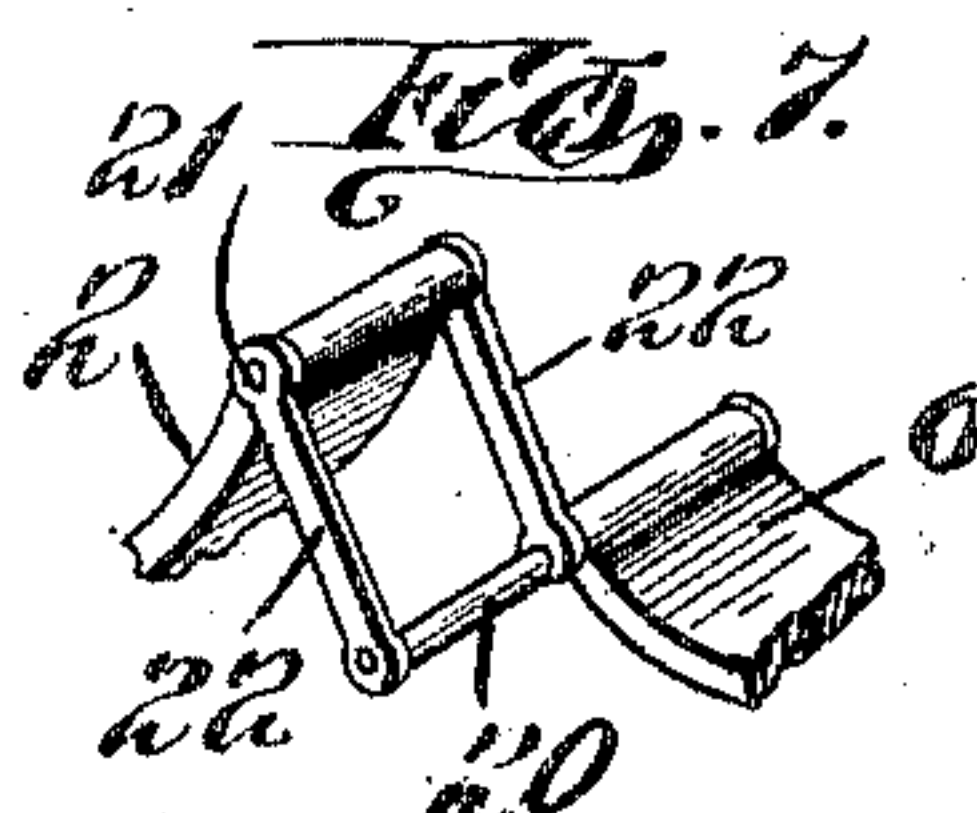
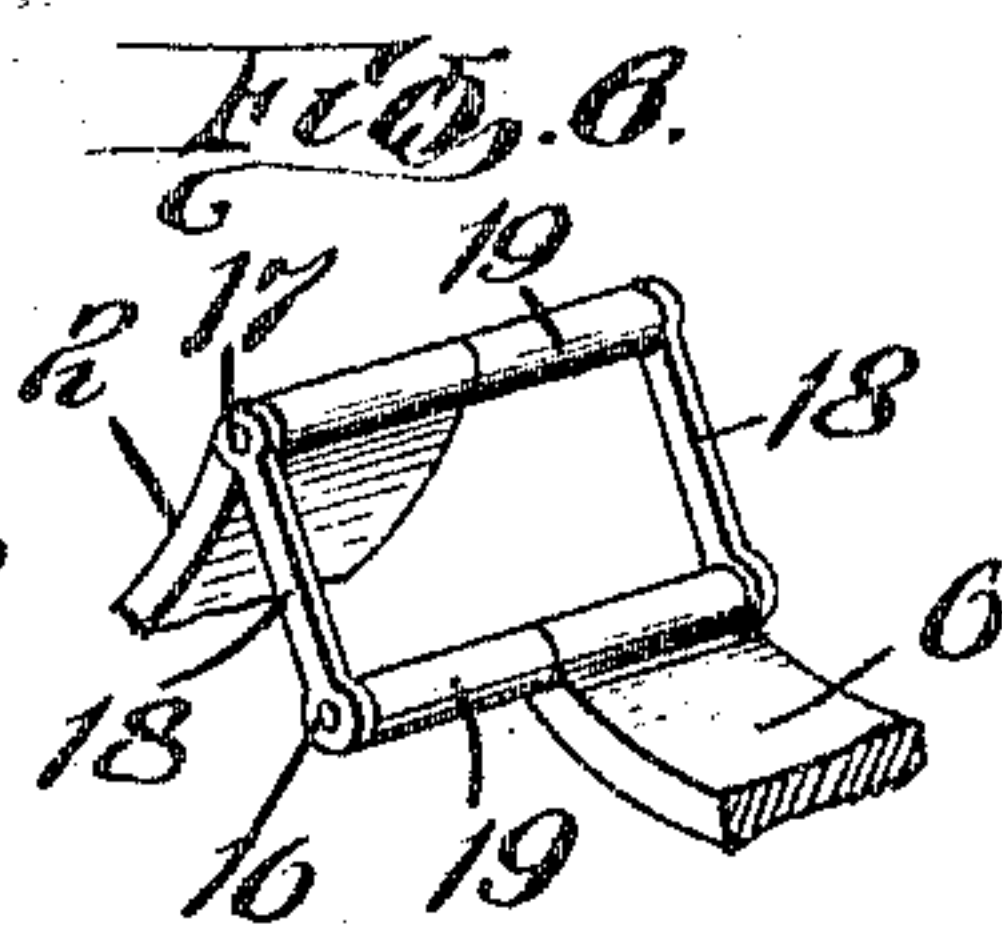
