

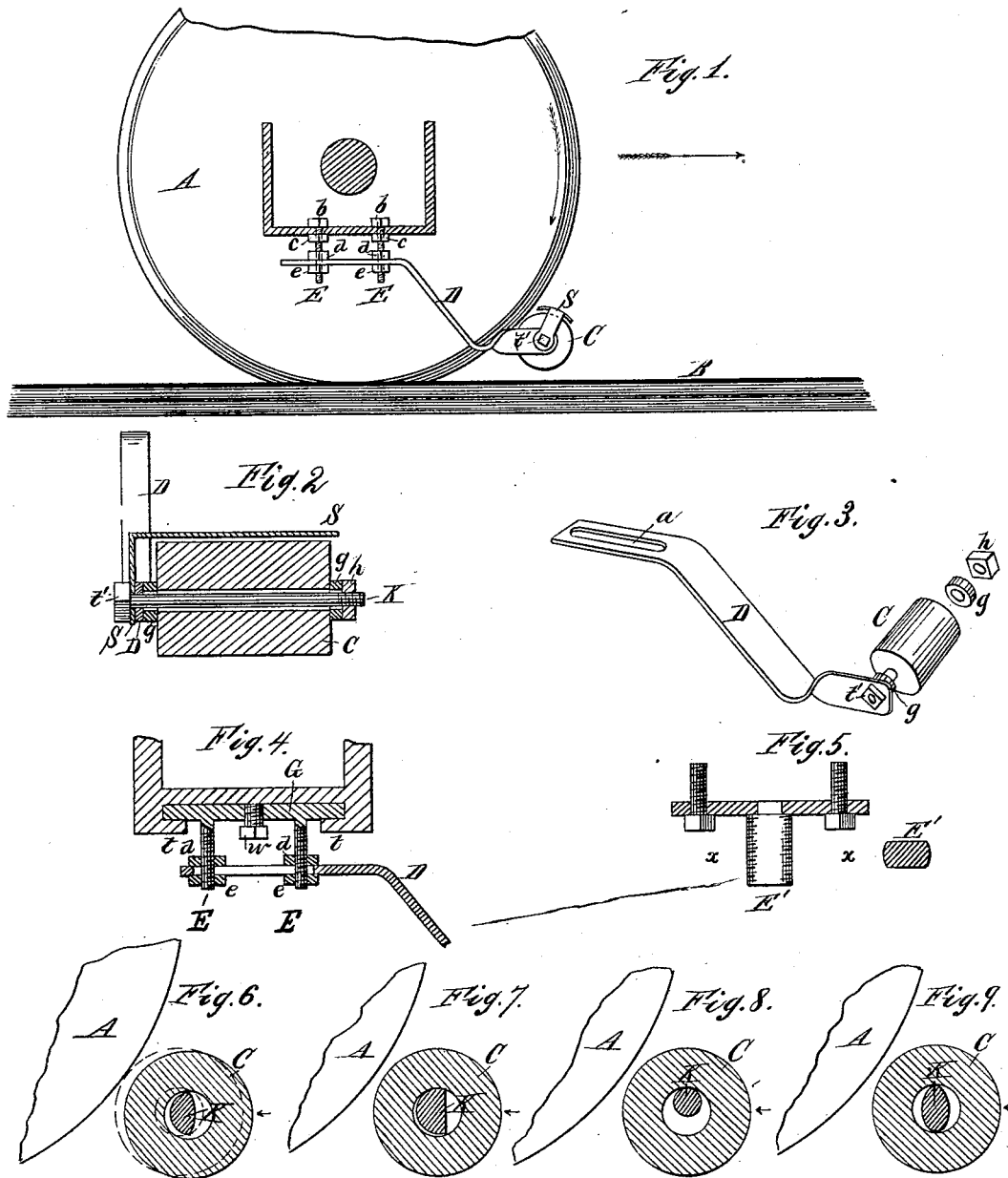
(No Model.)

C. W. HELD, Jr.

LIFE GUARD AND TRACK CLEARER.

No. 266,692.

Patented Oct. 31, 1882.



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UNITED STATES PATENT OFFICE.

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LIFE-GUARD AND TRACK-CLEARER.

SPECIFICATION forming part of Letters Patent No. 266,692, dated October 31, 1882.

Application filed April 16, 1880. Renewed May 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. HELD, Jr., of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Life-Guards and Track-Clearers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon, the same not having been, to my knowledge, heretofore patented in any foreign country.

My invention has relation to that class of life-guards and track-clearers whereby an ordinary street-car track or other tracks may be kept clear of obstructions by means of a small revolving block located in the angular space between the car-wheel and the track, made to revolve by frictional contact with the tread of the wheel, operating to project objects from off the track by reason of its rapid motion, and especially designed to prevent the possibility of any portion of the human body lodging between the rail and wheel.

