

No. 818,837.

PATENTED APR. 24, 1906.

P. LENTZ.

SAFETY GUARD OR FENDER FOR TRAMWAY AND THE LIKE VEHICLES.

APPLICATION FILED MAR. 13, 1906.

2 SHEETS—SHEET 1.

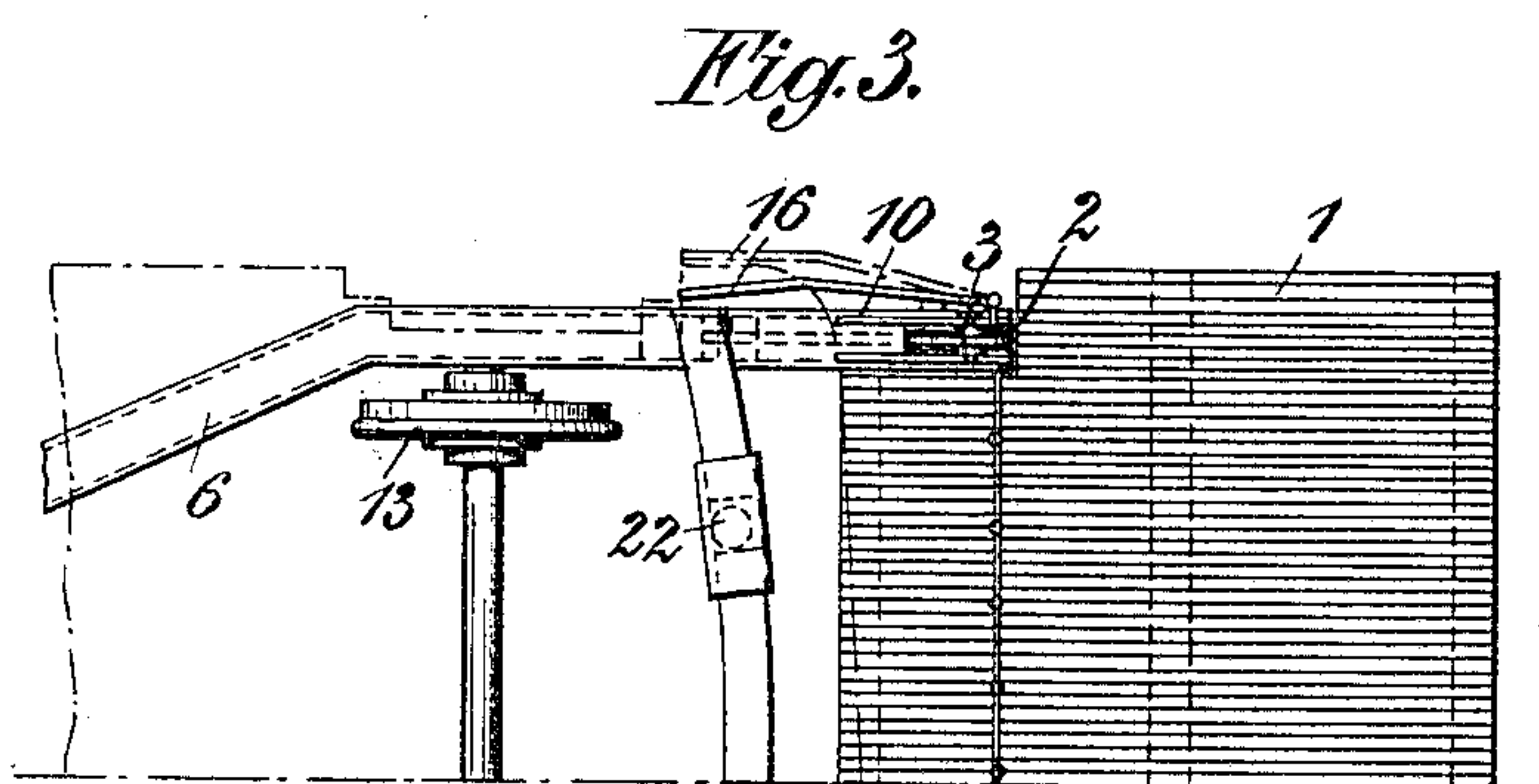
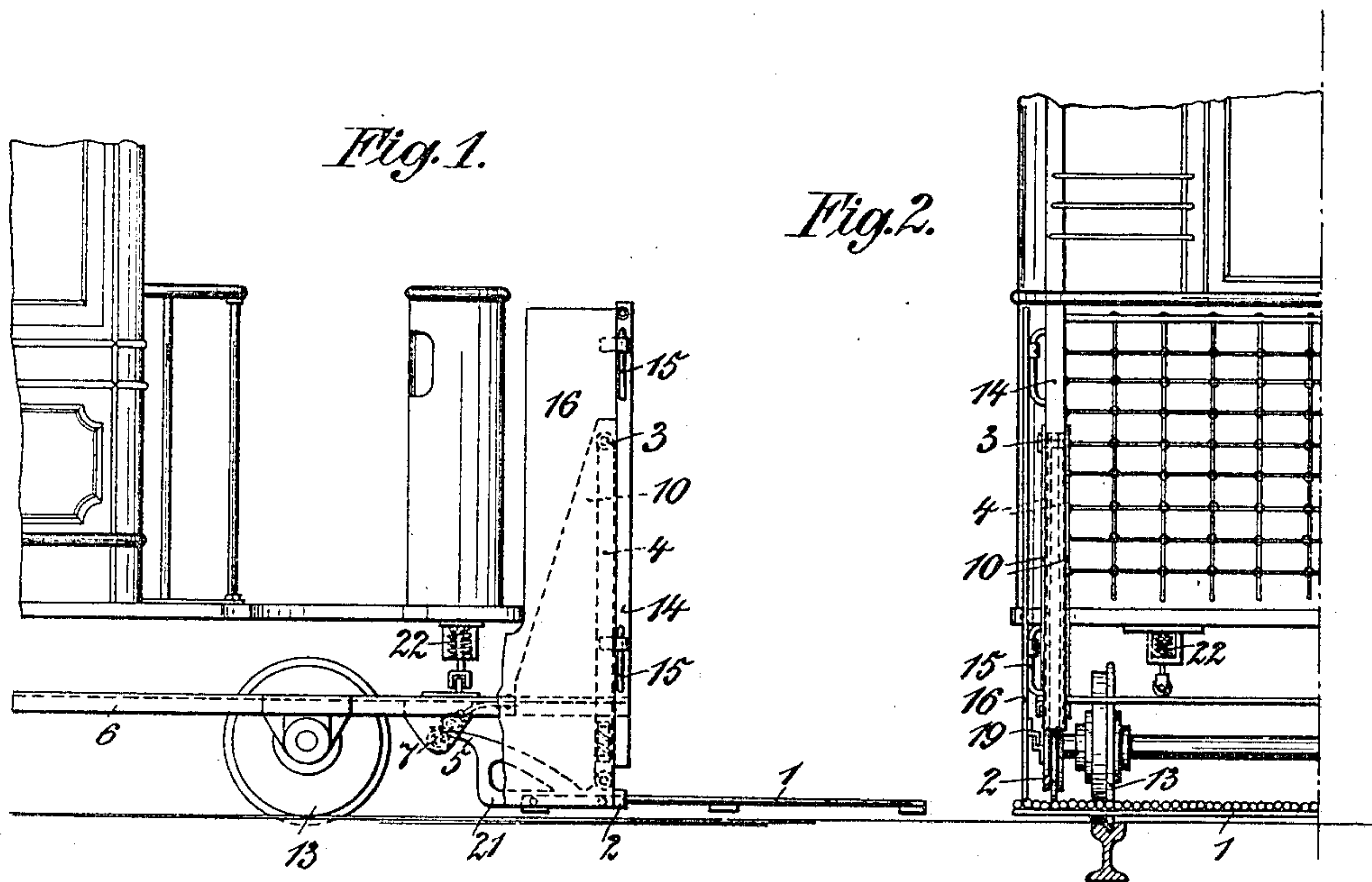


