(No Model.)

A. BOSTICK.

SLEIGH KNEE.

No. 380,172. Patented Mar. 27, 1888.

Fig. 1.

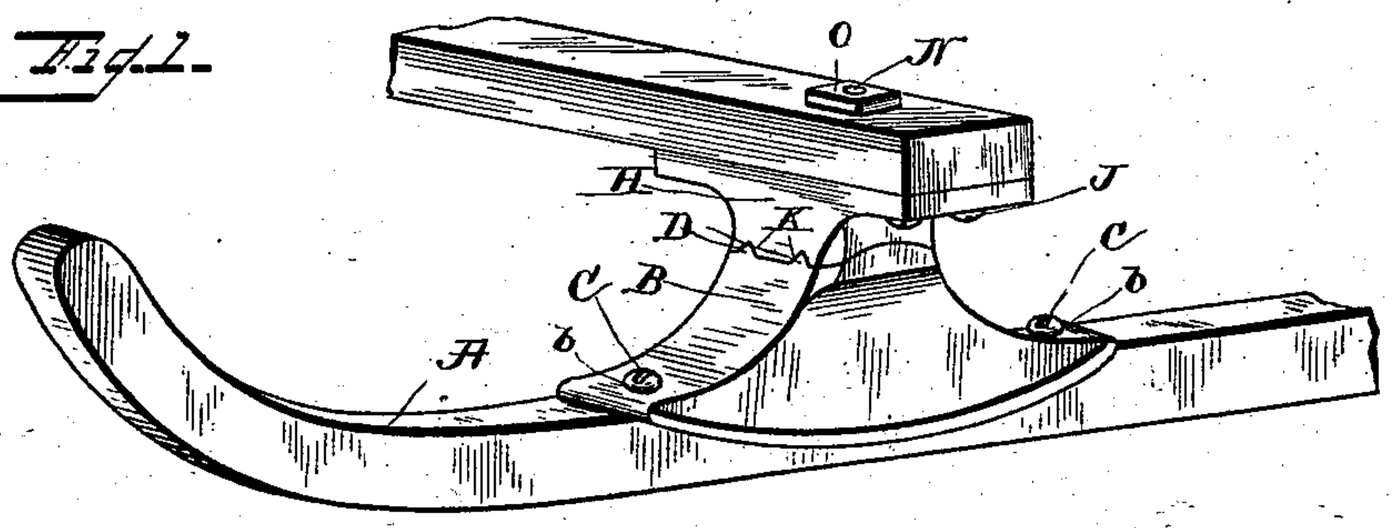

Fig. 2.

