

(No Model.)

W. B. MILES.
FENDER FOR STREET CARS.

No. 510,922.

Patented Dec. 19, 1893.

Fig. 1.

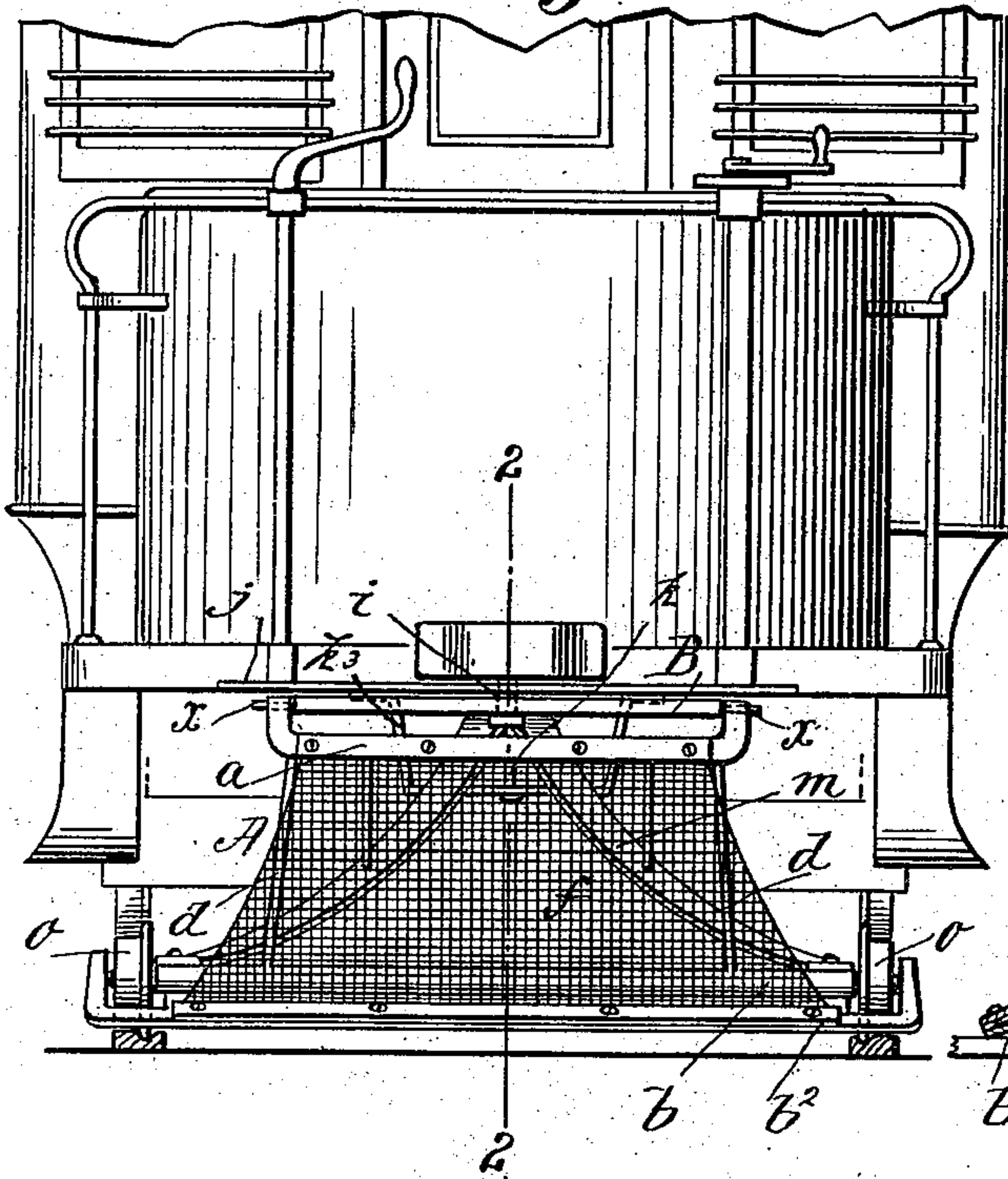


Fig. 2.

