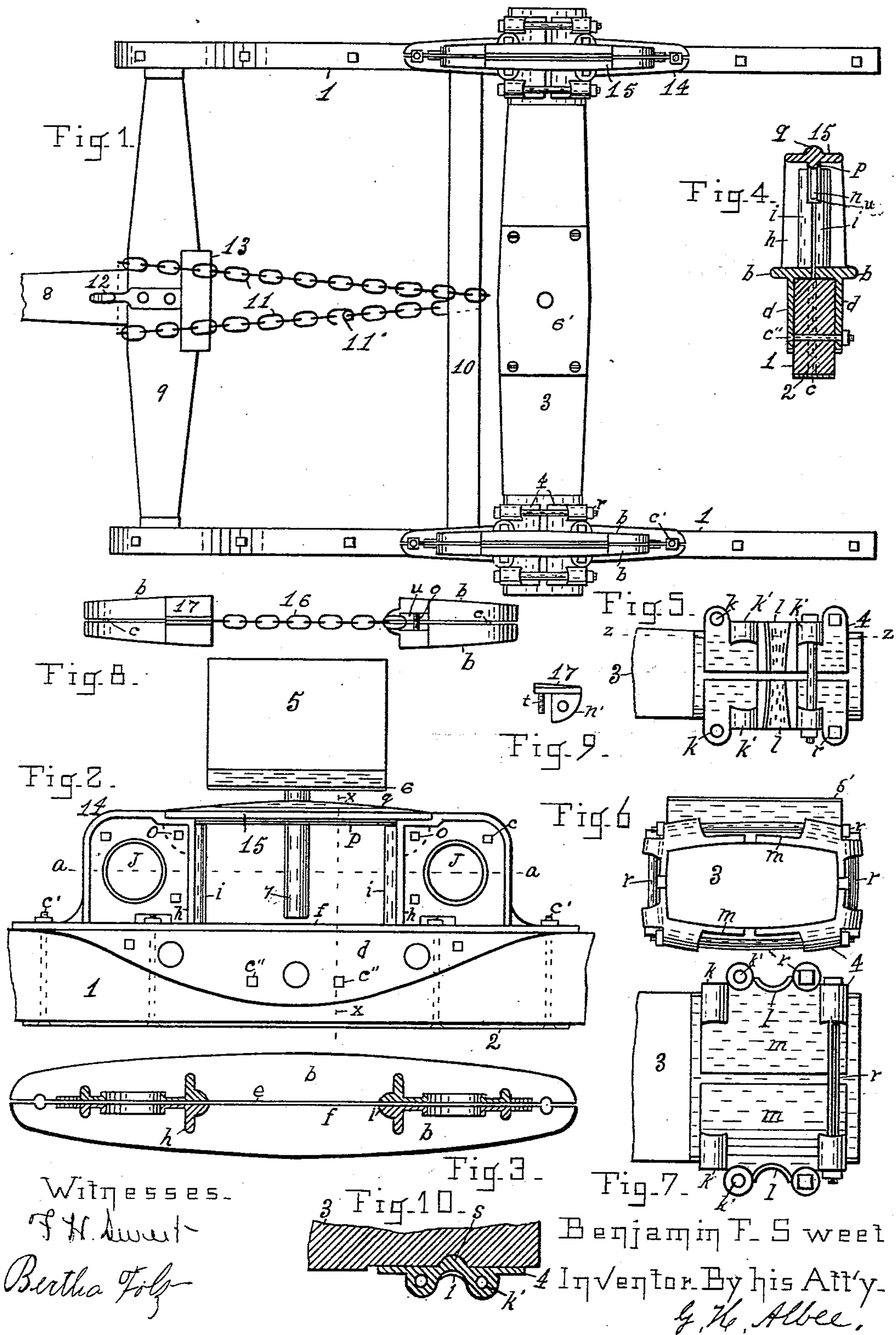


(No Model.)

B. F. SWEET.  
SLEIGH.

No. 560,072.

Patented May 12, 1896.





# UNITED STATES PATENT OFFICE.

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

## SLEIGH.

SPECIFICATION forming part of Letters Patent No. 560,072, dated May 12, 1896.

Application filed December 23, 1895. Serial No. 573,151. (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 Sleighs, of which the following is a specification.

My invention relates to an improvement in sleigh-beam holders or saddles which are attached to the runners of the sleigh, its object being to provide a saddle which, while it strengthens the runners in a horizontal and vertical direction, will hold the beam in a position for its easy movement therein, and can be secured to the runner in such a manner that if shrinkage thereof occurs the tightening of its bolts will draw its parts in two directions and hold them tightly thereto.

