

(No Model.)

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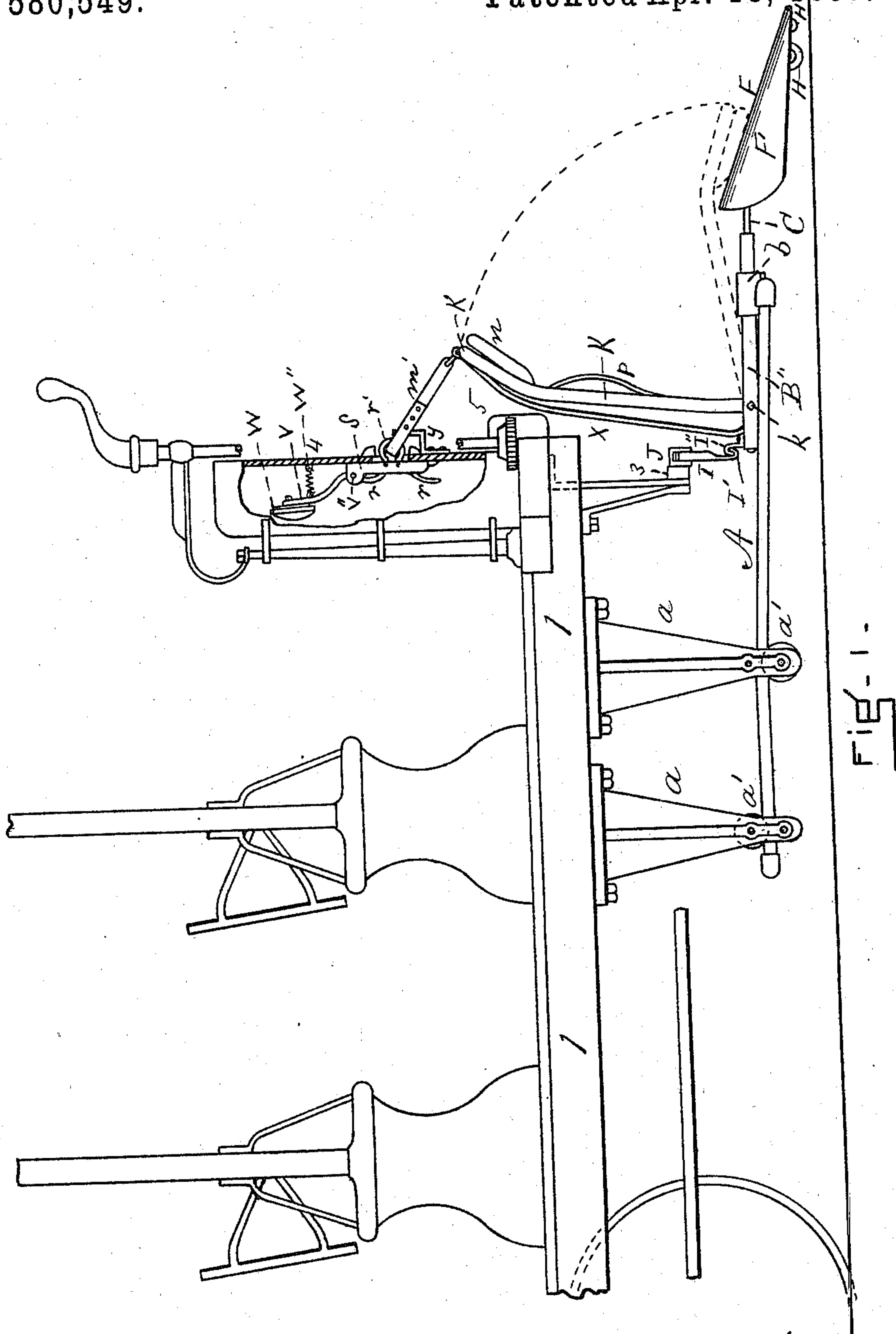
G. HIPWOOD, H. C. BARRETT & S. PORTER.