The object of the invention is to provide a simple and more effective means than heretofore provided of adjusting the movable guards with respect to the track and surface of the wheel; to make the arm which carries the guard cheaper, easier to make, and better adapted to withstand the effects of shocks or strains; to simplify the means of attaching the scrapers which operate in conjunction with the guards, and to provide a rotatory guard which need only be put in motion at the instant it is struck by an object.

To accomplish all of this the invention involves certain new and useful peculiarities of construction and relative arrangements or combinations of parts, all of which will be hereinafter first fully described, and then pointed out in the claims.

In the drawings, Figure 1 is an elevation of one wheel of a car-track, showing one means of connecting the guard with the axle-box in accordance with my improvements. Fig. 2 is a vertical section and partial elevation upon a plane passing through the axis of the rotatory guard, and indicating an improved method of uniting the scraper with the supporting-arm. Fig. 3 is a perspective view of the improved guard-supporting arm detached from the axle-box. Fig. 4 is a sectional elevation, showing

the adjusting-bolts as applied to a separable plate, which plate may be connected with the axle-box; and Fig. 5 is an elevation and section of a single bolt adapted to afford all the advantages of the twin bolts shown in other figures. Figs. 6, 7, 8, 9 are sectional views at right angles to the axis of the rotatory guard, and indicating various forms which may be given the said axis in order to insure the operation of the guard in accordance with my invention.

Like letters of reference, wherever they occur, indicate corresponding parts in all the figures.

A is the car or other wheel, running upon track B, and having in connection therewith a rotatory life-guard and track-clearer, C, located in the angular space between the wheel and track and adapted to receive its motion from the wheel A.

In previous constructions and applications of this form of guard the supporting or carrying arms have been forged, necessitating considerable expense and requiring careful fitting to correspond with the particular car to which it is applied.

I make the supporting-arm D of flat or rolled metal, which has only to be bent, substantially as indicated at Fig. 3, punched twice—once for the attaching bolt or bolts and once for connecting the axle of the guard—and the arm is finished. Aside from its cheapness and greater range of application to various heights of axle-boxes and varying size of car-wheels, &c., this flat bar or supporting-arm possesses this advantage over the old forged styles—viz., it may be made very much lighter, and is much better adapted to withstand the effects of any lateral blows or strains than the other, since its greatest width is directly opposite to all such side strains.

It has been found that one of these guards is all that is really requisite for each wheel, and that of course should be placed on the side nearest the end of the car; but in some cases each wheel may be provided with two of my improved guards, if found desirable. The axle-box affords the most convenient and advantageous point of attachment, since this box maintains a nearly-uniform height above the track; but any other point of attachment might be selected.

The bar D is provided with an elongated slot, *a*, through which the attaching bolt or bolts pass.

At E E are shown two bolts, separated from each other by a little distance—less than the length of slot *a*. These form an extended bearing for the supporting bar, around which the bar cannot revolve, as in the case of a single cylindrical bolt, and operating to hold said bar firmly against any tendency to lateral disarrangement, rendering it possible to employ only one guard for each wheel with a single supporting-arm; or, if two guards be desired, then to employ two separate and independent arms, or a double arm with a correspondingly-enlarged slot. The bolts E E may be secured in place rigidly upon the axle-box or elsewhere in a variety of ways. As in Fig. 1, they are passed through the bottom of the box, having a head or nut, *b*, inside, which is clamped down firmly upon the bottom by the nut *c*. The bar D is adjustably held in place on these bolts by the upper and under nuts, *d e*, between which it is clamped. The bolts are sufficiently long to afford all the desired adjustments up and down, and the slot *a* is enough longer than the distance between the bolts to afford any desirable lateral adjustments. The arm D being placed upon the bolts E E, it is adjusted so as to bring the block C at the proper distance above the track and at the proper bearing with respect to the face of the wheel, and then firmly clamped in that position. The usual form of jam-nuts or locking contrivances may be employed in connection with the several nuts, it being observed that the more securely the arm is locked in place the less liable will the guards be to become disarranged. Instead of being connected with the axle-box, as shown in Fig. 1, the bolts E E may be made fast to a separate plate, as G, Fig. 4, and this plate afterward bolted or otherwise secured in proper place upon the axle-box or elsewhere, after which the arm is to be mounted, as before. The bearings *t t* (shown in Fig. 4) may be specially formed upon the axle-box for the reception of the bolt-plate, and they afford a very firm means of securing the plate to the box. The screw *w* serves to wedge the plate firmly against the bearings *t t* in a manner easily understood.

The elongated bearing for bar D may be obtained by use of a flattened bolt, E', such as indicated in Fig. 5, the screw-threads thereon for the reception of the locking-nuts being cut much after the manner of cutting the threads for dies and taps. This flattened bolt may be attached to a separate plate, G, or directly to the bottom of the axle-box, same as in the case of the double bolts. The double bolts are preferred on account of their simplicity and ease of manufacture.

