March 3, 1931. W. J. ADAMS 1,794,434

HIGHWAY BARRIER

Filed Oct. 22, 1928 2 Sheets-Sheet 1

Fig. 1.

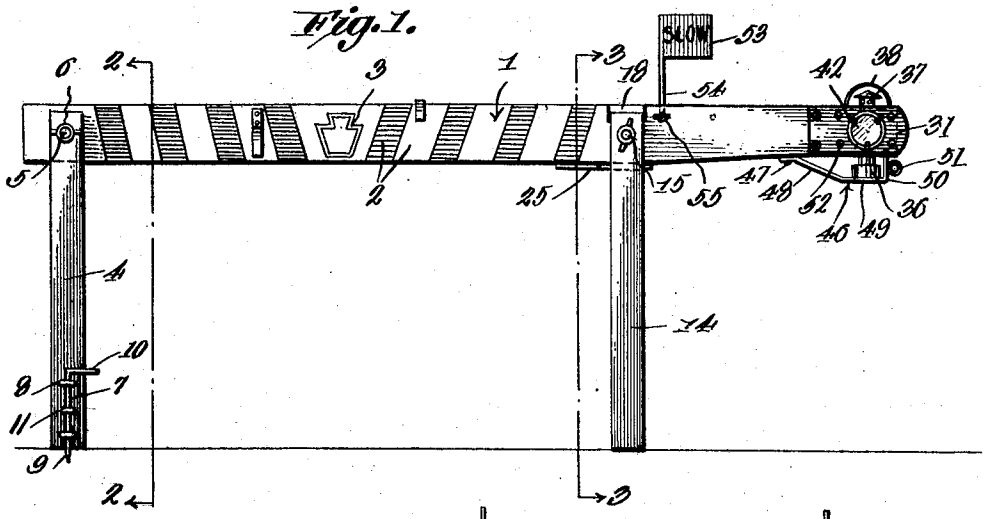


Fig. 2.

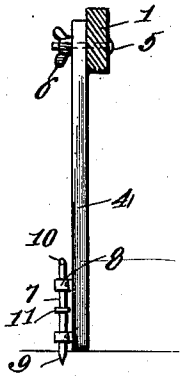


Fig. 3.

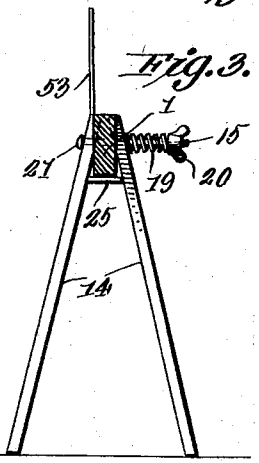


Fig. 4.

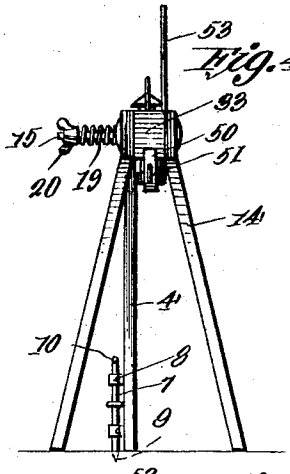
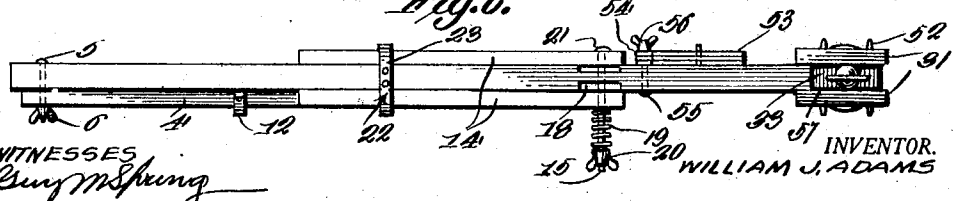


Fig. 5.

Fig. 6.



WITNESSES

Guy M. Spring

H. G. Smith

INVENTOR.

WILLIAM J. ADAMS

BY

Irving L. McCathran

ATTORNEY.

March 3, 1931. W. J. ADAMS 1,794,434

HIGHWAY BARRIER

Filed Oct. 22, 1928 2 Sheets-Sheet 2

Fig. 7.