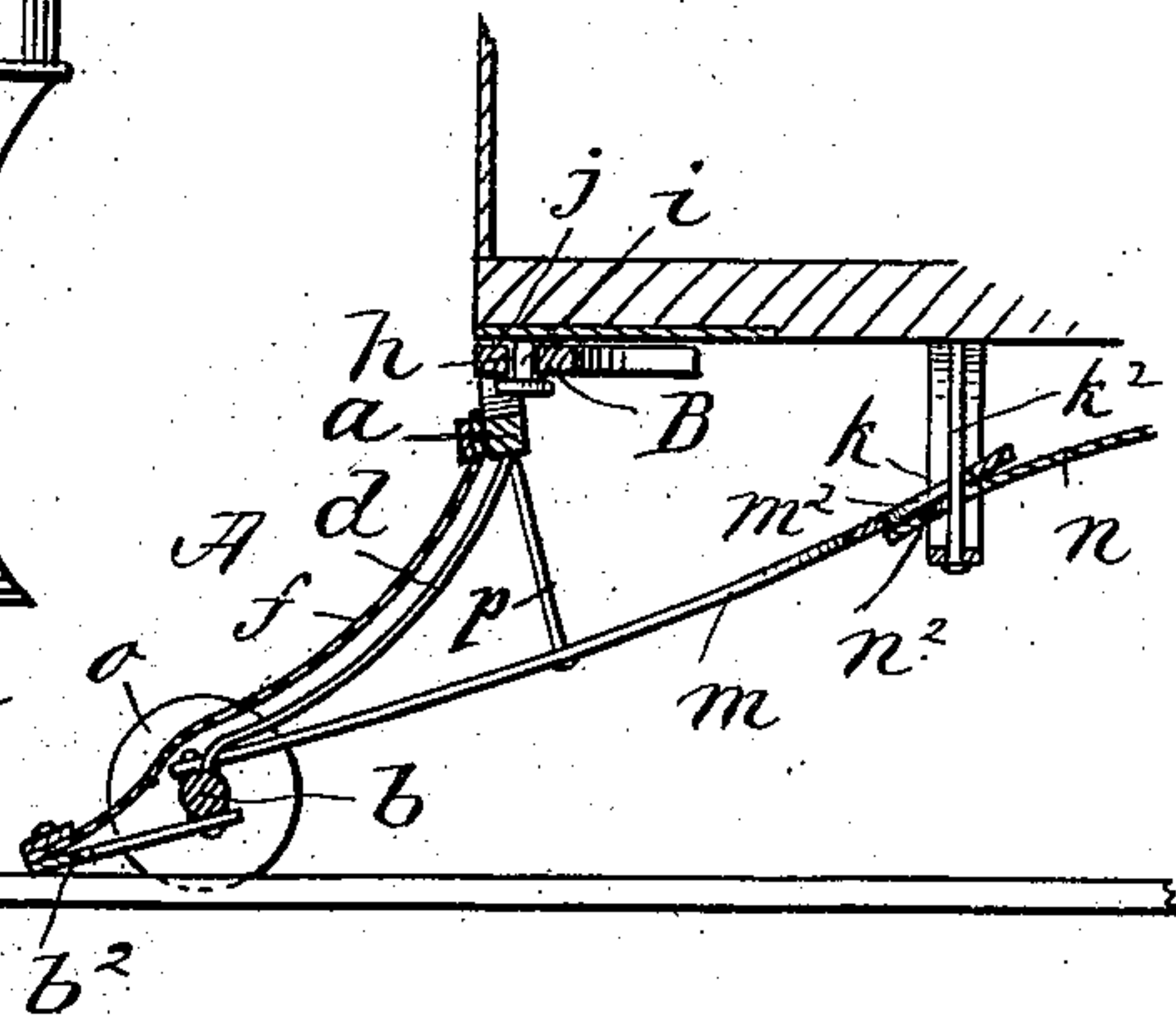


Fig. 3.

