

BOB SLEIGH.

No. 344,711.

Patented June 29, 1886.

*Fig. 1.*

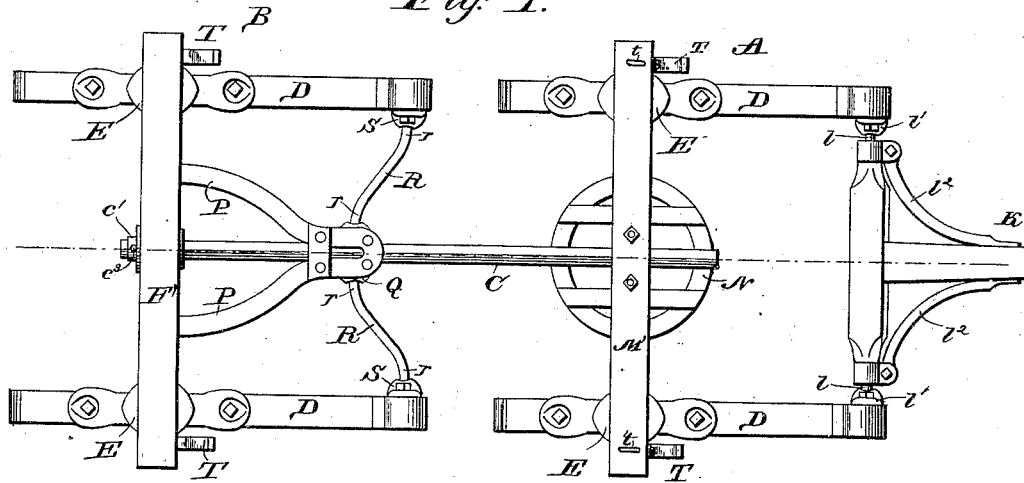
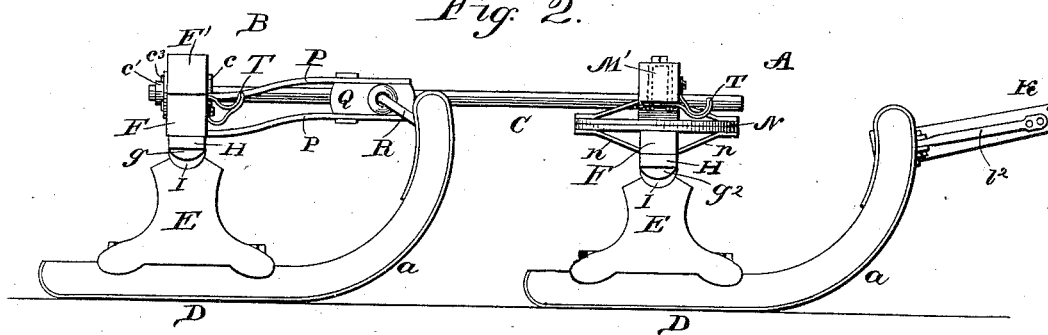
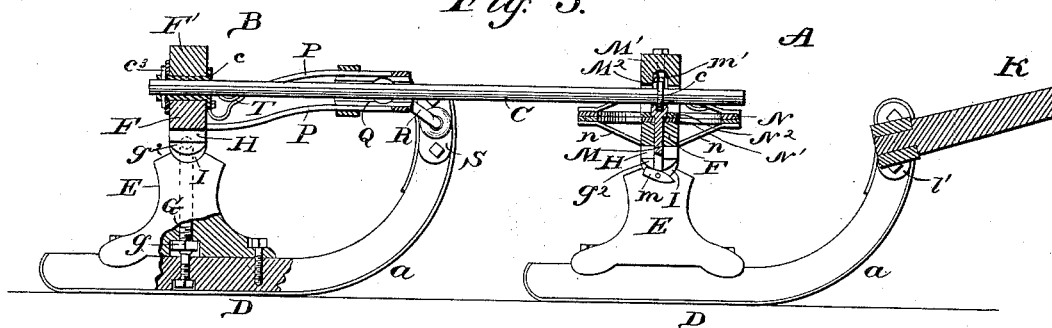


Fig. 2.



