(No Model.)

2 Sheets—Sheet 1.

A. SANFORD.

FIFTH WHEEL.

No. 327,598. Patented Oct. 6, 1885.

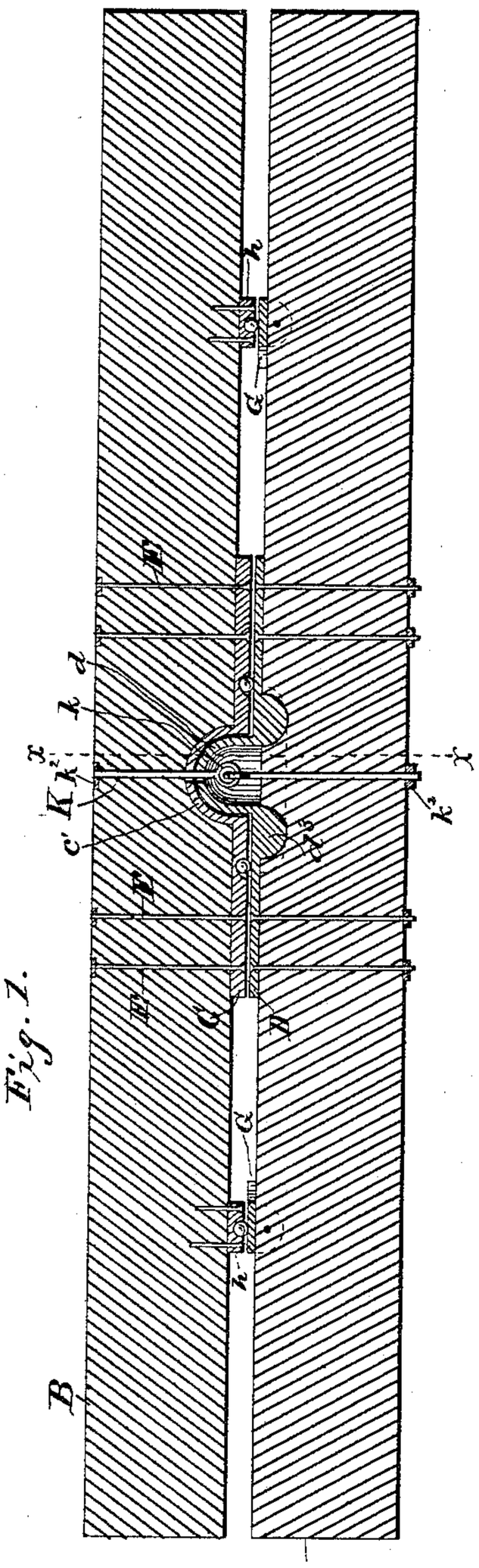

Fig. 1.

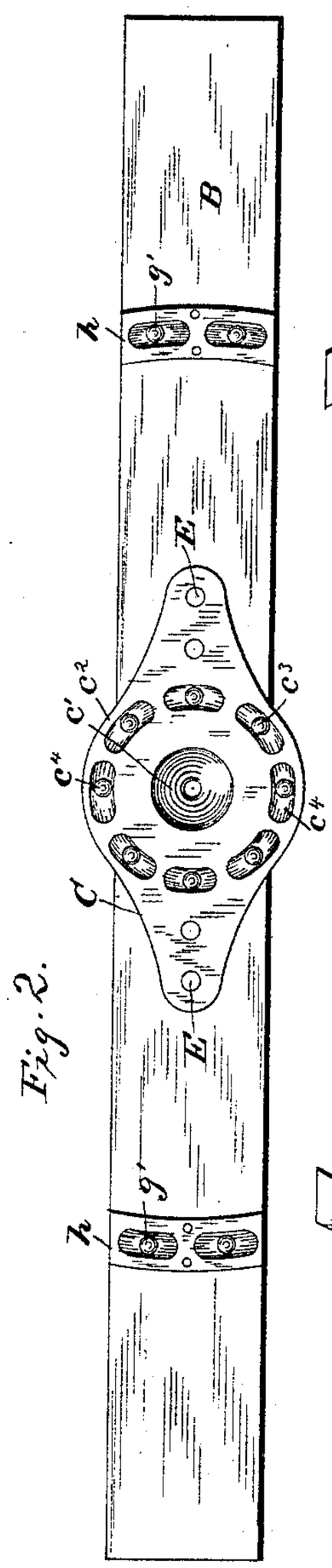

Fig. 2.

