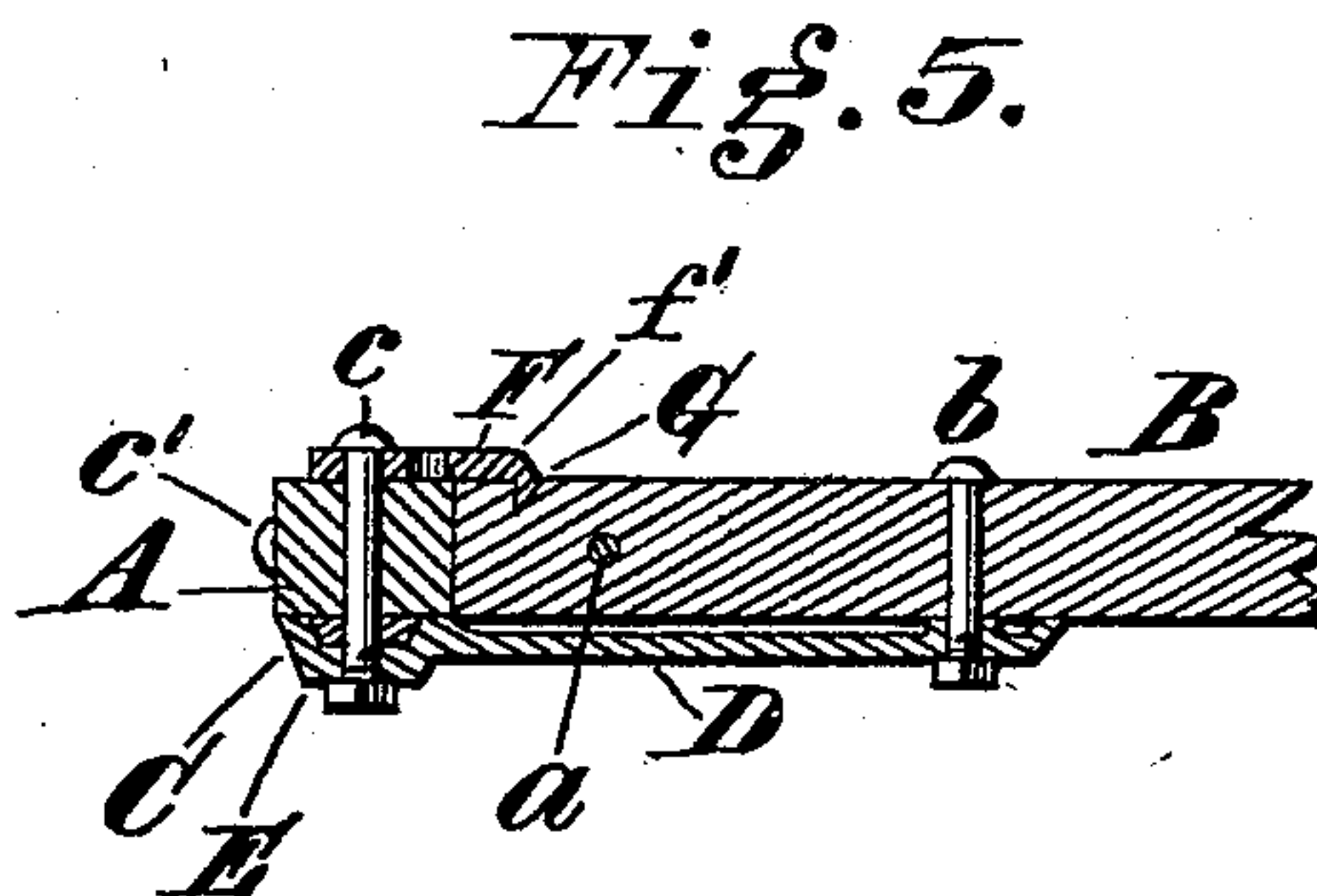
