

(No Model.)

4 Sheets—Sheet 1.

C. S. ANDREWS.
CAR FENDER.

No. 545,186.

Patented Aug. 27, 1895.

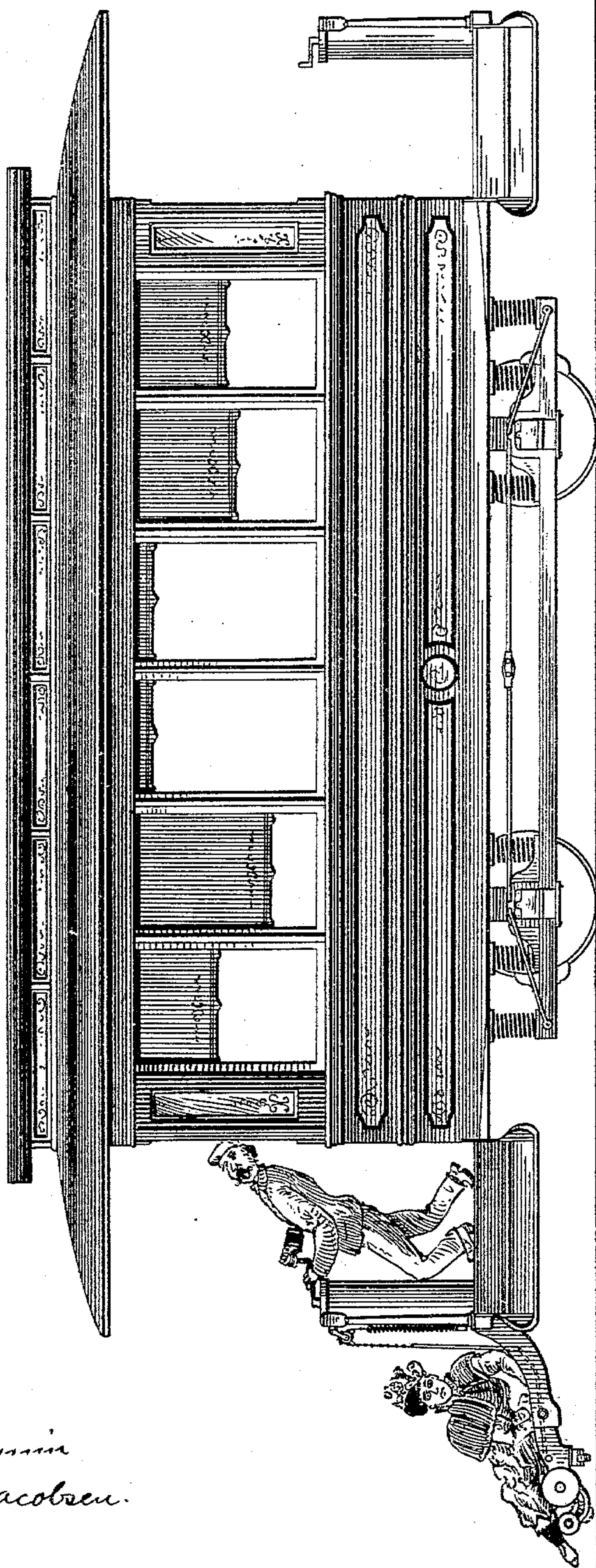


Fig. 1.

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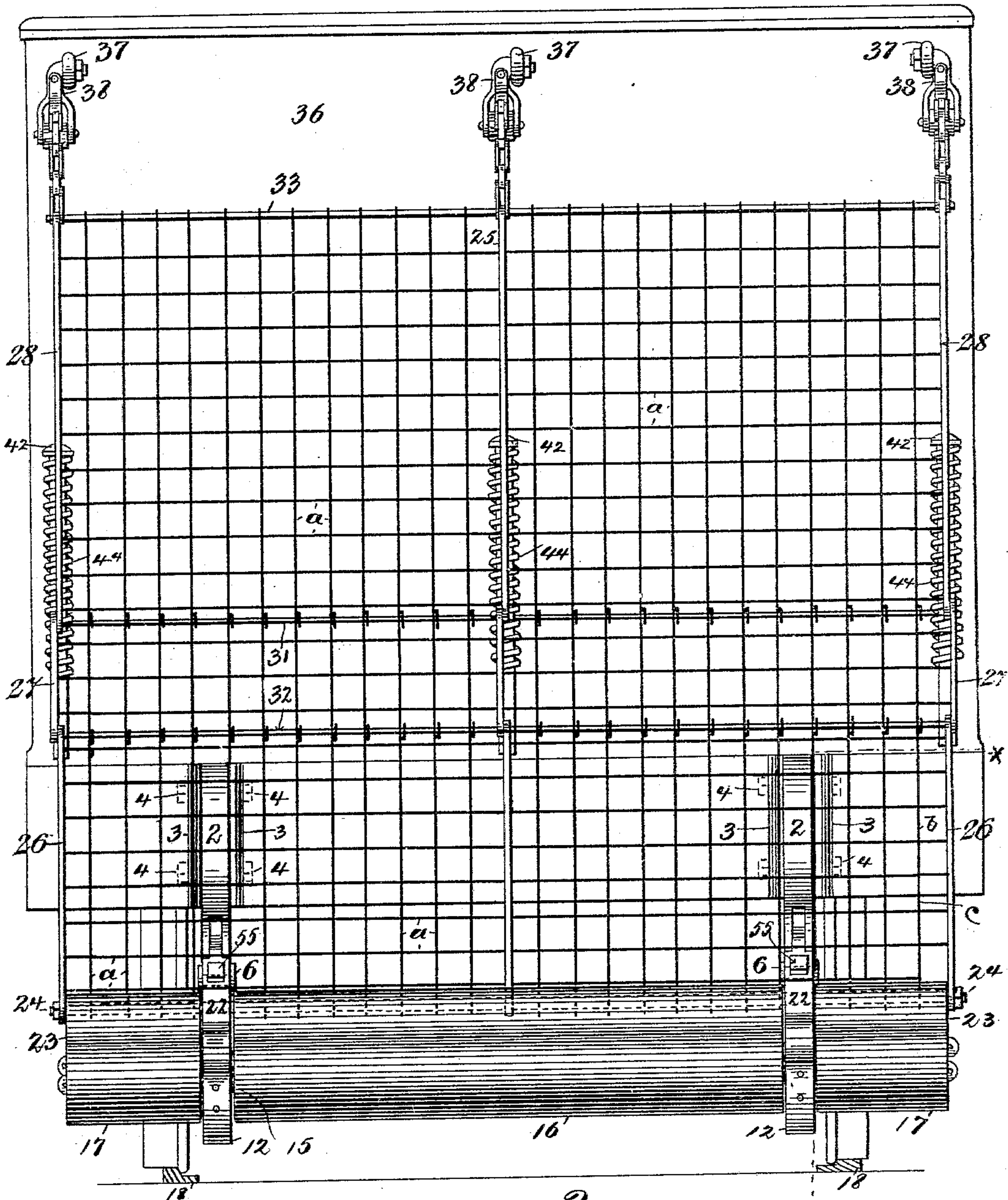
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Fig. 2.