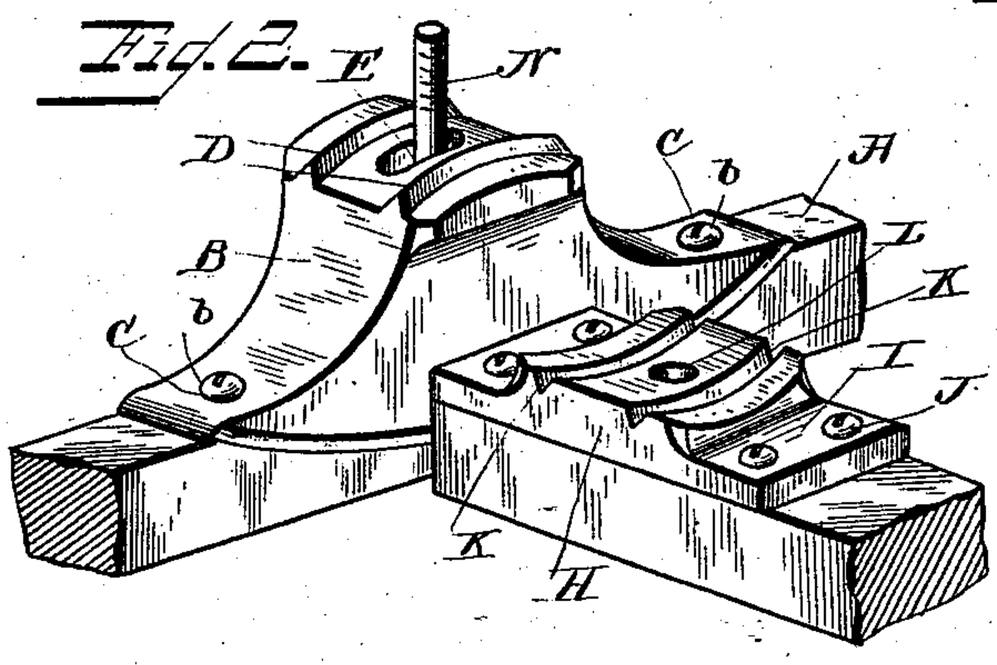

Fig. 3.

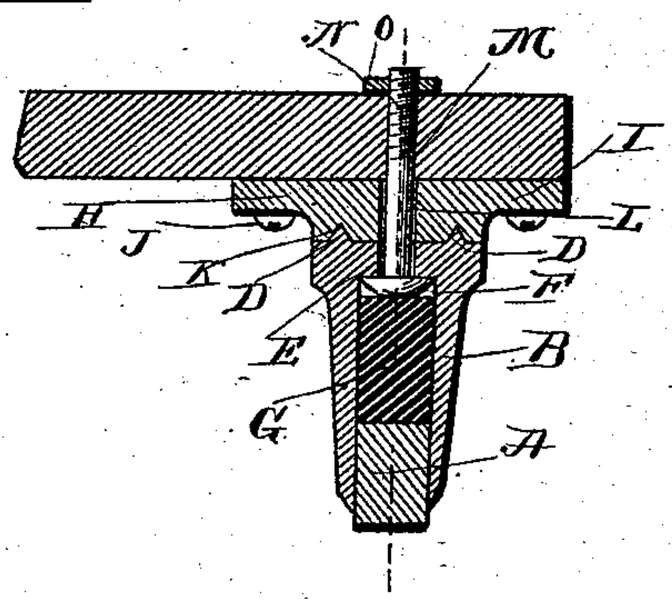

Fig. 4.

