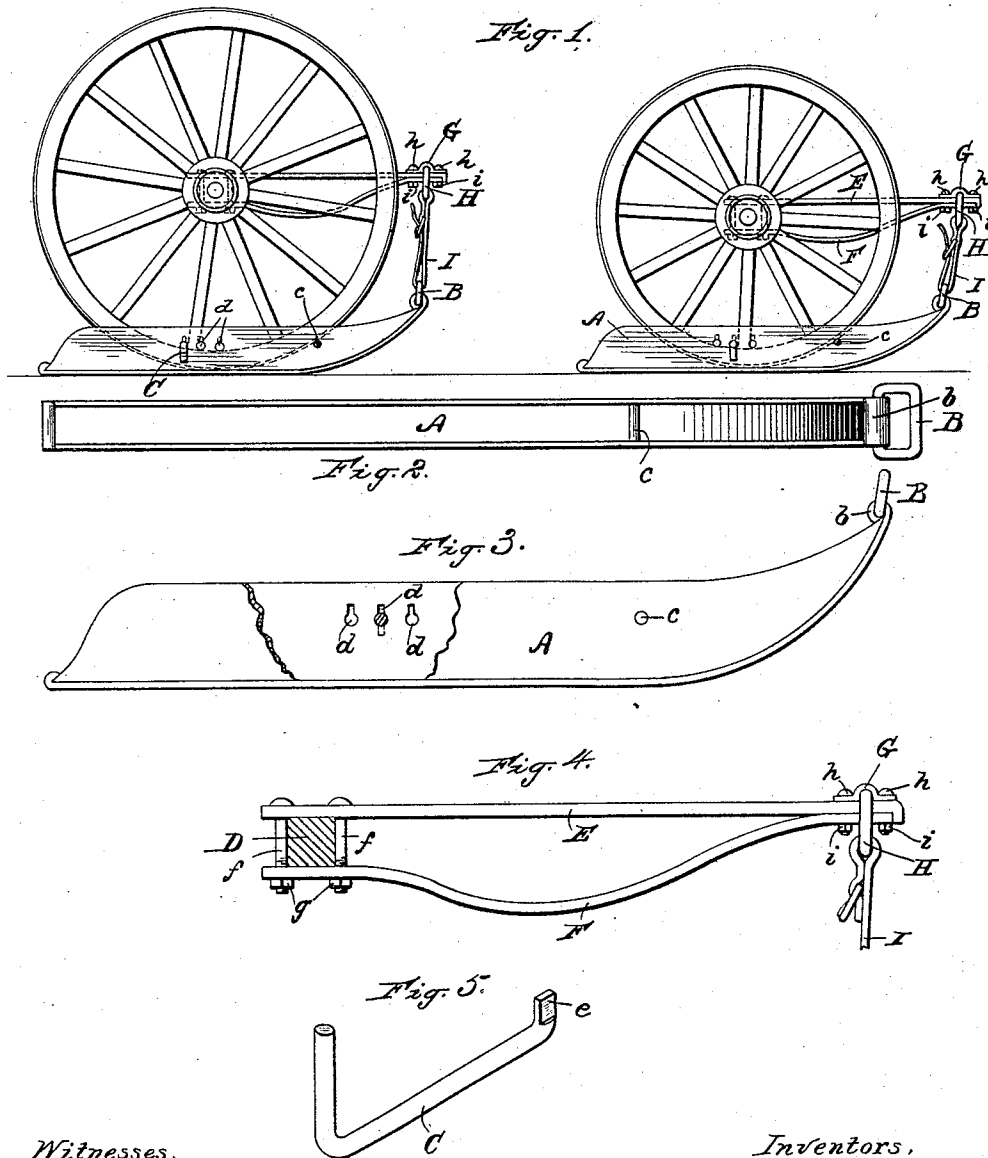


(No Model.)

J. STENGER & N. MÜNSTER.
SNOW SHOE FOR VEHICLE WHEELS.

No. 486,988.

Patented Nov. 29, 1892.



Witnesses,

John C. Miles.
N. E. Oliphant

Inventors,

Joseph Stenger.
Nicholas Münster.
By H. G. Underwood
Attorney.

UNITED STATES PATENT OFFICE.

JOSEPH STENGER AND NICHLAS MÜNSTER, OF SHEBOYGAN, WISCONSIN.

SNOW-SHOE FOR VEHICLE-WHEELS.

