

(No Model.)

2 Sheets—Sheet 1.

C. C. BRADLEY.  
REACH COUPLING FOR VEHICLES.

No. 412,872.

Patented Oct. 15, 1889.

Fig. 1.

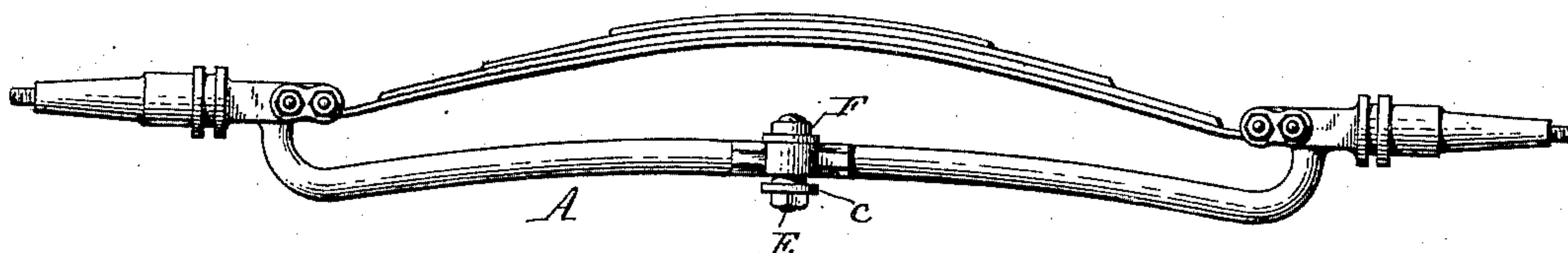


Fig. 2.

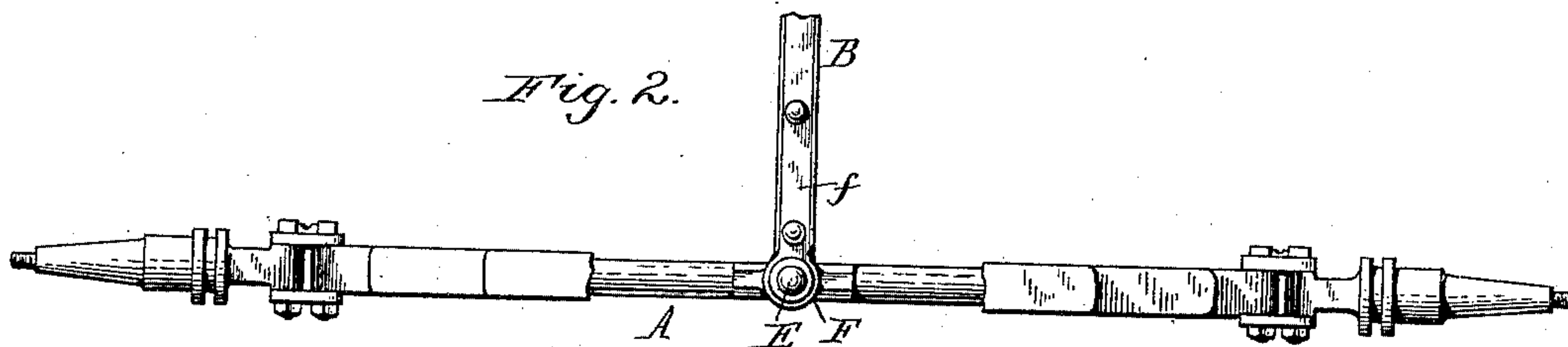


Fig. 3.