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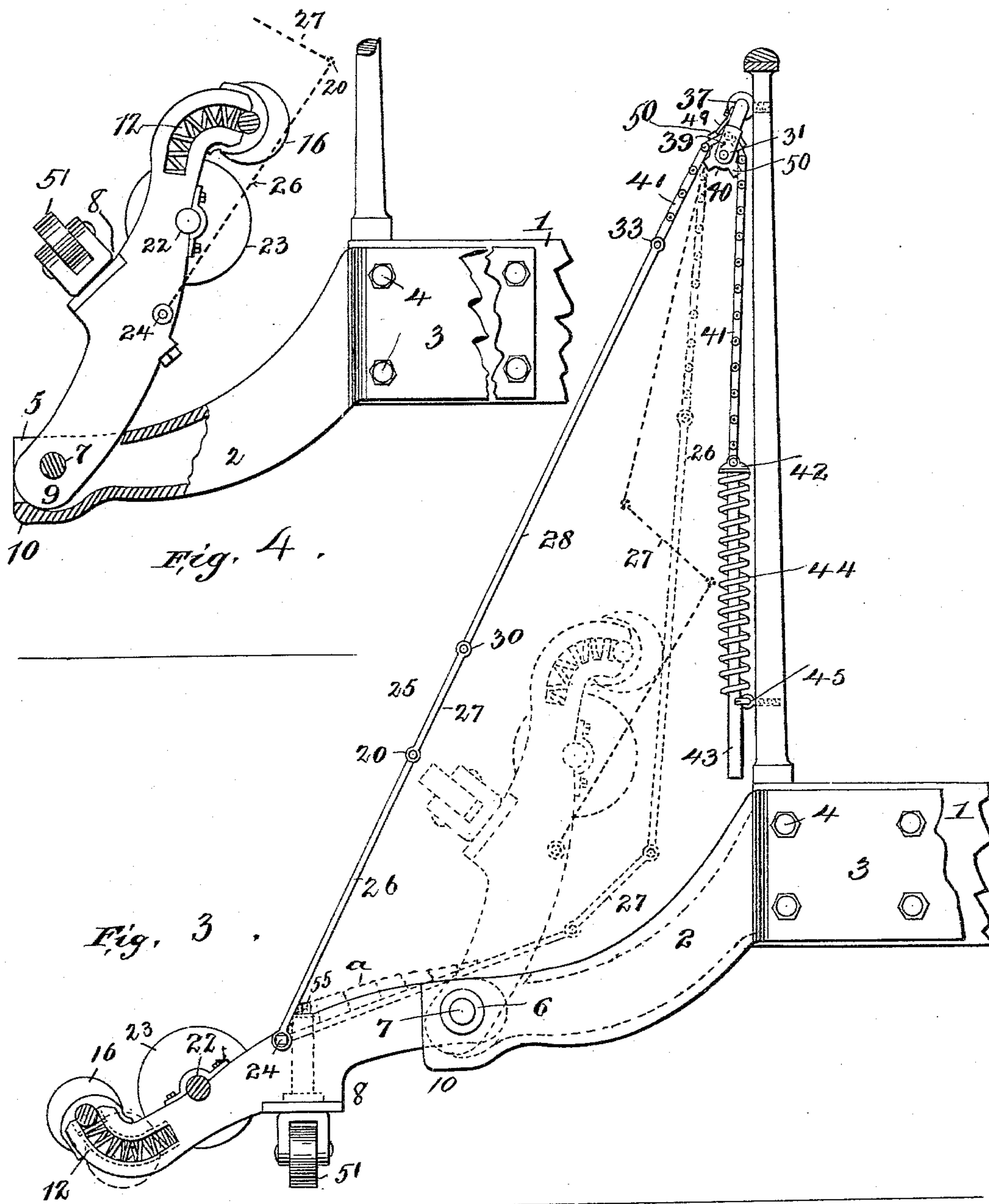
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(No Model.)

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Fig. 6.