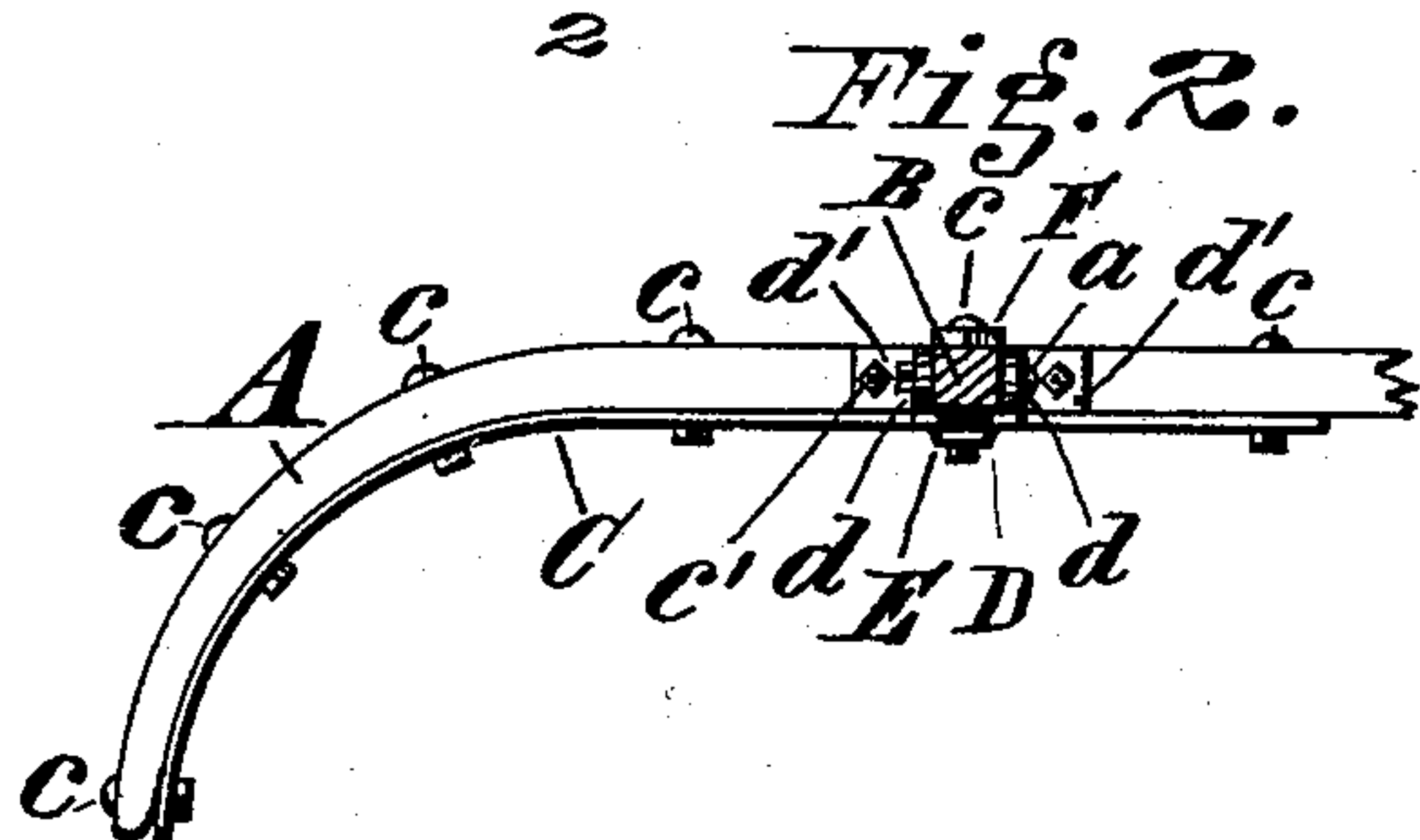
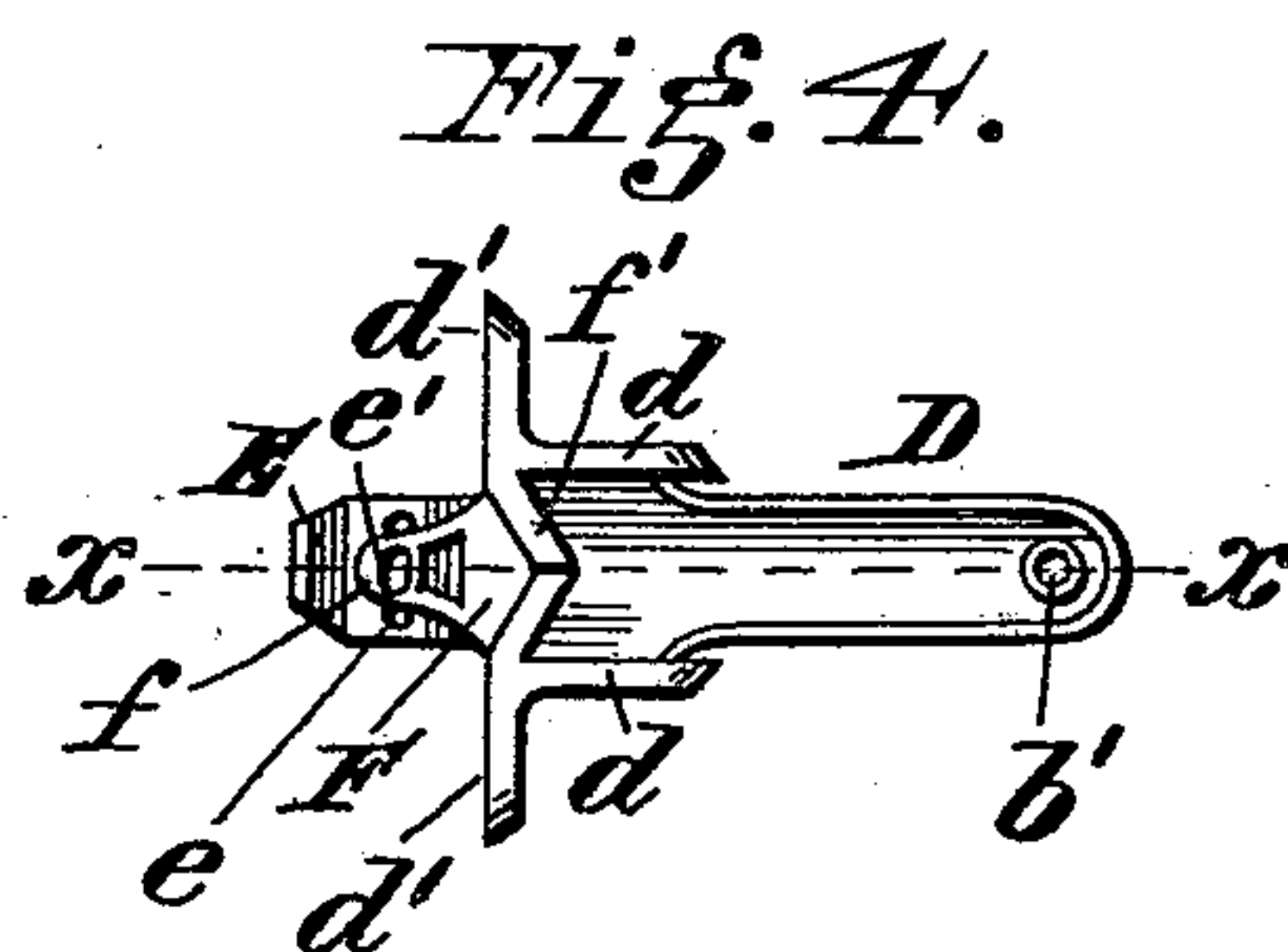
