

(No Model.)

E. WILCOX, Jr.  
THILL COUPLING.

No. 505,502.

Patented Sept. 26, 1893.

Fig. 1.

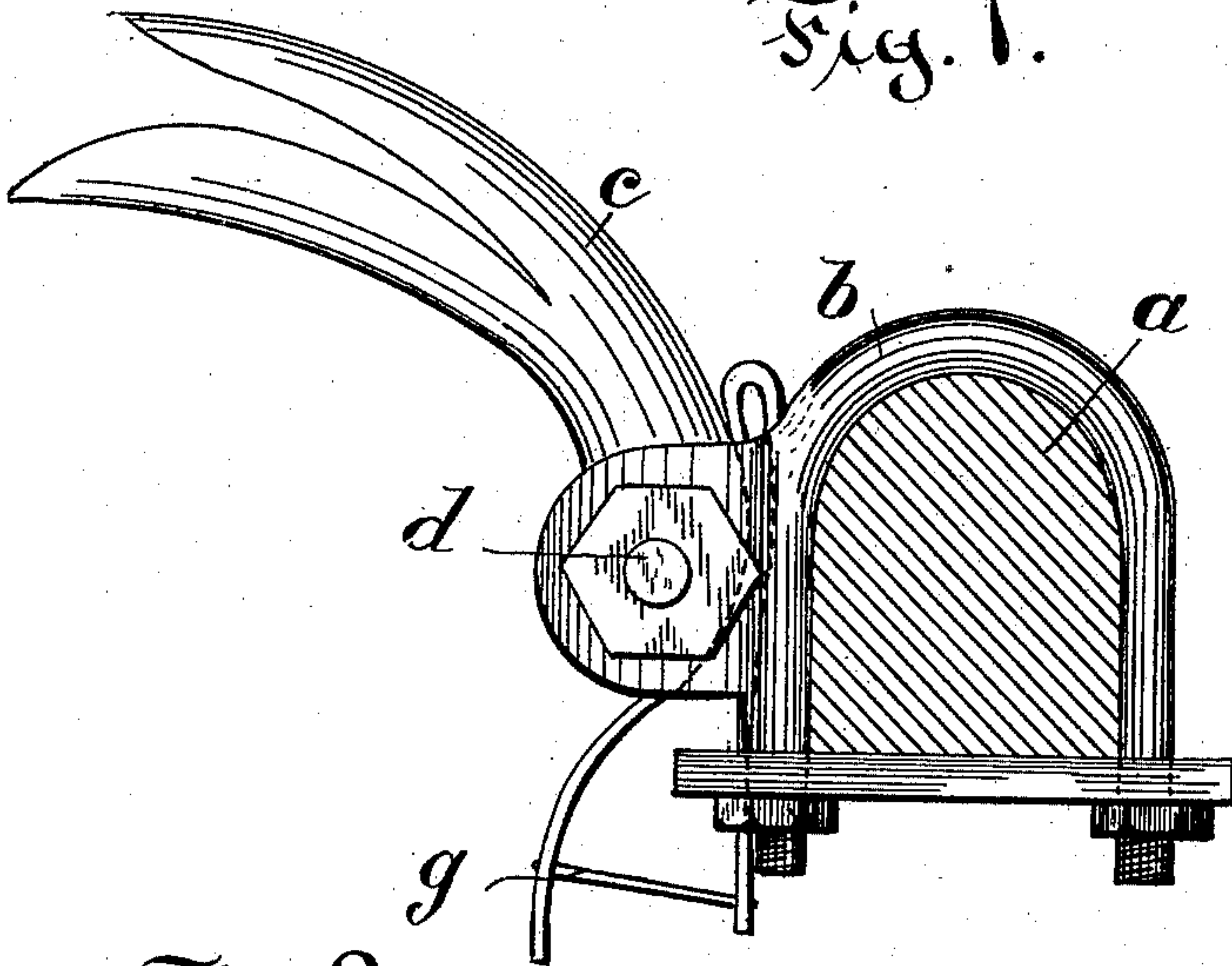


Fig. 2.