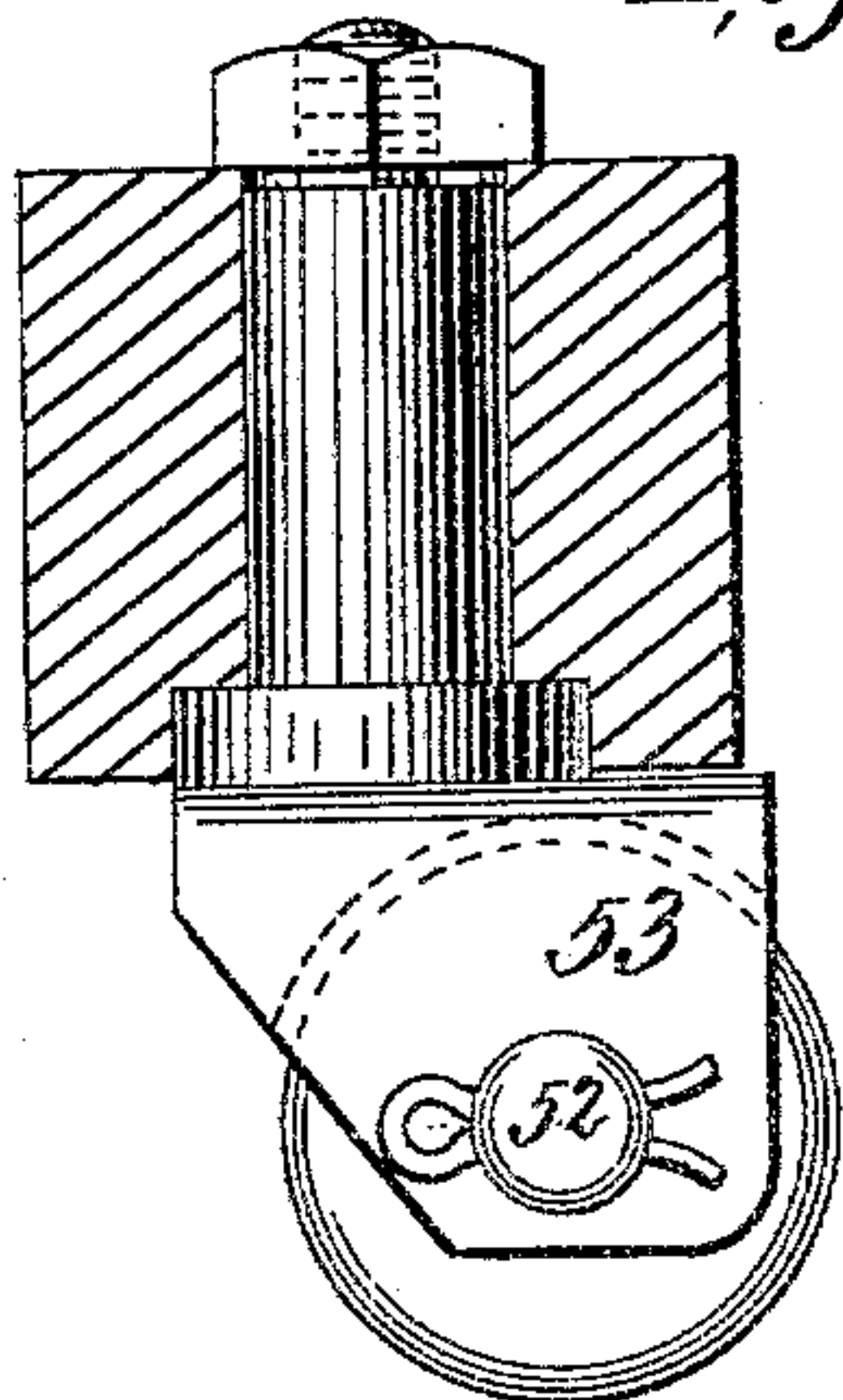


Fig. 7.

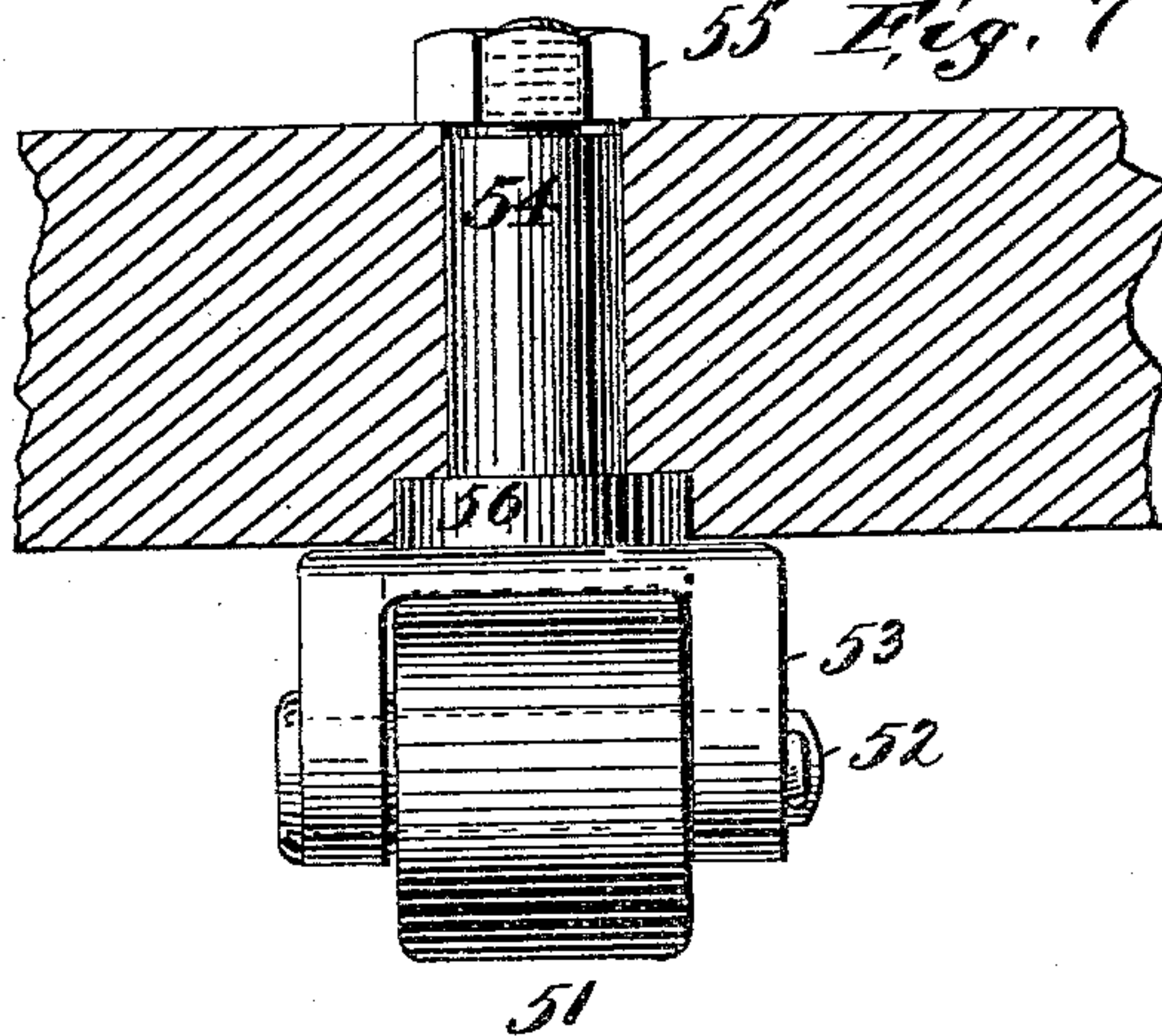


Fig. 5.