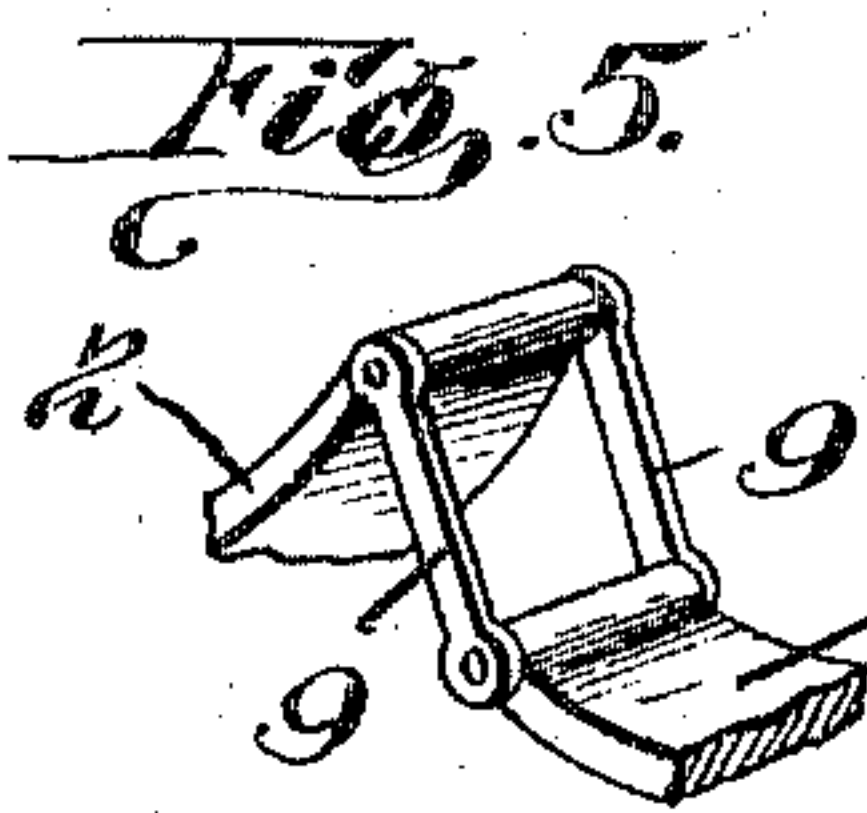
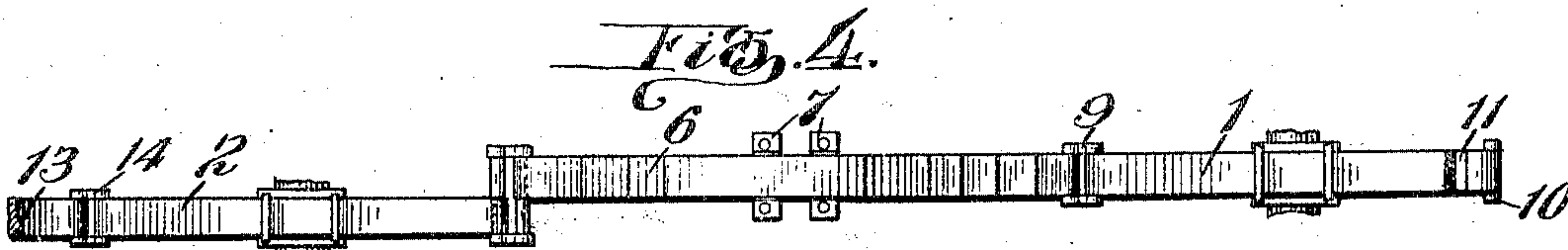
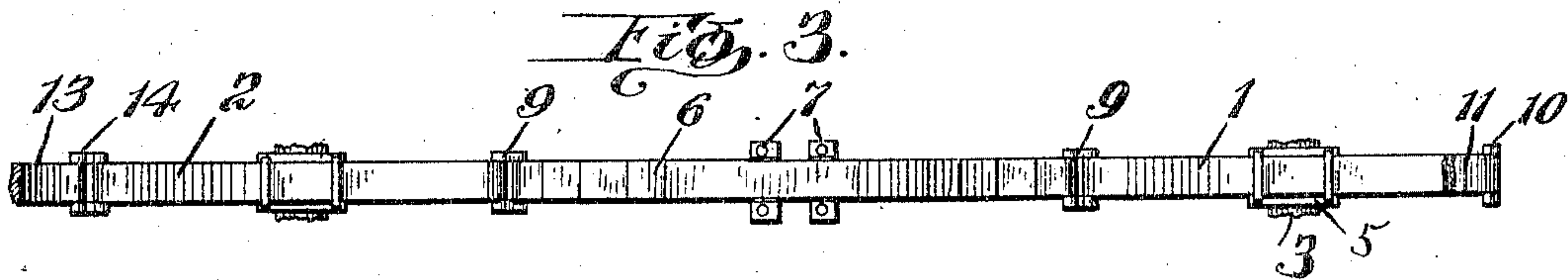