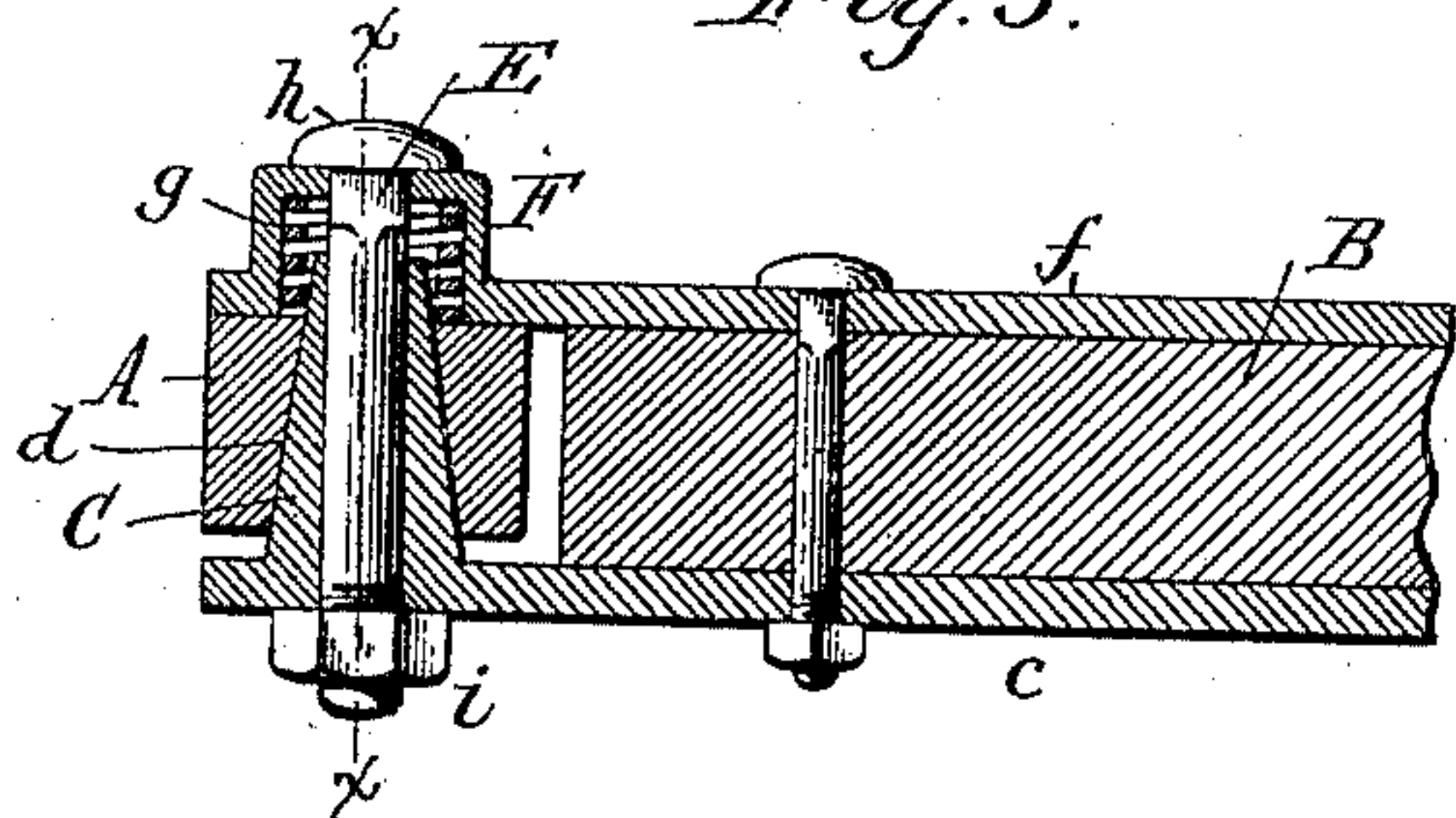


Fig. 4.

