(No Model.) 2 Sheets—Sheet 1.

W. S. LIVENGOOD.

ATTACHMENT FOR STREET CARS, &c.

No. 428,923. Patented May 27, 1890.

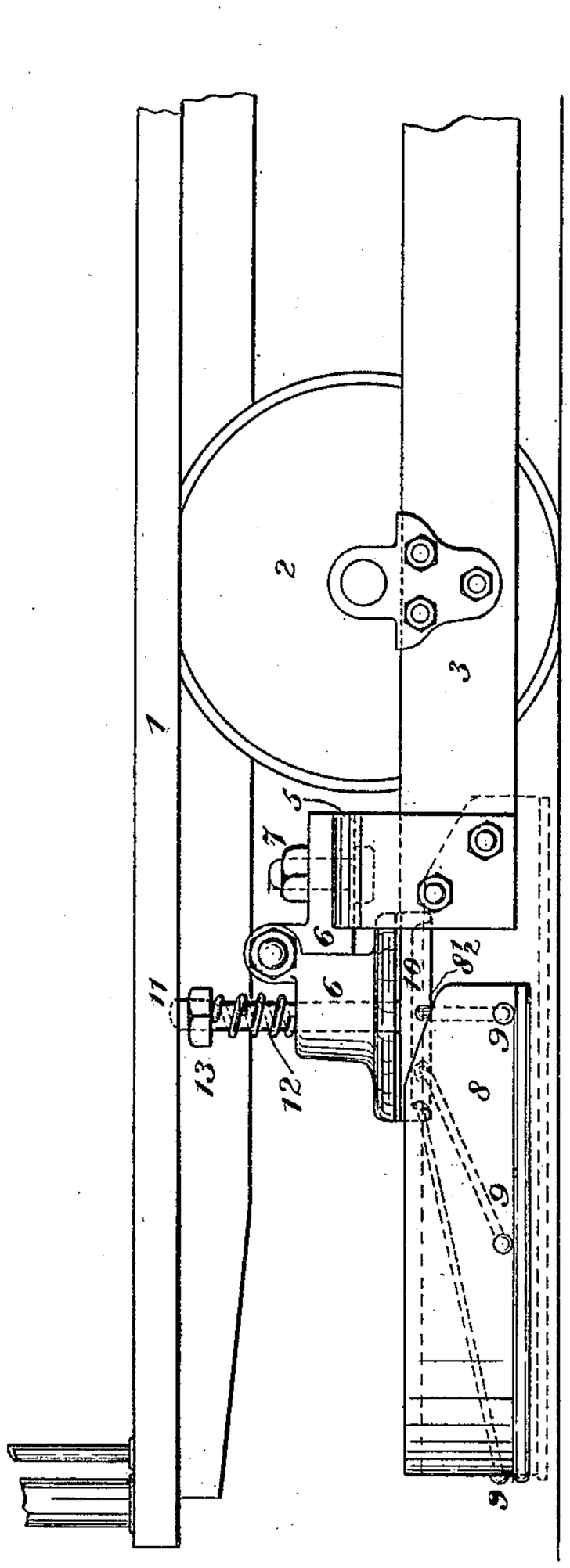

Fig. I.

