(No Model.) 2 Sheets--Sheet 1.

C. T. SCHOEN.

PRESSED STEEL BRAKE BEAM AND SHOE HEAD FOR RAILWAY CARS.

No. 464,781. Patented Dec. 8, 1891.

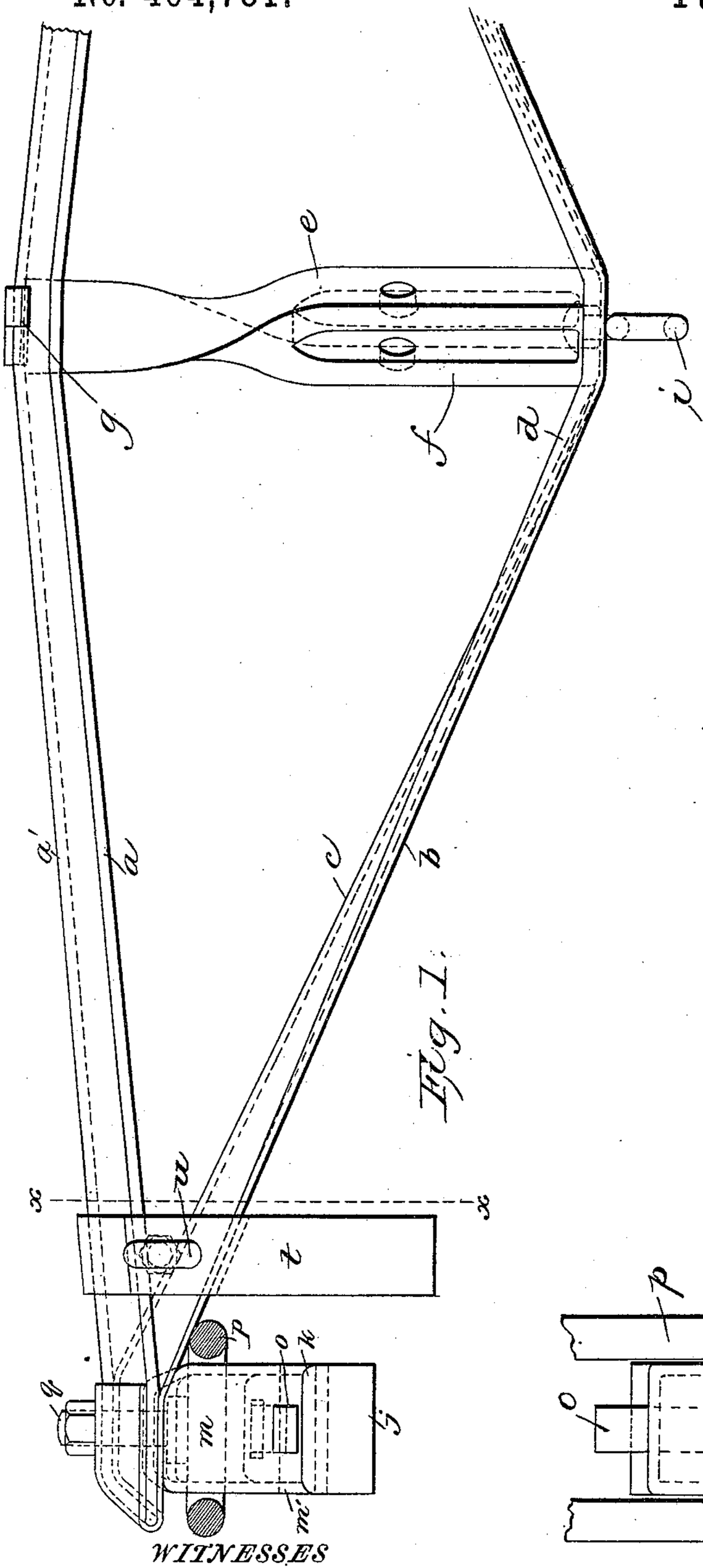

Fig. 1.

