

No. 834,996.

G. D. POTTER.

PATENTED NOV. 6, 1906.

SAFETY FENDER FOR STREET CARS.

APPLICATION FILED MAR. 26, 1906.

3 SHEETS—SHEET 1.

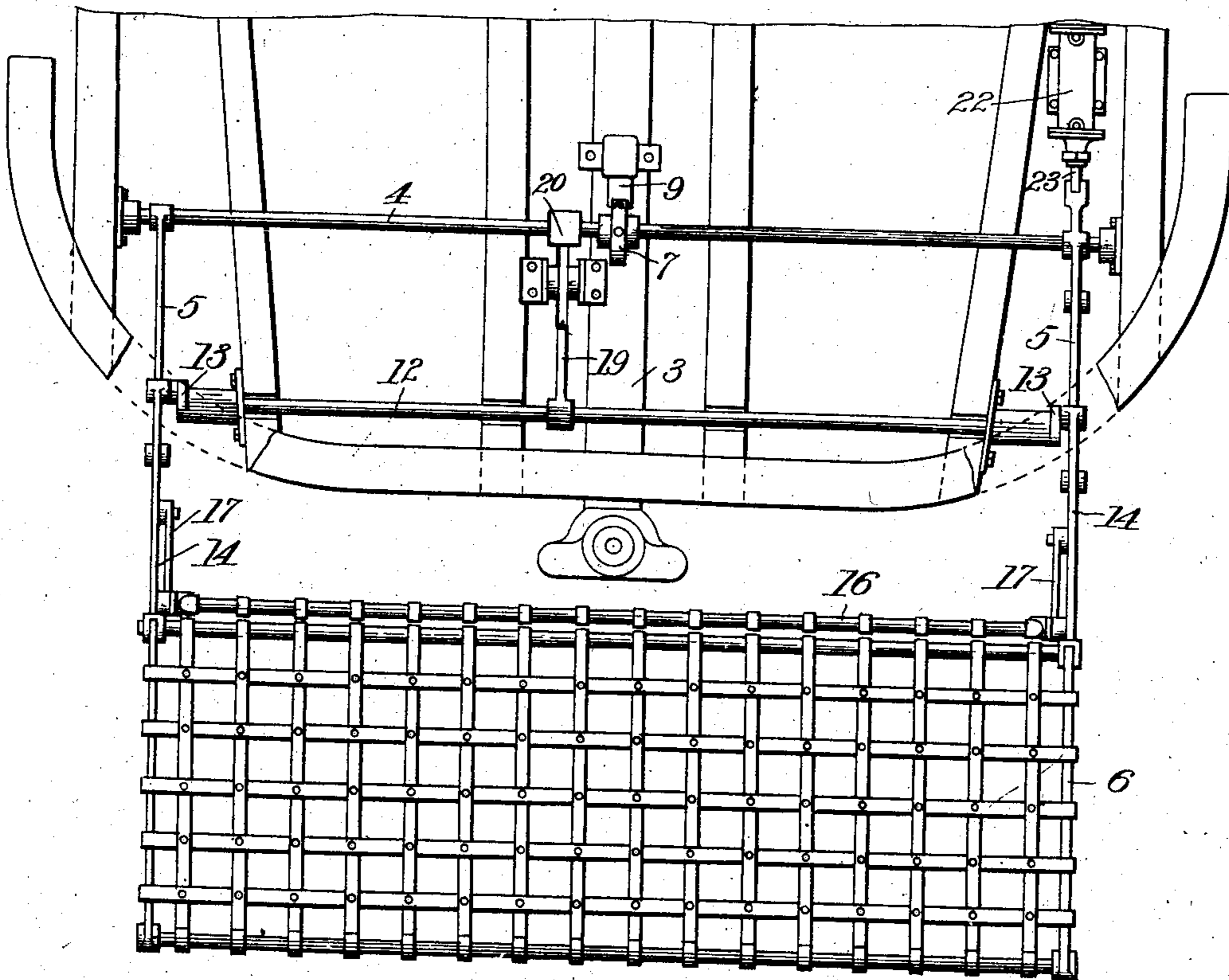


Fig. 1.

