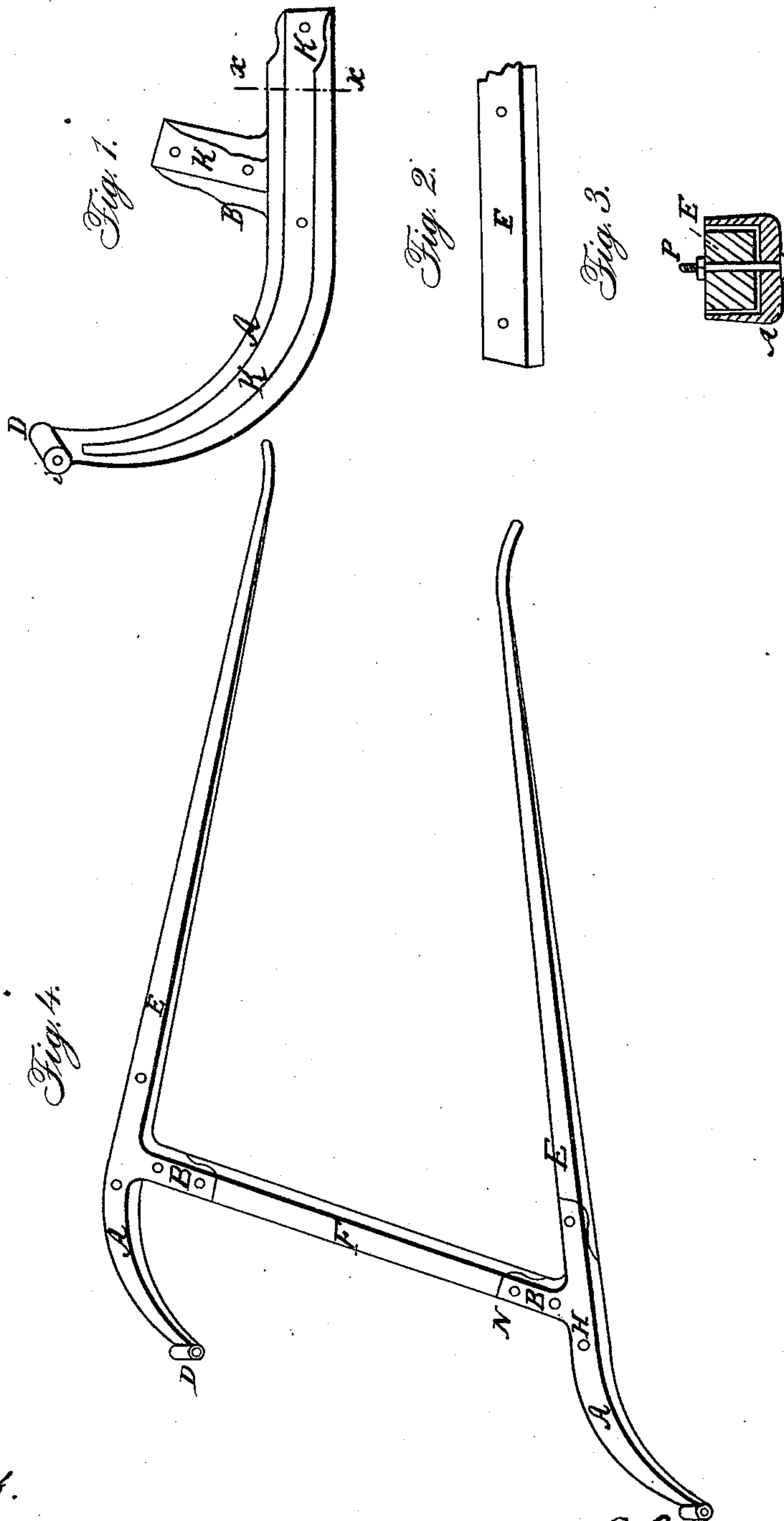


T. D. DAVIS.  
Pole and Shaft.

No. { 2,823, }  
      { 33,827. }

Patented Dec. 3, 1861.



Witnesses:

H. H. Cobb.  
J. F. Hunt

Inventor:

Theodore D. Davis

# UNITED STATES PATENT OFFICE.

THEODORE D. DAVIS, OF SYRACUSE, NEW YORK.

## IMPROVEMENT IN MODES OF ATTACHING CARRIAGE-SHAFTS.

Specification forming part of Letters Patent No. 33,827, dated December 3, 1861.

*To all whom it may concern:*

Be it known that I, THEODORE D. DAVIS, of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Carriage and Sleigh Shafts; and I do hereby declare that the following is a description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my improved shaft iron or heel represented as lying bottom up. Fig. 2 is a view of the end of the shaft where it fits into and is connected to the iron heel. Fig. 3 is a cross-section of the shaft and heel connected together, taken through the dotted lines  $x x$ , Fig. 1. Fig. 4 is a perspective view of the shafts and irons connected.

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

The nature of my invention consists in making a wrought or malleable shaft-heel and connecting the shafts and cross-bar by means of an arm with flanges and bolts. This method of constructing shafts is the most perfect and durable, there being no mortise in the shafts or tenon on the cross-bar to weaken the joint or connection of the shafts and cross-bar, and no forged iron on its bottom. The shaft-heel and arm, in which are fastened the shaft and cross-bar, being cast or made in one piece renders a mortise and tenon unnecessary and makes a firm and durable connection. It is also very cheap, as there are no bent shafts required, no mortising or tenoning, no forged iron, with cross-bar and barrel on its lower side, thus saving in the expense and labor of making a pair of shafts full or more than one-half, and doing away with the necessity of bending wood shafts, and being so simple that the most ordinary mechanic can replace a shaft or cross-bar in case of breakage.

To enable others who are skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

A represents a malleable-iron shaft-heel of a curved form, made with a top K and two

sides A, extending up from the bottom (as it is represented in Fig. 1) K about one and one-fourth inch, or a sufficient height to inclose the shaft E. The width of K is one and one-half inch, more or less. Connected to and cast with the heel A is an arm or piece B, of the same form as the piece A, for the purpose of receiving the cross-bar F. There is also cast with the heel A a barrel D, with a hole I for the purpose of connecting the shafts to the axle of the wagon by means of bolts. The shafts are made straight at the back end and are fitted to drive snug into the heel, extending back three inches (more or less) from the bolt-hole H, and are, after being inserted, fastened to the heel A by means of bolts P, Fig. 3. The cross-bar F is fastened and connected to the heel by being inserted into the arm B and secured by bolts in the same manner as the shaft. The iron heels are about the size of ordinary wood shafts, but are made with flanges, as represented in Fig. 1, and being made thin, with the walls A extending with a gradual taper from the front to the barrel D, making the whole very light; yet from the shape or form it is very strong and durable, and the shafts and cross-bar can be made somewhat smaller than ordinary shafts, there being nothing to weaken them except the small bolt-holes H, the iron heel being made a little smaller at the bottom K than at the top for the purpose of having the wood a little beveling where it enters the heel, thereby causing the shaft to press the walls of the heel snug and firm when drawn up by the bolt, and also for the purpose of tightening the shafts and cross-bar in case of shrinkage.

What I claim as my invention, and desire to secure by Letters Patent, is—

A wrought or malleable shaft heel and arm constructed so as to secure and tighten the shafts and cross-bar, substantially as shown and described.

THEODORE D. DAVIS.

Witnesses:

BRADFORD KENNEDY,  
JOHN M. POTTER.