

(No Model.)

W. H. WILLISCRAFT.
WAGON SPRING.

No. 424,842.

Patented Apr. 1, 1890.

Fig I.

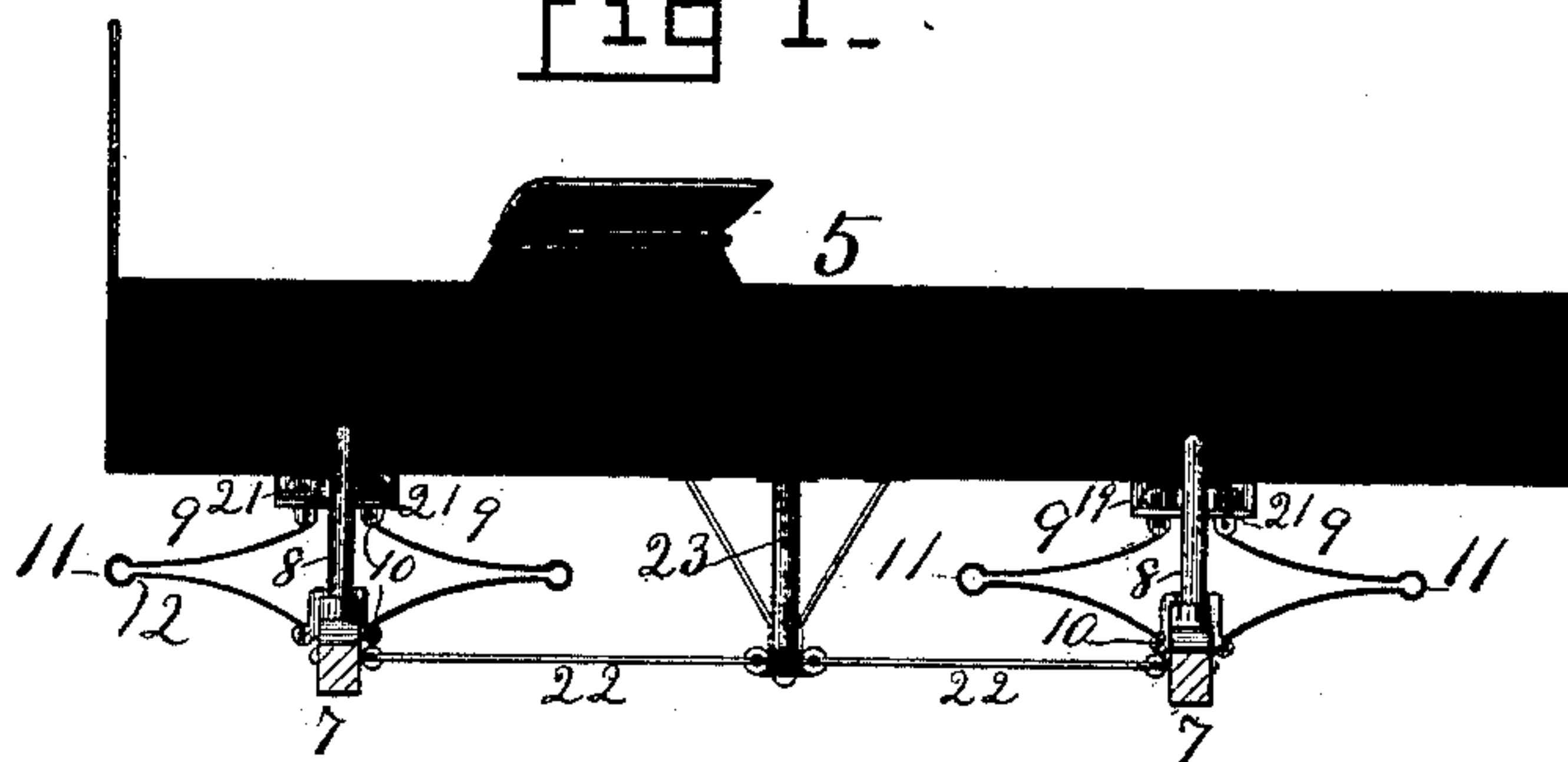


Fig II.

