

H. D. WHITELEY.
LIFE GUARD OR OBSTRUCTION REMOVER FOR TRAM CARS AND THE LIKE.
APPLICATION FILED JULY 17, 1909.

1,012,181.

Patented Dec. 19, 1911.

3 SHEETS—SHEET 1.

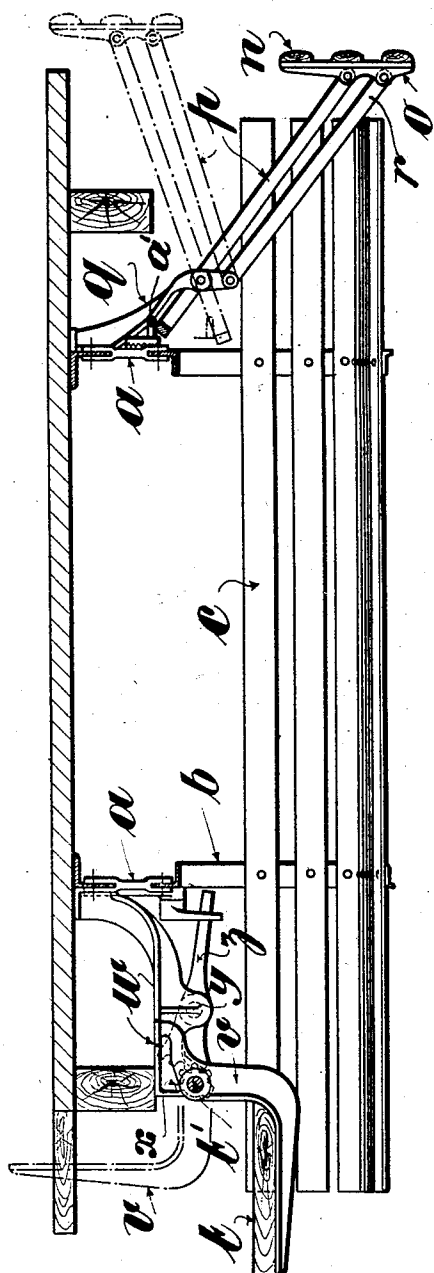


Fig. 5.

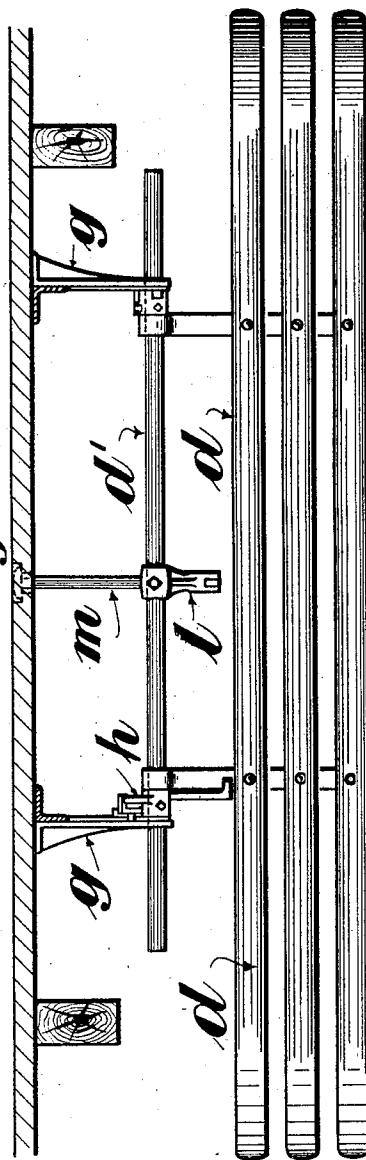


Fig. 1.