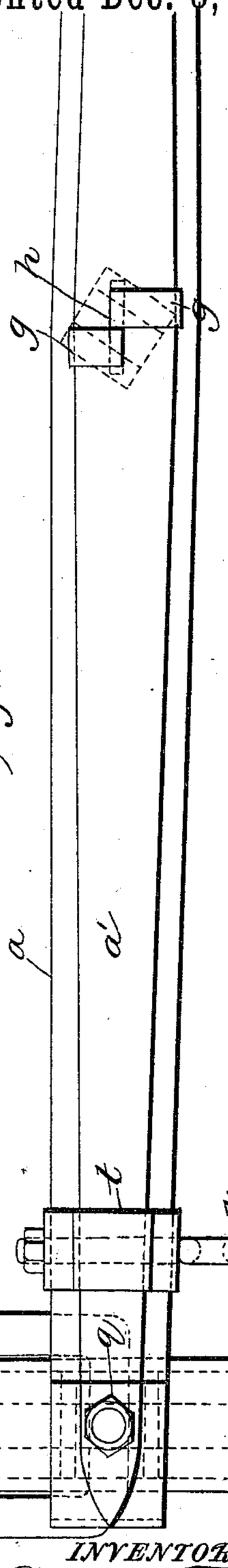

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 8.

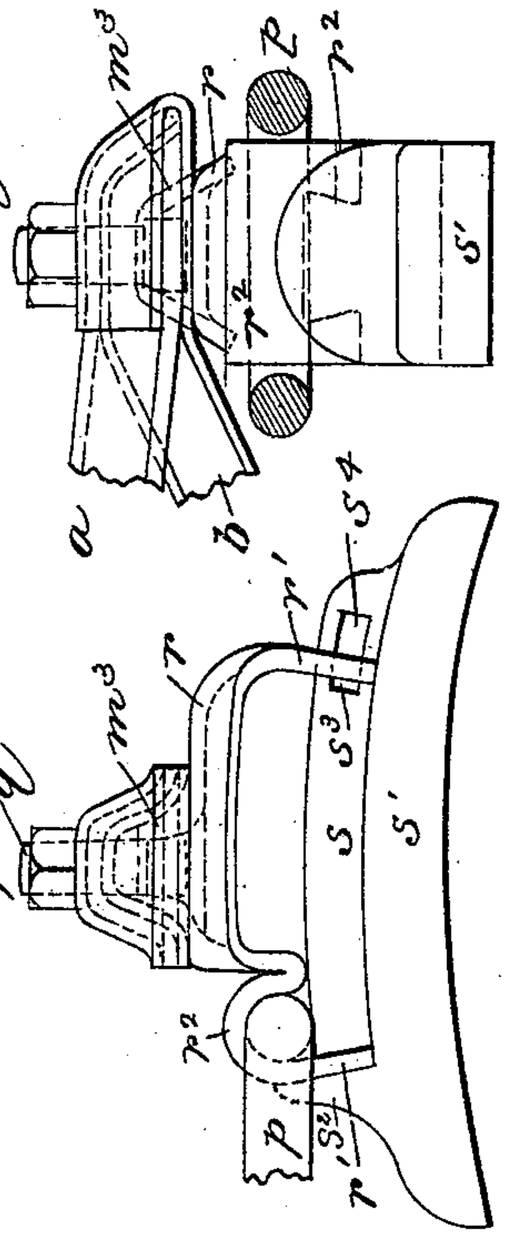


Fig. 10.

