

(No Model.)

B. D. DRUEN.
COACH STEP.

No. 527,596.

Patented Oct. 16, 1894.

Fig. 1.

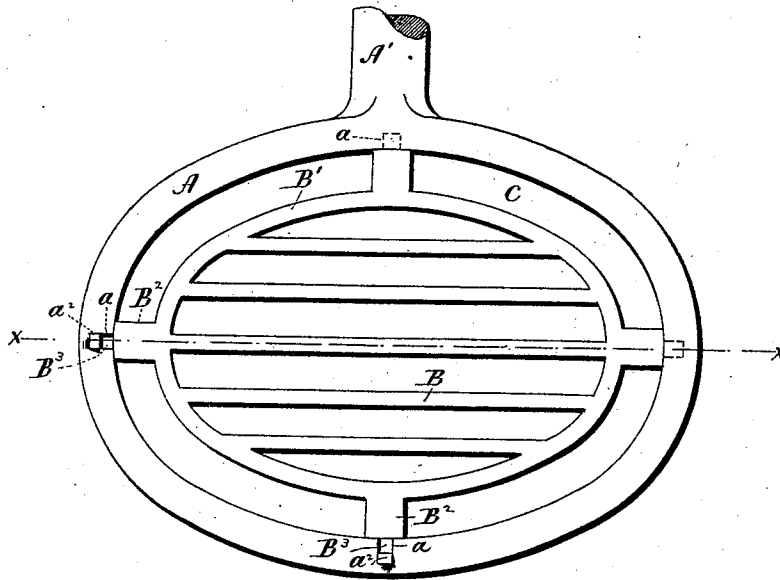
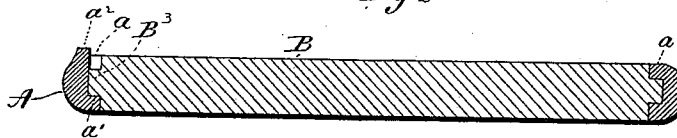


Fig. 2.



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BERNARD D. DRUEN, OF NEW HAVEN, CONNECTICUT.

COACH-STEP.

SPECIFICATION forming part of Letters Patent No. 527,596, dated October 16, 1894.

Application filed February 5, 1894. Serial No. 499,080. (No model.)

To all whom it may concern:

Be it known that I, BERNARD D. DRUEN, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Coach-Steps; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a plan view of one form which a coach-step constructed in accordance with my invention may assume, two of the nubs being shown as they appear before being swaged down; Fig. 2, a view thereof in vertical section on the line $x-x$ of Fig. 1, one of the nubs being shown as before and the other after swaging.

My invention relates to an improvement in that class of coach-steps having a hollow frame within which parallel horizontal bars are arranged as in a grate.

Heretofore in the construction of coach-steps of the class referred to, the bars have been made independent of each other, and independently secured within the frame. That construction is, however, expensive of time, labor, and material.

The object of my present invention is to produce a simple, strong and attractive article of the character described, at a low cost for manufacture, and it consists in the certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

In carrying out my invention, as herein shown, I employ a wrought-metal frame A, having an arm or reach A' made integral with it when it is forged, which is the method of its production. As herein shown, the frame is oval in form, but its particular shape is not material, and may be varied as circumstances and fancy may dictate. Within the frame I locate a cast-metal grate, corresponding to it in general form, and composed, as herein shown, of a series of horizontal, parallel grate-bars B, varying in length, a rim B in which the ends of the said bars terminate, and four equidistant radial arms B³, formed integral with the rim and extending radially therefrom, and each terminating in a narrow

outwardly projecting tenon B³. Under this construction a uniform space C is formed between the inner periphery of the frame and the outer periphery of the said rim of the grate. To receive the said tenons the inner face of the frame is constructed at corresponding points, with four vertical slots α , each terminating at its lower end above the lower edge of the frame, in a shoulder α' , and extending at their upper ends through the upper edge of the frame. The tenons B³ before mentioned are somewhat narrower than the length of the said slots, as clearly shown in the left hand portion of Fig. 2. The frame is also constructed upon its upper edge with four nubs α^2 , of excess metal, located in alignment with the upper ends of the slots α , and large enough to fill the unoccupied upper ends thereof when upset therinto.

In assembling the grate and frame, the tenons of the former are inserted into the slots of the latter, their lower edges resting upon the shoulders α' . The nubs formed upon the upper edge of the frame are then swaged down over the upper edges of the tenons, so as to close the upper ends of the slots, whereby the grate is firmly secured within the frame, which is finished by smoothing off by a file or otherwise, the swaged nubs, unless they are completely reduced in the process of upsetting.

I would call attention to the fact that the upper face of the grate is exactly flush with the upper edge of the frame, whereby an even wearing surface is secured. By constructing the grate sufficiently smaller than the frame to leave a space between it and the same, I secure a light and ornamental appearance, and also additional clearance for any dirt that may be thrown on the step.

The coach-step thus produced has the appearance and style of a step made entirely of wrought metal, and has the additional merit of strength, durability and cheapness.

In my prior patent, No. 515,954, granted to me March 6, 1894, I showed and described a frame, and a grate made up of independent parallel bars inserted into slots in the frame, and secured therein in the same manner as provided for herein for the attachment of the cast-metal grate to the wrought metal frame. I am also aware that a coach-step having a

cast-metal grate located in a wrought-metal frame, is old. I do not, therefore, broadly claim the particular way shown and described of securing the cast-metal grate to the wrought metal frame, nor do I broadly claim a cast metal grate in a wrought-metal frame.

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

- 10 1. In a coach-step, the combination with a wrought-metal frame, of a cast-metal grate, comprising grate bars, a rim in which the ends of the bars terminate, and radial arms projecting outward from the rim and adapted
15 at their ends to be permanently secured to the wrought-metal frame, whereby a uniform space is formed between the inner periphery of the frame and the outer periphery of the rim, and whereby also the upper face of the
20 grate is flush with the upper edge of the frame, substantially as set forth.

2. In a coach step, the combination with an oval wrought-metal frame, of a cast-metal grate, having the same oval form as the frame but enough smaller than the same to form a space between the grate and frame when the former is in position within the latter, the said grate comprising parallel bars varying in length, a rim in which the ends of the bars terminate, and radial arms projecting outward from the rim and adapted at their ends to be permanently secured to the frame, with the upper edge of which the upper face of the grate is flush, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

BERNARD D. DRUEN.

Witnesses:

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