Witnesses:-
W. P. Burke
A. J. Neuman

Inventor:-
Herbert Drake Whiteley
By his Attorney:- The Nassau White

H. D. WHITELEY.

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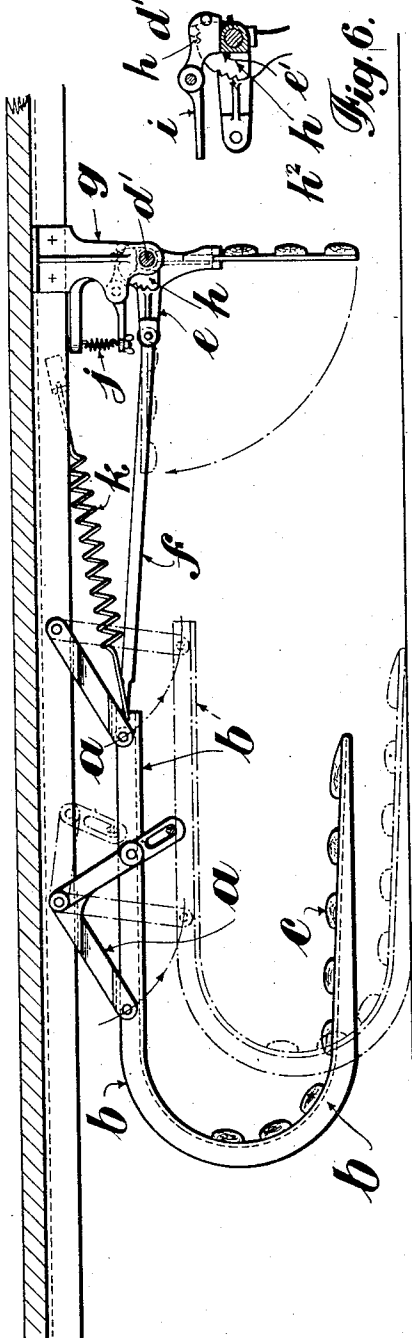


Fig. 2.

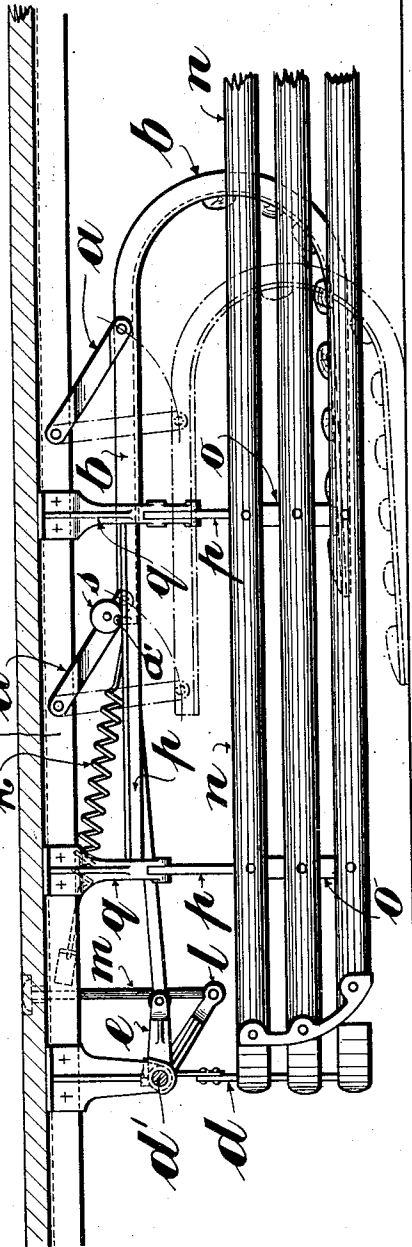


Fig. 3.