My improvement is illustrated in the accompanying drawings, in which—

Figure 1 is a plan of a sleigh embodying my invention. The following figures are upon a larger scale than Fig. 1. Fig. 2 is a side elevation of the central part lengthwise of the sleigh, the beam being removed from the saddle and the bolster suspended in its working position above the cap-piece of the saddle. Fig. 3 is a horizontal section lengthwise of the sleigh-beam saddle upon the line *a a* of Fig. 2. Fig. 4 is a vertical section of the sleigh-beam saddle, its cap-piece, and runner upon the line *x x* of Fig. 2. Fig. 5 is an elevation of one end of a sleigh-beam and its irons. Fig. 6 is an end view of the same. Fig. 7 is a plan of either the upper or lower side of said beam and its irons. Fig. 8 is a plan view of the upper edge of the opposite sides of the sleigh-beam saddle, a chain being shown in place of a cap-piece, as in Figs. 1 and 2. Fig. 9 is an elevation of a casting for use in connecting the chain ends with the saddle sides, and Fig. 10 is a transverse section of the short leg of the angle of the beam end angle-irons upon the line *z z* of Fig. 5.

Similar numerals and letters indicate like parts in the several views.

1 indicates the sleigh-runner; 2, its shoe; 3, its beam; 4, its beam end irons; 5, the bolster; 6 and 6', the beam and bolster wear-irons; 7, the bolster king-bolt; 8, the sleigh-tongue; 9, the tongue-roller; 10, a spring-pole; 11, a chain, which connects the tongue

and spring-pole; 11', the chain-hook; 12, a hook upon the tongue-roller for attaching a chain or doubletree, by which the sleigh may be drawn; 13, a block, which is placed upon the tongue-roller; 14, the sleigh-beam saddle; 15, the saddle cap-piece; 16, a chain, which connects opposite sides of the saddle-seat; 17, a casting for connecting the end of the chain to the saddle-seat side whenever the chain is used as a substitute for the cap-piece.

The sleigh upon which these improvements are applied is designed principally for use in logging operations, said sleighs usually consisting of a pair of short runners having a beam, one or more, with a bolster and tongue, and having hitched to its rear a similar pair of runners with beam, but having no tongue, the connection between the two being a "reach" or two chains.

For the purpose of illustrating my improvements only the forward runners are shown. All parts of the sleigh are required to be very strong, as the sleigh is intended for running upon ice roads made expressly for it having a track of about eight feet gage, the sleigh being provided with bolsters near twelve feet in length, upon which the logs are piled as high as they will lie, when the load is bound with chains.

The loads weigh many tons, and it is essential that all parts of the sleigh are heavy and strong. For the purpose of guiding and controlling these immense loads the tongue is made heavy and consequently imposes a great weight upon the neck of the team, and in order to relieve the team in a measure from this weight a tongue-supporting device of some kind is commonly used, one being shown in Fig. 1, consisting of the spring-pole 10, block 13 for giving a leverage to the chain for lifting the tongue, and the chain 11 having a hook 11' for changing the length of said chain. Other devices are often applied; but this arrangement is preferable for the reason of its non-interference with the hitching of the team to the tongue.

The runners are necessarily large pieces of timber which it requires a long time to season thoroughly, and as the sleighs are used only a few months during the winter season and are then stored away for the summer months more or less shrinkage of said timbers takes



place and the irons of the sleigh are almost invariably found to be loose upon their several parts when again wanted for use. It is therefore essential that means are provided for taking up the shrinkage, so as to hold the irons tightly to the wood, and for this reason the iron saddle of the runners is constructed of sections, which are secured to the runner with bolts, which by screwing up their nuts can be clamped tightly upon it. These irons are cast with their bolt-holes in their proper places and are interchangeable, so that if one section of the saddle should break it can be readily replaced with an exact duplicate. After being cast they are made malleable, which process requires a length of time in proportion to the thickness or bulk of the casting. Large pieces are found to be of less strength in proportion to their bulk than smaller ones, the process being less perfect in the former than in the latter. It is therefore desirable to form the irons in as small pieces as is consistent with the strength demanded of them.

While it is essential that the joints between the saddle and beam are somewhat loose it is just as essential that the separate sections which form said joints are so made that each section can be bolted tightly to the wood notwithstanding the wood may shrink. I therefore form the saddle of two similar and interchangeable sections *b* of such a form that when their corresponding sides are placed upon opposite sides of a sleigh-runner and bolted together and to the runner they form a saddle for holding one end of the sleigh-beam. They are bolted together with bolts *c*, to the runner with bolts *c'*, and also through the depending flanges *d* with bolts *c''*, whereby they can be drawn tightly upon the runner in two directions for taking up any shrinkage thereof.

When the sections are first placed upon the runner, a small space *e* is left between the sections for allowing the shrinkage of the wood, in which space a piece of packing may be inserted, said packing being lessened in thickness or entirely removed, as the shrinkage of the wood may require.

The saddle-sections are each provided with a seat *f* for the beam midway their ends, having vertical sides *h*, with inward projections *i* of approximately a quarter-round, so that when two sections are bolted together the saddle-seatsides have a nearly half-round inward projection for holding the beam from endwise movement.