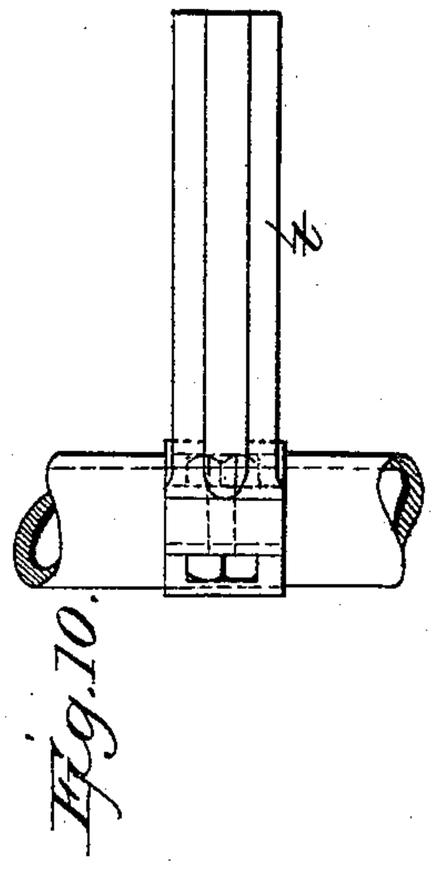


Fig. 11.

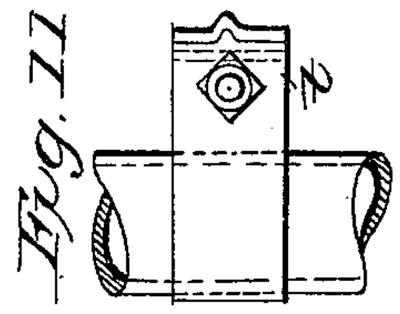


Fig. 9.

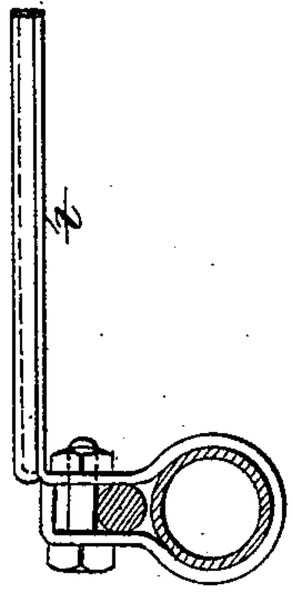


Fig. 4.