Fig. 4. Fig. 5.

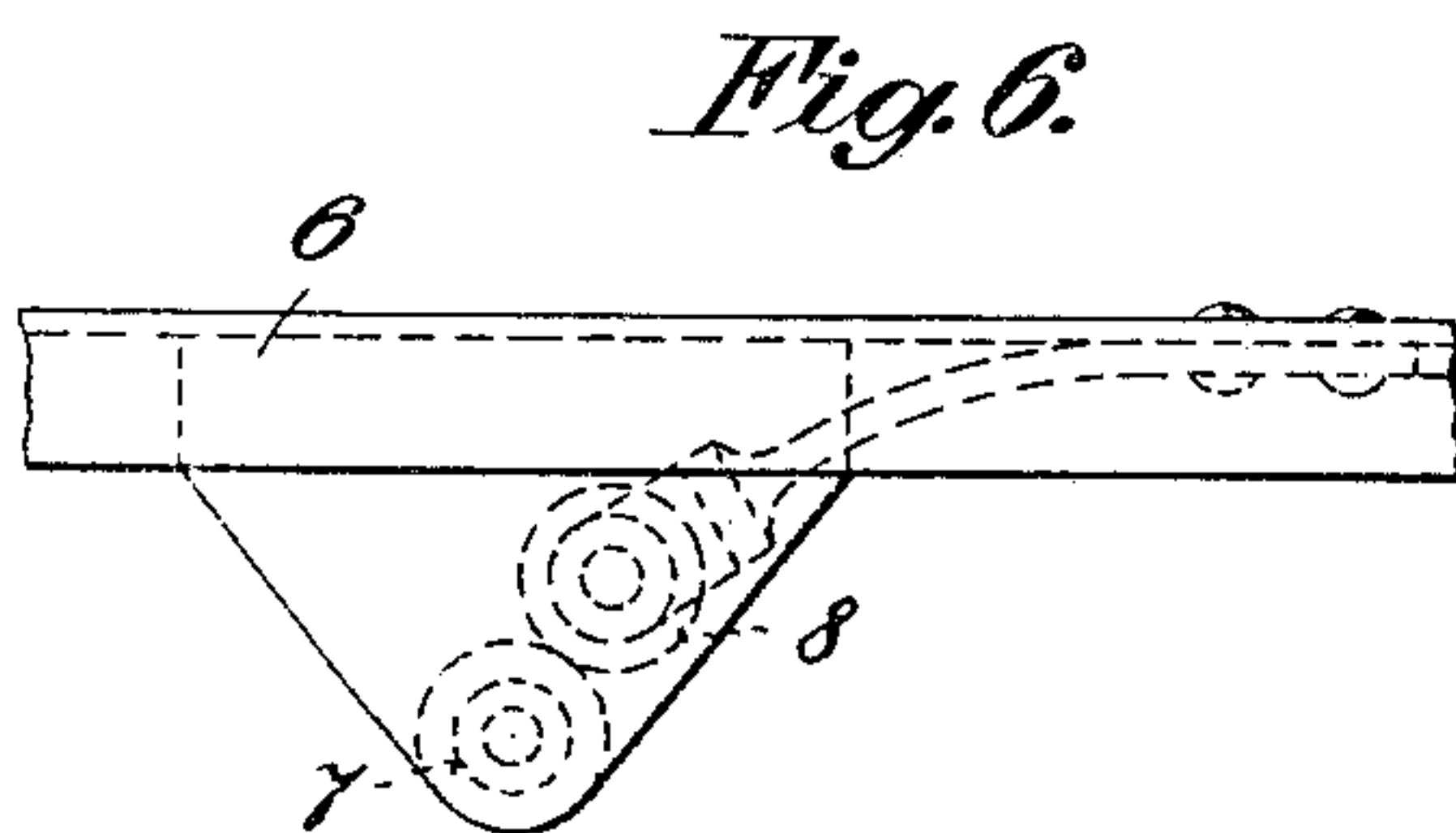