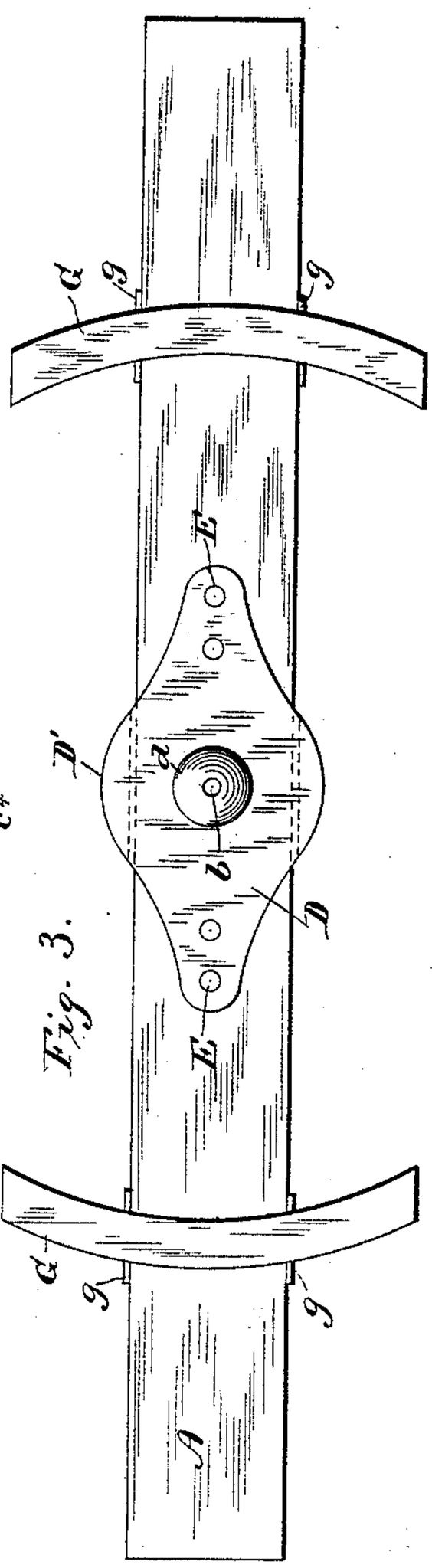

Fig. 3.

WITNESSES

Chas. R. Burr

Fred F. Church.

INVENTOR

Albert Sanford

by Church & Church

his Attorneys

(No Model.)

2 Sheets—Sheet 2.

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FIFTH WHEEL.

No. 327,598. Patented Oct. 6, 1885.

Fig. 4.

