

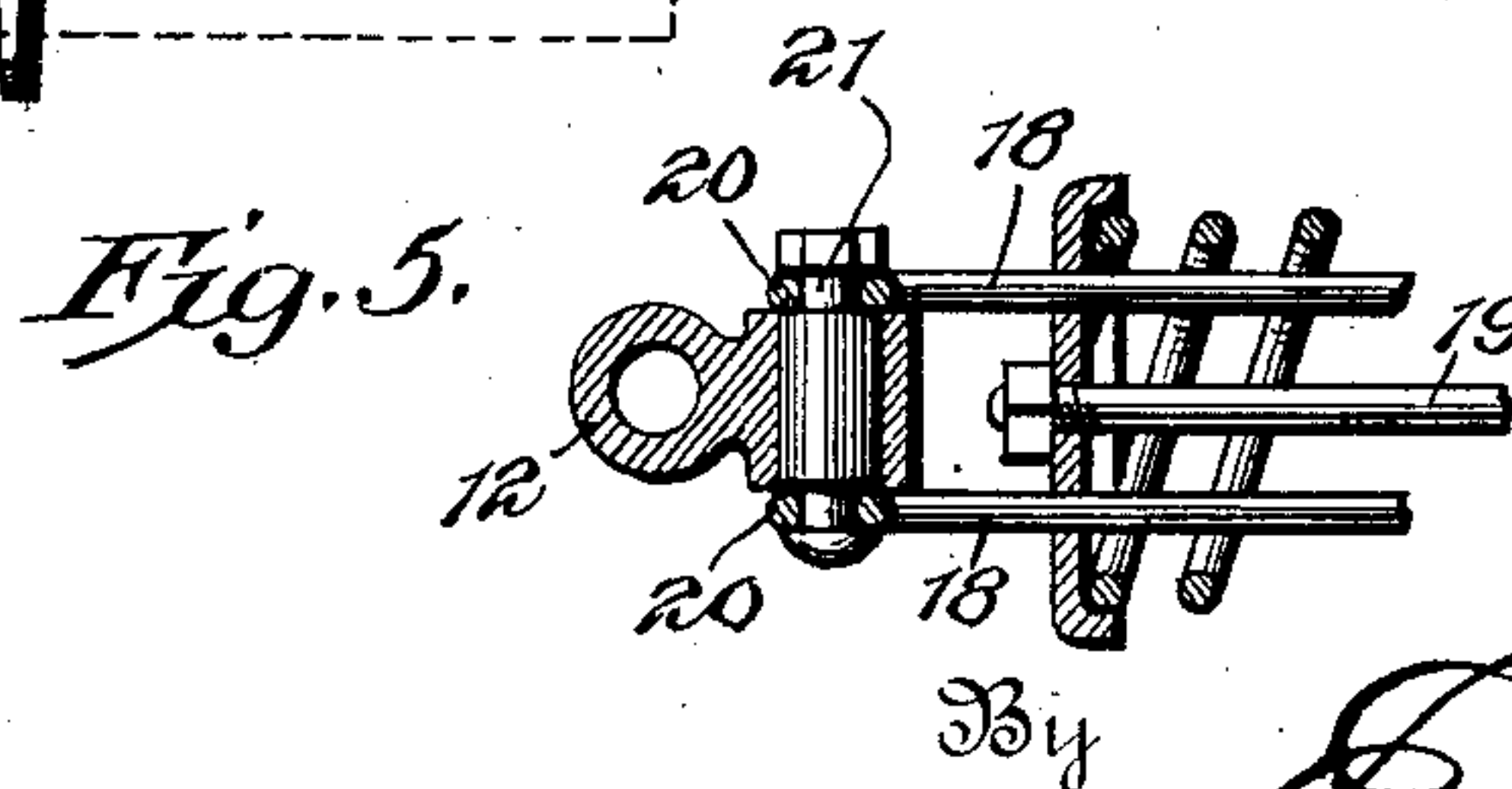
