

No. 771,482.

PATENTED OCT. 4, 1904.

E. L. MINNIG.  
DRAFT APPLIANCE FOR VEHICLES.

APPLICATION FILED JULY 25, 1904.

NO MODEL.

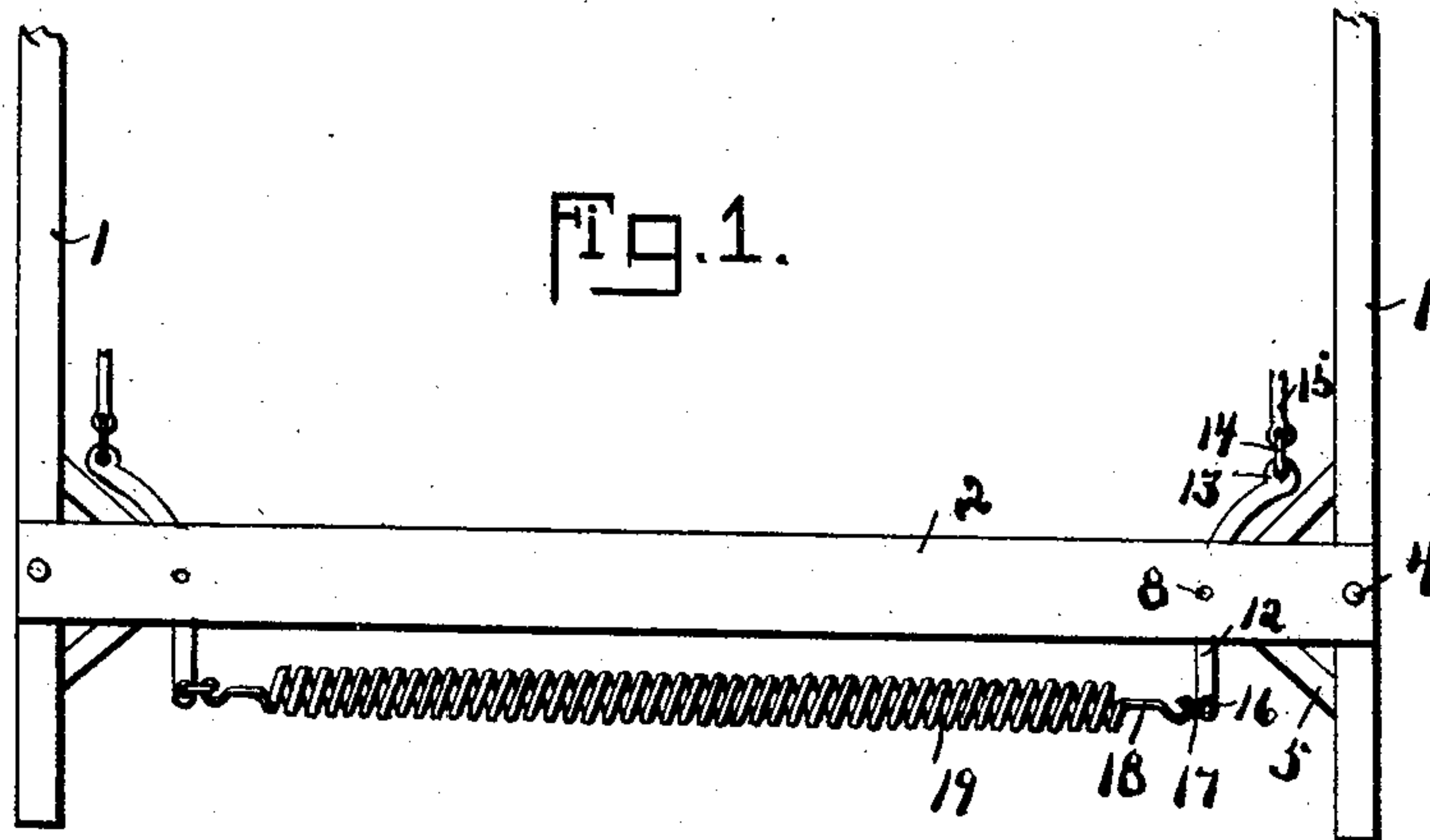


Fig. 2.

