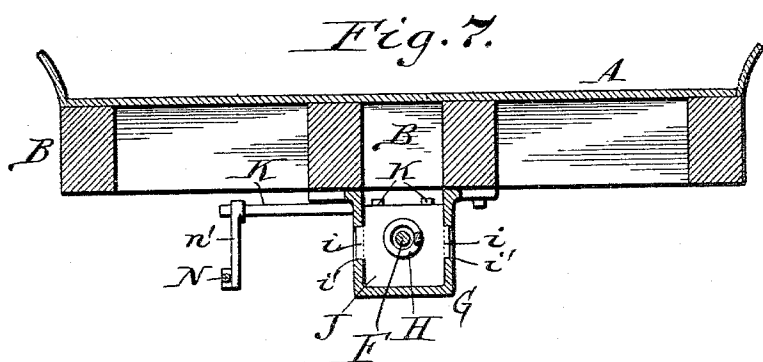
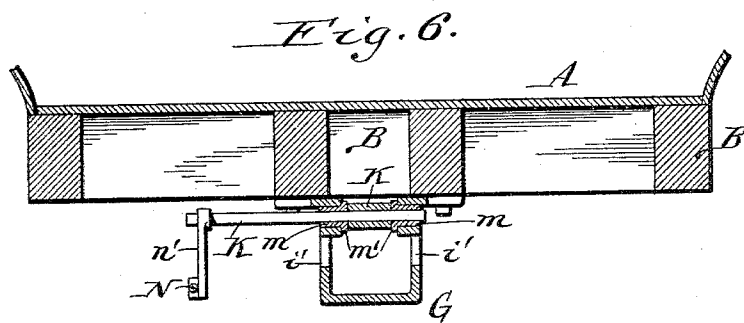
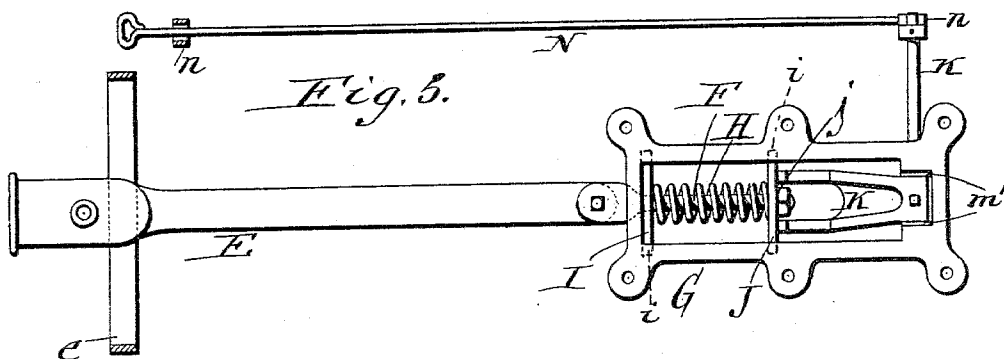


2 Sheets—Sheet 2.

No. 566,566.

Patented Aug. 25, 1896.



Robt Dunning INVENTOR.

Chas. F. Burkhardt
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By Wilhelm Borned

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ROBERT DUNNING, OF BUFFALO, NEW YORK.

DRAFT-GEAR FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 566,566, dated August 25, 1896.

Application filed March 19, 1896. Serial No. 583,922. (No model.)

To all whom it may concern:

Be it known that I, ROBERT DUNNING, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Draft-Gear for Street-Cars, of which the following is a specification.

This invention relates to the draft-gear of street-cars, and particularly to street-cars which are operated by cables or motors.

In street-cars of this character as usually constructed the draw-bars project in front of the buffer-blocks, which is objectionable because persons who are caught by the life-guards are liable to be injured by striking against the draw-bars, and it also prevents the cars from being placed close together when housing the same.