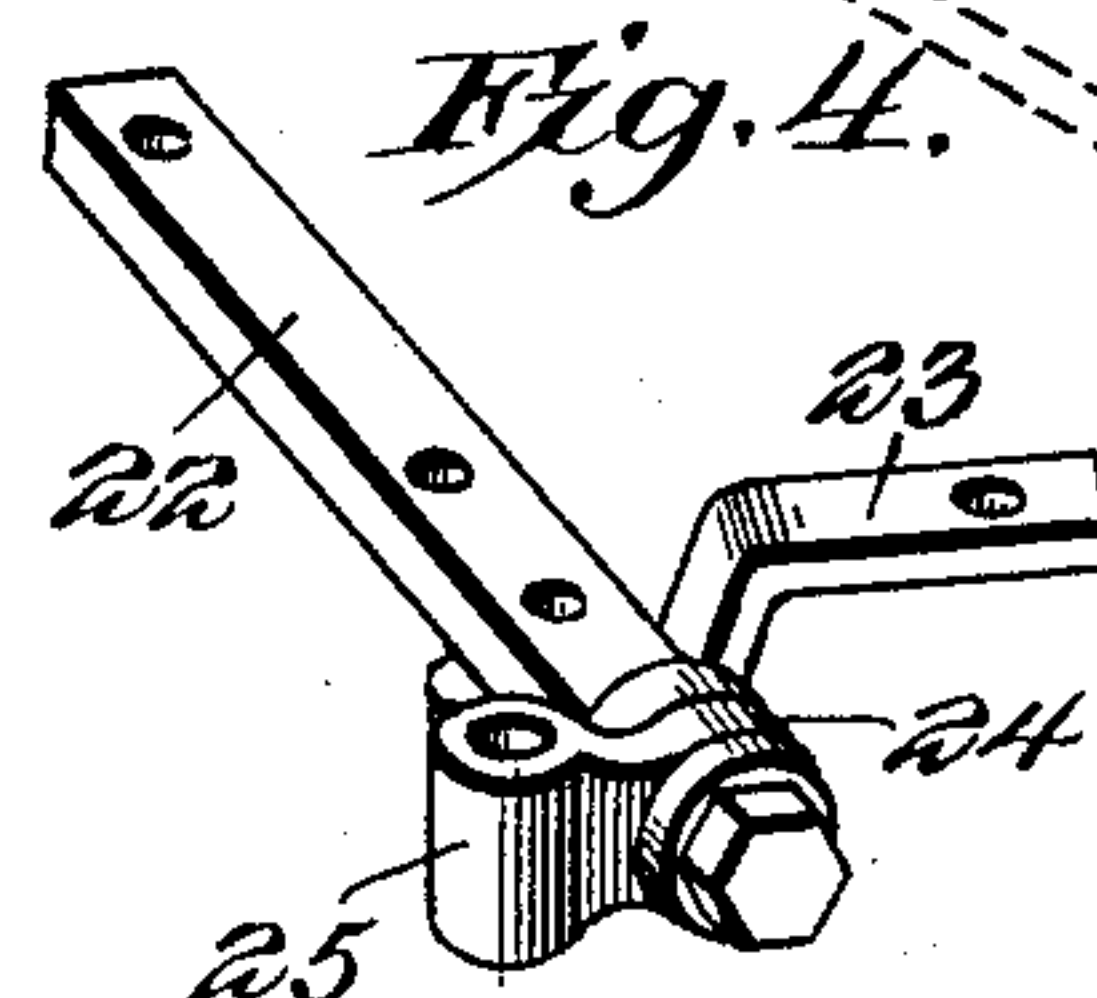
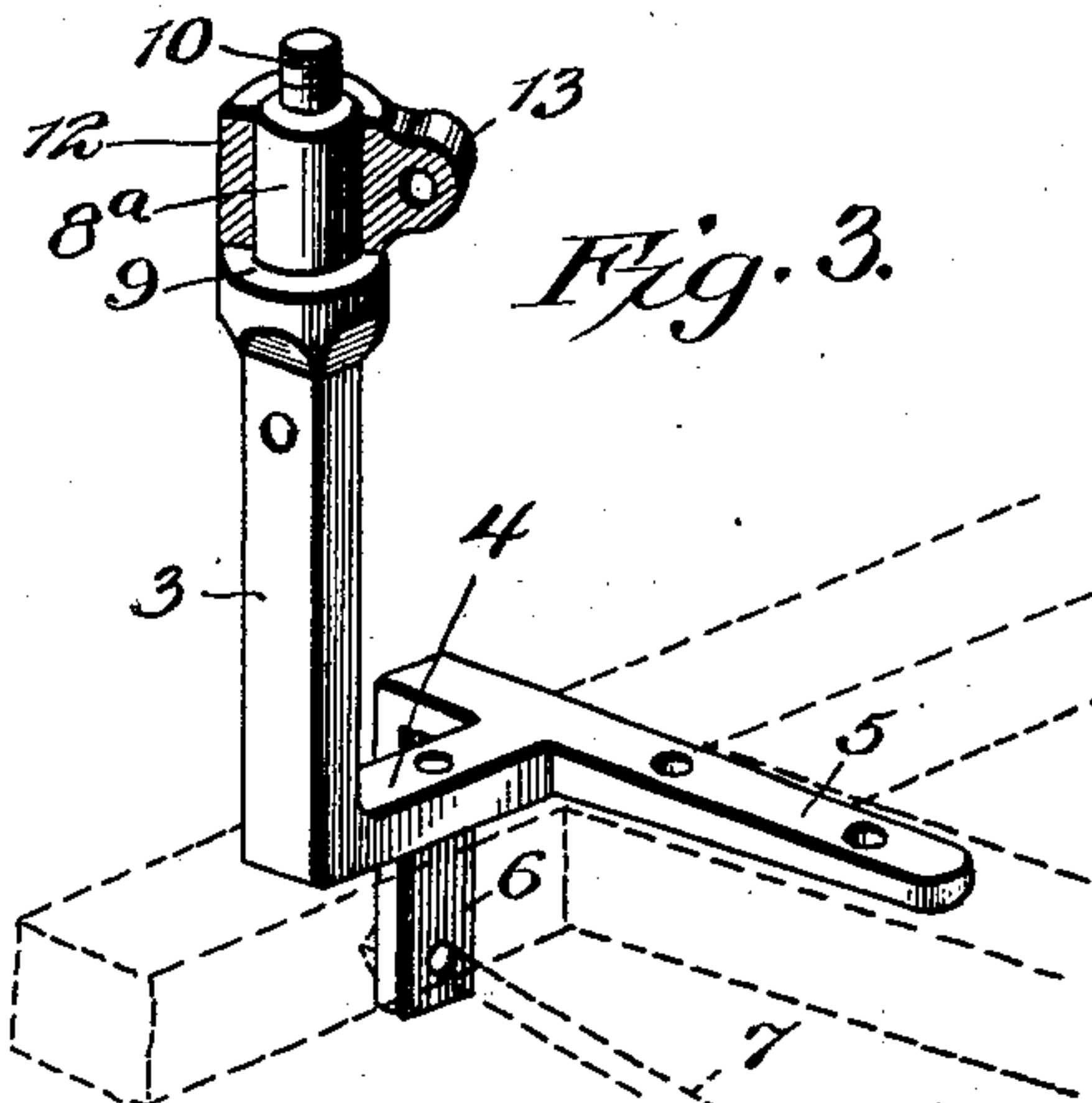