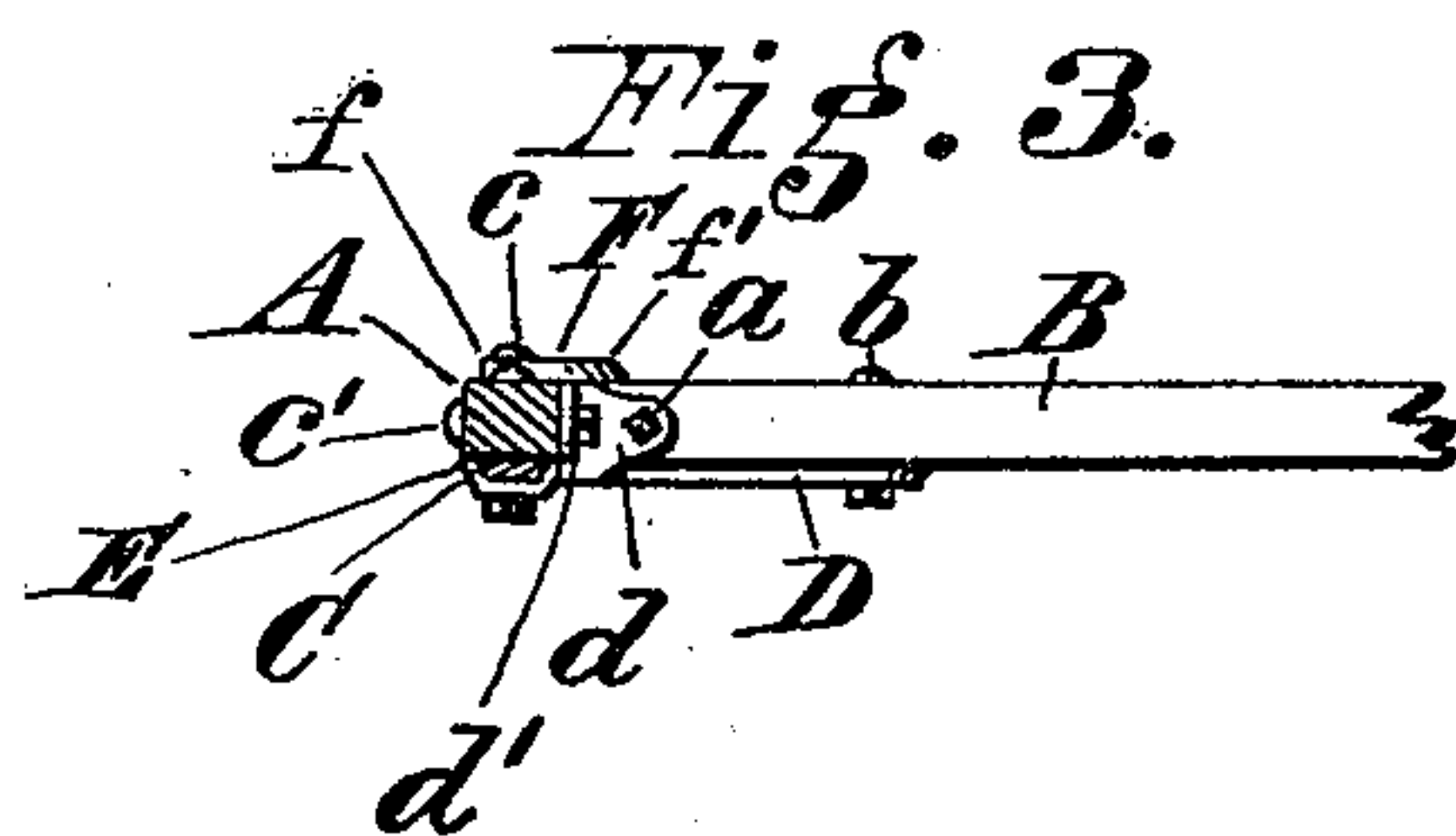