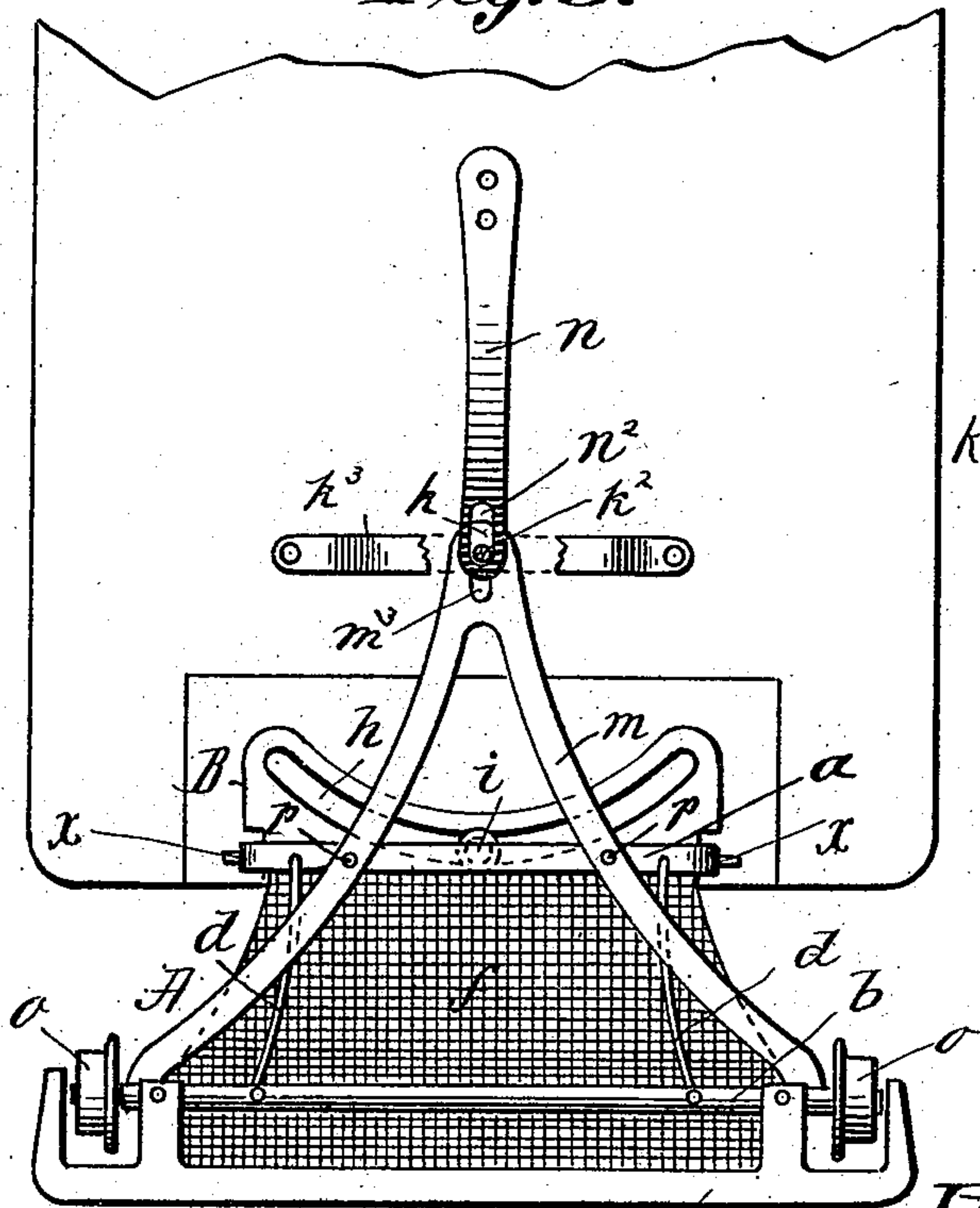
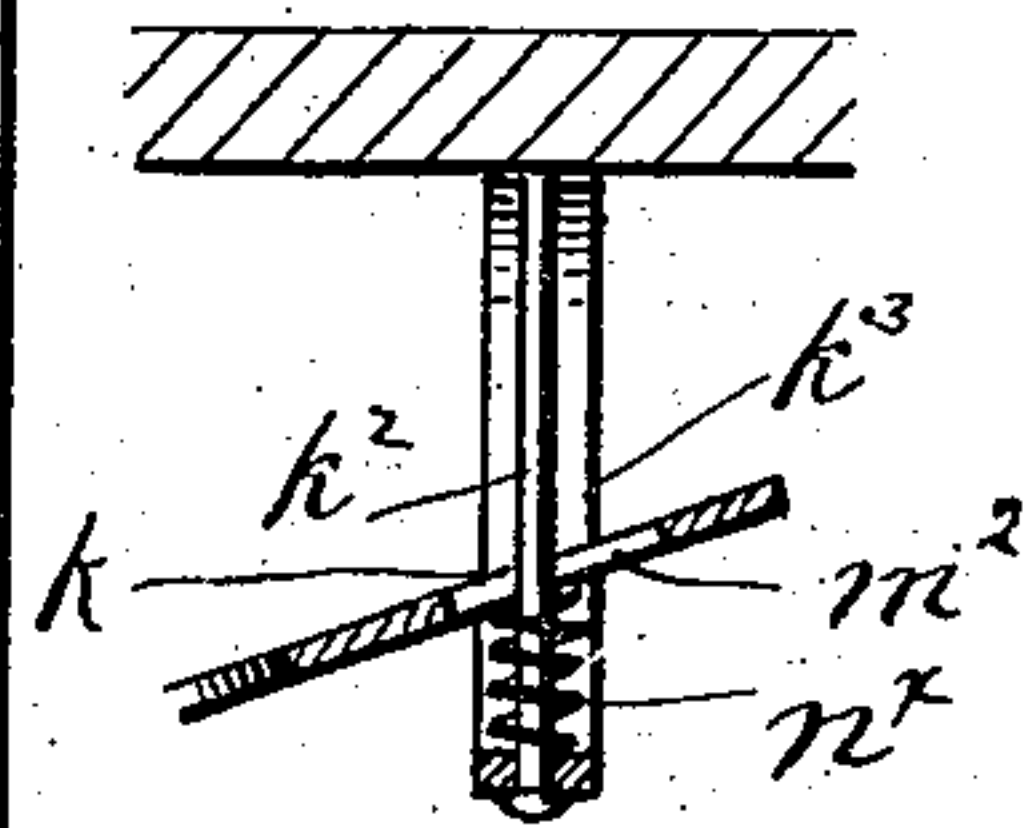