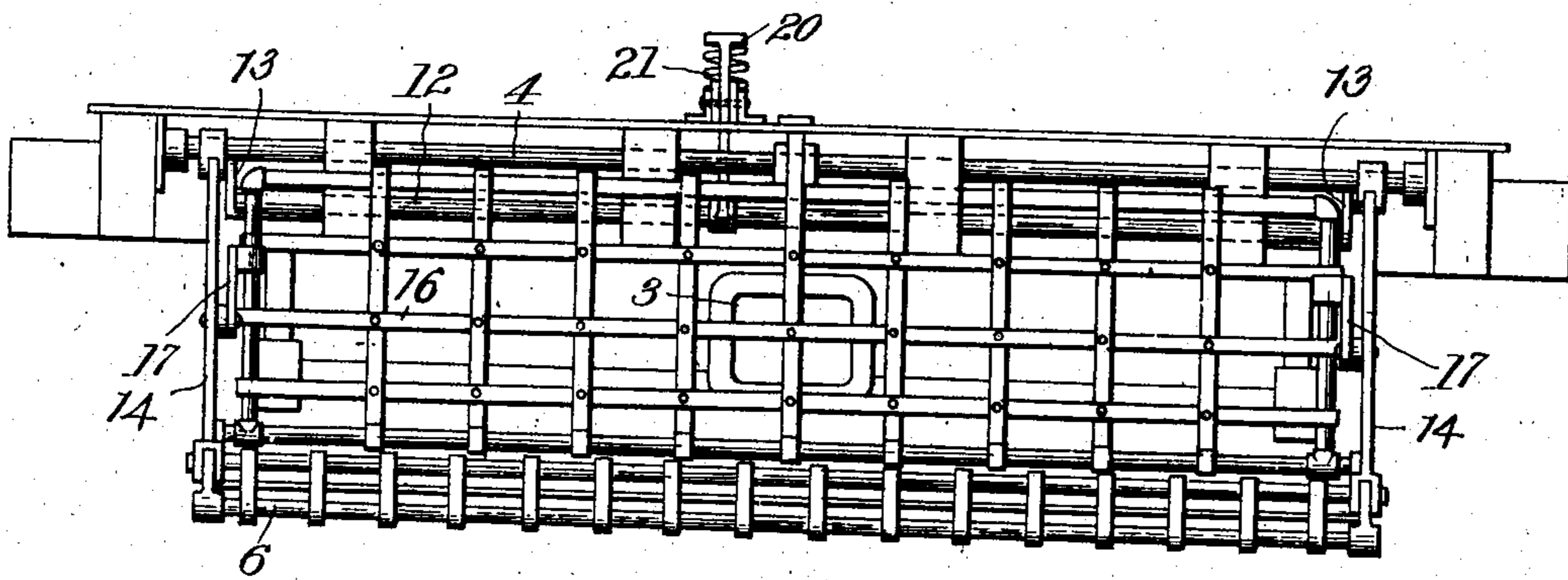


Fig. 2.

Witnesses.

C. Walker.
Lillie M. Perry.

Inventor.

George D. Potter
by Wm. H. Finckel
Attorney.