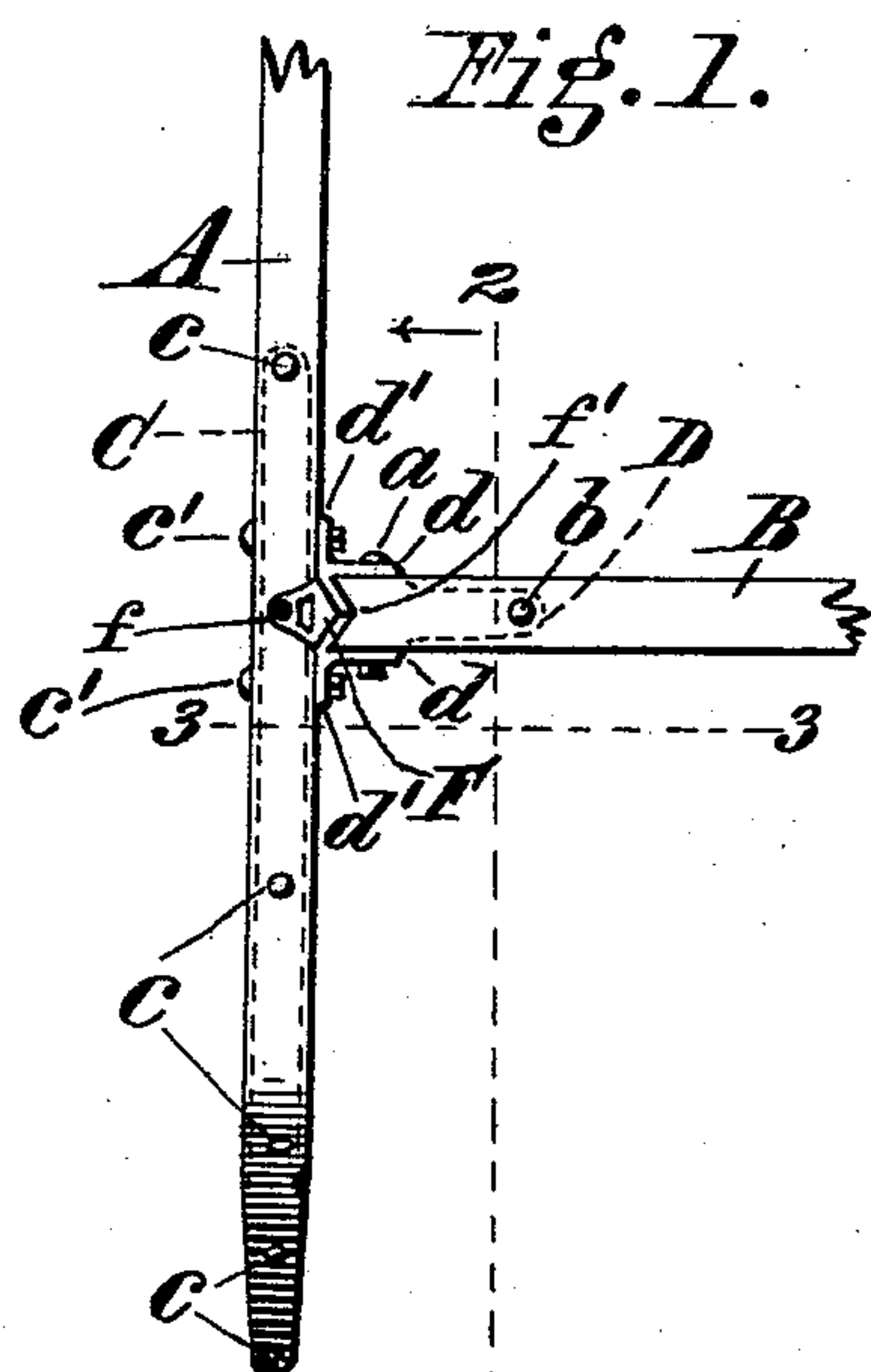


