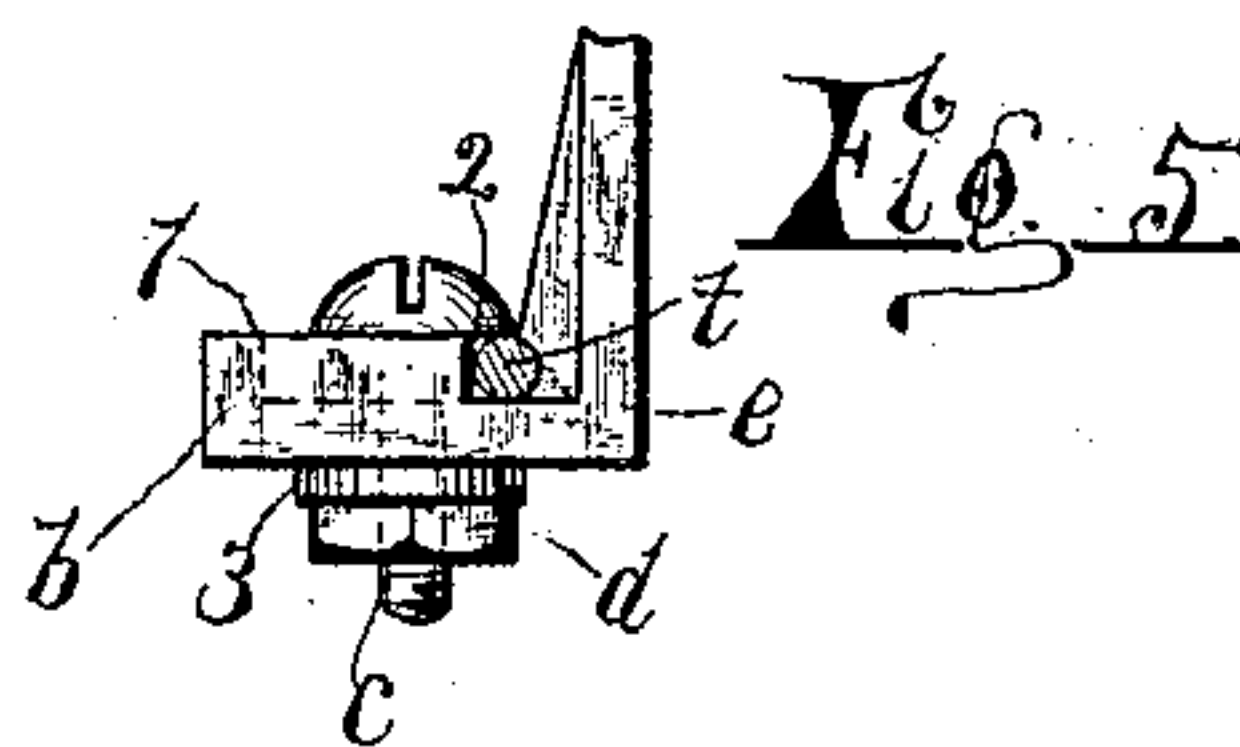
