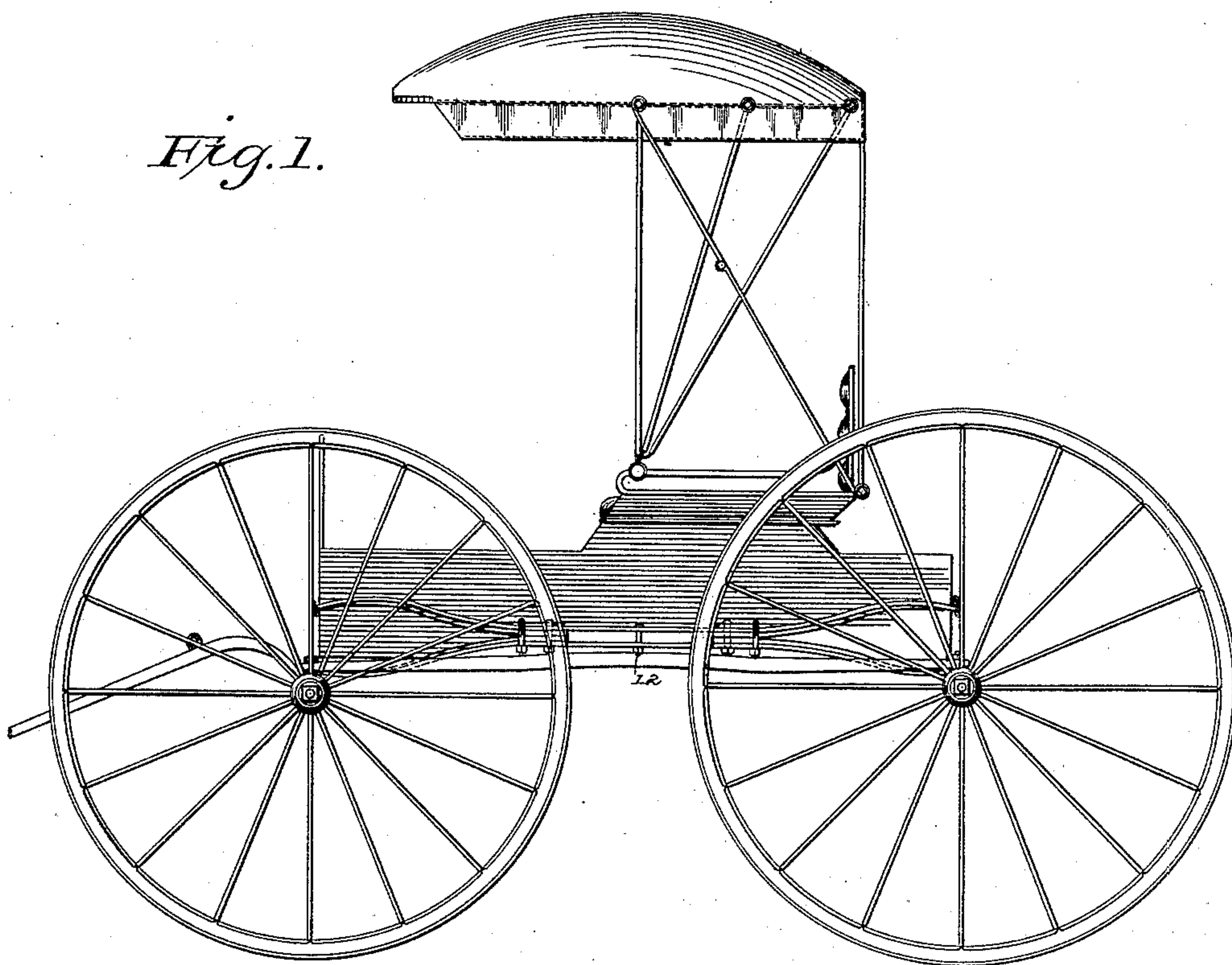


(No Model.)

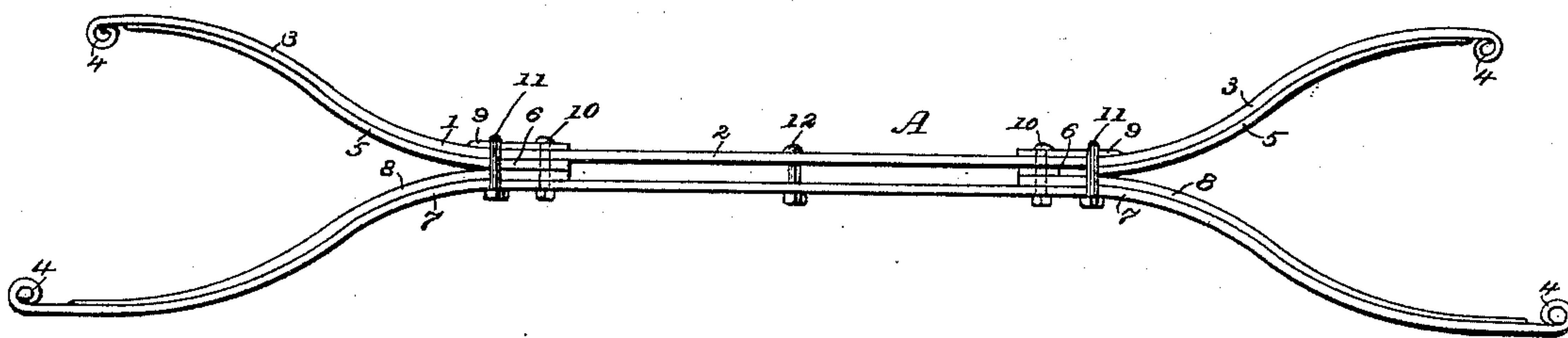
G. B. SCHOEPP.  
SIDE SPRING FOR VEHICLES.