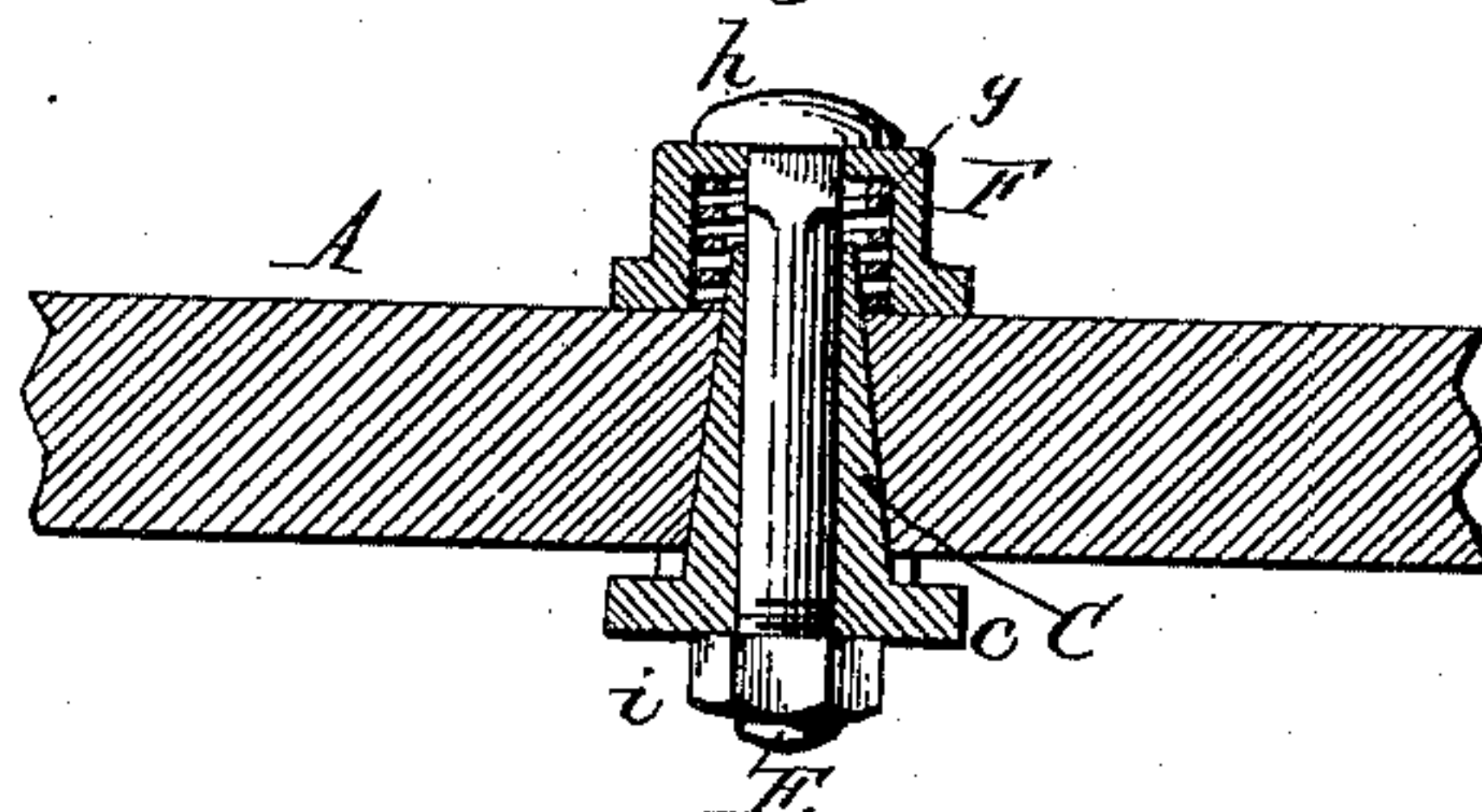


Fig. 5.