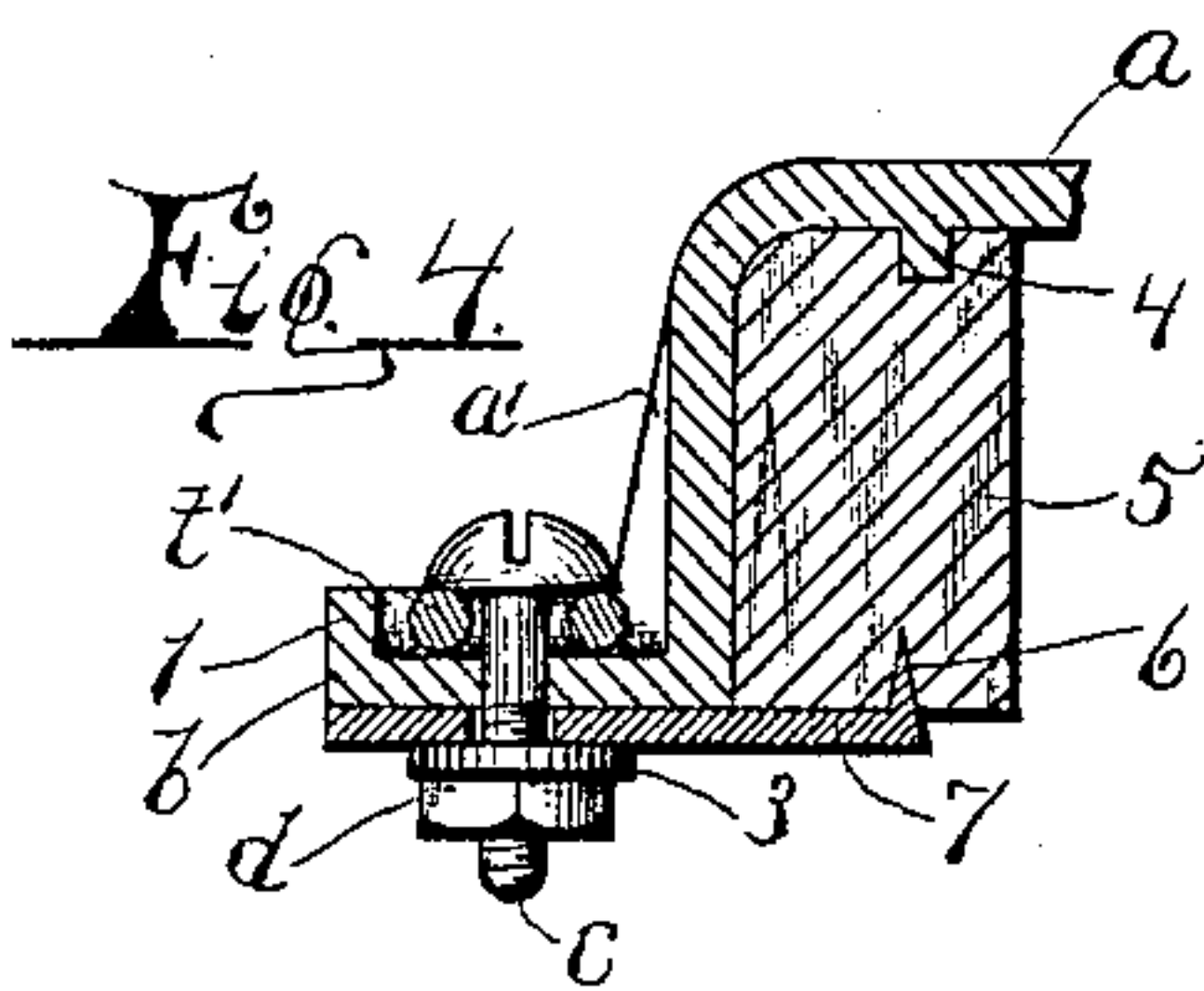
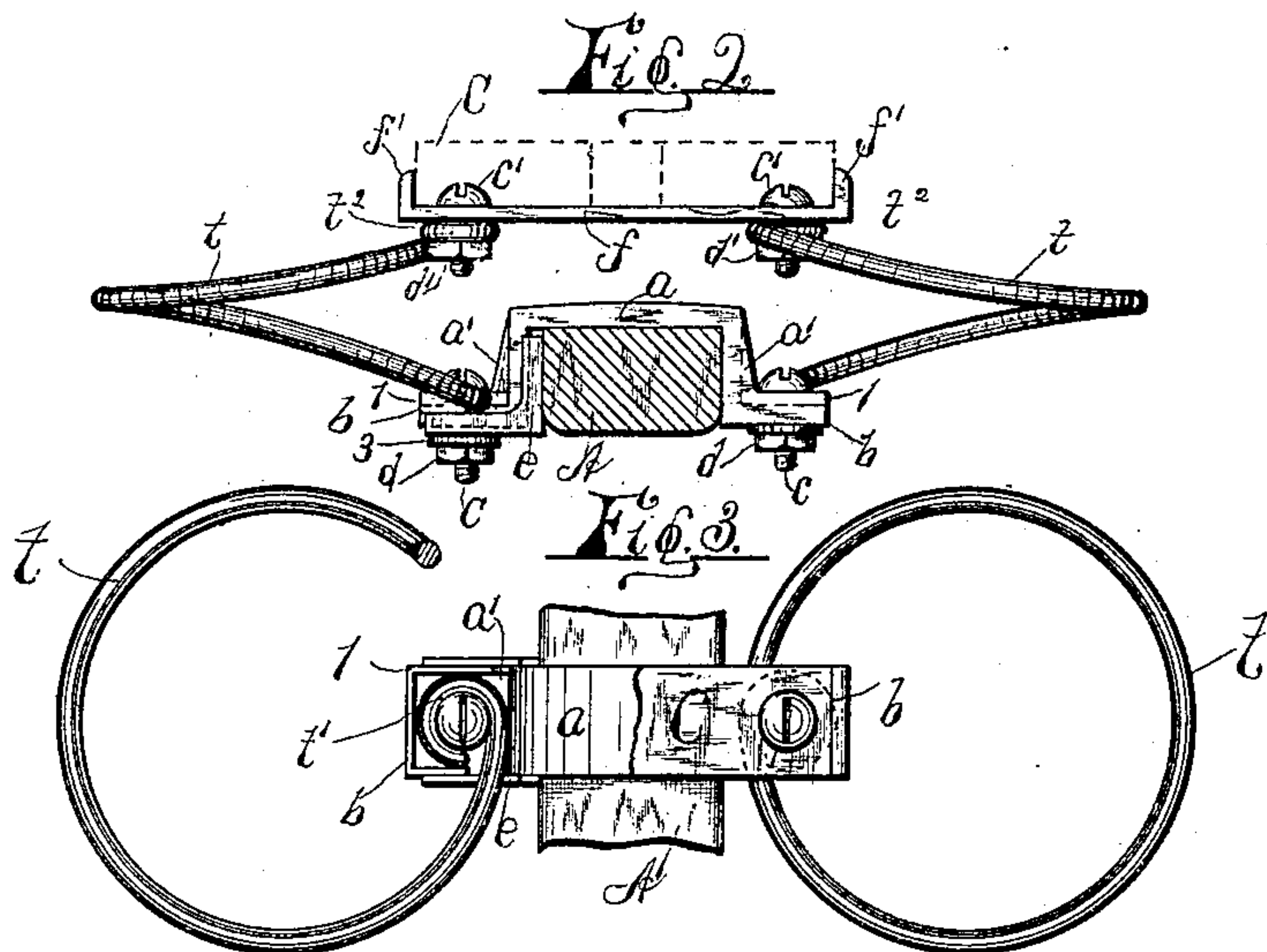
