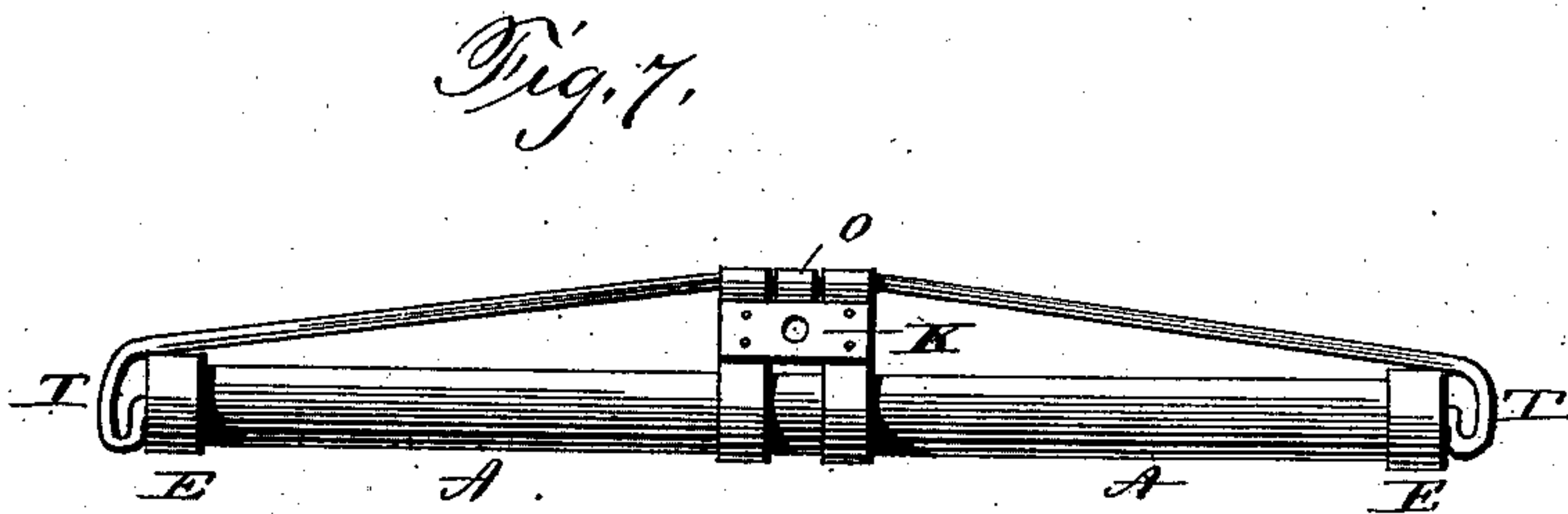
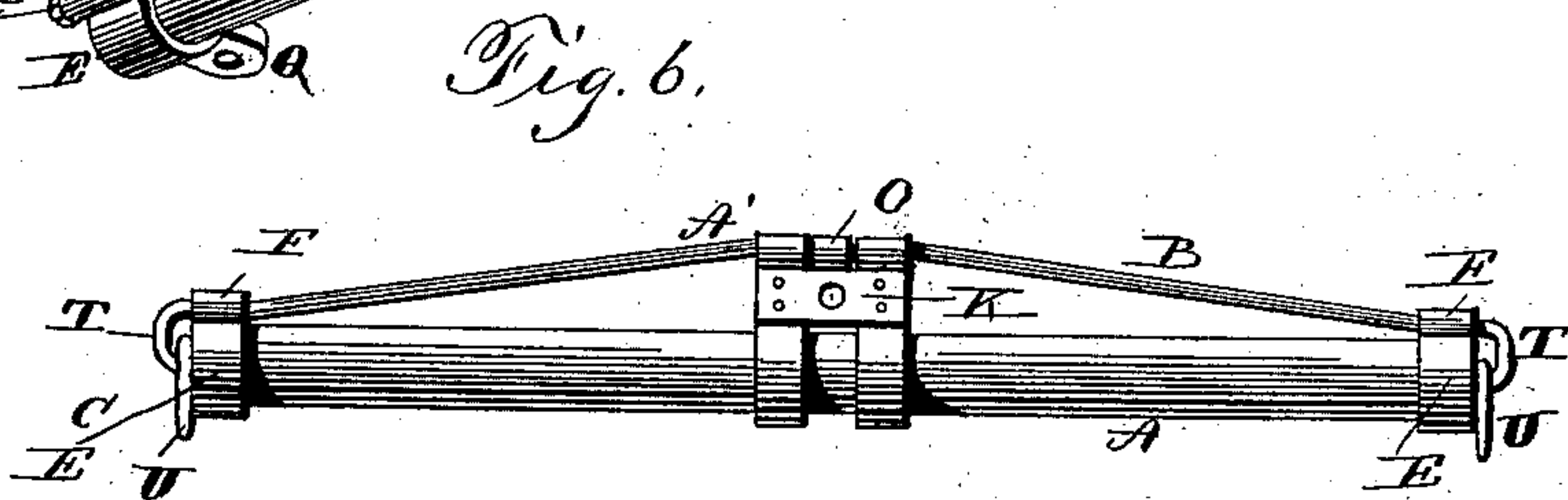