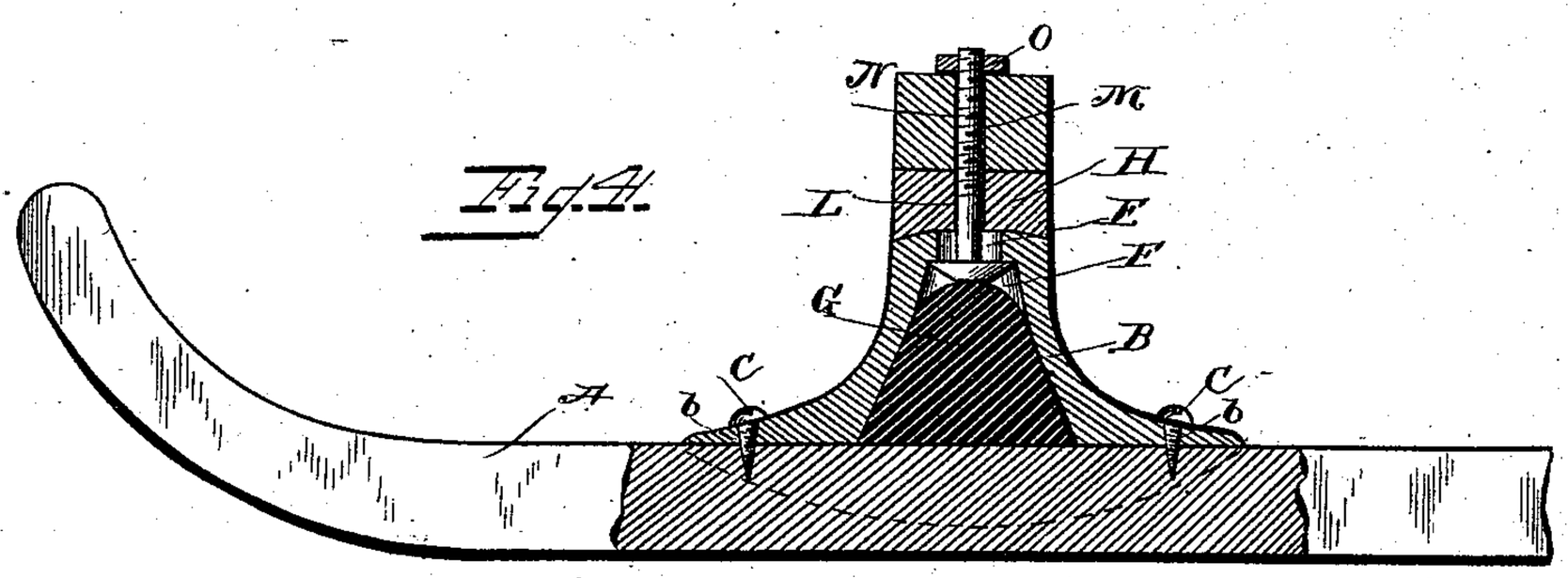

Fig. 5.

Witnesses.
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UNITED STATES PATENT OFFICE.

ALONZO BOSTICK, OF MILLINGTON, MICHIGAN.

SLEIGH-KNEE.

SPECIFICATION forming part of Letters Patent No. 380,172, dated March 27, 1888.

Application filed July 16, 1887. Serial No. 244,495. (No model.)

To all whom it may concern:

Be it known that I, ALONZO BOSTICK, a citizen of the United States, and a resident of Millington, in the county of Tuscola and State of Michigan, have invented certain new and useful Improvements in Sleigh-Knees; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved sleigh-knee. Fig. 2 is a perspective detail view showing the two castings which compose the knee separated. Fig. 3 is a longitudinal central vertical sectional view. Fig. 4 is a vertical transverse sectional view taken on the plane indicated by line *x x* of Fig. 3, and Fig. 5 is a perspective detail view showing the meeting faces of the two castings which compose the knee constructed without the ribs and grooves.

The same letters of reference indicate corresponding parts in all the figures.

My invention consists in a new and improved sleigh-knee, which will be hereinafter fully described and claimed.

Referring to the several parts by letter, A indicates a sleigh-runner of ordinary construction.

B indicates the lower casting or section of my new and improved sleigh-knee, this casting B being narrowed toward its lower end, so as to adapt it to fit closely upon the sleigh-runner A, the lower sides of this lower casting fitting down on each side of the runner, as shown, while the lower ends of the casting extend out over the top of the runner, as shown, and are formed with the perforations *b*, to adapt the casting to be secured upon the runner by means of screws or bolts C, passing through the said perforations into the runner. The lower end of the lower casting is reduced in width and extended in length at its lower end, as shown, so as to fit on and over the top of the sleigh-runner and form a large bearing-surface where it comes in contact with the same. The upper ends of this casting slope up and inward toward the top of the casting, so that the upper end or top of the lower casting is practically square in shape or outline, while the top itself is convex or rounded, as shown, and is formed with the two parallel projecting ribs D D, extending in the direction of the length of the sleigh-runner, and is also formed with a longitudinal slot, E, between the said ribs D D, the interior of the lower casting being hollow, as clearly shown in the sectional views, Figs. 3 and 4 of the drawings, forming an interior space, F, in the middle of the lower casting.

G indicates a cushion of rubber or other yielding material, having the flat lower side and the rounded semicircular upper side, with the parallel flat sides, which is placed upon the flat upper side of the runner, so that it is inclosed within the central space of the lower casting when the latter is secured upon the runner in its operative position, for the purpose which will be hereinafter specified.

H indicates the upper casting, which is formed with the flat base-plate I, having the four apertures J at its ends, to adapt it to be secured by screws or bolts firmly upon the lower side of the end of the cross-beam of the sleigh, the central lower side of this upper casting being concaved to adapt it to fit upon the convex top of the lower casting, and being formed with the two parallel grooves K K, extending in the direction of the length of the sleigh-runner, and with a central vertical aperture, L, with which a vertical aperture, M, in the end of the sleigh-beam registers when the upper casting is secured in its operative position.