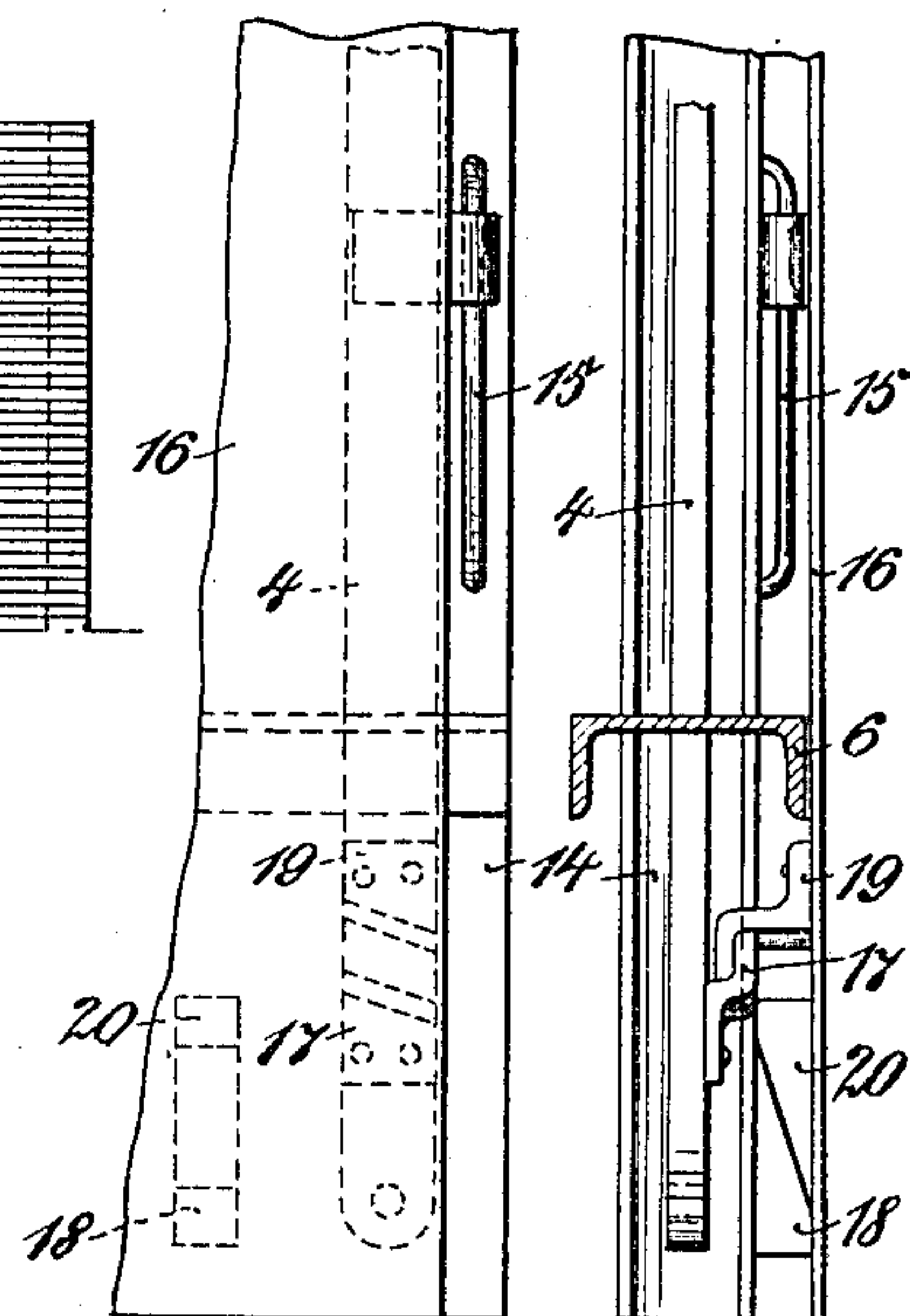
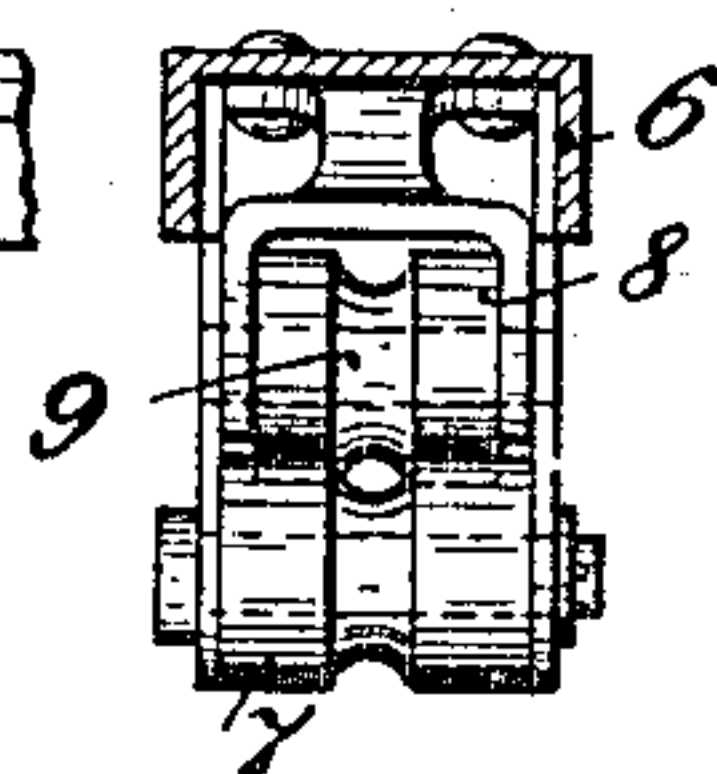


