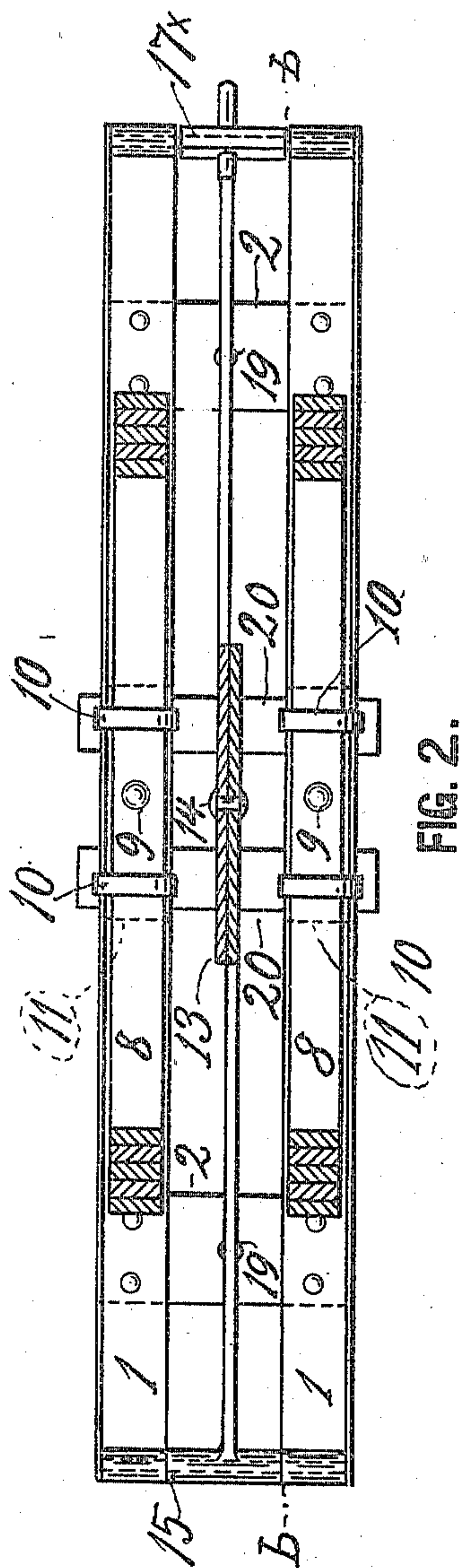
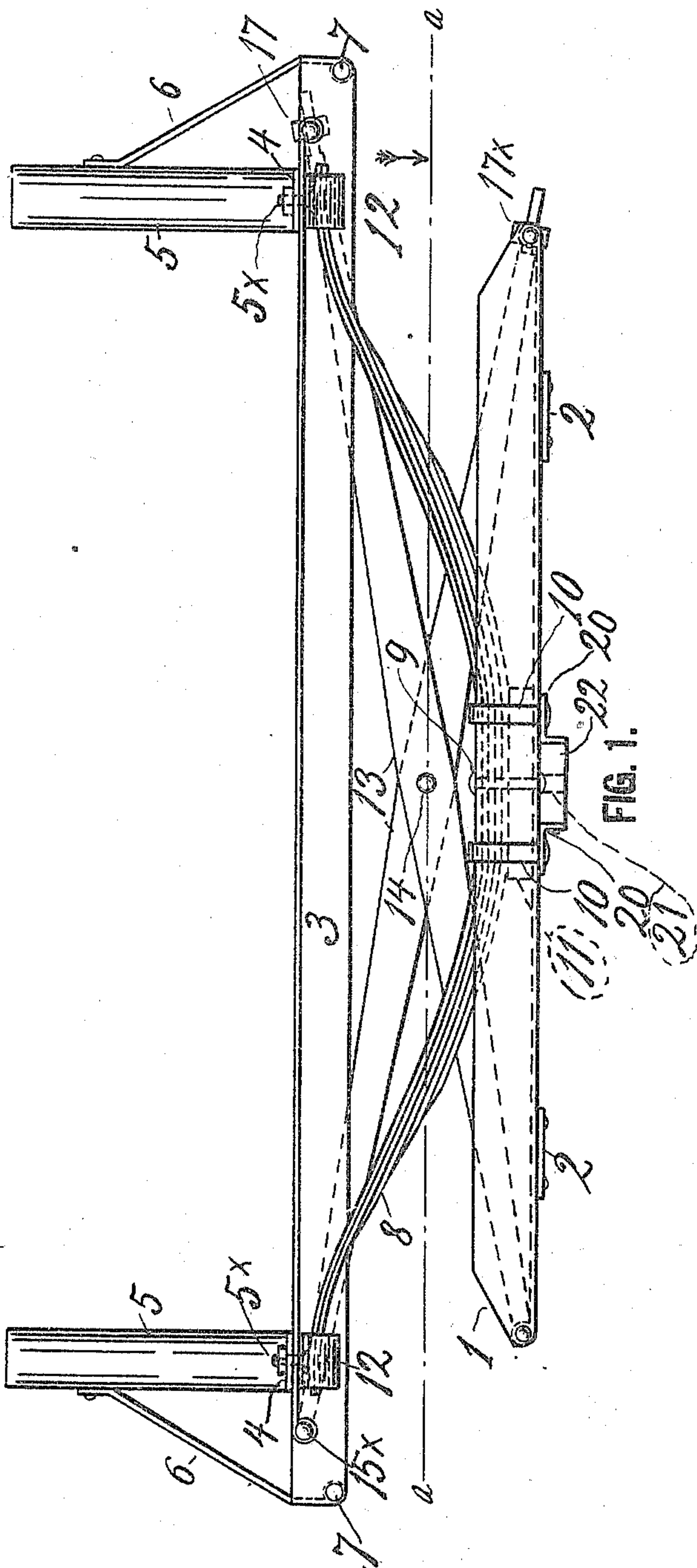