J. W. BARRETT, Administrator of H. C. BARRETT, Deceased.

CAR FENDER.

No. 580,549.

Patented Apr. 13, 1897.



WITNESSES
J. M. Hartnett.
E. A. Woodbury.

INVENTORS
George Hipwood
H. C. Barrett
Stephen Porter
By their Atty
Henry W. Williams

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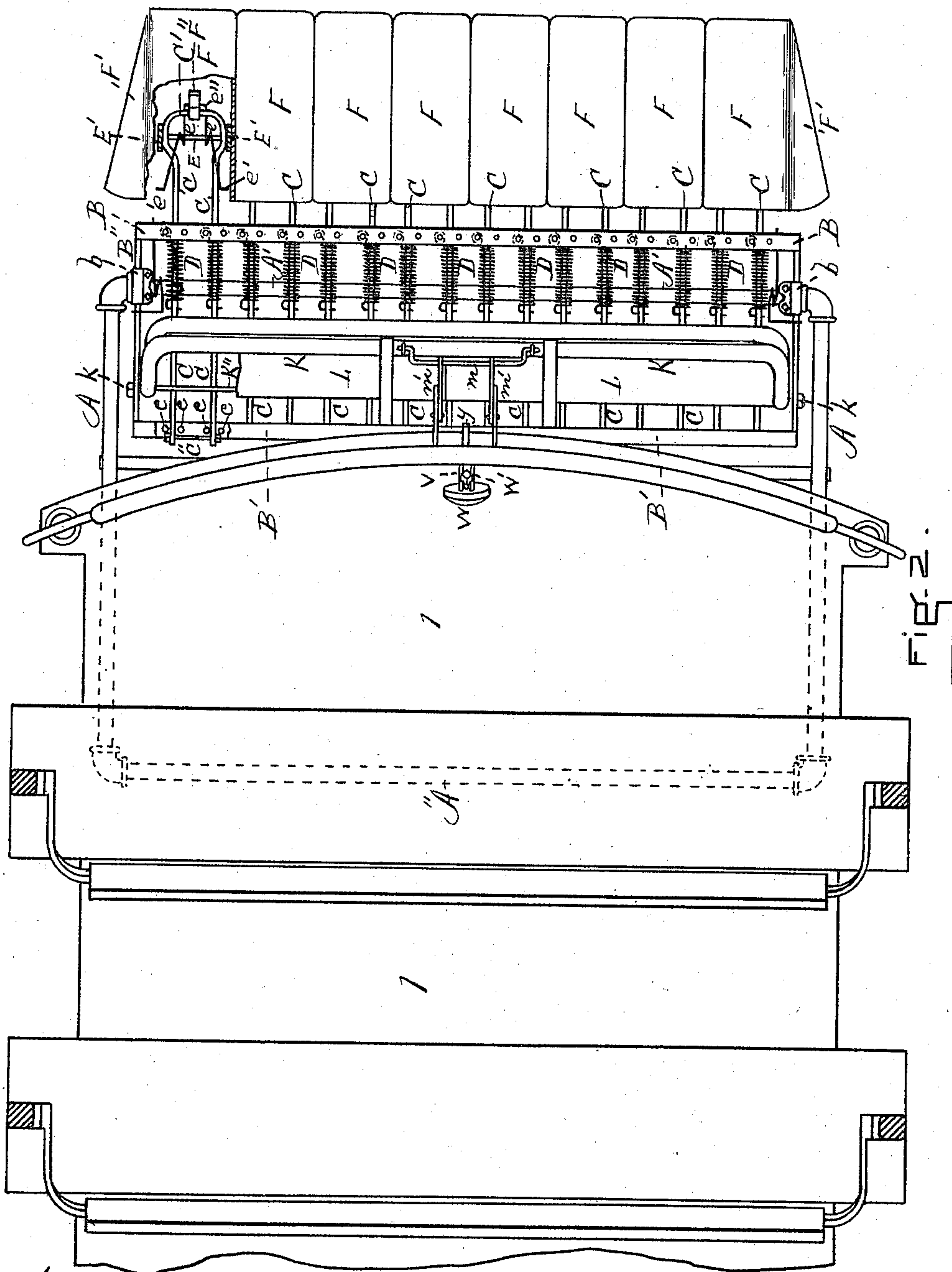
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J. M. Hartnett,
C. A. Woodbury.

