

G. WHITAKER.

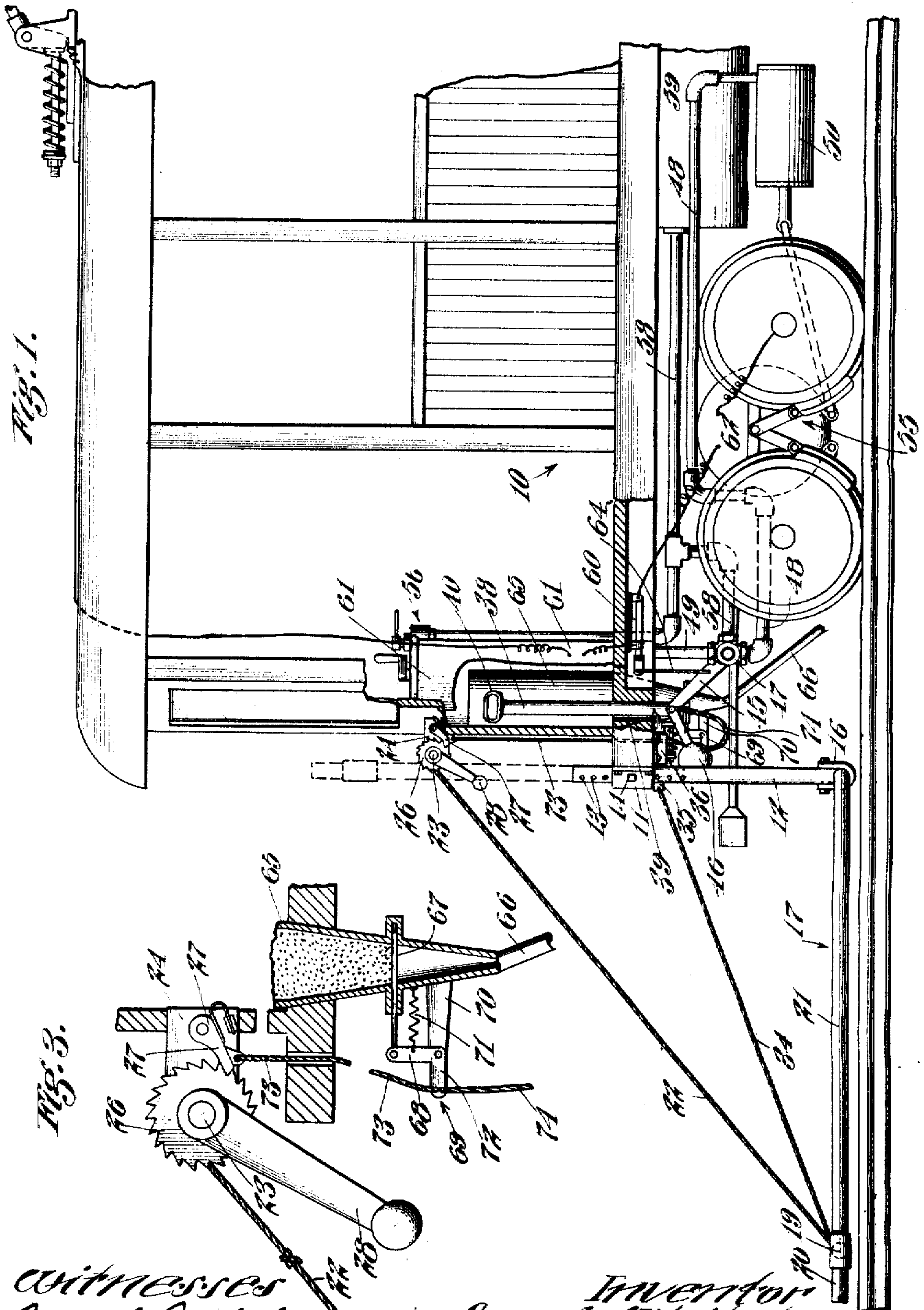
CAR FENDER.

APPLICATION FILED MAR. 14, 1907.

Patented Dec. 15, 1908

3 SHEETS—SHEET 1.

906,760.



Witnesses
Frank C. Gaskin
M.A. Jones.

Inventor
George Whitaker.
By
Hazard & Strauss
Attorneys.