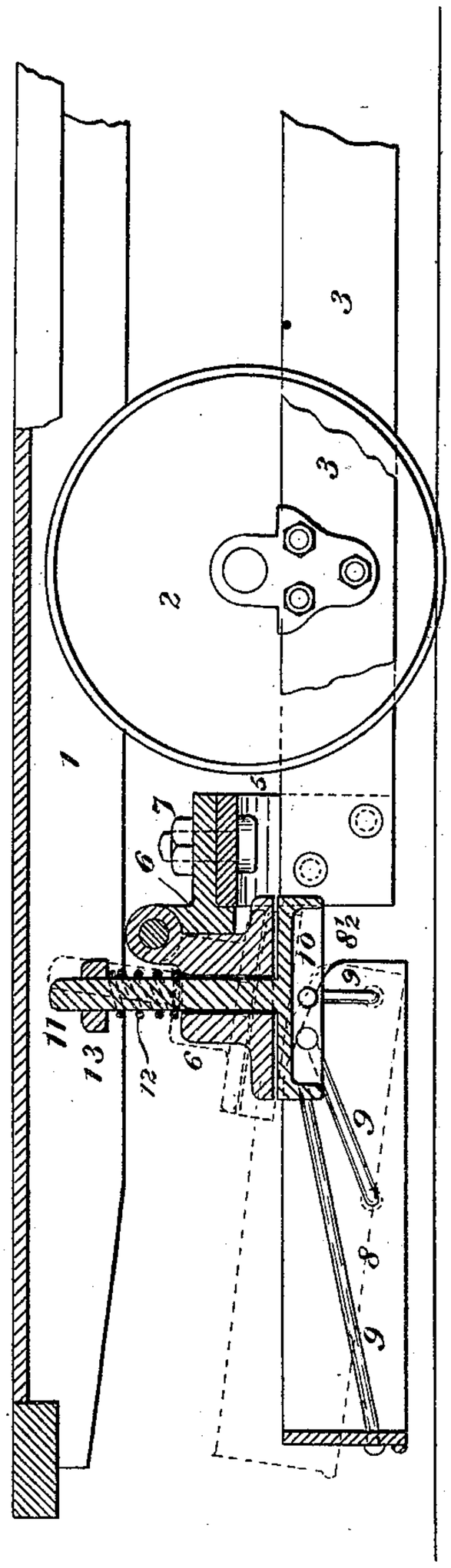

Fig. II.

WITNESSES:

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H. S. Knight

INVENTOR

Winfield S. Livengood

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(No Model.) 2 Sheets—Sheet 2.

W. S. LIVENGOOD.

ATTACHMENT FOR STREET CARS, &c.

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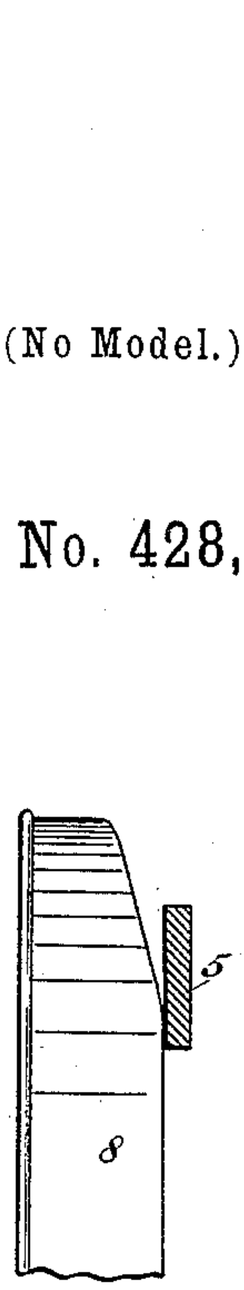

Fig. VI.