Fig. 7.



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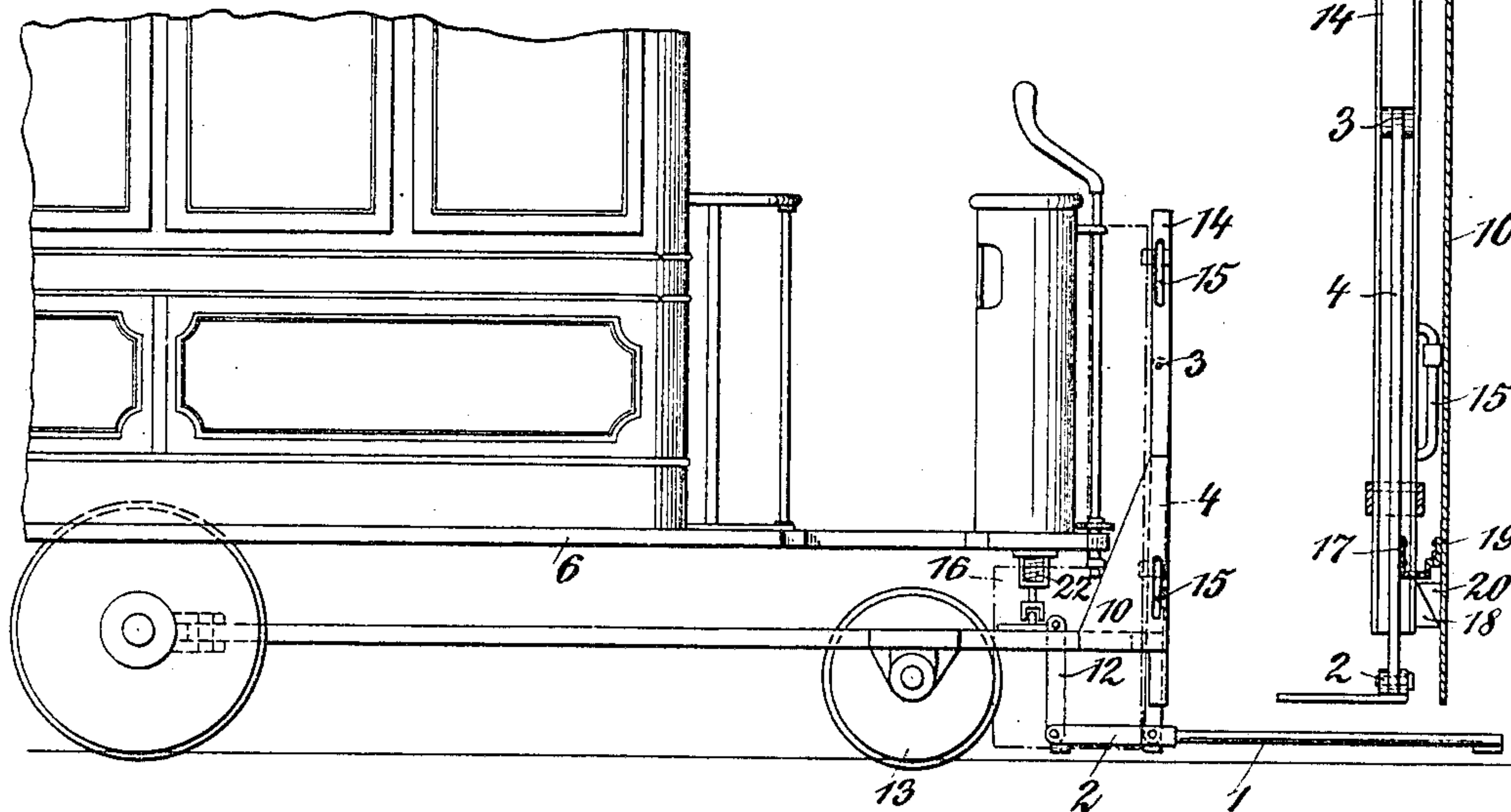