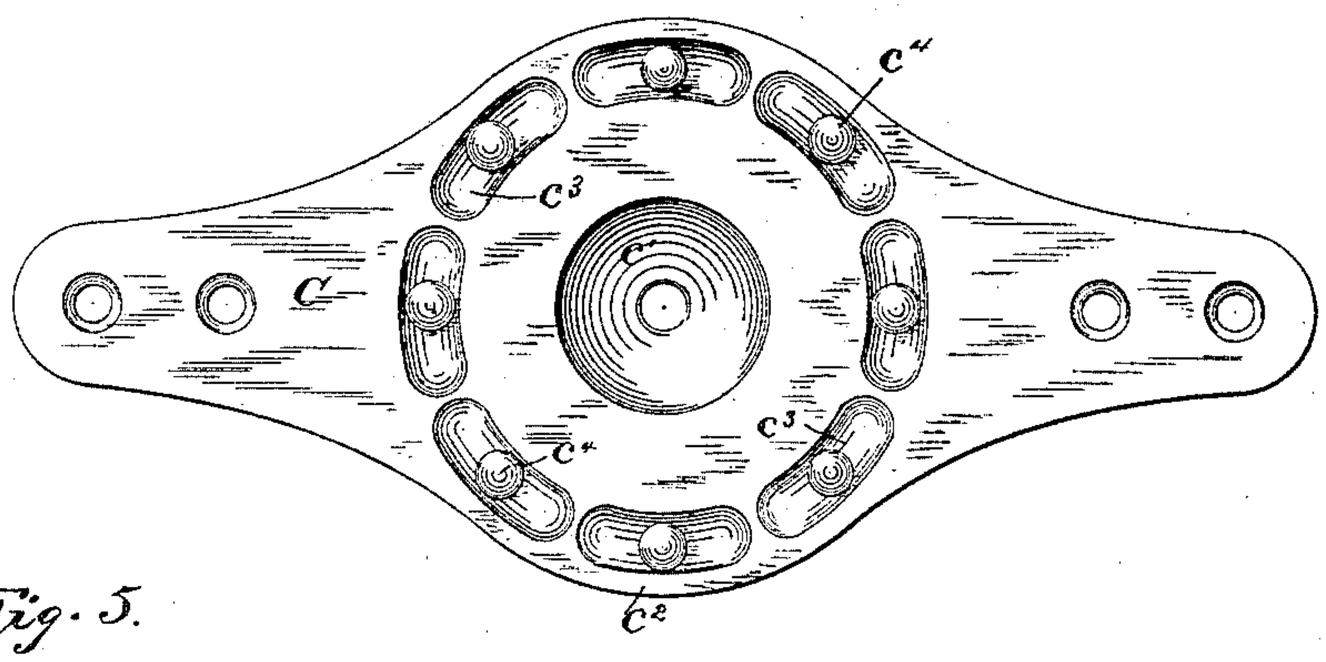


Fig. 5.

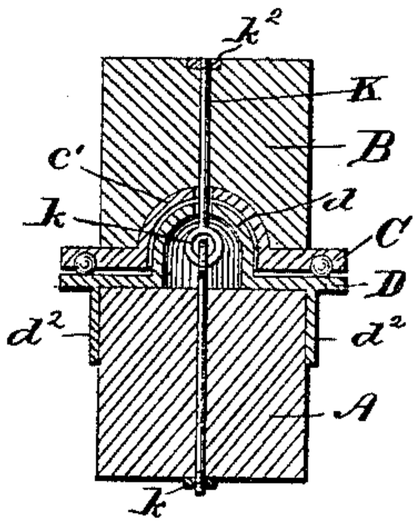


Fig. 6.

