A. O. LOMBARD.

SLED FOR CARRYING LOGS.

APPLICATION FILED JULY 3, 1909.

955,601.

Patented Apr. 19, 1910.

2 SHEETS—SHEET 1.

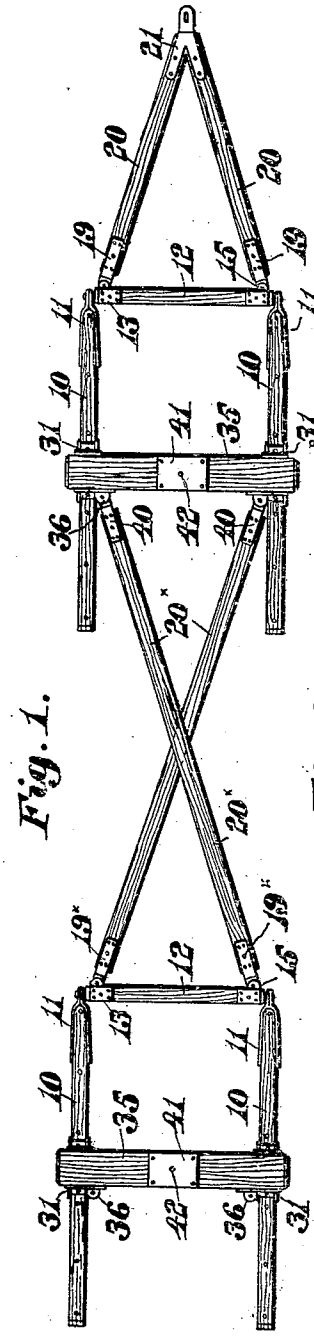

Fig. 1.

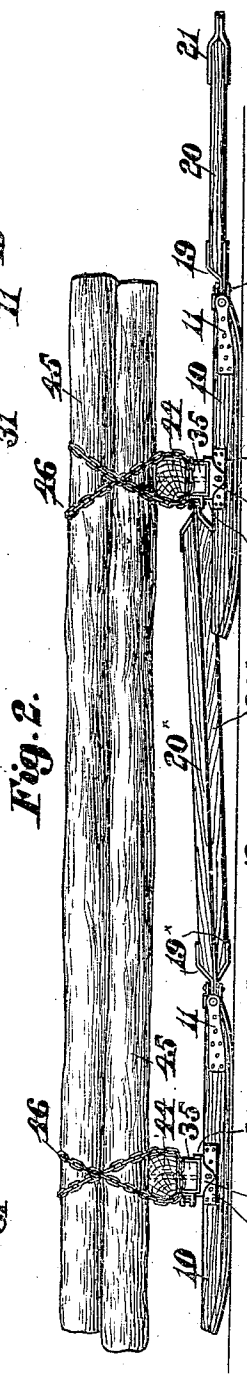

Fig. 2.

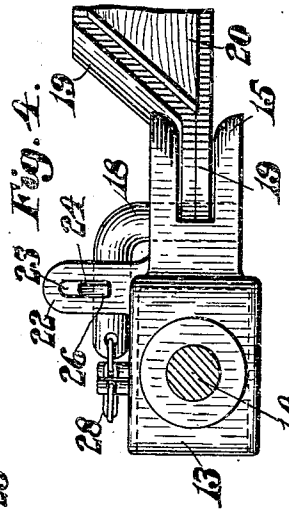

Fig. 4.

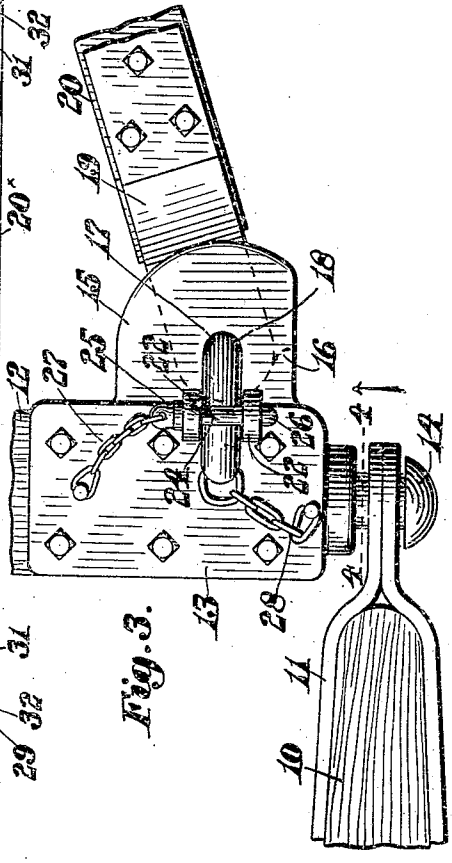

Fig. 3.

