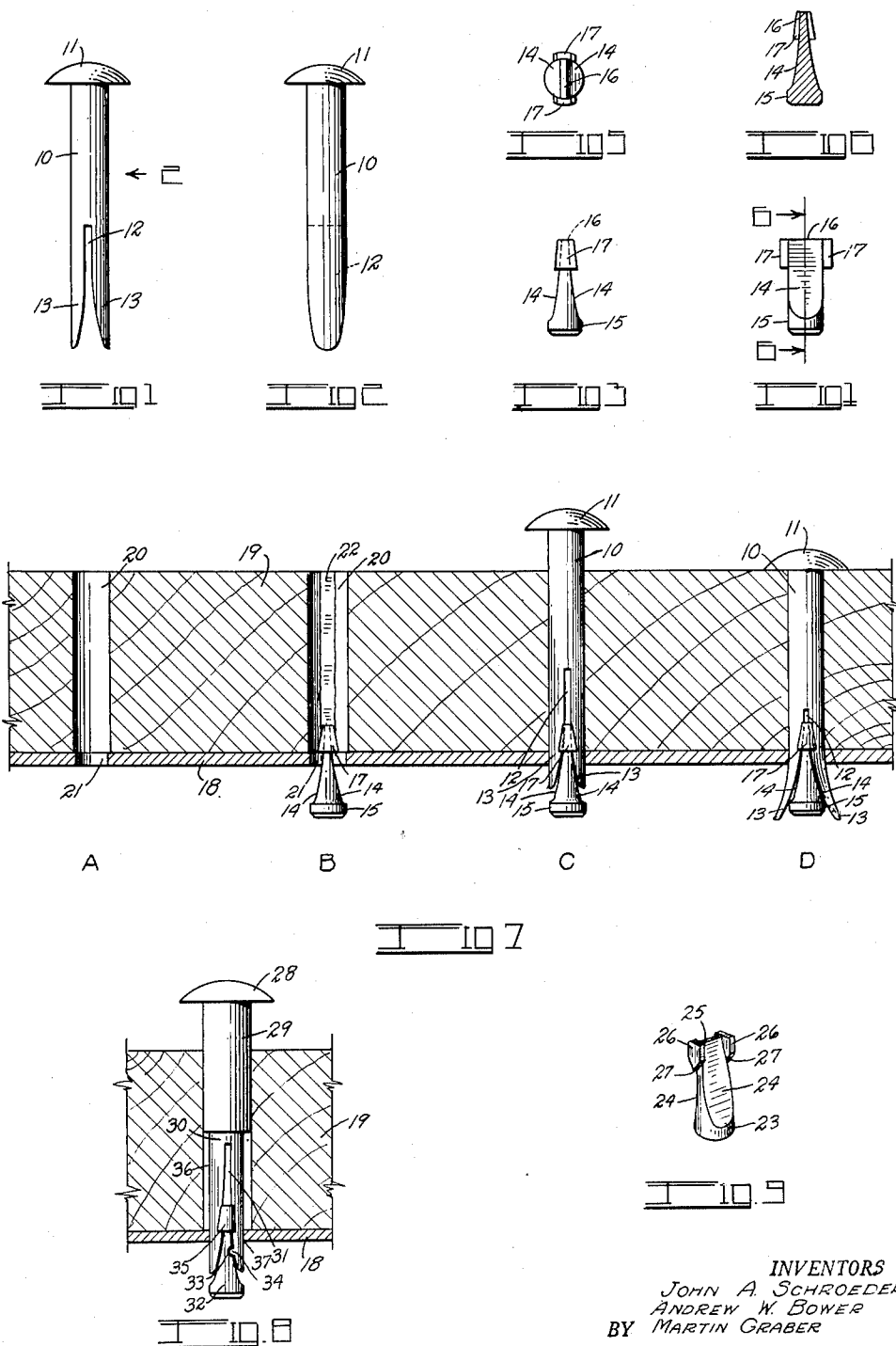


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J. A. SCHROEDER ET AL
SELF-LOCKING DRIVE TYPE RIVET

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SELF-LOCKING DRIVE TYPE RIVET

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1 Claim. (Cl. 85—26)

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This invention relates to a bolt for attaching wooden decking in steel railway freight cars. The modern steel railway freight cars have wooden floors or decks consisting of relatively heavy planking bolted to the steel deck of the car by means of a plurality of roundheaded, carriage-type bolts. It is an exceedingly time-consuming job to place all of these bolts in position, since it requires one man on the deck to insert the bolts, and another man under the car to tighten the nuts thereon. The nuts also become loosened, due to the vibration of the car and shrinkage of the floor planks, so that it is a constant maintenance job to maintain these nuts tightened.

The principal object of this invention is to provide a bolt which will eliminate all of the above-noted disadvantages of the present carriage-type bolt, and which can be quickly and easily installed by one man from a position above the deck; which will not require a nut or a wrench; and which can be instantly tightened at any time by simply rapping the head of the bolt with a hammer.