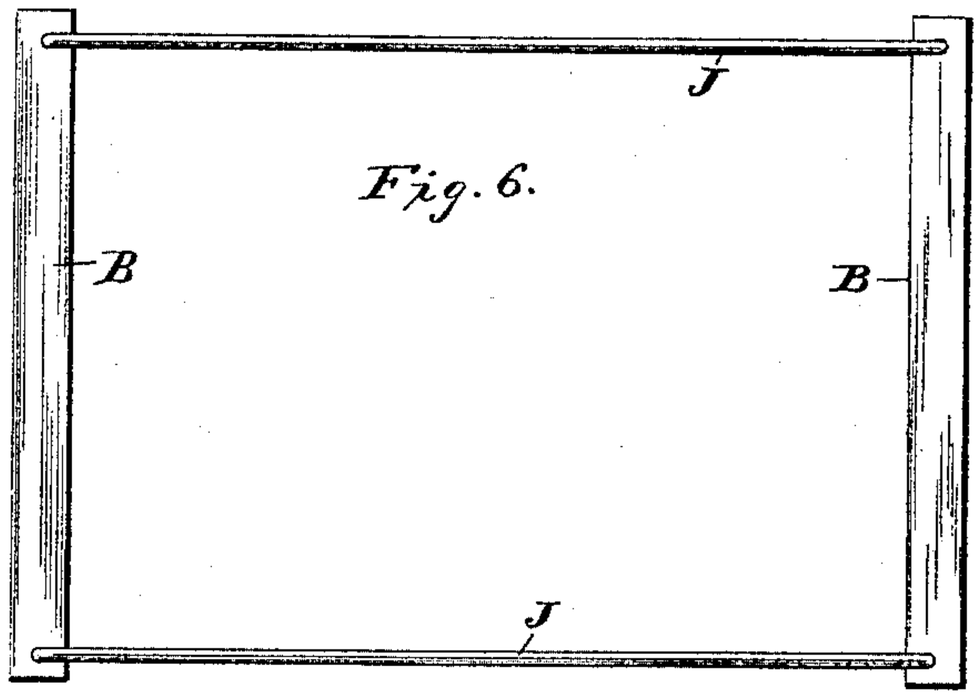


Fig. 7.

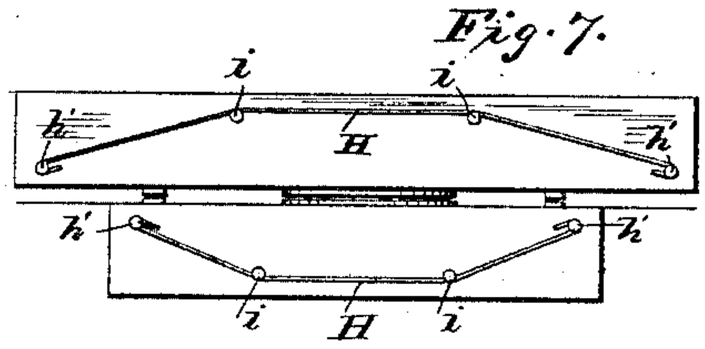


Fig. 8.

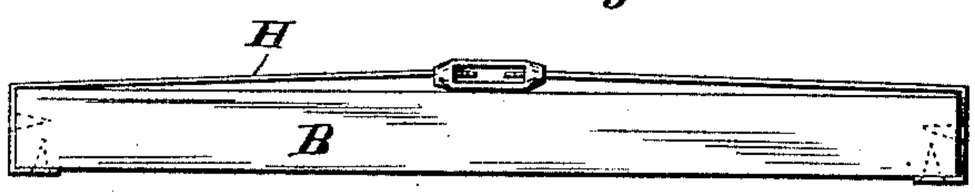
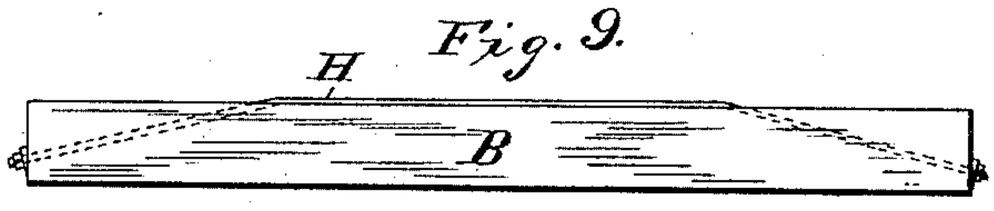


Fig. 9.



WITNESSES

Chas. L. Burr

Fred H. Church

INVENTOR

Albert Sanford

by Church & Church

his Attorneys

UNITED STATES PATENT OFFICE.

ALBERT SANFORD, OF OSHKOSH, WISCONSIN.

FIFTH-WHEEL.

SPECIFICATION forming part of Letters Patent No. 327,598, dated October 6, 1885.

