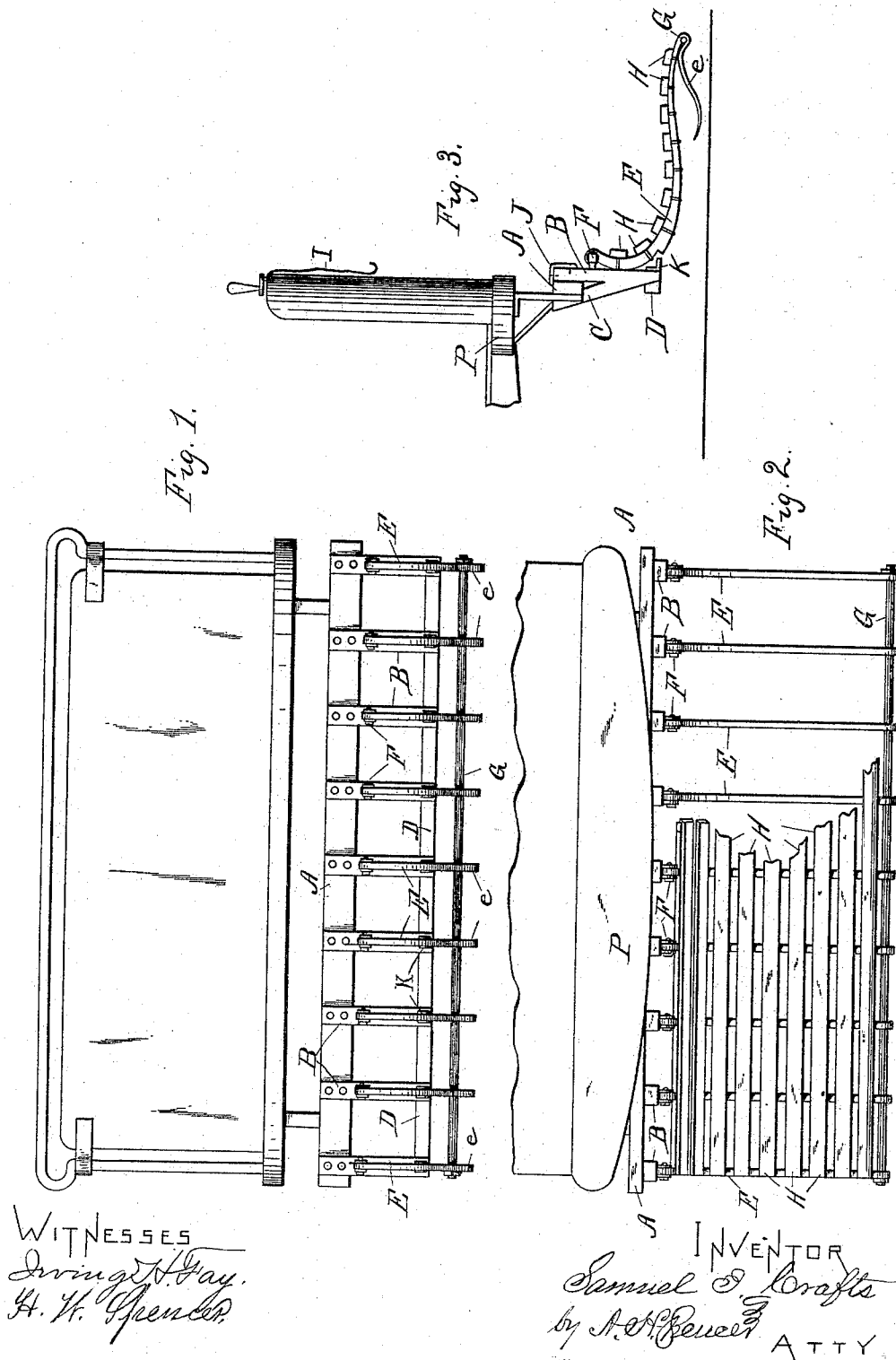


(No Model.)

