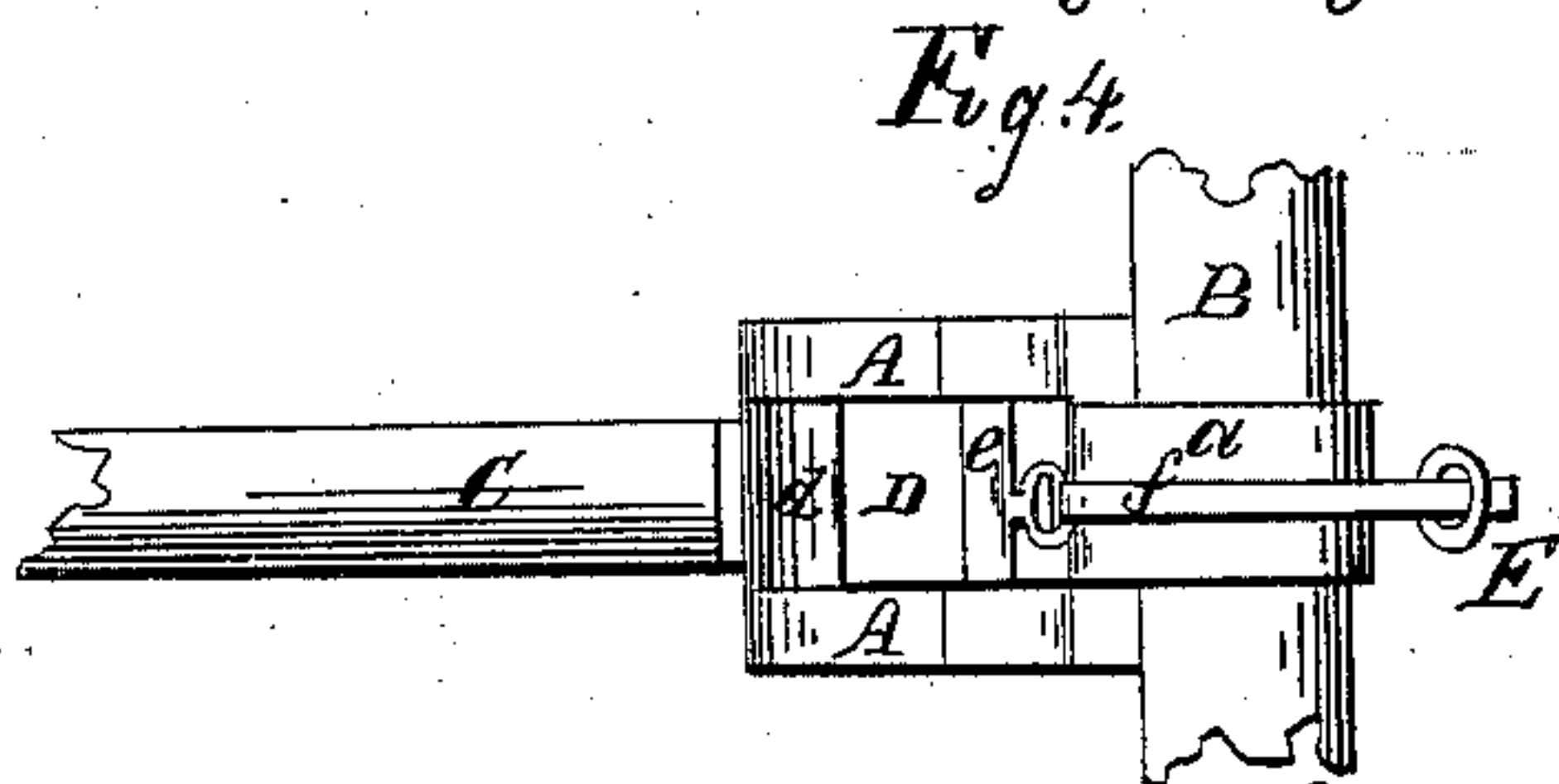