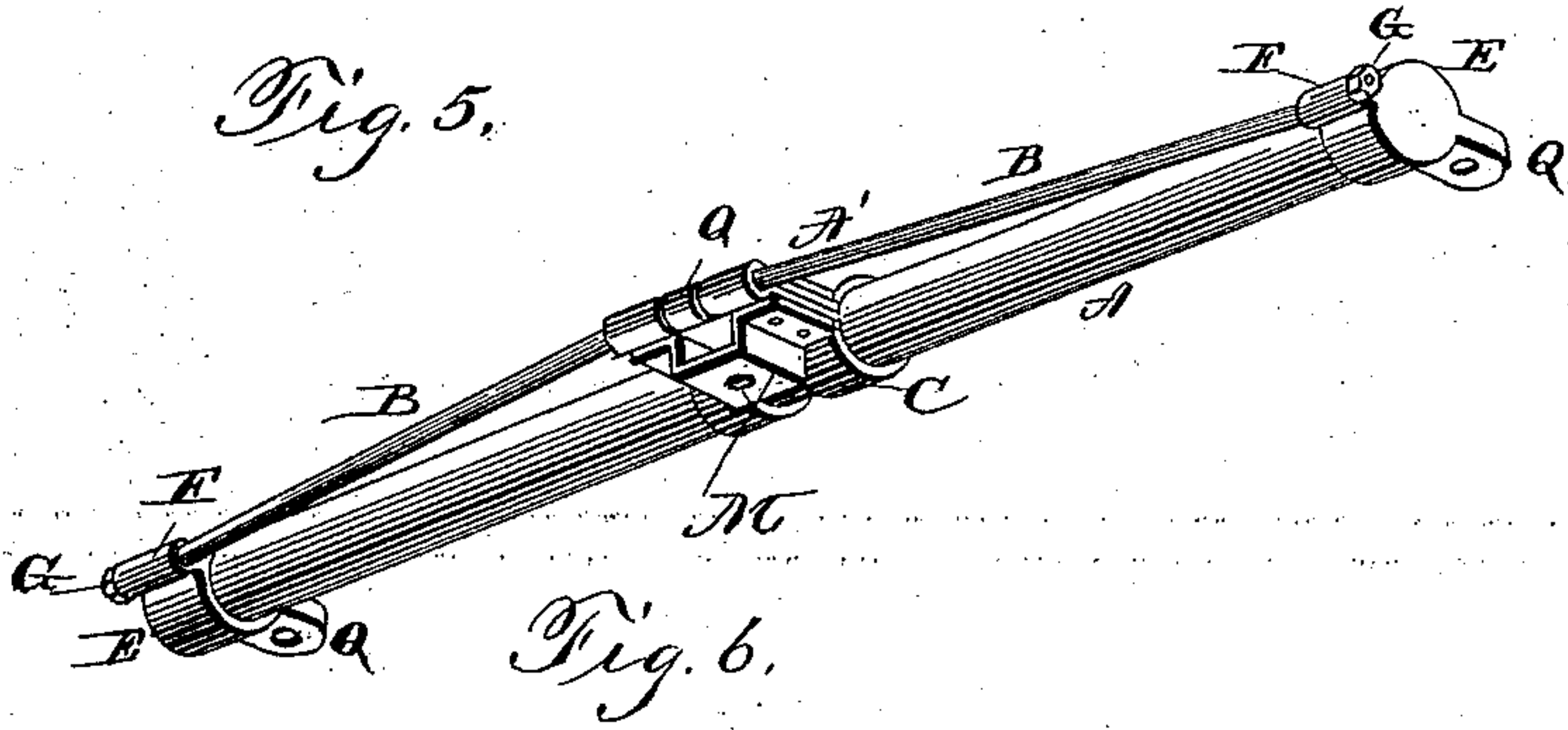
