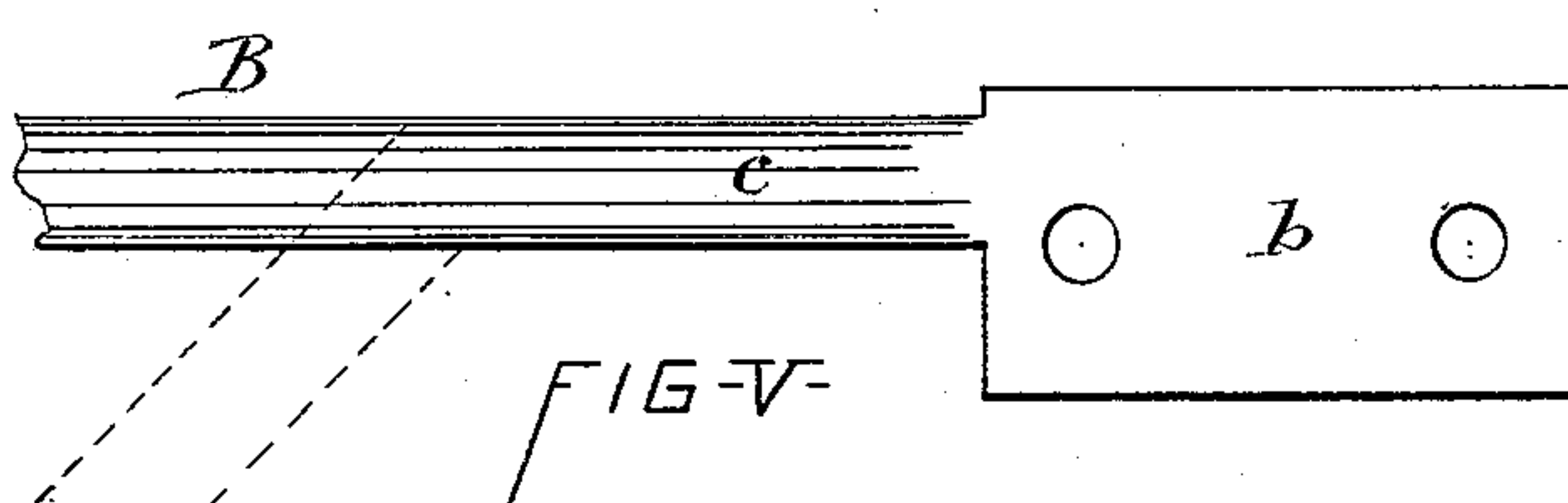