G. WHITAKER.

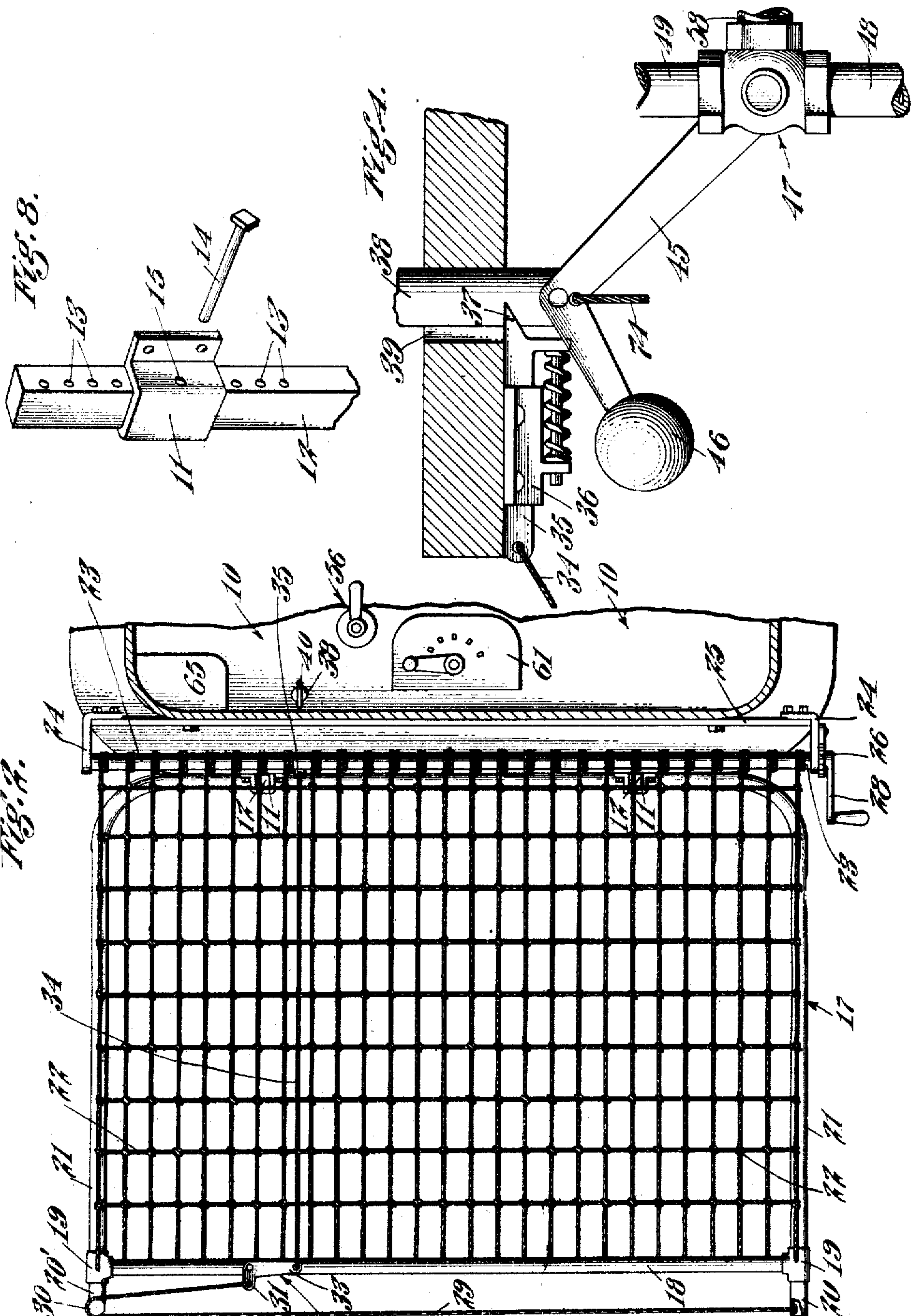
CAR FENDER.

APPLICATION FILED MAR. 14, 1907.

Patented Dec. 15, 1908

3 SHEETS—SHEET 2.

906,760.



