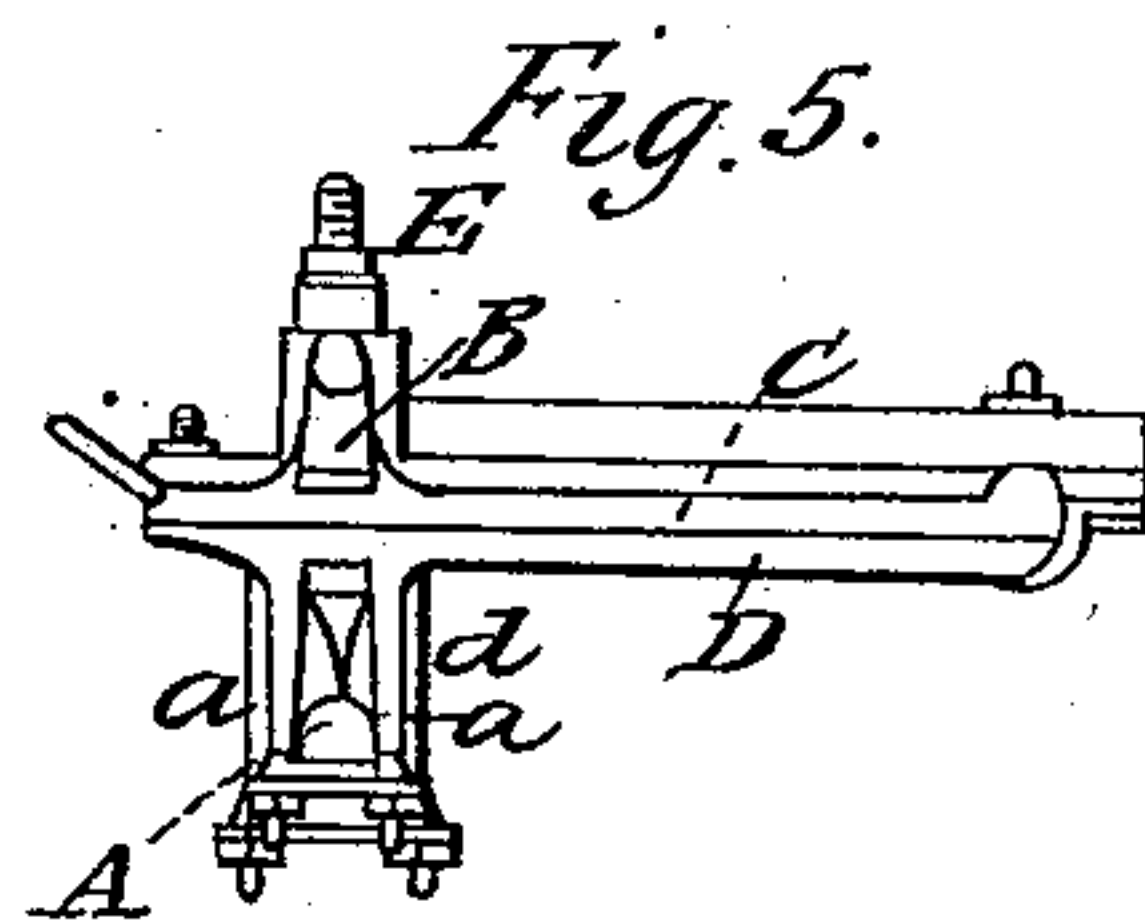