*Fig. 3.*



Witnesses.

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Fig. 4.

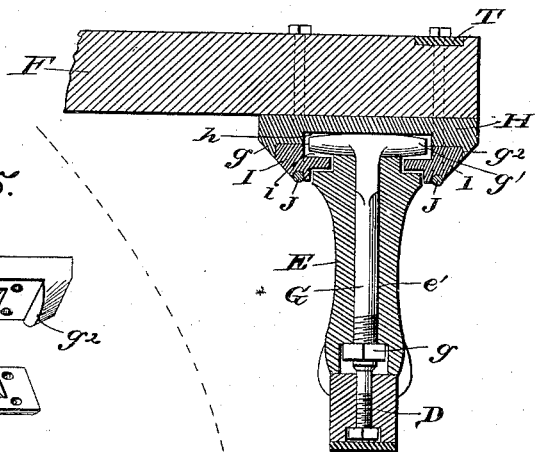


Fig. 5.

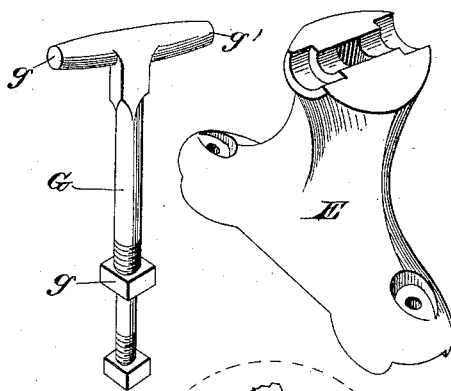
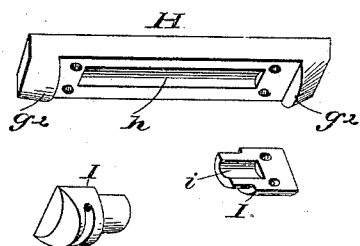


Fig. 7.

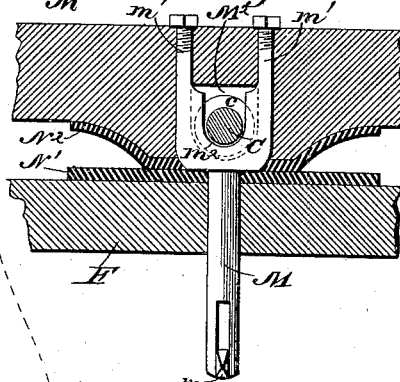
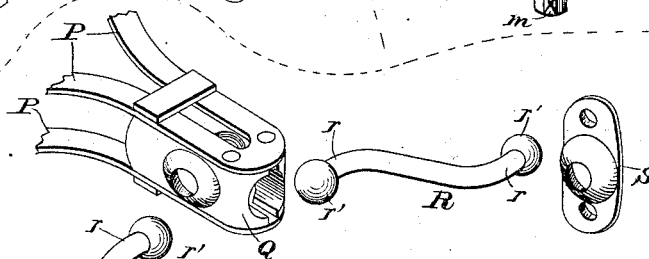


Fig. 6.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## BOB-SLEIGH.

SPECIFICATION forming part of Letters Patent No. 344,711, dated June 29, 1886.

Application filed April 21, 1886. Serial No. 199,652. (No model.)

*To all whom it may concern:*

Be it known that I, MAT. B. BERTRANG, a citizen of the United States, residing at Arlington, in the county of Sibley and State of Minnesota, have invented a new and useful Improvement in Bob-Sleighs, of which the following is a specification.

