(No Model.)

H. P. TITUS.

SLEIGH KNEE.

No. 409,378. Patented Aug. 20, 1889.

Fig. 1.

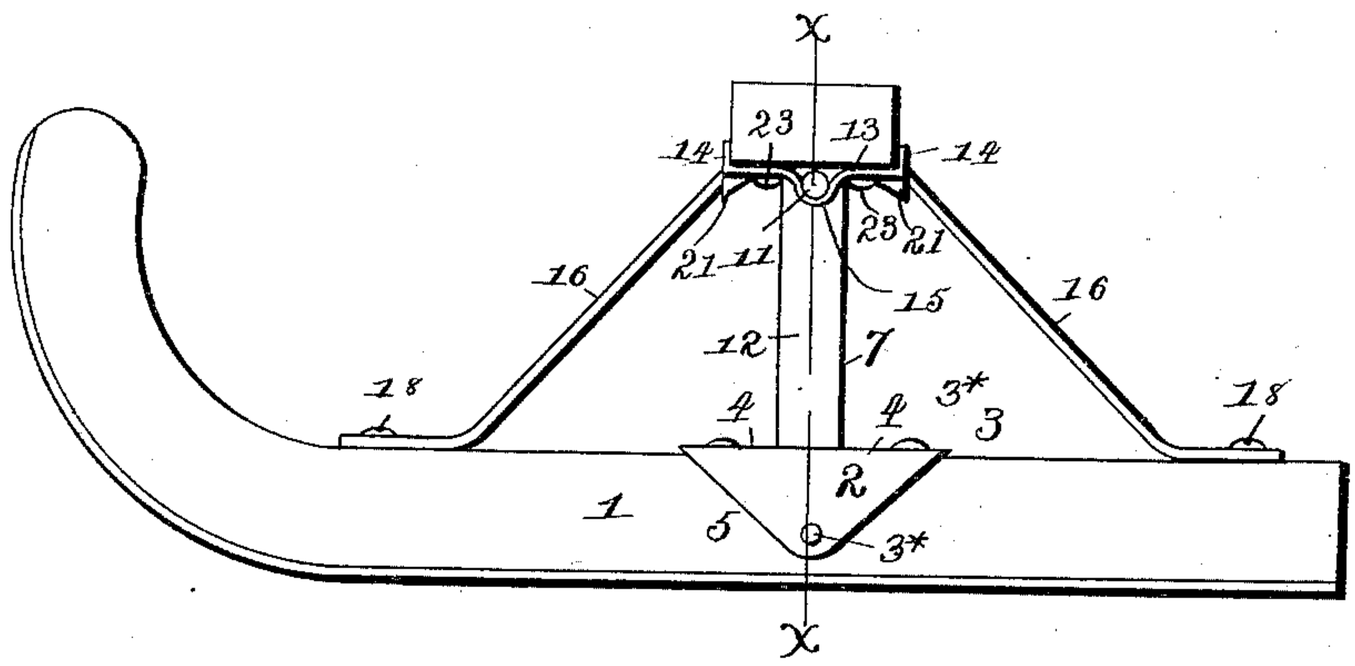


Fig. 2.

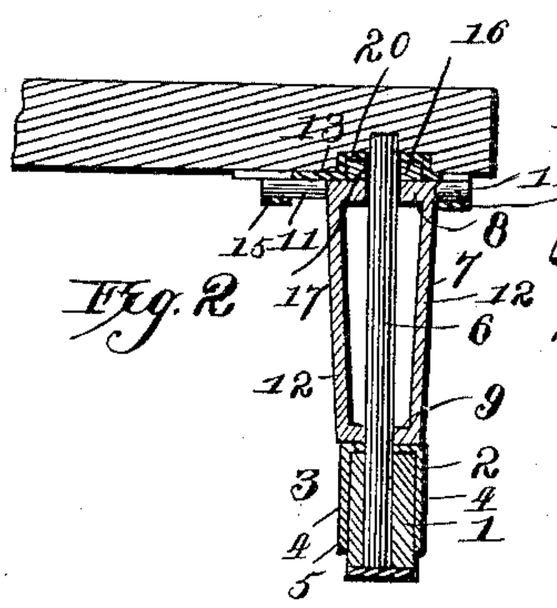


Fig. 3.

