

No. 621,143.

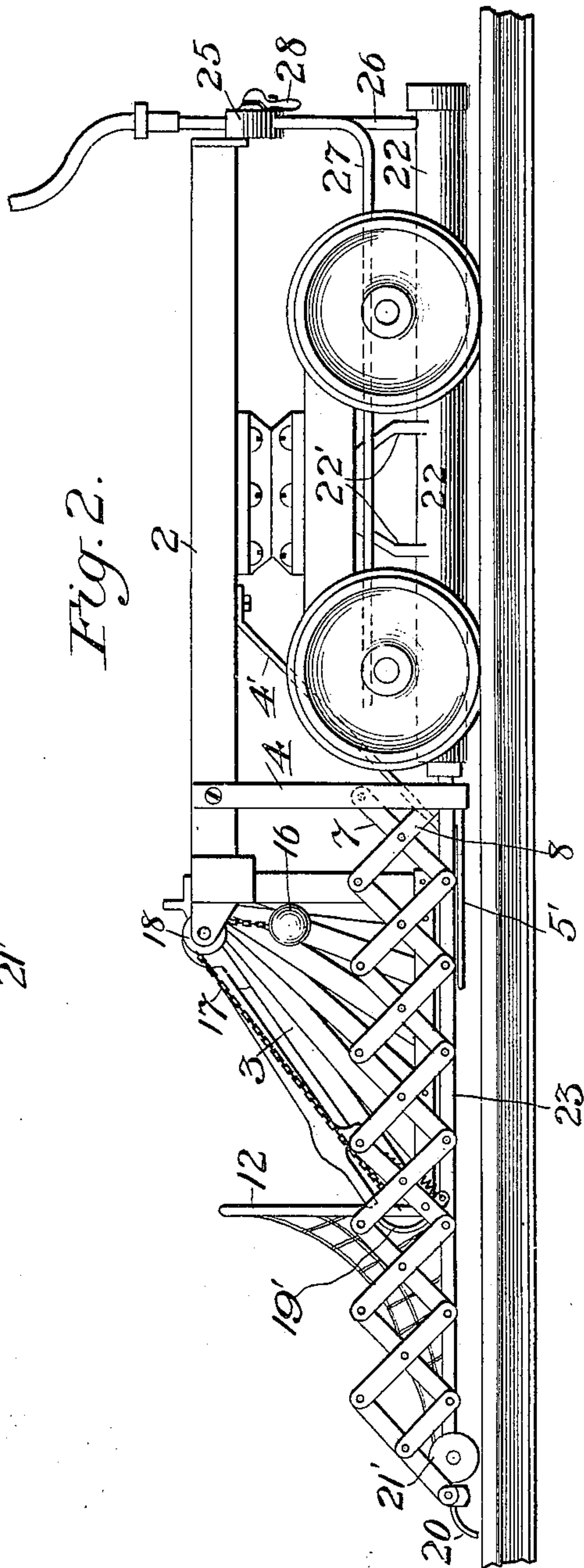
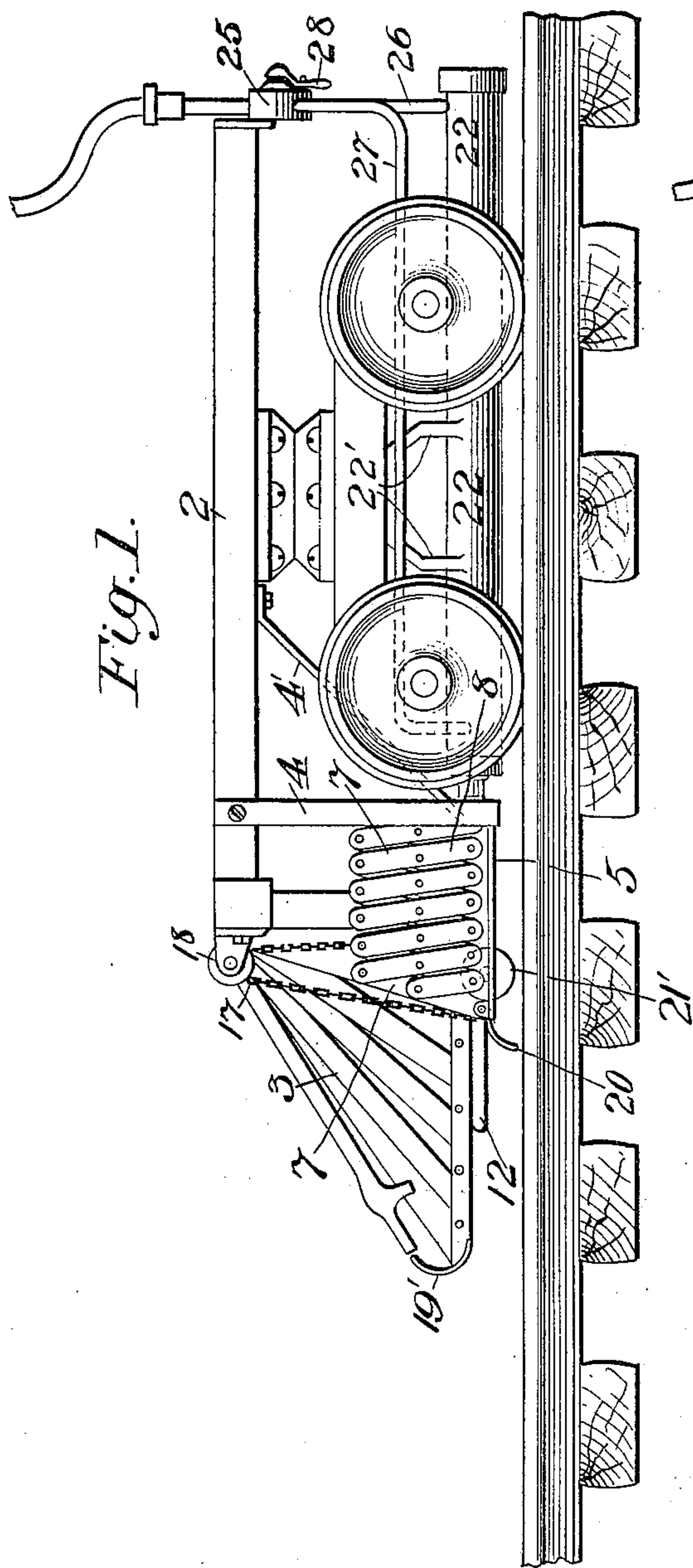
Patented Mar. 14, 1899.