(No Model.)

A. FRIEDMANN, Jr.
VEHICLE SHAFTS.

No. 500,283.

Patented June 27, 1893.



Attest

William Schuchardt
A. J. Appling

Inventor
Anton Friedmann Jr.
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UNITED STATES PATENT OFFICE.

ANTON FRIEDMANN, JR., OF CINCINNATI, OHIO.

VEHICLE-SHAFT.

SPECIFICATION forming part of Letters Patent No. 500,283, dated June 27, 1893.

Application filed November 12, 1892. Serial No. 451,814. (No model.)

To all whom it may concern:

Be it known that I, ANTON FRIEDMANN, JR., a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Vehicle-Shafts, of which the following is a specification.

My invention relates to an improvement in vehicle-shafts, or, more particularly speaking, to an improvement in the means for properly uniting the opposite ends of the whiffle-tree supporting cross-bar with the shafts or thills, all of which will be fully hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a broken plan of the rear portion of one side of an ordinary vehicle shaft with my invention applied thereto. Fig. 2 is a view taken on line 2—2 of Fig. 1. Fig. 3 is a transverse sectional elevation taken on line 3—3 of Fig. 1. Fig. 4 is a plan view showing my invention (about one-third the usual size), and omitting the shafts and cross-bar; Fig. 5, a central cross-section on line x, x , of Fig. 4, with the shaft and cross-bar therein, showing fully how the joint between said shaft and cross-bar is completed.

