(No Model.)

J. STIERLE.

DEVICE FOR PREVENTING RAILWAY COLLISIONS.

No. 482,143. Patented Sept. 6, 1892.

Fig. 1.

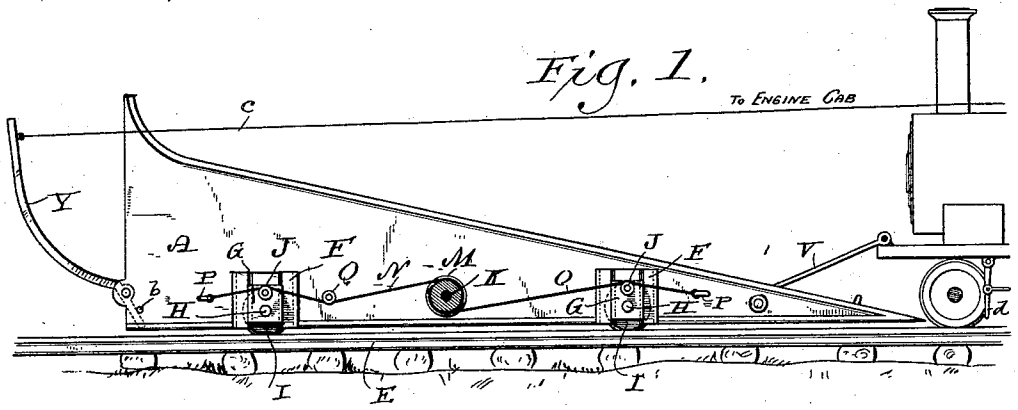


Fig. 2.

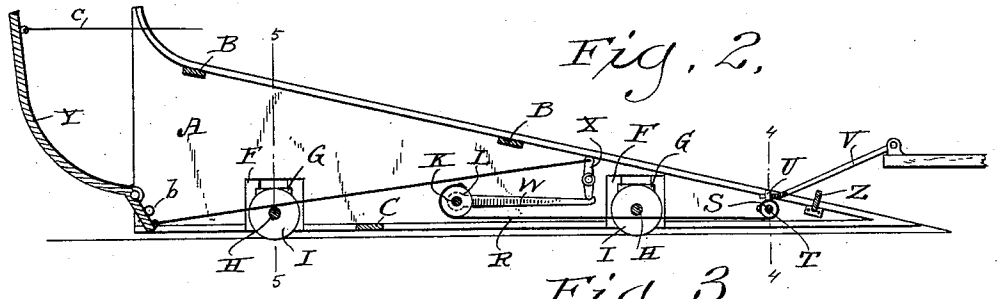


Fig. 3.

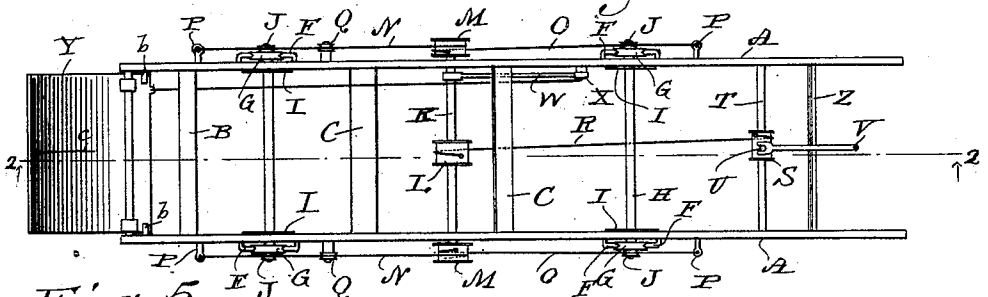


Fig. 5.

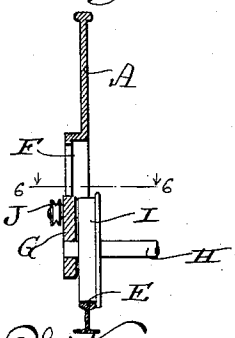


Fig. 4.