J. H. ROBINSON.  
LIFE SAVING GUARD FOR LOCOMOTIVES.

(Application filed Dec. 9, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:  
Richard Paul  
M. C. Noonan.

Inventor:  
James A. Robinson,  
By Paul & Hawley,  
His attys.

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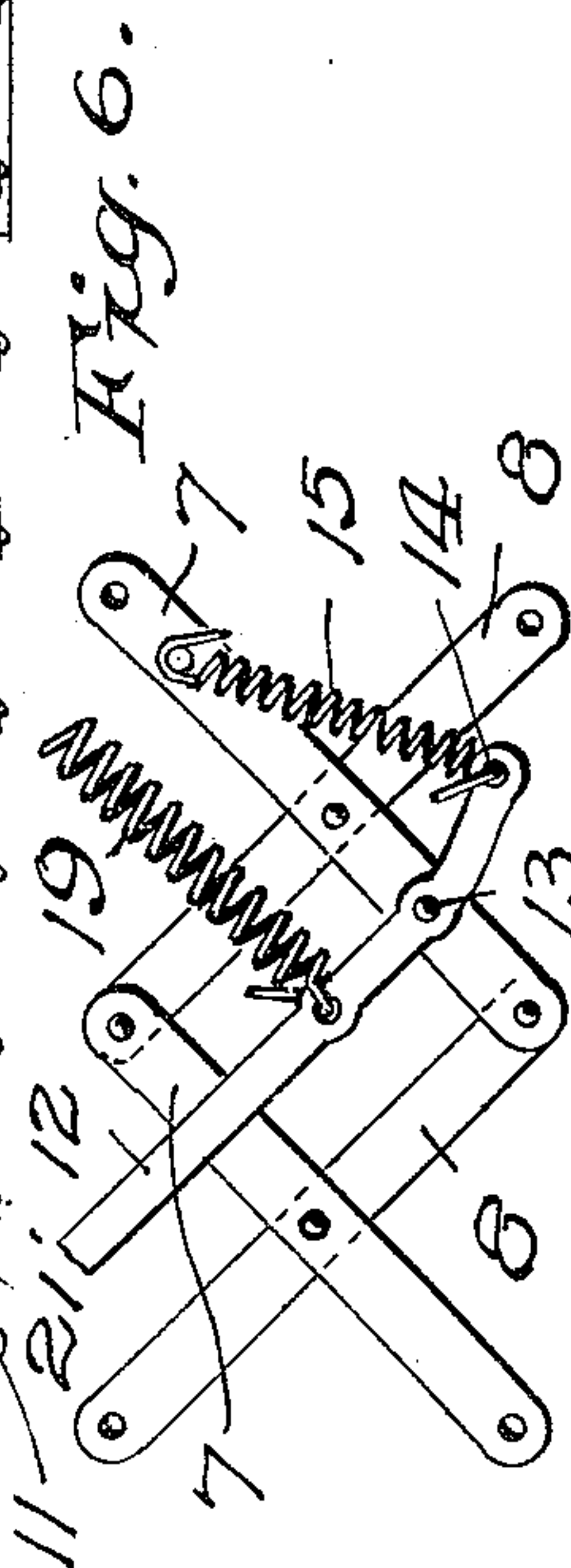
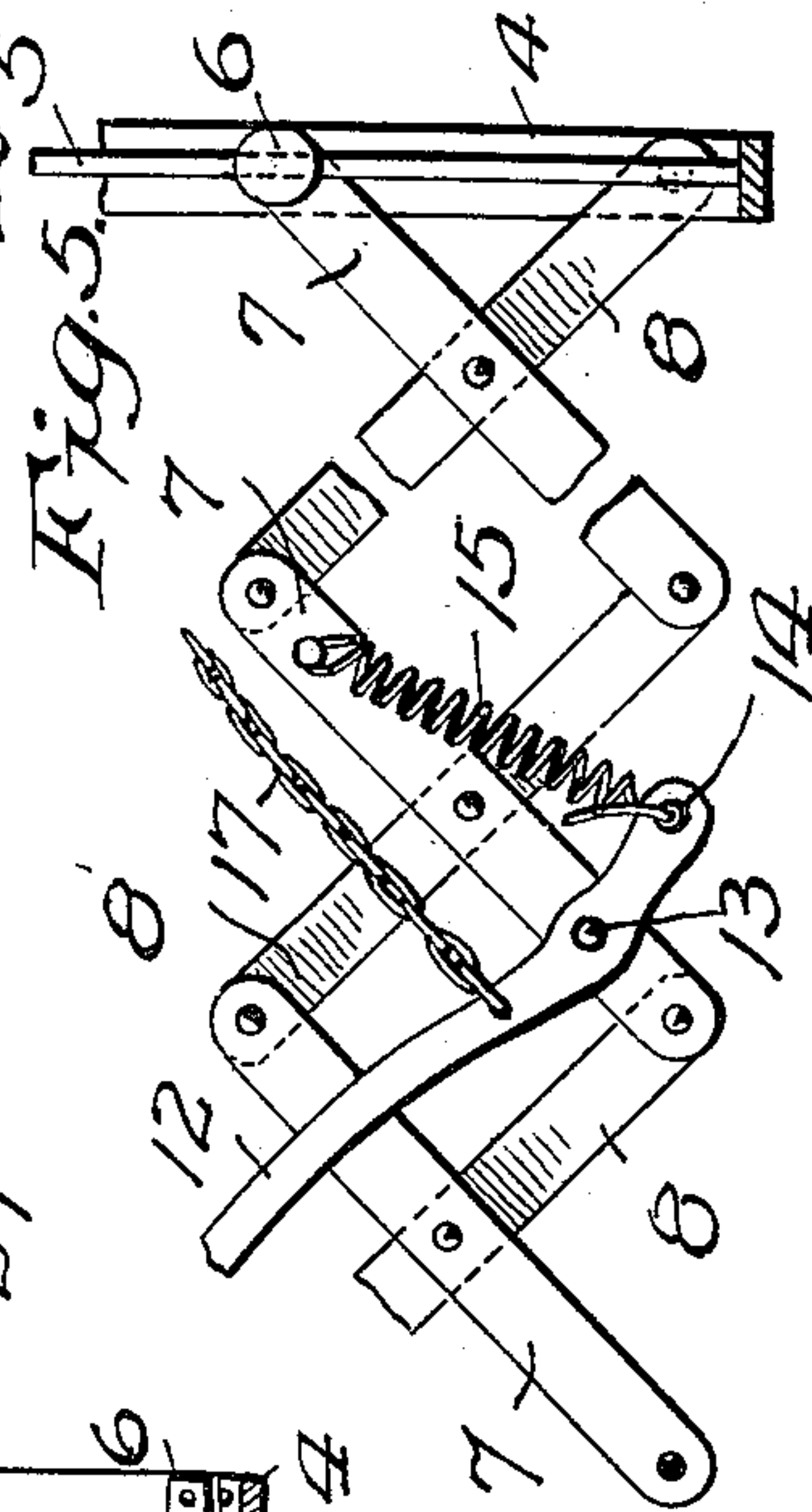
