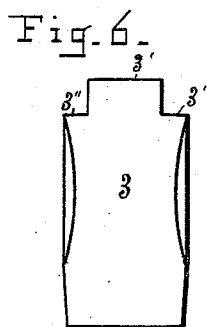
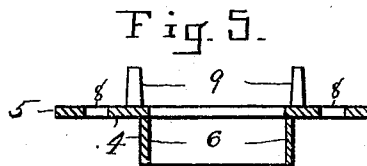
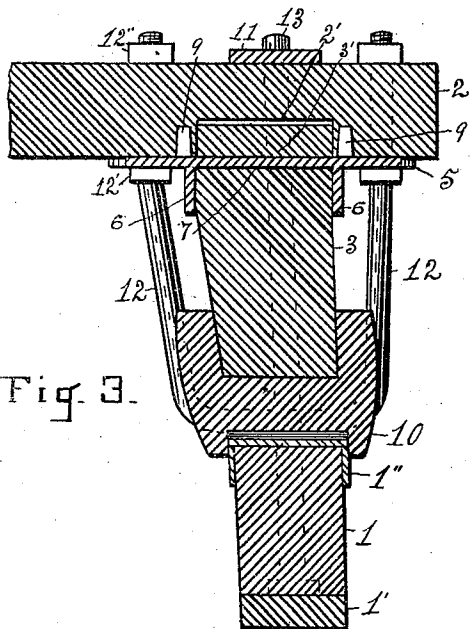
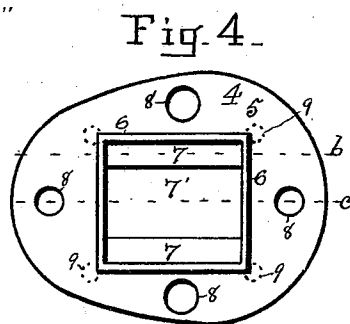
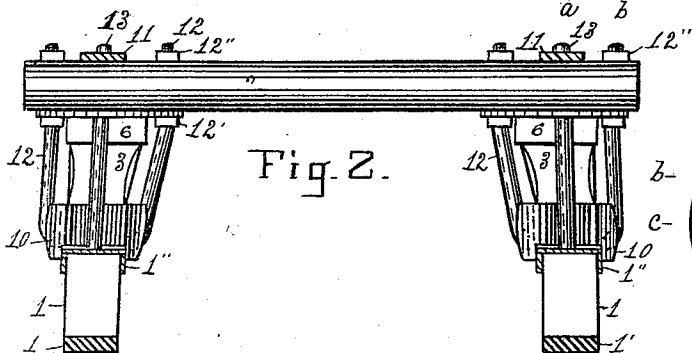
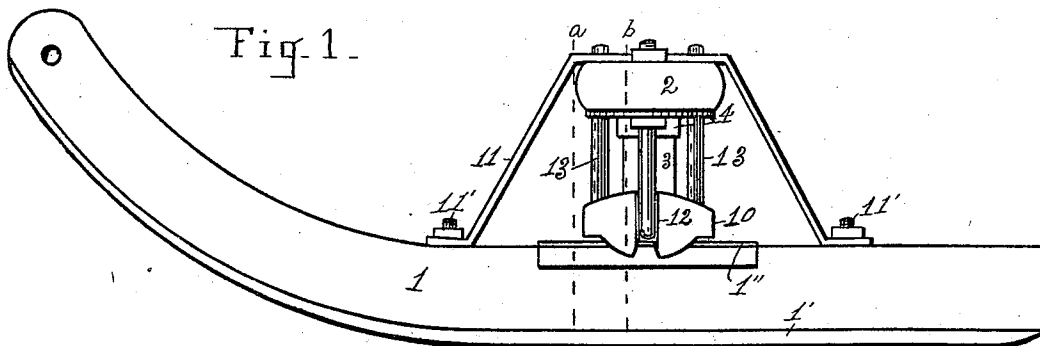


(No Model.)