Application filed November 25, 1884. Serial No. 148,813. (No model.)

To all whom it may concern:

Be it known that I, ALBERT SANFORD, of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Sleds and Wagons; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings forming a part of this specification, and to the figures and letters of reference marked thereon.

My invention has for its object to provide means for strengthening and stiffening the bolsters of heavy sleds and wagons, and also to facilitate the turning of such bolsters upon their axis.

I will first describe my improvements at length, and will then point out what I deem their novel features in the clauses of claim at the end of this specification.

Of the drawings, Figure 1 represents a sectional view of the front beam and bolster of a sled with my improvements applied thereto. Fig. 2 is a bottom plan view of the bolster and its plate and segments. Fig. 3 is a top plan view of the beam and its plate and segments. Fig. 4 is an enlarged bottom plan view of the bolster-plate. Fig. 5 is a sectional view taken on the line *x x*, Fig. 1. Fig. 6 is a diagram showing the manner in which the front and rear bolsters of the sled are connected together. Fig. 7 is a view showing means for bracing and stiffening the bolster and beam to prevent them from sagging. Figs. 8 and 9 are modifications of the bracing arrangement shown in Fig. 7.

Similar letters of reference in the several figures represent the same parts.

The letter A represents the sled-beam, and B the bolster. Upon the upper face of the beam is mounted a plate, D, preferably of malleable iron or steel, and secured to the lower side of the bolster is another plate, C, for cooperating with the said plate D.

The plate D on the beam is provided with a convex or hemispherical projection, *d*, on its upper side and with a hole, *b*, in the top or center of said projection of suitable size for permitting the passage of the king-bolt K. It is also preferably provided with front and rear depending lugs or flanges, d^2, as shown in Figs. 1 and 5, for the purpose of preventing any fore and aft movement of it on the beam, though in lieu of this provision or as supplemental to it, one or more projections, bosses, or lugs may be formed upon the under side of the plate and embedded firmly in the wood of the beam, as shown, for instance, in Fig. 1, where a depending flange, d^3, forming a continuation of the spherical projection, is represented. Around the spherical projection the plate D is formed with a wide smooth bearing-surface, D′, that extends out beyond the beam at front and rear, as shown in Fig. 3, and serves as the bearing for the corresponding portion of the bolster-plate C.

The bolster-plate C is provided with a central concave or hemispherical cavity, *c′*, which is intended to fit and rest upon the convex projection of plate D, and the hemispherical projection which forms the said cavity is let into the under side of the bolster and prevents any fore and aft movement of the plate. As an additional means for preventing this fore and aft movement, flanges or lugs, such as shown on the plate D, may be employed, if desired.

The circular portion c^2, which surrounds the hemispherical cavity *c′*, projects beyond the front and rear of the bolster, and is provided with a series of recesses or cavities, c^3, each of which is adapted to accommodate a ball, c^4. When the plates D and C are brought together, as shown in Fig. 1, the said balls slightly separate the circular bearing-surfaces of the same and render the turning of the plates upon each other freer and with less friction.

Spikes or bolts E or other suitable means are employed to secure firmly the plates D and C to the beam and bolster, respectively, as shown.

The king-bolt employed, instead of being an ordinary rigid unyielding bolt of iron, is made in two parts, joined together by means of eyes *k*, and is applied so that its joint will come on the top of the beam and within the hemispherical projection of the plate B, thus allowing ample motion to the bolster in every direction.

Both ends of the king-bolt are preferably screw-threaded, and provided with nuts k^2, so that it may be tightened from either end when desired.

It will be observed that by constructing the

connections between the bolster and beam in the manner I have described a very wide and strong bearing is afforded without sacrificing the requisite degree of flexibility, and the bolster is brought down quite close to the beam, this latter feature being quite a desideratum.