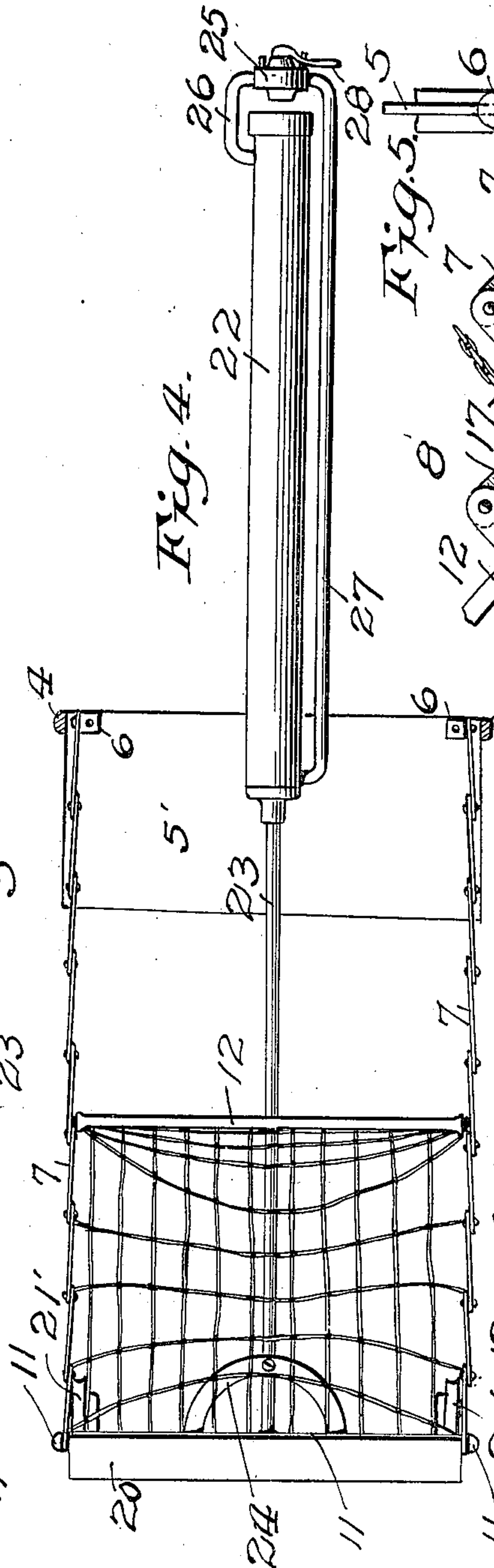
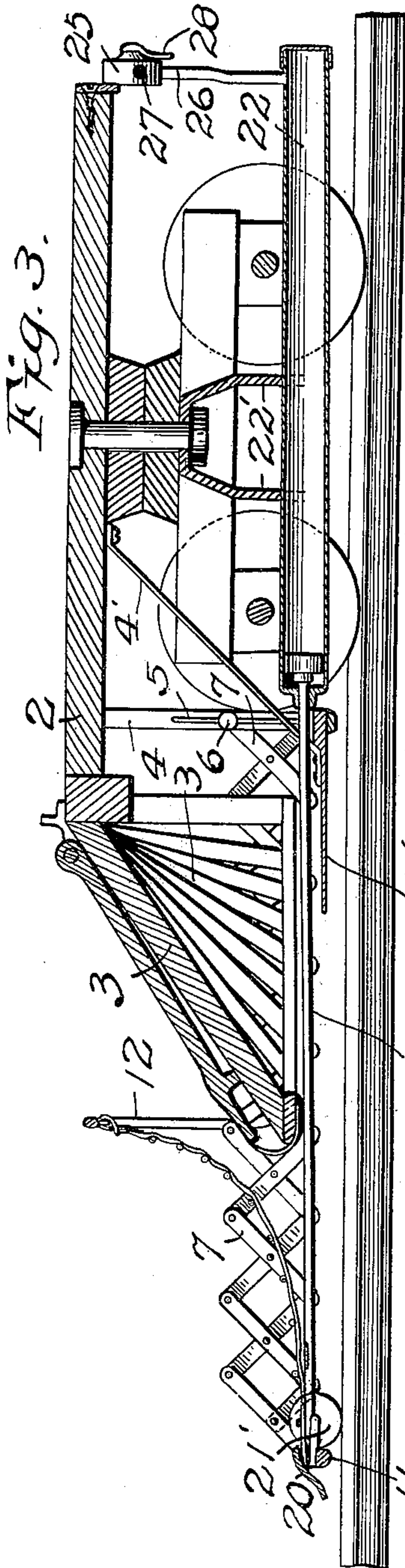
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2 Sheets—Sheet 2.