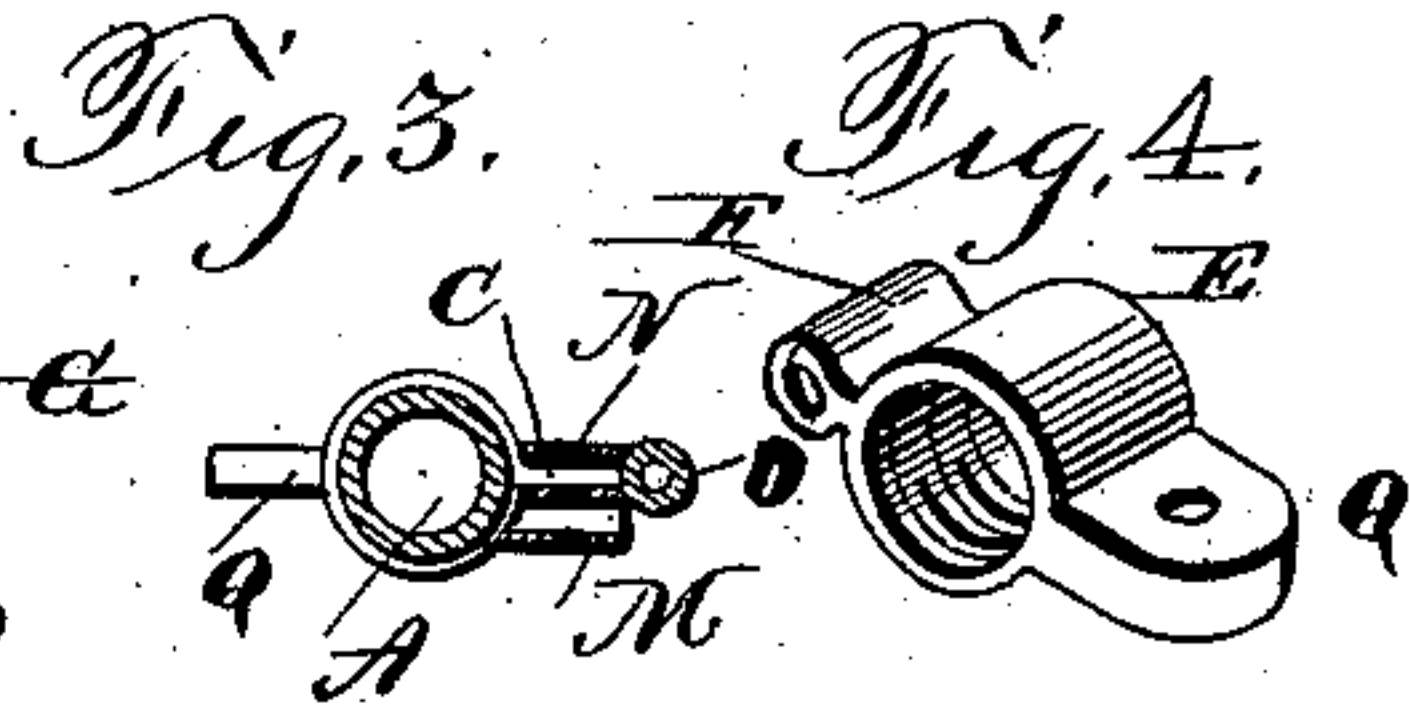
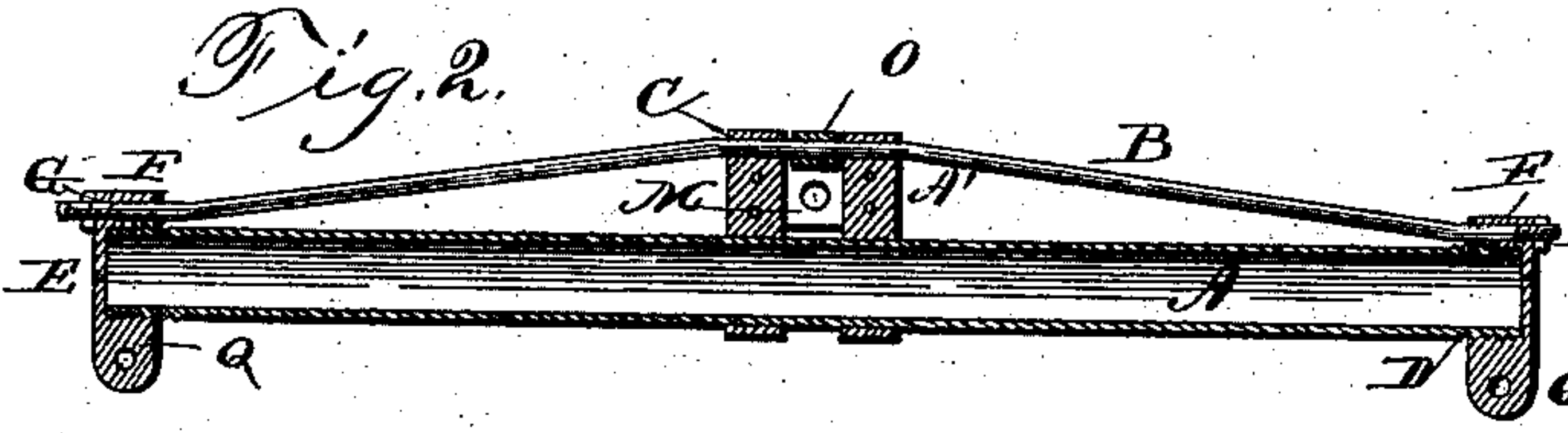