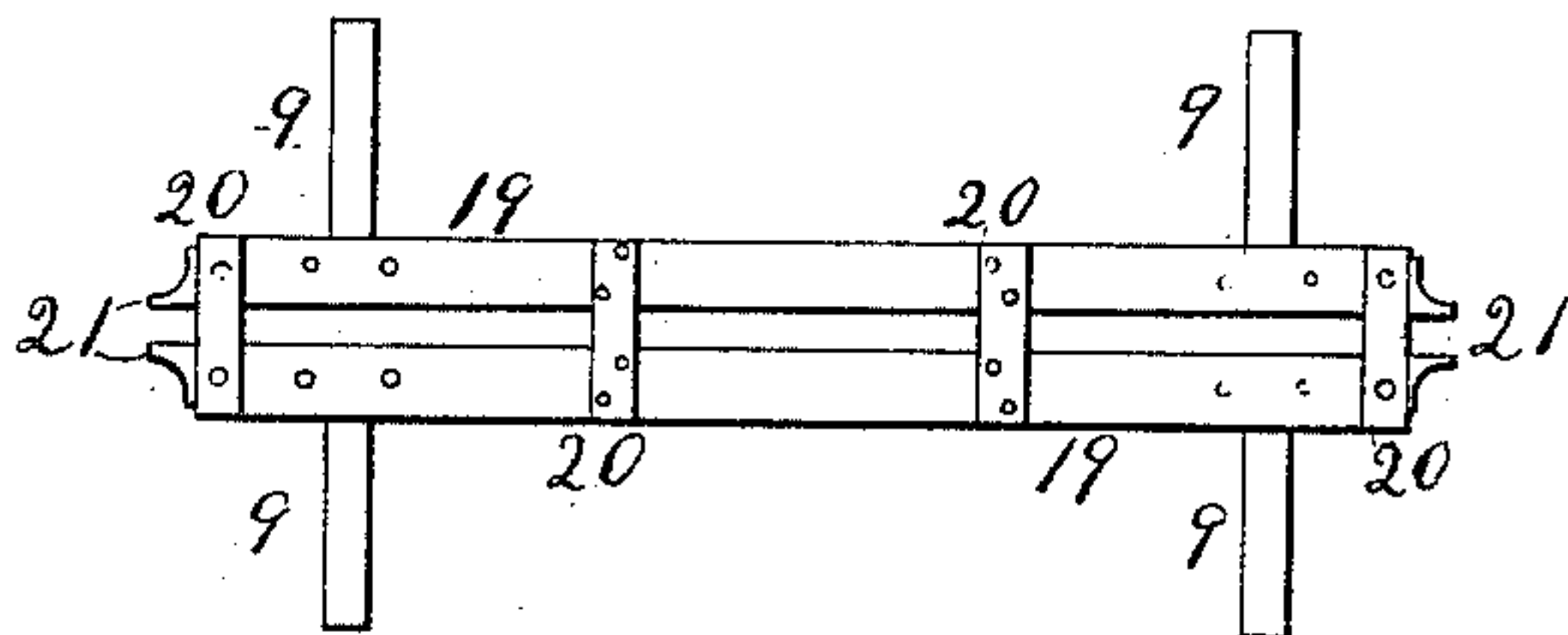


Fig III.