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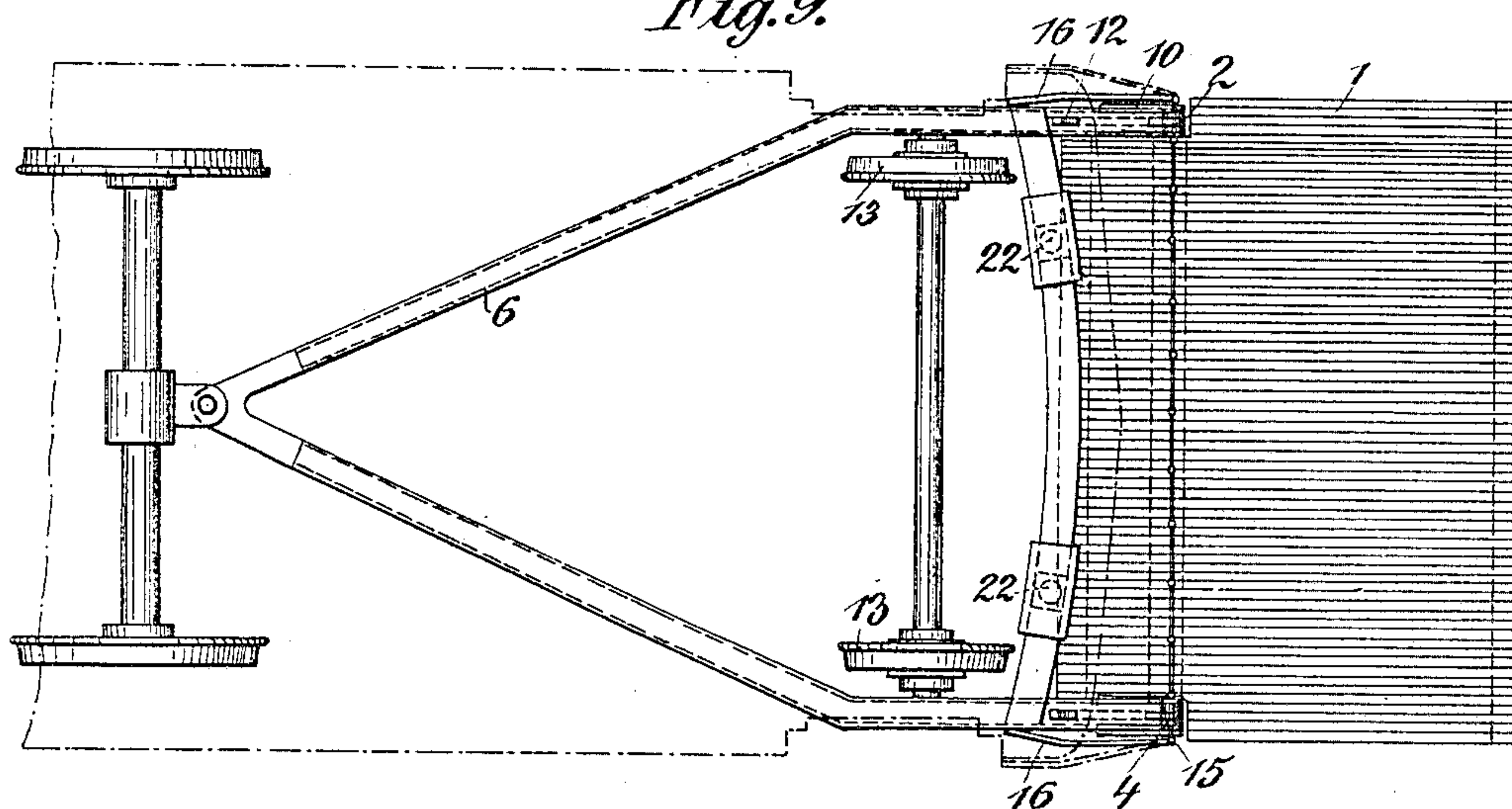
2 SHEETS—SHEET 2.

