

(No Model.)

G. H. SAWYER.  
VEHICLE.

No. 468,496.

Patented Feb. 9, 1892.

Fig. 1.

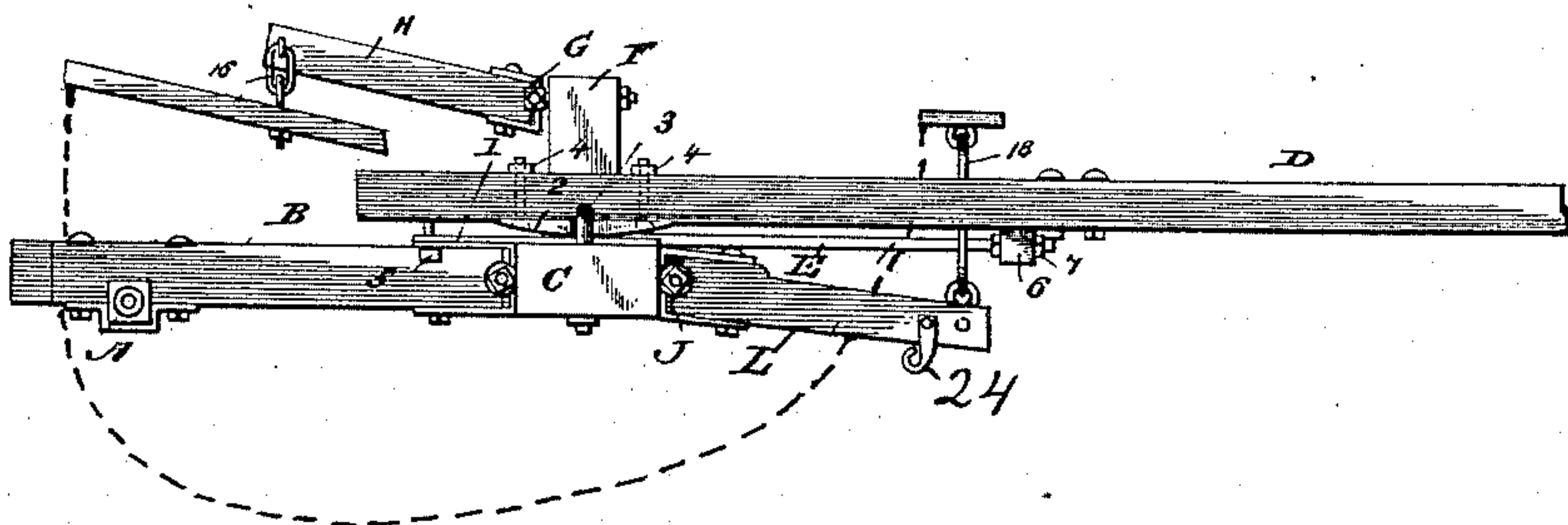


Fig. 2.

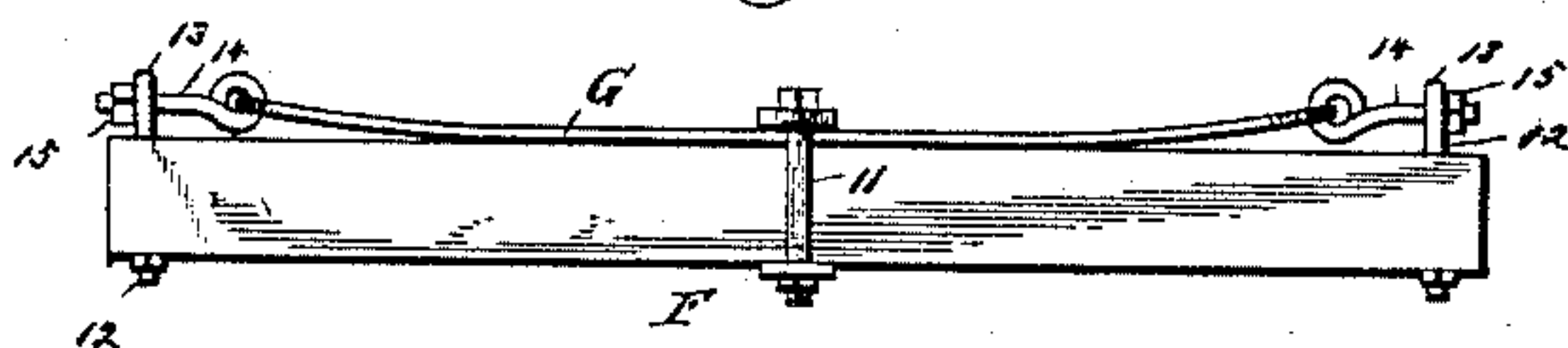


Fig. 3.