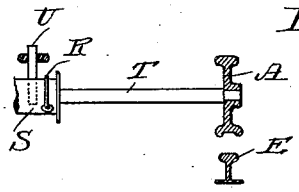
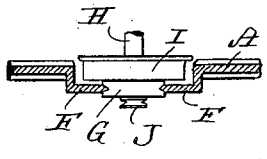


Fig. 6.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR PREVENTING RAILWAY COLLISIONS.

SPECIFICATION forming part of Letters Patent No. 482,143, dated September 6, 1892.

Application filed December 15, 1891. Serial No. 415,148. (No model.)

To all whom it may concern:

Be it known that I, JOHN STIERLE, a citizen of the United States, and a resident of Marshfield, in the county of Wood, and in the State of Wisconsin, have invented certain new and useful Improvements in Devices for Preventing Railway Collisions, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to prevent railway collisions, as well as the running over of animate or inanimate objects in the path of rolling-stock on railway-tracks; and to this end it consists in certain peculiarities of construction and combination of parts to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a side elevation of a device constructed in accordance with my invention and connected to a locomotive, a drum forming part of said device being illustrated in section; Fig. 2, a vertical longitudinal section taken on line 2 2 of the succeeding figure; Fig. 3, a plan view of the device; Figs. 4 and 5, detail sections respectively taken on lines 4 4 and 5 5 of Fig. 2, and Fig. 6 a similar view taken on line 6 6 of Fig. 5.

Referring by letter to the drawings, A A represent the sides of my device, united by upper and lower braces B C to form a frame of any suitable length. The sides A A of the frame are of such distance apart as to correspond with the gage of a railway-track on which my invention may be employed, and the upper edges of said frame sides are given an inclination of any suitable degree. The frame sides A A come immediately above the rails E of a track and are recessed, as shown in Fig. 4, to engage the track-rails under certain circumstances, the upper edges of the frame sides being designed to take the place of said track-rails when the engagement just mentioned takes place.

At intervals of their length the frame sides A A are provided with vertical guides F for loose blocks G, that serve as bearings for the axles H of flanged wheels I, designed to run on the rails E above described, and arranged on a stud extending laterally from each block is an antifriction-pulley J, this latter construction being best illustrated in the detail views, Figs. 5 and 6.

About midway of the guides F the frame sides A A are provided with bearings for a transverse shaft K, that has drums L M M fast thereon, the first of these drums being at the center of the shaft and the others on the ends of the same, outside of the frame, as best illustrated in Fig. 3.

Fast to the drums M M and arranged to wind in opposite directions thereon are flexible devices—such, for instance as wire cables N O—that run over the pulleys J on the adjacent blocks G, in which the axles H of the wheels I have their bearings. Those ends of the flexible devices N O farthest from the drums M M are fastened to eyes P on the adjacent frame sides A A, and in order that the first of said flexible devices may exert pressure on the pulleys J over which they pass I arrange other antifriction-pulleys Q on said frame sides to bear upon the flexible devices N intermediate of the first-named pulleys and said drums.

Fast to the drum L on the shaft K is one end of a flexible device R, and the other end of this flexible device is fast to a drum S on another transverse shaft T, that has its bearings in the sides of the frame above described, and the latter flexible device is so arranged that when it is wound taut on both drums, a pin U radiating from the latter, one of these drums will stand in a vertical position to engage with the open end of the bar V, that is usually pivoted to the forward portion of a locomotive, as shown in Fig. 1.

Rigid on the shaft K is an arm W, that has its free end recessed for engagement with a pivoted trip-catch X, the latter being flexibly connected to a pivotal striker Y, that extends out in front of the frame portion of my device and is limited as to downward movement in one direction by means of stops *b*, that extend in from the frame sides of said device, and a cord *c*, connected to the upper end of the striker, is designed to extend back into the cab of the locomotive. (Shown in Fig. 1.)

At its rear end the frame portion of my device is provided with a transverse bar Z, and it is intended that a locomotive attached to said device shall have its air-brake and throttle-valve mechanism connected to a depending lever *d*, such as is shown in Fig. 1, this lever being operated under certain circumstances by coming into contact with said transverse bar.