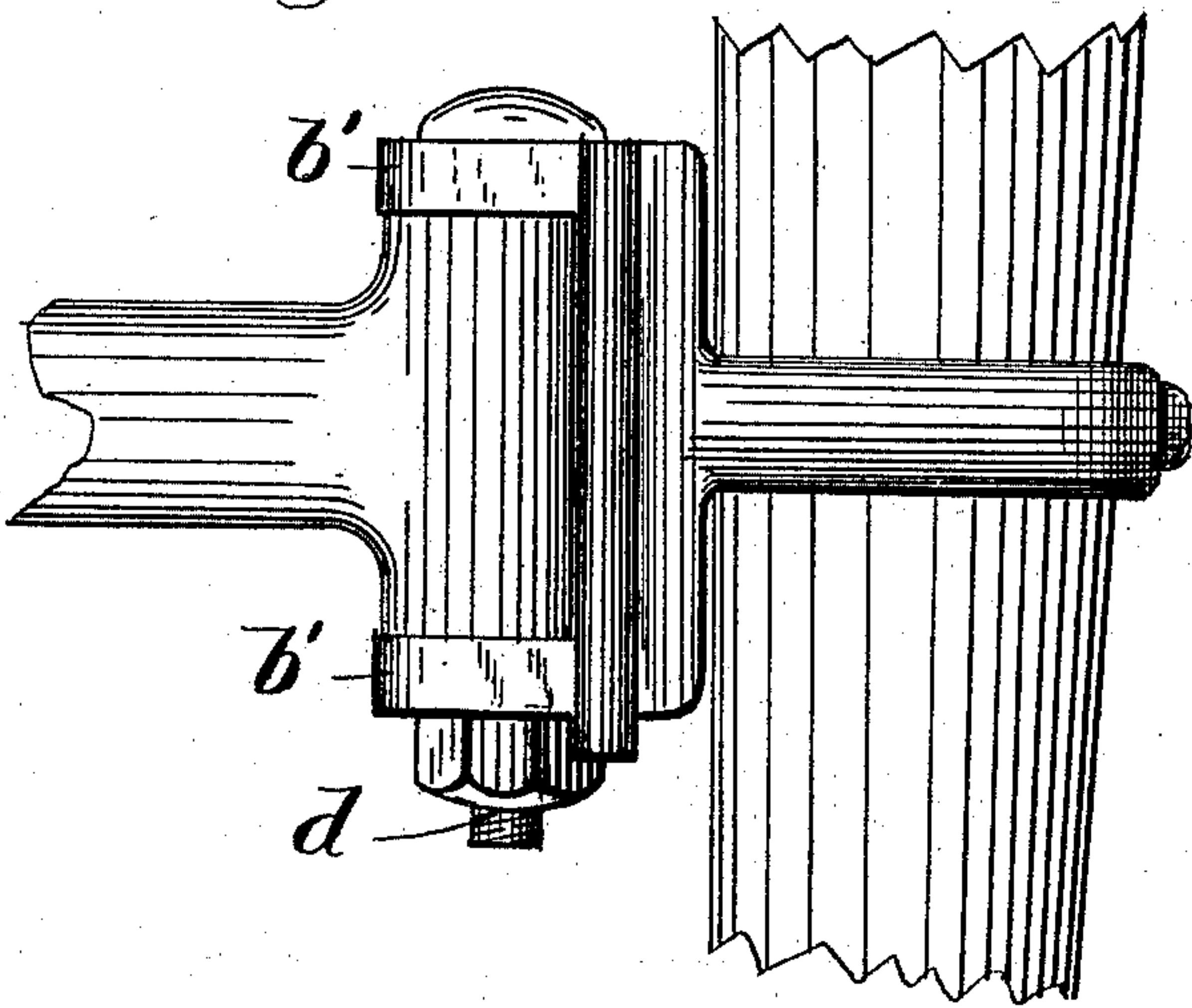