J. L. & A. HAGEL.  
 SPRING WAGON BOLSTER.  
 APPLICATION FILED APR. 3, 1909.

947,815.

Patented Feb. 1, 1910.

2 SHEETS—SHEET 1.



WITNESSES:

D. E. Carlson.  
 C. C. Carlson.

INVENTORS:

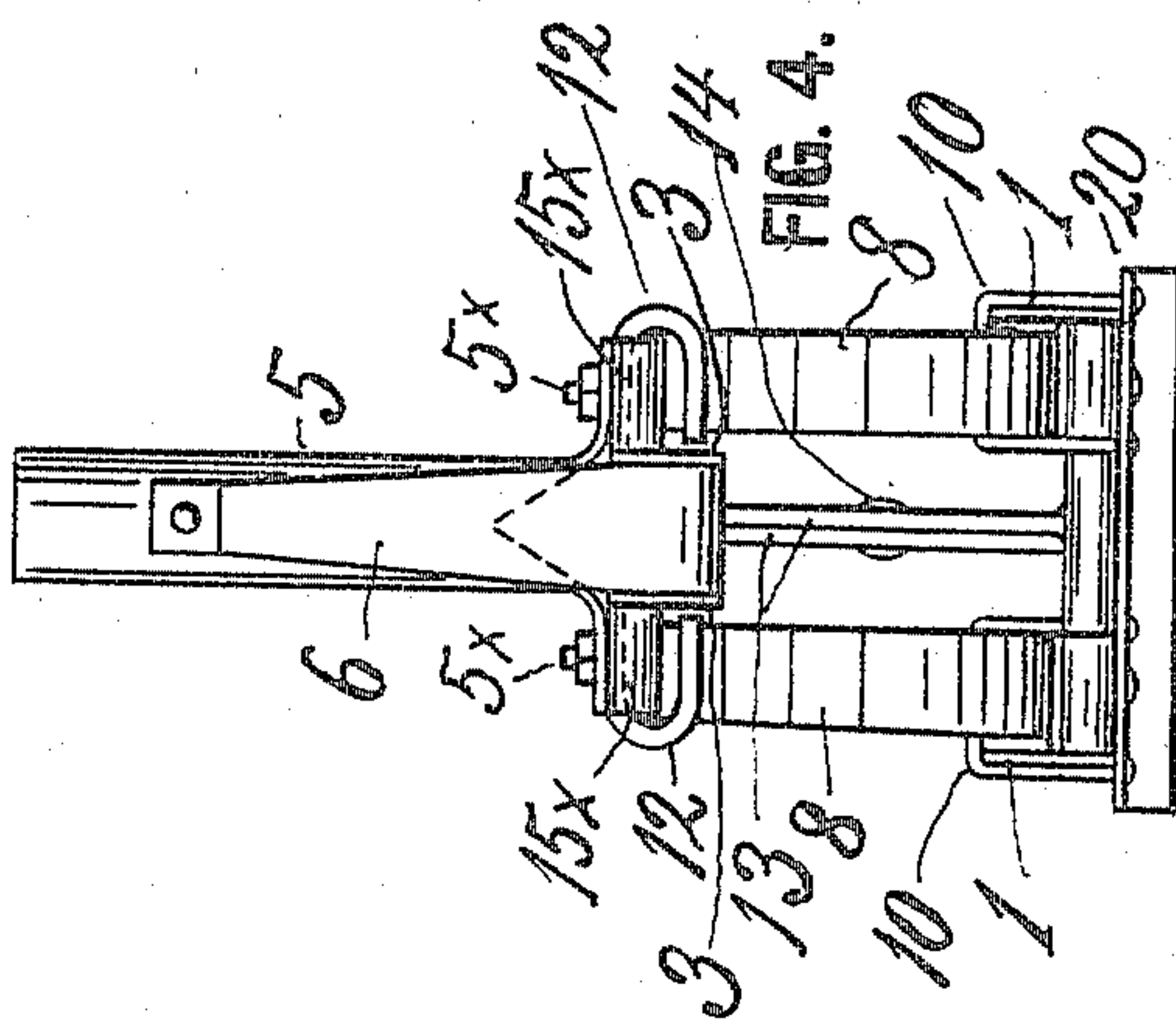
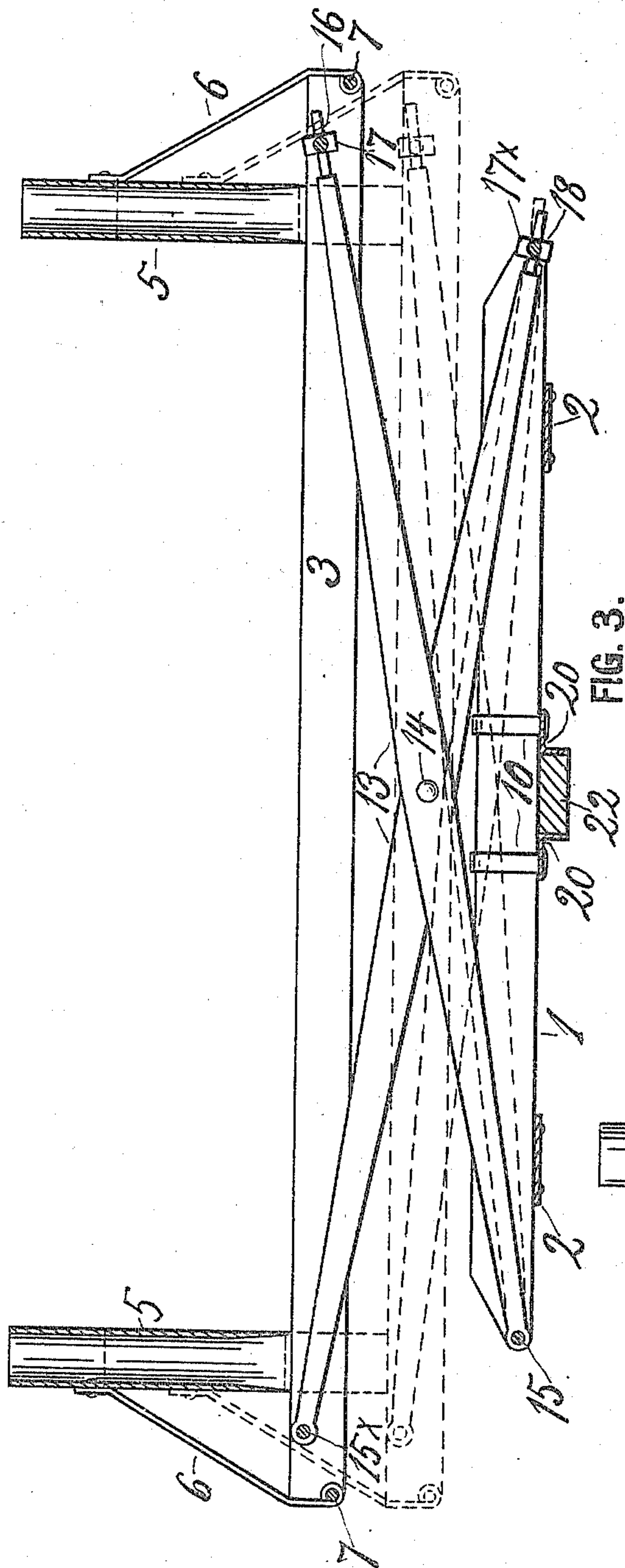
J. L. Hagel,  
 August Hagel.  
 BY their ATTORNEY:  
 A. M. Carlson.