Witnesses:

Nathan C. Lombard

Edna C. Cleveland,

Inventor:

Alvin O. Lombard,

by Walter E. Lombard

Atty.

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2 SHEETS—SHEET 2.

Fig. 5.

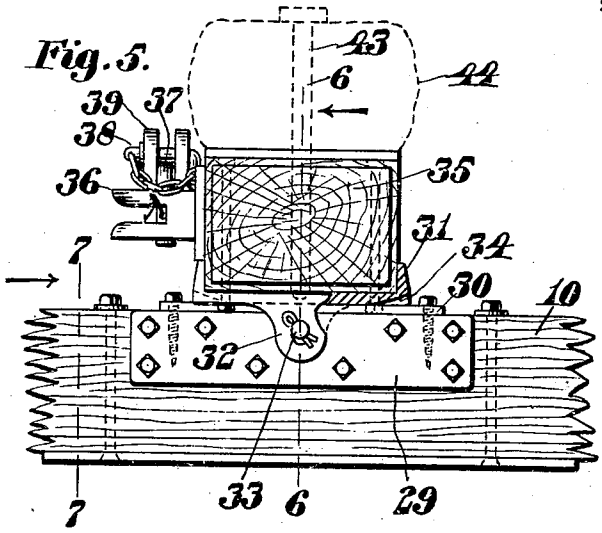


Fig. 6.

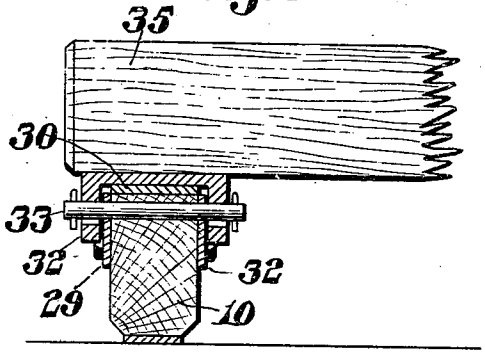
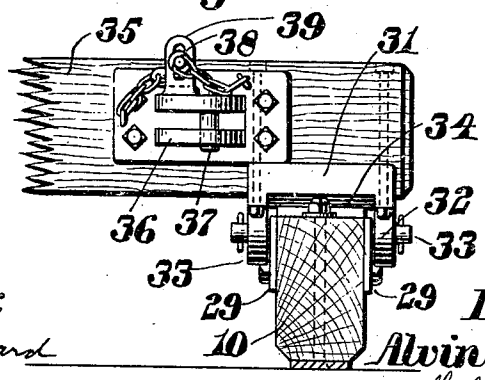


Fig. 7.



Witnesses:

Nathan C. Lombard

Edna C. Cleveland

Inventor:

Alvin O. Lombard,

by Walter E. Lombard,

Atty.

UNITED STATES PATENT OFFICE.

ALVIN O. LOMBARD, OF WATERVILLE, MAINE.

SLED FOR CARRYING LOGS.

955,601. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed July 3, 1909. Serial No. 506,225.

To all whom it may concern:

Be it known that I, ALVIN O. LOMBARD, a citizen of the United States of America, and a resident of Waterville, in the county of Kennebec and State of Maine, have invented certain new and useful Improvements in Sleds for Carrying Logs, of which the following is a specification.

This invention relates to sleds for hauling logs and has for its object the production of a device of this nature which is adapted for use in conveying heavy loads of logs or other material over rough and uneven roads, the various elements comprising the device being effectually but loosely jointed together in such a manner as will permit the heavy weight carried thereby to be safely conveyed without injury to the conveyance when any portion thereof is subjected to sudden strains when passing over uneven portions of the road.