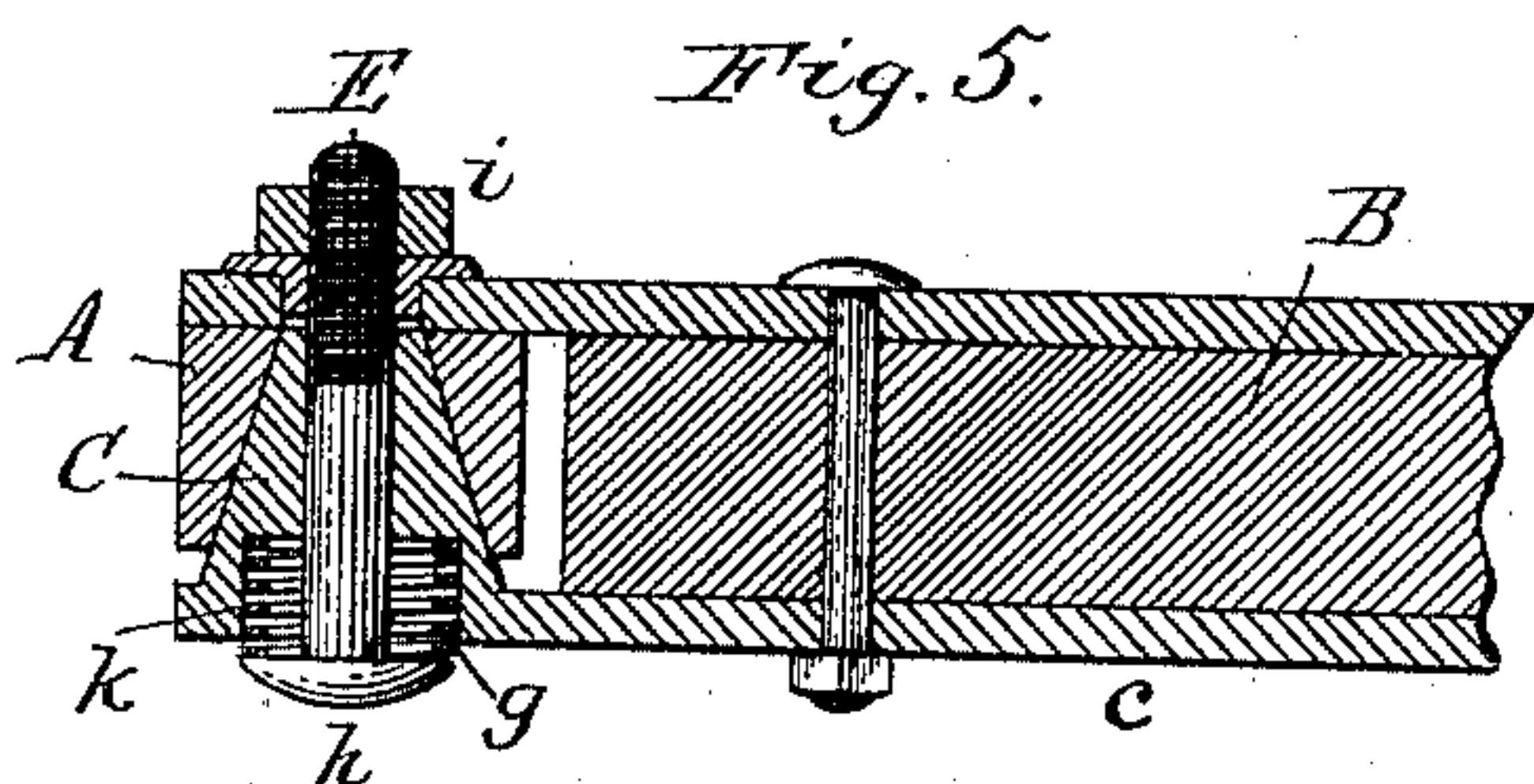
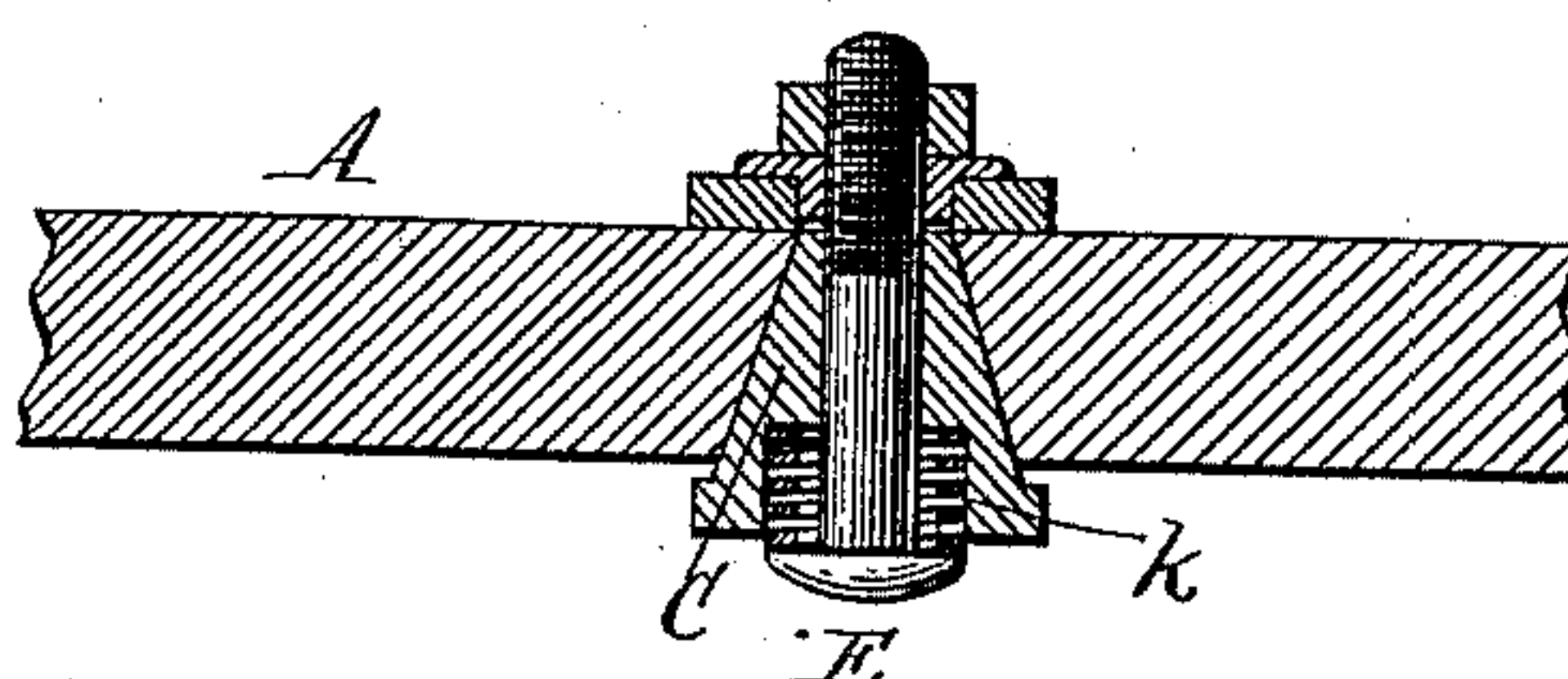


Fig. 6.



Witnesses:

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By Wilhelm Konner.  
Attorneys.