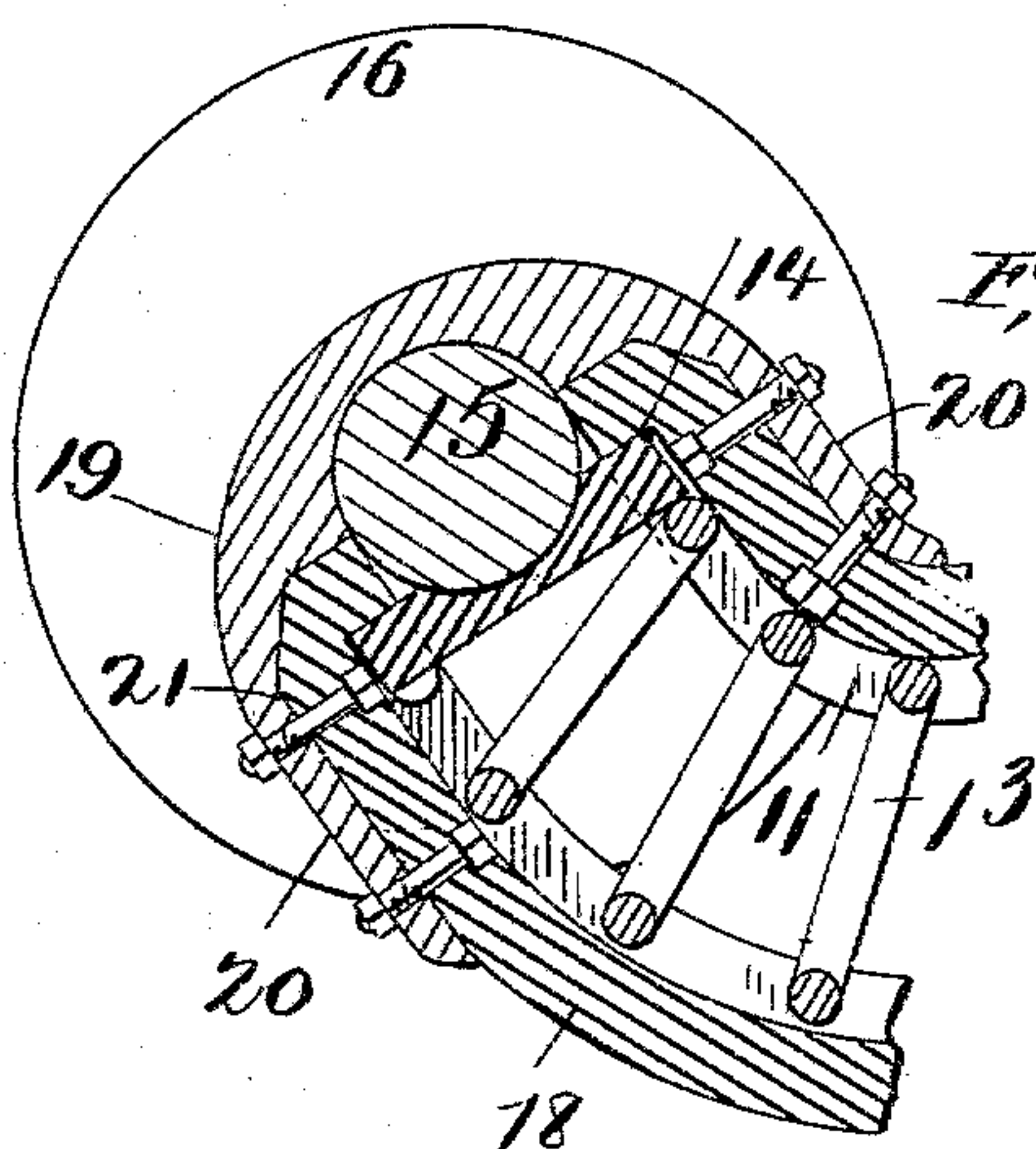


Fig. 8.