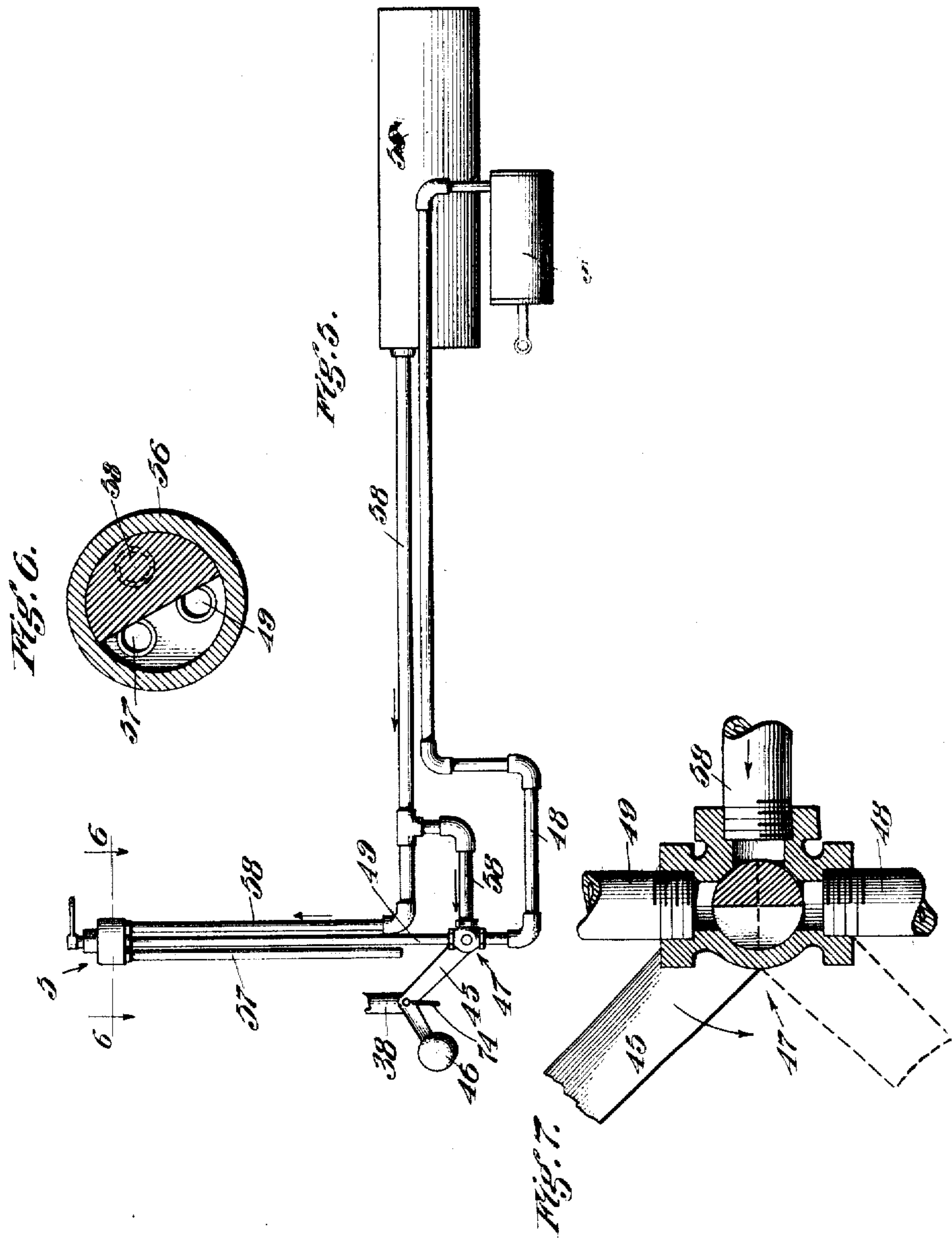
Witnesses
Jimmie C. Backe
m. a. Jones.

Inventor
George Whitaker
By Hazard & Francis
Attorneys.

906,760.

G. WHITAKER.
CAR FENDER.
APPLICATION FILED MAR. 14, 1907.

Patented Dec. 15, 1908
3 SHEETS—SHEET 3.



Witnesses
Jimmie Bucklew
m.a. Jones.

Inventor
George Whitaker
By Hazard & Fausch
Attorneys

UNITED STATES PATENT OFFICE.

GEORGE WHITAKER, OF PASADENA, CALIFORNIA.