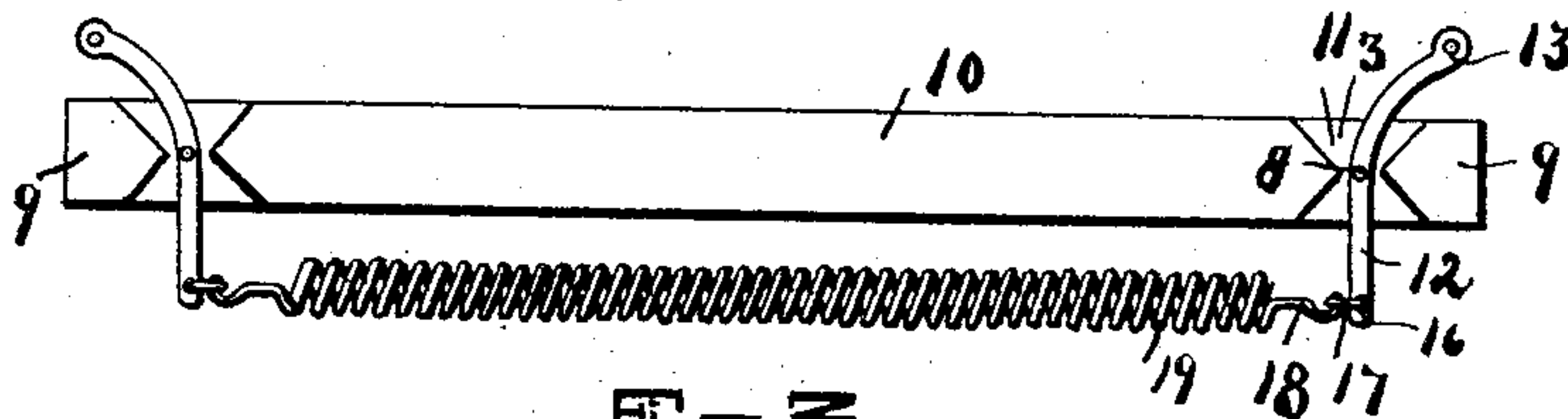


Fig. 3.

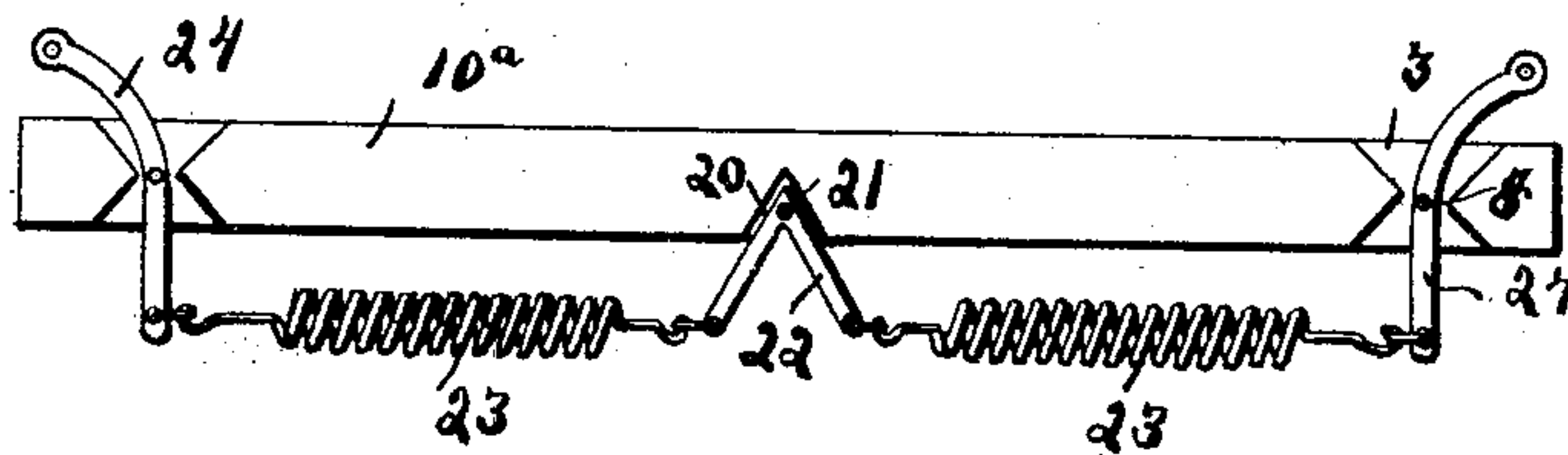


Fig. 4.