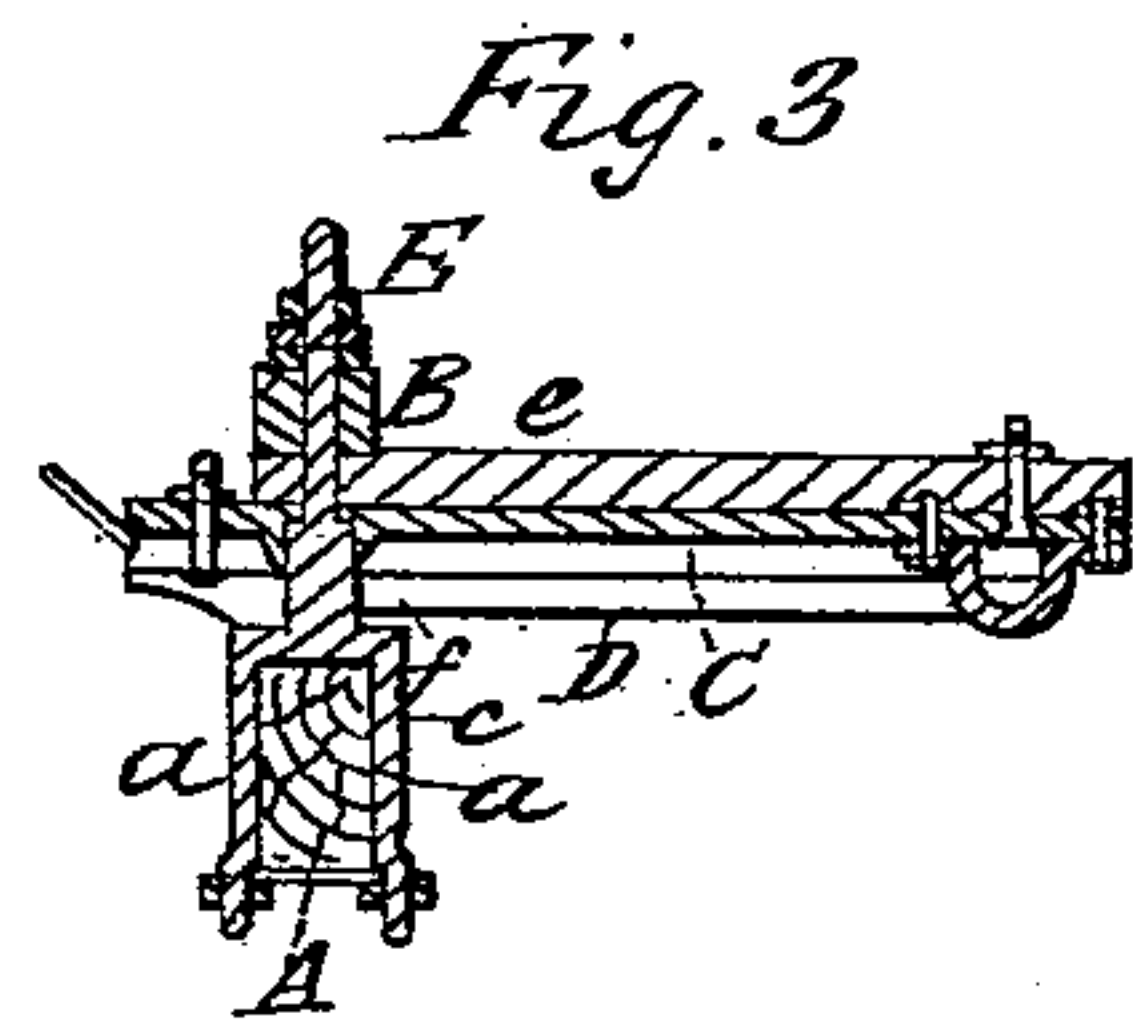
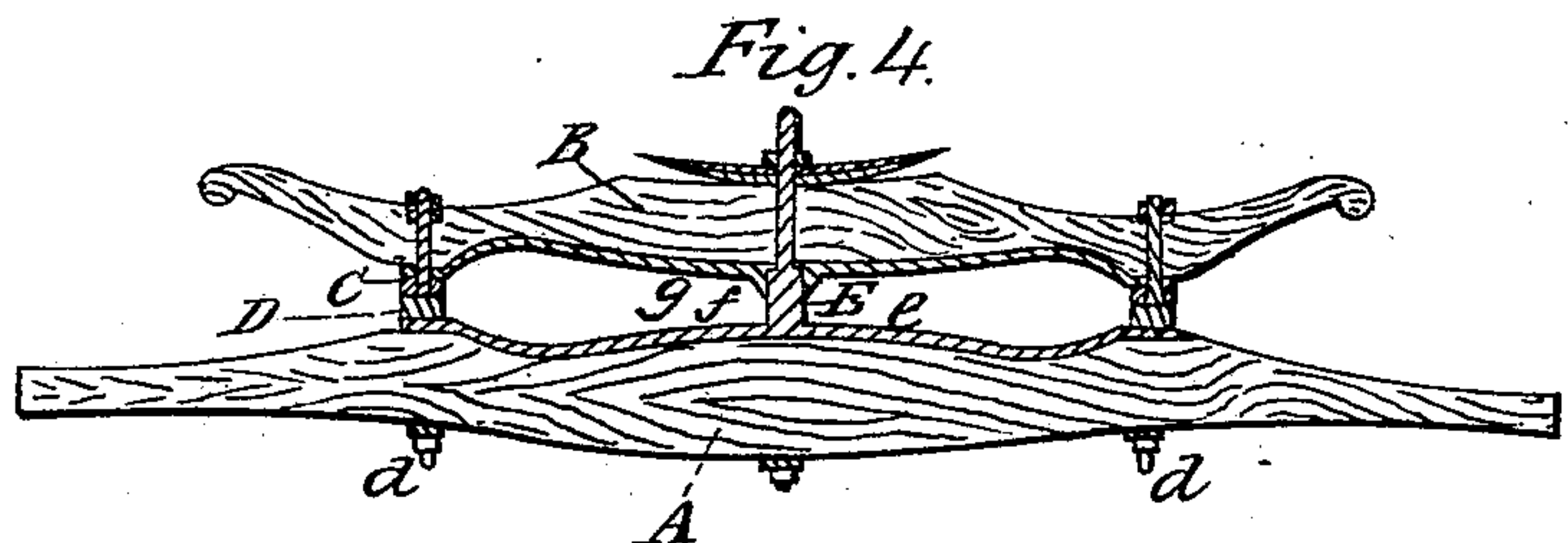