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2 Sheets—Sheet 2.

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Fig. 7.

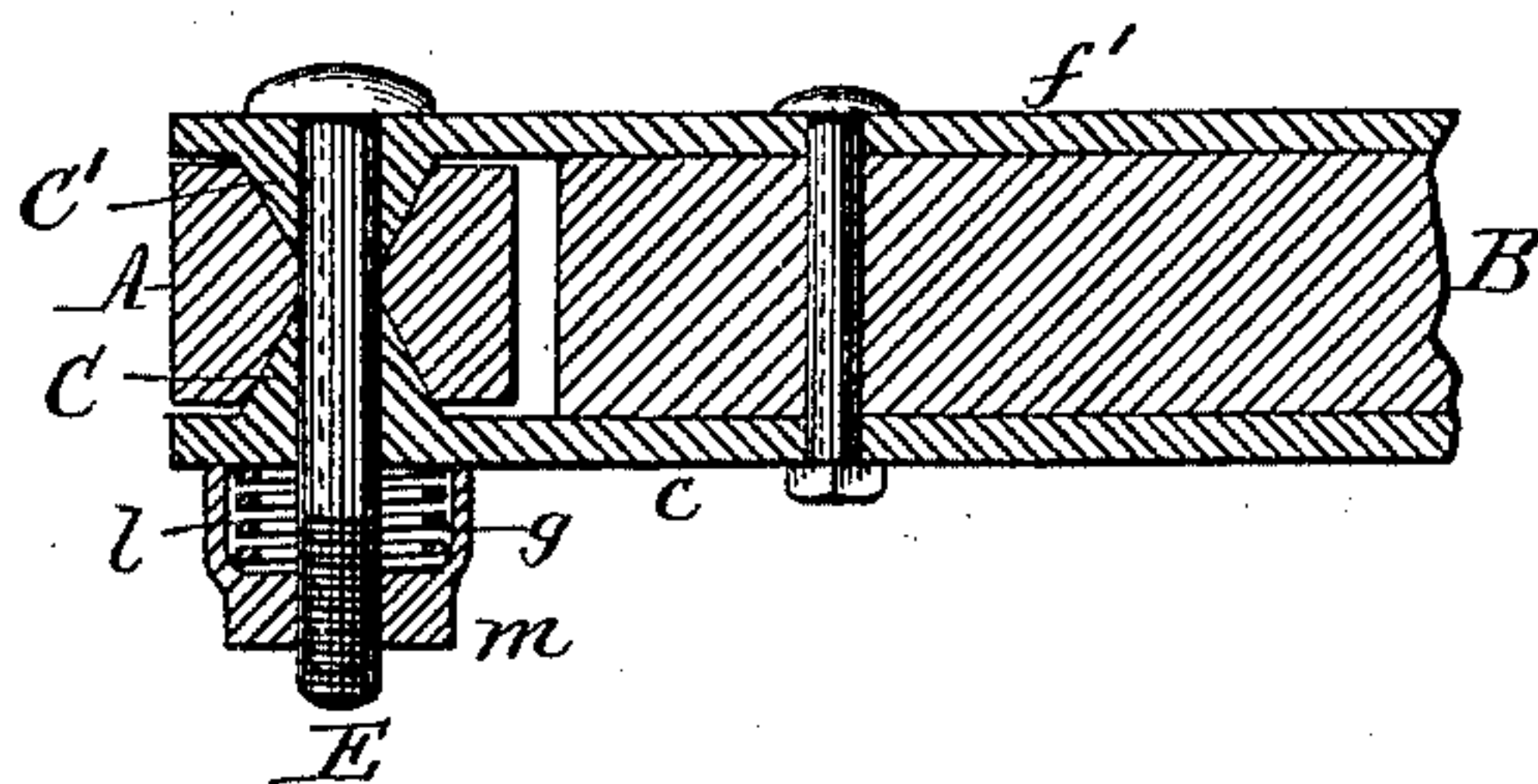


Fig. 8.