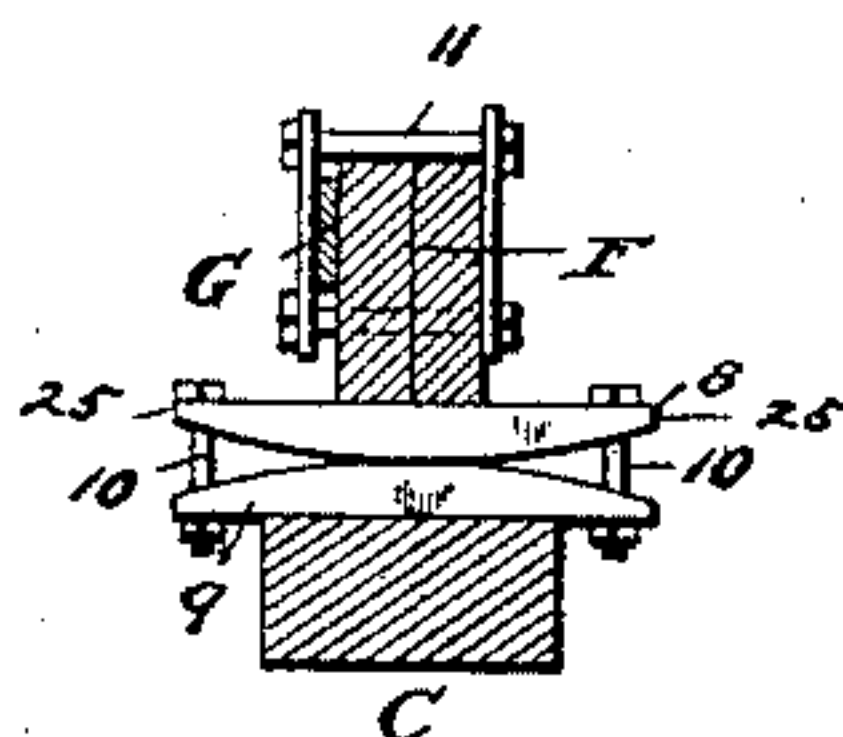
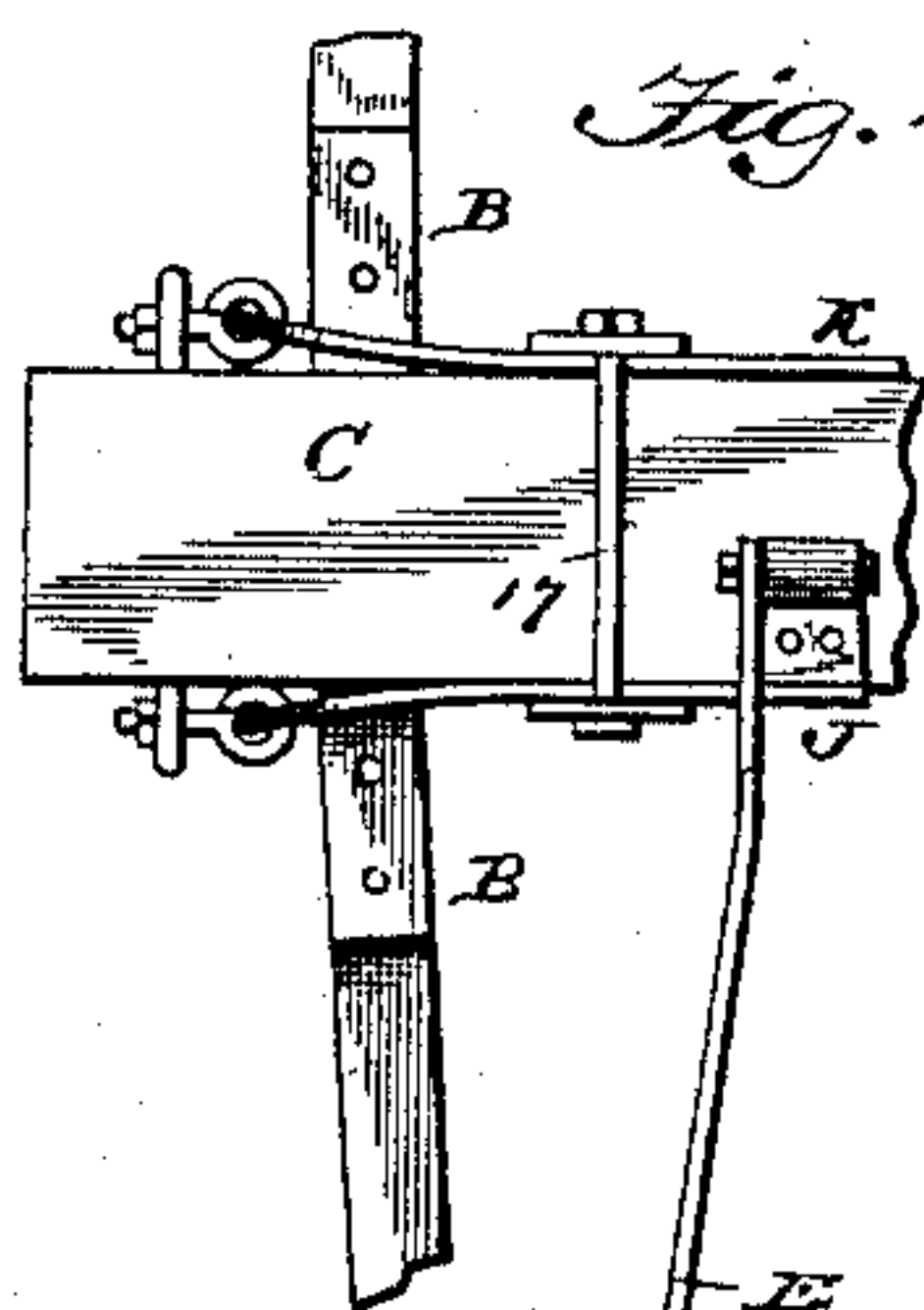