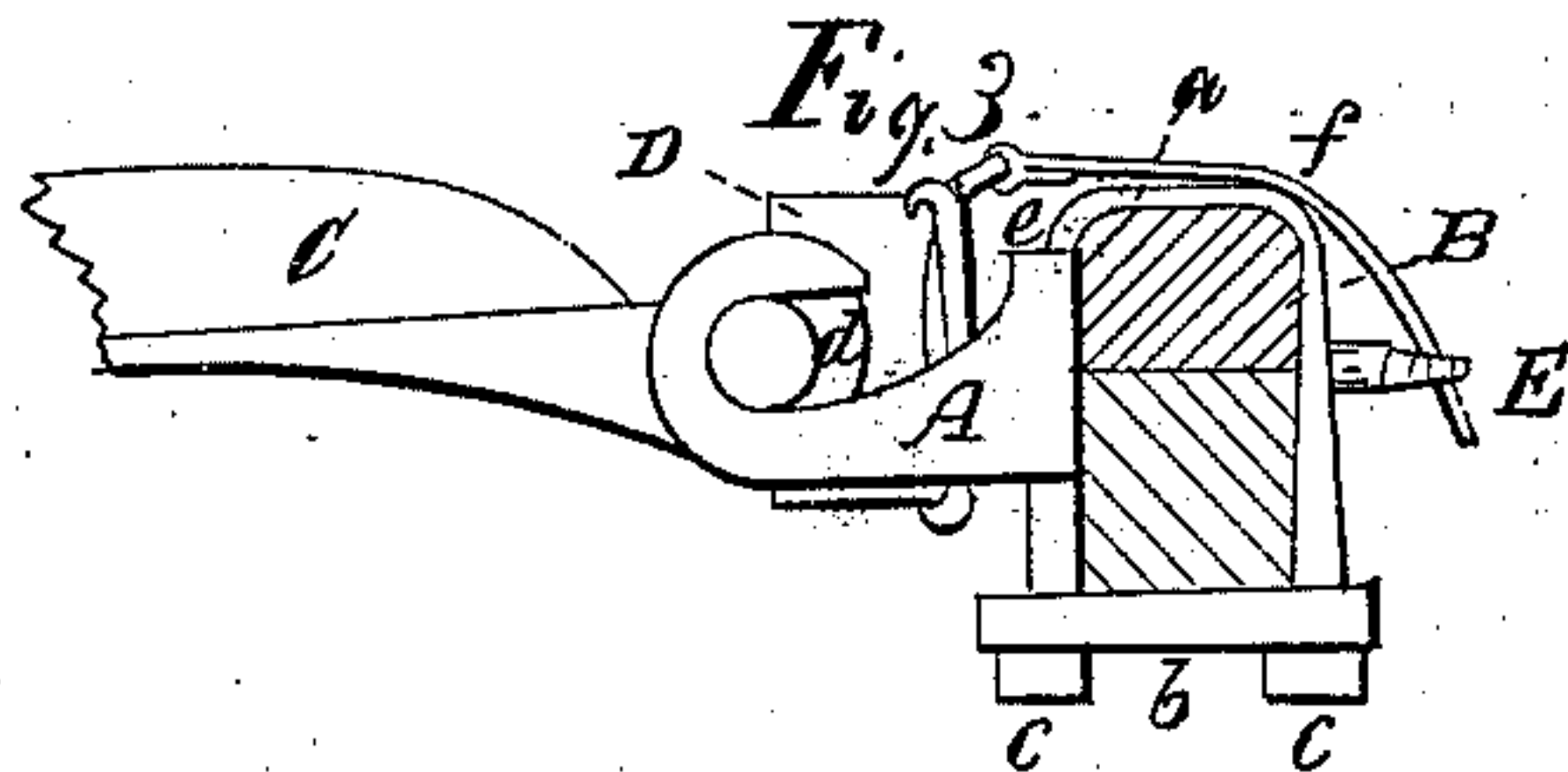