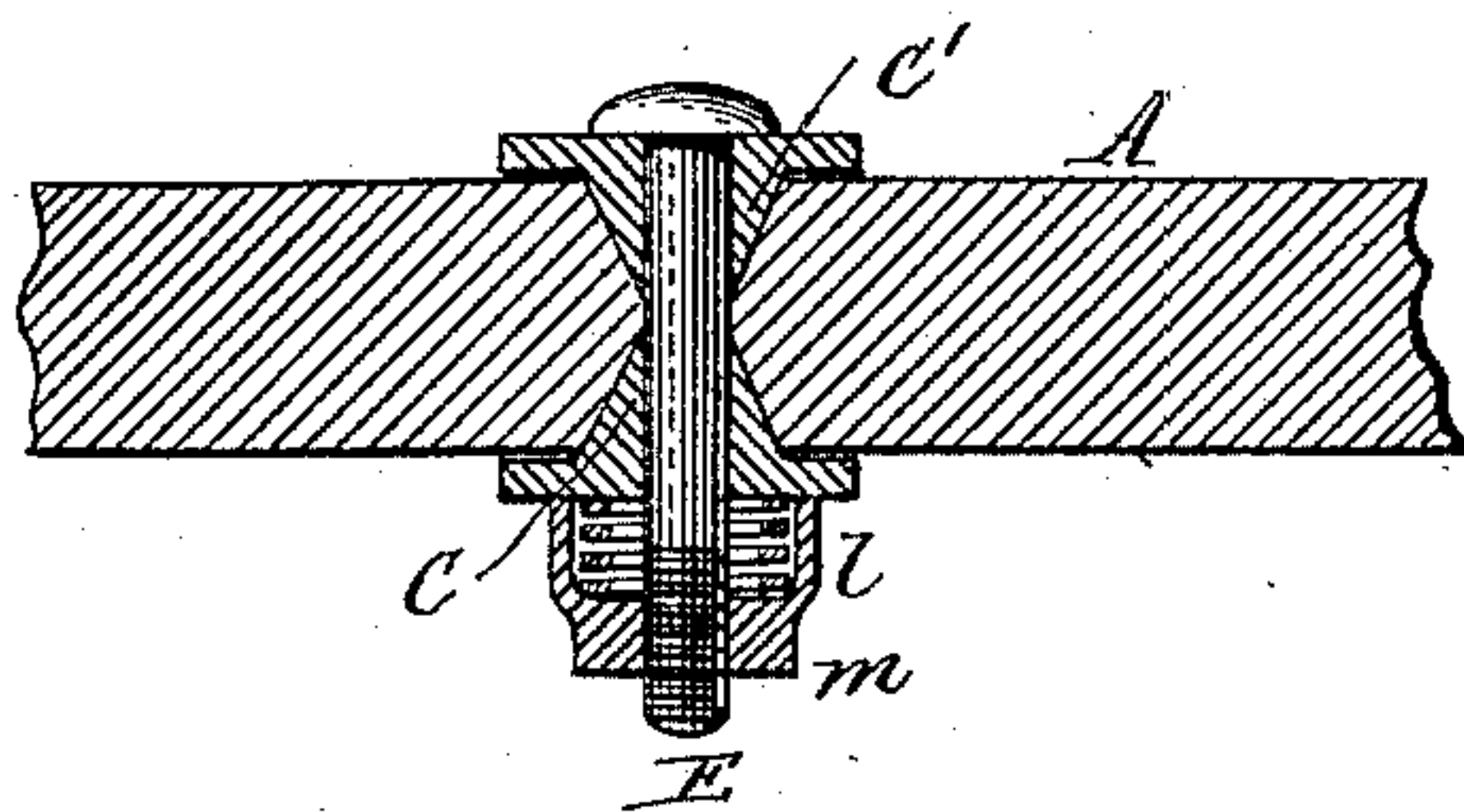


Fig. 9.

