

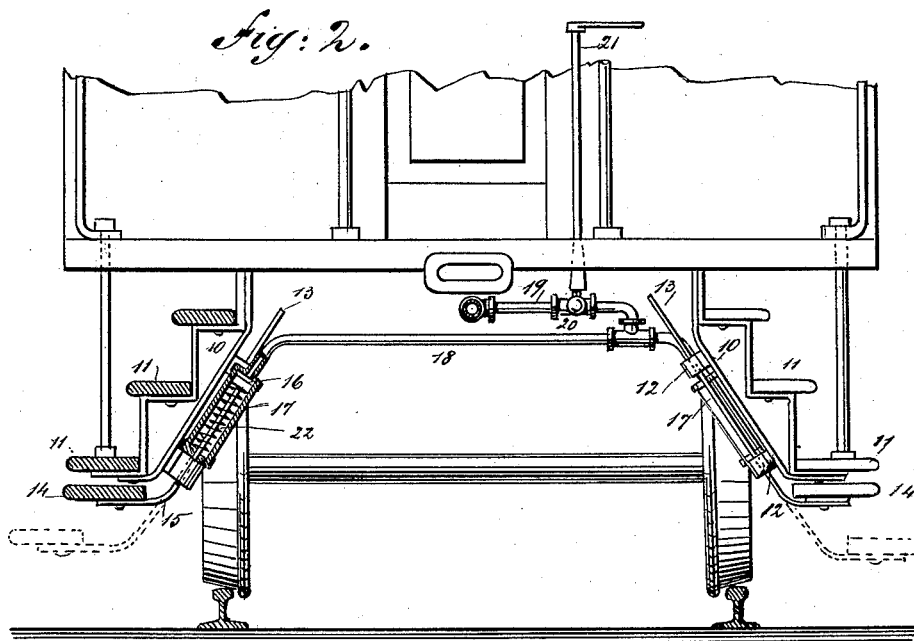
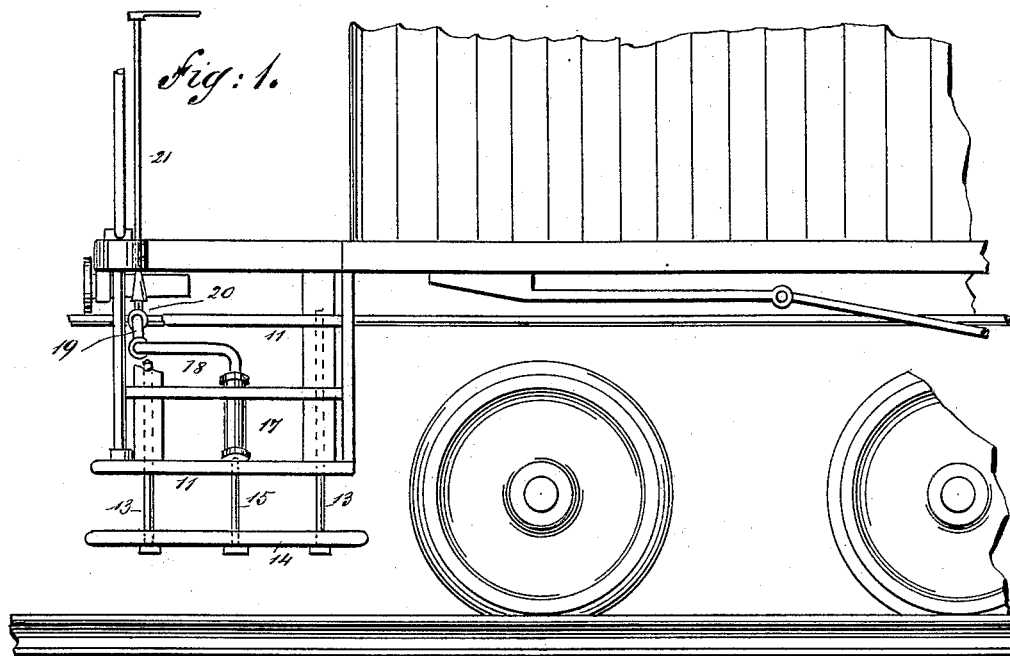
(No Model.)