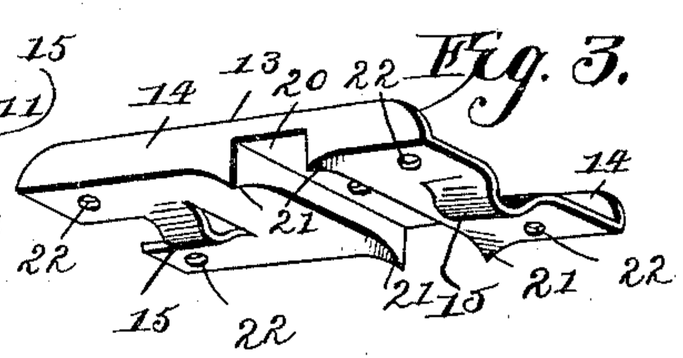


Fig. 4.

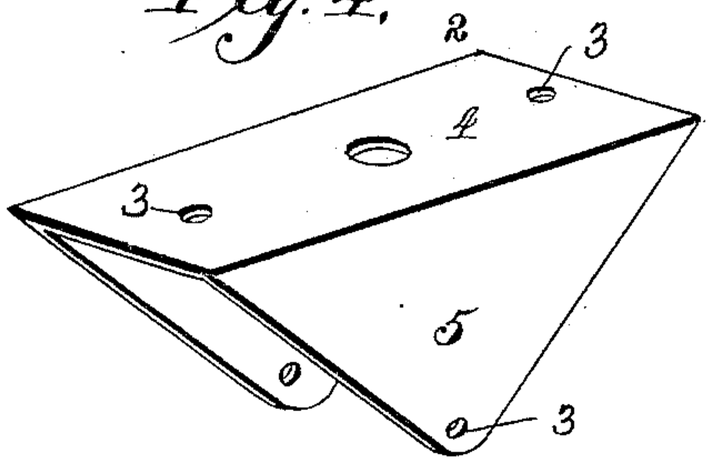
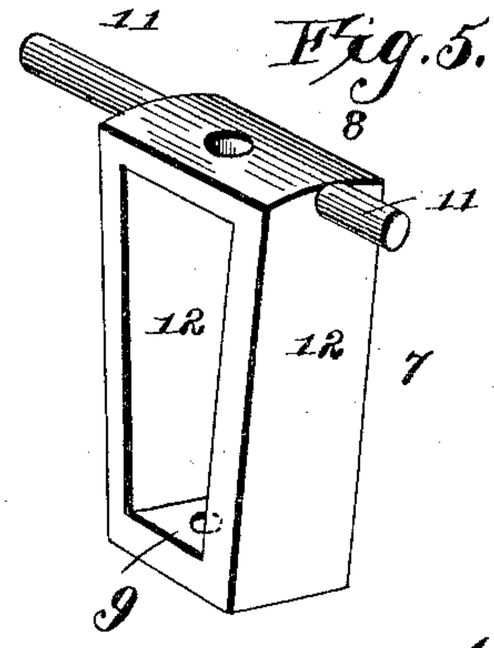


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

HERMAN PRESCOTT TITUS, OF LISBON, NEW HAMPSHIRE.

SLEIGH-KNEE.

SPECIFICATION forming part of Letters Patent No. 409,378, dated August 20, 1889.

Application filed April 26, 1889. Serial No. 308,675. (No model.)

To all whom it may concern:

Be it known that I, HERMAN PRESCOTT TITUS, a citizen of the United States, residing at Lisbon, in the county of Grafton and State of New Hampshire, have invented a new and useful Knee for Sleighs, of which the following is a specification.