For the purpose of increasing the strength of the connection and in a measure relieving the king-bolt and the plates C D, I preferably mount upon the bolster, at opposite sides of the center, suitable metal segments, G, formed with smooth upper surfaces and having, preferably, suitable depending front and rear flanges, *g*, by which to prevent their fore and aft displacement and through which to bolt or otherwise secure them to the beam, and to the under side of the bolster I secure co-operating shorter metal segments *h*, which have recesses or cavities for the accommodation of friction-balls *g'*. When the bolster is in position upon the beam, these segments and the interposed balls relieve the plates C and D of much friction and wear, and, by forming rests for the ends of the bolster, prevent sagging or dropping of the same.

To still further obviate the tendency of the bolster to sag or spring down, I may brace it by means of truss-rod H, applied to both its front and rear sides, as shown in Fig. 7, and as one mode of securing these rods in position their ends may be fastened to the iron pins *h'*, that are run through the bolster, and they may be supported between their ends upon other pins, *i*, as shown. A truss of this kind may also be applied to each side of the beam; but in such case it must be reversed, as shown in Fig. 7, to prevent the beam from sagging and causing the same trouble as results from the sagging of the bolster.

If desirable, a single truss may be used, passing around the ends and over the top of the bolster, as shown in Fig. 8; or its cord may lie along the top of the bolster and its ends be passed down through inclined holes bored through the bolster, as shown in Fig. 9

Where a round rod is objectionable along the upper surface of the bolster or lower surface of the beam, a flat one may be substituted, and two or more of the trusses may be used instead of one.

In cases where a single truss-rod is used, or where its ends pass through the wood, a thread and nut should be provided on each of its ends to provide for adjustment, and where the outside trusses are used an eye may be attached to the bolster or beam and a thread and nut used to advantage; or, in some cases, a turnbuckle may be employed, such as shown in Fig. 8; or any suitable device may be used for the purpose.

It is my design to apply my described improvements to the forward bolster of sleds and wagons, to both the forward and hind bolsters of logging-sleds, and, in fine, whenever and wherever desirable. Where they are applied to both forward and rear bolsters of a sled, the said bolsters must be permanently connected, so that the two will always be parallel whatever the position of the sleds, and this connection may be effected by chains or rods or by poles J, as shown in Fig. 6. By thus applying my improvements to both sleds the load does not interfere with the turning of the sleds, and the heretofore greatest difficulty in hauling logs—namely, the starting and turning of the sleds—is made easy.

In bob-sleds as heretofore constructed the bolster on the front sled is movable, while the bolster on the rear sled is fixed, and, therefore, so far as I am aware, the plan of making both bolsters free is entirely new with me.

Having thus described my invention, what I claim as new is—

1. The combination, with the beam and the bolster, of the plate on the beam provided with the hemispherical projection and the broad flat bearing-surface, the corresponding plate on the bolster having the hemispherical cavity, and the broad flat bearing-surface provided with the friction-rollers and the king-bolt, substantially as described.

2. The combination, with the beam and the boster, of the plate on the beam provided with the hemispherical projection and the broad flat bearing-surface, the corresponding plate on the bolster having the hemispherical cavity and the broad flat bearing-surface, and the two-part king-bolt having its joint within the hemispherical projection of the beam-plate and above the beam, substantially as described.

3. The combination, with the beam and bolster, of the beam-plate having the hemispherical projection and the broad flat bearing-surface, the bolster-plate having the hemispherical cavity, and the bearing provided with the friction-rollers, the king-bolt passing down through both plates, and the segmental plates applied to the beam and bolster, respectively, whereby the bolster is prevented from sagging under the load, and the king-bolt and central plates are relieved of strain, substantially as described.

4. In a sled, the combination, with the bolster and beam, arranged substantially parallel and close to each other, of the truss-rods applied to the bolster and extending from the top toward its ends, as described, and the other truss-rods reversely applied to the beam, substantially as described, for the purpose specified.

ALBERT SANFORD.

Witnesses:
H. B. HARSHAW,
O. C. WEISBROD.