Fig. 4.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## VEHICLE.

SPECIFICATION forming part of Letters Patent No. 468,496, dated February 9, 1892.

Application filed September 26, 1890. Serial No. 366,203. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE HENRY SAWYER, a citizen of the United States, residing at Lamoille, in the county of Bureau and State of Illinois, have invented certain new and useful Improvements in Vehicles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has reference to improvements in vehicles; and it consists more especially in new and useful devices connected with the springs thereof.

My invention is equally applicable, by certain obvious changes, to either two-wheeled or four-wheeled vehicles. In this application it will be shown as adapted to a two-wheeled vehicle.

As my invention is susceptible of use with any form of running-gear, I do not deem it necessary to show or describe the other well-known parts of the vehicle, and will, therefore, limit the illustration and description herein to those parts necessary to exhibit the construction, location, and operation of my invention.

In the drawings, Figure 1 is a side elevation of my invention. Fig. 2 is a rear elevation of the bar F and its spring. Fig. 3 is a vertical sectional view through the bolster, bar C, and intermediate parts, taken longitudinally of the device. Fig. 4 is a top view of bar C and connections.

A is the usual axle of a road-cart, and B B are arms projected upwardly and forwardly therefrom and rigidly seated at their rear ends upon said axle.

C is the usual cross-bar between the thills, to the under side of which is pivotally attached the usual whiffletree.

D D represent the usual thills, which are attached a short distance from their rear ends to the upper surface of the bar C.

The mode of attachment is as follows: A short metallic plate 1 is placed transversely over the bar C, near the end thereof, and directly over the plate 1 is placed a shorter plate 2. A suitable clip 3 bestrides the plates 1 and 2, and has its open ends passed downward

through the bar C and secured beneath the latter by nuts. The thill D is placed upon the plate 2, a suitable recess being formed transversely on the bottom of said thill to receive the horizontal portion of the clip 3, so as to permit the lower surface of the thill D to rest uniformly upon the upper surface of the plate 2. Suitable screw-bolts 4 4, having their heads countersunk in the lower surface of the plate 2, are projected upwardly on each side of the clip 3 and suitably fastened upon the upper side of the thill D. Either or both of the opposing faces of the plates 1 and 2 may have a convex formation longitudinally, to permit of a slight rocking of the thills at said point of attachment to exhaust the horse motion. The plate 1 extends slightly to the rear of the cross-bar C, and a set-screw 5 is seated in said projection and projected upwardly against the lower surface of the thill D, for the purpose of limiting the rocking of the latter and particularly to obviate the oscillation which usually succeeds the stopping of of the vehicle.

E is a diagonal brace pivotally seated at its rear end on the bar C and adapted at its forward end to be attached to the under side of the thill D. This attachment is effected by plate 6, which has its forward end screwed against the bottom of the thill D and its rear end provided with an eye which passes over the adjacent end of the brace E. The latter is threaded for some distance back from its forward end, and nuts 7 are placed on said threads at the front and rear, respectively, of the eye of the plate 6 on said brace, and by adjusting the nuts 7 back and forth on brace E the plate 6 may be shifted thereon and thill D be thereby adjusted laterally, so as to widen or narrow the space between said thills to conform to the size of the animal.