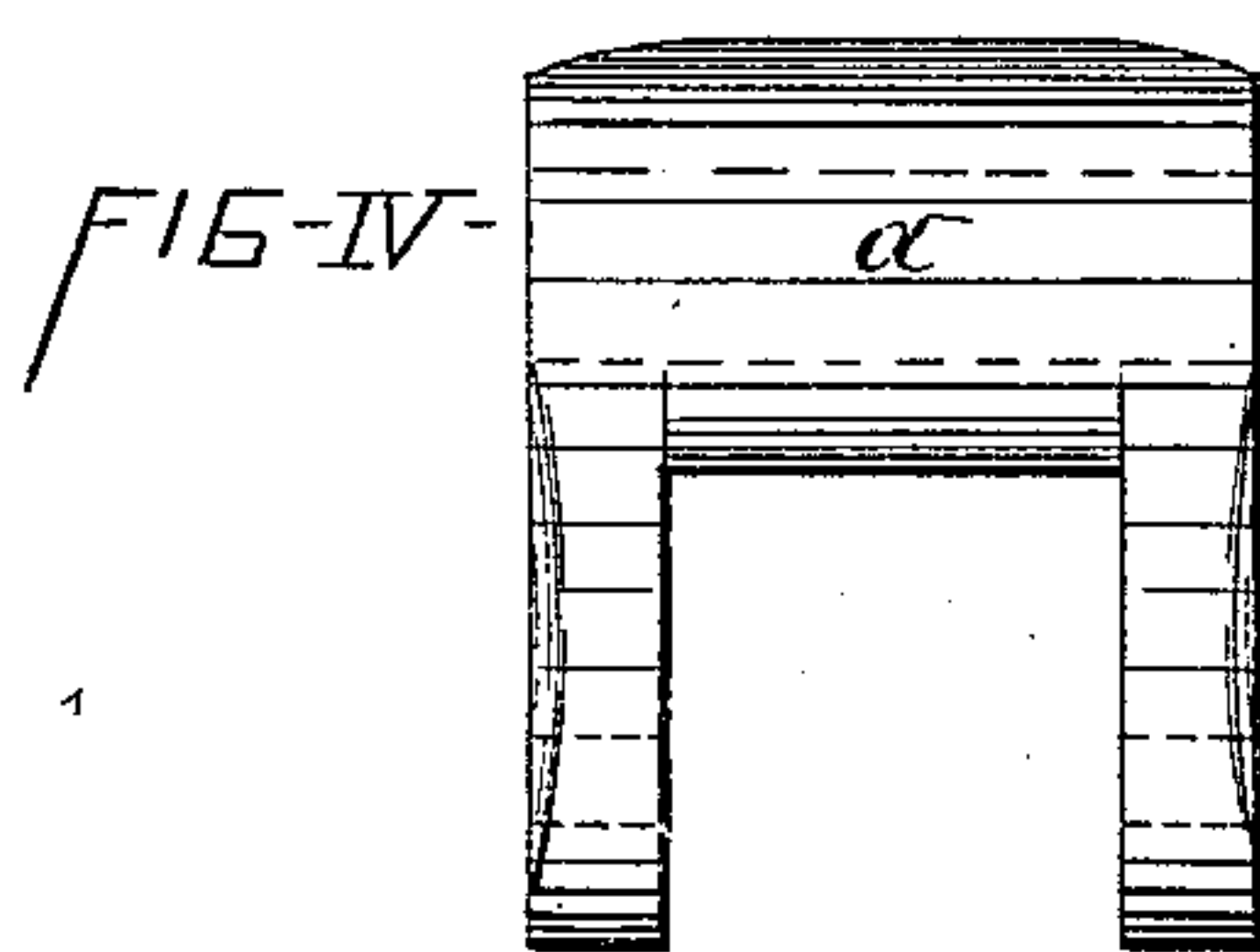