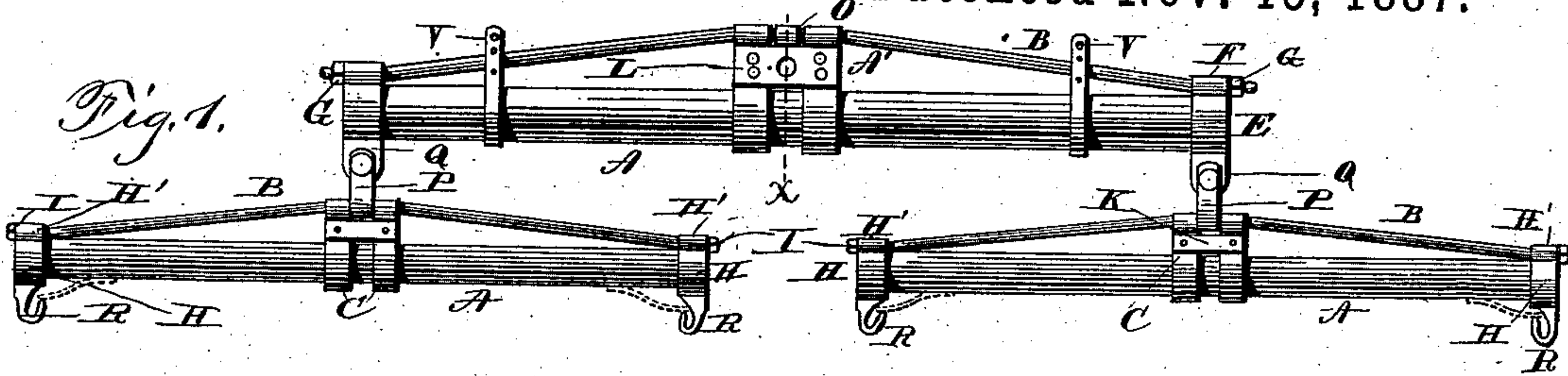