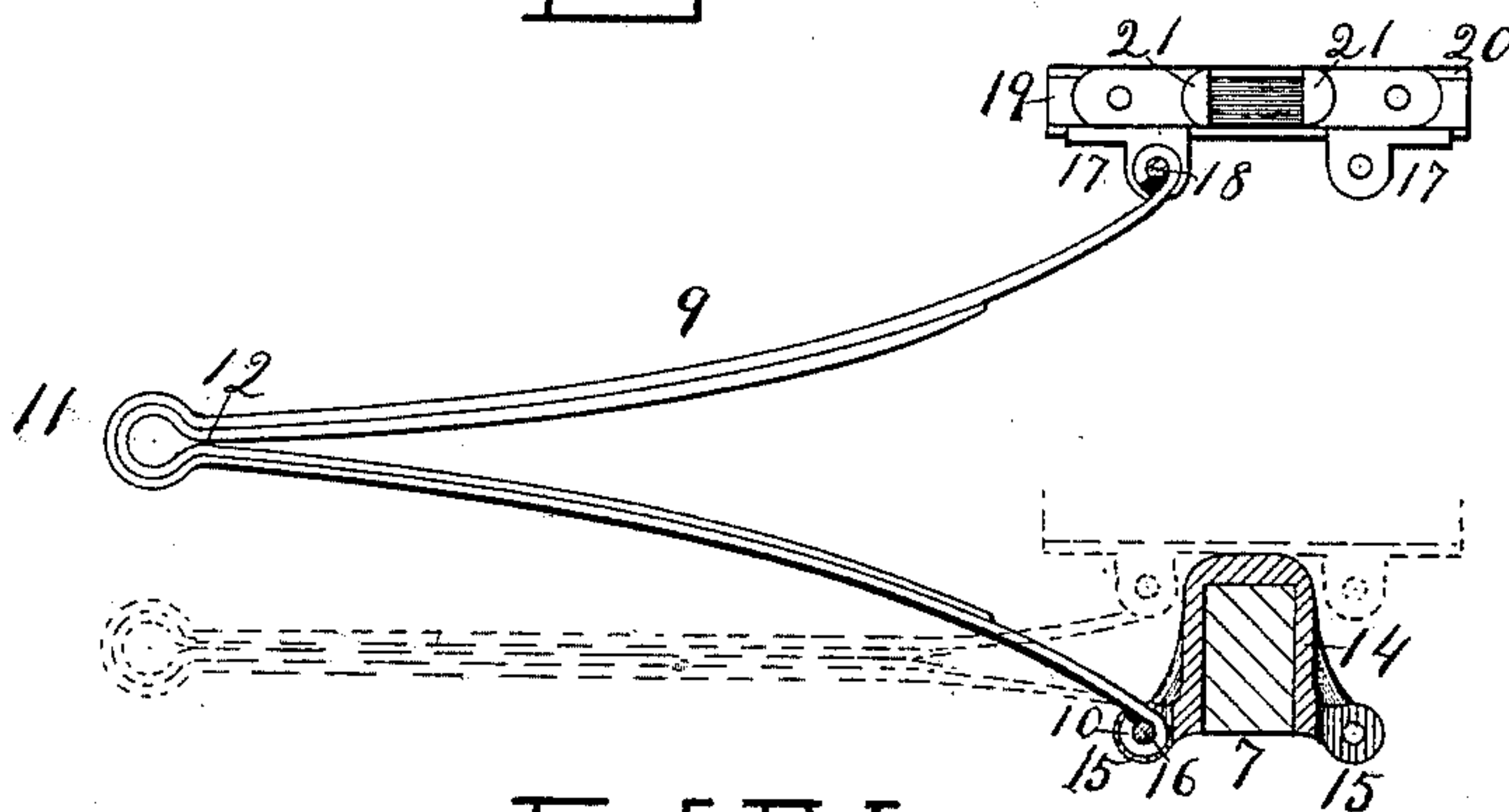
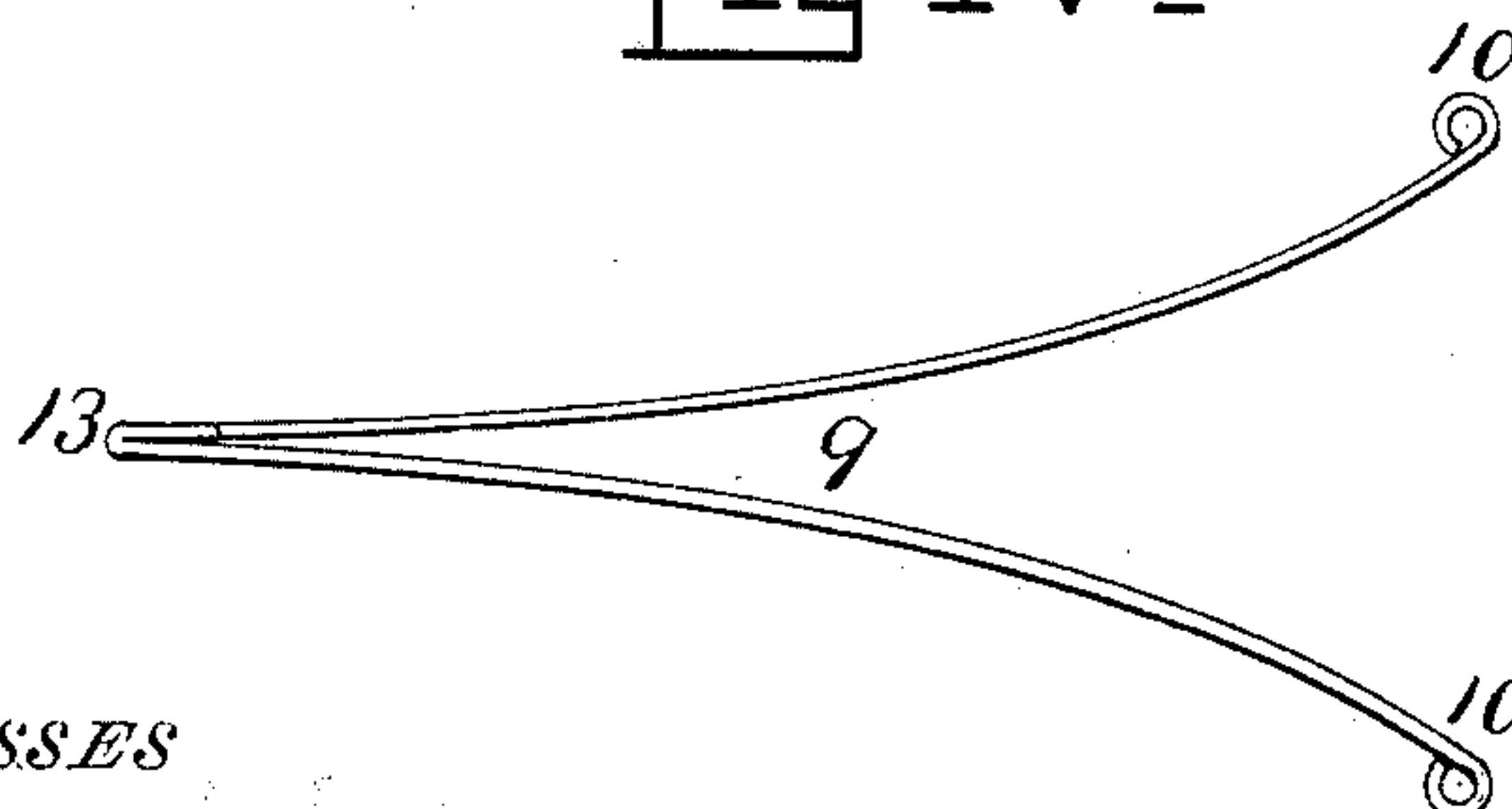