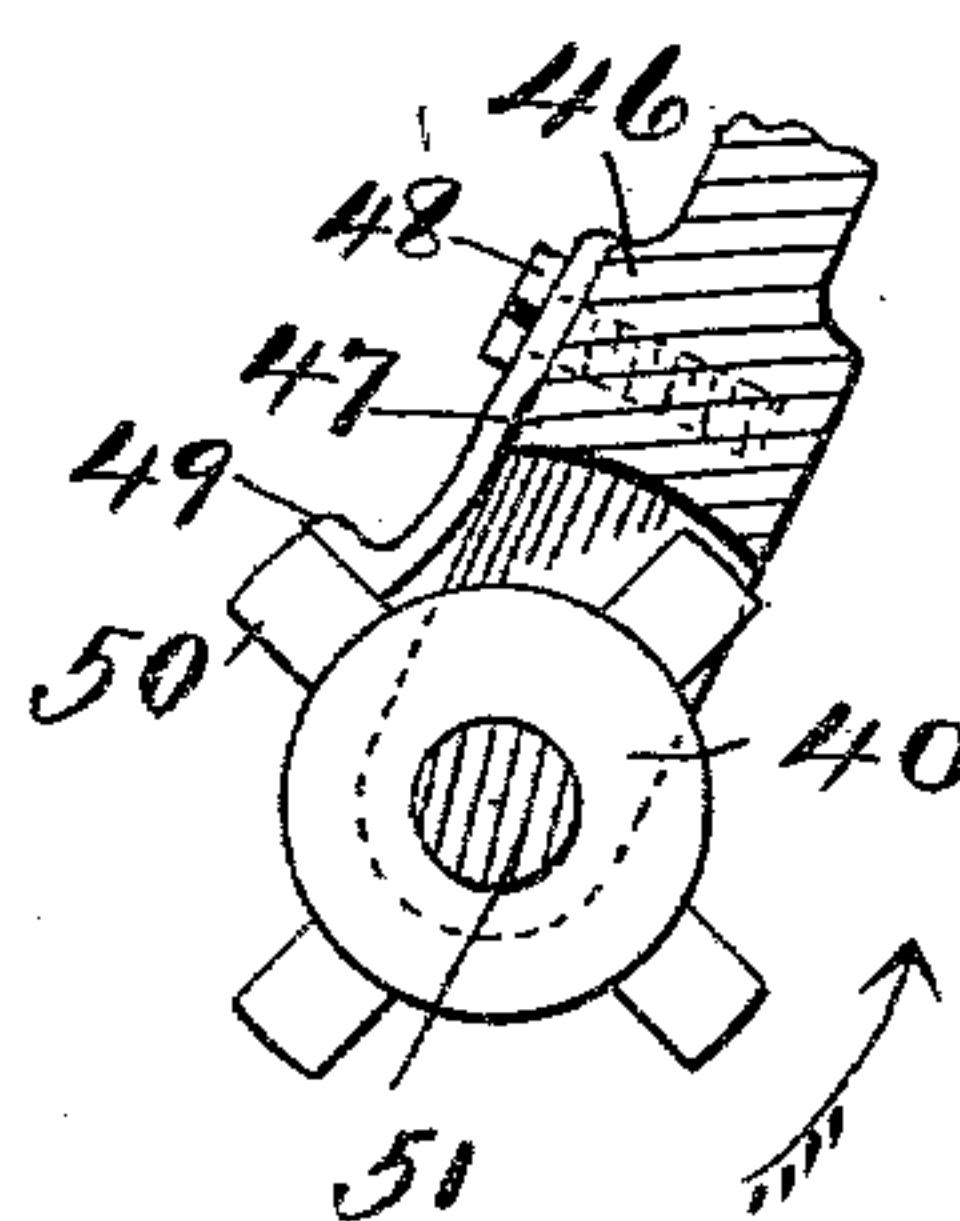


Fig. 10.

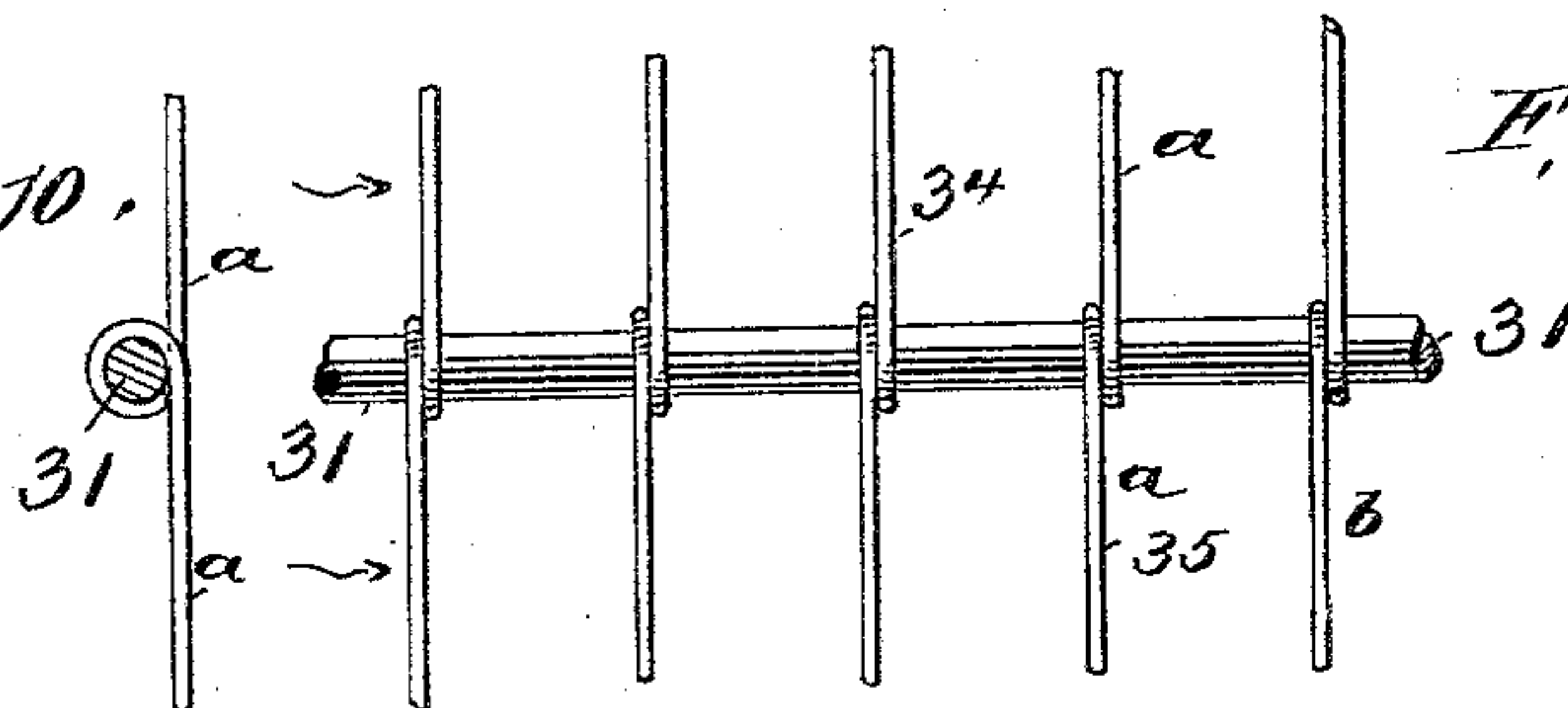


Fig. 9.

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UNITED STATES PATENT OFFICE.

CHARLES S. ANDREWS, OF NEW YORK, N. Y.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 545,186, dated August 27, 1895.

Application filed April 23, 1895. Serial No. 546,809. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. ANDREWS, a citizen of the United States, residing at the city, county, and State of New York, have made certain new and useful Improvements in Car-Fenders, of which the following is a specification.

My invention relates to devices supported in front of the platform of the car, which are designed to safely pick up and carry human beings, as well as other objects, and prevent injury thereto.