In practice the shaft K is turned in its bearings to cause the drums L M M thereon to wind up the flexible devices N O R, whereby the frame portion of my device is elevated to a certain degree above the track-rails E and the pin U brought to a vertical position. The elevation of the frame is due to the pressure of the flexible devices N O on the pulleys J, carried by the bearing-blocks G, and the pin U, being vertical, is ready for engagement with the bar V on the adjacent locomotive. The partial rotation of the shaft K to make taut the flexible devices N O R brings the arm W to a horizontal position to engage with the trip-catch X, that is flexibly connected to the striker Y, as best illustrated in Fig. 2.

The pressure of the bar V on the pin U causes my device to run ahead of the locomotive, and if there be any obstruction on the track the striker Y will come into contact therewith and swing back on its pivot to thereby draw on the trip-catch X and release the arm W, whereby the herein-described frame is permitted to settle on the adjacent rails by its own gravity, inasmuch as the pressure of the flexible devices N O on the pulleys J, carried by the loose blocks G, is removed. When this operation takes place, the flexible device R is slackened to permit the pin U to disengage with the bar V and the locomotive runs up the inclined upper edges of the frame, that is now at a standstill. The ascent of the locomotive on the steep grade formed by the inclined upper edges of the now stationary frame gives the engineer time to cut off steam and set his brakes, to thereby stop the train in case this latter operation is not automatically effected by the means above described.

As the striker Y of my device is considerably in advance of the frame to which it is pivoted and this frame extends back to within a very short distance of the forward wheels of the locomotive, the travel of said frame is instantly stopped as soon as said striker comes into contact with any obstruction on the adjacent track, and in case of a person or animal being struck the immediate yield of the aforesaid striker prevents any injury being done.

In case it is desirable to have the frame settle on the track in advance of the striker meeting an obstruction, the operation is effected by a pull on the cord that leads from said striker into the locomotive-cab.

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

1. A device for preventing railway collisions, &c., that consists of an independent frame designed for automatically-detachable connection with a railway-train in advance of the latter and having its sides provided with inclined upper edges, wheels carried on axles that have their bearings loose in guides on the frame, a windlass mechanism that normally supports said frame above the track for said train and wheels, a pivoted striker arranged to extend in advance of the aforesaid frame, and a trip-catch for the windlass mechanism, controlled by the striker, substantially as set forth.

2. A device for preventing railway collisions, &c., that consists of an independent frame designed for automatically-detachable connection with a railway-train in advance of the latter and having its sides provided with inclined upper edges, blocks loose in guides on the frame, wheel-carrying axles having their bearings in the blocks, a shaft arranged intermediate of the axles and provided with drums, antifriction-pulleys on the loose blocks, flexible devices fast at one end to the frame sides, extended over the pulleys, and fastened to the drums to wind thereon in opposite directions, auxiliary antifriction-pulleys arranged over certain of said flexible devices, and an arm extending from said shaft, a trip-catch for engagement with the arm, a pivotal striker arranged to extend in advance of said frame, and a connection between the striker and trip-catch, substantially as set forth.

3. A device for preventing railway collisions, &c., that consists of an independent frame having the sides thereof inclined upon their upper edges, wheels carried on axles loose in guides on the frame, a windlass mechanism that normally supports said frame above the track for said train and wheels, a pivotal coupling-pin controlled by the windlass mechanism and designed for engagement with a locomotive link-bar, a trip-catch for said windlass mechanism, and a pivoted striker that extends in advance of the aforesaid frame and controls said trip mechanism, substantially as set forth.

4. A device for preventing railway collisions, &c., that consists of an independent frame designed for automatically-detachable connection with a railway-locomotive in advance of the latter and having its sides provided with inclined upper edges, wheels carried on axles having their bearings loose in guides on the frame, a windlass mechanism that normally supports said frame above the track for said train and wheels, a pivotal striker arranged to extend in advance of the aforesaid frame, a trip-catch for the windlass mechanism controlled by the striker, and a bar arranged in the path of a brake and throttle-valve controlling lever depending from said locomotive, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

JOHN STIERLE.

Witnesses:
N. E. OLIPHANT,
JOHN E. WILES.