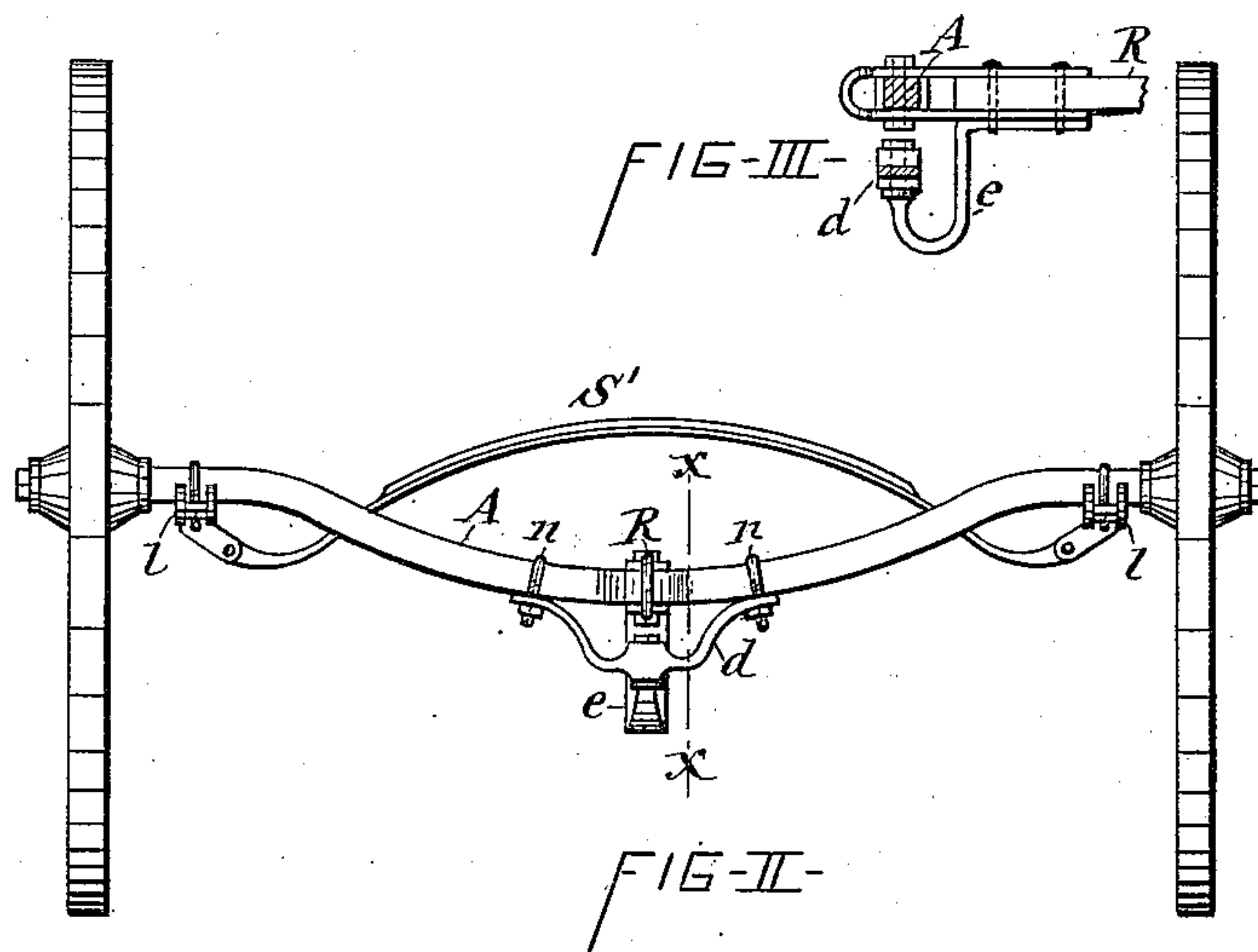