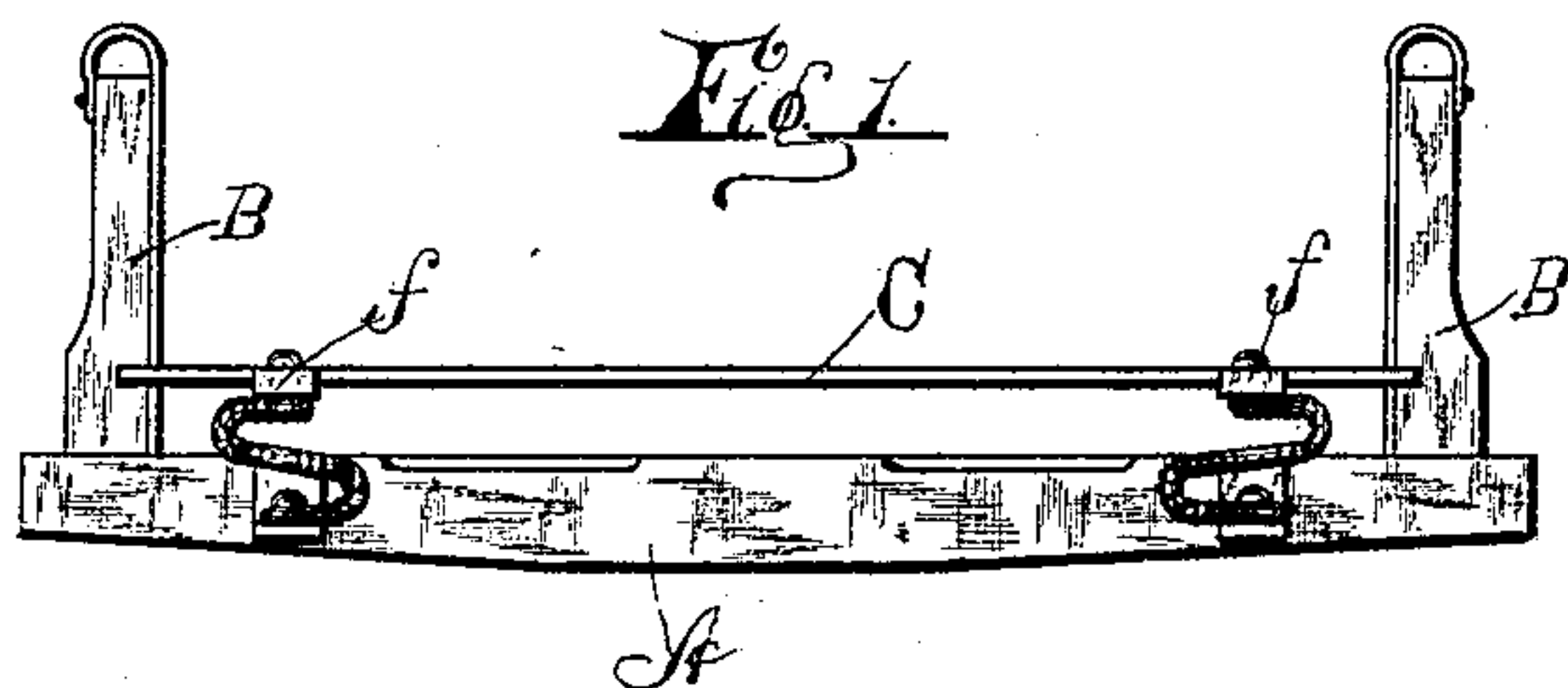