Witnesses:-

W. P. Burke

H. F. Newman

Inventor:-

Herbert Drake Whiteley

By his Attorney: The National White

H. D. WHITELEY.

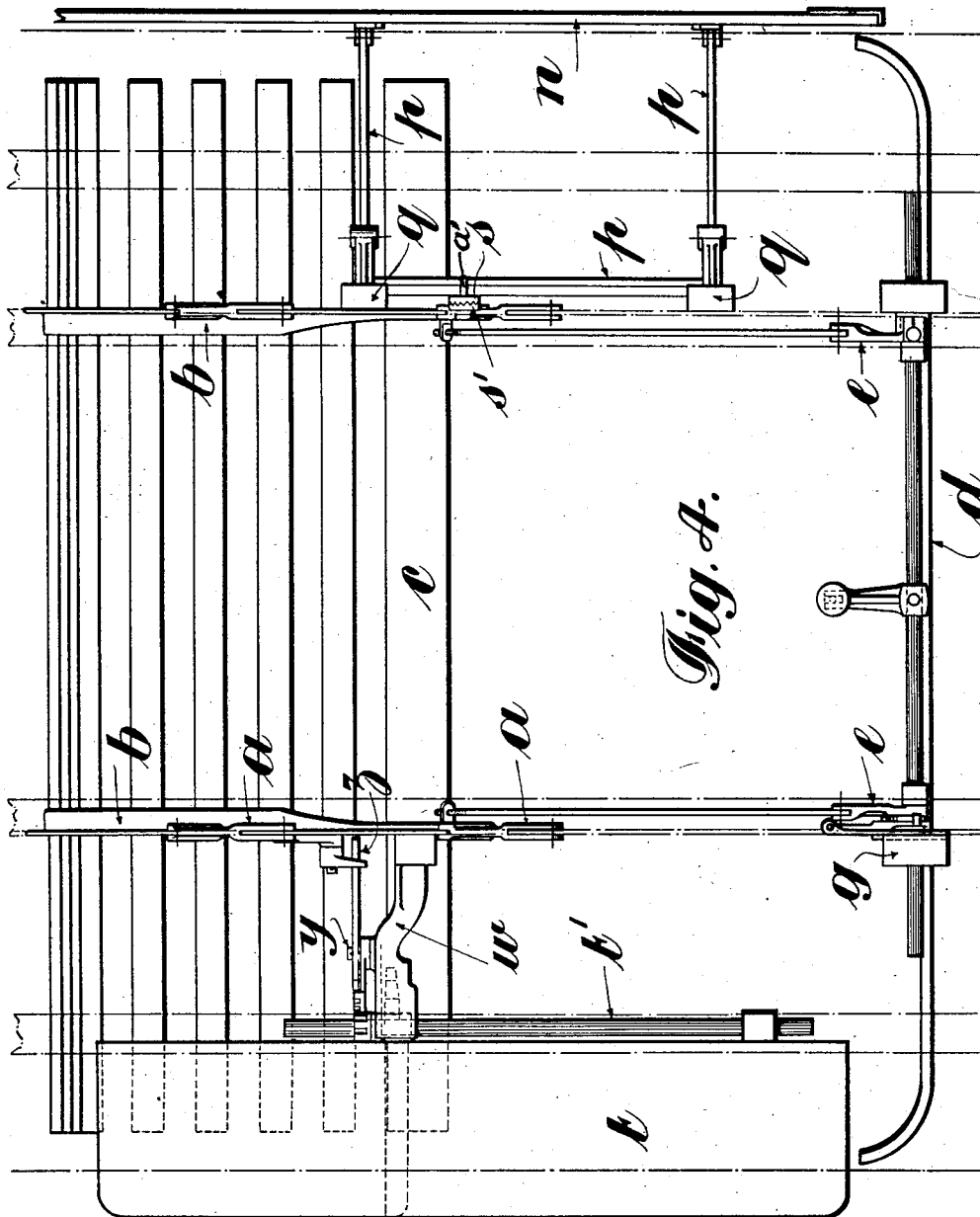
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3 SHEETS-SHEET 3.



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W. P. Burke

A. J. Human

Inventor:-

Herbert Drake Whiteley

By his Attorney:- The Hallan White

UNITED STATES PATENT OFFICE.

HERBERT DRAKE WHITELEY, OF MANCHESTER, ENGLAND.

LIFE-GUARD OR OBSTRUCTION-REMOVER FOR TRAM-CARS AND THE LIKE.

1,012,181.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed July 17, 1909. Serial No. 508,209.

To all whom it may concern:

Be it known that I, HERBERT DRAKE WHITELEY, a subject of the King of Great Britain and Ireland, and resident of Manchester, England, have invented certain new and useful Improvements Connected with Life-Guards or Obstruction-Removers for Tram-Cars and the Like, of which the following is a specification.

This invention refers to life-guards or obstruction removers for tramcars and the like and it relates to that kind of life-guard in which a tray is used arranged below the car or other vehicle to which it is applied, and also in which a swing gate is used arranged at the end of the car.

It also refers to an improved form of side gate for use with the end gate and to a hinged step and means for automatically raising such step on the end gate meeting an obstruction.

The invention is illustrated on the accompanying drawings, wherein—

Figure 1 illustrates a front elevation, Fig. 2 a left-hand side elevation, the step being removed, Fig. 3 a right hand side elevation, showing the side gate, and Fig. 4 a plan of a lifeguard or obstruction remover constructed according to the invention. Fig. 5 illustrates a front sectional elevation of the apparatus with the front gate removed. Fig. 6 illustrates a detail hereinafter referred to.

According to this invention, instead of the tray being axially mounted as heretofore upon the pilot board of the car under-frame, it is now supported by links or radius arms *a, a* from the body of the car, so that, instead of having a rocking movement about a fixed axis, it has a bodily movement. The tray is composed of bars *b, b* which extend below and carry the lags *c, c* of the tray, which also extend upward at the rear of the tray and forwardly over the tray, see Fig. 2. These overhanging parts of the bars are pivotally connected to the ends of the links or radius arms *a, a*, there being two pairs of links, one pair at or near the extreme front ends of the bar, and the other pair at or near points where the bars extend downward.

The links are preferably of even length and thus, as the tray moves, it is always horizontal or nearly so. The rear links may however be a little shorter than the others

so that the front edge of the tray will be slightly lower, and thus strike the ground earlier than the rear edge.