The invention consists in certain novel features of construction and arrangement of parts which will be readily understood by reference to the description of the drawings and to the claims hereinafter given.

Of the drawings: Figure 1 represents a plan of a sled embodying the features of this invention. Fig. 2 represents an elevation of the same showing two layers of logs mounted thereon and secured thereto. Fig. 3 represents a plan view of the toe of one of the runners and one end of a cross member connecting the forward ends of the two runners and a portion of one of the draw-bars. Fig. 4 represents a section on line 4—4 on Fig. 3 looking in the direction of the arrow. Fig. 5 represents an elevation of a portion of one of the forward runners showing the means of attaching the cross-bar thereto. Fig. 6 represents a section on line 6—6 on Fig. 5, looking in the direction of the arrow, and Fig. 7 represents a section on line 7—7 on Fig. 5 looking in the direction of the arrow.

Similar characters designate like parts throughout the several figures of the drawings.

In the drawings, the runners 10 are connected together in pairs, each runner being provided at its forward end with metal straps 11 secured thereto in any well-known manner.

Interposed between the toe end of each pair of metal straps is a cross member 12, the end of which has secured thereto a casting 13 provided with a headed member 14 extending through an opening in the toes in said straps and making a pivotal connection between said member 12 and straps 11. From the front side of each casting 13 is a bifurcated ear 15 the inner wall 16 of the slot formed in said bifurcated ear being curved and concentric to openings 17 formed in said ears for the insertion of a pivot pin 18 extending through an opening in the straps 19 secured to draw members 20. The ends of the draw members 20 secured to the leading cross members 12 are connected together by means of a coupling member 21 by means of which the sled may be coupled to any suitable traction engine or other means for moving the sled over the road. The upper end of the pin 18 is bent at right angles to the pivoted end as indicated in Fig. 4 and rests upon the upper face of the casting 13 between two upwardly extending projections or ears 22.

Each of the ears or projections 22 is provided with an elongated slot 23 through which extends a locking pin 24 provided at one end with a shouldered head 25 sufficiently large to prevent its passage through the slot 23 while the opposite end of said pin is provided with a radial portion 26 which normally extends downward as indicated in Fig. 4, below the lower end of the slot 23 and thus prevents endwise movement of the pin 24 when once positioned. By this means the pin 18 is prevented from being accidentally displaced and thereby becoming disconnected from the straps 19 of the draw-bars 20. The pin 24 is secured to the casting 13 by a chain 27 while the pin 18 is in a similar manner secured thereto by a chain 28 thus preventing these members from being displaced when not in use.

To each side of the runners 10 are secured substantially midway of their length the plates 29 while at the same point a plate 30 is secured to the upper face of each runner 10. Resting upon the plate 30 is a cradle 31 provided with ears 32 which extend downwardly therefrom on either side of the runner 10 and at a slight distance from the side plates 29.

A pin 33 extends through the runner 10 and through both ears 32 and is retained in position by suitable cotter pins. The ears 32 are provided with elongated slots for the passage of this pin 33. The under face of the cradle 31 contacting with the plate 30

is curved away from said plate at its front and rear ends as indicated at 34 in Fig. 5. The cradle 31 of one runner is rigidly secured to the end of a cross-bar 35 while to the opposite end of said cross-bar is rigidly secured the cradle 31 of the other runner of the pair.