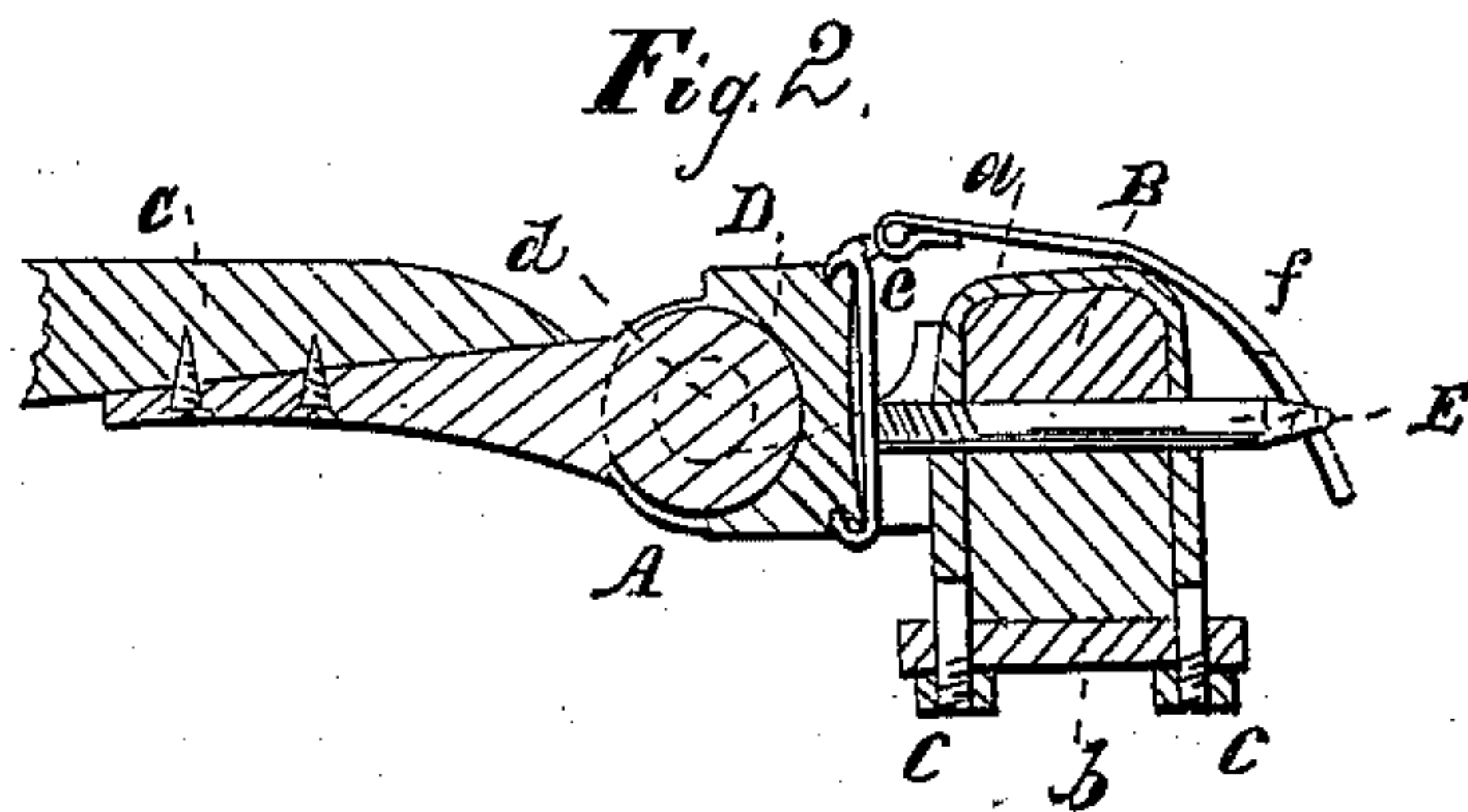