INVENTORS

George Hipwood
H. C. Barrett
Stephen Porter
By their Atty
Henry Williams.

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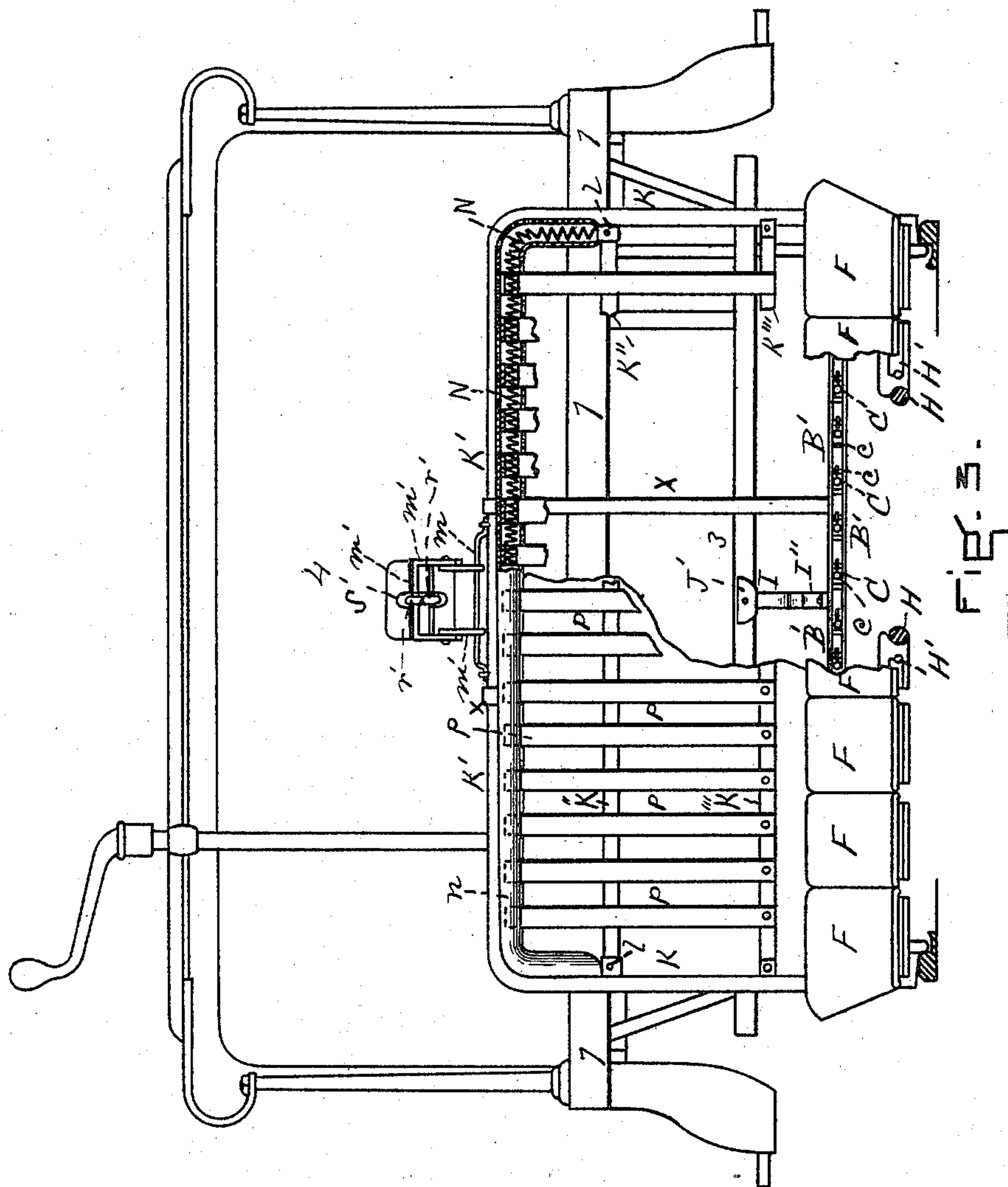
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J. M. Hartnett.
E. A. Woodbury.

