May 17, 1927. 1,628,651

J. R. BURRESS

YIELDABLE BARRIER FOR AUTOMATIC RAILWAY CROSSING GATES

Filed Jan. 26, 1926

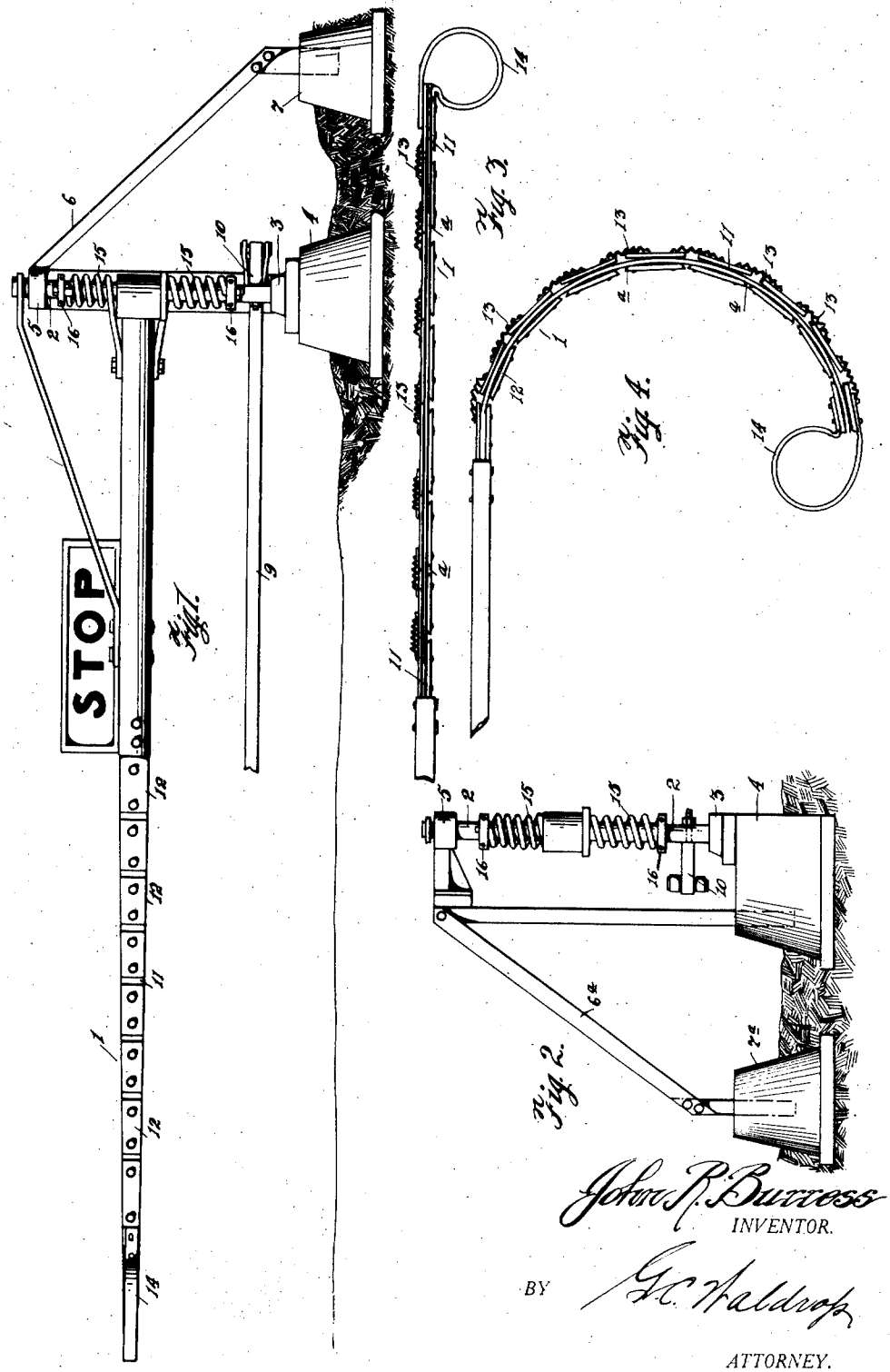


Fig. 1.

Fig. 3.

Fig. 4.

Fig. 2.

John R. Burress
INVENTOR.

BY H. C. Waldrop

ATTORNEY.

Patented May 17, 1927. 1,628,651

UNITED STATES PATENT OFFICE.

JOHN R. BURRESS, OF ARLINGTON, TEXAS.

YIELDABLE BARRIER FOR AUTOMATIC RAILWAY-CROSSING GATES.

