotive engages the plate 9, when, through the medium of lever 11, and distance wire 15, weight 21, and rack-bar 25, are raised, rocking lever 30, and releasing contact-bar 2, which will be drawn from the track by the springs 8, thus leaving the track again clear. But suppose a second train should approach in the same direction before the first train reaches the half mile limit or contact-plate 9. The inclined contact-bar 2, will still be at its farthest throw toward the track, consequently an alarm mechanism or connection with the air-brake lever in the cab of the engine, suitably connected, will be sounded or operated by frictional contact with said bar and the engineer warned to stop the train. Now, if by reason of a change in temperature the distance wire should expand or undue strain should stretch the same, weight 21, will drop and the next pawl will engage a tooth in the rack-bar and the apparatus remain in operative position. But suppose a change in the temperature should contract the distance-wire and thus raise the weight and rack-bar which would rock the lever 30, and throw the detent 34, out of operative position. As the pawl 29 rises, its free end engages the pin 33, which releases the lever and allows it to assume its normal position. The signal-board 27, will in the meantime, have dropped from between the screens, by means of the upward movement of the rack-bar, and will remain in this exposed position to notify or warn the engineer of the next passing train that the mechanism needs attention, which can be done by simply withdrawing the pawls 24, and allowing the rack-bar to drop into its normal position.

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, a track arranged in block-system style, a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate, in combination with an indicator, and an automatically actuated compensating-mechanism connecting with the contact-bar and with the distance-wire to indicate variations in the length of the said wire.

2. In an automatic railway train arrester, a track arranged in block-system style, a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate, in combination with a vertically movable rack-bar, and a weight connecting with the distance-wire and carrying a series of pawls arranged out of time with relation to the teeth of the rack-bar and normally in engagement therewith, whereby to take up any slack in order to keep the said wire at practically uniform tension.

3. In an automatic railway train arrester, a track arranged in block-system style, a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate, in combination with ratchet and pawl mechanism connecting with the distance-wire to take up any slack in order to keep the said wire at practically uniform tension, and an indicator actuated by the said mechanism to indicate undue tension upon the wire.

4. In an automatic railway train arrester, a track arranged in block-system style, a contact bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate in combination with a lever for engaging the contact-bar, a vertically movable rack-bar carrying a detent adapted to engage the free end of the lever, a vertically movable weight carrying pawls adapted to engage the said bar, and a flexible connection uniting the said weight and the distance wire.

5. In an automatic railway train arrester, a track arranged in block-system style, a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate in combination with a lever for engaging the contact-bar, a vertically movable rack-bar carrying at one end a detent adapted to engage the said lever, a signal connecting with the other end of the bar, a vertically movable weight carrying a series of pawls arranged out of time with relation to each other and adapted to engage the teeth in the bar, and a flexible connection uniting the said weight and the distance-wire.

6. In an automatic railway train arrester, a track arranged in block-system style, a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate, in combination with a lever for engaging the contact-bar, a vertically movable rack-bar carrying at one end a detent adapted to engage the said lever, a pin for throwing the detent out of engagement with the lever, a signal connecting with the other end of the bar, a ver-

tically movable weight carrying a series of pawls arranged out of time with relation to each other and adapted to engage the teeth in the bar, and a flexible connection uniting the said weight and the distance-wire.

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

JESSE FRYSSINGER.

Witnesses:

W. E. BAUGHER,
GEO. H. BOWERS.