B. F. SWEET.
SLEIGH KNEE SOCKET.

No. 517,076.

Patented Mar. 27, 1894.



Witnesses.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. SWEET, OF FOND DU LAC, WISCONSIN.

SLEIGH-KNEE SOCKET.

SPECIFICATION forming part of Letters Patent No. 517,076, dated March 27, 1894.

Application filed November 25, 1893. Serial No. 492,005. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. SWEET, a citizen of the United States, residing at Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented a new and useful Improvement in Sleigh-Knee Sockets, of which the following is a specification.

My invention relates to a metallic socket for application to the upper end of a sleigh knee at the point of its joint with the beam, and its object is, to strengthen said joint and prevent the liability of the knee tenon and its shoulder from wearing into the beam and its mortise in consequence of the racking and twisting of the tenon in the mortise consequent upon uneven roads over which the sleigh passes, and also, to prevent its liability to break at the shoulder of said tenon. I attain these objects by means of the construction shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a sleigh bob embodying my invention. Fig. 2 is a vertical section of the sleigh bobs upon the line *a, a*, of Fig. 1. The following figures are upon an enlarged scale, Fig. 3 being a vertical section of one runner, the knee, and a part of the beam, upon the line *b, b*, of Fig. 4, the socket being inverted from the position in which it is shown in Fig. 4, and showing its holding studs in elevation. Fig. 4 is a plan of the metallic knee socket in an inverted position from what it is in use. Fig. 5 is a vertical section of said socket, when in its position upon the knee, upon the line *c, c*, of Fig. 4, and Fig. 6 is an elevation of the outside edge of the sleigh knee.

Similar figures of reference indicate like parts in the several views.

1, indicates the sleigh runners; 1', their shoes; 1'', wear irons upon the runners under the sleigh beams; 2, the sleigh beams; 2', a mortise therein; 3, the sleigh knees; 3', its tenon; 3'', shoulders of said tenon; 4, the sleigh knee socket piece; 5, the flange of said piece; 6, the walls of its knee socket; 7, ledges which extend inward from the wall of the socket and form seats for the shoulders of the sleigh knee to bear upon; 8, holes in the flange 5; 9, studs which project from the upper face of the flange; 10, socket pieces which receive the lower end of the knee and bear

upon the wear irons 1'' of the runners; 11, raves, or iron straps, which hold the knees and beam upon the runners; 11', bolts which secure said raves, or straps upon the runners; 12, bolts which connect the knee, upper and lower socket pieces and the beam; 13, bolts which pass through the runners, the end grooves of the lower sockets, the flange of the upper socket piece, the beam and the raves, or straps 11.

My improved sleigh knee socket piece consists of a flange 5 adapted to be secured to a sleigh beam, having centrally of it a socket for receiving the entire upper end of the knee, the walls 6 of said socket projecting below the face of the flange and being adapted to inclose said upper end, said flange extending inward from two opposite sides of the socket and forming ledges, or seats 7, for the shoulders of the knee tenon to bear upon, a space, 7', of sufficient area being left between said ledges for the tenons 3', to pass into mortises 2' in the sleigh beam.

The flange 5 is provided with numerous holes 8, for receiving screws or bolts, for the purpose of securing the socket piece to the beam, or for securing the beam and knees to the runners, and having also, upon the face of the flange which is opposite the face having the projecting walls of said socket a plurality of studs, 9, which consist of frustums of cones, which are adapted to enter circular holes in the sleigh beam. These studs are to be carefully arranged for holes in the sleigh beam corresponding in position with them, and they constitute an important feature in the construction of the socket for holding it firmly upon the sleigh beam. The studs being tapering and the holes in the beam being of the proper diameter, and with parallel sides, a driving fit of the socket piece and beam can be made, which with a close fit of the knee in the socket and of the tenon 3' in the mortise of the beam, produces an exceedingly strong connection of said parts.