Other objects and advantages reside in the detail construction of the invention which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a side view of the improved deck-attaching bolt;

Fig. 2 is a similar view, looking in the direction of the arrow 2, Fig. 1;

Fig. 3 is an edge view of a wedge element employed with the improved bolt;

Fig. 4 is a side view of the wedge element;

Fig. 5 is a top view of the wedge element;

Fig. 6 is a vertical section through the wedge element, taken on the line 6—6, Fig. 4;

Fig. 7 is a vertical section through a typical freight car deck, illustrating various steps in the installation of the improved bolt;

Fig. 8 is a side view of an alternate form of the improved deck bolt, illustrating it inserted in a typical deck; and

Fig. 9 is a perspective view of an alternate form of wedge member for use with the improved bolts.

In Fig. 7 a typical metal deck plate is indicated at 18 over which wooden deck planks 19 are to be secured.

The form of bolt illustrated in Figs. 1 and 2 comprises a shank portion 10 provided with a head 11. The extremity of the shank is split, as indicated at 12, to form two opposed legs 13 hav-

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ing downwardly and outwardly curved inner surfaces.

The bolt is used in connection with a wedge member, as illustrated in Figs. 3 to 6. The wedge member is formed from a cylindrical blank having a diameter corresponding to the diameter of the shank 10. The two sides of the blank are milled or otherwise formed so as to incline inwardly toward each other to form two curved, inclined, opposed wedge surfaces 14 extending upwardly from a cylindrical base 15 and forming at the top a diametrically extending, narrow entering edge 16.

A projecting lug 17 is formed on the cylindrical wedge member at each extremity of the entering edge 16. The lugs 17 project outwardly from the sides of the wedge member, and extend downwardly therealong for approximately one-third of its length.

To install the improved bolt, a hole 20 is drilled downwardly through the deck planks 19 and through the metal deck 18, forming a bolt opening 21 in the latter, as shown at A, Fig. 7. One of the wedge members is now dropped or driven into the hole 20 until it passes through the hole 21, where it will be supported by the projecting lugs 17 overlying the upper surface of the metal deck plate 18, as shown at B in Fig. 7. The bolt shank 10 is now inserted into the hole 20 with the legs 13 extending on opposite sides of the entering edge 16 of the wedge member, as shown at C in Fig. 7. The head 11 is now driven downwardly to the surface of the deck planks 19, which causes the two arcuate flaring wedge surfaces 14 to spread the two legs 13, as shown at D in Fig. 7, to firmly lock the bolt to the deck plate 18.

The hole 20 may be drilled slightly larger than the hole 21, as shown in Fig. 8, so that the wedge member may be simply dropped therein. However, since the wood is relatively soft, the wedge member may be simply driven downwardly through the hole 20, if the latter is the same diameter as the hole 21, by means of a driving instrument of any suitable design. In the latter case the legs 17 will cut or deform grooves in the sides of the hole 20, as indicated at 22 in Fig. 7.

To facilitate the driving of the wedge into the hole 20 the form of wedge member shown in Fig. 9 may be used. This form has a cylindrical base 23, of the diameter of the bolt shank, with oppositely inclined wedge faces 24 and entering edge 25 similar to the previously described form of Fig. 3. In this form, however, two opposed projecting lugs 26 are employed having pointed or sharpened bottom surfaces 27 which facilitate driving the lugs through wooden sides of the hole 20.

In Fig. 8 an alternate form of bolt is illustrated having a head 28, an enlarged upper shank 29

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and a reduced lower shank 30. The lower shank 30 is bifurcated as shown at 31 similarly to the bolt illustrated in Fig. 1. A wedge member 32 is employed, similar to the wedge member of Fig. 3 and having two opposite holding bosses 35. A groove 33 is formed in the wedge member of this form for the reception of a ridge or projection 34 formed on one of the furcations of the shank 30.

The purpose of the groove 33 and projection 34 is to hold the wedge member in the shank 30 as a component part thereof so that the two may be packed, delivered and used as a complete unit.

The enlarged upper shank 29 has the same diameter as the diameter of the wedge member 32 including the projecting bosses 35. In installing the alternate form of Fig. 8, a hole 36, having a diameter to receive the enlarged shank 29, is drilled through the wooden deck 19 and a smaller hole 37, approximating the diameter of the smaller shank 30, is drilled through the steel deck 18. This allows the entire assembly to be inserted downwardly to the position of Fig. 8 with the lugs 35 resting on the steel deck. The head 28 is then driven down, causing the furcations of the shank 30 to spread and lock the bolt in place as shown at D in Fig. 7.

The bolt will be made with various lengths of shanks to accommodate decks of varying thicknesses.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied, within

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the scope of the appended claim, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

5 An expansion bolt for attaching a wooden deck to a metallic deck plate comprising: a bolt shank; a head on one extremity of said shank; two legs formed on the other extremity of said shank by splitting the latter; outwardly flared inner faces on said legs defining a wedge-shaped notch between said legs; the outer faces of said legs defining a cylinder; a wedge member positioned in said wedge-shaped notch; lugs projecting oppositely outward from said wedge member beyond the circumference of said shank; said lugs being positioned adjacent the upper extremity of said wedge member and adapted to contact the metallic deck plate; and a sharpened lower edge on each lug to facilitate driving the latter through
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20 said deck.

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