The object of my invention is to provide means whereby the draw-bar may be readily and easily shifted rearwardly on the under side of the car-body, so that it does not project in front of the buffer-block when it is not required.

In the accompanying drawings, consisting of two sheets, Figure 1 is a fragmentary side elevation of a street-car provided with my improved draft-gear. Fig. 2 is a longitudinal section, on an enlarged scale, of the draft-gear and connecting parts, showing the draw-bar in its operative or projected position. Fig. 3 is a similar view showing the draw-bar in its inoperative or retracted position. Fig. 4 is a perspective view of the follower-plate. Fig. 5 is a top plan view of the draft-gear. Figs. 6 and 7 are vertical transverse sections in lines 6-6 and 7-7, Fig. 2, respectively.

Like letters of reference refer to like parts in the several figures.

A represents one of the platforms of a street-car; B, the longitudinal beams or timbers supporting the same; C, the buffer-block arranged on the front side of the platform, and D the life-guard, which is hung upon the platform and projects forwardly from the same.

E represents the draw-bar, arranged lengthwise underneath the platform and supported near its front end by a hanger *e*, depending

from the platform. The rear end of the draw-bar is pivoted to the front end of a tension-rod F, which is arranged lengthwise in a guide-frame G, secured to the under side of the platform, and which extends through an opening *g* in the front end of the guide-frame.

H represents a tension-spring which surrounds the tension-rod and whereby the draft upon the draw-bar is cushioned. This spring bears with its front end against an abutment-plate I, mounted on the front portion of the tension-rod and with its rear end against a follower-plate J, mounted on the rear portion of the tension-rod. The abutment and follower plates are both guided in the guide-frame so as to be capable of lengthwise movement thereon by engaging with the sides and bottom of the guide-frame, and each of these plates is held against vertical displacement by means of laterally-projecting lugs *i*, formed on opposite sides of the plate and engaging with longitudinal slots *i'*, formed in the sides of the guide-frame. The follower-plate bears with its rear side against a shoulder *j* on the rear end of the tension-rod, which shoulder is preferably formed by a screw-nut applied to the screw-threaded rear end of the tension-rod. The abutment-plate bears with its front side against a shoulder *j'* on the front portion of the tension-rod and against the front end of the guide-frame when the parts are in their normal position.

If the draw-bar is pulled forwardly while it is coupled with the draw-bar of another car, the spring is compressed by the forward movement of the follower-plate toward the abutment-plate, the latter being held against forward movement with the draw-bar during this operation by bearing against the front end of the guide-frame, thereby cushioning the draft upon the draw-bar.

For the purpose of permitting the draw-bar to be shifted lengthwise, so that it projects into an operative position in front of the buffer-block, or to be retracted into an inoperative position, so that it does not project in front of the buffer-block, an adjustable stop device is provided, which is constructed as follows:

K represents a bifurcated stop-arm arranged lengthwise in the rear portion of the guide-frame and secured with its rear end to a transverse rock-shaft L, whereby the stop-arm is raised into an inoperative position or lowered into an operative position. The shaft L is preferably made square in cross-section and passes through a square opening in the stop-arm for compelling the latter to turn with the rock-shaft.

m m are two journal-sleeves whereby the rock-shaft is journaled in the guide-frame. These sleeves are mounted on the rock-shaft on opposite sides of the stop-arm, each sleeve having a square opening through which the shaft passes, a cylindrical outer side, which is journaled in a correspondingly-shaped opening formed in the longitudinal side of the guide-frame, and an annular flange *m'*, formed on the inner end of the sleeve and bearing against the inner side of the guide-frame for limiting the outward movement of the sleeve.

