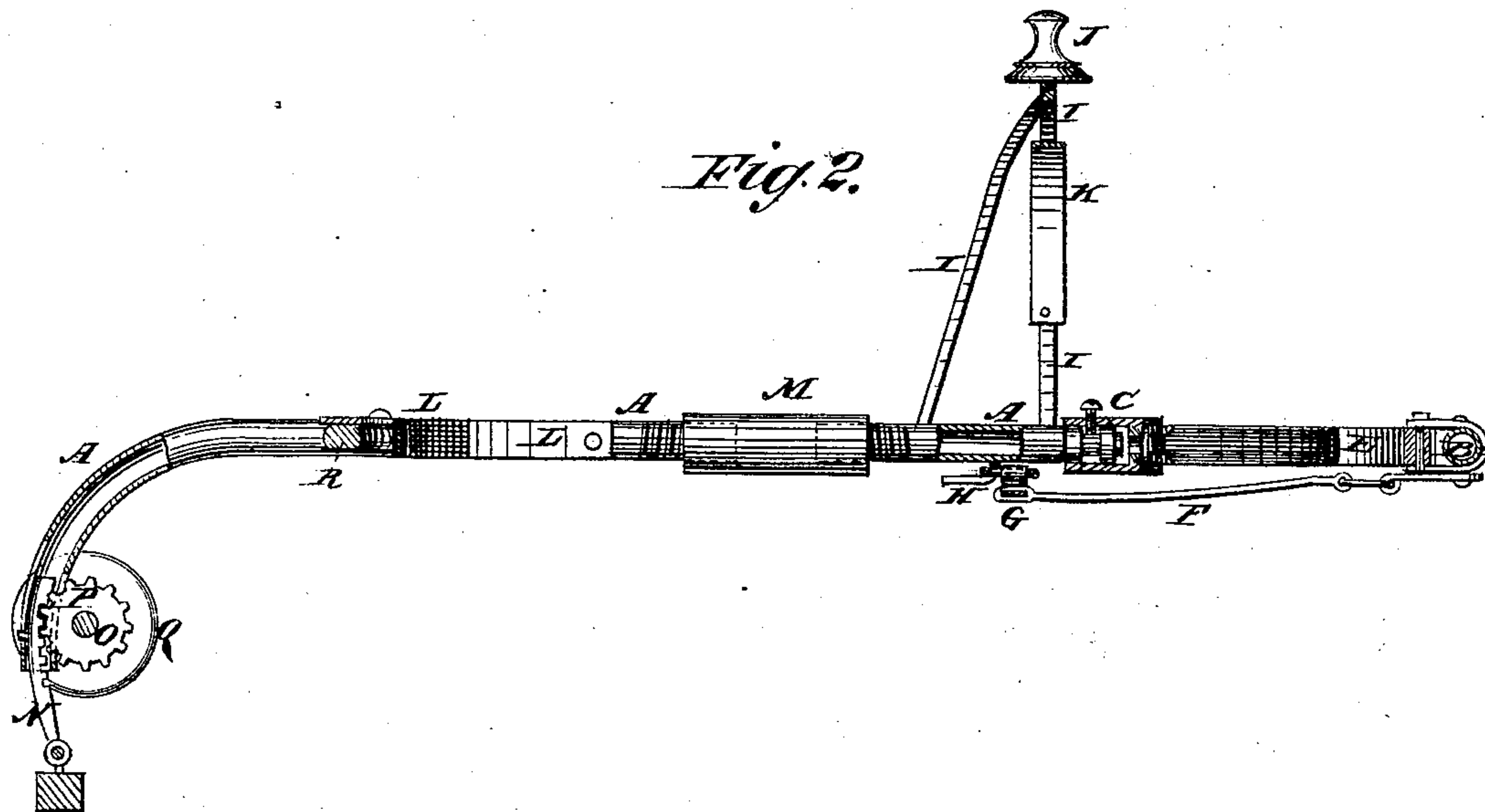
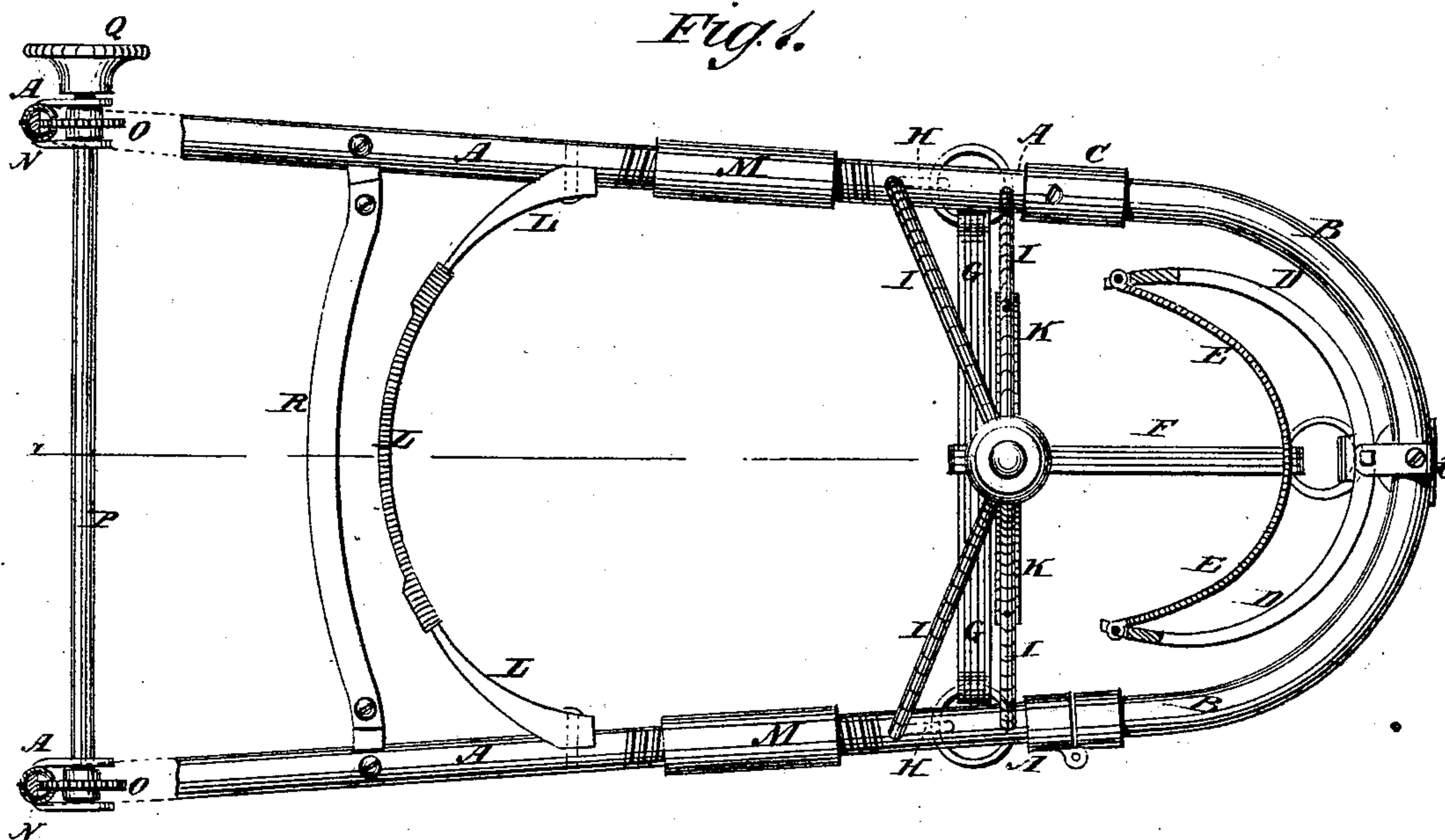