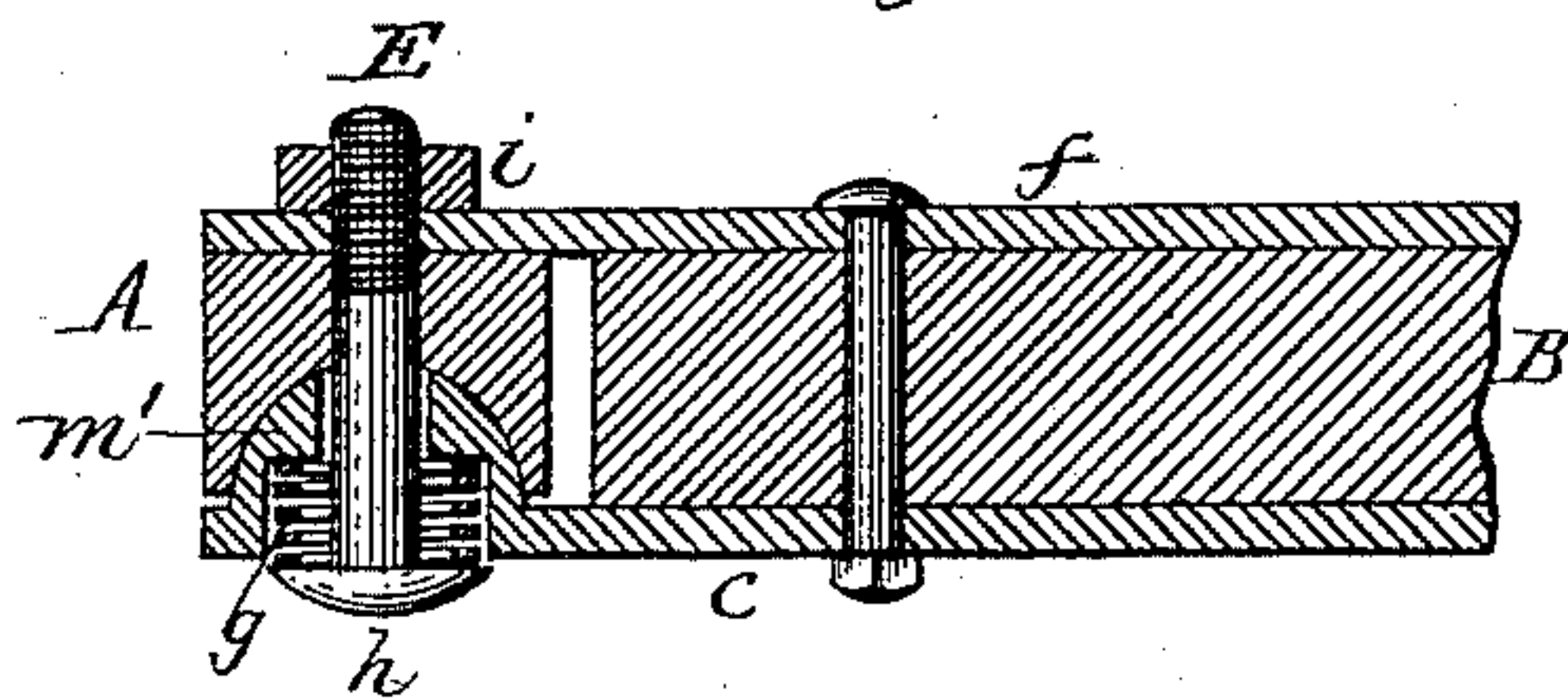
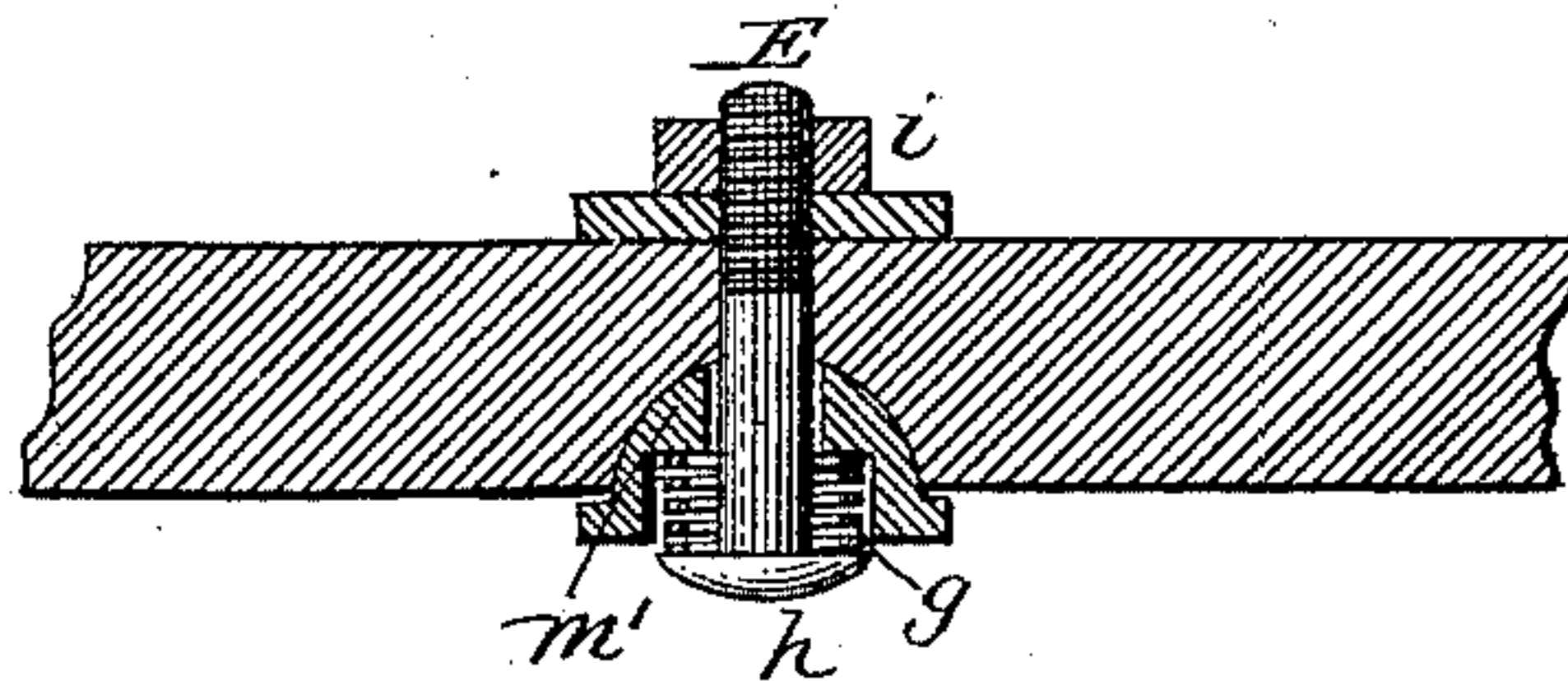