The aforesaid ledges are represented as being arranged, one upon each of two sides of the socket, and the knee as having two shoulders corresponding in position with said ledges, but it will be evident that one ledge and one shoulder to the knee tenon are within the scope of my invention, also, that the

studs 9 may consist of any desired number and be arranged in any order which is desired.

5 The socket for receiving the knee is shown to be in the form of a rectangle, which form is not an essential element of their construction, as it may have its ends rounded or be of other forms.

10 The walls of the socket extend down upon the sleigh knee and add greatly to the strength of the knee, and the inward extending ledges provide a firm seat for the shoulders of the tenon, which tenon is extended beyond the socket and into the beam mortise, whereby
15 an exceedingly strong connection of the knee and beam is effected.

The socket at the lower end of the knee is no part of my present invention, that having been patented by me October 19, 1875, and is
20 numbered 169,056, neither is the manner of connecting the socket at the upper end confined in its use to this particular construction of sleigh, but said socket is intended to be used with any suitable runners, knees or
25 beams for which it may be adapted, and it may be secured to the beam with screws or bolts independently of the bolts 12, as in some sleighs their construction may not require said bolts. In securing the socket pieces
30 with the bolts 12, the bolts are bent so as to inclose the lower socket 10, and are provided with fixed collars, 12', between which collars and the nuts 12'', the flange of the socket piece, and the sleigh beam are clamped.

35 Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A sleigh knee socket piece comprising a flange adapted to be secured to a sleigh beam,
40 a socket for receiving the end of a sleigh knee arranged centrally thereof and having an opening through the flange and socket for the passage of the tenon of said knee, the surrounding walls of said socket projecting below
45 said flange and being adapted to inclose the shoulder, or shoulders of said tenon, and said flange extending inward upon one or more sides of said socket and forming a ledge, or ledges, for receiving the end pressure upon
50 the shoulder, or shoulders of said tenon which is produced by a load upon said sleigh beam, substantially as described.

2. A sleigh knee socket piece comprising a flange adapted to be secured to a sleigh beam,
55 a socket for receiving the end of a sleigh knee

arranged centrally thereof, and having an opening through the flange and socket for the passage of the tenon of said knee, the surrounding walls of said socket projecting below
60 said flange and being adapted to inclose the shoulder, or shoulders of said tenon, and said flange extending inward upon one or more sides of said socket and forming a ledge, or ledges for receiving the end pressure upon
65 the shoulder, or shoulders of said tenon which is produced by a load upon said sleigh beam, and a plurality of studs, consisting of frustums of cones, projecting from said socket
70 piece for entering holes in the sleigh beam correspondingly arranged in position with said studs, substantially as described.

3. The combination with a wood sleigh knee and beam, the former having a tenon and the latter a mortise, of a metallic socket piece therefor, comprising a flange adapted to be
75 secured to said beam, and being provided centrally thereof with a socket having an opening therein for receiving said tenon, the walls of said socket projecting below said flange and surrounding the shoulder, or shoulders
80 of said tenon, said flange extending inward upon one or more sides of said socket and forming a ledge, or ledges for bearing upon the shoulder, or shoulders of said tenon and sustaining the pressure produced by a load
85 upon said sleigh beam, and a plurality of studs, consisting of frustums of cones, projecting from said socket piece into holes in the sleigh beam arranged in a corresponding
90 position therewith, substantially as set forth.

4. The combination with a wood sleigh knee and beam, the former having a tenon, the latter a mortise, of a metallic socket piece therefor, comprising a flange adapted to be secured
95 to said beam, and being provided centrally thereof with a socket having an opening therein for receiving said tenon, the walls of said socket projecting below said flange and surrounding the shoulder, or shoulders of said
100 tenon, said flange extending inward upon one or more sides of said socket and forming a ledge, or ledges for bearing upon the shoulder, or shoulders of said tenon and sustaining the pressure produced by a load upon said
sleigh beam, substantially as described.

B. F. SWEET.

Witnesses:

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N. C. GIFFIN.