My invention relates to improvements in bob-sleighs; and it consists of the peculiar and novel construction and combination of the various parts for service, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

The primary object of my invention is to provide an improved sleigh-knee which shall permit of the necessary movement or oscillation of the parts to prevent too great strain of the bolster and other parts of the frame, and which shall obviate the danger of breakage of the parts, so that the knee will be rendered very strong and durable in its construction; to provide an improved form of coupling-bar intermediate of the front and rear sleds, which shall be capable of a rotatory movement without hinderance from the other parts of the apparatus; to provide an improved form of brace between the coupling-bar for the front and rear sleds, which shall brace the bolster of said sleds and the bar; to provide an improved brace-arm between the coupling-bar and the front ends of the sled-runners, which shall permit said runners to have the necessary movement together with the sleigh-knees; to provide an improved fifth-wheel for the front bob-sleigh, to permit it to turn freely out of a straight line, and thus adapt the device to be very easily and readily turned, and to provide means which shall be very simple, strong, and durable in construction, thoroughly effective and reliable in operation, and comparatively cheap of manufacture.

In the accompanying drawings, Figure 1 is a plan view of a bob-sleigh constructed in accordance with my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a longitudinal vertical sectional view of my invention on the line *x x* of Fig. 1. Fig. 4 is a sectional view of the sleigh-knee in position on the runner and transverse connecting-beam of the sled-frame. Fig. 5 is a detail perspective view of the parts of the sleigh-knee. Fig. 6 is a de-

tail perspective view of the lateral brace intermediate of the coupling-bar and the front ends of the runners, also showing the bearings or sockets for the ends of the said brace. Fig. 7 is a detail sectional view of the king-bolt.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the front bob-sleigh, and B the rear sleigh, which are connected together by an intermediate coupling-bar, C, that extends longitudinally through the transverse coupling beams or bolsters of the sleigh-frames.

Each of the sleighs A B consists, essentially, of the runners or shoes D, that are arranged parallel with each other and curved upwardly at their front ends, as at *a*, the knees E, suitably secured to the runners or shoes intermediate of their ends, and the transverse beams or bolsters F, connecting the knees of two adjacent runners, the peculiar construction of the several parts of which I will now proceed to describe. The sleigh-knees E of each of the runners are preferably made of wrought-iron for great strength and durability, and at their lower ends each of the knees is provided with lateral enlargements, which provide expanded feet that are adapted to bear or rest on the upper face of the runners and closely and snugly fit the same, to prevent any lateral play or movement of the knee on the runner, and the lower face of the enlarged foot of the knee is hollowed out, as shown in the sectional view. The knee is provided with a longitudinal opening, *e'*, and at its upper end the knee is concaved or hollowed out, to provide bearings or sockets for the cap-pieces of the bearing-plates, that are secured to the lower face of the transverse beams F, connecting the knees. A vertical rod or bar, G, extends through the longitudinal opening in the sleigh-knee, the lower end of the said bar having a squared portion, *g*, that bears against the lower edges or faces of the recessed portion of the foot, and beneath the squared end of the rod or bar it is provided with a threaded extension that passes through the runner and is secured therein. The upper end of this bar or rod passes through the upper end of the knee, and it is provided with lateral bearings or studs *g'*, that

form the trunnions for the support of the sleigh-knee. The bearing-plates H for the sleigh-knee are fitted against the lower face of the transverse beam F, and they are provided 5 on their lower faces with rounded or recessed portions *h*, that receive the trunnions of the bar or rod G, and at the ends the plates are provided with depending lips *g*<sup>2</sup>. The trunnions of the bar or rod are fitted in the rounded 10 portion of the bearing-plates, and they terminate a short distance from the depending lips, and in order to secure the trunnions in place against accidental displacement I provide the cap-pieces, one of which is fitted against each 15 of the trunnions and secured to the bearing-plates, so as to permit free movement or oscillation of the trunnions, by means of clips or straps J, that pass through the cap-pieces, the bearing-plates, and the transverse beams F, 20 to the latter of which the said straps are securely connected by nuts or otherwise. Each of the cap-pieces I is provided on its upper face with a rounded socket, *i*, for the reception of one of the trunnions, the outer end of 25 the cap-pieces being fitted within and bearing against the lip of the bearing-plate, while the inner of the said cap-pieces fits and is retained within the concaved upper face of the sleigh-knee. It will thus be seen that I provide a 30 sleigh-knee that is very rigid and strong in its construction, and by reason of the rod or bar G being rigidly secured to the runner and knee proper and bearing in the bearing-plates which are secured to the transverse beam F, 35 the latter is free to rock or oscillate on the knee when the draft and strain come thereon. The knee is very simple in its construction, as well as strong and durable, and the parts thereof can be readily taken apart when it is 40 desirable or necessary to renew or repair the same.