My invention consists in the combination of parts, and in the construction hereinafter described, and further pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a car with my improved fender attached, diagrammatically illustrating the action of the fender; Fig. 2, an enlarged front elevation of the fender secured in place; Fig. 3, a side elevation of Fig. 2, partly in section, taken on the line X X, Fig. 2; Fig. 4, a like elevation showing the position of the fender when folded and inoperative. Fig. 5 is an enlarged sectional elevation of the front portion of the fender side bars; Figs. 6 and 7, side and front elevations, respectively, of the counter-roller and its support in the side bar. Fig. 8 is a sectional elevation, enlarged, of the sprocket-wheel hanger and detent; Fig. 9, an enlarged fragmentary elevation of the netting and means for hinging the portions together, and Fig. 10 a side elevation thereof.

Similar numerals of reference indicate corresponding parts throughout the several views.

The object of my invention being to provide an efficient fender I construct the same substantially in the manner hereinafter described.

At 1 in the drawings is one of the longitudinal sills of a car to which is secured an arm or casting 2, provided with side flanges 3, which embrace the sill 1, and to which said arm is secured by bolts 4, as shown in Figs. 2 and 3, respectively. The flanges 3 form a bifurcated end for the arm 2, which flanges extend a considerable distance rearwardly, the end of the sill abutting against the inner end of the bifurcations, the length of the side

plates 3 giving a firm bearing on the sill for the support of the arm 2 and its appendages. I preferably cast this arm 2 hollow, as shown, so as to preserve strength and lightness, and give to it a downward curve or bend, and at the end of the same the arm is provided with a longitudinal slot or opening 5, and in an aperture in each side thereof is formed bearings 6 for a cross-shaft 7, hereinafter described. These arms are located, there being two of them, at the desired positions in relation to the platform and secured to the end of the sills, as shown in Fig. 2.

To the shaft 7 is hinged a swinging arm 8, preferably cast hollow, and which is provided with an extension 9, (see Fig. 4,) so as to give a firm bearing from the same on the shaft 7, the swinging arm being adapted to be lowered into the position shown in Fig. 3, in which position it is adapted to operatively engage obstructions on the track, a lip 10 on the forward part of the arm 2 taking the strain of the weight of the hinged arm 8 and limiting its downward movement. Each of the arms 2 are provided with the hinged arms 8, and I shall hereinafter term the arms 2 and 8 as the "side bars" of the fender.

The forward portion of the arm 8 is provided with a recess or guideway 11, formed in the upwardly-curved portion 12 of the arm 8, the guideway following the curve of this portion of the arm, and within the guideway 11 is located a spiral spring 13, which abuts at its forward end against a bearing or follower 14. This follower is designed to act as a bearing for a transverse shaft 15, which extends between the two side bars and out from each side thereof, and fixedly supports thereon the wooden roller 16, having the outside supplemental extensions 17, lying beyond the side bars and extending out beyond the track 18, as shown in Fig. 2.

The end of the arm 8 is provided with a rounded cap 19, designed to act as a bearing for the shaft 15 in its position of furthest projection, as well as to restrain and limit the outward movement of said shaft under the influence of the spring 13, the cap 19 having lips 20 fitting over the end 12 of the arm 8, to which end the lips 20 are secured by bolts 21 in any suitable way. The object of this construction is to provide means which, by reason

of the downward bend of the arms 2 and 3, brings the end 12 low enough to strike a body at such a point as will throw the same over upon the fender, the roller 16 at the same time rotating and forcing its shaft inwardly against the stress of the spring, and downwardly, so as to follow the natural line of movement of the fall of the body, and then upwardly in the direction of the movement of the body, which is then contrary to the movement of the car, the roller 16 rotating inwardly and moving the body toward the net of the fender. Thus the action of the roller is downward and inwardly against the spring, to ease the shock of striking, then upward and forward to lift the body, the roller rotating to progress the body rearward onto the net. The curved portion 12 also provides means for allowing the arms to readily ride over such temporary or fixed obstructions as it may not be necessary to catch upon the fender, and the rounded cap permits the body to ride over it without obstruction.

To further propel the body toward the netting I form in the arms 8 a further bearing for a shaft 22, which has an extension equal to the shaft 15 between the side bars of the fender and outside of them, and which supports a roller 23, preferably of wood, larger in diameter than the roller 16, and which receives the body and further enables its easy progress from the roller 16 to the netting to be readily accomplished.

The netting which is designed to finally receive the body is pivotally secured to the arm 8 at the rear of the roller 23, and is formed of three sections hinged together, so as not only to form or provide a suitable receptacle for the body, but to enable it to be stowed behind the hinged portion of the fender when the same is thrown back, as shown in Fig. 3, the netting being provided with a counterpoise arrangement involving two elements, a weight and a spring, the weight acting to support the netting in its position of projection and counterbalance the same, the spring acting to resiliently resist the shock given to the netting when the body strikes it, with which part is combined a detent to prevent the spring from drawing or straightening out the netting after the body has struck the same and moved it rearward, as shown in Fig. 3, and from being again straightened out by the spring, and thus throwing the body out of it.

I construct my netting as follows: Extending between the arms 8 is a rod 24, (shown in dotted lines, Fig. 2,) to the ends of which are secured articulated side bars 25, comprising the bars 26 27 28, hinged together at 29 30 by bars or rods 31 32, and secured at the top transversely by another bar or rod 33. I prefer that the side bars 25 should be stiff, while the bars 31 32 33 can be of lighter material, such as used in the construction of heavy wire-netting, the side bars 25 being intended to stiffen the netting. Intermediate of the side bars 5 is another centrally-located bar 25, con-

structed exactly the same as the side bars; and through which the bars 24 31 32 33 pass in the same manner. The netting is thus formed of three sections, *a*, *b*, and *c*, hinged or interfulcrumed together, the ends of the wires of the netting at the hinged or interfulcrumed portions being united to their hinging bars or rods, as shown in Fig. 9, where it will be seen that the wires 34 of the section A are looped around one of the cross bars or rods 31, and the wires 35 of the section B looped around the same rod in the reverse direction to form a hinged connection. Thus, in the presence of undue shock, the netting will be moved inwardly and by means of its hinged connection assume the form of a receptacle, as shown in Fig. 3 in double dotted lines, which will receive and hold the body.