To the rear face of the cross-bar 35 is secured a bifurcated member 36 provided with a pivot pin 37 and locking pin 38 passing through ears 39 formed upon said bifurcated member 36, the pin 38 serving to retain the pivot pin 37 in locked position. This pin 37 passes through straps 40 secured to the longer draw-bars 20* crossing one another, one above the other, as indicated in Figs. 1 and 2 of the drawings, the opposite ends of said long draw-bars 20* being provided with straps 19* which engage with the bifurcated ears 15 formed upon the casting 13 of the cross member 12 of the second pair of runners 10. The cross-bar 35 of the second pair of runners is similarly provided with bifurcated members 36 to which other draw-bars 20* may be secured to connect thereto a third pair of runners, and so on. To the upper central face of each cross-bar 35 is secured a plate 41 provided with an opening 42 therein adapted to receive a pin 43 extending through a timber 44 normally parallel to the cross-bars 35 but adapted to be moved about the axis of the pin 43 at an angle to said cross-bar. The logs 45 are mounted upon two adjacent timbers 44 and are secured thereto by chains 46. It is obvious therefore that as the various runners carrying the load of logs 45 are moved over the uneven roads the runners 10 connected together by the cross-bars 35 and cross members 12 are free to move about the pivot pin 43 extending through the supporting timber 44 and it is also obvious that owing to the loose joints between the straps 19 and the ears 15 and between the ears 32 and the side plates 29 the various members of the runners and sleds are free to operate independently of one another while still loosely connected together to prevent any injury to the same due to any unusual strain thereon by the heavy load carried thereby when passing over uneven surfaces or around sharp corners. It is also obvious that when the runners are obliged to pass over uneven grades and inclinations the curved face 34 on the under side of the cradle 31 permits the cross-bars 35 to rock sufficiently to accommodate the load to such variations in inclinations while the runners 10 have a certain vertical movement independent of each other owing to the elongated slots in the ears 32 through which the pin 33 passes. By means of such a loose-jointed device as is herein described very heavy loads of logs and timber may be carried over very uneven roads without any undue injury to the runners and sleds supporting the load.

It is obvious that in such a conveyance as is herein described passing over mountain roads of different inclinations and uneven surfaces the sled will be subjected not only to unusual strains which are taken care of by the loose joints between the various members but it is also subjected to repeated jars which, unless other provision was made therefor, might be sufficient to disconnect the pivot pins and cause considerable trouble. It is evident, however, that by means of the various devices herein described provision is made for securely locking all of these pins in position so that it would be impossible for them to be accidentally displaced.

It is believed the operation and many advantages of the invention will be fully understood from the foregoing.

Having thus described my invention, I claim:

1. A sled for hauling logs, comprising two pairs of runners each connected by a cross-bar, perforated straps secured to the toe of each runner, a cross member interposed between each pair of straps and connected thereto by headed projections extending through said perforations, and two rigid connecting members crossing each other and loosely connected at their ends with the cross-bar of the leading pair of runners and to the cross member of the rear pair.

2. A sled for hauling logs, comprising two pairs of runners each connected by a cross-bar, perforated straps secured to the toe of each runner, a cross member interposed between each pair of straps and pivotally connected thereto by headed projections extending through said perforations, and two rigid connecting members crossing each other and loosely connected at their ends with the cross-bar of the leading pair of runners and to the cross member of the rear pair.

3. A sled for hauling logs, comprising two pairs of runners each connected by a cross-bar, perforated straps secured to the toe of each runner, a cross member interposed between each pair of straps and connected thereto by headed projections extending through said perforations, a forwardly extending ear secured to each end of said cross member, and two rigid connecting members crossing each other and loosely connected at their ends with the cross-bar of the leading pair of runners and to the ears on the cross member of the rear pair.

4. A sled for hauling logs, comprising two pairs of runners each connected by a cross-bar, straps secured to the toe of each runner, a cross member interposed between each pair of straps and connected thereto, a forwardly extending ear secured to each end of said cross member and having a horizontal slot

provided with a curved rear wall, and two rigid connecting members crossing each other and loosely connected at their ends with the cross-bar of the leading pair of runners and to the ears of the cross member of the rear pair with the end bearing against said curved wall.

5. A sled for hauling logs, comprising two pairs of runners each connected by a cross-bar, a cross member connecting the forward ends of each pair of runners, a bifurcated ear secured to each end of each cross member, two rigid connecting members crossing each other and loosely connected at their ends with the cross-bar of the leading pair of runners and to the bifurcated ears of said cross member, and a removable pin extending through said bifurcated ears to form said loose connection.

6. A sled for hauling logs, comprising two pairs of runners each connected by a cross-bar, a cross member connecting the forward ends of each pair of runners, a bifurcated ear secured to each end of each cross member, two connecting members crossing each other and loosely connected at their ends with the cross-bar of the leading pair of runners and to the bifurcated ears of said cross member, a removable pin extending through said bifurcated ears to form said loose connection, and means for preventing the accidental displacement of said pin from said ears.