For keeping the tray normally elevated and allowing it to be automatically lowered, any suitable arrangement of mechanism may be used which on the gate *d* hanging vertical will hold the tray elevated and with the gate swinging rearwardly will release the tray. The arrangement shown in the drawing consists of lever arms *e* fast on the gate axis *d'* and connecting rods *f*, these latter being pivotally connected at one end to the bars *b, b* and at the other end pivotally connected to the arms *e*. It also consists of a fixed bracket *g* and a quadrant *h* having teeth, see Fig. 2, and of a pivoted latch lever or pawl *i* having a lateral pin which overlies the teeth of the quadrant. Under the pull of a spring *j* the pawl engages the teeth in the quadrant and thus holds it and the arm *e* against rotation under the force of the spring *k* and weight of the tray. Upon the boss of each arm *e* is a pin or projection *e'* see Fig. 6, which, on the gate rotating the arm, presses against the pawl lever and raises it out of engagement with the teeth, thus freeing the arm and allowing the arm *e* to rise and the tray to fall on to the ground as shown by dotted lines in Fig. 2.

To hold the gate elevated when swung rearwardly, the quadrant is formed with further teeth *h'* with which the pawl *i* engages when the gate is at its farthest rearward position. The position of the teeth *h'* in the quadrant and the position of the quadrant relatively to the arm *e* is preferably such as to cause the arm *e* to lie about the horizontal or slightly inclining downward from the shaft *d'*, when the gate is vertical. A spring *k* secured to the car at one end and to the bars *b, b* at the other helps to lower the tray when made free by the gate. A further arm *l* fast on the gate axis, and a rod *m* passing loosely through the car floor serves for resetting the tray after being lowered.

At one side of the car is arranged the side gate composed of lags *n* and bars *o* and supported in position by a U-shaped frame *p*, see Fig. 4, and by brackets *q*. The gate is pivotally connected to the ends of the frame and also to one end of a link *r* which at its other end is connected to one of the brackets

5 *q*, see Fig. 5. By such arrangement the movements of the frame about its fulcrum causes a vertical movement of the side guard. To produce the vertical movement
 10 use is made of the movements of the tray aforesaid, that is to say, one of the links *a* is provided with a pin *a'* which overlies the transverse portion of the frame *p* which
 15 against the pin. As soon therefore as the tray falls its weight, plus the force of the spring *k* acting on the frame *p* causes the frame to tilt and raise the side guard. Upon resetting the tray the side guard is also
 20 lowered to its original position.

For varying the height of the side guard the pin *a'* may be carried by a disk *s* adjustably clamped to another disk *s'* fixed in the link *a*, any variation in the relative positions
 25 of the disks affording a variation in the elevation of the side guard. Upon the other side of the car and on which there is no side guard, is the step *t*, see Fig. 5, which is mounted on a spindle *t'* supported in
 30 brackets *u*. One of the hinge bars *v* extends beyond the hinge and bears against a stop *w*, thereby holding the step in its normal position. Upon the spindle *t'* is a toothed quadrant *x*. Upon a stud *y* is a lever *z*, one
 35 end of which is in the form of a toothed quadrant the teeth of which mesh with those of the quadrant *x*. The other end of the lever is pointed and projects loosely through a slot in a loose extension of one
 of the tray links *a*, see Fig. 2. When the tray falls the action of the link on the lever *z* is to rock it and, through the teeth of the quadrants, rotate the step until its horizontal part lies above the level of the spindle

t' thereby holding it out of the way of any
 object on the track.

The brackets of the front or end and side gates and the lever *z* and step *t* and the links *a* are all, by preference, carried by lengths
 45 of angle irons *z'* which allow of the parts being standardized and made ready for fixing to various cars. At one end, the lags of the end gate *d* are preferably curved
 50 backward to a point adjacent to the lags of the side gate, and in a plane which enables the end gate *d* to swing rearwardly without obstruction from the side gate, see Fig. 4.

What I claim is:—

1. In lifeguards and obstruction removers for tramcars and the like in which an end
 55 gate and tray are used, the combination therewith of a side gate, an arrangement of fixed brackets on the tramcar, supporting means for the said gate pivotally mounted
 60 on the said brackets, a link connected to one of the brackets and to the side gate, and means whereby the lifeguard when it meets an obstruction serves to raise the side gate
 65 bodily in a vertical plane, and when the lifeguard apparatus is reset serves to lower the side gate bodily, as set forth.

2. In lifeguards or obstruction removers for tramcars and the like comprising a gate and tray, a hinged step and means whereby
 70 the step is automatically raised when the gate meets an obstruction and is moved back, substantially as set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

HERBERT DRAKE WHITELEY.

Witnesses:

P. D. BAILEY,

F. C. PENNINGTON.