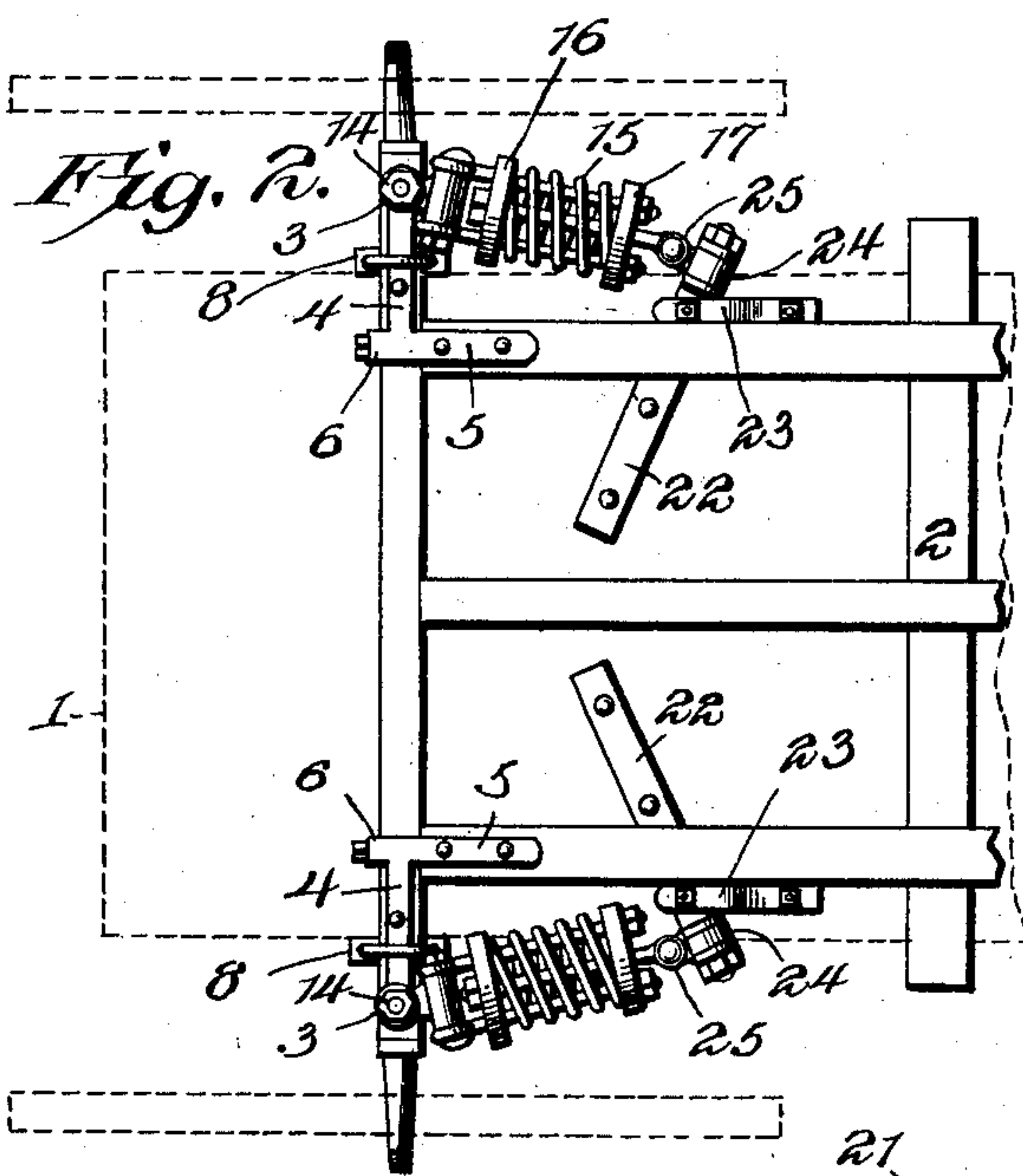