(No Model.)

J. CLIFF.
WAGON BOLSTER SPRING.

No. 397,832.

Patented Feb. 12, 1889.



Witnesses:

R. E. Tomlinson.
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UNITED STATES PATENT OFFICE.

JAMES CLIFF, OF SCRIBA, ASSIGNOR OF ONE-HALF TO LLEWELLYN E. TODD,
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WAGON-BOLSTER SPRING.

SPECIFICATION forming part of Letters Patent No. 397,832, dated February 12, 1889.

Application filed June 15, 1888. Serial No. 277,238. (No model.).

To all whom it may concern:

Be it known that I, JAMES CLIFF, of the town of Scriba, in the county of Oswego, in the State of New York, have invented a new and useful Improvement in Wagon-Bolster Springs, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This improvement relates to the class of vehicle-springs wherein a spring is secured to a spring-hanger attachment mounted on the bolster of a wagon, forming thereby a spring-support for either the seat or the body of the wagon; and my present invention consists, essentially, in the combination with the spring-hanger attachment, which is mounted on the bolster, of torsion-springs secured at one end to the spring attachment and the other end to the support for the body or seat of the wagon.

It consists, furthermore, in making the spring attachment adjustable to adapt it for use on bolsters of different widths, whereby the device may be manufactured of a standard size and readily adjusted, as desired, to mount it on any wagon-bolster varying from the aforesaid standard in dimensions.

It also consists in the detail construction and arrangement of the parts, all as herein after more particularly described, and pointed out in the claims.

In specifying my invention reference is had to the accompanying drawings, forming a part of this specification, in which—like letters indicating corresponding parts in all the views—

Figure 1 is a detached view of the bolster with my improved bolster-spring and spring-hanger attachment mounted thereon, illustrating the application of the same to a wagon-bolster for use. Fig. 2 is an enlarged view of the device, showing the spring-hanger attachment mounted on the bolster and the bolster in section, the view being taken endwise of the bolster or from the side of the vehicle.

Fig. 3 is an enlarged plan view of the device with the support for the wagon body or seat broken away for the purposes of illustration, this view illustrating more particularly the manner of securing the end of the torsion-spring to the spring-hanger attachment mounted on the bolster. Fig. 4 shows an en-

larged sectional view of the modification in the construction of the adjusting-jaw for securing the spring-hanger attachment to the bolster, and Fig. 5 is an enlarged detached view of the adjusting-jaw.

A represents a wagon-bolster provided with the standards B B, the bolster A being constructed in the usual manner and of any desired dimensions.

a is a hanger attachment, mounted on the bolster and provided with the angular depending arms *a' a'*, which terminate in horizontally-projecting arms *b b*, as best shown in Fig. 2. One of the arms *b* is provided with the adjustable jaw *e*, which fits snugly within one of the vertical arms *a'* of the hanger attachment *a*, and has its base flanged to guide the jaw *e* rectilinear for the purposes of adjusting the hanger attachment *a* to the bolster A.

It will be understood that the jaw *e* is slotted through its base in order to allow the jaw *e* to slide on the screw-bolt *c* to effect the desired adjustment, and the jaw *e* is securely retained in place by means of said screw-bolt and the washer 3 and nut *d*.