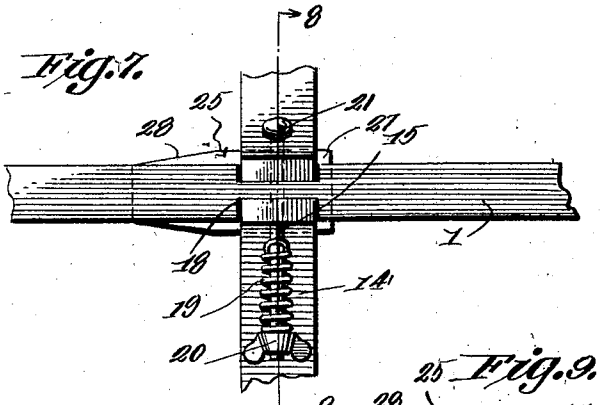


Fig. 9.

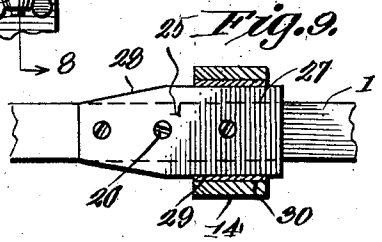


Fig. 8.

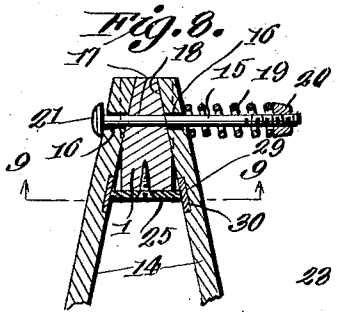


Fig. 10.

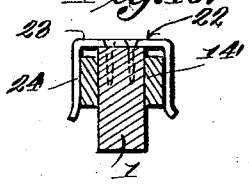


Fig. 11.

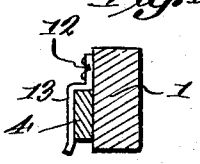


Fig. 12.

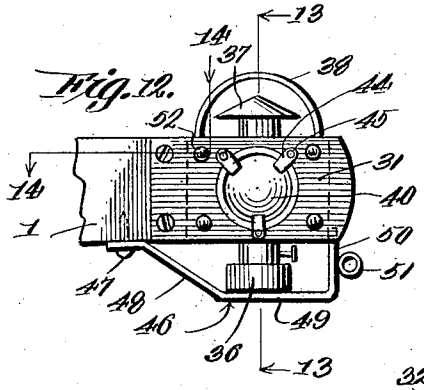


Fig. 13.

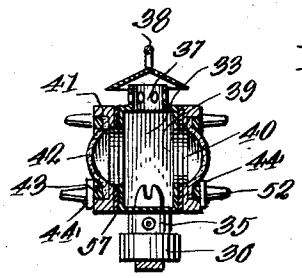
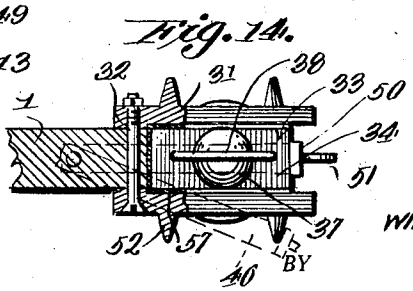


Fig. 14.



WITNESSES

Guy M. Spring

F. G. Smith

INVENTOR.

WILLIAM J. ADAMS

BY

Irving L. McCathran

ATTORNEY.

Patented Mar. 3, 1931 1,794,434

UNITED STATES PATENT OFFICE

WILLIAM J. ADAMS, OF COCHRANTON, PENNSYLVANIA

HIGHWAY BARRIER

Application filed October 22, 1928. Serial No. 314,285.

This invention relates to improvements in highway barriers which are employed for the purpose of deterring the drivers of automobiles from driving over such portions of a highway as are being repaired or which portions are unfit for traffic for other reasons. Heretofore it has been customary to resort to various crude expedients to serve this purpose such as the use of boards laid on top of barrels, in the roadway, and lanterns placed on the boards or barrels, and various other crude arrangements of readily accessible parts, but these have proven to be very unsatisfactory as they do not serve as an effective means of warning the drivers of automobiles nor are such arrangements substantial or secure and are liable to be knocked over or blown over. Therefore the present invention has as its general object to provide a barrier of simple construction which, when in transportation or storage, may be folded to assume a very compact form and which may be readily set up at any place desired along a highway and, when set up, will be substantial and rigid and serve effectually its purpose as a warning to automobilists to avoid the sides of the highway at which the barrier is arranged.