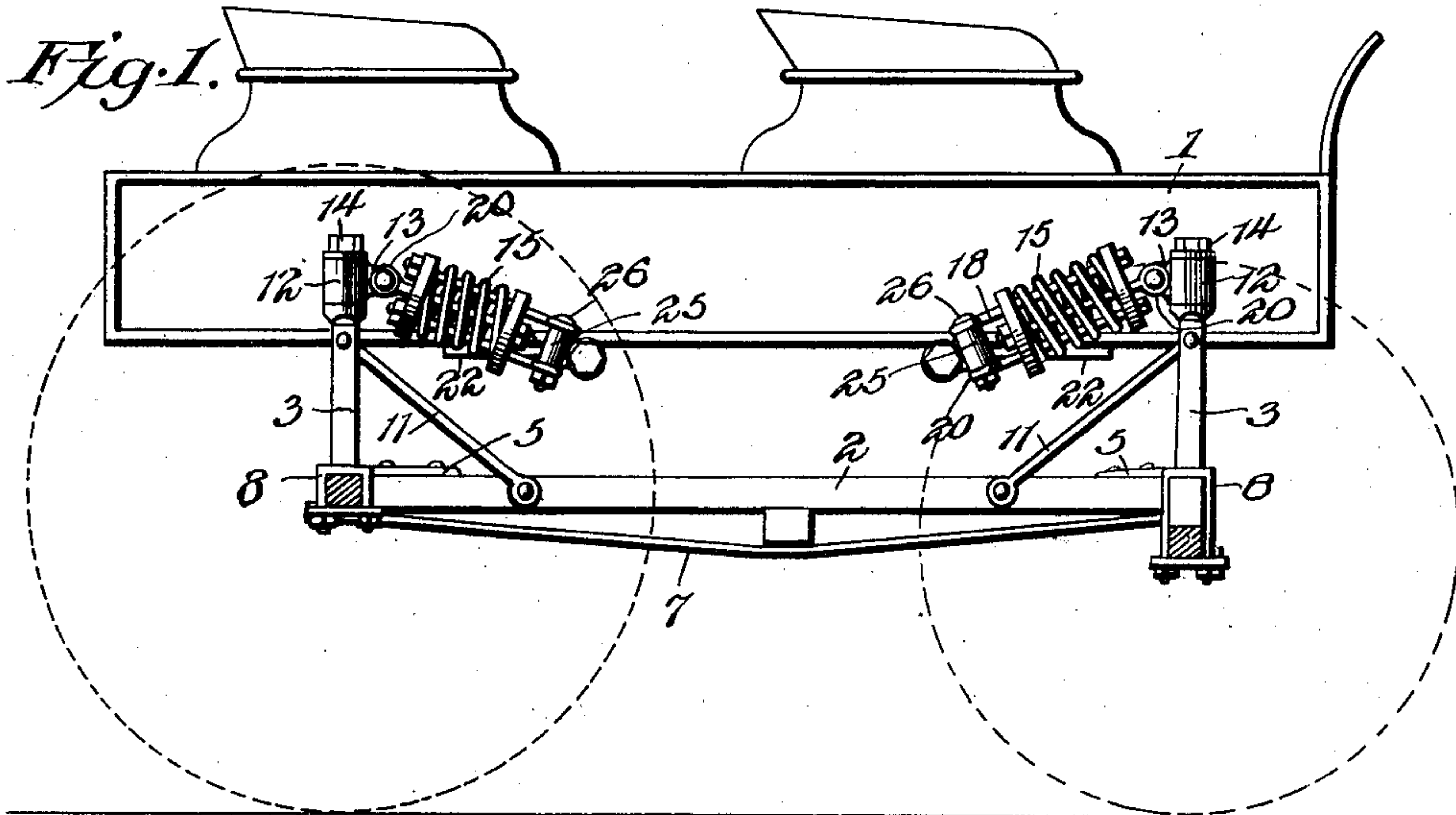
No. 733,940.