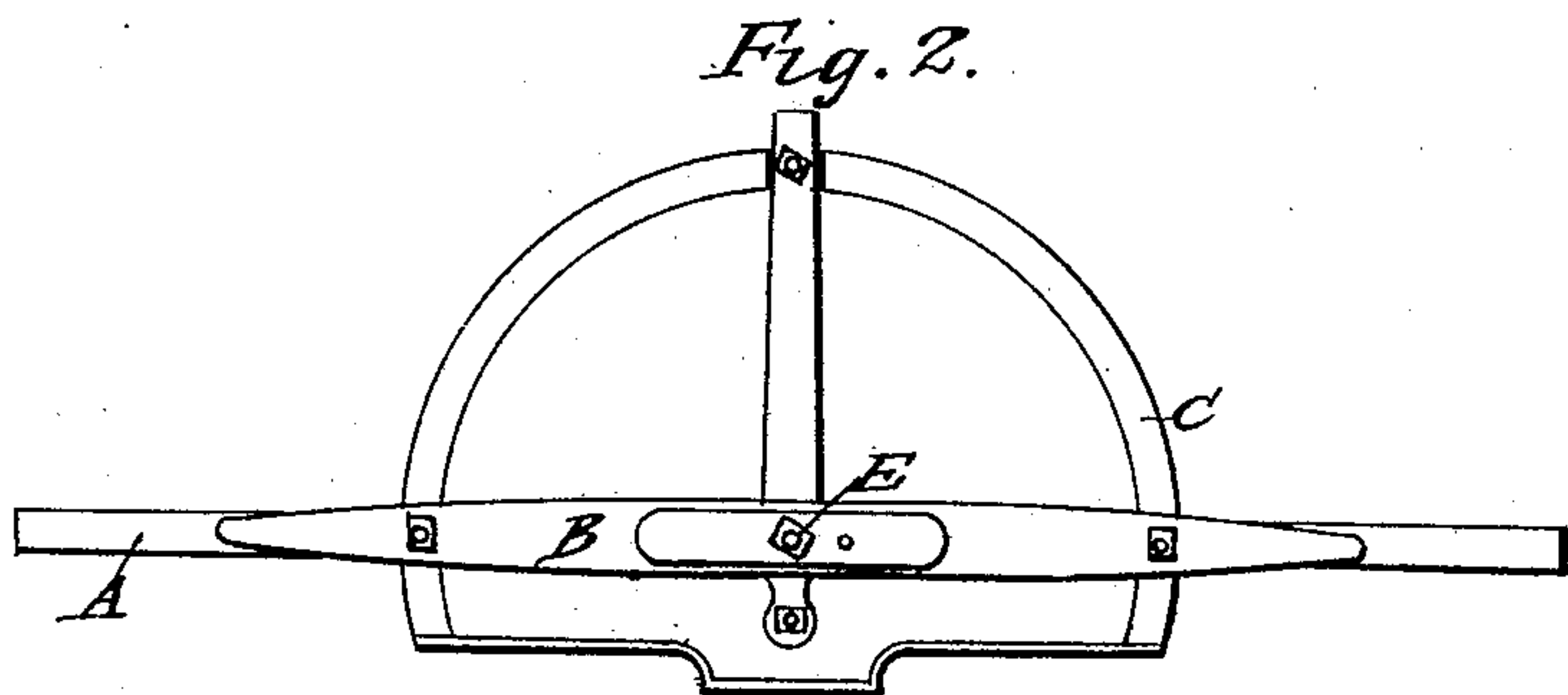