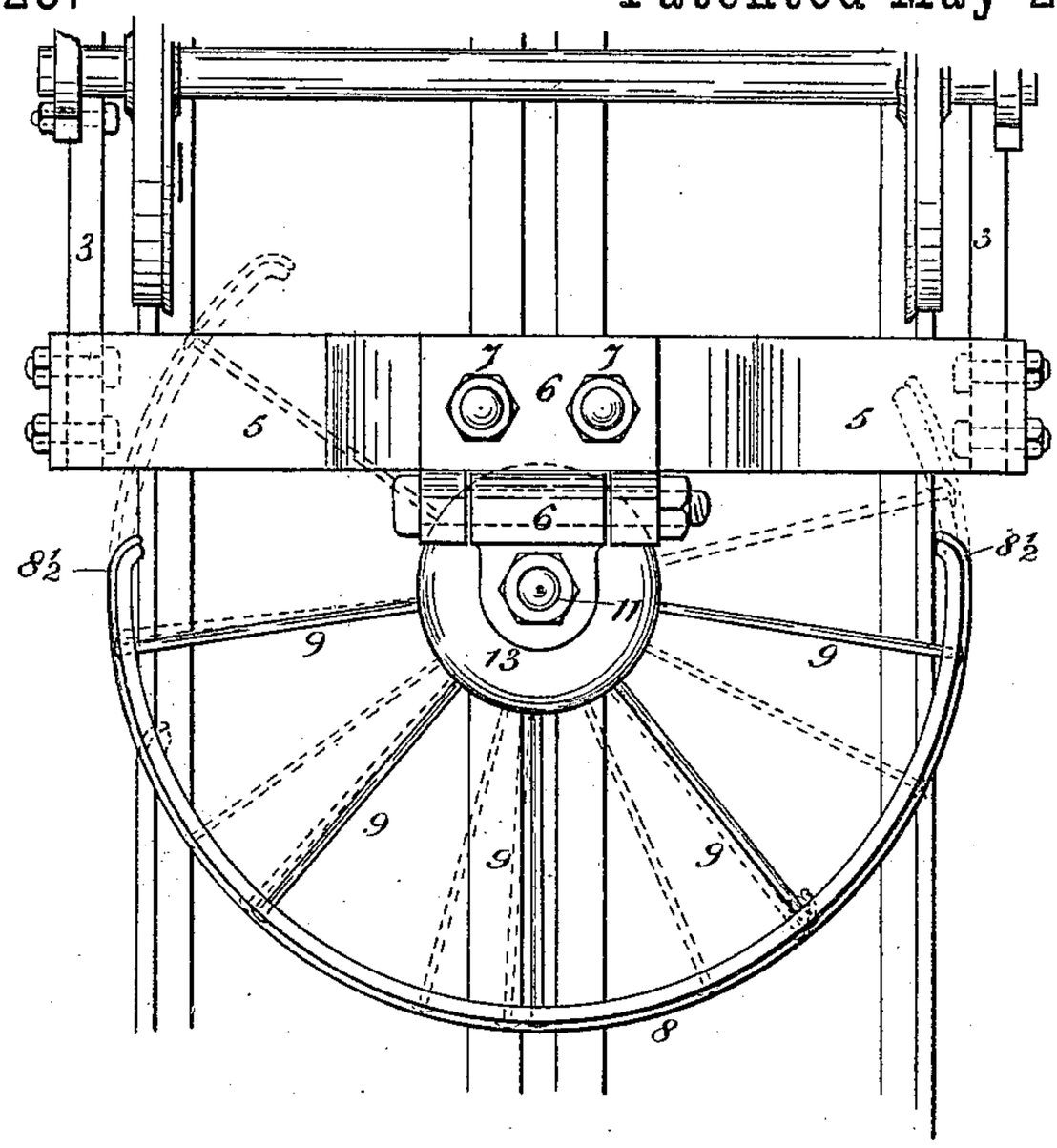

Fig. III.

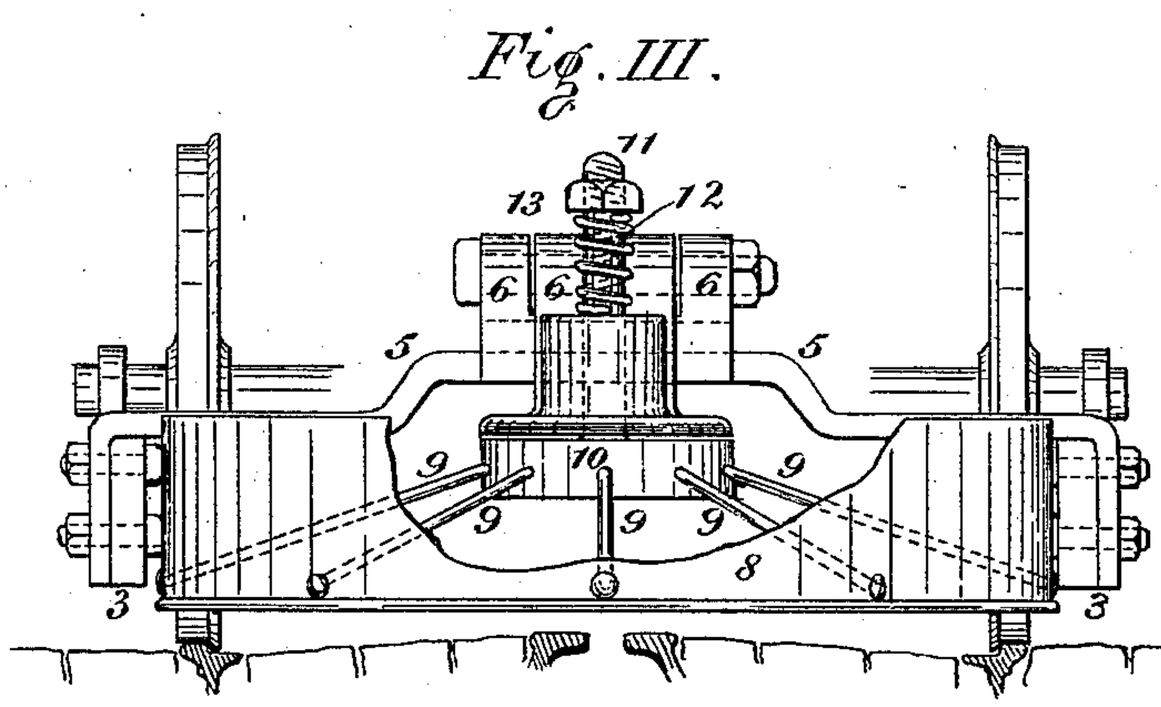

Fig. IV.

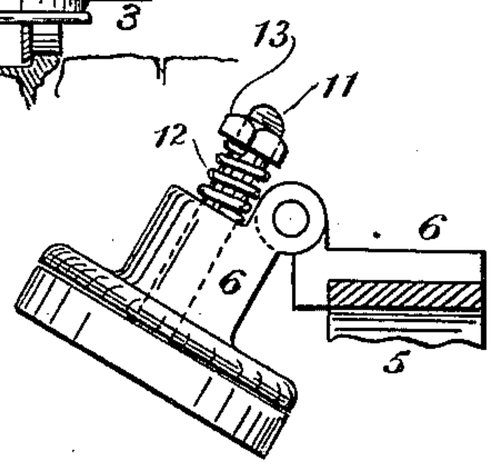

Fig. V.