Application filed January 26, 1926. Serial No. 83,809.

This invention relates to certain new and useful improvements in automatic railway gates and more especially that type of gate wherein vehicular and other traffic is restrained from crossing the railroad right of way in advance of an approaching train.

The primary object of the invention resides in an improved gate bar construction of lasting and durable construction and is proposed as a continuation of an application for letters patent for improvements in automatic railway gates, filed by the petitioner hereof on July 9, 1924.

A further object of the invention resides in the provision of a barrier for railway crossings, arranged to swing laterally across the highway so as to be in full view of approaching vehicular traffic at all times while in motion, thus to avoid accidents commonly occurring by reason of the obscured position of the usual vertically actuated bar, by the vehicle top until the bar assumes a position across the highway.

Of particular importance among the objects of the invention is the resiliency thereof, the same being constructed in such a manner as to yield to an impact, should the same be struck by a vehicle without injury to the vehicle or the bar, which features likewise prevents the vehicle from being caught within the limits of the block.

With the foregoing and other objects in view, the invention further resides in the salient features of construction and the arrangement and combination of parts hereinafter described and claimed, and illustrated in the accompanying drawings therein;

Figure 1 represents a side elevational view of the invention.

Figure 2 is a rear end view of the bar and axis.

Figure 3 is a fragmentary detail view of the bar, denoting the segmental structure thereof and,

Figure 4 represents also a detail view of the bar, illustrating its yieldable nature.

It will be understood in carrying out the invention more in detail that a pair of the bars constructed according to the invention are required for each crossing and when in operative position extend in opposed lateral position across the vehicular highway. Timely actuation of the devices is attained through a mechanical assembly not illustrated or described herein but which consists principally in a multiple cam wheel and associated elements, controlled through an interlocking relay system, the latter being affected by a train entering and leaving the block.

Now, the invention resides in the structure illustrated, consisting primarily of a bar 1, which when in operative position, extends in parallel relationship with the vehicular highway. This bar is pivoted upon a vertical post 2, and has its lower end journaled in a bearing 3 situated upon a concrete base 4, while the upper end thereof is journaled in a bearing 5 substantially braced by a bracket 6, secured to a base 7. A strut 8 is mounted upon the top of the post 2 and extends downwardly where it is bolted intermediate the ends of the gate bar 1, whereby to uphold the weight of the gate and avoid possible strain.

In Figure 2, a side view of the bar mounting is represented, showing a rear end view of the bar, and while additional bracing means for the mounting may be superfluous a strut 6*a* is shown attached to the top of the mounting and extending to a sunken block *a*. This brace, it will be understood, may be replaced by the bracing structure illustrated in Figure 1.

Simultaneous corresponding action of each of the gates is established through a link 9, pivotally secured to an arm 10, attached to the gate post 2, and by the use of bell cranks and additional links not shown, the action imparted to the described bar is transmitted to its companion bar on the opposite side of the railroad.

Some disadvantages have been found to exist in the use of the vertically actuated gate bar. These disadvantages are centered chiefly on the fact that especially in inclement weather, when vehicles are equipped for such occasions, it is difficult to discern in what position the bar is located in its descent, or whether it is in action at all. Moreover, such weather conditions increase materially the possibilities of injury to the bar, as well as to the vehicle, when the driver, in an effort to stop, collides with the bar, in cases where a rigid bar is employed.

The present invention aims to obviate eventualities such as described by effecting a bar construction wherein expedients are provided to permit the bar to yield to the force of an object colliding therewith. This construction includes a core 11, of preferably resilient steel and which core is em-

braced on its opposing sides by a series of alined segments 12, preferably of wood. It will be observed that each of the inner segments are cut at an angle with respect to the core as at *a*, which become tangent upon curvatures of the core, thus to prevent distortion of the latter, in event of extreme bending. The bar is enabled to immediately regain its original true position through the action of the tension springs 13, one of which spans each of the intersections of the exterior segments 12.

Obviously, should a vehicle become intercepted between the bars, it may be promptly released by driving against the bar, which will readily yield and return again to its normal position after passage of the vehicle.

In the detail figures of the bar will be seen a loop 14, provided for the purpose of preventing too acute bending of the bar, should an obstacle come in contact therewith in an incomplete stage of operation. This loop is of such resiliency as to readily slide off the obstacle, permitting the bar to resume movement. It will be noted also that the body of the loop is directed opposite the side of the bar most likely to be struck. This feature obviates the possibility of the loop becoming entangled with the wheels or other parts of a vehicle, thus resulting in possible damage either to the vehicle or to the bar.