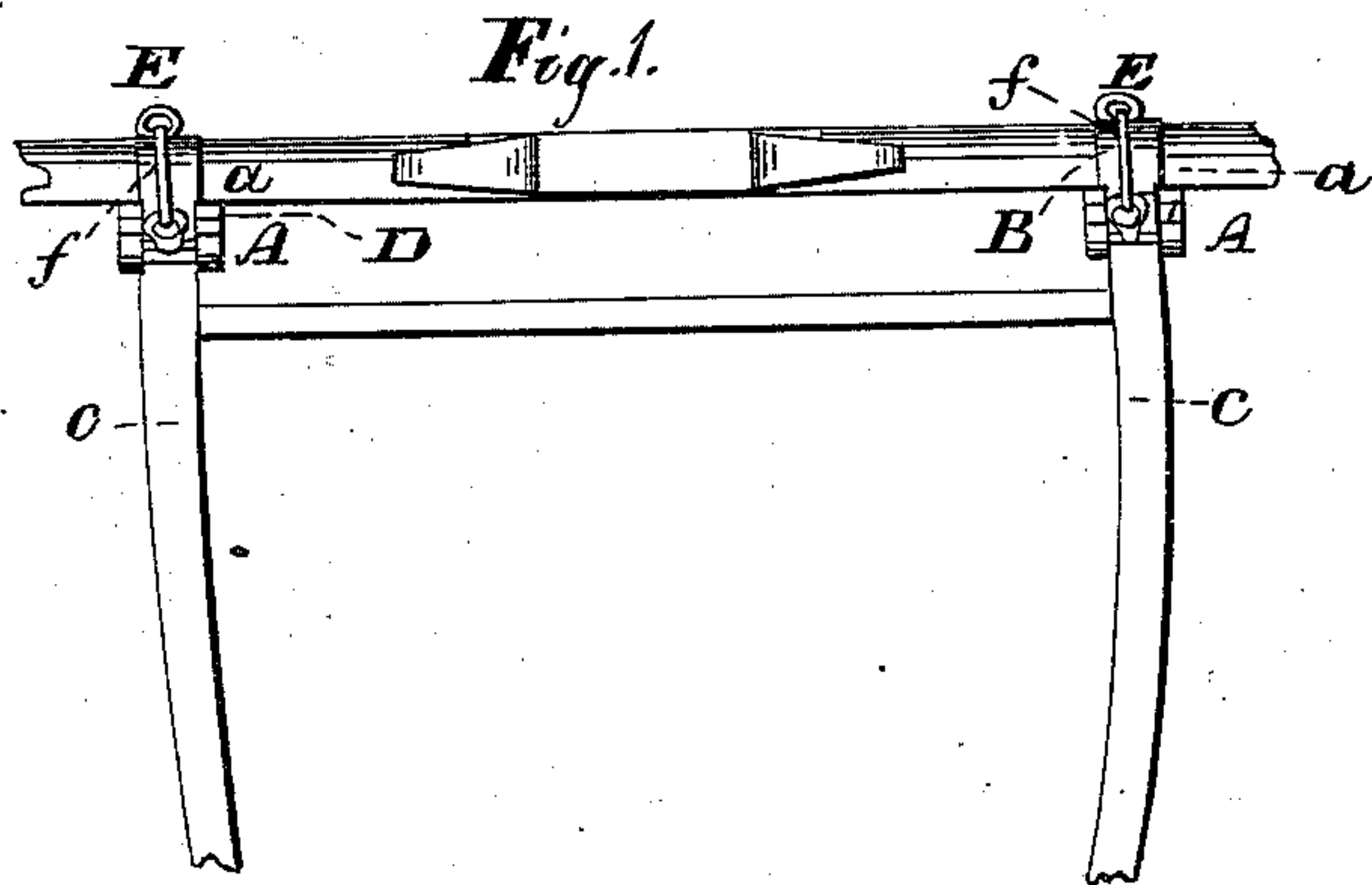