This invention has relation to an improvement in knees for sleighs, and is especially designed as an improvement over my patent, No. 383,259, granted May 22, 1888, whereby in the construction therein specified I obtain a rocking motion and a lateral motion of the sleigh-runners independent of the bolster of the sleigh. My improvement in this instance consists in forming an improved connection of the diagonal strap and casting therein shown with the bolster of the sleigh, whereby the agitation of the runner when passing over obstructions in the road, into and out of ruts, &c., will not work the disadvantage of loosening the connection between the casting forming the sleigh-knee and the bolster; and, furthermore, to provide an improved connection between the casting and the runner, whereby the strain is more evenly distributed and over a greater portion of the runner than heretofore, thus decreasing the liability of the casting from loosening its rigid connection with the runner.

With these general objects in view the invention consists, primarily, in providing the bolster-casting with side flanges for embracing the bolster, thereby preventing the oscillations of the runner from working the casting loose, and also in providing said casting with opposite shoulders for the reception of the brace-rods; and, furthermore, in providing the runner-embracing plate for connecting the vertical casting with the runner, and thus distributing the strain over a greater surface and not at one minute point in the runner, as heretofore.

Referring to the drawings, Figure 1 is a side elevation of a sleigh-knee constructed in accordance with my improvement. Fig. 2 is a transverse section on the line of *x x* of Fig. 1. Fig. 3 is a perspective of the bolster-casting. Fig. 4 is a similar view of the runner-casting. Fig. 5 is a similar view, in detail, of the vertical knee-casting.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 represents a sleigh-runner, and 2 an embracing-plate having bolt-holes 3, through which pass bolts $3^{\times}$, by which the plate is secured in position, consisting of the edge-embracing portion 4 and the depending sides 5. Passing vertically through the plate 2 is a vertical shaft 6, upon which is mounted a vertical knee-casting 7, consisting of the upper and lower plates 8 and 9, respectively, having a central perforation and laterally-projecting trunnions 11, the two plates being connected by opposite diverging side arms 12, all as shown in the patent referred to.

13 represents the bolster-casting, which is formed of a single piece, and the sides of which are provided with flanges 14, designed to embrace the sides of the bolster, and at its ends are provided loops or bearing-eyes 15 for the reception of the trunnions 11, by which the knee as constructed and the bolster are loosely connected. A curved strap 16, having a central perforation 17 for the bolt or shaft 6, terminates at each side of the sleigh-knee casting, and is secured to the upper edge of the runner by screws or bolts 18.

The bolster-casting 13 intermediate its eyes 15 is formed with a transverse depression 20 for the reception of the brace-strap mentioned, the curvature of which rests within and rocks upon the bottom of the depression. At each opposite edge of the depression 20, I form downwardly-projecting keepers or lugs 21, such being necessary to maintain the strap within the depression during its oscillation by reason of its curvature. Bolts 23 are inserted through perforations 22 in the casting and serve as a supplementary means for securing the casting to the bolster.

Having thus described my invention, what I claim is—

1. The combination, with the runner having an embracing-plate, as 2, provided with the opposite embracing portions 5, the intermediate centrally-perforated plain portion 4, and the perforations 3, of the knee-casting 7, having the perforated ends 8 and 9, the opposite sides 12, and the vertical bolt 6, passing through the perforations 8 and 9 of the knee and through the central opening in the plate 2,

and with the runner, substantially as specified.

2. The bolster having the casting 13 formed in a single piece and with the side flanges 14, the opposite eyes 15, and the intermediate transverse depression 20, having downwardly-projecting lugs or keepers 21, in combination with the knee-casting 7, having the trunnions 11, taking bearing in the eyes, and the curved strap 16, passing over the casting and bearing in the depression 20 and loosely embraced by the lugs, substantially as specified.

3. In a sleigh-knee, the bolster having the casting 13, upon its under surface, provided with the upwardly-projecting flanges 14 to embrace the sides of the bolster and the opposite shoulders or keepers for the reception of the brace-rods 16, whereby the bolster is supported upon the brace-rods, and the knee-casting having trunnions mounted in the bolster-casting and pivotally attached to the runner, as set forth.

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

HERMAN PRESCOTT TITUS.

Witnesses:
A. A. WOOLSEN,
LARKIN H. CLOUGH.