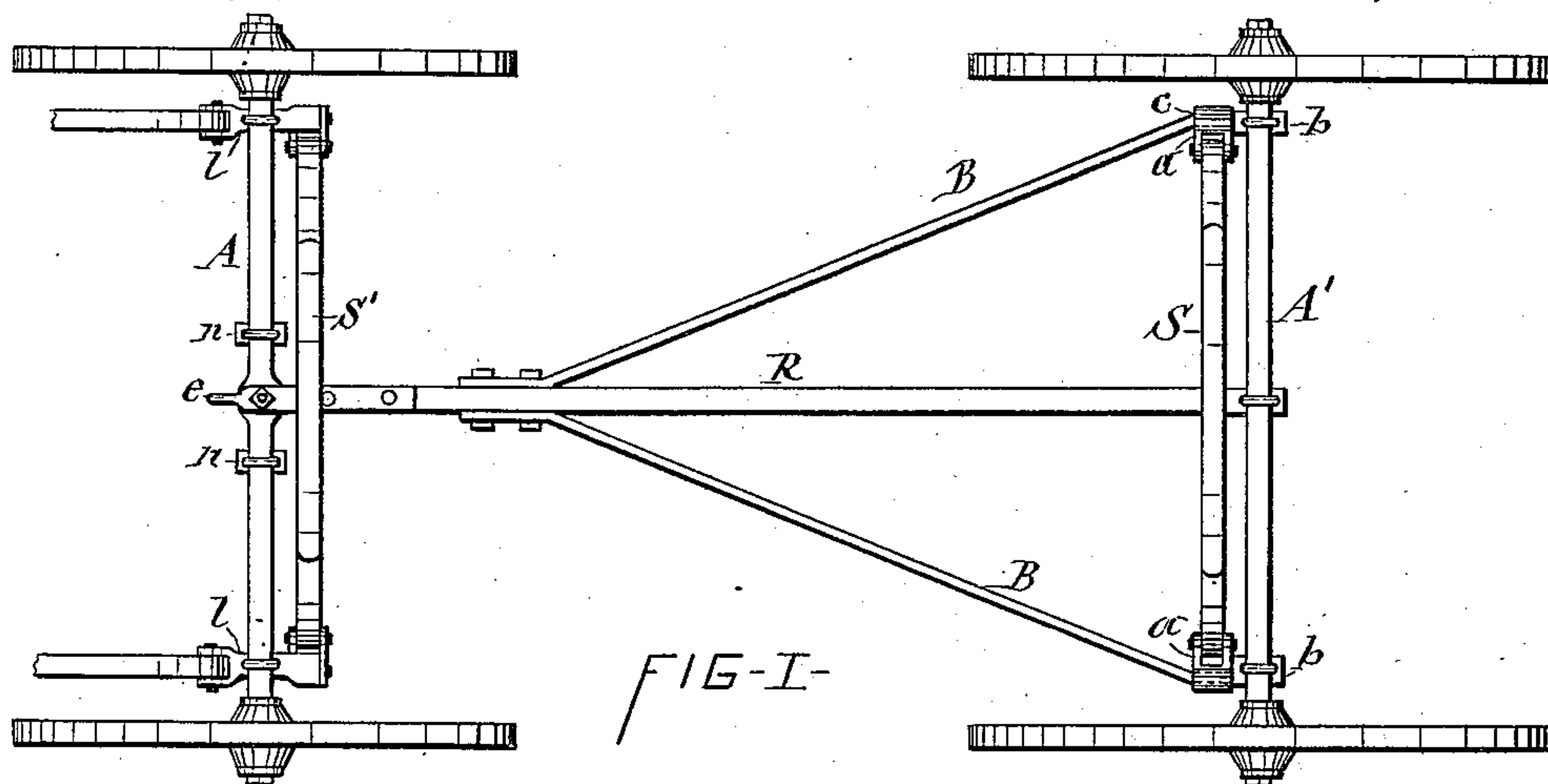