Each section is provided with circular apertures *j*, one each side of the seat *f*, said apertures forming, when two sections are bolted together upon opposite sides of the runners of a sleigh, a holder upon opposite runners for one end of the spring-pole 10.

A sleigh-beam having irons upon its ends, by which it may be held in place upon the runners within the saddle, is shown in Figs. 5, 6, 7, and 10, the irons of which are in small sections and are adapted like these saddle-

sections for allowing the wood to shrink and said irons to be drawn tightly to the wood for taking up any shrinkage thereof, and which is well suited for use upon sleighs having this saddle; but it will be evident that beams having irons for fitting the saddle, which consist of any desired number of sections, or even having no irons, the wood of the beam being fitted for use upon the saddle, may be used, and I make no claim to the beam end irons here shown in this application, a separate application for a patent upon said irons being about to be presented to the Patent Office. The beam end irons here shown consist of four similar sections having bolt-holes *k k'* for bolting them to the beam, an inward projection *s* to be fitted into the wood for holding the irons from moving lengthwise of the beam, and a groove *l* for engaging the saddle-seat side projections.

For convenience in lifting the sleighs when empty, for the purpose of getting them into the desired position for loading, it is necessary to have some means provided for holding the beam from being lifted out of its seat. Two methods are shown, one by means of the cap-piece 15 and the other by means of the chain 16, the former being generally preferable. Either method serves to hold the beam from being lifted out of its seat, and also serves to strengthen the saddle by tying its sides together, whereby the castings which form said sides can be made lighter than if not connected.

When heavy loads are drawn over uneven ground, the bolster is liable to drop upon one side or the other of the sleigh and the load will sometimes turn over; but with the cap-piece 15 in position above the sleigh-beam and bolted to the saddle-sections the bolster will be held up by the cap-piece, while the beam is free for movement within the saddle, as may be demanded by the surface of the ground over which the sleigh is passing.

The cap-piece is provided with depending ears *n* for entering the slot *u* between the sections *b*, they having bolt-holes through which they can be connected to the saddle-sections by bolts *o*. It is also provided lengthwise and centrally of it with round-edged ribs *p* and *q*, the former for contact with the curved surface *m* of the beam end irons and the latter, while serving to strengthen the cap-piece, also presents a surface upon which there will be but little friction of the bolster when the sleigh is turning corners with heavy loads thereon.

The ends of the cap-piece are rabbeted into the upper edges of the saddle-sections and its upper surface is free from any obstruction to the swinging back and forth of the bolster.

The chain 16 being used, it is connected with the saddle-sections by the use of the castings 17, one at each end of the chain, its pin *t* engaging a link of the chain and its ear *n'* being adapted to enter the same slot and



to be bolted to the saddle-sections with the same bolt which has been named as a "fastening" for one end of the cap-piece.

I do not claim a metallic saddle cast in one piece; neither do I claim a loose connection of the beam and its seat upon the runner, broadly, as being new in its application to sleighs, it having been in use in some form for a long time.

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

1. In a sleigh for logging or similar uses, a metallic saddle consisting of two similar sections connected together with bolts, said sections being adapted to be placed with their corresponding sides facing each other upon opposite sides of a runner to bear upon the upper edge of the runner and to have their depending flanges bolted thereto, and to form intermediate their ends equally upon each section a seat for the sleigh-beam, said runner having a thickness sufficient for holding the opposite parts of said sections which are above the runner at a distance from each other, substantially as described.

2. In a sleigh for logging or similar uses, a metallic saddle consisting of two similar sections connected together with bolts, said sections being adapted to be placed with their corresponding sides facing each other upon opposite sides of a runner and to have their depending flanges bolted thereto, and to form intermediate their ends a seat for the sleigh-beam, said runner having a thickness suffi-

cient for holding the opposite parts of said sections which are above the runner at a distance from each other, said saddle having a seat for the sleigh-beam midway its ends, the sides of the seat being vertical and having a projection of such a form that the sections when bolted together present opposite inward projections of a form approximating a half-circle, substantially as set forth.

3. In a sleigh for logging and similar uses, a metallic saddle consisting of two similar sections connected together with bolts, said sections being adapted to be placed upon opposite sides of a runner with their corresponding sides facing each other, and to have their depending flanges bolted thereto, and to form intermediate their ends a seat for the sleigh-beam, said runner having a thickness sufficient for holding the opposite parts of said sections which are above the runner at a distance from each other, said saddle having a seat for the sleigh-beam midway its ends, the sides of the seat being vertical and having a projection of such a form that the sections when bolted together present opposite inward projections of a form approximating a half-circle, and a cap-piece connecting the opposite sides of the saddle-seat and having its ends rabbeted into said sides flush with their upper surface and being secured thereto, substantially as described.

BENJAMIN F. SWEET.

Witnesses:

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BERTHA FOLTZ.