To support the screen in the manner hereinbefore described and to resiliently resist the shock when a body strikes it and moves it forcibly inward, I employ the following construction: To the dashboard 30 of the car or any other appropriate place I secure pintles or eye-hooks 37 and pivotally support from these hooks bifurcated hangers 38, between the arms 39 of which lies a sprocket-wheel 40, having suitable sprocket-teeth, over which is adapted to run a sprocket-chain 41, engaging the cross-rod 33 of the netting at one end and thence running downwardly, and at the other end engaging a cap 42, to which is secured a weight 43 and one end of a spiral spring 44, the spring embracing the weight, the lower end of the spring being fixedly secured to a pin 45, in its turn secured to the dashboard, the spring being wide enough to permit the weight 43 to move up and down within it. To the flat face 46 of the hanger 38 is secured one end of a spring 47 at 48, the other end being provided with a finger 49, which is adapted to bear against the sprocket-teeth 50 of the sprocket-wheel 40, which freely rotates upon a shaft 51 journaled in the arms 39 of the hanger, this spring acting as a detent, which permits the sprocket-teeth to ride past it in the direction of the arrow, Fig. 8, but acting as a dog to restrain the reverse movement of the sprocket wheel and chain. Thus when the body strikes the netting the force of the blow moves the sections of the netting into the angular relation shown in Fig. 3, whereby a receptacle is formed for the reception of the body, which movement of the parts lowers the cross-rod 33 and by the sprocket-chain 41 lifts the cap 42 against the stress of the spring 44, thus resiliently resisting the blow. At the same time the dog 47 rides over the sprocket-teeth of the sprocket-wheel, and when the body has come to rest the dog engages the teeth of the sprocket-wheel in its tendency to move in the reverse direction under the stress of the spring and restrains such movement. Thereafter, when desired, the dog can be freed from engagement with the teeth of the sprocket-wheel and the screen or netting brought back into its elevated position again, when

the weight 44, which had also in a measure acted to resist the blow or impact of the body on the screen, suspends the netting in its projected position by reason of its downward pull on the sprocket-chain 44, taking this stress from off the spring.

As shown, I prefer to use three sets of this particular device, which distributes the strain equally over all the netting and allows the use of three small weights and springs, where otherwise one large one would be necessary, thus enabling the proper distribution of resistance to be made.

In order to provide against the end of the side bars from striking the ground during the oscillation of the car, I provide what I call a "counter-roller" 51, journaled on a shaft 52, having bearings in the bifurcated arms 53 of a suitable stem or standard 54, which extends up through an aperture formed in the arm 8 and secured therein by a lock-nut 55 at the top, the stem having an annular shoulder 56 lying within an annular recess formed about the aperture through which said stem extends, and which forms an interior bearing for said stem, the exterior of the arms having a bearing-plate 57 to form a rub or wearing surface for the arm 53. Thus should the arms 8 during undue oscillation of the car strike the ground the roller will receive the force of the blow, and during the turning of sharp curves should this occur the fender will be enabled to make a rolling contact on the road-bed, and thus relieve the joint of the arms 2 and 8 from the strain.

From the foregoing it will be apparent that many changes and modifications can be made in the foregoing structure without departing from the spirit of my invention.

I claim—

1. In a car fender, the combination with a car platform, arms pivoted thereto, a spring actuated roller mounted in bearings in the ends of said pivoted arms, and a screen, the forward end of which is movably secured to said arms at the rear of said roller, its rear and upper end being supported independently of said arms by springs, flexible connection between the springs and said upper end, and means for controlling the action of said springs, substantially as described.

2. In a car fender, the combination with the car platform, of the outwardly and downwardly extending fixed arms secured thereto, arms hinged upon said fixed arms, curved guide ways in the ends of said pivoted arms springs in said guide ways, a follower on the springs, and a roller rotatively supported upon said springs, and a movable screen to the rear of said roller, substantially as described.

3. In a car fender, the combination, with the platform, of the fixed arms secured thereto, further arms pivoted to said fixed arms, downwardly and rearwardly extending guide ways in said pivoted arms, a follower and spring in said guide ways, a shaft and a

roller thereon journaled upon said follower and adapted to be moved downwardly and rearwardly against said springs, and a screen 70 at the rear of said roller, substantially as described.

4. In a car fender, the combination, with the car platform, of the fixed arms secured thereto, arms fulcrumed to said fixed arms 75 and supporting a roller at the outer extreme thereof, a downwardly and rearwardly extending guide way and springs therein for the roller, and means for limiting the downward movement of the pivoted arms, substantially 80 as described.

5. In a car fender, the combination of the following instrumentalities: arms extending from the platform of the car, a plurality of transverse rollers supported rotatively on said 85 arms, one of said rollers having a fixed plane of rotation, the other being adapted to be moved downwardly and rearwardly against the stress of the springs and to be forwardly and upwardly moved by the said springs and 90 simultaneously rotated, substantially as described.

6. In a car fender, the combination with the arms extending outwardly from the platform of the car, a plurality of rollers rotatively and transversely supported at the forward ends of said arms, one of said rollers being larger in diameter than the other and having a fixed plane of rotation, the other and forward roller being adapted to be moved 100 downwardly and rearwardly against the stress of springs and to be moved in the reverse directions by said springs, both rollers adapted to be rotated in the same direction, and a screen at the rear of said rollers, substantially 105 as described.

7. In a car fender, the combination with the arms extending outwardly from the car platform, a plurality of transverse rollers rotatively supported at the forward ends of said 110 arms, an articulated screen pivotally secured at one end of the arms at the rear of said rollers, and means for movably connecting the other end of said screen to the car platform, substantially as described. 115

8. The combination in a car fender, of the arms extending outwardly from the car platform, a plurality of transversely extending rollers rotatively supported in the forward ends of said arms, said rollers being of unequal diameters, the smaller roller being forward of the larger roller and adapted to be moved downwardly and rearwardly against the stress of springs and in the reverse directions by said springs, and an articulated screen 120 movably secured at one end to said arms, springs secured to said car platform, and means for movably securing said screen to said springs, substantially as described. 125

9. The combination of the arms extending 130 forwardly from the platform of a car, a plurality of rollers of different diameters rotatively secured in bearings in the forward ends of said arms, the smaller and forward

roller being adapted to be moved downwardly and rearwardly against the stress of springs and by said springs in the reverse directions, an articulated screen secured to said arms at the rear of said rollers, springs secured to said car platform, means for movably securing the other end of said screen to said springs, and weights secured to said means, substantially as described.