(No Model.)

H. A. MOYER.  
SPRING VEHICLE.

No. 334,032.

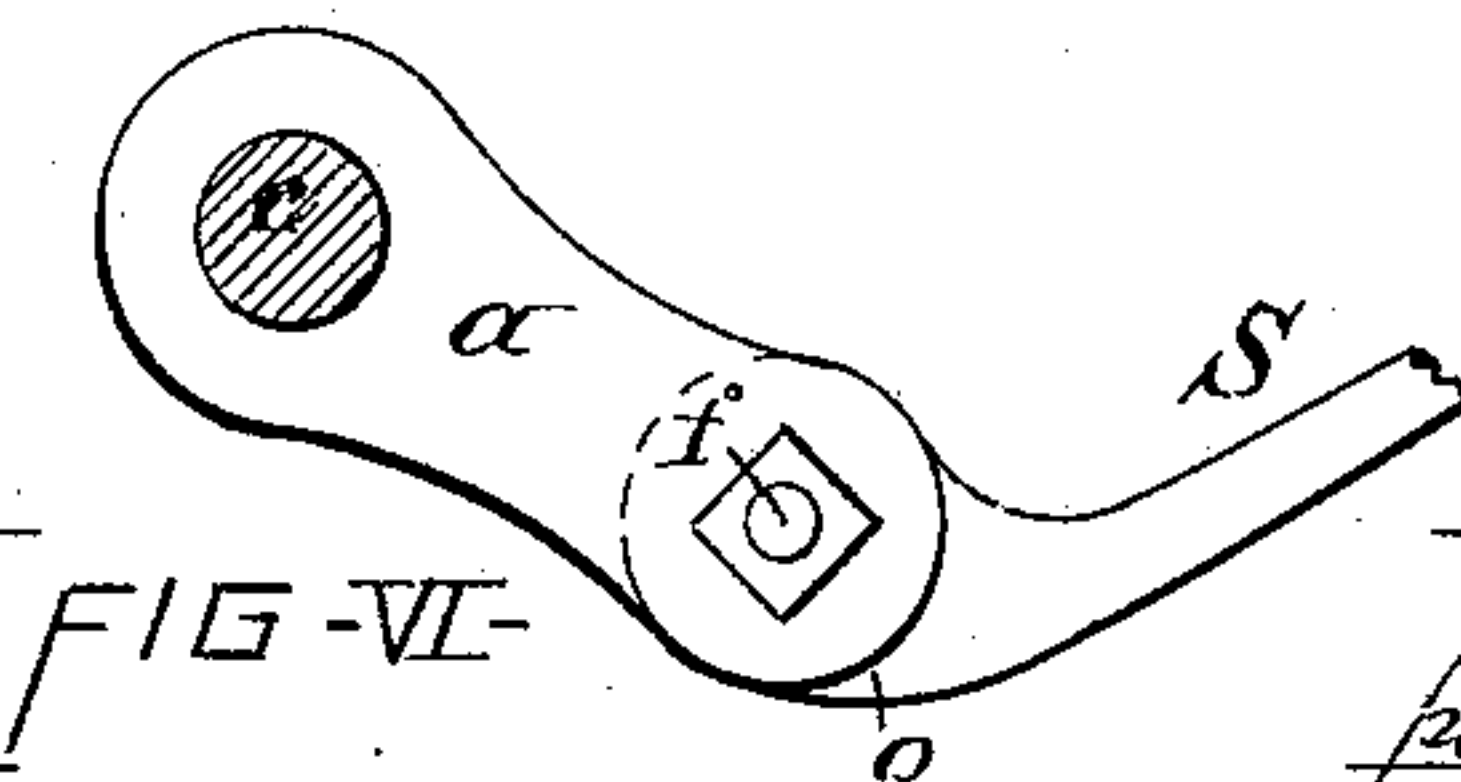
Patented Jan. 12, 1886.



WITNESSES

C. Bendixon

E. C. Cannon



INVENTOR

Harvey A. Moyer

per Hull, Laass & Hing

Atty

# UNITED STATES PATENT OFFICE.

HARVEY A. MOYER, OF SYRACUSE, NEW YORK.

## SPRING-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 334,032, dated January 12, 1886.

Application filed August 6, 1885. Serial No. 173,691. (No model.)

*To all whom it may concern:*

Be it known that I, HARVEY A. MOYER, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and  
5 useful Improvements in Spring-Vehicles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the vehicle for  
10 which I have obtained Letters Patent of the United States No. 292,036, dated January 15, 1884.

Experience in the manufacture of the vehicle therein described has proved that the  
15 forging or welding of the ears on the reach-braces, for hanging thereon the rear cross-spring, is very difficult and too expensive; and in the use of said vehicle it is found that the forward axle has a tendency to turn or  
20 tilt rearward, owing to the hanging of the forward cross-spring on the rear side of said axle.

The object of my present invention is to obviate the aforesaid defects; and to that end it consists in the improved construction and  
25 combination of parts hereinafter described, and specifically pointed out in the claims.