PATENTED JULY 21, 1903.

F. BOSCH.  
VEHICLE SPRING.

APPLICATION FILED DEC. 3, 1902.

NO MODEL.



Witnesses

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# UNITED STATES PATENT OFFICE.

FRANK BOSCH, OF CRESCENT CITY, CALIFORNIA.

## VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 733,940, dated July 21, 1903.

Application filed December 3, 1902. Serial No. 133,729. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK BOSCH, a citizen of the United States, residing at Crescent City, in the county of Del Norte and State of California, have invented a new and useful Vehicle, of which the following is a specification.

This invention relates to vehicles, and is particularly designed to provide improvements in the manner of mounting the bed or body shown in my prior patent, No. 697,395, dated April 8, 1902.

It is furthermore designed to provide an improved standard for the support of each spring member upon the running-gear, so as to permit of a free vertical swinging movement of the spring.

Another object is to provide improvements in the manner of connecting the lower end of each spring member to the vehicle bed or body in order that the spring may have the desired lateral looseness.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a side elevation of a vehicle-body and running-gear having the improved arrangement of supporting-springs applied thereto. Fig. 2 is an inverted bottom plan view of one end of the vehicle. Fig. 3 is a detail perspective view of one of the standards. Fig. 4 is a detail perspective view of one of the brackets for attachment to the vehicle-body. Fig. 5 is a detail longitudinal sectional view taken through one end of one of the spring members.

Like characters of reference designate corresponding parts in all the figures of the drawings.

To adequately illustrate the application and operation of the present improvements, I have shown in the accompanying drawings a wagon-body 1 and a running-gear 2, it of course being understood that the form of

these parts may be varied, as they constitute no part of the present invention.

In carrying out the present invention a standard 3 is fitted to each end of the rear axle and at both ends of the head-block of the front axle at the outer side of the wagon-bed, the lower end of the standard being provided with an attaching-bracket consisting of a substantially horizontal arm 4, bent laterally inward and lying flat upon the top of the axle, a cross-head member 5, integral with the outer end of the arm 4 and bolted to the top of the adjacent reach-bar of the running-gear, and a pendent member 6 at one end of the part 5 and lying against and projected below the axle, with its lower end provided with openings for the reception of a truss or tie-bar 7, which lies below the reach-bar, the opposite end of the tie-bar being connected to the corresponding member 6 of the bracket at the opposite end of the vehicle. In addition to the bracket the standard is furthermore connected to the axle by means of an axle-clip 8, embracing the axle and the arm 4 close up to the standard. The upper end of the standard is reduced to form a bearing-spindle 8<sup>a</sup>, at the base of which is an annular shoulder 9, the outer extremity of the spindle being reduced and formed into a screw-threaded stem or projection 10. A brace 11 extends between the upper end portion of the standard and the adjacent reach-bar. A tubular coupling or sleeve 12 rotatably embraces the spindle portion 8 of the standard and is supported upon the shoulder 9. This upstanding sleeve or coupling is provided with a horizontally-perforated ear 13 or bearing-knuckle, and a retaining-nut 14 is fitted to the screw-threaded projection 10, so as to prevent displacement of the coupling without interfering with the free rotation thereof upon the spindle.