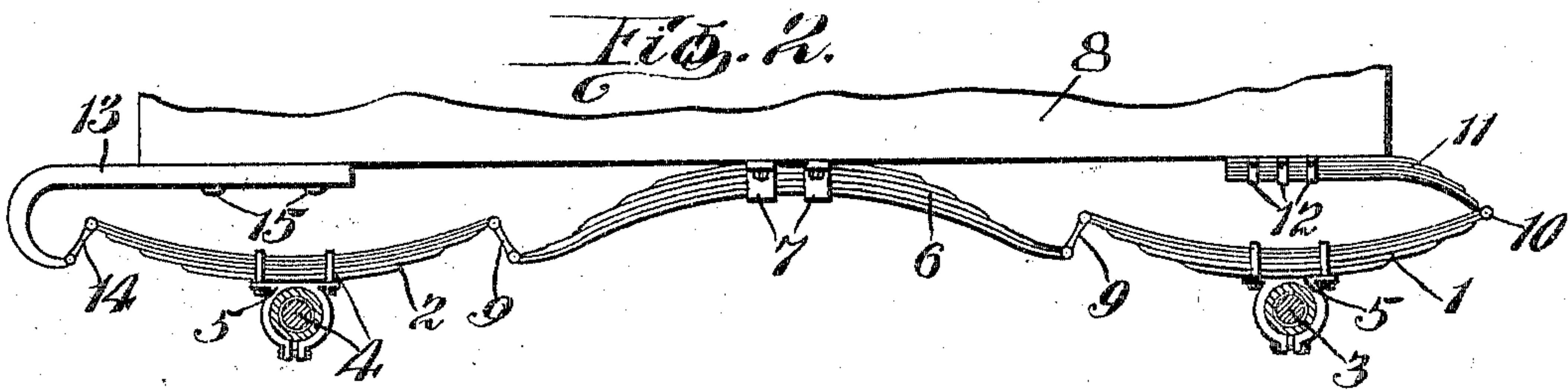
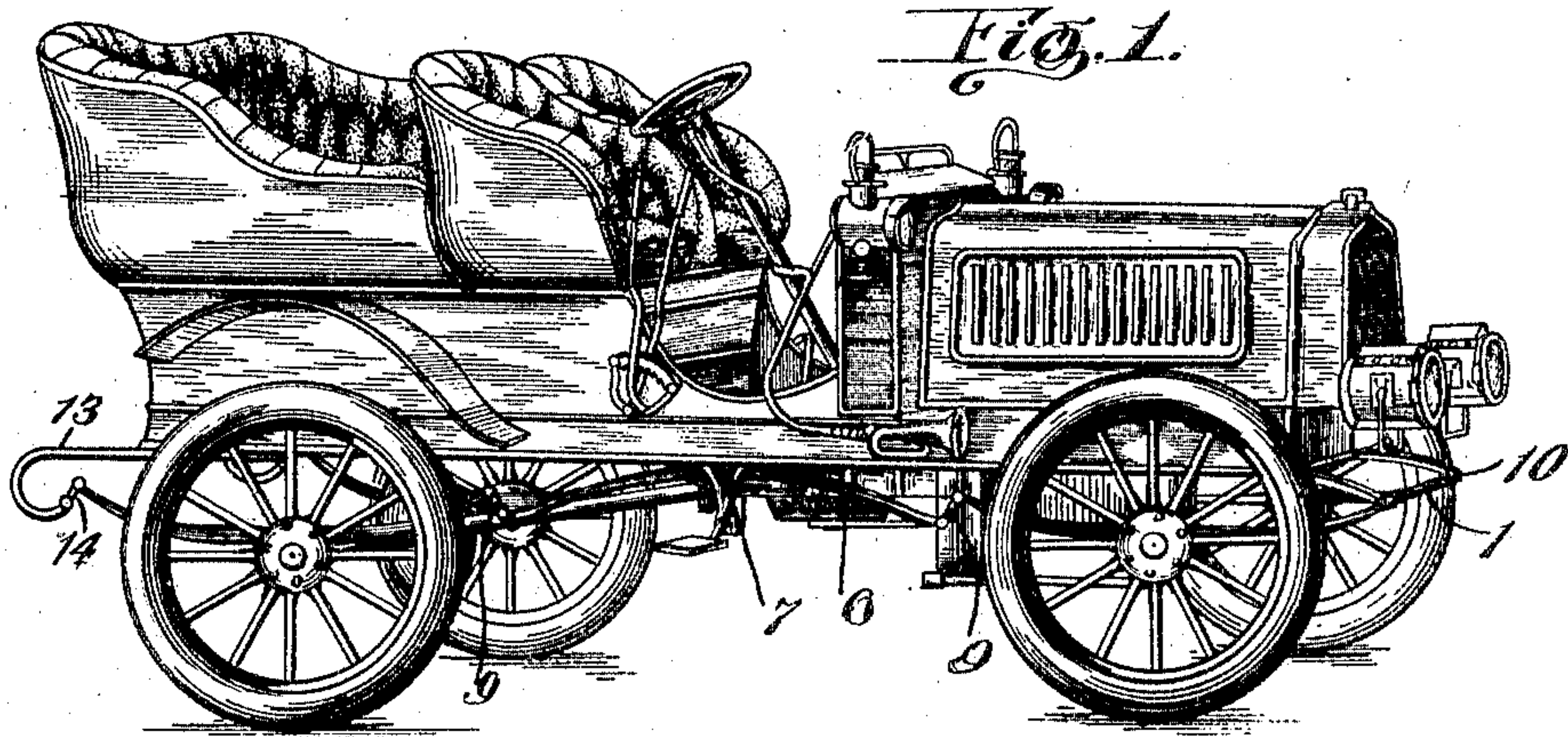