Another object of the invention is to provide a highway barrier so constructed that it will possess a desirable degree of stability, when set up, regardless of inequalities in the highway surface and which will therefore not be liable to accidentally overturn or become displaced.

Another object of the invention is to provide a barrier embodying a barrier rail upon the faces of which any desired sign may be painted, and a foldable leg for supporting one end of the rail and a pair of legs for supporting the other end of the rail, the latter legs being so connected with the rail that when in extended position they will be securely locked against collapse and, when folded, they may lie flat against the opposite faces of the said barrier rail, the connecting means being arranged to permit of spreading of the lower ends of the legs and means being provided, upon the barrier rail, for automatically effecting such spreading of the legs when the legs are swung from folded to extended position.

While the accompanying drawings and the description which is to follow, constitute a disclosure of the preferred embodiment of the invention, it will be understood that various changes may be made within the scope of what is claimed.

In the accompanying drawings:

Figure 1 is a view in front elevation of the barrier embodying the invention, set up for use;

Figure 2 is a vertical sectional view taken substantially on the line 2—2 of Figure 1 looking in the direction indicated by the arrows;

Figure 3 is a similar view on the line 3—3 of Figure 1 looking in the direction indicated by the arrows.

Figure 4 is an end elevation of the barrier;

Figure 5 is a side elevation of the barrier in folded or collapsed condition;

Figure 6 is a top plan view of the barrier in folded condition as shown in Figure 5;

Figure 7 is a detail top plan view of that portion of the barrier rail with which the pair of legs are connected and illustrating the manner of connecting these legs with the said rail;

Figure 8 is a vertical sectional view taken substantially on the line 8—8 of Figure 7 looking in the direction indicated by the arrows;

Figure 9 is a horizontal sectional view taken substantially on the line 9—9 of Figure 8 illustrating the means provided for effecting spreading of the legs;

Figure 10 is a vertical transverse sectional view taken substantially on the line 10—10 of Figure 5 looking in the direction indicated by the arrows;

Figure 11 is a similar view taken substantially on the line 11—11 of Figure 5 looking in the direction indicated by the arrows;

Figure 12 is a detail view in front elevation of the lantern supporting end of the barrier rail;

Figure 13 is a vertical transverse sectional view taken substantially on the line 13—13

of Figure 12 looking in the direction indicated by the arrows;

Figure 14 is a horizontal sectional view taken substantially on the line 14—14 of Figure 12 looking in the direction indicated by the arrows and illustrating a portion of the structure in top plan.

The barrier embodying the invention includes a barrier rail which is indicated by the numeral 1 and which is preferably made of wood, and upon that face of the rail which will be presented to oncoming traffic, there may be printed any desired designs to attract attention such for example as black and white diagonal stripes indicated by the numeral 2 and, if desired, the emblem 3 of the state in which the barrier is used. Of course, any other warning or caution notices or the like may be painted upon the said face of the barrier rail. One end of the barrier rail is supported by a leg which is indicated by the numeral 4 and which is of wood and of the general rectangular oblong form shown in the drawings, and this leg is disposed at its upper end against one face of the barrier rail 1, preferably that face which bears the painted matter, and a bolt 5 is fitted through the end of the barrier rail and through the said upper end of the leg 4, a wing nut 6 being fitted onto the bolt and adapted to be tightened so as to hold the leg either in the extended or supporting position shown in Figure 1 or in the collapsed position shown in Figures 5 and 6. In order that the lower end of the leg 4 may be anchored with respect to the road surface, an anchoring rod 7 is slidably adjustably mounted in guides 8 secured upon the side of the leg 4 near the lower end thereof and one above another, and this rod is provided with a sharply pointed lower end 9 which may be driven into the berm of the road bed by striking blows upon a laterally turned upper end 10 of the rod. A collar 11 is formed or fixed upon the rod between the guides 8 and constitutes means for preventing separation of the rod from the guides. At this point it will be understood that the leg 4 may be adjusted about the bolt 5 to assume the extended or supporting position shown in Figures 1 and 2 or it may be swung to the folded position shown in Figures 5 and 6, and in order that it may be held in this latter position, in which it extends beside the rail 2, a keeper member 12 is secured upon the barrier rail 1 and preferably comprises a bar metal member having one end bolted or otherwise secured to the rail and bent to extend outwardly from the rail and thence downwardly to provide the keeper or retaining portion 13, this portion being spaced from the face of the barrier rail 1 a sufficient distance to snugly accommodate the leg 4 when the leg is swung to the folded position.