INVENTORS

George Hipwood
Alfred C. Barrett
Stephen Porter
By their Atty
Henry Williams

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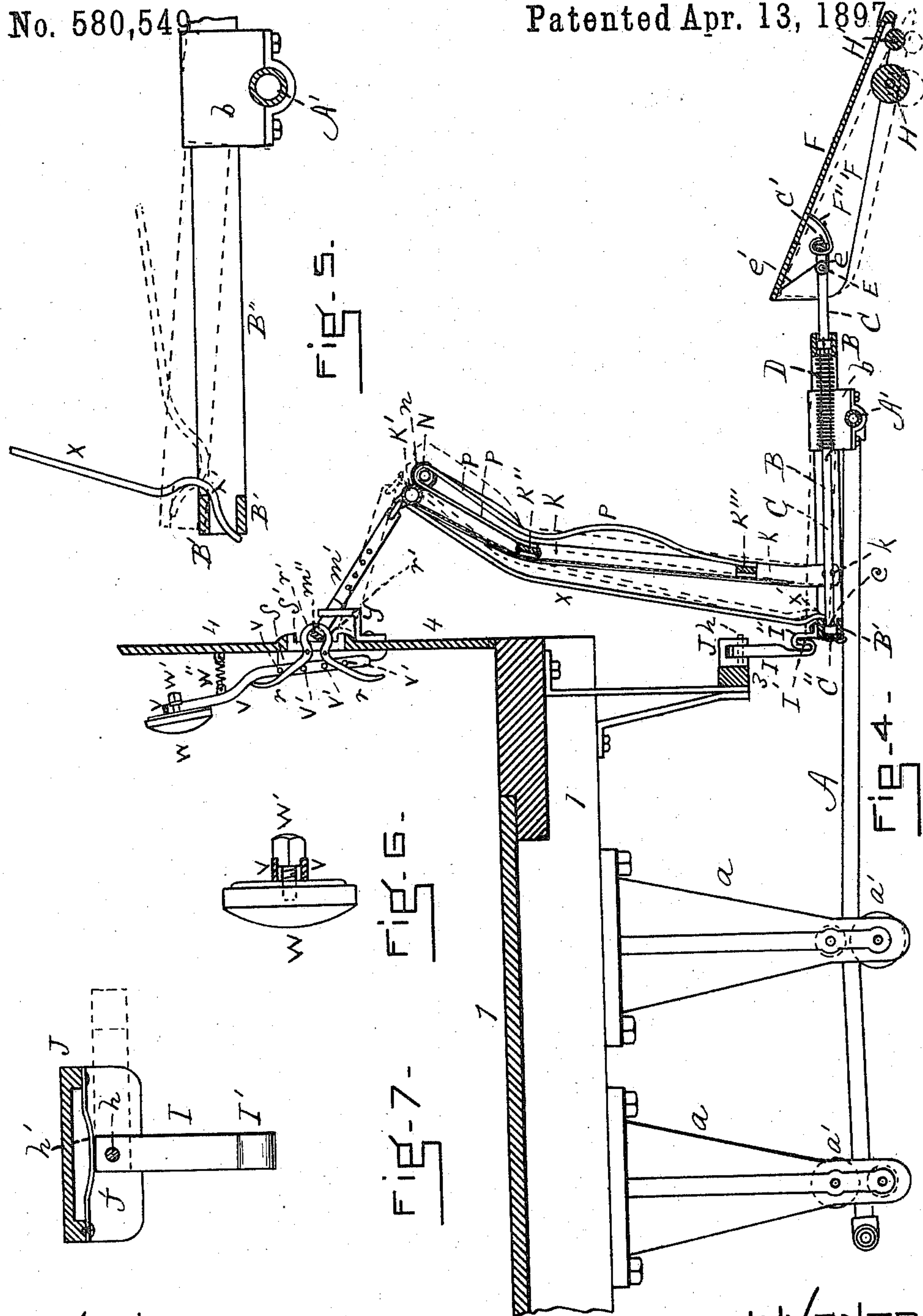
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WITNESSES