Other expediencies directed toward the flexibility of the bar include a pair of coil springs 15, which are arranged to impart a torsional action against the bar to resist any movement imposed upon the latter aside from the natural action of the operating mechanism therefor. One end of the upper spring 15 is secured to a collar 16, while its lower end is bolted to the bar 1. The lower spring 15 is analogously applied, although its action is adverse to that of the former. These springs may be adjusted to secure true position of the bar, should for any reason the latter should depart from the proper right angular operative position with respect to the highway, such adjustment being attained by rotating the collars 16 on the vertical post 2, thus to increase or decrease the torsional action of the springs.

Intermediate the ends of the bar 1, a suitable warning sign 17 may be situated as illustrated in Figure 1, which, if desired may be displayed in connection with a suitable signal light. While the invention has been described as including all the elements set forth in the appended claims, it should be herein understood that certain minor modifications may be restorted to if desired without departing from the general intent of the invention as established in said claims.

I claim:

1. In an automatic railway crossing gate; a barrier therefor including a mounting and a post rotatably journaled in said mounting; a sectional bar movably mounted on said post having a yieldable outer end of longitudinally alined segments, and a non-resilient inner end; means on the extremity of said outer end to repel the effect of a colliding object, and means surrounding said post and arranged to bear against said non-resilient inner end to impart torsional force thereagainst to yieldingly maintain normal horizontal disposition of said bar.

2. In an automatic railway crossing gate; a barrier therefor including a mounting and a vertical post rotatably journaled in said mounting, a bar movably mounted intermediate the ends of said post and extending laterally therefrom, said bar containing a resilient portion and a non-resilient portion; said resilient portion comprising an elongated yieldable member having spaced segments on its opposing sides; means to prevent distortion of said yieldable member when the latter is flexed; and torsion means upon said post arranged to bear against the non-resilient portion of said bar to yieldingly maintain the bar in normal position.

3. In an automatic railway crossing gate; a barrier therefor including a laterally actuated bar having a resilient outer end portion; a post supporting said bar; means on said post to permit the inner end of said bar to yield to an impact to prevent fracture thereof; and a segmental covering on said outer end to prevent buckling of said portion when flexed.

4. In an automatic railway crossing gate; a gate bar therefor having an inflexible inner end portion and a flexible outer end portion; means disposed to impart torsibility to said inner end portion; means on said outer end portion to maintain the form thereof irrespective of flexure thereof, and means upon the extremity of said bar to repel the impact of a colliding object.

5. A yieldable gate bar for automatic railway crossing gates, said bar comprising a laterally swingable member having flexible and non-flexible portions; a post rotatably supporting said bar, means on said post to bear against said non-flexible portion to permit the same to yield under stress of a colliding obstacle and return the same to its normal position; means on said flexible portion to permit retortion of the latter when flexed, and means on the extremity of said flexible portion to deflect the force of a contacting object.

6. A flexible bar for railway crossing gates including a laterally swingable barrier having a resilient outer end portion; a segmental covering for said latter portion, a post rotatably supporting said barrier; means on said post to permit limited lateral movement of the inner end of said bar irrespec-

tive of the action of said post, and means on the outer end of said resilient portion to deflect the latter from a colliding object.

7. A resilient bar for railway crossing gates including an oscillatable body having a flexible portion, a post rotatably supporting said body, means on said post above and below the engaging point of said body to repel an impact of a foreign object against said body irrespective of the action of said post, and means spaced on opposing sides of said resilient portion to prevent buckling thereof when flexed.

8. A yieldable bar for railway crossings including an oscillatable body having a yieldable outer end portion, spaced segments on opposing sides of said latter portion; a post rotatably supporting said body; torsion springs disposed upon said post to impart independent adverse action to said bar above and below its point of securement to said post, and means on the outer end of said bar to deflect the latter from a contacting object.

9. A yieldable gate bar for railway crossings comprising in combination with a rotatable post, a body of yielding and non-yielding sections carried by said post, said latter section adapted to have limited oscillating movement irrespective of the actuation of said post to yield to the effect of a colliding obstacle; said yielding section provided with means to maintain the form thereof irrespective of flexure said means comprising alined segments on opposing sides thereof, and means on the extremity of said yielding section to deflect the latter in event of collision.

10. A yielding gate bar for railway crossings including in combination with a rotatable post, an oscillatable body of resilient and non-resilient sections carried by said post, said latter section adapted to have limited oscillating movement independently of said post and segmental means alined the full length of said resilient portion to prevent permanent distortion thereof through flexure.

In testimony whereof I affix my signature.

JOHN R. BURRESS.