10 10. In a car fender, the combination with the arms extending outwardly from the platform of a car, of a plurality of rollers rotatively supported in bearings at the forward ends of said arms and having different diameters, the smaller and forward roller being adapted to be moved downwardly and rearwardly against the stress of springs and forwardly and upwardly by said springs, an articulated screen at one end secured to said arms, springs secured to said car platform, means for securing the other end of said screen to said springs, weights secured to said means, and a detent for preventing the recoil of said springs secured to said means, substantially as described.

11. In a car fender, the combination, with the car platform, of the arms 2 secured to the platform, a slot 5, in the upper portion of said arms, a cross bar or web 10 beneath said slot, a shaft 7 journaled in bearings 6 in the end of said arms, the arms 8 pivoted to said arms 2 by the shaft 7 and carrying a spring actuated roller 16 at the outer extremity thereof, the cross bar 10 limiting the downward movement of the arms 8, the rear of the slot supporting the arms in their raised position, substantially as described.

12. In a car fender, the combination, with the car platform, of the fixed arms secured thereto, further arms pivoted to the fixed arms, a spring actuated roller at the ends of the pivoted arms, and counter rollers secured to the pivoted arms intermediate of their ends and extending downwardly therefrom, substantially as described.

13. The combination, in a car fender, of the fixed arms, other arms pivoted thereto, a guide-way in the ends of said pivoted arms, springs in said guide-way, a shaft and roller adapted to move in said guide-way against the stress of said springs, a further roller journaled in bearings on the pivoted arms to the rear of said spring actuated roller, and a screen supported at the rear of said rollers, substantially as described.

14. The combination in a car fender, of arms extending outwardly from the platform, a screen secured to said arms at one end and movably connected with springs at the other end, and a detent for checking the recoil of the springs, substantially as described.

15. The combination, in a car fender, of the arms extending from the platform, an articulated screen or netting pivotally secured to said arms, at one end and movably secured to springs at the other end, and a detent for

checking the recoil of the springs, substantially as described.

16. The combination in a car fender, of the arms extending outwardly from the platform, a screen or netting pivotally secured to said arms at one end and movably secured to a spring at the other end, and a weight adapted to counterbalance the weight of said screen, sustain it in its projected position, and relieve the spring while the screen is at rest, substantially as described.

17. In a car fender, the combination with the arms extending outwardly from the car platform, the screen pivotally secured at one end to said arms, springs secured to said car platform, and means interposed between said screen and said springs for checking the recoil of said springs under stress of impact on said screen, substantially as described.

18. In a car fender, the combination with the arms extending outwardly from the car platform, of the screen pivotally secured at one end to said arms, springs secured to said car platform, means connecting said springs with said screen, a weight secured to said means, and further means for checking the recoil of said springs, substantially as described.

19. In a car fender, the combination with the arms extending forwardly of the car platform, a dash-board extending upwardly from the car platform, an articulated screen pivotally secured to the said arms at one end, sprocket wheels supported in hangers on the dash-board above the pivoted end of said screen, springs secured to said dash-board below said hangers, a sprocket chain secured to the other end of said screen passing over said sprocket wheels and connected to said springs, and detents co-operating with said sprocket wheels to prevent the recoil of said springs, substantially as described.

20. The combination in a car fender, of the arms extending forwardly of the platform of a car, the articulated screen pivotally secured at one end to said arms, a dash-board on the platform, hangers secured to the platform above the said pivoted end of the screen, sprocket wheels in said hangers, a sprocket chain connected with the other end of said screen passing over said sprocket wheels and downwardly therefrom, a weight secured to the end of said chain, and means for guiding said weight, substantially as described.

21. In a car fender, the combination with the arm, a screen secured thereto, the dash-board, a sprocket wheel hanger secured to the dash-board, a sprocket wheel therein, a sprocket chain secured to the other end of said screen and passing over said sprocket wheel, means for resisting the rearward movement of said screen secured to the other end of said chain, and a dog secured to said hanger and engaging the teeth of said sprocket wheel, substantially as described.

22. In a car fender, the combination with

the fixed arms extending outwardly from a car platform, arms pivotally secured to said fixed arms and forward of the same, an articulated screen movably secured to said pivoted arms at one end and movably supported upon the car platform at the other end, a spring, and means for checking the recoil of the spring connected with the screen at the latter end, substantially as described.

23. In a car fender, the combination with the arms extending forwardly of the platform, the articulated screen secured at one end to said arms, a dash-board, a hanger secured to said dash-board, a sprocket wheel in said hanger, a dog on said hanger engaging the sprocket wheel, a sprocket chain secured at one end to said screen and passing over said wheel, a cap secured at the end of said chain, a spring secured to the cap at one end and attached to the dash-board at the other, and a weight secured to said cap within said spring, substantially as described.

24. The combination in a car fender, of the fixed arms secured to the platform, further arms pivotally secured to said fixed arms forwardly thereof, a transversely extending roller having a resilient backing mounted in bearings at the forward ends of said pivoted arms, a guard roller mounted upon a vertical shaft rotatively supported in bearings in said pivoted arms adjacent the transverse roller, and means for limiting the downward move-

ment of the pivoted arms, substantially as described.

25. In a car fender, the combination with 35 the arms extending forwardly of the platform, further arms pivotally secured to said arms, a bar extending between the pivoted arms, hangers on the dash-board, sprocket wheels in said hangers, sprocket chains passing over 40 said wheels, a rod transversely connecting said chains, articulated bars extending between said chains and said transverse bar, further rods extending transversely between said articulated bars, and a netting connecting the 45 rods, and means for movably supporting the other end of said chains, substantially as described.

26. In a car fender, the combination with the arms 8, the roller 16 rotatively supported 50 in bearings at the end of said arms, springs in said arms adapted to bear against the shaft of the roller, and a detachable cap 19 having a rounded surface secured over the end of said arms and holding said shaft 55 against the stress of said springs, substantially as described.

Signed at the city, county, and State of New York this 22d day of April, 1895.

CHARLES S. ANDREWS.

Witnesses:

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