Witnesses;  
C. E. Van Doren  
Richard Paul

Inventor;  
James H. Robinson,  
By *Paul Hawley*  
his attorneys.



# UNITED STATES PATENT OFFICE.

JAMES H. ROBINSON, OF MINNEAPOLIS, MINNESOTA.

## LIFE-SAVING GUARD FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 621,143, dated March 14, 1899.

Application filed December 9, 1897. Serial No. 661,243. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. ROBINSON, of Minneapolis, county of Hennepin, and State of Minnesota, have invented a new and useful  
5 Improvement in Life-Saving Guards for Locomotives, of which the following is a specification.

My invention relates to devices for use in connection with locomotives for gathering up  
10 obstacles on the track to prevent their being crushed by the wheels of the train; and the particular object of the invention is to provide a life-saving fender or guard operated from the cab of the locomotive to enable the  
15 engineer to gather up persons who may be walking or lying on the track without injury to them other than the shock resulting from being caught up suddenly by a rapidly-moving train.

20 The invention consists generally in the combination, with a locomotive, of a folding fender or guard secured to the forward end thereof and arranged to be projected in advance of the pilot to pick up objects upon  
25 the track.

Further, the invention consists in providing means for preventing the person caught up by the guard from being thrown back upon the pilot, and, further, the invention consists  
30 in means within the control of the locomotive-engineer for quickly projecting and withdrawing said fender, all as hereinafter described, and particularly pointed out in the claims.