The barrier rail 1 is supported, near its other end, by a pair of legs indicated by the numeral 14 and these legs are likewise preferably of wood and, in connecting the legs with the barrier rail, a relatively long strong bolt 15 is fitted through openings 16 formed in the upper ends of the legs and through a transverse opening 17 formed in the barrier rail 1, and by reference to Figures 6 and 7 it will be observed that the barrier rail has formed in its opposite faces recesses or seats 18 in which the upper ends of the legs 14 may engage when the legs are spread. A compression spring 19 is fitted onto the bolt 15 and bears at one end against the outer side of one of the legs 14, and a wing nut 20 is threaded onto this end of the bolt and is adjustable to engage the other end of the spring and to vary the tension of said spring, the bolt being provided at its other end with a head 21 which bears against the outer side of the other leg 14. By reference to Figure 8 it will be observed that the seats 18 are of greatest depth at their upper ends which open through the upper side of the barrier rail 1 and thus the seats terminate somewhat short of the lower edge of the barrier rail so that at these points the legs 14 may be fulcrumed, against the tension of the spring 19 so as to disengage their upper ends from the seats, whereupon the legs may be swung about the bolt 15 as a fulcrum and to assume the folded position, extending beside the respective sides of the barrier rail 1, as shown in Figures 5 and 6. In this folded position of the legs, the tension exerted by the spring 19 will serve to bind the pivoted ends of the legs against the opposite faces of the barrier rail, and the free ends of the legs are retained in place against the rail by a keeper member 22 which is most clearly shown in Figure 10 of the drawings and which member is of bar metal and comprises a connecting or attaching portion 23 and downwardly projecting keeper portions 24, the attaching portion 23 being bolted or otherwise secured to the upper edge of the barrier rail 1 and the said portions 24 extending downwardly at opposite sides of said rail in spaced relation thereto and accommodating between them the said free end portions of the legs 14.

In order that the legs 14 may be automatically spread to the position shown in Figures 3, 4 and 8 of the drawings, when they are swung to supporting position, a spreader plate 25 is secured to the under side of the barrier rail 1 by screws or other fastening devices 26, and extends longitudinally of the said edge of the rail at that portion thereof in which the seats 18 are formed. As clearly shown in Figures 8 and 9 of the drawings and also in Figure 3, the lateral edge portions of the plate 25, for a portion of their length project beyond the opposite sides of the barrier rail 1 as indicated by the numeral 27 and these portions extend from one end of

the plate to a point adjacent the other end from which point the edges are extended on converging lines as indicated by the numeral 28 until they merge with the opposite faces of the barrier rail at the lower edge thereof. Therefore, as the legs are swung from the folded position shown in Figure 5 to the supporting position, they will ride along the inclined edge portions 28 of the spreader plate 25 and onto the portions 27 of said plate and be thus spread apart. In order to prevent wear on the legs in riding in engagement with the spreader plate 25, wear plates 29 are seated and secured in recesses 30 formed in the inner side faces of the legs 14 and with their outer faces flush with the faces of the said legs, these plates being of metal and being designed to ride against the edge portions 27 and 28 of the spreader plate 25 in the swinging adjustment of the legs.