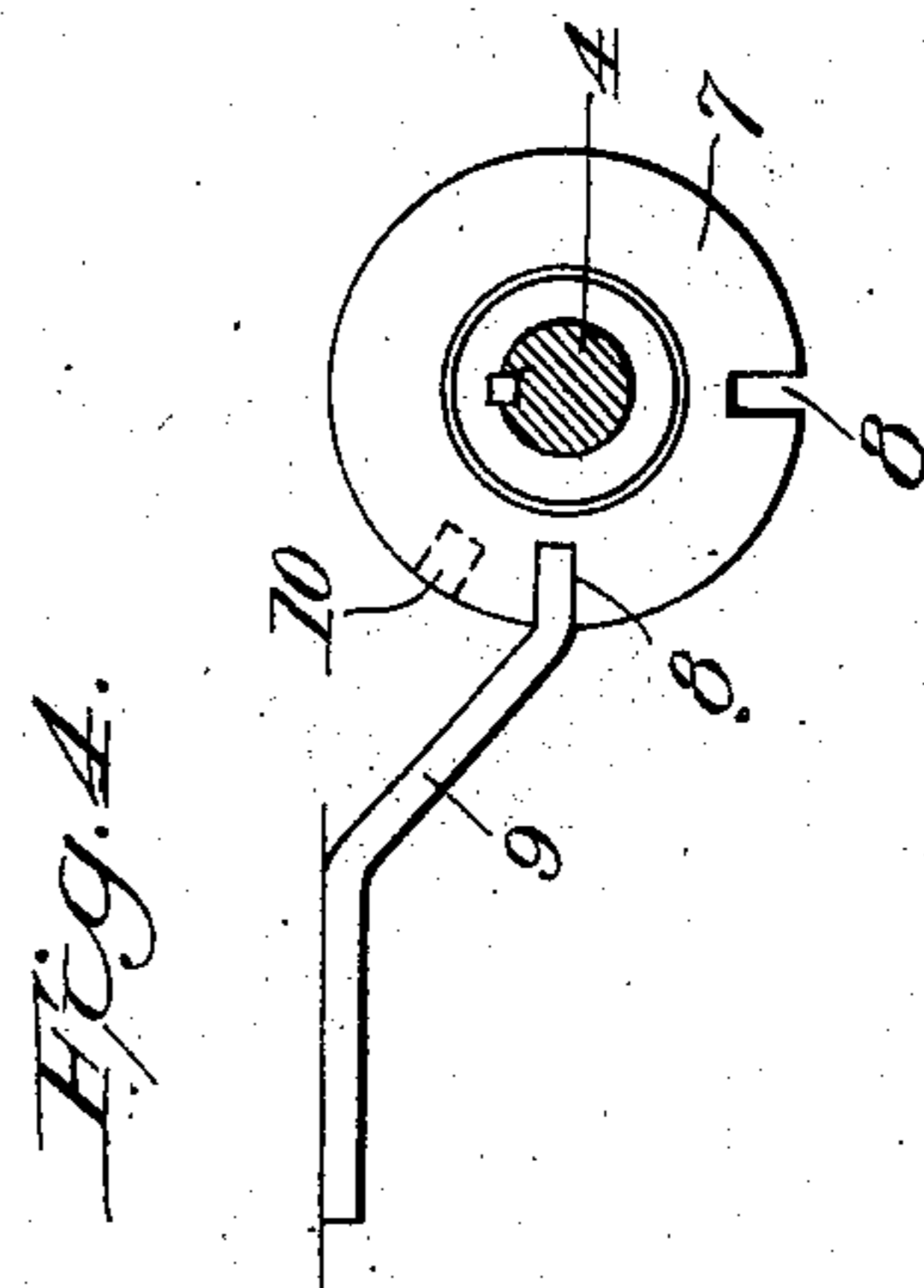