JAMES F. WOOD & JOHN F. WOOD.

EXTENSIBLE CAR STEP.

No. 417,896.

Patented Dec. 24, 1889.



WITNESSES:

Chas. Nida
C. Betzger

INVENTOR:

J. F. Wood
BY *J. F. Wood*
Munn & Co
ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES F. WOOD AND JOHN F. WOOD, OF WILMINGTON, DELAWARE.

EXTENSIBLE CAR-STEP.

SPECIFICATION forming part of Letters Patent No. 417,896, dated December 24, 1889.

Application filed October 18, 1889. Serial No. 327,448. (No model.)

To all whom it may concern:

Be it known that we, JAMES F. WOOD and JOHN F. WOOD, both of Wilmington, in the county of New Castle and State of Delaware, have invented a new and Improved Extensible Car-Step, of which the following is a full, clear, and exact description.

This invention relates to extensible car-steps of the class illustrated, described, and claimed in Letters Patent of the United States No. 403,237, granted to us on the 14th day of May, 1889, the object of the present invention being to improve the construction forming the subject-matter of said patent; and to the end named the invention consists, essentially, of an extensible tread, guiding-rods extending upward therefrom, sockets through which said rods pass, a cylinder arranged to be placed in communication with the compressed-air reservoir, a piston arranged within said cylinder, the stem of such piston being connected with the extensible tread, and a spring arranged below the piston, whereby the tread is normally held in the raised position, all as will be hereinafter more fully explained, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in both views.

Figure 1 is a side view of a portion of a car, representing the same as provided with our step, the step being represented as it appears when in the lowered position; and Fig. 2 is an end view of a car in partial section, the steps being represented in full lines as they appear when moved to position beneath the lower tread of the fixed steps, and in dotted lines as they appear when in their lowered position.

In the drawings, 10 represents the frame upon which the main treads 11 are mounted. To the frame 10 there are connected sockets 12, which sockets serve as guides for rods 13, that are bent outward near their lower ends to support the extensible treads 14. To these lower treads 14 we connect stems 15, which carry pistons 16, said pistons riding

in cylinders 17, that are connected by a pipe 18, which pipe is in turn connected by a pipe 19 with the train-pipe connected with the compressed-air reservoir of the brake system. A three-way valve 20 is placed in the pipe 19, from the plug of which an operating-handle 21 extends to the car-platform; but in order that the treads 14 may be normally held in the position in which they are shown in full lines in Fig. 2 we arrange springs 22 between the lower ends of the cylinders 17 and the under sides of the pistons 16. In this way we provide for the lowering of the steps at times when the brakes are applied, but we prevent the accidental lowering of such treads.

Under certain circumstances it might be desirable that the treads be held up at times when the brakes are applied, which can be accomplished by operating the valve 20 in the pipe 19; also, the brakeman or conductor can lower the steps of one or two coaches, as desired.

By means of the construction above described we provide for the lowering of the treads 14 at stations where the platforms are so low as to render it inconvenient for passengers to step upon the lower one of the permanent treads, and consequently we avoid the necessity of using portable steps such as have been heretofore employed.

If desired, the pipe 19 can be connected with an independent train-pipe, so that the lowering of the extensible treads will be under the control of the engineer and can be operated independently of the brake system.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, with the permanent steps of a car, of a tread 14, a means for guiding said tread, a stem extending upward from the tread, a piston carried by the stem, a cylinder in which the piston rides, a connection between the cylinder and the compressed-air reservoir, and a spring arranged beneath the piston, substantially as shown and described.

2. The combination, with the permanent

steps of a car, extensible treads supported from said steps, stems extending upward from said extensible treads, pistons carried by said stems, cylinders in which said pistons ride, and springs arranged in connection with said pistons, of a pipe connecting said cylinders, a second pipe connecting said connecting-pipe with the train-pipe, and a three-way valve in said second pipe, substantially as shown and described.

JAMES F. WOOD.
JOHN F. WOOD.

Witnesses:

JAMES O. TOOLE,
HENRY R. SMITH.