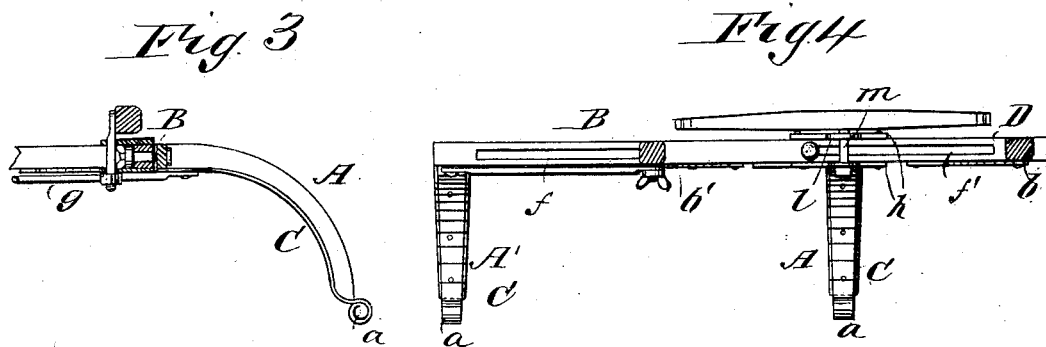


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INVENTOR:
L. F. Seiffried
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

LEVIN F. LEIBFRIED, OF BETHLEHEM, PENNSYLVANIA.

SLEIGH-SHAFT.

SPECIFICATION forming part of Letters Patent No. 342,521, dated May 25, 1886.

Application filed March 12, 1886. Serial No. 195,049. (No model.)

To all whom it may concern:

Be it known that I, LEVIN FRANCIS LEIBFRIED, of Bethlehem, in the county of Northampton and State of Pennsylvania, have invented a new and useful Improvement in Sleigh-Shafts, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is an inverted plan view. Fig. 2 is a plan view showing the shafts shifted for side draft. Fig. 3 is a transverse section taken on line *x x* in Fig. 1. Fig. 4 is a transverse section taken on line *y y* in Fig. 2, looking toward the rear end of the shafts.

Similar letters of reference indicate corresponding parts in the different figures of the drawings.

The object of my invention is to provide shafts for sleighs, which may be shifted to one side of the center line of the sleigh for side draft, or secured in a central position, as circumstances may require.

The invention consists of the combinations of parts, including their construction, substantially as hereinafter set forth, and pointed out in the claims.

The curved bars *A A'* and cross-bar *B*, forming the rear portion of the shaft, are provided with the usual shaft-irons, *C*, having eyes *a*, for receiving the ordinary coupling-bolt. To strengthen the joint between the cross-bar *B* and the curved bars *A A'*, the forward ends of the shaft-irons are bent at right angles, and extend along the under surface of the cross-bar *B*.

The poles *b b'* and cross-bar *D*, forming the forward part of the shafts, are framed together in the usual way, and provided with corner-irons *c*, with the diagonal braces *d* formed integrally therewith. A bolt, *e*, passing through one end of the cross-bar *D*, is received in a slot, *f*, in the corresponding end of the cross-bar *B*, and the bolt *e'*, passing through the cross-bar *B*, is received in a slot, *f'*, in the corresponding end of the cross-bar *D*. The bolts *e e'* are provided with wing-nuts, which permit of tightening or loosening them without the use of a wrench. This arrangement of the slotted bars *B D* and the bolts *e e'* permits of sliding the bars *B D* one upon the other, to bring the line of draft of the shafts to one side of the center of the sleigh, as shown in Fig. 2, or of securing them in a central position, as shown in Fig. 1.

A brace, *g*, which is secured to the under surface of the curved bar *A'*, near its connection with the bar *B*, by a bolt, *h*, extends forward along the under surface of the pole *b'*, and its slotted end is received on the threaded stud *i*, projecting from the under surface of the pole, and is secured thereon by a wing-nut, *j*. When the shafts are shifted for side draft, as shown in Fig. 2, the brace *g* is arranged diagonally.

To permit of the sliding of the bolt *e'* past the center of the bar *D* without interfering with the whiffletree, plates *k*, provided with the apertured ears *l*, are secured to the upper and under surfaces of the bar *D*, with the ears *l* projecting forward. The whiffletree-bolt *m* is received in the apertures of the ears, and is thus supported a short distance from the forward side of the bar *D*, leaving space for the head of the bolt *e'* to pass the whiffletree-bolt, the whiffletree being supported above the cross-bar *D*.

This improvement permits of readily shifting the shafts to adapt them for center or side draft without unhitching the horse. It also enables the manufacturer to produce shafts for sleighs which are similar in appearance to those designed for carriages, and which may be ironed and finished in substantially the same way.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in shafts for vehicles, of the bars *A A'*, slotted cross-bar *B*, connected therewith, the poles *b b'*, the slotted cross-bar *D*, secured to the poles, the bolts *e e'*, and the brace *g*, pivoted to the bar *A'* and connected with the pole *b'*, substantially as shown and described.

2. The combination, in shafts for vehicles, of the bars *A A'*, slotted cross-bar *B*, connected therewith, the poles *b b'*, the slotted cross-bar *D*, secured to the poles, the bolts *e e'*, and the brace *g*, pivoted to the bar *A'*, and connected with the pole *b'*, said bar *B* having plates *k*, provided with apertured ears *l*, to receive the whiffletree-bolt, substantially as and for the purpose set forth.

LEVIN F. LEIBFRIED.

Witnesses:

J. J. BOEHM,
F. J. KLINKER.