(No Model.)

J. F. BALES.
WHIFFLETREE.

No. 373,328.

Patented Nov. 15, 1887.



Witnesses
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UNITED STATES PATENT OFFICE.

JOEL F. BALES, OF WINCHESTER, INDIANA, ASSIGNOR OF ONE-HALF TO
JONATHAN S. HIATT, OF SAME PLACE.

WHIFFLETREE.

SPECIFICATION forming part of Letters Patent No. 373,328, dated November 15, 1887.

Application filed September 9, 1887. Serial No. 249,213. (No model.)

To all whom it may concern:

Be it known that I, JOEL F. BALES, a citizen of the United States, and a resident of Winchester, in the county of Randolph and State of Indiana, have invented certain new and useful Improvements in Whiffletrees; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of a doubletree and singletrees constructed according to my invention. Fig. 2 is a longitudinal horizontal central sectional view of the doubletree. Fig. 3 is a vertical transverse sectional view of the doubletree, taken on line *xx* of Fig. 1. Fig. 4 is a detail view of one of the end screw caps. Fig. 5 is a perspective view of the doubletree, taken from the under side thereof; and Figs. 6 and 7 are detail views of modifications of my invention.

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

My invention consists in certain new and useful improvements in whiffletrees, which will be hereinafter fully described and claimed.

Referring to the several parts by letter, the body or main part of my improved double and single trees consists of a tubular metallic body, A, which may be constructed of brass tubing, of gas-pipe, or of any other suitable tubular body, this tubular body A being of course of any desired length and diameter. The tubular body A of the tree is strengthened and braced by a brace-rod, B, the outwardly-curved central portion, A', of which is connected to the central part of the body A by two parallel brace-bands, which brace both the rod B and the middle part of the tubular body A.

The ends of the tubular body A of the doubletree may be formed with an exterior screw-thread, D, and on these threaded ends are screwed the end caps E E, which are formed with an interior screw-thread to adapt them to be screwed on the ends of the tubular body; or, instead of the threaded ends of the tube and the interiorly-threaded caps, the said caps

may be shrunk on the ends of the tubular body, as will be readily understood. The lower ends of these end caps are formed with the eyes F, through which, when the caps have been secured upon the ends of the tubular body A, the ends of the brace-rod pass, and the outer ends of the brace-rod are threaded, and a nut, G, is screwed on the said ends on the outer sides of the eyes F to secure the ends of the brace-rod firmly in the said eyes. The singletrees are likewise provided with brace-rods B B, as before stated, the central outwardly-curved portions of which are secured and braced to the central part of the singletree-body by the parallel brace-bands C, while on the ends of the singletrees are secured end caps H, which may be formed with an interior screw-thread to adapt them to screw on the threaded ends of the said singletrees, or may be shrunk on the said ends in the same manner as the end caps of the doubletree. The lower ends of these end caps are formed with eyes H', through which the ends of the brace-rods pass, and the said ends are threaded to receive on their outer extremities nuts I I, which hold the said ends in position.

The brace-bands C on both the doubletree and singletrees encircle both the tubular body of the respective trees and also the brace-rod, and the brace-bands are held at the same distance apart and parallel to each other by a cross bar or piece, K, the ends of which are riveted or otherwise firmly secured to the parallel brace-bands between the tubular body A and the brace-rod B, as shown. The parallel brace-bands are thus held apart at the distance on the singletrees by the brace-plates K, while the brace-bands of the doubletree have riveted or bolted to them the ends of a flat plate, L, which extends above them, and the ends of a bearing-plate, M, which extends below them, as clearly shown in Figs. 3 and 5 of the drawings, these plates bracing the bands C at the requisite space apart, while the lower plate is bent downwardly, so that its lower central flat face is flush with the lower side of the doubletree or may extend slightly below the same, the object of this construction being that when the doubletree is secured upon the tongue of a wagon by means of a suitable king-bolt passing through the registering central holes,

NN, in the plates L and M this downwardly-bent lower plate will raise the doubletree clear above the tongue, so that it can turn readily on the king-bolt.