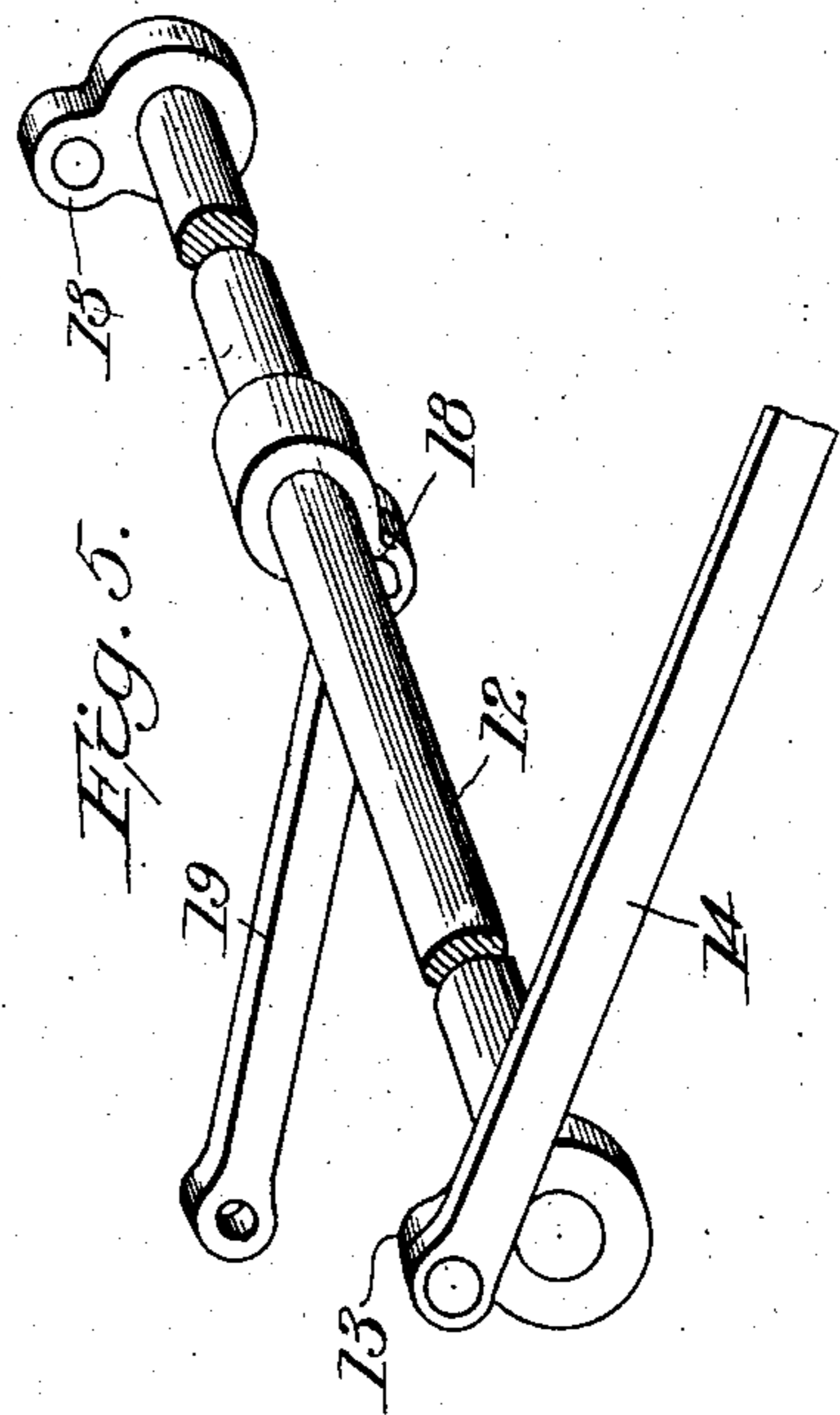