35 In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of a portion of the forward end of the locomotive with my invention attached thereto. Fig. 2 is a similar view with the  
40 fender projected ready for use. Fig. 3 is a longitudinal sectional view showing the guard projected and the mechanism for operating the same. Fig. 4 is a plan view of the guard and its operating device. Fig. 5 is a detail  
45 of a portion of one side of the fender, and Fig. 6 is a similar view showing a modified construction.

50 In the drawings, 2 represents a portion of the frame of the locomotive of the usual construction, having the pilot 3 secured to its forward end, in the rear of which is arranged the guard or fender. To support the guard

or fender, I provide the bracket or hanger 4, secured at its upper ends to the frame 2 and depending to a point near the rails. At the  
55 lower end of the hanger supported thereby and by the brace-rods 4' I provide a horizontal plate 5', which protects the guard from injury when not in use. Upon the inner  
60 surface of the hanger 4 I arrange the rods 5, secured at each end to the hanger and forming vertical guides for blocks 6, provided on the ends of the levers 7 at the inner end of the guard and movable up and down on the  
65 guides as the guard is extended or withdrawn. The levers 7 are pivotally secured at the ends and near the middle to corresponding levers 8, forming lazy-tongs, by the operation of which the guard is projected beyond the pilot when it is desired to pick up  
70 objects on the track. The ends of the levers 8 at the inner end of the guard are pivotally secured to the lower end of the hanger 4 to hold the inner end of the guard securely in position and at the same time permit a vertical  
75 swinging movement of the lever 8 when the guard is extended.

The forward ends of the levers 7 at the outer end of the guard are connected by a  
80 brace-rod 11, and a curved shield part 12, forming the rear of the guard, is provided near the middle portion of the frame and connected thereto by pivots 13, passing through holes near the ends of the part 12 and through  
85 one of the levers 7 upon either side of the frame, near the lower edge thereof. The ends of the shield 12 are also provided with holes or openings 14, and springs 15, secured at one end in said holes and at the other to one of the levers 7, hold the part 12 in a horizontal  
90 position when the guard is not in use.

For the purpose of elevating the shield part 12 to a vertical position when desired I provide a weight 16, connected to one end of a chain 17, which passes over a pulley 18, provided on the pilot of the locomotive, and is  
95 connected to the part 12 near one of its pivots 13. In place of the weight for raising the shield part 12 to a vertical position I may provide the springs 19, as shown in Fig. 6, having one end secured to the part 12 and its  
100 opposite end fastened to some convenient point on the pilot or frame of the locomotive. At the lower end of the pilot I provide a



curved guide 19', for the purpose hereinafter described.

In front of the brace-rod 11 I provide a flexible apron 20, having one of its longitudinal edges secured to said rod and its outer edge depending to a point near the rails to aid in guiding the object picked up into the net arranged between the sides of the guard and secured at its forward end to the rod 11 and at the rear to the part 12. This net is preferably made of strong cord and hangs loosely between the parts 11 and 12 to permit the shield part 12 to be raised to a vertical position, as shown in Fig. 3, to prevent the object that is picked up by the guard from being thrown back upon the pilot or beneath the wheels of the locomotive. At the forward end of the guard I provide the small trucks or rollers 21', which rest upon the rails and support the outer end of the guard when thrown forward. As shown in the drawings, the device is tilted forward slightly, so that when folded up beneath the pilot the rollers will be out of contact with the rails. Beneath the forward end of the locomotive I arrange a cylinder 22, supported by the hanger 22' and having a piston 23, connected at its forward end to the middle portion of the brace-rod 11 and rigidly secured thereto by the semi-circular brace 24. At the rear end of the cylinder 22 I arrange a four-way valve 25, provided with ports communicating, respectively, by means of the pipes 26 and 27 with the forward and rear ends of the cylinder 22 and connected with the air-tank on the locomotive, from which a supply of air is obtained to operate the guard. The valve 25 is also provided with suitable exhausts and an operating-lever 28 for directing the air either to the front or the rear of the piston, as may be desired.