J. L. & A. HAGEL.  
 SPRING WAGON BOLSTER.  
 APPLICATION FILED APR. 3, 1909.

947,815.

Patented Feb. 1, 1910.

2 SHEETS—SHEET 2.



WITNESSES:

D. E. Carlson.  
 E. C. Carlson.

INVENTORS:

J. L. Hagel.  
 August Hagel.  
 BY their ATTORNEY:  
 A. M. Carlson.



# UNITED STATES PATENT OFFICE.

JOHN LINIUS HAGEL AND AUGUST HAGEL, OF DAWSON, MINNESOTA.

SPRING WAGON-BOLSTER.

947,815.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed April 3, 1909. Serial No. 487,638.

*To all whom it may concern:*

Be it known that we, JOHN LINIUS HAGEL and AUGUST HAGEL, citizens of the United States, residing at Dawson, in the county of Lac qui Parle and State of Minnesota, have invented a new and useful Spring Wagon-Bolster, of which the following is a specification.

Our invention relates to spring bolsters for wagons and other vehicles, and the object is to improve and also cheapen the construction of the invention set forth in our United States Patent of August 18, 1908, Number 896,105.

In the accompanying drawings Figure 1 is a view in elevation, showing either the front or rear side of the improved spring bolster as an entirety. Fig. 2 is a horizontal section on the line *a—a* of Fig. 1. Fig. 3 is a longitudinal vertical section of the device as on the line *b—b* of Fig. 2 with the springs omitted. Fig. 4 is a left hand end elevation of Fig. 1.

Referring to the drawings by reference numerals, the bolster is composed of a lower section and an upper section yieldingly supported, the latter upon the former by springs and certain brace bars. The lower bolster section is made up of a pair of angle iron bars 1, the horizontal flanges of which are turned inward and are rigidly secured, preferably to tie plates 2, while the vertical flanges thereof are set outward or away from each other. The upper bolster section is made up of a pair of similar angle iron bars 3, the horizontal flanges of which are turned outward and the vertical flanges of which are set inward, approximately in the vertical planes of the inner edges of the horizontal in-turned flanges of the lower angle bars 1. Near their outer ends these angle bars 3 are rigidly secured together by bolts 5\* passed through them and through split and out-turned lower end portions 4 of tubular metal posts 5. Metal braces 6 that are riveted or otherwise rigidly secured at their upper ends to the outer sides of the hollow posts 5 are connected at their lower ends to the outer ends of the angle bars 3, preferably by rivets 7 that further assist in rigidly securing together the outer ends of the said angle bars 3. The upper bolster section is supported from the lower section by a pair of bow-springs 8, each of which is made up of several flat bow-shaped steel bars, as is usual in vehicle springs of