Fig. 4.



Witnesses:
John Garfield
H. J. Clemons

Inventor,
Wm. B. Miles,
Mr. Chapman & Co., Attys.

UNITED STATES PATENT OFFICE.

WILLIAM B. MILES, OF HOLYOKE, MASSACHUSETTS.

FENDER FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 510,922, dated December 19, 1893.

Application filed June 5, 1893. Serial No. 476,603. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. MILES, a citizen of the United States, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Fenders for Street-Cars, of which the following is a specification.

This invention relates to street car fenders, more particularly to fenders for use upon electric cars.

The aim of the invention is to improve the construction of the fender especially with reference to its continuous and even bearing in proximity to the track-way, to its automatic capability for lifting, for the avoidance of injury thereto upon passing over any inequality in the general grade of the track, and for permitting the fender to move freely and evenly around sharp corners or any abrupt departures in the track from the straight course, and all without liability of any rattling or wrenching of the fender, or the part of the car or truck to which it is peculiarly connected. And to the attainment of the above, the invention consists in the construction and combination of parts all substantially as will hereinafter fully appear and be set forth in the claims.

The improvements are illustrated in the accompanying drawings as applied upon the forward portion of the car body although it will be apparent to all persons skilled in the art to which this invention pertains that the fender might, in some cases, and with great advantage, be connected to the truck-frame; and in said drawings—

Figure 1 is a front elevation of the car with the improved fender applied thereupon. Fig. 2 is a vertical sectional view taken on the line 2—2, Fig. 1. Fig. 3 is a bottom plan view. Fig. 4 is a view illustrative of a modification in the detail of construction of a part to be hereinafter particularly referred to.

Similar letters of reference indicate corresponding parts in all of the views.

A represents the fender which may have a variety of forms or designs, as generally employed, or as suitably otherwise, except as to the features which constitute the present improvement. The fender, therefore, comprises the frame which consists in the upper transverse bar, *a*, the lower transverse bar, (or

united bars, *b*, *b*²), and the uniting members, *d* and *d*, and the screening, lattice, or open-work covering, *f*.