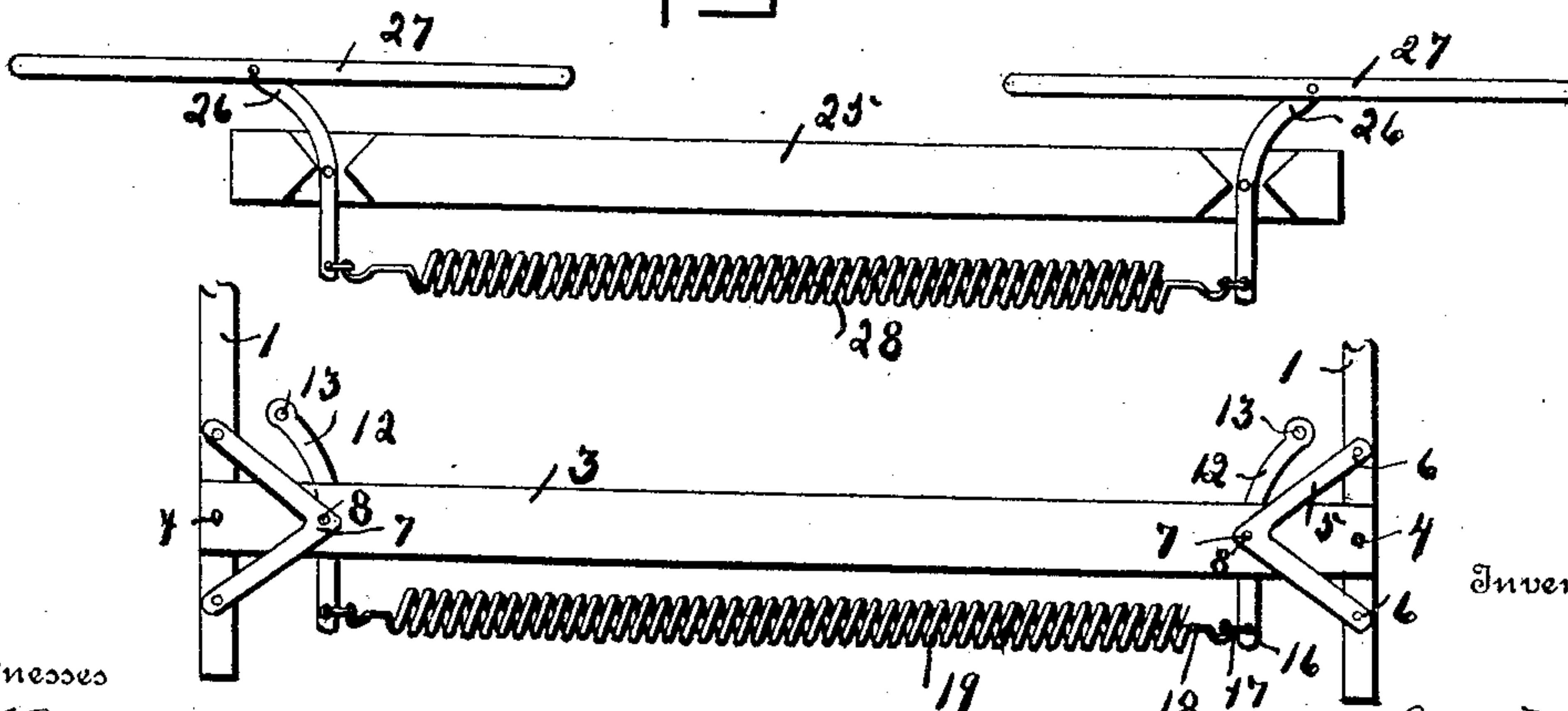


Fig. 5.

Witnesses

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# UNITED STATES PATENT OFFICE.

ELMER LEROY MINNIG, OF HARRISBURG, PENNSYLVANIA.

## DRAFT APPLIANCE FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 771,482, dated October 4, 1904.

Application filed July 25, 1904. Serial No. 218,169. (No model.)

*To all whom it may concern:*

Be it known that I, ELMER LEROY MINNIG, a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Draft Appliances for Vehicles, of which the following is a specification.

My present invention relates to improvements in draft appliances for vehicles; and the main object of my invention is the provision of a means whereby swingletrees are dispensed with and whereby a new and improved form of trace or tug attachment is provided so that the sudden jerk or strain upon loaded vehicles is relieved.

To attain these objects, the invention consists of a vehicle-shaft having mounted in the cross-bar thereof levers to which the trace or tugs are secured, while the opposite ends of the levers have secured thereto a coil-spring, so that when the levers are pulled upon the spring is slightly extended, so as to take up the first strain when the traces or tugs are pulled upon, thus relieving the strain upon the wagon or vehicle and also upon the animal.

In the accompanying drawings, Figure 1 is a top plan view of a shaft embodying my invention. Fig. 2 is a top plan view of the cross-bar of the shaft with the top plate removed to more clearly show the construction of my invention. Fig. 3 is a similar view of a modified form of my invention. Fig. 4 is a similar view of Fig. 1, showing my invention as applied to a two-horse vehicle. Fig. 5 is a bottom plan view of the device shown in Fig. 1.

I would have it understood that although I have termed this invention an "improvement in shafts" it is really a device which in single wagons dispenses with the swingletree, employing the cross-bar of the shaft to act as such, in combination with the elements herein set forth, while with the double-horse teams the doubletree is dispensed with, the swingletree being connected directly to my invention.