WITNESSES:
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INVENTOR
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UNITED STATES PATENT OFFICE.

WINFIELD S. LIVENGOOD, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF TO CHARLES L. BALLINTINE, OF SAME PLACE.

ATTACHMENT FOR STREET-CARS, &c.

SPECIFICATION forming part of Letters Patent No. 428,923, dated May 27, 1890.

Application filed August 7, 1889. Serial No. 320,055. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD S. LIVENGOOD, of Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Attachments for Street-Cars, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to an improved fender for street-cars, &c.; and my invention consists in features of novelty hereinafter described, and pointed out in the claims.

Figure I is a side elevation of my improved device. Fig. II is a longitudinal section of the same. Fig. III is a top view. Fig. IV is a front view. Fig. V is a detail view of the hinge and pivot on which the fender is supported. Fig. VI is a detail side elevation of the fender.

Referring to the drawings, 1 represents the bottom of a car supported by the usual trucks 2.

3 represents two sections of a frame extending lengthwise of the car, said frame being suitably secured to the trucks.

5 represents a transverse bar connecting the forward ends of the frame 3, said bar being supported by the frame.

6 represents a hinge the stationary section of which is secured to the center of the bar 5 by means of bolts 7.

The fender consists of an outer circular portion 8, having beveled portions $8\frac{1}{2}$. The portion 8 is supported by rods 9, the outer ends of which are secured to the portion 8 and the inner ends secured to a central pivoted disk 10. The disk 10 is provided with a pin 11, which extends up through a circular section of the hinge 6.

12 represents a coil-spring on the upper end of the pin 11, and is retained on the pin by means of a nut 13. The spring 12 admits of a vertical movement of the pin 11, and consequently a vertical movement of the fender, to which it is attached.

The operation is as follows: The fender is in its normal position when it is in the position shown in full lines in Figs. I to IV, inclusive. When the fender strikes an object on the track, the object will by its friction against the fender cause the same to turn on its pivot-pin 11, either to the right or to the left, as shown in dotted lines, Fig. III, according to whichever side of the center of the track the object may be, and by thus turning throw the object beyond the outer line of the car. As the fender turns in a circular direction, the beveled portion $8\frac{1}{2}$ of the fender comes in contact with the under side of the bar 5, (see Fig. VI,) and as the friction against the object on the track will cause the fender to turn still farther the bar will force the fender down close to the track, as shown in dotted lines in Figs. I and III, the spring 12 permitting the fender to move downward, thus preventing the obstacle from passing under the fender. As it is necessary on ascending heavy grades that the forward end of the fender should rise to a certain extent, I have arranged the hinge 6 so that it will permit the fender to rise when its forward end comes in contact with the slot-rail or any object pressing the forward end of the fender from underneath. (See Fig. V and dotted lines, Fig. II.)

I claim as my invention—

1. In an attachment for street-cars, &c., a circular fender having a pivotal support whereby the fender is permitted to turn in a horizontal plane on coming in contact with an obstacle, substantially as described, and for the purpose set forth.

2. In an attachment for street-cars, &c., a circular fender having a central pivotal support whereby the fender is permitted to turn in a circular direction on coming in contact with an obstacle, substantially as described, and for the purpose set forth.

3. In an attachment for street-cars, &c., a fender having a central support that permits the fender to move in both a horizontal plane and in a vertical plane, substantially as described, and for the purpose set forth.

4. In an attachment for street-cars, &c., the combination of a suitable supporting-frame, a fender pivoted to the frame, and beveled portions on the fender, whereby when the fender is turned on its pivot the frame, on coming in contact with the beveled portions,

will cause the fender to be depressed, substantially as described, and for the purpose set forth.

5. In an attachment for street-cars, &c., the combination of the frame 5, having a suitable support, hinge 6, having one section secured to the frame, and a fender secured to the other section of the hinge, whereby the fender may move in both a vertical plane and a horizontal plane, substantially as described, and for the purpose set forth.

6. In an attachment for street-cars, &c., the combination of the hinge 6, having one of its sections secured to a fixed support, a fender secured to a disk 10, pin 11 on the disk, said pin being journaled to the hinge 6, substantially as described, and for the purpose set forth.

7. In an attachment for street-cars, &c., the combination of a fender secured to a disk 10, a pin on said disk, a hinge 6, to which the pin is secured, and a suitable spring on said pin, which permits the fender to be depressed and which raises it back to its normal position, substantially as described, and for the purpose set forth.

8. In an attachment for street-cars, &c., a fender having a suitable support whereby the fender is permitted to move in a horizontal plane and at the same time in a downward direction, and means for holding it in its depressed position, substantially as described, and for the purpose set forth.

WINFIELD S. LIVENGOOD.

In presence of—
JAS. E. KNIGHT,
S. M. LAND.