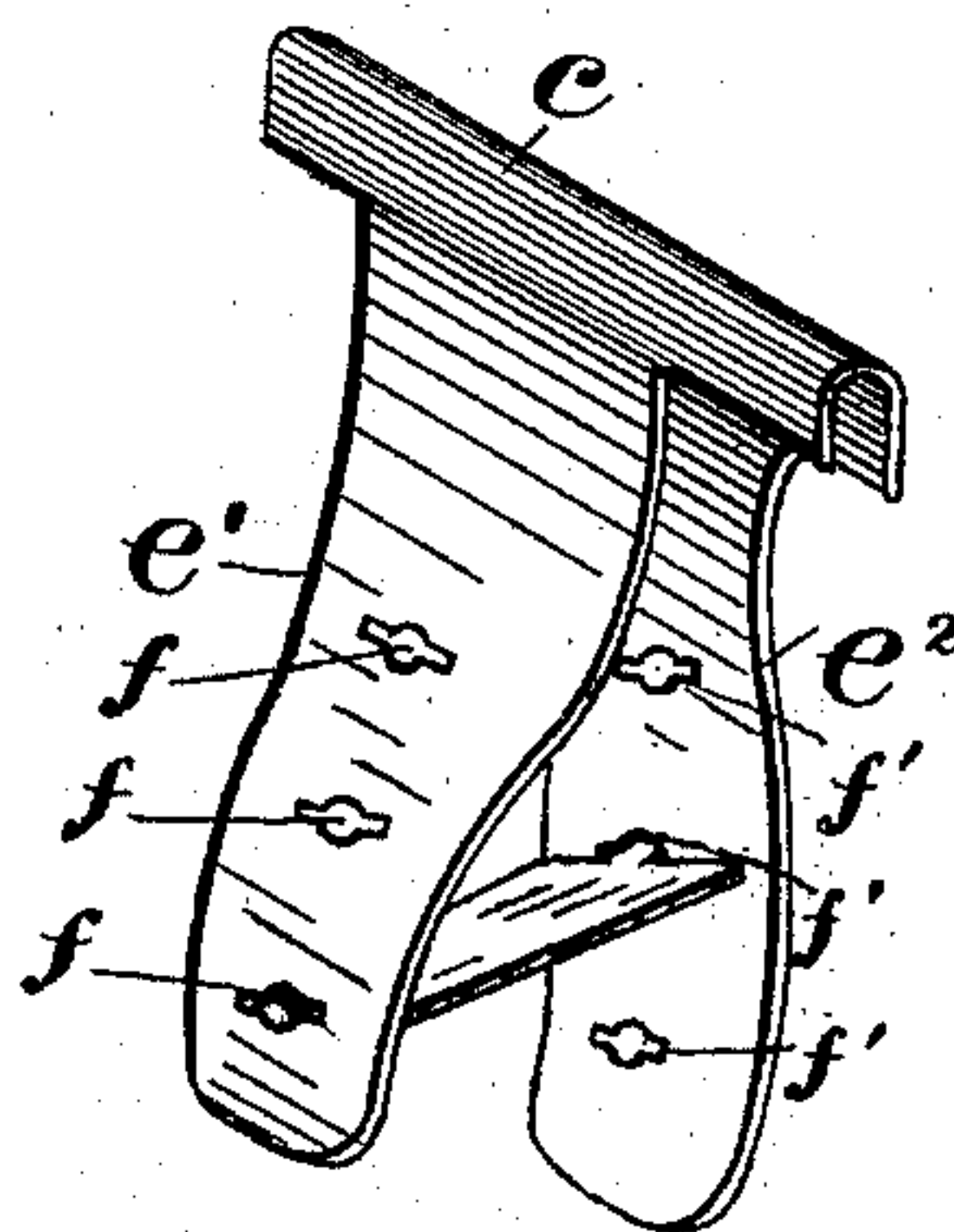