J. M. Hartnett.
E. A. Woodbury.

INVENTORS

George Chipwood
 Horatio C. Barnett
 Stephen Porter
 By their Atty
Perry Williams

UNITED STATES PATENT OFFICE.

GEORGE HIPWOOD, HORATIO C. BARRETT, AND STEPHEN PORTER, OF
BOSTON, MASSACHUSETTS; JOHN W. BARRETT ADMINISTRATOR OF
SAID HORATIO C. BARRETT, DECEASED.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 580,549, dated April 13, 1897.

Application filed June 4, 1894. Serial No. 513,446. (No model.)

To all whom it may concern:

Be it known that we, GEORGE HIPWOOD, HORATIO C. BARRETT, and STEPHEN PORTER, citizens of the United States, and residents of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Car - Fenders, of which the following is a specification.

This invention relates to a car-fender adapted particularly for use on street-cars propelled by electricity, cable, or other power; and it relates especially to the general style of fender illustrated and described in Letters Patent of the United States granted October 31, 1893, and numbered 507,655, to which reference is made. Our invention is intended, however, to be an improvement over and upon the invention described in said Letters Patent, and is set forth in detail below and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of our improved fender applied to a car, a portion of the dashboard being represented as broken out. Fig. 2 is a plan view of the same with a portion of one of the shoes represented as broken out. Fig. 3 is a front elevation with a portion broken out to illustrate the invention. Fig. 4 is a longitudinal vertical section. Fig. 5 is an enlarged detail in longitudinal vertical section. Fig. 6 is an enlarged side elevation of the pad adapted to be pressed by the knee of the motorman. Fig. 7 is an enlarged front elevation of the back-stop.

Similar letters and figures of reference indicate corresponding parts.

In all the figures the fender is shown in full lines in its ordinary position—*i. e.*, with its front edge slightly raised above the ground.

A represents the side bars, A' the front bar, and A'' the rear bar, of a rectangular frame, supported by and sliding horizontally in the hangers *a*, provided with suitable antifriction-rollers *a'*, said hangers being supported by and depending from the under side of the car-body 1. Tilting on the front bar of this sliding frame is a rectangular frame consisting of the front bar B, rear bar B', and end bar B''. The front and rear bars are double—*i. e.*, composed each of two parallel bars, one above the other—

and the tilting frame is pivotally connected with the sliding frame by boxes *b*. Mounted loosely in the tilting frame between suitable vertically-set rollers *c*, situated between the pairs of bars B and B', is a series of parallel rods C. These rods extend from one pair of bars B to the other B' and are arranged in pairs, each pair being connected (and hence being practically one bent bar) at C', Fig. 2. At the rear each pair is connected by a bar C''. (See Fig. 4.) Each rod has disposed upon it a spiral spring D, which is normally closed or contracted, as shown, and is fastened at its opposite ends to the rods C and the bar B.