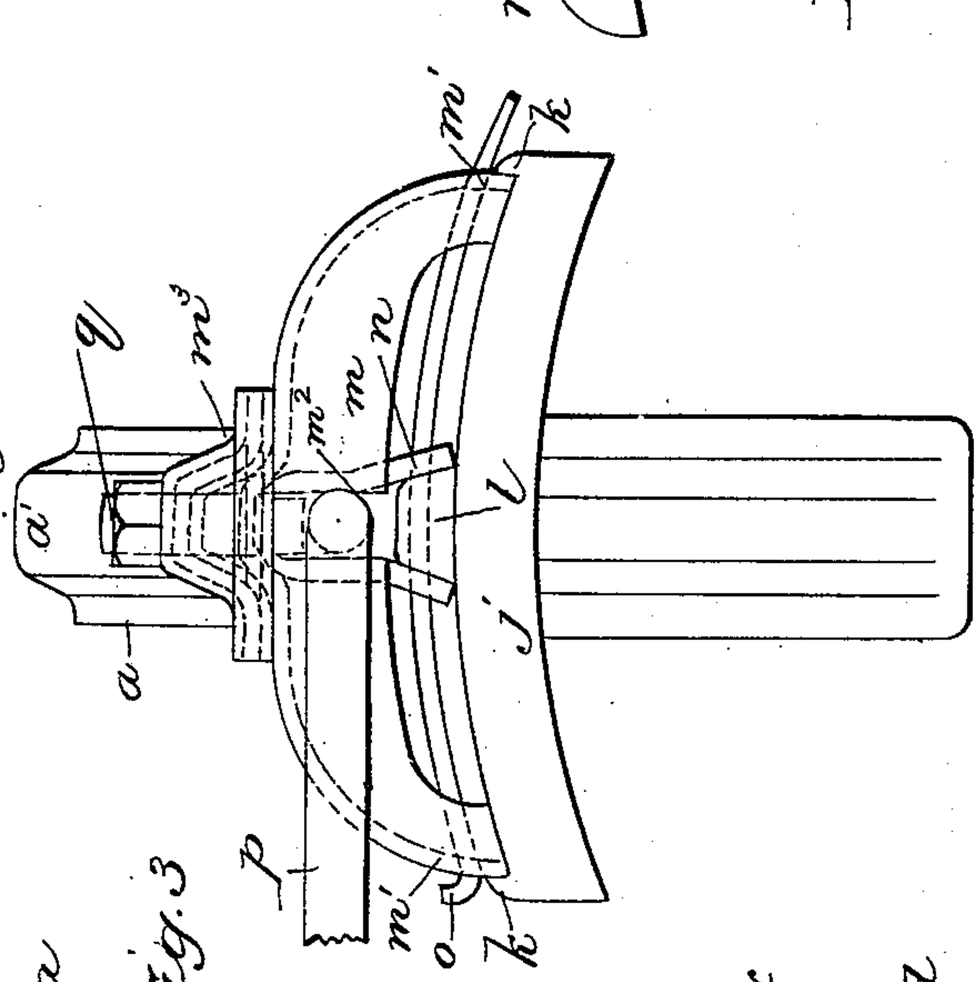


Fig. 3

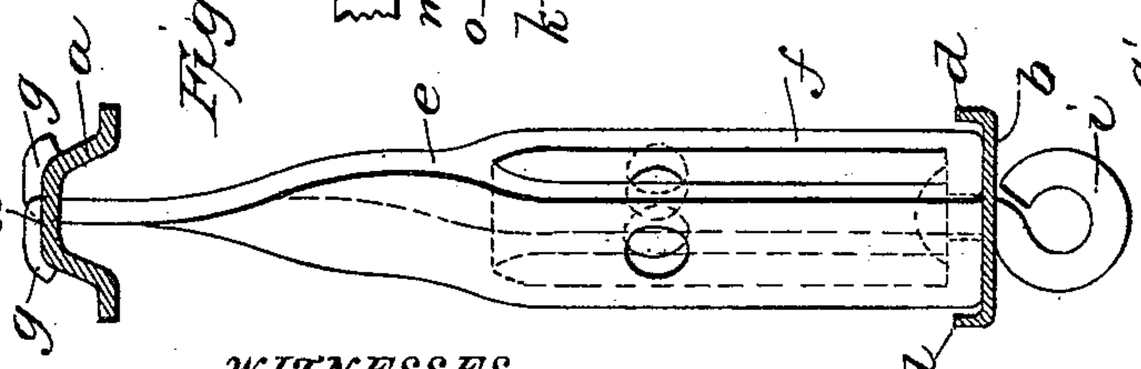


Fig. 5

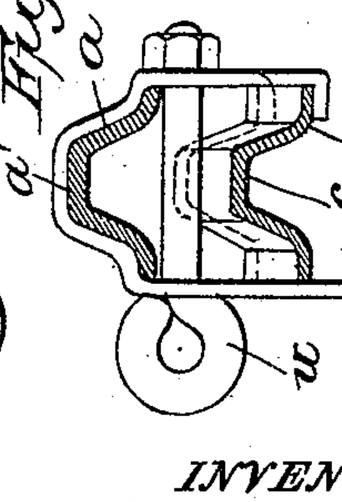
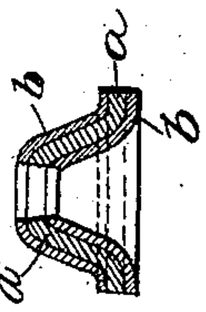


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES T. SCHOEN, OF ALLEGHENY, PENNSYLVANIA.

PRESSED-STEEL BRAKE-BEAM AND SHOE-HEAD FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 464,781, dated December 8, 1891.