In the annexed drawings, Figure I is a top plan view of the vehicle provided with my improvements. Fig. II is a front end view of  
30 the same. Fig. III is a transverse section on line *x x*, Fig. II. Fig. IV is an enlarged detached view of the hanger by which the rear spring is connected to the reach-brace. Fig. V is a detail view of the rear end portion of  
35 the reach-brace, showing its condition before connecting thereto the aforesaid hanger, and Fig. VI is a detail view of the connection of the spring with the reach-brace.

Similar letters of reference indicate corresponding parts.

A and A' designate, respectively, the front and rear axles of the vehicle.

R denotes the reach connected at opposite ends to the center of the respective axles, and  
45 B B are two reach-braces attached to the hind axle, near the wheels thereof, and extended diagonally to and connected with the reach, as illustrated in Fig. I of the drawings. Each of the reach-braces B has formed integral with  
50 it a clip-bar, *b*, which is rigidly secured to the axle by a clip embracing the latter in the usual manner. Adjacent to this clip-bar, and

in front of the axle, the reach-brace is formed with a straight cylindrical portion, *c*, standing at right angles to the axle A'.

On the cylindrical portion *c* I hinge one of  
55 the hangers *a*, which hanger is formed with a cylindrical sleeve, which loosely embraces the cylindrical portion *c* of the reach-brace, and has projecting from it at right angles in one  
60 and the same direction two arms, which are perforated at their free ends. The rear cross-spring, S, is formed with the usual eye, *o*, on its end, which enters between the arms of the hanger, and is coupled thereto by a bolt, *f*,  
65 passing through the hanger-arms and eye of the spring. The hanger *a* I slip onto the reach-brace B before bending the latter into its diagonal shape, the subsequent bending of the brace serving to retain the hanger *a* in its  
70 position.

I am aware that prior to my present invention the reach-braces have been formed with rearward-projecting trunnions, on which the rear cross-spring was hung; but it will be ob-  
75 served that in such a construction and combination of parts the trunnions which receive the strain of the spring are supported only at one end, and consequently are liable to be broken off, and the coupling of the spring re-  
80 quires an extra nut on the end of the trunnion, and in case this nut works loose the spring is liable to slip off from the trunnion. All of these defects are obviated in my invention.

S' represents the forward cross-spring, 85 which is hung on the rearward extension of the clip-bar *l*, fastened to the forward axle, A, and formed in front of said axle, with ears for the attachment of the thill, the spring being thus hung on the axle at the rear side thereof,  
90 said arrangement of parts tending to turn or tilt the axle rearward when subjected to a load, and in order to prevent this movement of the axle I place lengthwise on the central portion thereof a brace or arch, *d*, rigidly se-  
95 cured thereto at opposite sides of the pivot of the reach by means of clips *n n*, or other suitable and well-known devices, the central portion of said brace being deflected from the axle, as represented in Fig. II of the drawings. 100

To the forward end of the reach R, I rigidly secure a brace, *e*, which projects therefrom, and is pivoted on the center of the brace *d*, directly in range with the pivot of the reach on



the axle A, as represented in Fig. II of the drawings.

By means of the described brace I effectually prevent the turning of the axle hereinbefore referred to.

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

1. In combination with the hind axle, A', and central reach, R, the reach-braces B B, attached to said axle near the wheels thereof, and formed in front of the axle with the straight cylindrical portions *c c*, and extended thence diagonally to the reach, the hangers *a*, hung on the reach portions *c c* and retained in position by the diagonal deflection of the reach, and the spring S, coupled to the said hangers, all constructed and combined substantially in the manner specified and shown.

2. In combination with the forward axle and the reach R, pivoted on the center of the axle, the arch or brace *d*, arranged lengthwise the axle and secured thereto at opposite sides of the reach, and having its central portion deflected from the axle, and the brace *e*, projecting from the reach and pivoted on the brace *d*, substantially as described and shown.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 4th day of August, 1885.

HARVEY A. MOYER. [L. S.]

Witnesses:

FREDERICK H. GIBBS,  
C. BENDIXON.