Fig. 3.



Witnesses

Joseph Arthur Cantin  
H. H. Ciddings

Inventor:  
E. Wilcox, Jr.  
by Chas. L. Burdett  
Attorney:



# UNITED STATES PATENT OFFICE.

ELBERT WILCOX, JR., OF NEW HAVEN, ASSIGNOR OF ONE-HALF TO WILLIAM R. HARTIGAN, OF BURLINGTON, CONNECTICUT.

## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 505,502, dated September 26, 1893.

Application filed September 5, 1892. Serial No. 445,079. (No model.)

*To all whom it may concern:*

Be it known that I, ELBERT WILCOX, Jr., of New Haven, in the county of New Haven and State of Connecticut, have invented certain  
5 new and useful Improvements in Anti-Rattlers, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is to provide a  
10 device by means of which parts of any device that are jointed or hinged together with space between the parts may be prevented from rattling when subjected to any jarring motion and to this end my invention consists in the  
15 details of the several parts making up the device as a whole and in the combination of such parts as more particularly hereinafter described and pointed out in the claims.

Referring to the drawings: Figure 1 is a detail view showing the device as applied to a  
20 wagon thill, the shackle and the end of the thill being shown in side view with the anti-rattler in place. Fig. 2 is a detail top view of these parts. Fig. 3 is a detail perspective  
25 view of the anti-rattler.

In the accompanying drawings the letter *a* denotes a wagon axle, *b* the shackle that is secured to the axle in the usual manner, *c* the  
30 thill and *d* the shackle bolt that passes through a socket in the end of the thill and through the parts of the shackle and holds the parts together. These are of the ordinary and usual construction.

It is found in practice that however tight a  
35 joint may be when at first formed between the thill and the shackle the wear soon loosens the parts and results in a rattling whenever the carriage is used.

In order to take up the lost motion and prevent the rattling a spring device of some kind  
40 is usually inserted in the space between the shackle and the end of the thill iron.

It is desirable in an anti-rattler that it should be adapted to take up all looseness  
45 and should also be so constructed as to enable it to be readily adjustable to the continued wear of the parts and operated with equal efficiency under all of the changing conditions of use.

50 My improved anti rattler *e* is composed of a piece of spring metal preferably steel folded

upon itself and having two arms projecting on opposite sides from this folded edge that is longer than the arms so that when viewed from the front the device has a T-shape. 55 These projecting parts are of a length sufficient to overhang the side parts or ears *b'* of the shackle and prevent the device from slipping down out of place. One of the arms *e'* is preferably formed on a reverse curve as 60 shown in the drawings so as to adapt it to fit closely against the back of the thill iron and also resist a tendency to thrust the spring upward. The arm *e''* is also preferably curved and is like the arm *e'* provided with a num- 65 ber of openings *f f'* that are adapted to receive the ends of a strut *g* that is adjustably connected to the parts by means of a tongue on its opposite ends that projects through these openings. By changing the position of 70 this strut the strength of the springs may be graduated to any desired degree, that is, it may be made very yielding and flexible by placing the strut at the lowest point of its adjustment or by placing it so that it extends 75 between the spring with its ends held in the openings *f f'*. While the spring is in place to take up the lost motion of a joint a great degree of rigidity can be imparted to the spring. 80

The anti rattler spring constructed in accordance with my improvement is particularly adapted for use in connection with wagon thills but it is not limited to use in connection with such parts as it may be readily ap- 85 plied without involving an invention to take up lost motion and prevent rattling in any apparatus or machine in which parts are hinged together so that a space is left between the parts of sufficient width for the spring to be 90 introduced.

I claim as my invention—

1. As an improved article of manufacture an anti-rattler spring formed of a single piece of spring metal folded upon itself having arms 95 located opposite to each other and provided with a series of openings in the opposite parts and the adjustable strut removably secured between the arms of the spring, and with the ends of the strut adapted to engage said open- 100 ings all substantially as described.

2. In combination with the T-shaped spring

formed of a single piece of spring metal folded upon itself with curved arms extending from the folded edge and having a series of sockets adapted to hold a strut, a strut adapted to be  
5 removably secured in said sockets all substantially as described.

3. In combination with a T-shaped spring formed of a single piece of spring metal folded upon itself with outwardly curved arms ex-  
10 tending from the folded edge and provided

with a series of sockets adapted to hold a strut, a strut of a length longer than the width of the space to be occupied by the spring and adapted to be removably secured between said arms with its ends engaging said sockets, 15 all substantially as described.

ELBERT WILCOX, JR.

Witnesses:

F. R. PETTIBONE,

WM. R. HARTIGAN.