It is of course desirable that the barrier shall constitute a warning during night hours as well as in daylight, and therefore the present invention contemplates the provision, upon that end of the barrier rail 1 which is supported by the legs 14, of a novel holding means for a signal lantern. As illustrated most clearly in Figures 12, 13 and 14 of the drawings, this holder comprises two lantern casing confining members 31 which are preferably of wood and of substantially oblong rectangular form and flat sided as shown in these figures, the members being disclosed at one end against opposite sides of the end of the barrier rail 1 and secured thereto by means of bolts 32, the members extending from their attached ends beyond the end of the barrier rail and in spaced parallel relation to each other. The lantern which is retained by the supporting means just described is indicated in general by the numeral 33 and comprises a hollow rectangular casing 34 which is of sheet metal and of dimensions to be snugly fitted between the opposing faces of the holding members 31, the casing being provided at its bottom with a burner 35 and oil font 36 and being provided at its top with the usual flue 37 and with an arcuate guard 38 which extends above the flue and is anchored at its ends to the top of the lantern casing in front and in rear of the flue. The lantern casing is formed in its opposite side walls with openings 39 which register with openings 40 formed in the holding members 31 and the outer face of each holding member is formed with a circular recess 41 concentric to the openings 40 and a lens 42 is seated at its peripheral portion in each of these recesses or seats and a retaining ring 43, preferably of metal, is disposed against the marginal portion of each lens 42 and within the recess. Latch members 44 are pivotally mounted as at 45 upon the outer face of each of the members 31 at equidistantly spaced points about the recess 41 therein and are adapted to be swung to occupy the position shown in Figures 12 and 13 of the drawings so as to overlap the ring 43 and thus lock the ring and the lens 42 engaged thereby, in position within the recess, it being understood that light rays from the burner 35 will pass through the lenses 42 and be visible from either direction on the highway. In order that the lantern may be retained in place between the holding members 31 and supported against either downward or outward displacement, a supporting member which is indicated in general by the numeral 46 is provided and this member comprises a resilient bar swiveled at one end as at 47 upon the under side of the barrier rail 1 adjacent its end to which the holding members 31 are secured, the bar being inclined downwardly as at 48 from its swiveled end and thence extended horizontally to provide a supporting portion 49 which extends beneath the oil font 36 of the lantern and supports the lantern. At the outer end of the portion 49, the bar comprising the supporting member is bent to provide an upstanding retaining portion 50 which, at its upper end, normally engages between the outer ends of the holding members 31 and against the adjacent end wall of the lantern casing, this portion therefore serving to restrain the lantern casing against outward displacement from between the members 31, the other end wall of the lantern casing being in contact with the end of the barrier rail. As stated, the member 46 is resilient, and in order that it may be sprung downwardly and swung about its swivel 47 to the dotted line position shown in Figure 14 of the drawings, a finger piece 51 is provided upon the said retaining portion 50 of the member and it will be evident that when the member is swung to this position, the retaining portion 50 will be clear of the lantern casing and therefore the lantern may be slid outwardly from between the holding members 31 for the purpose of refilling it or trimming the wick or for the purpose of lighting or extinguishing the burner.

In order to protect the lenses 42 from breakage through contact or impact with other objects, it is preferable that each of the members 31 be provided upon its outer face with a number of guard prongs 52 which are arranged about the recess 41 in said face and are of a length to project a considerable distance beyond the lens 42 arranged in said recess. It will be understood of course that the lenses 42 may be red in color.

In order that any desired warning may be given such for example as to stop, slow down, or detour, and thus indicate to approaching motorists, the precautions which they must observe when approaching the barrier, a plurality of signal blades 53 are provided and these blades are preferably of sheet metal and

each is provided at one corner with a slender right angularly extending arm 54. The signal blades are arranged in mutually overlapped relation as also the arms 54 thereof and a pivot bolt 55 is fitted through registering openings in the ends of the arms and through an opening in the barrier rail 1 and a nut 56 is fitted onto the bolt. The signal blades are, as is clearly shown in Figures 4 and 6 of the drawings, arranged at that side of the barrier rail which is opposite the face or side which bears the stripes 2 and it will be understood that by tightening the nut 56 the pivoted ends of the arms may be frictionally bound so as to adapt any one of the signal blades to be supported in the elevated position shown in Figures 1, 3 and 4 of the drawings, the other blades being supported in the lowered position shown in Figure 4. Each of the blades will bear a warning word or words and the blades will be of different colors, one for example being red, another green, and a third white to indicate respectively, danger, caution, and detour, and the blade which is white and indicates that a detour is to be made, may bear, in addition to the word "detour", the letter R or the letter L to indicate the direction in which the detour is to be made.