S. I. CRAFTS.
CAR FENDER.

No. 488,386.

Patented Dec. 20, 1892.



UNITED STATES PATENT OFFICE.

SAMUEL I. CRAFTS, OF BOSTON, MASSACHUSETTS.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 488,886, dated December 20, 1892.

Application filed July 2, 1892. Serial No. 438,770. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL I. CRAFTS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Car-Fenders, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of this invention is to provide for electric and mechanically-propelled street cars a suitable fender or life-guard arranged across each end of the car and adapted to protect from serious injury persons who may fall in front of a moving car.

My invention consists of a series of inclined arms pivoted at their upper ends to a suitable cross-bar or frame and connected at their lower and forward ends by a transverse rod which keeps them all at about the same level, the extremity of each arm being turned backward and downward around said rod and serving as a yielding support for the front edge of the fender when a weight is upon it causing it to touch the ground. Small wheels may also be provided at this front edge to ease the movement, and springs may be inserted between the inclined arms and the cross-bar or frame on which they are pivoted. A series of cross-slats or a netting of some stout material is stretched across the front of the fender and properly secured in position. The rigid parts exposed may be furnished with buffers of rubber or thick felt to prevent bruising a body picked up by the fender. The fender at the rear end of the car may be turned up and held in a raised position when not in use.

In the drawings, Figure 1 is a front view showing the fender applied to the front platform of a car, the slats or netting being omitted, for clearness. Fig. 2 is a plan, looking down on the fender, the slats being shown broken away at one end. Fig. 3 is an end view.

A is a cross timber beneath the car platform P: B B a series of vertical supports bolted to said timber and extending downwardly therefrom, with oblique braces C in their rear extending upwardly to said cross timber, or otherwise arranged to have a bracing action to stiffen the supports B. The several supports B B are shown as transversely connected at the foot by a cross-piece D.

These parts constitute a frame upon which the fender proper is mounted. The parts B B may be shortened and the cross-piece D thus carried higher from the ground.

E E represent a series of arms formed of curved steel or iron rods pivoted at their upper ends by bolts F to the vertical supports B or to the cross timber A if preferred, and at their lower, forward ends turned downward and backward, and somewhat broadened and flattened to form spring runners *e*, as best shown in Fig. 3. A cross-rod G runs through the eye formed at the front of the several arms E where they are turned downwardly and rearwardly, said rod connecting all said arms transversely across the extreme front of the fender. The arms may be coiled once or more around the rod G to give a firm hold thereon and to give the runners *e e* a spring action at that point.

The several arms E are parallel to each other and are connected by a series of cross slats H of wood or iron, suitably secured thereon, or, by a strong netting or an equivalent covering which will support a person falling upon or picked up by the fender. Figs. 2 and 3 represent this connection or covering in the form of wooden slats. A hook or equivalent device may hold the fender elevated when not in use, as at I, Fig. 3.

A yielding buffer J is shown in Fig. 3, applied to the front corner of the vertical support B.

The arms E are elastic, and are represented as bearing at an intermediate point against the vertical supports B, so as to have a spring action at such bearing point, or a suitable spring may be interposed. A rigid stop or rest K for the several arms when a severe strain comes upon the fender, may be provided, as shown in Fig. 3.

I claim as my invention.

1. A street-car fender consisting of a series of inclined arms pivoted at one end to a bar or frame on the car-body and turned downward and backward at their front ends where they are connected by a transverse rod, in combination with suitable slats or netting supported upon said arms, substantially as set forth.

2. A car fender comprising a series of slats

or net work extending across the front of the car, a series of arms supporting such slats or net work and each pivoted to a bar or frame on the car, each arm having at its front end
5 a downwardly and rearwardly - extending spring runner adapted to slide upon the ground and support the front of the fender when a weight is received thereon, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 29th day of June, A. D. 1892.

SAMUEL I. CRAFTS.

Witnesses:

A. H. SPENCER,
ELIHU G. LOOMIS.