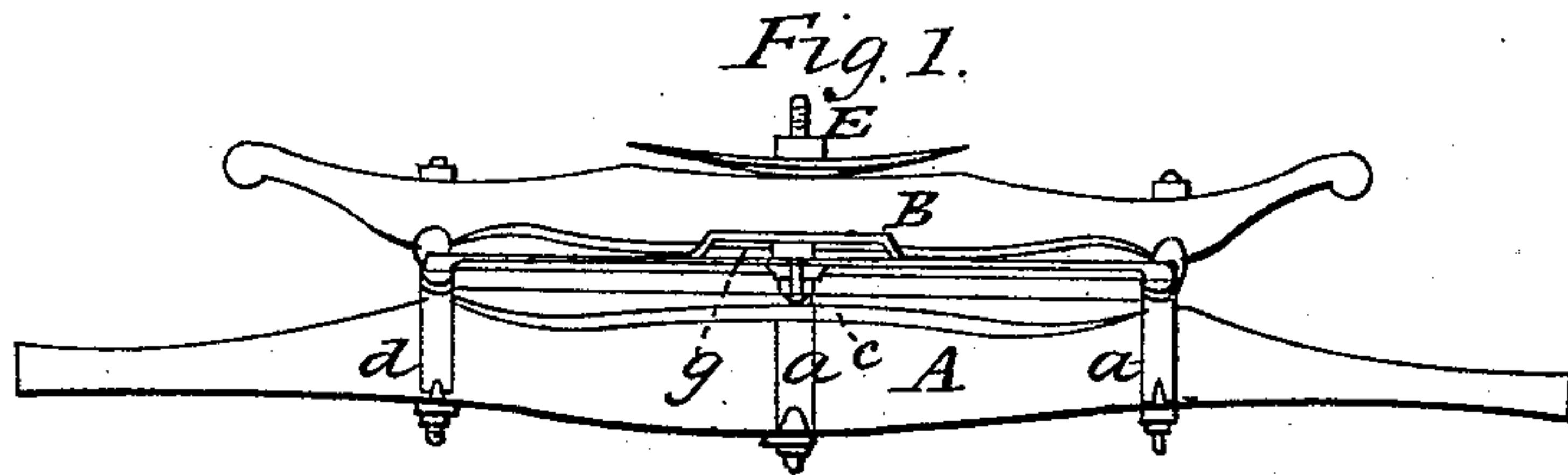