The body of the vehicle is supported from each standard by means of a helical spring 15, the opposite ends of which are inclosed within cap-plates or followers 17, which are pierced by two sets or pairs of eyebolts 18 and 19, respectively, the eyes 20 of the bolts 18 lying at the opposite ends of the knuckle 13, with a pivot-bolt 21 passing through the eyes and the knuckle, so as to form a pivotal or



hinged connection between the upper end of the spring member and the swiveled sleeve 12. It will of course be understood that the bolts loosely pierce the followers and are provided at their screw-threaded ends with nuts to form heads, which bear against the outer faces of the followers, whereby when tension is placed upon the spring and the latter compressed thereby the followers may readily slide upon the bolts. For connecting the lower end of each spring member to the vehicle there is a bracket 22, consisting of a straight arm, which is bolted or otherwise secured to the under side of the bottom of the vehicle-body, is set at an angle to the axle, and has its outer end projected beyond the adjacent side of the vehicle-body and provided with a spindle portion and a nut, as described, for the upper end of the standard. The outer end of the bracket is further braced by means of a clip 23, which is secured to the under side of the vehicle-body and embraces the bracket-arm. A sleeve or coupling 24, having a perforate knuckle 25, is rotatably fitted to the spindle portion of the bracket 22 and is a substantial duplicate of the coupling 12, with the exception that the knuckle 25 stands substantially vertical instead of horizontal. The eyes of the bolts or links 19 lie at the opposite ends of the knuckle 25 and are pivotally connected thereto by means of a bolt 26, whereby it will be understood that the connection between the upper end of the spring and the standard is substantially the same as that between the lower end of the spring and the bracket upon the vehicle-body.

As best indicated in Fig. 2 of the drawings, it will be seen that the standards are located outwardly from the respective brackets of the vehicle-body, whereby the springs are inclined inwardly toward the center of the body, and hence exert radial pulls, thereby to prevent lateral swaying of the vehicle-body, while at the same time permitting of the desired vertical yielding movements when passing over rough roadways.

From the foregoing description it is apparent that the device of the present invention is complete in itself and may be employed for the support of a vehicle-body irrespective of any particular construction or adaptation of the body and the running-gear and without requiring any alteration or change in the same. Moreover, the several parts of the device may be conveniently assembled and fitted to the running-gear and the vehicle-body without requiring the employment of skilled labor.

What is claimed is—

1. A vehicle-spring, embodying a standard having an upper terminal spindle portion, a

horizontal rotatable tubular coupling mounted upon the spindle and provided with a substantially horizontal knuckle, a bracket for attachment to a vehicle-body and provided with an outer terminal spindle portion, a vertically-rotatable tubular coupling mounted upon the spindle portion of the bracket and provided with an upstanding knuckle, a helical spring interposed between the two couplings, two sets of eyebolts piercing the followers with their eyes embracing opposite ends of the respective knuckles, and pivot-bolts extending through the corresponding eyes and knuckle.

2. The combination with a running-gear and a vehicle-body, of a standard rising from one of the axles, and provided at its lower end with a lateral arm lying upon the top of the axle, a cross-head at the outer end of the arm and lying transversely across the axle and longitudinally upon the top of the adjacent reach-bar, and a pendent member at one end of the cross-head and lying against the outer side of the axle, a bracket carried by and projected laterally from the vehicle-body, and a spring connected at opposite ends to the standard and the bracket.

3. A vehicle-spring, embodying a standard having its lower end provided with a laterally-projected substantially T-shaped bracket member with a pendent member at one end of the bracket, the upper end of the standard having a spindle portion with an annular shoulder at the base thereof and a reduced screw-threaded projection at its outer end, a tubular coupling rotatably mounted upon the spindle portion and supported upon the shoulder, the coupling being provided with a substantially horizontal knuckle, a nut applied to the screw-threaded projection, a bracket for application to a vehicle-body, and provided with a spindle portion having a reduced terminal screw-threaded projection, a rotatable tubular coupling mounted upon said spindle portion and provided with an upstanding knuckle, a nut fitted to said screw-threaded projection, a helical spring interposed between the couplings, followers at opposite ends of the spring, two sets of eyebolts piercing the followers with their eyes registered with the opposite ends of the respective knuckles, and pivot-bolts passing through the knuckles and the respective eyes.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK BOSCH.

Witnesses:

JOHN L. CHILDS,  
GEO. H. CRAWFORD.