Application filed June 30, 1891. Serial No. 398,029. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. SCHOEN, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Pressed-Steel Brake-Beams and Shoe-Heads for Railway-Cars, of which the following is a full, clear, and exact description.

This invention relates to a metallic brake-beam of the character set forth in the patent of Schoen and Newton, No. 450,760, dated April 21, 1891, in which the compression and tensile bars are shaped and united to form a diamond-shaped beam.

The present invention consists in certain modifications of the construction of the compression and tensile bars or members and of the strut or king-post and of the shoe-head. The invention also consists of a guide to engage the wheels in turning curves to prevent the brake-beam from being displaced laterally.

In the accompanying drawings, in the several figures of which like parts are similarly designated, Figure 1 is a plan view of part of a diamond-formed brake-beam embodying my invention. Fig. 2 is an elevation. Fig. 3 is an elevation of the strut or king-post, showing also the cross-sections of the compression and tensile members in the plane of the strut. Fig. 4 is an end elevation showing my pressed-steel shoe-head adapted for the Christy shoe. Fig. 5 is a section taken in the plane of line *x x* of Fig. 1. Fig. 6 is a section taken through the meeting ends of the compression and tensile members. Fig. 7 is a side elevation, and Fig. 8 an end elevation, of my pressed-steel shoe-head adapted to the Collins shoe. Figs. 9, 10, and 11 show in side, top, and end elevation, respectively, my guide applied to the National hollow brake-beam.

The compression-bar *a* is struck up from steel plate, and is provided with a central longitudinal rib or corrugation *a'*, which increases in height from midway between its ends toward its ends, thus making the bar wider at its center than at its ends. The increase in height of the rib toward its ends is made to render the bar more efficient in resisting the strain of the shoes, and this feature, in connection with the decrease toward the center, effects so equable a distribution of the metal as to result in an increase of about twenty per centum in the capacity of the beam. The increase of width of the bar at the center adds to its lateral stiffness. The tensile bar *b* has its stiffening-ribs *c* starting from nothing midway between the ends of the bar and rising gradually toward the ends until they coincide substantially in height and shape with the inside of the rib of the compression-bar, as seen in Figs. 1, 2, and 6. In order to stiffen the tensile bar where the ribs have little or no projection, I flange the sides *d d*, as seen in Figs. 1 and 3. The meeting ends of the compression and tensile bars are united by overlapping the ends of the tensile bar upon the compression-bar, as seen in Fig. 1, or vice versa, although they may be otherwise united. The strut or king-post *e* is constructed of a piece of wrought metal doubled upon itself to form the loop *f* to receive the brake-rod connection, and having its ends welded and drawn out to support the compression-bar and provided with two tongues *g g*, which are passed through a slot *h* in the compression-bar and bent over in opposite directions upon the compression-bar to secure the two together. The butt-end of the strut rests in the trough of the tensile member between its flanges *d d* and ribs *c*, and may be secured by an eye *i*, which may be further utilized for suspending the brake-beam. A strut constructed in this manner is economically made, readily applied, and very durable.

The shoes most commonly used are known as the "Christy" and the "Collins," and I have adapted the pressed-steel shoe-head to these forms of shoe. For the Christy shoe *j*, which has the shoulders *k k* and perforated lug *l*, I use a shoe-head *m* of the general configuration shown in Figs. 1, 2, and 4, having the arms *m'* to engage the shoulders *k* and provided with the clip *n* to straddle the lug *l*, a key or wedge *o* being passed longitudinally through the shoe-head, clip, and lug to unite them. The clip also receives the hanger-link *p* through slots m^2 in the sides of the shoe-head. The shoe-head is provided with the