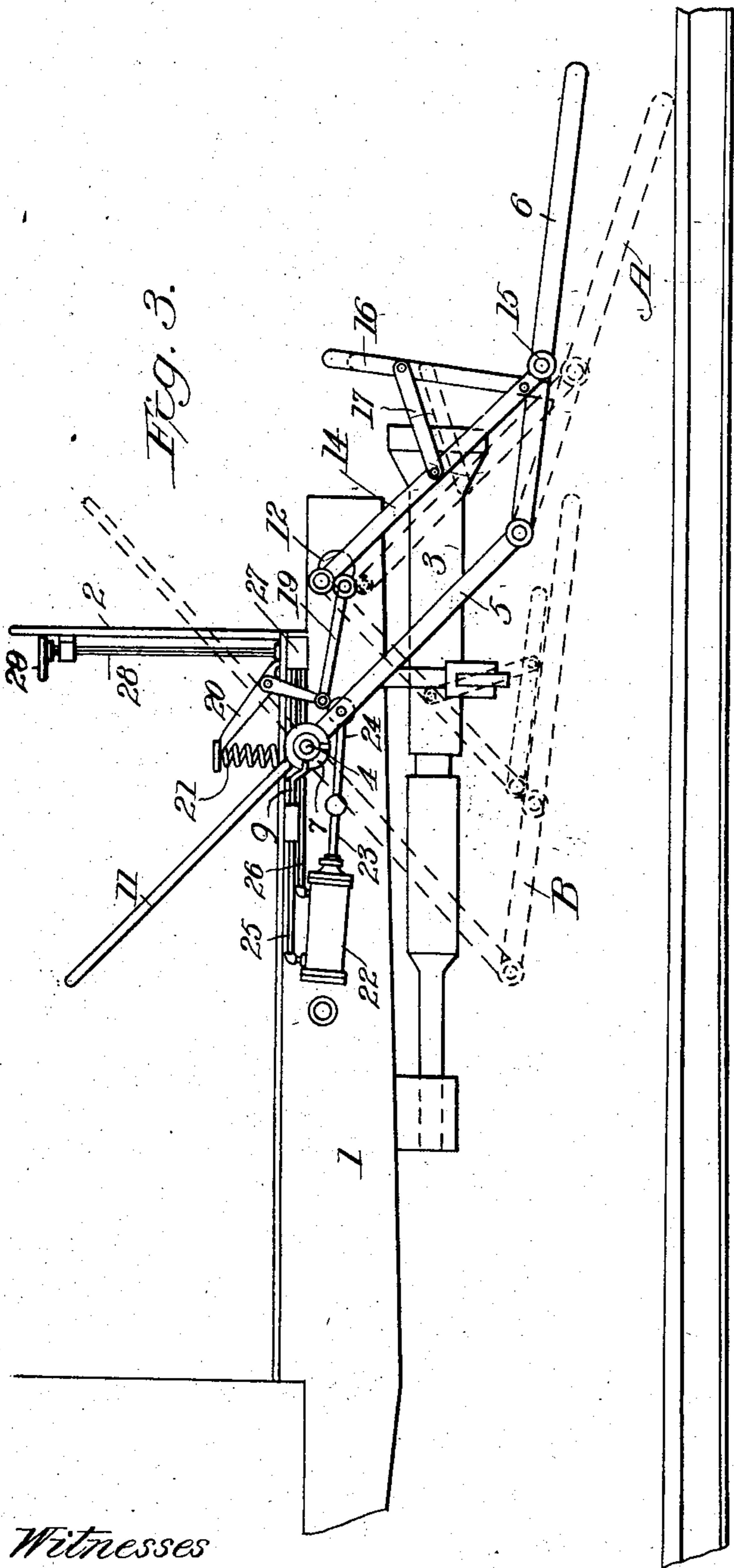
No. 834,996.