CAR-FENDER.

No. 906,760.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed March 14, 1907. Serial No. 362,268.

To all whom it may concern:

Be it known that I, GEORGE WHITAKER, a citizen of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented new and useful Improvements in Car-Fenders, of which the following is a specification.

My invention relates to a new and improved form of fender for power propelled vehicles, it being especially adapted for use on street railway cars where loss of life and injury to persons is often occasioned, and the prime object of my invention is to provide a device, whereby when a person or object strikes the fender it will operate mechanisms to instantly bring the car to a stop.

A further object is to provide a fender, the lower frame of which can be adjusted at various heights above the rails or tracks.

A further and special object is to provide a fender by means of which cars can be coupled together without its removal and which will not interfere in any manner with the operation of the car.

I accomplish these objects by means of the device described herein and illustrated in the accompanying drawings, in which:—

Figure 1— is a partial side elevation of one end of a street railway car with parts broken away and parts in section. Fig. 2— is a plan view of the fender attached to one end of a street railway car. Fig. 3— is a detail of the fender net winding and rail sanding mechanisms. Fig. 4— is an enlarged detail partly in section of the air valve and releasing mechanism. Fig. 5— is a diagrammatic view of the pneumatic braking mechanism showing its connection to the fender. Fig. 6— is an enlarged cross section of the motorman's brake controlling valve taken on line 6—6 of Fig. 5. Fig. 7— is a sectional detail through the three-way operating valve. Fig. 8— is a perspective detail of one of the fender adjusting bars.

Referring to the drawings 10 designates the frame of a street car of usual construction. Rigidly secured to the frame of the car and at the bottom thereof are bearings 11 in which are adjustably mounted vertically disposed bars 12 which are provided with a series of apertures 13 that are adapted to be engaged by a pin 14 which passes through an aperture

15 in the bearings 11. The purpose of these bars is to provide for the adjustment of the pivoted frame of the fender above the car tracks. The lower ends of bars 12 are provided with U-shaped clamps 16 which form pivotal bearings for the horizontally disposed, preferably tubular frame 17. The front cross bar 18 of this tubular frame is secured in T-fittings 19 so that extensions 20 and 20' may be made to each side bar 21 of frame 17. To cross bar 18 is attached the outer ends of a netting 22 which extends upwardly and rearwardly to a transversely disposed cross shaft 23 and is secured thereto in any suitable manner. Shaft 23 is revolvably mounted in bearings 24 secured to a bar 25 bolted or otherwise secured to the frame of the car. One end of bar 25 is provided with a ratchet 26 that is adapted to be engaged by a spring pressed pawl 27, a handle 28 is provided so that the shaft may be rotated to wind and unwind the net 22, the inner upper end of which is attached to shaft 23.

It will be noted by the winding mechanism above described that the lower frame of the fender may be raised or lowered as occasion requires and without the stoppage of the car.

When the lower frame of the fender is in its drawn up or folded position it will not interfere in the coupling of cars, as the netting is wound on the shaft 23 leaving an absolutely clear space below the car floor adjacent the draw bar.

To one of the extensions 20 of the lower frame a cable 29 is rigidly secured, the other end passing around a grooved pulley 30 mounted on the other extension 20' and secured to an arm 31 of a bell crank lever 32 which is pivotally mounted on cross bar 18. Rigidly secured to the longer arm 33 of bell crank lever 32 is a pull rope 34 which extends upwardly and rearwardly and is rigidly secured to a horizontally disposed spring pressed dog 35 which is mounted in a bearing 36 secured to the under side of the frame of the car. Dog 35 normally engages a notch 37 in a vertically disposed valve operating rod 38 which passes through an aperture 39 in the floor of the car and is provided on its upper end with a handle 40 so that the motorman may draw it upwardly into its operative po-

sition after being released by the dog 35. To the lower end of rod 38 is pivotally secured a valve operating lever 45 which is preferably provided on its outer end with a weight 46, so that when the dog releases rod 38 it will cause the lever to quickly operate the valve 47.