N represents a longitudinal actuating-rod whereby the stop is raised and lowered and which has its front end arranged adjacent to the front end of the draw-bar and supported in a hanger *n*, while its rear end is secured to the lower end of a rock-arm *n'*, which depends from one end of the rock-shaft. The front ends of the bifurcated portions of the stop-arm are each provided with a curved stop-face *o*, which is concentric with the pivot of the stop-arm and which is adapted to bear against a correspondingly-curved stop-face *o'* on the rear side of the follower-plate. The downward movement of the stop-arm is limited by a stop *o''*, which is formed on the follower-plate at the lower end of the curved face *o'*.

In the position of the parts shown in Fig. 2 the draw-bar and its cushioning devices are moved forwardly into an operative position, and the stop-arm is lowered into engagement with the stop-face of the follower-plate, whereby the draw-bar and cushioning devices are held against backward movement. Upon raising the stop-arm by pulling the rod forwardly until the stop-arm clears the follower-plate, the cushioning devices, together with the draw-bar, can be shifted rearwardly until the draw-bar does not project in front of the buffer-block, as represented in Fig. 3. When the cushioning-spring is expanded to its fullest extent in the normal position of the parts shown in Fig. 2, the pressure is taken up by the shoulders on the tension-rod against which the abutment and follower plates engage, so that no pressure is exerted against the stop-arm unless a rearward pressure is exerted against the draw-bar, thereby enabling the stop-arm to be easily operated for disengaging the same from or engaging the same with the follower-plate.

By arranging the front end of the actuating-rod close to the front end of the draw-bar both hands of the operator can be employed at the same time for shifting the stop device and the draft-gear.

I claim as my invention—

1. The combination with the car-body and a longitudinally-movable draw-bar, of a cushioning device connected with the draw-bar and capable of being shifted lengthwise on the car-body with the draw-bar, substantially as set forth.

2. The combination with a draw-bar and a guide-frame, of a tension-rod connected with the draw-bar and provided with front and rear shoulders, an abutment-plate capable of longitudinal movement in said frame and adapted to bear against the front shoulder of the tension-rod and against the front portion of said frame, a follower-plate capable of longitudinal movement in said frame and bearing against the rear shoulder of the tension-rod, a spring interposed between said plates, and a movable stop mounted on said frame and adapted to engage with the follower-plate, substantially as set forth.

3. The combination with a draw-bar and a guide-frame, of a tension-rod connected with the draw-bar and provided with front and rear shoulders, an abutment-plate capable of longitudinal movement in said frame and adapted to bear against the front shoulder of the tension-rod and against the front portion of said frame, a follower-plate capable of longitudinal movement in said frame and bearing against the rear shoulder of the tension-rod, a spring interposed between said plates, a transverse rock-shaft and a stop-arm mounted on said shaft and adapted to engage with said follower-plate, substantially as set forth.

4. The combination with a draw-bar and a guide-frame of a tension-rod connected with the draw-bar and provided with front and rear shoulders, an abutment-plate capable of longitudinal movement in said frame and adapted to bear against the front shoulder of the tension-rod and against the front portion of said frame, a follower-plate capable of longitudinal movement in said frame and bearing against the rear shoulder of the tension-rod, a spring interposed between said plates, a transverse rock-shaft, and a stop-arm mounted on said shaft, and provided with a curved stop-face adapted to engage with a correspondingly-shaped stop-face formed on the rear side of the follower-plate, substantially as set forth.

5. The combination with a draw-bar and a guide-frame, of a tension-rod connected with the draw-bar and provided with front and rear shoulders, an abutment-plate capable of longitudinal movement in said frame and adapted to bear against the front shoulder of

the tension-rod and against the front portion of said frame, of a follower-plate capable of longitudinal movement in said frame and bearing against the rear shoulder of the tension-rod, a spring interposed between said plates, a transverse rock-shaft provided with a stop-arm adapted to engage with the follower-plate and a longitudinal actuating-rod connected at its rear end with an arm on the rock-shaft, substantially as set forth. 10

Witness my hand this 8th day of February, 1896.

ROBERT DUNNING.

Witnesses:

THEO. L. POPP,

ELLA R. DEAN.