5 On or around the central part of each of the brace-rods on the doubletree and singletrees is secured a small metal band-sleeve or thimble, O, which fits so tightly on the brace-rod that it will not turn on the same, the thimble
10 or sleeve on the center of the brace-rod of the doubletree, (the said thimbles or sleeves being arranged on the centers of the brace-rods between the rear ends of the parallel brace-bands C, as shown,) around which the clevis of a plow
15 or the like fits, preventing the clevis from wearing the brace-rod, which would otherwise be the case, and when the sleeve or thimble itself becomes worn it can be easily replaced by a new one at a very slight expense. The
20 thimbles or sleeves on the central part of the singletrees likewise prevent the middle portions of those brace-rods from being worn by the clips P P, which extend around the same or which are pivotally secured at the ends to
25 the forwardly-extending perforated lugs Q on the forward sides of the end caps of the doubletree, as shown.

The forward ends or sides of the end caps of the singletrees are formed with the inwardly-
30 extending hooks R R, on which the inner ends of the tugs or traces are hooked.

Instead of the ends of the brace-rods being threaded and secured by the nuts, they may be welded to the ends of the tubular bodies A,
35 as will be readily understood; or they may be curved, as shown in the detail view Fig. 6 of the drawings, so that after passing through the eyes on the rear side of the end caps their extremities will enter and pass through central
40 apertures in the ends of the caps themselves, as clearly shown in the said view, in which construction the curved ends of the brace-rods will form loops at T, on which the hooks U for the inner ends of the traces may be hooked
45 or hinged; or the ends of the brace-rods may be curved around and forward without passing through an eye of the end caps and then curved backward, so that their extremities will enter apertures in the ends of the end caps,
50 as shown in the detail view Fig. 7 of the drawings.

The ends of the brace-rods might be secured to the ends of the tubular bodies A by means of clips and nuts, as will be readily under-
55 stood.

Toward the ends of the doubletree are secured by bolts or rivets around both the doubletree and its brace-rod the double clips or devices V V, to the rear apertured ends of
60 which the forward ends of the stay-chains are secured.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages
65 of my invention will be readily understood.

It will be seen that the whiffletrees thus formed are exceedingly light and strong in construction and exceedingly efficient and durable in operation. They are light to handle in operation and will outwear any number of wooden
70 whiffletrees. The ends of the brace-rods can be secured to the ends of the tubular bodies in any strong and substantial manner.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of
75 the United States, is—

1. The combination of the tubular metallic body, the brace-rod curved outwardly at its center and secured at its ends to the ends of the tubular body, the parallel brace-bands and
80 their connecting brace-plates, and the sleeve or thimble fitted on the central part of the brace-rod between the said brace-bands, substantially as and for the purpose set forth.

2. The doubletree formed of the tubular
85 metallic body, the brace-rod curved outwardly at its center, the brace-bands, and the flat upper plate and downwardly-bent lower plate secured at their ends to the said brace-bands, substantially as set forth. 90

3. The doubletree formed of the tubular metallic body, the brace-rod curved outwardly at its center and secured at its ends to the ends of the tubular body, the brace-bands, the flat upper plate and the downwardly-bent lower
95 plate secured at their ends to the said brace-bands and having the central apertures, and the double clips having the apertured rear ends, substantially as and for the purpose set forth. 100

4. The combination, with the doubletree formed with the tubular metallic body, the end caps having the eyes at their rear sides and the perforated lugs at their forward sides, the brace-rod curved outwardly at its center
105 and secured at its ends in the eyes of the end caps to the ends of the tubular body, the brace-bands, the flat upper plate and the lower downwardly-bent plate, the sleeve or thimble on the center of the said brace-rod, and the double clips
110 having the apertured rear ends, of the singletrees formed with the tubular metallic bodies, the end caps having the eyes at their rear sides and the hooks at their forward sides, the brace-rods curved outwardly at their cen-
115 tral portions and secured at their ends in the eyes of the respective end caps, the parallel brace-bands with their brace-plates, the sleeves or thimbles on the centers or middle portions of the said brace-rods, and the connecting-
120 clips, all substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOEL F. BALES.

Witnesses:

EMERSON MCGRIFF,
CHAS. F. KEENER.