*Fig. 8.*



*Fig. 10.*

*Fig. 9.*



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# UNITED STATES PATENT OFFICE.

PHILIPP LENTZ, OF GROSS LICHTERFELDE, NEAR BERLIN, GERMANY.

SAFETY GUARD OR FENDER FOR TRAMWAY AND THE LIKE VEHICLES.

No. 818,837.

Specification of Letters Patent.

Patented April 24, 1906.

Application filed March 13, 1906. Serial No. 305,833.

*To all whom it may concern:*

Be it known that I, PHILIPP LENTZ, gentleman, a subject of the German Emperor, residing at 34 Sternstrasse, Gross Lichterfelde, near Berlin, Germany, have invented certain new and useful Improvements in Safety Guards or Fenders for Tramway and the Like Vehicles, of which the following is a specification.

10 The invention has for its object a safety device or guard for trams and the like, the catching apparatus of which is suspended from rocking rods by means of joints.

15 In accordance with the invention the catching apparatus is connected with the supporting-frame at the rear end by means of intermediate links in such a manner that upon being pressed back by the obstacle its rear end is raised so that its front end is lowered onto the track in such a manner that the catching apparatus is readily able to receive the person or object which is in danger and in such a manner that no injury can be occasioned thereto.

25 The lifting of the rear end of the catcher may be effected by rearwardly-directed upwardly-bent arms of the catcher, which arms are guided between rollers mounted on the frame in such a manner that the catcher in rocking back has its front end lowered onto the track. The intermediate links may therefore consist of rocking rods jointed to the catcher, which are shorter than the rocking main supporting-rods of the catcher and are suspended in a lower position than these latter. When the catcher is pressed back, the shorter rocking rods cause the lowering of the front end of the catcher onto the track.

35 Counterweights are provided for balancing the extra weight of the fore part of the catcher and act upon the rear end of the catcher and when the catcher is pressed back by the obstacle are automatically thrown out of engagement by appropriate means in order that they may not impede the lifting of the catcher at its rear end. The counterweights may be formed as lateral protecting-walls which normally lie in the plane of the vehicle and which are released by the swinging back of the catcher, being then rocked away from the vehicle—for example, by means of wedge-surfaces sliding one upon the other, whereby they sink onto the track and may come in front of vehicle-wheels or the guide-wheels of the safety device. If the

object in danger does not fall upon the catcher, or if it slides off again, owing to their spread position, the lateral protecting-walls move it aside.

Two constructional forms of apparatus in accordance with the invention are illustrated by way of example in the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a front elevation, and Fig. 3 is a top view without the vehicle. Figs. 4 to 7 illustrate details of the device, and Figs. 8 to 10 represent a second constructional form of the apparatus.

The catching apparatus 1, which consists of rods, of bamboo, for example, held together by cross-pieces and mounted on a frame 2, is jointed to the supporting-bars or links 4, mounted on the bolts 3 in such a manner as to be capable of rocking. Upon the frame 2 at the rear extremity of the catcher 1 there is arranged upon each side a frame 21, which in the example here illustrated is triangular in shape. The rearwardly-prolonged arm 5 of this frame is bent upward and is guided on a roller 7, mounted on the supporting-frame 6. Above the roller 7 another spring-controlled guide-roller 8 is mounted. These two rollers 7 and 8 are formed with channels 9, Figs. 1, 6, and 7, in order to insure better guidance for the arm 5 when the catcher swings back. The supporting-frame 6, provided with side walls 10, is rotatably mounted on the front axle of the vehicle or on its underframe in such a manner that it does not participate in the shaking and vibration of the vehicle-body. The supporting-frame also runs upon wheels 13, which are prevented from leaving the track by means of a spring 22, interposed between the frame 6 and the vehicle. The entire catching apparatus may be readily removed from the vehicle and arranged upon the other end of the vehicle at the terminus of the line.