PATENTED NOV. 6, 1906.

G. D. POTTER.
SAFETY FENDER FOR STREET CARS.

APPLICATION FILED MAR. 26, 1906.

3 SHEETS—SHEET 2.



Witnesses

C. H. Walker
Lillie M. Perry

Inventor.

George D. Potter
by W. H. Simcox
Attorney.

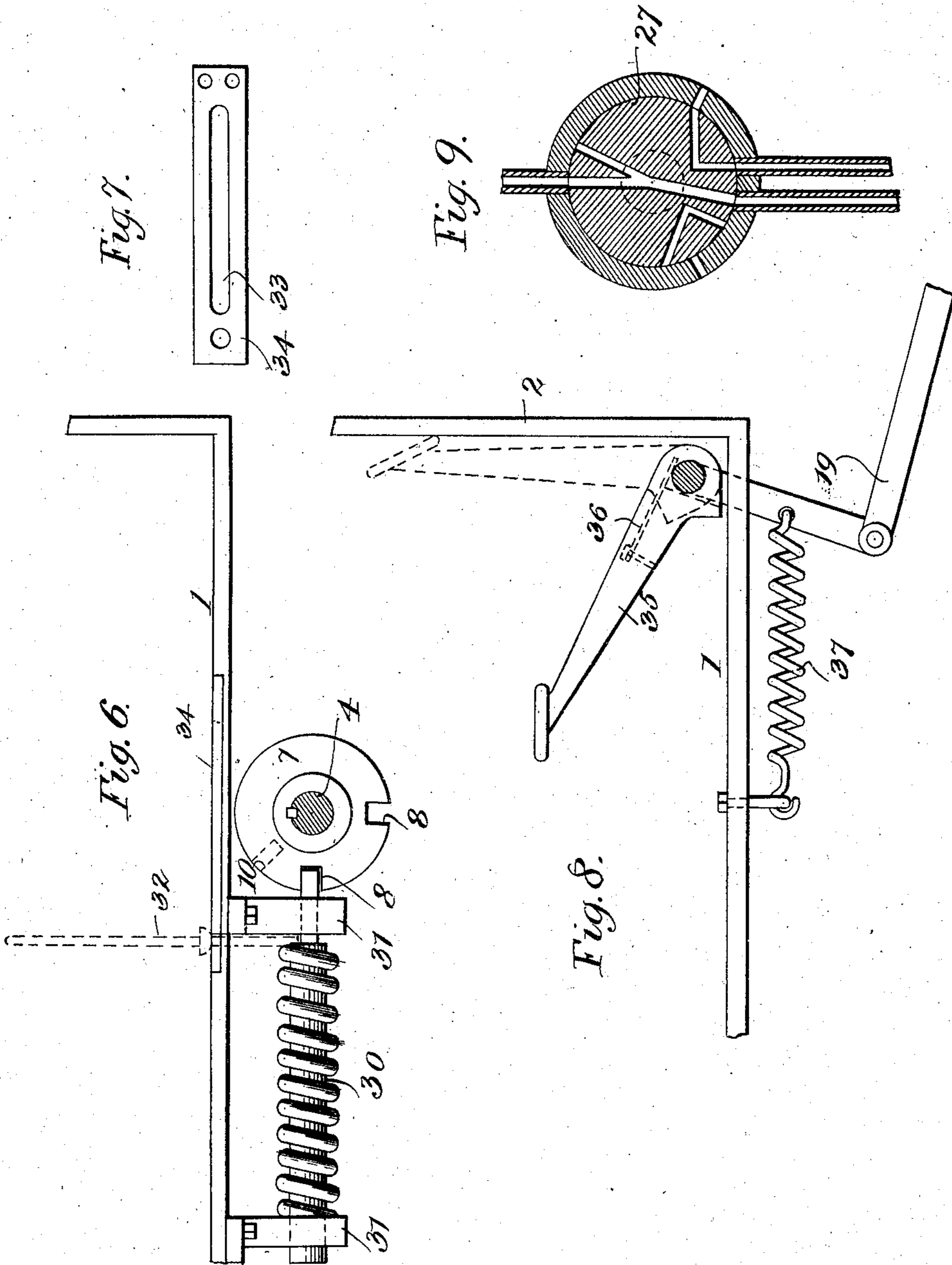
No. 834,996.

PATENTED NOV. 6, 1906.

G. D. POTTER.
SAFETY FENDER FOR STREET CARS.

APPLICATION FILED MAR. 26, 1906.

3 SHEETS—SHEET 3.



Witnesses.
Lillie M. Perry.
Ina Staley.

Inventor.
George D. Potter
by *Wm. F. Turner*
Attorney.

UNITED STATES PATENT OFFICE.

GEORGE D. POTTER, OF SPOKANE, WASHINGTON.

SAFETY-FENDER FOR STREET-CARS.

No. 834,996.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed March 26, 1906. Serial No. 308,095.

To all whom it may concern:

Be it known that I, GEORGE D. POTTER, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented a certain new and useful Improvement in Safety-Fenders for Street-Cars, of which the following is a full, clear, and exact description.