A is one of two ordinary shafts or thills connected near their inner or rear ends by means of the usual cross-bar B, the latter forming the whiffle-tree support, as customary.

C, represents one of the usual reinforcing bars or straps secured by bolts c along the bottom of the downwardly-curved rear ends of said shafts, commencing at a point slightly in advance of said cross-bar, and ending in an eye (not necessarily shown) for the thill-coupling, at the inner ends of said shafts.

D represents a plate or bar having at one end, projecting upwardly from both sides, a pair of short cheeks d, d , each of the latter having lateral lugs or ears d', d' . The end of said bottom-plate containing said upright cheeks forms a box having its fore, rear and top open for the insertion and seating of the end of the cross-bar B, a horizontal cross-bolt a being passed through the cheeks and cross-bar, to firmly hold said end of the latter in place within said open box.

b is a vertical bolt passed downward through the cross-bar and hole b' in the plate D for

properly securing the inner end of said plate.

The outer face of the end of the cross-bar abuts the inner face of the shaft, and a close-fitting and firm butt joint is thereby provided at both ends of the cross-bar, suitable horizontal bolts c', c' , being passed transversely through holes in the shaft and said ears d', d' to securely unite the parts, and strongly complete the junction of the ends of the cross-bar and both shafts. It will be seen that the inner faces of the lugs and ends of the cross-bar, which lie contiguous to or in contact with the inner face of the shaft, take the same taper as the shafts, viz: the two thills incline or tend toward each other at their outer ends, being farthest apart at their rear ends, as usual, and the ends of the cross-bar are made to suit the said incline or taper, thus bringing the construction of said lugs at a corresponding angle to the cheeks d, d , or slightly less than a right-angle. In the preferred form of device (seen to the left in Figs. 1 and 4, and separately in Figs. 3, 5 and 6,) in addition to said plate D having the cheeks d, d , and lugs d', d' , I construct an extension E on the plate D, to project outwardly under the bottom of the shaft, and a bridge-piece F having an outward extension f , and a short inward extension f' , said bridge-piece being constructed integral with, and connecting the two cheeks d, d , at their upper inner corners, as best seen in Fig. 5. The under or lower extension E is concaved to conform to the said strap or reinforce C, over which it laps, and holes or openings e and e' , in the same vertical line, are made in the said lower extension E and said upper extension, f , respectively, and in the shaft for the insertion of the securing-bolt c , the latter being made a trifle longer than usual, to accommodate the extra thickness occasioned by the presence of extension E. A spur or pendent sharp-lip G, is preferably provided at the inner end of said extension f' , which is properly sunk into the substance of the cross-bar for further augmenting the strength of the joint.

The bridge-piece F not only strengthens the device, but furnishes a suitable cover to hide the joint where the end of the cross-bar and shaft abut, which is quite neat, and the whole may be made very ornamental by beveling and

polishing. The plate D is both lightened and strengthened by countersinking its inner face, as clearly shown in Figs. 5, 6, 7, and 8.

I claim—

5 1. In a vehicle shaft, the combination, with a shaft, of the cross bar having its end abutting flat against the side thereof, a plate secured to the under side of the shaft and cross bar, and provided near its outer end with up-
10 right side cheeks and lateral ears for engaging with the cross bar and shaft respectively, said side cheeks being provided with or joined together by a bridge piece formed integral therewith, said bridge piece overlapping the
15 joint between the shaft and cross bar, substantially as set forth.

2. In a vehicle shaft, the combination, with the shaft and the cross bar, of the thill iron secured to the under side of the shaft, a plate
20 secured to the under side of the shaft and bar,

the outer end of which plate is extended and concaved to fit over the thill iron, said plate being countersunk upon its inner face and provided near its outer end with upright side cheeks and lateral ears, for engaging with the
25 cross bar and shaft respectively, and said side cheeks being provided with, or joined together by a bridge piece formed integral therewith, said bridge overlapping the joint between the shaft and the bar and being pro-
30 vided with an extension which projects over the shaft, and a bolt through the extensions of the plate, the bridge piece and the shaft and thill iron, substantially as set forth.

In testimony of which invention I have
35 hereunto set my hand.

ANTON FRIEDMANN, JR.

Witnesses:

JOHN E. JONES,
L. M. JONES.