Referring more particularly to the drawings, the numeral 1 designates the shafts proper, which have secured thereto, or rather the upper faces thereof, and extending between the same the metal bar or plate 2, while directly

below and parallel thereto and secured to the inner face of the shaft is a similar bar or plate 3. These plates are secured, by means of bolts 4, to said shafts, but are braced, so as to prevent the shafts from wobbling, by means of the angle-plates 5, which have their terminals 6 secured to the under side of the shaft, the apex 7 of said angle-plates being secured to the bolt or fulcrum 8 where it projects through the bar 3. Mounted between the bars and secured thereto by means of bolts are the two short pieces or blocks 9 and the central section or block 10, the ends of these parts 9 and 10 being cut so as to produce a substantially X-shaped opening 11 between the ends, so that the lever 12, which is fulcrumed intermediate of its length to the bolt 8, will have free movement in said space, as will hereinafter appear. These levers are made in the shape of a segment and are provided at one end with an eye 13, to which is secured a link 14, a trace or tug connecting part 15 being connected to said link. Connected to the opposite ends 16 of these levers are the shackles 17, which engage the end coils 18 of the coil-spring 19, this spring being to the rear of the cross-bar of the shaft.

In Fig. 3 of the drawings I have shown a modified construction in which the central section 10<sup>a</sup> of the bar is provided with a central slot 20, in which is secured, by means of the bolt 21, the V-shaped iron 22, whose terminals are connected to the two oppositely-extending coil-springs 23, which are connected in the same manner to the levers 24, the remaining parts of the structure being similar to that heretofore described.

When it is desired to attach my invention to a two-horse team, a bar 25 is employed and made similar in construction to the cross-bar of the shaft, except that the same is secured in place of the doubletree, and instead of securing the traces to the outer ends of the levers 26 the swingletrees 27 are directly secured thereto. In this form a single or double series of springs 28 may be employed without departing from the spirit of my invention.

From the foregoing description, taken in connection with the drawings, it is evident that when the ends of the levers 12, 24, and



26 are pulled upon the peculiar arrangement of the fulcrums thereof will cause its ends to be drawn toward each other, so that the inner ends, which are connected to the coil  
 5 spring or springs, gradually spread apart and cause the spring or springs to extend, and thereby take up the sudden jerk caused by the pull of the horse or heavy load on the vehicle, and when the spring has been extended  
 10 until the levers are almost straight and the strain is thrown on the fulcrums thereof the vehicle will be under way and started without the general wear and tear upon all of the parts thereof and the animal pulling the same.

15 I have found by this construction that much heavier loads in proportion can be pulled and that in actual experience the wear and tear upon the vehicle and the animal is greatly lessened.

20 What I claim as new, and desire to secure by Letters Patent, is—

1. In a draft device, the combination of a cross-bar, a pair of levers pivotally mounted within the bar, means for engaging the draft  
 25 devices carried by the forward ends of said levers, and extensible spring-tensioned means secured to the inner ends of said levers for normally holding their outer ends apart, for the purpose set forth.

30 2. In a draft device, the combination of a cross-bar provided with two channels there-through, oppositely - arranged levers one mounted in each channel and having their ends extending upon opposite sides of the cross-bar,  
 35 means for engaging the draft devices carried by the forward ends of said levers and spring-tensioned means secured to the rear end of said devices so as to normally hold the forward ends outward.

40 3. In a draft device, the combination of a cross-bar provided with two channels there-through, oppositely - arranged levers one mounted in each channel and having their ends extending upon opposite sides of the cross-bar,  
 45 means for engaging the draft devices carried

by the forward ends of said levers, and a coiled spring secured to the rear ends of said devices so as to normally hold the forward ends outward.

4. In a draft device, the combination of a  
 50 cross-bar, consisting of a top and bottom plate, a pair of curved levers pivotally mounted between said plates and having their forward ends extending in opposite directions, draft-attaching means carried by the forward ends  
 55 of said levers, and spring-tensioned means secured to the rear ends of said levers adapted to hold the said ends normally toward each other.

5. In combination with a pair of shafts, of a  
 60 cross-bar consisting of two plates secured to the top and bottom of the shafts respectively, a pair of angle-plates secured to the shaft and bar for bracing the same, a pair of curved levers pivotally secured between said plates and  
 65 having their ends extending in opposite directions, trace-connecting means connected to the forward ends of said levers, and spring-tensioned means connected to the rear end of said levers adapted to hold said ends toward  
 70 each other for the purpose set forth.

6. In combination with a pair of shafts, of a cross-bar consisting of two plates secured to the top and bottom of the shafts respectively,  
 75 a pair of angle-plates secured to the shaft and bar for bracing the same, a pair of curved levers pivotally secured between said plates and having their ends extending in opposite directions, trace-connecting means connected to the forward ends of said levers, and a coiled  
 80 spring connected to the rear end of said levers adapted to hold said ends toward each other, for the purpose set forth.

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

ELMER LEROY MINNIG.

Witnesses:

HARRY HESS,

CHARLES E. YOHE.