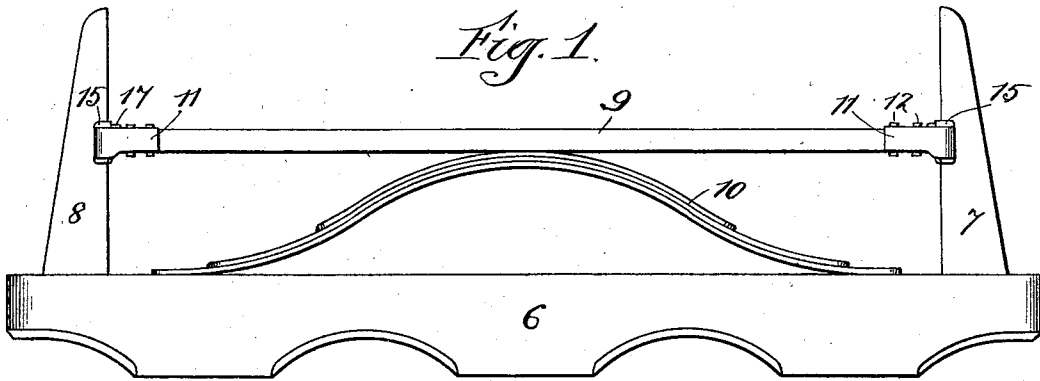
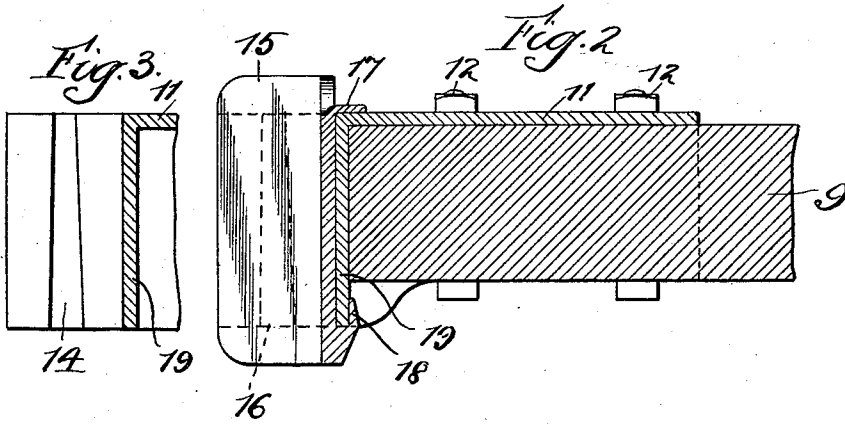
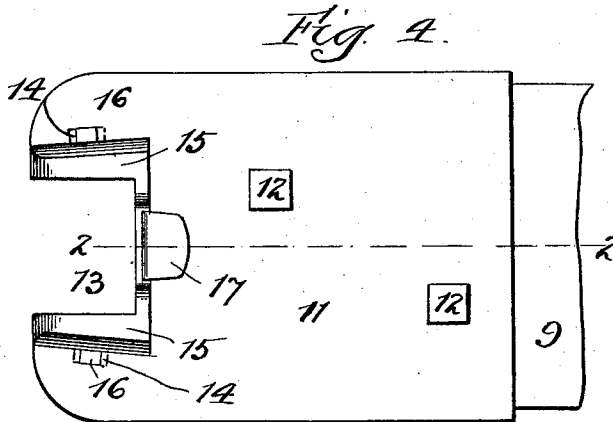
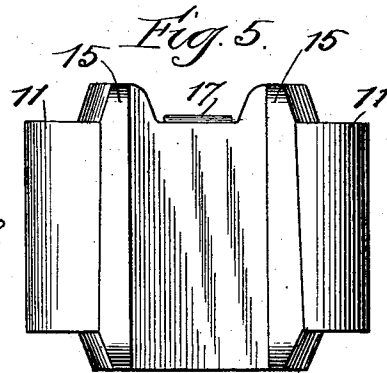


(No Model.)

J. F. BICKEL.
BAR FOR BOLSTER SPRINGS.

No. 588,214.

Patented Aug. 17, 1897.



Witnesses

Wm. J. Hanning
Holmes A. Tilden.

by

Inventor

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UNITED STATES PATENT OFFICE.

JOHN F. BICKEL, OF RACINE, WISCONSIN, ASSIGNOR TO CORA M. BICKEL,
OF SAME PLACE.

BAR FOR BOLSTER-SPRINGS.

SPECIFICATION forming part of Letters Patent No. 588,214, dated August 17, 1897.

Application filed October 25, 1895. Serial No. 567,048. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. BICKEL, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Bars for Bolster-Springs, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an end elevation. Fig. 2 is an enlarged detail, being a longitudinal vertical section on line 2 2 of Fig. 4. Fig. 3 is a partial longitudinal vertical section of one end, the bushing being removed. Fig. 4 is a plan view of one end of the bar. Fig. 5 is an end view of the bar.

My invention relates to bars commonly used for bolster-springs, but it is also adapted for use with other forms of springs.

Heretofore in bolster-spring bars much annoyance and expense have been caused by the wearing away of the bearing-surfaces of the end bars—that is, such portions of the bars as engage the bolster-stakes.

It is the object of my invention to provide improved end plates for the bolster-bar, which will be arranged so that when the bearing parts wear away they may be readily replaced; also, to provide end plates of such construction that they may readily be adapted for use with stakes of different thicknesses, so that any bar may be at once adapted for use with different wagons.