hollow projection m^3, into which is fitted the clip n, and which projection fits into the hollow of the ribbed compression and tensile members, and a bolt q is used to unite them all. The shoe-head has a cross-section much resembling an inverted U to insure sufficient rigidity and strength. The shoe-head r for the Collins shoe, as shown in Figs. 7 and 8, also is struck up or pressed from steel plate, and is constructed with the arms r', which are made with dovetail sockets, as indicated in dotted lines r^2 in Fig. 8, to receive a correspondingly-shaped tongue s on the shoe s'. The shoe is provided with a shoulder s^2, against which one arm r' of the shoe-head abuts, and at the other end of the shoe there is a transverse slot s^3 to receive a key or pin s^4 to lock the shoe and shoe-head together. One of the arms r' is made with a bend r^2 to receive the hanger-link p. The shoe-head r is constructed similarly to the shoe-head m, with facilities for securing it to the brake-beam, as clearly indicated by corresponding letters in Figs. 7 and 8, and is curved in cross-section to insure rigidity and strength.

The guide t is designed to prevent the lateral displacement of those brake-beams which are hung on the outside of the wheel when going around curves. In this instance it consists of a strip of metal bent to conform to the diverging compression and tensile bars and lapped around them near their angle of meeting at each end, as shown in Figs. 1, 2, and 5. The eyebolt u is passed transversely through the guide and rests in the angle formed by the bars, and thus not only unites the parts, but also prevents displacement of the guide toward the end of the beam, displacement in the other direction being prevented by the divergence of the bars. The eyebolt also serves as the safety hanger-link. This guide is designed to strike against the flange of the wheel in going around curves.

In Figs. 9, 10, and 11 I have shown my guide as applied to the National hollow brake-beam. It is lapped about its compression member and secured by a bolt. I have shown in these figures the guide corrugated or ribbed longitudinally in order to increase its strength, and obviously this same feature may be applied to the guide shown in Figs. 1, 2, and 5.

In both forms of guide the projecting effective finger and the clasp for engaging the beam are in one piece and struck up or pressed from wrought metal, preferably steel plate.

What I claim is—

1. A compression member for brake-beams, constructed of wrought metal, having a longitudinal rib or corrugation increasing in height from about midway of the member toward its ends, and thereby leaving the member widest at its central portion, substantially as described.

2. A tensile member for brake-beams, constructed of wrought metal, preferably steel plate, and having longitudinal strengthening-ribs rising toward the ends from nothing at midway between the ends, substantially as described.

3. A tensile member for brake-beams, constructed of wrought metal, preferably steel plate, and having longitudinal strengthening-ribs rising toward the ends from nothing at midway between the ends and constructed with side flanges at the central portion, substantially as described.

4. The combination, with the compression and tensile members, of a strut constructed of a loop of wrought metal having its ends welded and drawn out and inserted through and lapped over the compression member, substantially as described.

5. As an improved article of manufacture, a railway-brake-shoe head having arms to engage the shoe, and a hollow projection to fit the brake-beam and receive the fastening-bolt and curved in cross-section and struck up or pressed from plate metal, preferably steel, substantially as described.

6. A pressed-steel shoe-head having arms to engage the shoe, a hollow projection to fit the brake-beam, and slots to receive the hanger-link, combined with a clip fitted in said projection, and a bolt passed through the clip and projection by which the shoe-head is secured to the brake-beam and a key by which the shoe is connected with the shoe-head, substantially as described.

7. A guide for preventing the lateral displacement of brake-beams in rounding curves, consisting of a piece of metal lapped about the brake-beam and united thereto by a transverse bolt and having a projecting finger, the parts of the guide being integral, substantially as described.

8. A guide for preventing the lateral displacement of brake-beams in rounding curves, consisting of a piece of metal lapped about the brake-beam and partaking, essentially, of the divergence of the compression and tensile members to prevent movement in one direction, and having a fastening-bolt passed through it and the beam at or near the juncture of the compression and tensile members to prevent escape in that direction, substantially as described.

In testimony whereof I have hereunto set my hand this 24th day of June, A. D. 1891.

CHARLES T. SCHOEN.

Witnesses:
WM. H. SCHOEN,
M. HAWLEY MCLANAHAN.