The operation of the device is as follows: In its normal position the fender is folded up in the rear of the pilot and, protected by the plate 5', will remain in this position until such time as the engineer discovers an obstacle on the track which he wishes to gather up in the net. At such time the air-pressure is admitted into the rear end of the cylinder 22, and the piston will immediately be thrown to the forward end, thrusting the guard beneath the pilot and beyond the forward end thereof into position to engage the obstacle and gather it up in the net. When the part 12 has been advanced beyond the forward end of the pilot, the weight 16 will raise the same to a vertical position and at the same time elevate the rear end of the net connected to the part 12 and forming a shield to prevent the person gathered up by the net from striking the pilot and incurring injury thereby. When the shield part 12 is passing the forward end of the pilot, the guide 19' will prevent the same being caught on the end of the pilot or on the connecting-rod provided on the forward end of the locomotive. When the obstacle has been gathered up and removed from

the net, the engineer by opening the port in the valve leading to the forward end of the cylinder 22 permits the air to pass therein and force the piston to the rear end of the cylinder, folding up the guard to its original position at the rear end of the pilot.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the locomotive, of an extension guard or fender secured thereto, and a pneumatic device within the control of the engineer for projecting said guard in front of the pilot and withdrawing the same, substantially as described.

2. The combination, with a locomotive, of a guard or fender secured thereto, a pilot, means within the control of the engineer for projecting said guard in front of the pilot and withdrawing the same, and means preventing the object picked up by the guard from being thrown upon the pilot, substantially as described.

3. The combination, with a locomotive, of a guard or fender secured thereto, a pilot, means for advancing said guard in front of the pilot and withdrawing the same, a shield carried by said guard, and means for raising said shield to an upright position when said guard is projected in front of the pilot, substantially as described.

4. The combination, with the locomotive, of a guard or fender secured thereto, a pilot, means for advancing said guard in front of the pilot and withdrawing the same, a normally horizontal shield carried by said guard, and means for raising said shield to an upright position when said guard is projected in front of the pilot, substantially as described.

5. The combination, with the locomotive, of a guard or fender secured thereto, means within the control of the engineer for projecting said guard in front of the pilot and withdrawing the same, the net provided at the front of said guard, the part 12 forming a shield pivotally connected to said guard and supporting the rear edge of the net, said shield normally occupying a horizontal position when said guard is not in use, and means for raising said shield to an upright position when said guard is projected in front of the pilot, substantially as described.

6. The combination, with a locomotive, of a guard or fender secured thereto, and comprising a folding frame, a net at the forward end of the same, means supporting the rear end of the frame, a cylinder, a piston arranged to operate within said cylinder and connected with said frame, and means whereby air may be admitted in front or behind said piston to project or withdraw said folding frame, substantially as described.

7. A guard for locomotives, comprising a folding frame a net at the forward end thereof, means for projecting said frame beyond the pilot and withdrawing the same, a hanger or bracket at the rear end of said frame and



where to the same is pivotally secured, the guides provided on said hanger, and the blocks provided on the rear end of said frame to operate in said guides, substantially as described.

5 8. The combination, with a locomotive, of a guard or fender secured thereto, means within the control of the engineer for projecting said guard in front of the pilot and withdrawing the same, a hanger or bracket supporting the rear end of said guard, and a horizontal plate carried by said hanger and forming a shield for said guard when not in use, substantially as described.

15 9. The combination, with a locomotive, of an extension guard or fender, means supporting the rear end of the same, means within the control of the engineer for projecting

said guard in advance of the pilot and withdrawing the same, and the rollers or trucks 20 provided at the forward end of said guard and adapted to rest upon the rails when the guard is in use, substantially as described.

10. The combination, with a locomotive, of a guard or fender carried thereby, and a pneumatic device within the control of the engineer for projecting said guard upon the track in front of the pilot and withdrawing the same, substantially as described.

In testimony whereof I have hereunto set 30 my hand this 20th day of November, A. D. 1897.

JAMES H. ROBINSON.

In presence of—

RICHARD PAUL,  
M. E. GOOLEY.