No. 776,513.

PATENTED DEC. 6, 1904.

L. A. HILL.
AUTOMOBILE SPRING.
APPLICATION FILED MAY 6, 1904.

NO MODEL.



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UNITED STATES PATENT OFFICE.

LOUIS A. HILL, OF WASHINGTON, DISTRICT OF COLUMBIA.

AUTOMOBILE-SPRING.

SPECIFICATION forming part of Letters Patent No. 776,513, dated December 6, 1904.

Application filed May 6, 1904. Serial No. 206,724. (No model.)

To all whom it may concern:

Be it known that I, LOUIS A. HILL, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Automobile-Springs, of which the following is a specification.

My invention relates to a spring running-gear for vehicles; and it consists in the constructions, arrangements, and combinations herein described and claimed.

The objects of my invention are to provide a strong and durable spring running-gear which will have an equalizing or compensating action, thereby minimizing all lateral and longitudinal movements or sway of the vehicle-body.

A further object of my invention is to provide a spring running-gear especially adapted for motor-vehicles and constructed to absorb the vibrations and varying thrust of the motor, thereby obviating the disagreeable jarring occurring in existing motor-vehicles.

Referring to the accompanying drawings, forming a part of this application, and in which similar reference-numerals indicate corresponding parts in the several views, Figure 1 is a perspective view illustrating my invention applied to one type of motor-vehicle. Fig. 2 is a detail elevation more clearly illustrating my improved spring-gear. Fig. 3 is a top plan of the spring-gear shown in Fig. 2. Fig. 4 is a top plan view illustrating a modification of my invention in which the rear semi-elliptic spring lies in a different plane from its corresponding equalizing-spring. Fig. 5 is a detail perspective view showing a preferred form of a link connection between two springs lying in the same plane, and Figs. 6 and 7 are detail perspective views showing two forms of link connections between the adjacent ends of springs lying in different planes.