The forward portions C' of the rods C constitute bearings for the horizontal rods or pivots E', Figs. 2 and 4, whose ends are supported in lugs E, secured to the flanges or side walls F' of the tilting shoes F. Springs *e* are disposed around the pivots E, as shown, and their rear ends *e'* bear against the under sides of the heels of the shoes F, while their forward central portions *e''* lie under the portions C' of the rod C. Stops F'' extend from the portions C' of the rods C up against the under surface of the shoes in front of the pivots. Each shoe has two rollers H and H'. The former is the principal roller and that which when the shoe is depressed touches the ground. The roller H' is a supplemental one and is much smaller in diameter. Moreover, its axis is set higher than is that of the roller H, and when the roller H is on the ground the roller H' is slightly above it. The result is that the smaller roller H' acts as a guard for the larger and receives the first impact of an obstacle, passing easily over it, and as its periphery extends down farther than the axis of the roller H prevents the latter from receiving the blow of the obstacle centrally or “full on.” By this means the impact is distributed and the larger roller is relieved of much of the force.

The general operation of the shoes F and bars C is much as described in the Letters Patent above referred to, although the construction is improved, and hence the operation is better and surer. The bars may be pushed back, opening the springs D as the shoes strike an obstruction. The heels of the

shoes may be tipped down by a falling object against the power of the springs e' and returned into position by the said springs when the weight is removed. The stops F'' prevent
5 the toes of the shoes from being tipped down.

In order to prevent the fender from being pushed back under the car by meeting with an obstruction, a back-stop I extends down from the vertical portion J' of the bracket J ,
10 secured to the brake-beam 3 on the car. This back-stop is pivoted at h to the part J' , and a spring h' , Fig. 7, secured to the part J , bears against the flat upper end of the back-stop and holds it normally in a vertical position.
15 When in such position, it extends down, as shown in Figs. 1 and 4, and a hook I' on its lower end engages a vertically-extending hook I'' , secured to the rear bar B' of the tilting frame. Thus the fender cannot be pushed
20 back by an obstruction, and, moreover, the rear edge of the tilting frame cannot be forced down. When the fender is to be slid back, it is disengaged by simply swinging up the back-stop I , its upper corners forcing back
25 the spring h' in the operation, into the position shown in broken lines, Fig. 7, where it is held by pressure of the spring against its side.

It is deemed important that the dashboard 4 and bunter 5 and space between the fender
30 and car should be guarded, so that a person falling upon or picked up by the fender will not fall or be dashed against the dashboard or bunter. To this end a swinging substantially vertical frame is provided, said frame
35 having the lower ends of its side arms K pivoted at k to the side arms B'' of the tilting frame at the rear of their fulcrum. The side arms K are connected at their upper ends by a horizontal cross-bar K' , preferably integral
40 with said side arms, and also at two lower points by cross-bars K'' and K''' . Secured at its opposite ends at l to the bar K'' , next the end bars K , is a spiral spring N , which is provided with a canvas covering or pocket n .
45 This spiral spring is arranged to substantially follow the shape of the upper portion of the frame $K K'$, but projects a trifle forward therefrom, as shown, while a sheet of canvas or woven wire or other similar flexible substance L extends from said spring down nearly
50 or quite to the tilting frame behind the bar K'' , said canvas being secured at its edges below the pivotal points l to the end bars K . By this means the lower portion of the dashboard, bunter, and the space between the car-
55 body and the fender are guarded. A series of springs P extends from the cross-bar K'' , Fig. 4, up around the spring N and down in front to the cross-bar K''' , to which they are
60 riveted. These springs are made of substantially the shape shown in Figs. 1 and 4 for two purposes—first, to afford a good cushion for a body thrown against them, and, second, in order that when the vertical frame $K K'$ is
65 swung down upon the fender in order that the whole may be pushed under the car said frame and springs will conform generally to

the shape of the fender and hence occupy as little space as possible. The frame, bulging springs, and canvas constitute an effectual
70 guard and one against which a person may be hurled quite violently without being injured.