Fig IV.



WITNESSES

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WAGON-SPRING.

SPECIFICATION forming part of Letters Patent No. 424,842, dated April 1, 1890.

Application filed August 6, 1889. Serial No. 319,950. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. WILLISCRAFT, a citizen of the United States, residing at Juniper, in the county of Yavapai and Territory of Arizona, have invented certain new and useful Improvements in Wagon-Springs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to wagon-springs; and its object is to produce a spring which will mechanically and automatically increase its tension or resistance in proportion as the load increases, which will continue elastic under all loads within its capacity of support, and which cannot be broken down by overloading.

To this end my invention consists in the construction and combination of parts forming a vehicle-spring hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I is a side elevation of a wagon-body, showing my springs in service. Fig. II is a top view of the spring-frame and springs. Fig. III is an enlarged view of the spring when made with two leaves. Fig. IV shows a modified form of the spring.

5 represents the body of a farm-wagon; 7, the bolsters, to be supported upon axles, as usual, and 8 posts fixed rigidly upon the bolsters near their ends.

9 represents my springs, each consisting of one or more leaves of flat steel provided with hinge-eyes 10 at each end and bent midway and folded back upon itself, each arm being curved with its convex side inward, so that when in service the ends are pressed to approach each other the two arms will begin folding together at the bend, and the more weight there is applied the further toward the ends the point of contact will approach, thus shortening and stiffening the arms proportionately as the weight on them increases. This is a mechanical increase of resistance of the spring which is independent of the naturally increasing resistance due to pressing any spring farther and farther.

Figs. I and III show the preferred form for heavy springs as provided with an eye 11 at

the fold, the two arms coming together at the shoulders 12; but this eye 11 is not a positive necessity to my invention. In light springs I may shape them with a direct angular fold, as shown at 13, Fig. IV. In either style it will be seen that as soon as the ends are loaded their inner faces come together gradually, thereby removing all strain from the bend at the fold. The method of hanging these springs is not very material, their two arms being of equal length. The whole body of each spring is free to adjust itself to the amount and direction of the strain.

My method of hanging the spring is by means of a saddle 14, adapted to straddle the bolster, and provided with ears 15 to receive a bolt 16, passing through the lower edge of the spring, and a lug 17, also provided with ears to receive another bolt 18, passing through the upper eye of the spring. The lug 17 is riveted to a cross-bar 19. The springs being usually applied in mated pairs, there are two cross-bars 19, secured together by straps 20, forming a frame, to the ends of which I secure metallic guides 21 to straddle the posts 8 and slide up and down thereon as the body which rests on the cross-bars 19 rises and falls in service.

22 represents stays connecting the bolsters with a king-post 23, which depends from the body to prevent lurching.

The various situations in which this spring may serve will each require some modification in the surroundings; but the spring should always be of equal length in both arms and be hung freely, as described.

When the wagon is overloaded, its body rests directly upon the bolsters before the springs are entirely closed, as shown in dotted lines in Fig. III, so that the springs cannot become set nor broken.

Having thus fully described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

The combination of an axle-bolster, a saddle therefor having ears at each end and bolts through them, cross-bars adapted to support a wagon-body, lugs provided with ears and bolts through them at each end of the said cross-bars, and springs provided with an eye at each end and folded midway and curved,

with their convex sides adjacent and hung independent of each other by the said eyes upon the said bolts in pairs, two springs of a pair opening toward each other, the said
5 bolster, cross-bars, and spring-hangings being located as described relatively to each other, whereby the two arms of the spring will fold together under a heavy load, and the cross-bars will rest on the bolster before the

ends of the spring come together, substantially as shown and described.

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

WILLIAM H. WILLISCRAFT.

Witnesses:

J. E. BOYD,

J. V. COLLINS.