I. H. MULFORD.

Thill Coupling.

No. 80,759.

Patented Aug. 4, 1868.



Witnesses.
A. Keller
A. Kinsman

Inventor
I. H. Mulford
per Brown & Coombe
Atty.

United States Patent Office.

ICHABOD H. MULFORD, OF ORANGE, NEW JERSEY.

Letters Patent No. 80,759, dated August 4, 1868.

IMPROVED SHAFT-COUPLING FOR WAGONS.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ICHABOD H. MULFORD, of Orange, in the county of Essex, and State of New Jersey, have invented a new and useful Improvement in Shaft or Draught-Couplings for Wagons and other vehicles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a plan of a pair of wagon-shafts, with my improvement as applied thereto, for connection of the same with the axle or axle-bed.

Figure 2 is a longitudinal sectional elevation of the improved coupling as applied to a shaft and axle-bed.

Figure 3, a side view of the same, and

Figure 4 a plan thereof.

Similar letters of reference indicate corresponding parts.

My invention is not restricted to any one particular description of wagon or vehicle, but it will suffice here to identify it with express-wagons, as it is very advantageous in its application to such vehicles, and in which it is desirable to give to the shafts a firm but movable connection with or on the axle-bed, and to provide for the unhitching or removal of them. In previous arrangements of this character, there has been much rattling, little or no facility for adjustment, and much difficulty, owing to rusting and sticking, in taking the shafts out when required. My invention removes these objections, the same consisting in a combination of open or hook-shaped jaws, for reception and play in them of the shafts-irons, with a rubber block forming a backing or packing, and adjusting or tightening-screw to the latter, said screw also serving to admit of the detachment of the shafts without separately removing the shaft-pins forming the trunnions, which is ordinarily a tedious process, by reason of the rusting of said pins and their nuts used to secure them, said nuts here being dispensed with.

Referring to the accompanying drawing, A A represent the jaws, arranged at or near either end of the axle-bed B, and secured to the same and the axle by clips *a*, plates *b*, and nuts *c*. These jaws it is preferred to make of a hook-shape, so as to admit over and within them the pins or trunnions *d* of the shaft-irons, C being the shafts. Thus inserted or hung, the shafts are firmly held in position, with freedom, however, to play as a hinge, by India-rubber blocks, D, forming backings or packings, entering between the hooked jaws, and adjusted to their place, so as to press with more or less force on the shaft-irons *d* in their rear, by set-screws, E, adjustable from the rear of the axle-bed, and passing through the same, and through female screws in the clips *a*, and acting against the backs of the plates *c* fitting over and carrying the elastic blocks D. Connected with the plates *c* are, or may be, leather straps *f*, the back or free ends of which may be slipped through slots in the heads of the screws E, to keep the latter from turning when set.

By this construction of shaft-coupling all rattle is avoided, wear readily provided for, by adjustment or tightening up of the screws, and every convenience afforded, by slacking said screws, for taking out the shafts as required.

When single and double whiffle-trees, with a pole or tongue, are used, instead of thills, the coupling is formed with a ball-and-socket joint instead of trunnions, and backed in the same manner with a rubber block, supported on the set-screw, in which manner the invention may be applied to connect the single with the double-tree in place of the thills with the axle-bed.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The arrangement and combination of the set-screw E, passing through the clip *a* and axle-bed B, with the rubber carrying-plate *c*, substantially as shown and described.

2. The rubber supporting-plate *c*, or its equivalent, in combination with the hook-shaped jaws A, when so applied as to be capable of removal for detachment of the thill or whiffle-tree without detachment of screws or nuts, substantially as set forth.

3. A thill or whiffle-tree coupling, so constructed that by the operation of a set-screw alone, on an intermediate block, the thills may be secured to the axle or detached therefrom, substantially as shown and described.

ICHABOD H. MULFORD.

Witnesses:

A. LE CLERC,

A. KINNIER.