Valve 47 is preferably a three-way valve of usual construction, and is normally in the position shown in Fig. 7 of the drawings, leaving a connection open through pipe lines 48 and 49. Pipe line 48 connects with a brake cylinder 50 of usual construction and pressure is admitted through this pipe line to operate the braking mechanism 55. Pipe line 49 connects with a motorman's brake controlling valve 56 of the usual type and has an open connection to the atmosphere through that valve and pipe line 57. When valve 47 is operated by the movement of valve lever 45 to the position shown in dotted lines in Fig. 7, connection is made between pipe line 58 and pipe line 48 leading to the braking cylinder 50. Pipe line 58 connects directly with a fluid pressure tank 59 and also connects in the usual manner to the brake controlling valve 56.

It will be observed that by means of the above described mechanism that when an obstruction is encountered by the fender, fluid pressure is instantly admitted to the cylinder 50 to set the braking mechanism.

In Figs. 1 and 3 I have illustrated a motor controlling mechanism that is adapted to be operated simultaneously with the braking mechanism. This mechanism consists preferably of a knife switch 60 that is electrically connected to the motorman's controller 61 and to the motor 62 suspended between the axles of the trucks 63. Outer end of switch is connected by a downwardly depending rod 64 to valve lever 47 and is adapted to be opened on the downward movement of the lever, thus breaking the electrical connection with the motor and rendering it inoperative.

In the front of the car and at one side of the controller 61 is a sand hopper 65 which has a downwardly inclined delivery spout 66 that terminates adjacent to one of the front wheels of the car. Hopper 65 is provided with a cut off valve 67, the outer end of which is connected to an arm 68 of a bell crank lever 69 pivotally attached to a bearing arm 70. A coiled spring 71 is connected to arm 68 of bell crank lever and to the hopper to return the valve to its normal position after an operation. Arm 72 of this bell crank is connected to pawl 27 by a cable 73, so as to release the ratchet and cause the lower frame of the fender to contact with the track or roadway. Arm 72 is also connected by a cable 74 which extends downwardly and is attached to valve arm 47, so that when the valve arm drops it will pull on cable 74 and operate bell crank 69, thus releasing pawl 27 and operating valve 67 simultaneously.

The operation of the apparatus is such that the obstacle first acts upon the transversely disposed cable 29, thereby operating bell crank lever 32, one arm of which is attached to the spring operated pawl 35, thus releasing the valve operating rod 38 which in falling operates the three-way valve 47 admitting air to brake cylinder 50 and instantly setting the brake mechanism. At the same time the brakes are set the cables connected to the bell crank 69 are operated by the valve lever 45, thus releasing the spring pressed pawl 27 and operating the valve 67 of the sand hopper. By the release of pawl 27 the lower frame of the fender is released and falls to the track, thus preventing any obstacle from throwing the fender upwardly or getting under it. The valve to the sand box being opened at the same time, sand is applied to the track through the spout 66, thereby assisting in the stoppage of the car. The operation of the valve lever 45 also automatically breaks the circuit to the motors through the medium of the switch 60. The operation of all of these mechanisms it will be seen is accomplished simultaneously, thus materially assisting the instant stoppage of the car.

It will be observed that by the arrangement of winding the netting upon a roller, thereby bringing the lower frame upwardly and in close proximity to the front of the car, I am enabled to couple cars without removing any portion of the fender.

It will be further observed that when a person is caught in the netting of the fender that his weight will force the pivoted frame upwardly, thus forming a cradle like support and preventing a person from being thrown therefrom.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. The combination with a car of a fender comprising a plurality of vertically disposed arms, of a horizontally disposed frame pivoted to the lower ends of said arms, a netting secured to the outer end of said frame and extending rearwardly and upwardly therefrom to engage a net winding mechanism, of a net winding mechanism secured to the car and adapted to be operated therefrom, and means to operate and hold the net winding mechanism, whereby the pivoted frame will be held in a predetermined position.

2. The combination with a car of a fender comprising a plurality of vertically disposed arms rigidly secured to said car, and a horizontally disposed frame pivotally secured to the lower ends of said arms having a netting secured to the outer end thereof, the inner end of said netting extending rearwardly and upwardly and secured to said car.

3. The combination with a car of a fender comprising a plurality of vertically disposed

adjustable arms, and a horizontally disposed frame secured to the lower ends of said arms having a netting secured to the outer end thereof, the inner end of said netting extending rearwardly and upwardly and secured to said car.