SPECIFICATION forming part of Letters Patent No. 486,988, dated November 29, 1892.

Application filed June 24, 1892. Serial No. 437,861. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH STENGER and NICHLAS MÜNSTER, citizens of the United States, and residents of Sheboygan, in the county of Sheboygan, and in the State of Wisconsin, have invented certain new and useful Improvements in Snow-Shoes for Vehicle-Wheels; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention has for its object to provide a simple means for the conversion of wheeled vehicles to sleds; and it consists in certain peculiarities of construction and combination of parts to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a side elevation of our improvements in connection with wheels of a vehicle; Fig. 2, a plan view of a snow-shoe that forms part of our invention; Fig. 3, a side elevation of the same, partly broken away; Fig. 4, a similar view of a bracket, that also forms part of our invention, in position on a vehicle-axle that is shown in section; and Fig. 5, a perspective view of a key for locking the snow-shoe to a wheel.

Referring by letter to the drawings, A represents a snow-shoe made of any suitable material, preferably metal, from which it may be cast with the sole and sides in one piece, said shoe being open at the top and heel.

In order to obtain the best results when in use, the toe of the shoe is struck on a curve of considerable radius, and, as shown, the toe end of the sole is turned over toward the rear to form a clip *b* for a loop B, although the latter may be otherwise connected to said sole if found more convenient or desirable. The sides of the shoe are connected forward of their longitudinal center by means of a cross-piece *c*, that serves as a front chock for a wheel engaged with said shoe, and these sides of the shoe are provided with a series of openings *d* for engagement with a key C, that serves as a means for locking the wheel and shoe together. The openings *d* in at least one side (preferably the inner) of the shoe are such as are commonly termed "keyhole-slots," the elongated portions of the same being uppermost, and the key C is in the shape of a crank having one end in the form of a bit *e*, that has a

contour and dimensions corresponding to said keyhole-slots. Designed for detachable connection with the wheel-axles D by means of bolts *f* and nuts *g* are forwardly-extended brackets corresponding in number to the shoes A, and, as shown, each bracket comprises an upper straight plate E and lower curved plate F, that have their rear ends impinged against the relative axle and are joined together at their front ends by means of bolts *h* and nuts *i*, the bolts being passed through a clip G, that secures a loop H to said bracket. By means of a strap I or other suitable coupling device the loop H of each bracket may be connected to the loop B, that is clipped to the adjacent shoe.

In practice a wheel is run into a shoe until it comes against the cross-piece *c* thereof and the key C is engaged with registering openings in the sides of said shoe and turned so as to bring its bit *e* diametrically opposite the elongation of the adjacent keyhole-slot and outside said shoe, whereby the latter and the wheel are locked together and said key held against accidental removal.

By having a series of the side openings *d* in registering pairs the key C may be inserted in front or rear of an adjacent spoke of the wheel, and consequently it is not necessary to adjust said wheel on its axle when connecting a shoe thereto.

The coupling I between a bracket and shoe prevents the latter from tilting and the former from moving on its axle, especially in case of fast driving.

The shoes herein described may be used in connection with any wheeled vehicle, light or heavy, and will be found especially convenient for connection with fire-department apparatus when snow is on the ground.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A snow-shoe for a vehicle-wheel, that comprises a suitable sole and sides, the latter being provided with registering openings, a cross-piece connecting the sides forward of their longitudinal centers, and a key for detachable engagement with said openings, substantially as set forth.

2. A snow-shoe for a vehicle-wheel, that comprises a suitable sole and sides, the latter be-

ing provided with registering openings, and a key for detachable engagement with said openings, in combination with a bracket connected to an axle of the vehicle and suitable means for coupling the forward ends of the shoe and bracket, substantially as set forth.

3. A snow-shoe for vehicle-wheels, that comprises a suitable sole and sides, and suitable means for detachably connecting the shoe and wheel, in combination with a bracket connected to an axle of the vehicle and a coupling for the forward ends of the bracket and shoe, substantially as set forth.

4. A snow-shoe for a vehicle-wheel and

suitable means for connecting the forward portion of the shoe with the axle of said wheel independent of the vehicle-body or draft appliance, substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands, at Sheboygan, in the county of Sheboygan and State of Wisconsin, in the presence of two witnesses.

JOSEPH STENGER.
NICHLAS MÜNSTER.

Witnesses:

W. D. VAN ALLEN,
ANTON J. MALLMANN.