In previous forms of this type of life-guard and track-clearer the block has been maintained constantly against the tread of the wheel, and therefore when the car is in mo-

tion is kept revolving at a rapid rate, involving the wearing out of its axle and the wearing away of the surface of the block itself. The only time when the rapid revolution of the guard is advantageous is when it is in contact with some object other than the car-wheel which it is designed to project from off the track, and therefore I hang the guard at a trifling distance from the face of the car-wheel, so that under ordinary circumstances it (the guard-block) will not revolve, and arrange it in such manner that whenever it is struck it will be brought to bear against the face of the car-wheel and immediately commence its rapid revolutions. This I accomplish by making the axis K smaller than the bore of the block, as indicated at Figs. 6, 7, 8, and 9, wherein it is plainly shown that the axis K may be of various forms in cross-section. The general form indicated in Fig. 6 is most preferred; but it may be cut away by a plain cut, as in Fig. 7, be made considerably smaller than the bore, though still left cylindrical, as in Fig. 8, or cut away on both sides, as in Fig. 9. From these figures it will appear that any object striking the guard in a direction opposed to its forward motion with the car, as indicated by the arrow-heads, will force it up against the car-wheel, and then its revolutions will commence. By thus arranging the guard so that it will ride free of the wheel and only revolve at the moment required all unnecessary wear is obviated, the heating of its axle is avoided, and the block may be made of a solid piece of rubber or other soft material not likely to tear or unduly injure the flesh of persons, the protection against accident to persons being one of the chief features of this type of guard. So far as this portion of the invention is concerned, there may be various ways of swinging or hanging the guard so that it will only revolve when needed. The method shown of producing the desired results are the simplest which I have been able to devise, and they will serve to illustrate the principles of this feature.

The simplicity of the constructions shown in Figs. 6, 7, 8, and 9 renders it feasible to secure the axis K upon the arm by means of a simple nut, since this form of attachment is amply sufficient to maintain the axis in place, which would not be the case were the block to be made to revolve continuously. I therefore use the nut *t'* on the end of the axle K, and this construction in turn enables me to attach the scraper S directly to the axle K, holding it in place by the same nut which secures the axle with respect to bar D, all as plainly indicated in Figs. 1 and 2.

Two washers, *g g*, of any preferred form, may be mounted upon the axle K at the ends of block C, and all held in proper place by the nut *h*; or the block may be secured in any other equivalent manner, preferably so that it may be readily detached.

When constructed and arranged to operate substantially in accordance with the foregoing

explanations, the improved guard admirably answers the several purposes and objects of the invention, as previously stated.

Having now fully described my invention, I desire to add that I make no claim to a revolving guard, *per se*, located in the angular space between the wheel and the track; nor do I claim a guard suspended from the axle-box; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. In a life-guard and track-clearer of the character herein specified, the combination, with the axled block, of the flattened suspending-arm D, constructed substantially as shown and described, and adapted to resist lateral strains, as set forth.

2. The supporting-arm for the axled block, provided with an elongated slot for the reception of the attaching bolt or bolts which form an elongated bearing for said arm, preventing the same from being disarranged by lateral thrusts or strains, substantially as shown and described.

3. In combination with bar D, having elongated slot *a*, the attaching-bolts E E, applied to the axle-box and provided with the clamping-nuts, substantially as shown and described.

4. The combination, with the axled guard operating in conjunction with the car-wheel, of a supporting-bar and means for connecting said bar with the axle-box, operating substantially as specified, so as to permit a vertical and horizontal adjustment of the said bar for the purpose of regulating the position of the guard, substantially as set forth.

5. The combination, with the separated bolts E E, of the attaching-plate G, adapted to be

mounted upon the axle-box or elsewhere, all substantially as shown and described.

6. In a life-guard and track-clearer of the character herein shown, the combination, with the car-wheel, of an axled guard-support in front of and clear of said wheel, and adapted to be revolved by contact therewith as soon as struck by any object upon the track, substantially as shown and described.

7. In a life-guard and track-clearer of the character herein shown, the combination, with the car-wheel, of the axled guard supported in front of said wheel upon an axle cut away or made smaller than the interior of the block, said block being made to ride clear of the wheel until struck by some object on the track, substantially as shown and described.

8. The herein-described rotatory block C, made of solid rubber, and mounted upon an axle supported in the angular space between the car-wheel and the track, said block being made to ride clear of the track and the wheel, in the manner and for the purposes set forth.

9. In a rotatory life-guard, the combination, with the supporting-arm, of the block-axle secured in said arm by means of the nut *t'*, and bearing the scraper S, substantially as shown and described.

10. The combination of the rotatory block C, axle K, washers *g g*, nuts *h t'*, arm D, and scraper S, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

CHAS. W. HELD, JR.

Witnesses:

WORTH OSGOOD,
ARTHUR M. PIERCE.