Referring especially to Figs. 1, 2, 3, and 5 of the drawings, my invention is shown comprising semi-elliptic springs 1 and 2, which are secured, respectively, to the front and rear axles 3 and 4 by any suitable means, as clips 5. An equalizing-spring 6 is secured by

the clips 7 to each side of the vehicle-body 8 and has its ends freely suspended by links 9 from the adjacent inner ends of the semi-elliptic springs 1 and 2. The forward end of the semi-elliptic spring 1 is hinged or pivotally connected at 10 to a resilient hanger 11, secured to the forward portion of the vehicle-body at 12 in any suitable manner. This resilient hanger 11 preferably comprises a leaf-spring, as clearly shown in Fig. 2. A hanger 13 on the rear of the vehicle-body has its free end suspended by a link 14 from the rear end of the corresponding semi-elliptic spring 2. Such hangers 13 may be formed integral with the vehicle-frame or may be suitably secured thereto, as by bolts 15.

Fig. 6 shows a preferred form of connection between the equalizing-spring 6 and rear spring 2 when said springs are arranged in different planes. In this construction pins 16 and 17, passing, respectively, through the springs 6 and 2, are connected by two links 18, spacing-sleeves 19 being positioned on the pins for securely maintaining the parts in position.

Fig. 7 illustrates a modification of the construction shown in Fig. 6, in which pins 20 and 21, passing, respectively, through the springs 6 and 2, are connected by links 22, both of which are positioned at one side of the spring 6.

My invention provides means for supporting the vehicle-body at three points 12, 7, and 15 along each side in such manner that any vibration or force exerted on one support will be equalized by being efficiently transmitted to the other supports. My invention further provides a free link connection between the several points of support, thereby constituting a spring running-gear which is flexible in its entirety and which permits ready shifting of the rear axle for adjustment of the motor-vehicle driving-gear.

It is obvious that the several parts of the spring running-gear can be proportioned and adjusted to position the support 7 below the center of gravity of the vehicle-body or to permit any necessary or desired relative arrangement of the several points of support.

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

1. In a vehicle, the combination of springs
5 carried on the front and rear axles at each side of the vehicle-body, an equalizing-spring supporting the vehicle-body at each side intermediate said front and rear axles, links
10 connecting each of said equalizing-springs to the adjacent portions of the corresponding front and rear springs, and hangers carried by the vehicle-body and connected to said front and rear springs, substantially as described.

15 2. In a vehicle, the combination of semi-elliptic springs carried on the front and rear axles at each side of the vehicle-body, equalizing-springs supporting the vehicle-body at points between said front and rear axles, links
20 connecting the ends of said equalizing-springs to the adjacent ends of said front and rear springs, and hangers carried by the vehicle-body and connected to the adjacent free ends of said front and rear springs, substantially
25 as described.

3. In a vehicle, the combination of semi-elliptic springs carried on the front and rear axles at each side of the vehicle-body, equalizing-springs supporting the vehicle-body at
30 points between said front and rear axles, links suspending the ends of said equalizing-springs from the adjacent ends of said front and rear springs, and hangers carried by the vehicle-body and connected to the adjacent free ends

of said front and rear springs, substantially 35 as described.

4. In a vehicle, the combination of semi-elliptic springs carried on the front and rear axles at each side of the vehicle-body, equalizing-springs supporting the vehicle-body at
40 points between said front and rear axles, links suspending the ends of said equalizing-springs from the adjacent ends of said front and rear springs, hangers carried by the vehicle-body and hinged to the forward ends of said front
45 springs, hangers carried at the rear of the vehicle-body, and links connecting said last hangers to the adjacent ends of said rear springs, substantially as described.

5. In a vehicle, the combination of semi-elliptic springs carried on the front and rear
50 axles at each side of the vehicle-body, equalizing-springs supporting the vehicle-body at points between said front and rear axles, links suspending the ends of said equalizing-springs
55 from the adjacent ends of said front and rear springs, resilient hangers carried by the vehicle-body and hinged to the forward ends of said front springs, hangers carried at the rear of the vehicle-body, and links connecting said
60 last hangers to the adjacent ends of said rear springs, substantially as described.

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

LOUIS A. HILL.

Witnesses:

EDWARD M. WEEKS,
GEO. U. ROSE, Jr.