The front sleigh, A, is provided with the draft pole or beam K, which is provided at its rear end with a cross-bar, *k*, the free ends of 45 the latter of which are provided with cap-pieces *l*, having a ball or sphere thereon, which are journaled or fitted in socket-plates *l'*, that are suitably secured to the upturned ends of the runners, the cross-bar and draft-pole being strengthened and braced by means of in- 50 clined or curved rods *l''*, the ends of which are suitably secured in place.

The transverse beam F of the front sleigh, A, is provided with a vertical king-bolt, M, 55 which is provided at its lower end with a key, *m*, that is pivoted therein, one end of which is pointed, as shown, so that it can be turned or adjusted laterally to retain it in the beam. The upper end of the king-bolt is bifurcated 60 to provide the parallel arms *m'*, which are passed through the bolster M', and provided with nuts that serve to secure the king-bolt and bolster very rigidly and detachably together, while permitting of the free movement there- 65 of. The lower ends of the bifurcated arms, where they diverge from the king-bolt, are rounded, as at *m*<sup>2</sup>, and the lower face of the

bolster M' is recessed and rounded, so that a socket, M<sup>2</sup>, is provided for a ring or collar, *c*, on the front end of the coupling-bar C. 70

The transverse beam F of the front sleigh is provided with a ring or wheel, N, that is suitably secured thereto on its upper face, and the ring is braced by arms *n*, that pass 75 beneath the beam and are secured thereto and to the edges of the ring, as shown. The upper face of the transverse beam F is provided with a plate, N', on which a similar plate, N<sup>2</sup>, bears, the latter plate being secured at its ends to the bolster in any preferable 80 manner. The weight and strain on the bolster forces the king-bolt downwardly, and the latter bears on the plate N<sup>2</sup>, which in turn bears on the plate N'. It will thus be seen that the front sleigh can be very readily 85 turned out of a straight line with the rear sleigh, to adapt the device to turn curves or corners, and that the front end of the coupling-bar is loosely fitted and securely retained in the king-bolt and bolster, so as to be capa- 90 ble of free rotatory motion therein. The rear end of the coupling-bar is provided with a thimble, *c'*, that is rigidly secured thereon, and this thimble passes through proper open- 95 ings in the transverse beam F and the bolster F' of the rear sleigh, B, in which the thimble is free to rotate, but is prevented from longitudinal movement by a transverse pin, *c*<sup>2</sup>.

P designates brace-plates, which are secured at their rear ends to the transverse beam F in 100 any suitable manner, said plates being arranged in a horizontal position and one above the other, and the free ends of these plates are connected together by a bearing or casting, Q, which is bolted to the plates to brace and 105 strengthen the same. This bearing or casting Q is provided with a longitudinal opening, through which the coupling-bar passes, and this bar is loosely fitted in the bearing and braced and strengthened by the same and the 110 brace-plates, the latter of which are arranged longitudinally thereof and diverge laterally therefrom.