From the foregoing description of the invention it will be understood that the barrier embodying the invention is one which is exceptionally substantial in construction and possesses great stability and it will also be evident that the barrier may be folded to exceptionally compact form as illustrated in Figures 5 and 6 of the drawings and transported from place to place and that it may be set up in a few moments time by merely adjusting the supporting legs to supporting or extended position. In practice the barrier will be arranged at that side of the highway over which there is to be no traffic and with the lantern and signal supporting end of the barrier rail located substantially at the middle of the highway.

In order to protect the wooden confining members 31 from injury which might otherwise be caused due to the heat radiated by the lantern, an asbestos lining 57 is provided to extend over the inner surfaces of the said members 31 and across the end of the barrier rail 1.

It will be understood that, in the event of the lantern carrying end of the barrier being struck by an automobile or in the event of a heavy wind, the barrier will not necessarily be overturned inasmuch as, by anchoring the rod 7 in the berm of the roadway, the barrier may swing about this rod and thus yield to the force exerted against it.

Having thus described the invention, what I claim is:

1. A highway barrier of the class described comprising a barrier rail, a single leg foldably connected to the rail at one end thereof to extend downwardly therefrom in supporting position and beside the rail in folded position, and a pair of legs foldably connected to the other end of the rail at opposite sides thereof to extend downwardly therefrom in supporting position and beside the rail in folded position, and means upon the rail for effecting automatic spreading of the legs upon movement downwardly to supporting position, the said means comprising a spreader plate secured to the said rail below the connection of the legs therewith and having diverging lateral edge portions against which the legs are to ride when swung from folded to supporting position.

2. A highway barrier of the class described comprising a barrier rail, a single leg foldably connected to the rail at one end thereof to extend downwardly therefrom in supporting position and beside the rail in folded position, a pair of legs foldably connected with the other end of the rail at the opposite sides thereof to extend downwardly therefrom in supporting position and beside the rail in folded position and, in the latter position, in contact with the opposite sides of the rail, means upon the rail engageable by the legs in their swinging movement from folded to supporting position to effect outward spreading of the legs with respect to each other, and means upon the rail engageable by the connected ends of the legs to lock the legs in supporting position.

3. A highway barrier of the class described comprising a barrier rail, a single leg foldably connected to the rail at one end thereof to extend downwardly therefrom in supporting position and beside the rail in folded position, a pair of legs foldably connected with the barrier rail at the other end thereof to extend downwardly therefrom in supporting position and beside and in contact with the opposite sides of the rail in folded position the rail being provided with seats in its opposite sides above the connection for the legs in which the upper ends of the legs are to have locking engagement when the legs are in supporting position, and means upon the rail engageable by the legs to effect spreading of the legs and the engagement of their upper ends in said seats in the movement of the legs to supporting position.

4. A highway barrier of the class described comprising a barrier rail, a leg foldably connected to the rail at one end thereof to extend downwardly therefrom in supporting position and beside the rail in folded position, a pivot element fitted through the rail and projecting at opposite sides thereof, a pair of legs pivotally mounted upon the projecting portions of said element, near their upper ends, for movement to position extending downwardly from the rail and to position beside the rail, the said legs being also

movable upon the pivot element to provide for spreading of the lower ends of the legs, means upon the pivot element yieldably holding the upper end portions of the legs in contact with the opposite sides of the said rail, and means upon the rail engageable by the legs in the movement of the legs from folded to supporting position to effect spreading of the said legs.

5. A highway barrier of the class described comprising a barrier rail, a single leg foldably connected to the rail at one side thereof to extend downwardly therefrom in supporting position and beside the rail in folded position, a pair of legs foldably connected to the other end of the rail at opposite sides thereof by a means permitting of spreading of the legs in supporting position and extension of the two legs along and in contact with the opposite sides of the rail, and keeper members upon the rail having portions in spaced relation to a face of the rail and constituting means to coact with the legs when swung to folded position.

6. In a highway barrier, a barrier rail, spread legs supporting one end of the rail, a single leg supporting the other end of the rail, and an anchoring member rotatably and slidably mounted upon the single leg.

In testimony whereof I affix my signature.

WILLIAM J. ADAMS.