The normal position of the fender and vertical guard is as shown in the drawings—that is, with the rollers H of the shoes raised
75 a little from the ground. In this position the fender would in the vast majority of cases effectually and harmlessly pick up an obstacle. It is intended, however, that in case of
80 accident the motorman shall drop the fender so that the rollers H will be in contact with the ground. The bar K' of the vertical frame or bunter-guard is provided with a bail m , to
85 which is secured a stirrup m' , adjustable as to length, said stirrup being held by the jaws r' of a grapple r , which is pivoted to a bracket S , secured to the inner side of the dashboard
90 4 by a suitable opening S' being made in the dashboard, so that the jaws can project through, as shown in Fig. 4. The arms r of
95 the grapple extend between cross-pins V' , extending horizontally from one to the other of the two parts V , constituting the actuating-lever, which is pivoted at V'' , Fig. 1, to the
100 bracket S . These two portions V , constituting the lever, extend up on opposite sides of a bolt W' , which has flattened surfaces made in its head to fit said portions V and which
105 screws into the knee-pad W . By this means the knee-pad can be screwed onto the bolt against the lever, (which holds the head of the bolt from turning, Fig. 6,) and by slightly
110 loosening it it can be adjusted as to height in said lever. The lever is held normally in the position shown in Figs. 1 and 4 by a spring
115 W'' , which connects it with the dashboard. A hook Y is secured to the outer side of the dashboard and extends up through the stirrups m' .

In case of an impending accident the mo-
120 torman presses the knee-pad W , thus moving out the lower portion of the lever V , causing its cross-pins V' to draw the arms r of the grapple toward each other, thus releasing the
125 stirrup m' and causing its upper end m'' to catch upon the hook Y . This causes the whole device, including the shoes, tilting fender-frame, and vertical frame or bunter-guard,
130 to drop from the position shown in full lines in Fig. 4 to that shown in broken lines in Fig. 4. In this position the roller H is on the ground.

A pair of supporting-bars X extend from the rod K' down to the double rear bar B' of the tilting frame and by means of the curva-
135 ture X' , Fig. 5, support it rigidly and prevent it from dropping.

Having thus fully described our invention, what we claim, and desire to secure by Let-
140 ters Patent, is—

1. In a fender, the dashboard and bunter-guard, comprising the frame $K K'$ extending up from the fender, the forwardly-extending spring-guard N and a series of springs P ex-

tending from said spring-guard down to said frame, substantially as described.

2. In a fender, a horizontally-sliding fender-frame and a vertically-swinging bunter-guard extending up from said fender-frame and adapted to be swung down upon the fender-frame, said fender-frame and bunter-guard being adapted when the latter is swung down to be slid horizontally under the car together, substantially as set forth.

3. In a fender, the frame K K' provided with the cross-bars K'' K''', the spring-frame N, and the springs P each having one end secured to the upper cross-bar K'', extending over the spring-frame, and down to the lower bar K''' to which its opposite end is secured, substantially as set forth.

4. In a fender, the combination of the tilting frame B B' B'', the vertical guard K K' pivotally connected with said frame, and the rods or bars X extending from the upper bar of the frame K down between the two bars

B' constituting the rear bar of the tilting frame, said rod having its lower end curved as shown, substantially as described.

5. In a fender, the combination of the vertical dashboard or bunter-guard, the hook Y on the dashboard, adjustable stirrup m', and a grapple extending through the dashboard and engaging said stirrup, substantially as set forth.

6. The actuating-lever consisting of the two parallel parts V, the bolt W' embraced by said parts, and the knee-pad W into which the bolt is screwed, whereby said pad is rendered adjustable as to height, substantially as described.

GEORGE HIPWOOD.
HORATIO C. BARRETT.
STEPHEN PORTER.

Witnesses:

HENRY W. WILLIAMS,
J. M. HARTNETT.