When the catcher 1 is forced back by striking against the obstacle, the catching apparatus rocks around the bolts 3. In doing so its rear end is raised by the arms 5, which are guided in the rollers 7 and 8, its front edge being lowered onto the track.

In the constructional form of the apparatus illustrated in Figs. 8 to 10 the frame 2 of the catcher 1 is jointed to the frame 6 on each side by suspension-rods 12, so that the catching apparatus presents a double suspension. These suspension-rods 12



are shorter than the main supporting-rods 4 and are hung lower than them. When the catcher 1 rocks back, the rods 12 swing in the same direction, so that the rear end of the catcher 1 is lifted and the front end lowered onto the track.

In order to prevent an obstacle which does not directly fall upon the catching apparatus or falls off it again from getting under the wheels of the vehicle or under the wheels 13, protecting-wings are provided for pushing the object aside, these side pieces also acting as counterweights on the rear ends of the catcher and balancing the extra weight of the front part of the catcher.

One wing-piece 16 is slidably and rotatably mounted on hinges 15 on each of the vertical members or standards 14, fixed upon the frame 6. These wings 16, which in cross-section present the form represented in Fig. 3 and which extend as far as the footboard, are normally held somewhat above the track in the position shown in full lines in Fig. 3 in such a manner that they do not project laterally so as to form an obstacle. In order to prevent the obstacle on the track from getting under the wheels, the wings 16 must be lowered onto the track and swung out from the vehicle into the position shown in broken lines in Fig. 3. To this end there are fixed on the rocking rods 4 hooks 17 (see Fig. 5) and on the wings 16 hooks 19, engaging the hooks 17 in such a manner that the catcher is held in the proper position by the wings and these latter by the catching apparatus, Figs. 4, 5, and 10. When the catcher is pressed back, the rearward swinging movement of the rods 4 disengages their hooks 17 from the hooks 19 of the wings, so that the wings are free to slide downwardly on their hinges 15. In order to effect the outward swinging of the wings 16, wedges 18 and 20 are secured to the stands 14 and wings, respectively, so that when the wings slide downwardly on their hinges the wedges engaging each other force the wings to swing outwardly on their hinges into the position shown in dotted lines.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a car-fender, a supporting-frame having upwardly-extending members at its forward end, a fender, links pivotally connecting the fender with the upwardly-extending members of the frame, whereby the fender is free to swing forwardly and rearwardly, and means engaging the rear end of the fender to

lower the forward end thereof when swung rearwardly.

2. In a fender, a supporting-frame, a fender provided with a rearwardly-projecting arm, links pivotally connecting the fender with the frame to swing rearwardly and forwardly, and rollers on the supporting-frame and between which the arm of the fender extends.

3. In a fender, a pivoted and wheel-supported frame having upwardly-extending members, a fender provided with a rearwardly-projecting arm, links pivotally connecting the fender with the upwardly-projecting members of the frame, and grooved rollers on the frame and between which the arm of the fender extends, one of the rollers being yieldingly supported.

4. In a fender, a supporting-frame, a fender pivotally connected with the frame to swing forwardly and rearwardly, counterweights for the fender, and means for operating the counterweights upon the rearward movement of the fender.

5. In a fender, a supporting-frame, a fender pivotally connected with the frame, pivotally and slidably mounted wings carried by the frame, and means for operating the wings upon the swinging of the fender.

6. In a fender, a supporting-frame, a fender pivotally connected with the frame to swing rearwardly and forwardly, pivotally and slidably mounted wings carried by the frame, means for holding the wings raised and in a closed position, said means being released on the rearward movement of the fender to allow the wings to slide downwardly, and means for swinging the wings outward on their descent.

7. In a fender, a supporting-frame, a fender pivotally connected with the frame to swing rearwardly and forwardly, wings pivotally and slidably mounted on the frame, interengaging hooks for holding the wings raised and in closed positions, said hooks being disengaged by the rearward movement of the fender, and wedges on the wings and frame for swinging the wings outward when released by the disengagement of the hooks.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

PHILIPP LENTZ.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.