The spring-hanger attachment *a* is mounted transversely over the bolster A, as best shown in Fig. 1, so that the arms *b b* stand horizontally or lengthwise of the wagon, and two of the hanger attachments are mounted on each bolster, as best shown in Fig. 1.

t t denote torsion-springs, constructed, preferably, of a single piece of wire or spring metal, as best shown in Fig. 2. One end of the spring *t* is provided with the eye *t'*, through which the screw-bolt *c* passes, and the screw-bolt *c* serves to secure the lower end of the spring *t* to the spring-hanger attachment. The opposite or upper end of the torsion-spring *t* is provided with the eye *t''*, by means of which it is secured to the angular cross-tie *f*, as best shown in the enlarged view, Fig. 2.

It will be observed that I employ two torsion-springs *t*, mounted, in the manner described, on the arms *b b* of the hanger attachment *a*, opposite each other, so as to support the angular cross-tie *f*, and at the same time this arrangement of the torsion-springs *t t* serves to offset the pressure or tension of the spring and cause the said springs to support

the wagon-seat or wagon-body equally, which result is accomplished by the peculiar action of the torsion-springs when pressure is applied thereto. The springs work against each other, and consequently exert a uniformly-equal pressure or tension, and thereby provide a very efficient spring for use on wagon-bolsters.

In order to secure the lower ends, t' , of the torsion-springs against turning or twisting in their seat on the projecting arms b , I provide the said arms b with flanges 1, as best shown in Fig. 4, whereby the eye t' of the spring is pressed firmly or seated within the recesses formed by the flanges, and thus prevented from turning on its seat. It is absolutely necessary to secure the torsion-spring t from turning, in order that it may exert its pressure equally, and this desired result is secured by the described construction. The spring projects through an opening, 2, in the flanges, as best shown in Fig. 5. The upper ends, t^2 , of the torsion-springs t are secured to the cross-tie f by screw-bolts c' , as described, and may have some play on the screw c' without effecting their action in use.

The cross-tie f is provided with angular flanges f' , which serve as supports for the seat C or body of the wagon-box. It will be observed that in order to apply my improved spring and its spring-hanger attachment to a wagon-bolster it is simply necessary to place the spring-hanger attachment a over the bolster, as shown in Fig. 2, set by a jaw, e , so as to clamp the attachment a firmly to the bolster A, when the device may be secured by tightening up the nut d .

At Fig. 4 I illustrate a modification in the construction of the clamping-jaw, which makes a very efficient device for the desired purpose, and at the same time a very simple one in its construction. I provide the plate 7 with the projection 6, which takes in a block of wood, 5, and cast a projecting lug, 4, from under the top of the hanger attachment a , and fit the block of wood 5 on the plate 7 and projection 4 and secure the same to the arm b by means of the washer 3 and nut d . It will be observed that the block 5 takes the place of the jaw e , and should be of a suitable size to adjust the

hanger attachment a to the bolster A. The support C for the wagon-seat or wagon-box is usually notched to embrace the bolster-standards B B to guide the springs t in their up-and-down movement.

The operation of my invention will be readily understood from the foregoing, and the device is exceedingly simple in its construction, therefore very economical to make, and very effective in use for the desired purpose, since it provides a very easy-acting spring, which can be readily attached to or detached from the bolster of lumber-wagons or other heavy vehicles, and thereby transform the same into a spring-vehicle at a very small expense.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the bolster A, of the spring-hanger attachment a , having the adjustable jaw e , and a spring, t , secured to the attachment a , substantially as and for the purpose set forth.

2. The combination of the spring-hanger attachment a , having the angular arms a' , projections b , provided with flanges 1, and opening 2 in said flanges, with the torsion-springs t , having the eye t' , secured between the flanges 1 and projecting through the opening 2, all substantially as and for the purpose set forth.

3. The combination of the spring-hanger attachment a , mounted on the bolster A and provided with projecting arms b , the said arms b having flanges 1 and openings 2 for the reception of the eyes t' of the torsion-springs t , the torsion-springs t , having eyes t' , bolted to the arms b , and eyes t^2 , bolted to the angular cross-tie f , and the cross-tie f , all substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 22d day of May, 1888.

JAMES CLIFF.

Witnesses:

FREDERICK H. GIBBS,
A. E. PARSONS.