said type. Each spring has its several bars secured together by a rivet 9 through the middle of them, and to prevent turning of the bars on the rivet, and to secure the spring to the lower section, each complete spring is near the rivet embraced by two clips 10, which embrace the adjacent lower angle bar 1 and an intermediate supporting block 11. The ends of the springs are slidably guided in keepers 12, secured to the upper bolster section, preferably by the lower ends of the bolts 5\* that hold the posts or stake pockets 5.

To preserve the vertical and parallel positions of the two bolster sections one above the other, that is, to prevent the upper section from sliding and tilting endwise, the two sections are connected by a pair of crossed equalizing bars 13 plainly pivoted together near the middle by a pivot 14, one of them having one end pivotally connected at 15 to one end of the lower section and its other end slidably inserted in an aperture in a tumbler 17 which is trunnioned in the opposite end of the upper section, the other bar having one end pivoted at 15\* to the upper section and its other end slidably inserted at 18 in an aperture in a tumbler 17\* trunnioned in the lower section below the first mentioned tumbler.

From the arrangement thus described it will be understood that when a load is placed upon the upper bolster section 3, the springs will yield more or less and the crossed bars 13 will slide accordingly in the trunnioned blocks and the upper section may thus, from the real weight of the load or from jarring of same on an uneven road, vibrate downward as indicated in dotted lines in Fig. 3, but it can never tilt out of parallel position to the lower section, nor can it turn on the lower section, as the springs engage the outer vertical flanges of the lower angle bars and the inner vertical flanges of the upper angle bars.

Where turning movement is required, as at the front end of a four-wheeled vehicle, the lower bolster section is secured to the upper member of the fifth-wheel (not shown). Such securing may be accomplished, according to the type of the fifth-wheel, either by bolts passed through holes 19 in the tie plates 2, or by bolts passed through the tie plates 20 in which the clips 10 are secured, or by a single bolt passed through a central hole 21 in a block 22 secured between the vertical flanges of the tie



plates 20, said plates being made of angle iron as shown. When the bolster is especially intended for the rear end of the vehicle, said block 22 is omitted, and the tie-plates 20 may then be pieces of plain flat bar iron.

By the new construction described we save the cost of the upper half of the springs shown in our former patent. We also avoid having a slot for the pivot 14 in the crossing of the equalizing bars, and further, dispense with the links at the ends of said bars and all pivot joints at the ends of the springs.

What we claim is:

15 The combination with upper and lower bolster sections, each formed from a pair of angle irons having their vertical flanges reversely disposed, so that they are adapted to overlap with intervening spaces, bow-shaped springs interposed in said spaces between the horizontal flanges of said angle irons and yieldingly supporting said upper

bolster section from the lower section, an apertured tumbler trunnioned between the ends of the angle bars in one end of the upper section, a similar tumbler trunnioned there below between the ends of the bars in the lower section; a pair of equalizing levers pivoted together near their middle and having each one end slidingly inserted in one of said apertures in the tumblers and the other end pivotally connected to one of the bolster sections near the end of the section having no tumbler; means for holding the middle of the bow springs secured to the lower section, and guiding means on the upper section for the ends of the springs.

In testimony whereof we affix our signatures, in presence of two witnesses.

JOHN LINIUS HAGEL.  
AUGUST HAGEL.

Witnesses:

A. S. PETERSON,  
EDW. KRENSON.