In operation the upper castings, H, are secured upon or to the lower sides of the ends of the cross-beams of the sleigh, and a screw-bolt, N, is inserted through the central slot, E, of the lower casting from the inner side thereof, so that the square head of the screw-bolt is inclosed within the lower casting, with the threaded main portion of the bolt projecting up through the longitudinal central slot, E, as shown, when the lower castings are secured upon the runners with the yielding cushions G inclosed within the lower hollow castings, as shown in the sectional views, Figs. 3 and 4 of the drawings, when the lower end of the head of the screw-bolts will rest upon the

yielding cushions. The sleigh-beams are now placed in position, with the upper ends of the screw-bolts projecting up through the central apertures, L, of the upper castings and the registering apertures M in the ends of the sleigh-beams, when the concave upper castings fit down upon the convex lower castings, with the parallel ribs D D of the lower castings fitting in the parallel grooves K K in the upper castings, when nuts O are screwed upon the projecting upper threaded ends of the screw-bolts to secure the two parts of the castings together, a washer being preferably placed under each nut.

The parts being secured in operative position, as shown and described, it will be seen that each runner is free to move independently, the nuts on the upper ends of the screw-bolts not being screwed down so tightly as to prevent the beams with the upper castings moving on the lower castings, as will be readily understood, and that when either runner passes over an obstruction it can move, the lower casting turning in the upper casting, so as to pass over the obstruction without twisting the beam of the sleigh or rocking the sleigh, so that if one runner is passing over an obstruction or running down in a hole or hollow in the road while the other is running on level ground the beams will not be twisted and the sleigh will run evenly and smoothly.

It is obvious that I may construct the meeting surfaces of the upper and lower castings (the convex and concave faces, respectively) without the ribs and the grooves in which they fit and move, making the said faces perfectly smooth, without departing in the least from the spirit of my invention; but I prefer to construct the said parts, as hereinbefore described, with the ribs and grooves, as the parts when so constructed work better and with less strain on the screw-bolts. When the two castings are in motion, the upper casting turning on the lower one, the lower headed end of the connecting screw-bolts which secure the upper and lower castings, and consequently the runner and the ends of the beams, together will move somewhat in the longitudinal central slots in the tops of the lower castings, and the head of each bolt will turn on the rubber cushion G immediately beneath it, so that the screw-bolts will work easily and smoothly, and the rubber cushions will assist in bringing the parts back to their normal positions.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my invention will be readily understood.

It will be seen that my improved sleigh-knee is simple and strong in construction and exceedingly efficient in its operation. By its use the sleigh is caused to run smoothly and easily over rough ground and the cross-beams are prevented from being twisted and broken, while if by any accident a cross-beam should become broken it can be readily replaced with a new one by any one who can use a saw and bit, as the plate forming the upper casting can be easily removed from the end of the beam by withdrawing the screws which retain it in position and secured upon the ends of a new beam without going to a shop to have it done.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of the hollow lower casting adapted to be secured upon a sleigh-runner and formed with the convex top and the longitudinal slot, the yielding cushion, the upper casting adapted to be secured to the sleigh-beam and formed with the concave lower side and the vertical aperture, and the screw-bolt with its nut, substantially as set forth.

2. The combination of the hollow lower casting adapted to be secured upon a sleigh-runner and formed with the convex top having the parallel ribs and the longitudinal slot, the upper casting adapted to be secured to the sleigh-beam and formed with the concave lower side having the parallel grooves and the vertical aperture, and the screw-bolt with its nut, substantially as set forth.

3. The combination of the hollow lower casting adapted to be secured upon a sleigh-runner and formed with the convex top having the parallel ribs and the longitudinal slot, the yielding cushion, the upper casting adapted to be secured to the sleigh-beam and formed with the concave lower side having the parallel grooves and the vertical aperture, and the screw-bolt with its nut, substantially as set forth.

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

ALONZO BOSTICK.

Witnesses:
CHARLES BLOCHER,
ISAAC T. DAMON.