4. The combination with a car of a fender comprising an adjustable pivoted frame having a netting secured to the outer end thereof, of a net winding mechanism secured to the frame of the car and having the inner end of the netting secured thereto, means to operate and hold the net winding mechanism, whereby the pivoted frame will be held in a predetermined position, and means secured to the pivoted frame to automatically release said net winding mechanism when the fender strikes an obstruction.

5. The combination with a car of a fender comprising an adjustable pivoted frame having a netting secured to the outer end thereof, of a net winding mechanism secured to the car above the pivoted frame and having the other end of the netting attached thereto, of means to operate and control the movement of said winding mechanism, and means secured to the pivoted frame and to the net winding controlling means, whereby the pivoted frame is released when the fender strikes an obstruction.

6. The combination with a car of a fender comprising an adjustable pivoted frame having a netting secured to the outer end thereof, of a net winding mechanism secured to the frame of the car and having the inner end of the netting secured thereto, means to operate said net winding mechanism, an auxiliary pneumatic braking mechanism secured to said car and operatively connected to said fender, and means secured to said fender frame, whereby said braking mechanism is operated when the fender strikes an obstruction.

7. The combination with a car of a fender comprising an adjustable pivoted frame having a netting secured to the outer end thereof, of a net winding mechanism secured to the frame of the car and having the inner end of the netting secured thereto, means to operate said net winding mechanism, auxiliary pneumatic braking and track sanding mechanism secured to said car and operatively connected to said fender, and means secured to said fender, whereby said braking and sanding mechanisms are operated simultaneously when the fender frame strikes an obstruction.

8. The combination with a car of a fender comprising an adjustable pivoted frame having a netting secured to the outer end thereof, of a net winding mechanism secured to the frame of the car and having the inner end of the netting secured thereto, means to operate said net winding mechanism, auxiliary pneumatic braking and track sanding mechanisms

secured to said car and operatively connected to said fender, electric cut out means interposed in the motor circuit, and means secured to said fender, whereby said braking, track sanding and electric cut out means are operated simultaneously when the fender frame strikes an obstruction.

9. The combination with a car, of a fender comprising a plurality of vertically disposed arms rigidly secured to said car, of a horizontally disposed frame secured to the lower ends of said vertically disposed arms, and fending means secured to the outer end of said frame and to the car.

10. The combination with a car, of a fender comprising a plurality of vertically disposed arms rigidly secured to said car, of a horizontally disposed frame pivotally secured to the lower end of said vertically disposed arms, and flexible fending means secured to the outer end of said frame and to the car.

11. The combination with a car, of a fender connected thereto, flexible supporting means for said fender, a track sanding mechanism secured to said car, and a trip mechanism secured to the front end of the fender and operatively connected to said sanding mechanism and to said supporting means, whereby said sanding mechanism is operated and the fender is lowered when the trip strikes an obstruction.

12. The combination with a car of a fender connected thereto, flexible supporting means for said fender, of a braking and track sanding mechanism secured to said car and operatively connected to said fender, electric cut out mechanism interposed in the motor circuit, and a trip mechanism secured to the front end of the fender, said trip being operatively connected to said braking, track sanding and electric cut out mechanism and to said fender supporting means.

13. The combination of a car, of a fender operatively connected thereto, flexible supporting means for said fender, a track sanding mechanism secured to said car, and a trip mechanism mounted on the front end of the fender and operatively connected to said sanding mechanism and to said fender supporting means, whereby said sanding mechanism is operated automatically and said fender is lowered when the trip strikes an obstruction.

14. In combination with a car, a fender frame pivoted thereto, supporting means for the outer end of said frame, a trip secured to the outer end of said frame, and connective means between said trip and said supporting means whereby said supporting means is released on the operation of said trip.

15. In combination with a car, a fender frame pivoted thereto, supporting means for the outer end of said frame, track sanding, braking and electric cut out mechanisms se-

cured to the car, and a trip mechanism secured to the front end of the fender and operatively connected to said track sanding, braking and electric cut out mechanisms and
5 also connected to said supporting means to release the same upon the operation of the trip mechanism.

In witness that I claim the foregoing I have hereunto subscribed my name this 7th day of March, 1907.

GEORGE WHITAKER.

Witnesses:

EDMUND A. STRAUSE,
TRIMBLE BARKELEW.