7. A pair of runners, a cross-bar connecting the same, a cross member interposed between and connected to the toes of said runners by pivot members extending transversely of said runners and provided with ears having vertical perforations, draw-bars provided with perforated ends, and removable pins extending through said ears and ends and locking them together, said pins being provided with lateral extensions normally resting on the upper face of said perforated ears.

8. A pair of runners, a cross-bar connecting the same, a cross member interposed between and pivotally connected to the toes of said runners and provided with bifurcated ears having perforations therethrough, draw-bars provided with perforated ends adapted to be positioned in said bifurcated ears, a pin extending through the perforations in said ears and said ends to lock them together, said pin being provided with a lateral extension normally resting on the upper face of said perforated ears, and means extending transversely above said extension for preventing the accidental displacement of said pin from said ears.

9. A pair of runners, a cross-bar connecting the same, a cross member interposed between and connected to the toes of said runners and provided at each end with bifurcated ears having perforations therethrough and adapted to receive the ends of a pair of draw-bars, a bent pin passing through the perforations in said ears and those in the ends of said draw-bars to connect them, a projection on each side of the bent-over portion of said pin, and another pin extending through said projections to prevent the accidental displacement of said pivot pin.

10. A pair of runners, a cross-bar connecting the same, a cross member interposed between and connected to the toes of said runners and provided at each end with bifurcated ears having perforations therethrough and adapted to receive the ends of a pair of draw-bars, a bent pin passing through the perforations in said ears and those in the ends of said draw-bars to connect them, a projection on each side of the bent-over portion of said pin provided with elongated slots, and another pin provided with a head at one end and a lateral projection at the other extending through said projections to prevent the accidental displacement of said pivot pin.

11. A pair of runners; a plate secured to the upper face of each runner; two cradles, each of which has an under face resting on one of said plates and is pivotally secured to its runner by ears on each side thereof, each end of the contacting face of said cradle being curved away from said plate to permit it to rock under abnormal conditions; and a cross-bar secured at each end to one of said cradles.

12. A pair of runners; a plate secured to the upper face of each runner; two cradles, each of which has an under face resting on one of said plates and is provided with ears extending downwardly on each side of a runner with its plate contacting face curved outwardly at each end; a pin for securing said ears to said runners; a cross-bar; and means for securing a cradle to each end of said cross-bar.

13. A pair of runners; a plate secured to the upper face of each runner; two cradles, each of which has an under face resting on one of said plates and is provided with ears having elongated slots therein; a pin for securing said ears to said runners; a cross-bar; and means for securing a cradle to each end of said cross-bar.

14. A pair of runners; a plate secured to the upper face of each runner; two cradles, each of which has an under face resting on one of said plates and is provided with ears extending downwardly on each side of a runner with its plate contacting face curved outwardly at each end; a pin for securing said ears to said runners; a cross-bar; means for securing a cradle to each end of said cross-bar; and a plate secured to the face of said runner between said ears.

15. A train of sleds provided with run-

ners, each sled having a transverse cross-bar connecting the body of the runners; a pivoted cross member connecting the forward ends of the runners, a protecting and supporting casting secured to each end of the cross member, and comprising the following integral parts: a top and a bottom plate engaging the top and bottom of the cross member, a hub engaging and covering the end face of the cross member, and a socket portion projecting from the front of said casting having an upper and lower flange with vertical openings, an outside connecting web with an inner surface which conforms to the end of the draw-bar: in combination with horizontal crossed draw-bars, the rear ends thereof projecting into said socket-portions, pins passing through said vertical openings and pivoting the draw-bars to said socket portions, the front ends of said draw-bars being pivotally secured to the cross-bar of the next forward sled.

16. A pair of runners, a cross bar, a cradle therefor at each end resting on the upper face of the runners and provided with ears having elongated slots therein on each side of said runners, and a pin extending through each runner and the slots in said ears on each side thereof.

17. A pair of runners, a cross bar, a cradle therefor at each end resting on the upper face of the runners and provided with ears having elongated slots therein on each side of said runners, a pin extending through each runner and the slots in said ears on each side thereof, and a plate on the top of each runner on which said cradle rests.

Signed by me at Waterville, Maine, this 1st day of July, 1909.

ALVIN O. LOMBARD.

Witnesses:
HOWARD B. CROSBY,
JOHN W. ALLEN.