

(No Model.)

E. L. HOWE.
CARRIAGE STEP.

No. 419,198.

Patented Jan. 14, 1890.

Fig. 1.

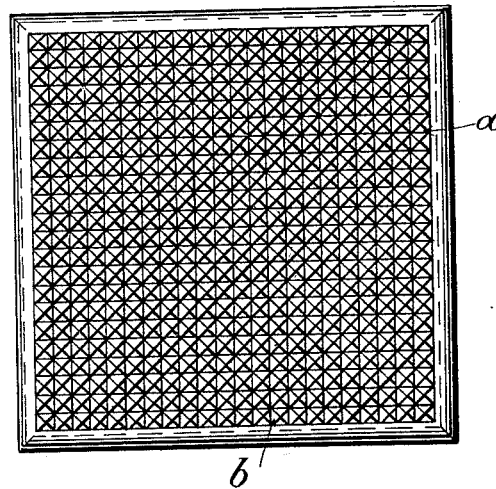


Fig. 2.

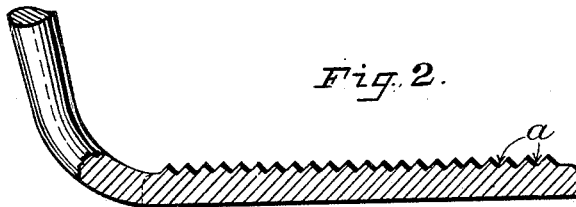
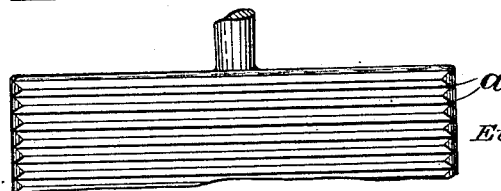
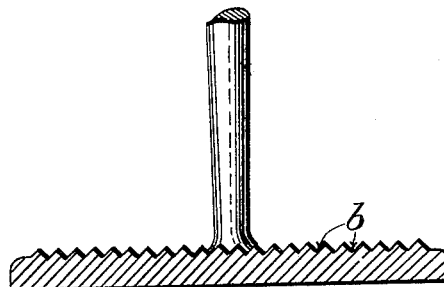


Fig. 3.



WITNESSES.
H. R. Edelen.
Geo. W. King

INVENTOR.
Eugene L. Howe.

Fig. 4. By Leggett & Leggett
ATTORNEYS

UNITED STATES PATENT OFFICE.

EUGENE L. HOWE, OF CLEVELAND, OHIO, ASSIGNOR TO THE EBERHARD MANUFACTURING COMPANY, OF SAME PLACE.

CARRIAGE-STEP.

SPECIFICATION forming part of Letters Patent No. 419,198, dated January 14, 1890.

Application filed March 23, 1889. Serial No. 304,446. (No model.)

To all whom it may concern:

Be it known that I, EUGENE L. HOWE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Carriage-Steps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to an improved carriage-step as an article of manufacture, such carriage-step having one or more series of parallel grooves milled or otherwise cut in the face of the step, the intervening ridges thus formed being brought to a sharp edge. In case of two series of grooves the different series cross each other to divide the intervening ridges into teeth, the object being to prevent the foot from slipping on the step. Heretofore various devices have been employed for such purpose—for instance, a series of ridges cast integral on the face of the step; but any ridges or projections that are formed in casting are necessarily too blunt to be effective, such blunt edges taking little hold of the hard smooth surface of the sole of the shoe, and especially in the presence of ice and snow such steps become slippery and dangerous.

In the accompanying drawings, Figure 1 is a plan. Figs. 2 and 3 are elevations in section, respectively, on line *x x* and *y y*. Fig. 4 is a plan showing but one series of grooves.

The shape of the carriage-step, and whether plain or ornamental, of solid face or of open-work, is immaterial.

The improvement consists of a carriage-step having one or more series of slight parallel and preferably V-shaped grooves milled or otherwise cut in the face of the step, the grooves of a series being in such close prox-

imity to each other as to bring the intervening ridges to sharp edges, and in case of two series of grooves the different series crossing each other usually at right angles, so as to form a series of pyramidal sharp-pointed teeth. In Fig. 1 the grooves *a a* and *b b* are shown crossing each other approximately at right angles, although the grooves might cross each other more or less obliquely to form diamond-shaped teeth, either of which will answer the purpose. In Fig. 4 only one series of grooves *a a* are shown, and these should run crosswise of the step. The single series of grooves shown in Fig. 4 are effective in preventing the foot from slipping endwise off of the step, but are not so effective in preventing the foot from slipping laterally as the teeth aforesaid. The grooving is more cheaply done with a milling-tool, such tool being long enough to reach across the step, so that the grooves of one series are milled at one operation. These grooves are usually only about a sixteenth of an inch (more or less) in depth, and where the step is provided with ornamental raised work, as is frequently the case, the milling-tool is set so as to engage only the extreme upper portions of such raised work.

What I claim is—

As a new article of manufacture, a step for carriages, made of a single piece of metal, the upper surface of which is cut to form sharp projections with inclined sides, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 2d day of November, 1888.

EUGENE L. HOWE.

Witnesses:

M. O. SENSENY,
W. H. BERSCH.