F is a bolster seated upon a circular plate 8, which is furnished with a convex base. The plate 8 is supported by a corresponding plate 9, suitably fastened centrally to the upper surface of the bar C. The upper face of the plate 9 is also convex, so that the normal bearings of the bolster F is at the center of the plates 8 and 9; but the recession of the latter from their centers permits the bolster to rock in every direction. Threaded bolts 10 10 are respectively projected upwardly through the plates 8 and 9 in suitable front and rear projections 25 thereof, by means of



which the normal position of the bolster F may be adjusted forward or back, as may be desired. Rubber washers may be interposed between said plates on the bolts 10 or under the nuts of the latter to relieve the concussion in any instance. A spring G, consisting of a straight steel plate, is placed edgewise along the rear side of the bolster F and fastened thereon centrally by a clip 11, which encircles both the bolster and the spring. Transverse bolts 12 are respectively passed horizontally through the ends of the bolster F and provided at their front ends with an eye 13. Short eyebolts 14 are hooked into con- forming eyes formed in the ends of the spring G and their shanks projected outwardly through the eyes 13 in the bolts 12 and threaded to receive a suitable nut 15. By means of the nuts 15 and their bearings against the outer surface of the eyes 13 any degree of tension can be imparted to the spring G.

H are arms suitably clipped at their front ends around the spring G and projected rearwardly and upwardly therefrom, and from which, near their rear ends, is flexibly supported the body of the vehicle by means of toggle-loops 16 or otherwise. By the insertion of a wedge between the bolster F and spring G centrally the said spring can be stiffened to any desired degree.

J is a spring of the same general conformation as spring G, placed edgewise along the front side of the bar C and clipped thereto at two points by clips 17, which inclose said bar, the spring J, and a similar spring K, placed along the rear of bar C. The springs J and K are given an end tension in a manner similar to that described in reference to spring G.

To the spring J is suitably clipped the rear ends of forwardly-projecting arms L, to the front ends of which, respectively, is flexibly attached the forward end of the body of the vehicle by means of toggle-body loops 18, the body being shown in dotted lines in Fig. 1. By shifting the clips 17 toward or from the center of the bar C the torsional quality of the spring J may be regulated as desired. The front ends of the arms B are also suitably clipped around the spring K, and the shifting aforesaid of the clips 17 have also the effect to regulate the torsion of spring K. The purpose of the end tension of the springs G, J, and K is to enable said springs to resist the torsional strain of the respective arms attached thereto and a much lighter spring can, therefore, be used than would be practicable did said springs have no tension.

Adjustable trace-carriers 24 are suitably attached to the outside of the arms L near the front of the latter, through which the rear end of the trace or a prolongation of the latter is passed for the purpose of still further lessening the axial oscillation of the cross-bar C.

The springs G, J, and K can be all or severally reinforced by an additional spring-plate inserted within the clips on the arms attached

thereto respectively and placed parallel with the respective springs.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The combination of the axle A, arms B, cross-bar C, thills D, springs G, J, and K, arms H, L, and B, and the body of a suitable vehicle, substantially as shown, and for the purpose described.

2. In combination with the axle A, cross-bar C, and thills D, the springs G, J, and K, provided with suitable end tension-arms B, H, and L, and the body of a vehicle, substantially as shown, and for the purpose described.

3. As a means of adjustably supporting the body of a vehicle, a suitably-supported cross-bar C, spring or springs J and K, clipped to said bar and provided with an end tension-support, and suitable body-supporting arms clipped at their inner ends to said springs in position to exert a torsional strain upon the latter, substantially as shown, and for the purpose described.

4. As a means of adjustably supporting the body of a vehicle, the combination of a cross-bar C, a plate-spring clipped edgewise to said bar and held by an end tension-support, and suitable supporting-arms clipped at their inner ends to said spring in position to exert a torsional strain upon the latter at any point between its ends and said clip, substantially as shown, and for the purpose specified.

5. The combination of a suitably-supported cross-bar C, the plate 9, centrally placed thereon, the bolster F, bolster-plate 8, one or both of said plates having a convex contactual surface, and adjusting-bolts 10, substantially as shown, and for the purpose described.

6. The combination of a suitably-supported cross-bar C and an oscillating bolster F, pivotally seated thereon and provided with seat-bearing arms H, yieldingly secured to the rear side thereof, substantially as shown, and for the purpose specified.

7. The combination of a cross-bar, a diagonal brace pivotally seated at its rear end upon said bar, a thill, an eyed plate depending from said thill, the forward end of the brace adapted to pass therethrough, and nuts upon the forward threaded end of the bolt at the front and rear of the eye of the bolt, substantially as set forth.

8. The combination of a cross-bar, a spring clipped to the forward side of said bar, forwardly-extending arms clipped at their inner ends to said spring, and toggle-body loops attached to the forward ends of said arms for flexibly attaching the forward end of the body, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEO. H. SAWYER.

Witnesses:

JOHN G. MANAHAN,  
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