R designates lateral brace-arms for the front upturned ends, *a*, of the runners, one of which 115 is provided for the front end of each of the runners of the rear sleigh, B. These lateral brace-arms R are provided at each end with short crank-arms *r*, which are bent laterally therefrom and out of a straight line therewith, 120 and the ends of the crank-arms are provided with enlargements or balls *r'*. One of the crank-arms of each of the lateral braces R is journaled in a socket of a bearing-plate, S, that is bolted to the inner face of the front end 125 of one of the runners D of the rear sleigh, B, and the other crank-arm of the said lateral braces is journaled in a suitable socket provided therefor in the bearing or casting Q. It will be observed that when the transverse 130 beam F oscillates on the sleigh-knees of the rear sleigh the crank-arms will allow of the necessary movement of the front ends of the runners; and when the runners attempt to

move beyond their proper limit the lateral braces R will prevent the further movement of the same, without any undue strain on the various parts of the apparatus. It will thus be seen that I provide an improved bob-sleigh, which is very simple in its construction, strong and durable, thoroughly effective in operation, is not liable to get out of order, can be readily repaired when necessary, and is comparatively cheap.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the drawings.

I do not desire to limit myself to the exact details of construction and form and proportion of parts herein shown and described as an embodiment of my invention, as I am aware that changes therein can be made without departing from the principle of my invention.

T designates a skid-holder, which is secured to the lower beam of the rear sled and the upper beam of the front sled. One of these holders is provided for each end of the said beams of the front and rear sleds, and these holders are cast in a single piece of metal or formed from bar metal, with a curved upper face on which the skid-board rests, the holders of the front sled being secured in place by means of straps t, having securing-nuts, and the holders of the rear sled by the straps J, that secure the sleigh-knee thereto.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the runner, the transverse beam, the bearing-plate secured to the beam, the knee bearing on the runner, and the rod or bar extending through the knee and secured in the runner and provided with the trunnions at its upper end, which are journaled in the bearing-plate, substantially as described, for the purpose set forth.

2. The combination of the runner, the transverse beam having the bearing-plate, the knee bearing on the runner, the rod or bar extending through the knee, and having the trunnions journaled in the bearing-plate, and the cap-pieces secured to the said plate, substantially as described.

3. The combination of the runner, the transverse beam having the bearing-plate, the knee having the enlarged foot bearing on the runner, the rod or bar extending through the knee and secured at one end in the runner,

and having the trunnions at its other end, that are journaled in the bearing-plate, the cap-pieces, and the straps passing through the bearing-plates and the cap-pieces to secure the same to the transverse beam, substantially as described, for the purpose set forth.

4. The combination of the front sled, the rear sled, and the coupling-bar connecting the sleds and loosely journaled in the bolsters thereof, substantially as described.

5. The combination of the front and rear sleds, the king-bolt secured in the front-sled bolster, and having the socket M<sup>2</sup>, and the coupling-bar loosely journaled in the rear-sled bolster, and having the collar fitted loosely in the socket M<sup>2</sup>, substantially as described.

6. The combination of the rear-sled bolster, the coupling-bar having the thimble loosely fitted in the bolster, and the front sled having one end of the coupling-bar loosely journaled in the bolster thereof, substantially as described.

7. The combination of the runner, the transverse beam, the coupling-bar, the brace-plates carrying a casting in which the coupling-bar is supported, the knee loosely connected with the beam, and the lateral braces loosely connected with the runner and the casting carried by the brace-plates, substantially as described.

8. The combination of a coupling-bar, a casting, Q, through which the said bar passes, the rigid arms or braces P, connected to and supporting the casting, the journal-plates S, secured to the runners, and the arm R, having the cranks at its ends journaled in the casting and journal-plates, substantially as described.

9. The combination of the coupling-bar, the bearing therefor, the runner carrying the socket-plate, and the lateral brace-arm having the short cranks at its ends provided with the enlargement, substantially as described.

10. The combination of the transverse beam, the holder or support for the skid arranged at or near the ends of the beam, and the strap for securing the holder to the beam, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MAT. B. BERTRANG.

Witnesses:

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HEINRICH AULIG.