G. F. SMITH.  
Carriage Axle Coupling.

No. 81,115.

Patented Aug. 18, 1868.



Witnesses:  
S. N. Piper  
Lambert H. Miller

Inventor:  
George F. Smith,  
by his attorney.  
R. H. Eddy

# United States Patent Office.

GEORGE F. SMITH, OF PLANTSVILLE, CONNECTICUT.

*Letters Patent No. 81,115, dated August 18, 1868.*

## IMPROVEMENT IN CARRIAGE-AXLE COUPLING.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL PERSONS TO WHOM THESE PRESENTS MAY COME:

Be it known that I, GEORGE F. SMITH, of Plantsville, in the county of Hartford, and State of Connecticut, have invented an Improved Carriage-Axle Coupling; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a front elevation,

Figure 2 a top view,

Figure 3 a transverse section,

Figure 4 a longitudinal section, and

Figure 5 an end elevation of a carriage front axle and "fifth-wheel," or sweep, with my invention applied thereto.

In such drawings, A denotes the axle, and B the sweep-bar, arranged over such axle.

C is the upper, and D the lower bearing-parts of the sweep or "fifth-wheel," they being constructed and applied to the bar B and the axle A in the usual manner.

E is the king-bolt or journal, which extends upward from the axle and through the sweep-bar B.

The said king-bolt, the clips *a a*, and the bed-plate *c*, I form or join together, so as to be in one piece of metal, instead of forging the king-bolt separate from the bed-plate, and with clips to extend from it, and embrace the said plate and axle.

I also extend the ends of the bed-plate through the two pairs of sweep-clips, *d d*, which embrace the axle, and extend down from the lower curved bar of the sweep or "fifth-wheel."

I also form the king-bolt with a shoulder or cylindrical base, *e*, to extend up into a socket-piece or cup, *f*, extending from the upper bed-plate *g*, on which the sweep-bar B rests. The purpose of this cup and the cylinder *e* is to receive the direct strain of the draught, and relieve the king-bolt therefrom, and thus greatly protect the king-bolt, and render it very much less liable to breakage while in use.

The advantage of connecting the middle clips with the lower bed-plate, and the king-bolt with the latter, is that the plate keeps the clips and the king-bolt from working loose on the axle, especially when the bed-plate is extended through the other pairs of clips.

It is a well-known fact that the axle is subject to the greatest amount of strain in that which is the middle of it, or midway between the clips of the fifth-wheel, or where the weight of the carriage and its load more directly bears. In order to strengthen the axle at this point, carriage-makers have sometimes put a plate of iron near the middle of the axle, and fastened it thereto, by two or more bolts going through the axle. The holes necessary for the reception of these bolts weaken the axle, and thereby cause much of the advantage of the iron plate to be lost. Besides, the making of such holes is a matter of labor, and, when dispensed with, is a gain in such respects. When a king-bolt has been fastened to the middle clips alone, its continued motion and the strain on it cause the clips to wear into the sides of the axle, whereby the bolt is rendered loose, and thrown out of its normal position.

My improvement of fastening the king-bolt and the clips directly to, or welding or forming them in one piece with the king-bolt, not only obviates the necessity of bolt-holes through the axle, but, what is still more important, leaves the strength of the axle unimpaired, and supports the king-bolt to better advantage than by clips alone, extended from it. By keeping the king-bolt in its true position, its wear will be even on its surface, and thus it will last much longer.

I make no claim to a king-bolt, made with clips to extend from it and to embrace the axle. Nor do I claim a bed-plate separate from the king-bolt and its clips. Nor do I claim the mere extension of a bed-plate through the sweep-clips.

I claim the combination of the bed-plate *c*, with clips *a a* joined to it, so as to embrace the axle at its middle.

I also claim the bed-plate *c*, the king-bolt E, and the middle clips *a a*, as joined together in one piece.

I also claim the arrangement of the ends of the bed-plate within the clips *d d* of each pair of the sweep-clips, when such bed-plate, the middle clips, and the king-bolt are joined together in one piece, as set forth.

I also claim the king-bolt, its cylindrical cup-base, the bed-plate, and middle clips, as joined together and applied to the axle, as set forth.

GEORGE F. SMITH.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.