Fig. 10.



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# UNITED STATES PATENT OFFICE.

CHRISTOPHER C. BRADLEY, OF SYRACUSE, NEW YORK.

## REACH-COUPPLING FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 412,872, dated October 15, 1889.

Application filed January 13, 1887. Serial No. 224,214. (No model.)

*To all whom it may concern:*

Be it known that I, CHRISTOPHER C. BRADLEY, of the city of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Reach-Couplings, of which the following is a specification.

This invention relates to the coupling whereby the reach is connected with the front axle, and has for its object to provide a coupling which forms a secure means of attaching these parts together, and which is noiseless in use.

My invention consists to that end of the improvement which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a rear elevation of a front axle provided with my improved coupling. Fig. 2 is a top plan view of the same. Fig. 3 is a longitudinal vertical section through the coupling. Fig. 4 is a vertical section in line *x x*, Fig. 3. Figs. 5, 7, and 9 are longitudinal vertical sections showing modified constructions of the coupling. Figs. 6, 8, and 10 are cross-sections at right angles to Figs. 5, 7, and 9, respectively.

Like letters of reference refer to like parts in the several figures.

A represents a front axle, and B the reach.

C represents a conical or tapering stud or post secured to the front end of the reach by means of an arm or bar *c*, which is secured to the under side of the reach, as shown in the drawings. The stud C passes upwardly through a correspondingly-shaped tapering or conical seat or bearing *d*, formed in the middle of the axle.

E represents a vertical bolt, which passes through an axial bore formed in the stud C, and which secures the parts together.

F represents a cap, which is secured to the upper side of the reach by an arm or bar *f*, and which rests on the upper side of the axle. The cap F is provided on its under side with a cavity or recess, in which is arranged a spring *g*. The latter bears with its upper end against the cap F and with its lower end against the axle, thereby holding the tapering stud C tightly against its seat in the axle. The fastening-bolt E passes through the cap F, and is provided above the latter with a head *h* and below the stud C with a screw-nut *i*. Upon tightening the latter the spring is compressed and the parts

are drawn against each other, so as to produce a snug fit. When the parts become loose by wear or otherwise, the play is taken up by the spring, thereby preventing the coupling from rattling.

It is obvious that the arrangement of the parts may be reversed by securing the bar *c* to the upper side of the reach and the bar *f* to the lower side thereof.

In the coupling represented in Figs. 5 and 6 the spring is seated in a socket *k*, formed in the tapering stud C around the bolt E, and bears against the head of the bolt.

In the coupling represented in Figs. 7 and 8 the spring is seated in a socket *l*, formed on the nut *m*, and bears against the under side of the bar *c*. The upper bar *f'* is provided with a tapering stud *C'*, having its small end arranged near the small end of the stud C, and the axle is provided with a seat or cavity, which flares upwardly and downwardly from the middle of the axle.

In the coupling represented in Figs. 9 and 10 the bar *c* is provided with a semi-spherical stud *m'*, which projects into a correspondingly-shaped seat or cavity formed in the axle, and the spring is seated in a socket formed in said stud.

I claim as my invention—

1. The combination, with an axle provided with a tapering opening, of a reach provided with arms embracing the upper and lower sides of the axle, a tapering stud formed on one of said arms and entering the tapering opening of the axle, a coupling-bolt passing through said stud, and a spring whereby the bolt and the stud are tightened in their seats, substantially as set forth.

2. The combination, with an axle provided with a tapering opening, of a reach provided with arms embracing the upper and lower sides of the axle, a tapering stud formed on one of said arms and entering the tapering opening of the axle, a cap secured to the opposite arm, a coupling-bolt passing through said stud, and a spring seated in said cap and bearing against the axle, substantially as set forth.

Witness my hand this 29th of December, 1886.

CHRISTOPHER C. BRADLEY.

Witnesses:

CALVIN S. BUNNELL,  
T. F. SOULE.