No. 431,403.

Patented July 1, 1890.



*Fig. 2.*



WITNESSES

*Wm. Musser.*  
*B. H. Sommer.*

INVENTOR

*George B. Schoepf.*  
*by A. G. Naylor,*  
*Attorney.*



# UNITED STATES PATENT OFFICE.

GEORGE B. SCHOEPP, OF MADISON, MINNESOTA.

## SIDE SPRING FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 431,403, dated July 1, 1890.

Application filed January 9, 1890. Serial No. 336,419. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE B. SCHOEPP, a citizen of the United States of America, residing at Madison, in the county of Lac-quiparle and State of Minnesota, have invented certain new and useful Improvements in Side Springs for Road-Vehicles, of which the following is a specification.

Heretofore side springs and others have been constructed of two semi-elliptical springs arranged in reverse relation, with the free ends projecting in opposite directions and adapted to sustain and carry the weight. The springs have usually been clipped together at their middle, and in some instances a spring-block and in others a non-resilient block has been interposed between the parts of the springs at their middle. These constructions throw the weight entirely on the arms of the springs, and since their resilience emanates from the axial middle at the clips or at a point at the base of the arms of the springs, where they are rigidly held, there is undue rigidity imparted to the springs and liability to granulate and break at the base.

My invention has for its object to construct a reversed semi-elliptical spring possessing resilient function throughout its length, and the parts being so constructed, arranged, and combined as to impart all the requisite supporting characteristics, and at the same time the spring has a central or middle resiliency and yielding quality, so that the binding-clips exert only their clamping functions without the usual rigid relations to the central part of the springs, and without the liability of the springs snapping off at their base.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a view showing the spring attached to a buggy. Fig. 2 is a detail view of the spring.

A denotes the spring as a whole. This is composed of an upper plate 1, having an extended straight middle portion 2 of a length substantially one-half the length of the whole spring, from the ends of which the plate is carried upward, as at 3, and slightly curved downward at the extremities, which terminate

in eyes 4, adapted to receive the bearing-pin of a shackle or clip, by which it is suspended or supported to the object.

5 is the auxiliary plates to the upper spring-plate 1, conforming in shape to the parts 3, and having a short straight shank-piece 6 laid under and extending for a short distance along the part 2 of the upper plate.

7 is the lower plate of the spring, substantially of the shape of the plate 1 in reverse arrangement, but having its spring-extensions slightly curved upward, as shown. This plate 7 is made longer than the upper plate to afford ease of action in concert with the upper and shorter plate. On the plate 7 are laid auxiliary leaves or plates 8, having the short shanks extended inward, the same as these on the upper auxiliary leaves. On the top plate are arranged washer-plates 9, located over the assembled parts of the spring and leaves, and through these plates and the springs are bolts 10, which clamp the parts firmly together. At the union of the several parts, being at each of the termini of the extended straight portion of the spring, is a clip 11, the staple or clip of which is arranged on and over the extended end of the washer-plates 9, and the clips being clamped tight the parts are given additional security at their union. In order to prevent buckling of the plates in the part 2, a bolt 12 is projected through them at their middle.

It will readily be perceived that by means of constructing the spring with the extended straight middle portions, I attain a central resilient function which is not present nor approached, so far as I am aware, in any spring of the kind. Thus instead of the strain being thrown on an axial of the clips and bolts, the spring has a yielding middle motion which releases the strain at the clips, and thus obviates the usual tendency of breaking at these parts. By extending the washer-plates under both of the respective fastening means the parts at this point are integrally affected.

Having thus described my invention as required by the statute, I proceed to particularly point out and distinctly claim what I desire to secure Letters Patent, as follows:

1. The side spring herein described, con-



sisting of the upper and lower main plates 1  
7, having the extended straight middle por-  
tions 2, and reversely-arranged spring-arms  
terminating in eyes, the upper and lower aux-  
5 iliary leaves laid under and on the respective  
main plates, and having short straight shank-  
pieces 6 interposed between the main plates,  
washer-plates on the spring at each end of  
the extended middle portion, fastening-bolts  
10 through the washer-plates, the main plates,  
and shank-pieces of the auxiliary plates, and  
clips about the spring and bearing on the  
free end of the washer-plate, substantially as  
and for the purpose specified.

15 2. The side spring herein described, con-  
sisting of the upper and lower reversely-ar-  
ranged main plates terminating in eyes, and  
having a straight middle portion of a length  
substantially one-half the length of the whole

spring, the auxiliary leaves laid under and 20  
on the respective main plates and having the  
short straight shanks, washer-plates on the  
spring at each end of the extended middle  
portion, fastening-bolts through the washer-  
plates and the springs, clips at the termini of 25  
the extended middle portion and over the  
free end of the washer-plate, and a bolt  
through the upper and lower plates in the  
middle of the extended portion, as and for  
the purpose specified.

In witness whereof I have hereunto set my  
hand in the presence of two attesting wit-  
nesses. 30

GEO. B. SCHOEPP.

Attest:

J. S. BARTON,  
J. D. KELLY.