(31.)

F. B. MORSE.

Improvement in Dies for making Carriage Steps.

No. 121,803. Patented Dec. 12, 1871.

fig. 1

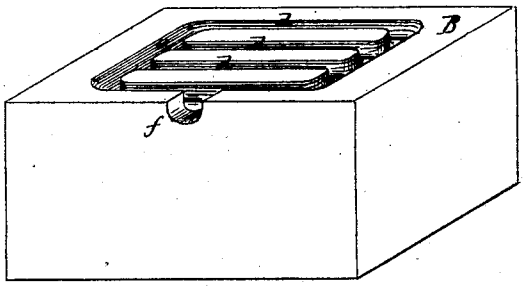


fig. 2

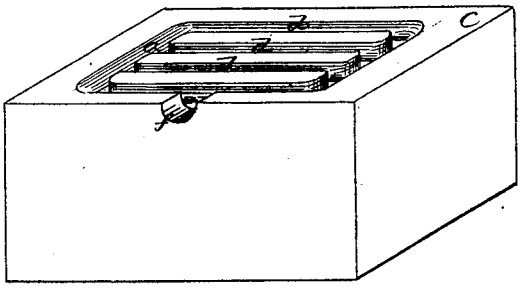


fig. 3

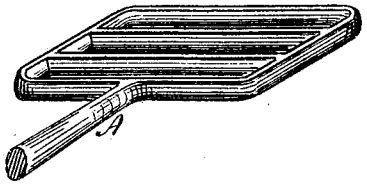
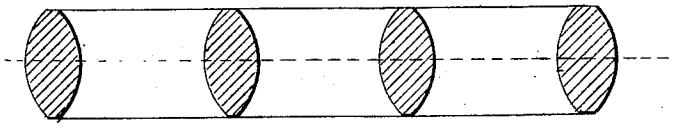


fig. 4



Witnesses.

John D. Shumway

A. J. Tibbits

Francis B. Morse
Inventor

By his Atty.

Thos. E. Eaile

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

FRANCIS B. MORSE, OF PLANTSVILLE, CONNECTICUT, ASSIGNOR TO H. D. SMITH & CO., OF SAME PLACE.

IMPROVEMENT IN DIES FOR MAKING CARRIAGE-STEPS.

Specification forming part of Letters Patent No. 121,803, dated December 12, 1871.

To all whom it may concern:

Be it known that I, FRANCIS B. MORSE, of Plantsville, in the county of Hartford and State of Connecticut, have invented a new Improvement in Dies for Making Coach-Steps; and I do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification and represents, in—

Figure 1, a perspective view of the lower die; Fig. 2, a perspective view of the upper die; Fig. 3, a perspective view of the step formed in the said dies; and in Fig. 4, a transverse section of the said step.

This invention relates to dies for the construction of steps known to the trade as coach or platform steps; these are the steps which are formed upon or attached to the part of the carriage known as the platform, but applicable alike to other positions on the carriage.

The form of the step to be produced is that shown in Fig. 3—that is, an open step having parallel bars, upon which the foot rests. Both sides of the step are alike, so that it may be used either side up; consequently the bars are formed of an elliptical or oval form, as seen in Fig. 4; therefore, in constructing these steps it is necessary that the dies part near the middle of the step, as denoted in broken lines, Fig. 4—that is, one-half of the step formed in the lower die, the other half in the upper die. The shank A, with which connection is made, is sometimes made upon the side and sometimes upon the end, according to the position of the step, here represented as on one side. The lower die B, Fig. 1, and the upper die C, Fig. 2, are substantially alike. A groove, *a*, corresponds to the frame of the step, and longitudinal grooves *d* to the bars in the step, a recess, *f*, corresponding to the position for the shank.

The blank from which the step is to be formed having been previously heated and prepared, is placed on the lower die; the upper die struck down thereon forces the metal into the recesses of the two dies and forms the step, as seen in Fig. 3. The previous preparation may be a flat piece of metal, which, when the dies are struck together, will be forced into the recesses, and the web which would necessarily remain between the bars subsequently cut away; or the blank may be formed in nearly the required shape and completed in these dies. If a different position of the shank is required the recess *f* must be arranged accordingly, and more or less bars proportionate to the size of the step may be made by adding to or taking from the dies corresponding grooves.

I am aware of the patent of Wilson W. Knowles, June 7, 1870, and do not wish to be understood as claiming anything therein contained.

I claim as my invention—

The dies B C, constructed in the manner described for forging coach or platform steps.

F. B. MORSE.

Witnesses:
JOHN H. SHUMWAY,
A. J. TIBBITS.

(31)