I accomplish the objects of my invention as hereinafter specified and as illustrated in the drawings.

That which I regard as new will be set forth in the claims.

In the drawings, 6 indicates a bolster, of which 7 8 are the stakes.

9 indicates a bolster-bar, which may be of any approved construction so far as the intermediate portions are concerned. In the drawings I have shown a solid bar, but it will be understood that other forms of bars, such as channel-irons, may be used, also extensible bars, such as those illustrated in my application for patent, Serial No. 533,032, filed December 26, 1894. The construction of the bar, however, does not form a part of my present invention, which relates merely to the end portions of the bar.

10 indicates a bolster-spring, which may also be of any approved construction.

11 indicates an end piece, which in the form which I prefer is in the form of a channel-iron. In cases where the bolster-bar 9 is square in cross-section, as shown in Fig. 2, the end plate 11 is fitted thereupon and is secured thereto by suitable devices. In cases, however, where the bar is a channel-iron, as well as in many other instances, the end pieces may be made integral therewith. The end plates 11 may be made longitudinally adjustable of the bar 9 by providing slots in which bolts or other suitable binding devices which secure the plates to the bar may move.

The end plates 11 are provided with wedge-shaped openings 13, the outer portions of said openings being narrower than the inner portions thereof, as shown in Fig. 4. The upper portion of said opening is narrower than the lower portion thereof, as shown at Fig. 5. At opposite sides of the opening 13 are wedge-shaped grooves 14, the narrower portions of the grooves being uppermost, as shown in Fig. 3.

15 indicates a bushing which is adapted to fit into the opening 13, said bushing being of suitable shape to conform to the shape of the opening 13, and being provided with tongues 16 at opposite sides which enter the grooves 14. It will be obvious from the above description that the bushing 15 may be inserted from below, and the result of the construction above described is that when the bushing is moved upward to fit snugly into the opening 13 it will be tightly wedged in place.

As shown in Fig. 4, the bushings 15 are channeled or provided with suitable grooves to receive the bolster-stakes, as also illustrated in Fig. 1.

For the purpose of securing the bushing in place it is provided at its upper edge with a lug 17, which is adapted to be bent over backward to overlap the adjacent portion of the plate 11, as shown in Figs. 2 and 4, thereby preventing downward movement of the bushing and consequently firmly locking it in position. The bushing is further held in position by a lug 18, which rises from the lower rear portion thereof and forms a recess, within which is received the lower edge of a plate 19, which is arranged at right angles to the

plate 11, forming the back wall of the opening 13. By this construction the bushing may be very securely locked in place, although it may also be very readily removed by endwise movement when desired by bending up the lug 17 and forcing the bushing downward.

The endwise movement of the bushing to effect its removal may be vertical or lateral or in any direction substantially at right angles to the longitudinal axis of the bar.

As I have hereinbefore suggested, the end pieces 11 may or may not be made integral with the bar, depending upon whether or not it is desired to make the bar adjustable as to length. My invention therefore includes both forms.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a bolster-bar, of removable bushings at its ends, constructed with channels and removable from the bar by endwise movement substantially at right angles to the longitudinal axis of said bar, substantially as described.
2. The combination with a bolster-bar, of an end piece having a wedge-shaped opening therein, and a bushing fitting into such opening and removable therefrom by endwise movement substantially at right angles to the longitudinal axis of said bar, substantially as described.
3. The combination with a bar, of a bushing connected with the end thereof, having a recess to receive the wagon-stake and endwise movable from said bar in a direction substantially at right angles to the longitudinal axis of the bar, and means for locking the bushing in operative connection with the bar, substantially as described.
4. The combination with a bar, as 9, of an end piece, a wedge-shaped opening therein, a bushing fitted into such opening, and a lug adapted to be bent over to lock said bushing in place, substantially as described.
5. The combination with a bar, as 9, of an end piece, an opening in said end piece, wedge-shaped slots, a bushing adapted to fit into said opening and removable from said

bar by endwise movement substantially at right angles to the longitudinal axis of the bar, and tongues adapted to fit into said slots to hold the bushing in place, substantially as described.

6. The combination with a bar, as 9, of an end piece, an opening in said end piece, a back plate 19, a bushing adapted to fit into said opening, a lug 18 carried by said bushing, and a lug 17 adapted to be bent over to hold said bushing in place, substantially as described.

7. The combination with a bar, as 9, of an end piece 11, having a back plate 19, an opening 13 in said end piece, said opening being wedge-shaped, wedge-shaped grooves in the sides of said opening, a bushing adapted to fit into said opening, a lug carried by said bushing and adapted to be bent over to hold said bushing in place, and tongues carried by said bushing and adapted to fit into said grooves, substantially as described.

8. The combination with a bar having a wedge-shaped opening at the end thereof, of a bushing fitted into said opening and removable by endwise movement substantially at right angles to the longitudinal axis of said bar, substantially as described.

9. The combination with a bar having a groove, of a bushing adapted to fit into said groove, a lug 18, and a lug 17 adapted to be bent over to hold said bushing in place, substantially as described.

10. The combination with a bar having a groove, of a bushing adapted to fit into said groove, a lug 18, tongues and grooves and a lug 17 for holding said bushing in place, substantially as described.

11. The combination with a bar having a groove, of a bushing adapted to be inserted into said groove by an endwise movement, and a lug adapted to be bent over to hold said bushing in place, substantially as described.

JOHN F. BICKEL.

Witnesses:

JOHN L. JACKSON,
CHARLES E. PICKARD.