The object of this invention is to provide a safety-fender for street-cars which may be readily carried in running position and be quickly lowered into operative position to catch any one in danger of being hit by the car and which also may be moved out of the way and beneath the car without the necessity of detaching the fender from the car.

The invention comprises aprons or nets arranged substantially at right angles when in positions of use, as is usual, and suspended from the car-platform by means of hangers peculiar to this invention, which hangers are so arranged that they may be operated quickly and with little effort to lower the aprons into position immediately above or upon the rails to catch a person in danger of contact with the car and also to fold the aprons and their supports back beneath the front platform up above the rails and out of the way, all as I will proceed now more particularly to set forth and finally claim.

In the accompanying drawings, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a top plan view of the front of the car with some portions of the overlying structure broken away to expose the structure beneath. Fig. 2 is a front elevation of the platform and fender. Fig. 3 is a side elevation and partial section showing three positions of the fender—namely, by full lines the ordinary elevated running position and by dotted lines A the position to catch a person, and by dotted lines B the retracted position. Fig. 4 is a side view and partial section of a detail. Fig. 5 is a perspective view of the fender-operating crank-shaft. Fig. 6 is an enlarged sectional detail showing another arrangement of sliding catch. Fig. 7 is a plan view of a floor-plate. Fig. 8 is a sectional elevation of a modified form of foot-lever. Fig. 9 is a horizontal section in somewhat conventional form of a two-way valve.

The platform 1, dashboard 2, and draw-bar 3 and such other parts of the car as are

shown and not described may be substantially as usual.

A rock-shaft 4 is arranged beneath the platform in any suitable bearings, and at its opposite ends are rigidly secured the hangers 5, to the lower forward ends of which is jointed the main apron-frame 6 of any approved construction. This shaft 4 has fixed to it the disk 7, (see details, Fig. 4,) which is provided with notches 8, adapted to be engaged by a sliding catch 9, suitably mounted in the floor of the platform and capable of being slid into and out of engagement with either of the notches in the disk 7. The disk is also provided with a socket 10, adapted to be engaged by a lever 11, so that when the lever is moved to take the weight of the parts off the catch 9 said catch may be slid out of engagement with the disk and the said disk, its shaft 4, and hangers 5 be rocked by the said lever.

A second shaft 12 is arranged in the platform ahead of the shaft 4, and this shaft, as shown more particularly in Fig. 5, has at its end the crank-arms 13, to which are pivoted the hangers 14. In order to distinguish in terms the hangers 5 from the hangers 14, I will hereinafter refer to said hangers 5 as the "rear" hangers and to the hangers 14 as the "front" hangers.

The front hangers are jointed to the apron-frame 6 at 15 a little in the rear of the middle of said apron, and near the lower ends of these hangers 14 is pivoted the upright apron-frame 16, this frame 16 being further connected with the front hangers by means of articulated links 17.

The shaft 12 has a crank-arm 18, which is connected by a link 19 with a bell-crank foot-lever 20, pivoted on the platform and normally elevated by means of a spring 21. By means of this foot-lever 20 the apron-frame 6 may be depressed from the full-line position, Fig. 3, into the dotted-line position A, Fig. 3, instantly, so as to catch any person or obstruction that may be in front of the moving car, and in such movement the lower ends of the rear hangers 5 become the fulcrum or pivot-point for this downward movement of the frame 6. By releasing the foot-lever 20 the spring 21 is free to act to reverse the movements last described and to restore the front hangers and the apron to the full-line position. As is also obvious, when the apron meets an obstacle of sufficient resistance to overcome the tension of the

retracting-spring it will thereby be lowered automatically.

If the slide-catch 9 be disconnected from the disk 7 and the lever 11 thrown forward toward the dashboard, then the upright apron 16 will be given a forward movement down upon and parallel with the apron 6, and the thus-folded aprons will be withdrawn beneath the platform and up above the track, as shown by the dotted lines B in Fig. 3.