The fender, as shown, is wide at its bottom, and extends upwardly and rearwardly with a suitable concavity.

The fender at its upper part is pivotally connected so that it may have a swinging movement vertically, upon a frame or part, B, which is so connected, or engaged with the car body or primary support for the fender, that it has a swiveling or oscillatory movement in a horizontal plane. Therefore, the fender, which by its forward lower part (which normally hugs the roadway) may have rising and lowering swinging movements independently of the car or the horizontally swiveling frame, B, while the fender, also, with that frame, may have the sidewise deflections to prevent cramping or binding of the fender as the car is rounding a curve. The frame, to have the horizontal swiveling movement, has the arc-formed slot, *h*, loosely through which the stud, *i*, is passed to engagement with the chafing plate, *j*, under the primary support, the head of said stud preventing displacement of the frame by dropping down.

The fender is constrained to move in an arc course, substantially concentric with the center from which the slot, *h*, is generated, by means of the rearwardly and upwardly inclined frame extension, *m*, which has in substance a pivotal connection under the primary support at *k*, with the depending rod, *k*². Said rod is rigidly maintained by the stay strap *k*³.

The fender or frame extension *m*, projecting rearwardly and upwardly in the form of a triangular frame and at an acute angle to the plane of the fender proper is braced by the rods, *p*, *p*, which extend from the bar, *a*, of the fender to intermediate parts of the converging members of the fender-extension.

n represents a flat or plate spring which is secured to the car back of the fender frame extension, and extending forwardly from its place of connection with the car to a bearing upwardly against said frame extension.

The fender, comprising as a part thereof said extension, *m*, having a fulcrum at its connection, *x*, with the horizontal swivel frame, B, by the spring bearing upwardly against

the extension, is held with its front to a yielding bearing to the track-way. The frame extension, m , and the spring, n , are both slotted, as seen at m^2 and n^2 , to permit of freedom of their deflections as incidental to their operations.

The fender frame at its forward lateral extremities has the flanged wheels, o, o , which run on the car track. I regard the use of flanged wheels as important, especially on a fender connected to swivel horizontally substantially as described; for the reason that they most satisfactorily govern the sidewise movements of the fender in the running of the car.

In the view, Fig. 4, a spiral spring, n^x , is shown as surrounding the depending rod, the same being under and upwardly bearing upon the fender frame extension, such being manifestly an equivalent of the slotted flat spring shown in the other views.

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

1. The combination with a suitable part of the car, of a fender comprising a frame which is connected to the car to swivel horizontally thereon, and the fender proper pivotally connected to said swivel frame for up and down swinging movements; a spring for pressing the fender downwardly and flanged rollers at the forward lateral extremities of the fender for engaging and running on the car-track, substantially as described.

2. The combination with the supporting part of the car, of the horizontally swiveling part thereon, the fender pivoted at its upper part to said swivel part, and having the rearward and upward extension, and the spring

bearing upwardly upon said extension and serving to swing the fender to maintain the forward part thereof depressed, substantially as described.

3. The combination with the supporting part of the car, of the part having the arc formed slot, and the stud engaging therein, the fender pivoted at its upper part to said swivel part for an up and down swinging movement, and provided with the flanged wheels, and having the rearward extension which is, in substance, pivotally connected to the primary support of the car at a point from which the arc of said slot is generated, substantially as described.

4. The combination with a supporting part of the car, of the part, B, with the arc-formed slot, h , and the stud, i , the fender pivoted to the part, B, and having the flanged wheels and rear extension pivotally engaged with the car at substantially the center from which the arc-slot is generated, substantially as described.

5. The combination with a supporting part of the car, of the part, B, with the arc-formed slot, h , and the stud, i , the fender comprising the upper bar, a , the forward lower members, b, b^2 , having the flanged wheels,—the uniting members, d, d , the screen or covering, the fender extension, m , with slotted rear extremity, the braces, p, p , between fender and the fender extension, the depending rod, k^2 , and a spring bearing upwardly against the rear end of the fender extension, substantially as described.

WILLIAM B. MILES.

Witnesses:

WM. S. BELLOWS,
H. A. CHAPIN.