Where air or other power is available, the car may be equipped with apparatus for utilizing it for operating the fender as previously described. As shown, the air-cylinder 22 may be arranged beneath the platform and its piston-rod 23 connected by an articulated link 24 with the rear hangers 5. The supply-pipes 25 and 26, extending, respectively, to the opposite ends of the cylinder, may be connected with a two-way valve 27, operated by a valve-rod 28, erected alongside of the dashboard and having an operating wheel or handle 29.

Referring to Fig. 6, the sliding catch 30 may be arranged in bearings 31 beneath the car-platform, and this catch may be spring-actuated to normally throw it into engagement with the disk 7. The catch may be released by the engagement of the lever 32, (shown in dotted lines,) which is extended through a hole 33 in the floor-plate 34, and this floor-plate is slotted longitudinally for the passage of the lever 11.

As shown in Fig. 8, the foot-lever 35 may be connected with a link 19 in a movable manner, as by slotting its heel, as shown in dotted lines, and applying a flat spring 36, so that the foot-lever may be turned up against the dashboard, as shown in dotted lines, when not in use. Also, as shown in Fig. 8, instead of using a supporting-spring 21, as in Fig. 3, a spring 37 may be arranged beneath the platform.

As shown in Fig. 9, the two-way valve 27 is arranged to supply the cylinder at opposite ends alternately and simultaneously to exhaust the cylinder ahead of the piston in each direction of motion.

It is possible to operate the fender by the pneumatic-power appliance alone, and in that case the catch and disk might be used merely to hold the fender in position after it had been thrown forward or backward, and the hand-lever then may be used as an emergency attachment in case of failure of the pneumatic arrangement to work, or the pneumatic arrangement may be used to swing the fender back and forth, while the foot-lever is used simply to raise and lower it.

I have not attempted herein to show the mere details of construction and arrangement of parts, as these may be varied within the principle of the invention.

What I claim is—

1. A safety-fender for street-cars, having a foldable apron consisting of a substantially horizontally arranged portion and an upright portion, hangers for supporting these portions and links connecting the upright portion with the hangers.

2. A safety-fender for street-cars, comprising a substantially horizontal apron, hangers supporting it at the rear and front hangers connected with it near its middle, an upright apron pivoted to the said front hangers, links connecting the upright apron with the said front hangers and means to move the said hangers and thereby fold the upright apron down upon the horizontal apron and by a reverse movement to restore it to its upright position.

3. A safety-fender for street-cars, comprising a two-part apron, rear hangers, a shaft on which they are fixed, means to rock said shaft to withdraw the apron beneath the car and to project it in front of the car, a crank-shaft, hangers connecting said crank-shaft and the apron in advance of the rear hangers, and means whereby said crank-shaft may be rocked to lower the front portion of the apron on the rear hangers as a pivot.

4. A safety-fender for street-cars, comprising a two-part apron, rear hangers upon which it is pivoted, front hangers for supporting it about midway of its length, one part, namely, the upright part of said apron pivoted and linked to the front hangers and capable of being folded down upon the other part of the apron, and means to raise the apron from the track and lower it upon the track, and to retract the whole fender beneath the car and above the track.

5. A safety-fender for street-cars, comprising an apron, front and rear hangers for supporting said apron, a shaft on which the rear hangers are fixed, means to lock said shaft in position, and means to rock the shaft to move the apron lengthwise of the car, and means to raise and lower the apron with relation to the track.

6. A safety-fender for street-cars, comprising an apron, front and rear hangers for supporting said apron, a shaft on which the rear hangers are fixed, means to lock said shaft in position, and a power apparatus connected with the rear hangers to oscillate said hangers upon the release of the shaft-locking device and thereby move the apron lengthwise of the car, and means to raise and lower the apron with relation to the track.

In testimony whereof I have hereunto set my hand this 6th day of March, A. D. 1906.

GEORGE D. POTTER.

Witnesses:

F. D. ALLEN,
J. R. Low.