R. B. BOYNTON.
Combined Thill and Harness.

No. 207,387.

Patented Aug. 27, 1878.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ROYAL B. BOYNTON, OF WEST TOWNSEND, MASSACHUSETTS.

IMPROVEMENT IN COMBINED THILLS AND HARNESS.

Specification forming part of Letters Patent No. **207,387**, dated August 27, 1878; application filed July 17, 1878.

To all whom it may concern:

Be it known that I, ROYAL B. BOYNTON, M. D., of West Townsend, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Combined Thills and Harness, of which the following is a specification:

Figure 1 is a top view of a pair of thills to which my improvement has been applied, part being broken away to show the construction; Fig. 2 is a vertical section of the same, taken through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish improved means for connecting a horse to the thills, which shall be so constructed as to relieve the horse from any pressure around his chest to interfere with his breathing and circulation, and which, at the same time, shall be simple in construction, convenient in use, and reliable in operation, giving the horse full control over the vehicle.

The invention consists in the combination of the hinged bow with the forward ends of the thills; in the combination of the yoke and breast-strap with the hinged bow and the thills; in the combination of the martingale and the belly-band with the hinged bow and the thills; in the combination of the arched bars and the neck-strap with the thills; in the combination of the steel bar with the thills, to rest against the horse's hips and serve as a holdback; in the thills, each made in two parts, having right and left screw-threads formed upon their adjacent ends and connected by a long nut; and in the combination of the gear-wheels and the sliding toothed thill-irons with the slotted hollow rear ends of the thills, as hereinafter fully described.

A are the thills, to the forward end of one of which is hinged a bow, B. The free end of the bow B is secured to the end of the other thill A by a swiveled nut, C, a spring-catch, or other convenient and reliable fastening. To the center of the bow B is pivoted or hinged a semi-circular yoke, D, to the ends of which are attached the ends of the strap E. The strap E is made of a less length than the yoke D, and is designed to rest against the breast of the horse and receive the pressure on drawing the

load. The flexibility of the breast-strap E and the pivot of the yoke D allow the said yoke to accommodate itself to the movements of the horse's shoulders in walking, and also relieve the horse from the strain when one of the fore wheels passes over an obstruction. This same effect might be obtained by pivoting the thills to the axle in such a way as to give them a slight lateral play.

To the lower side of the center of the bow B is attached, by means of a hook and ring or other suitable device, the end of the martingale-strap F. The other end of the martingale F has a loop formed in it to receive the belly-band G. To the ends of the belly-band G are attached rings, to be hooked upon hooks H, attached to the under side of the thills A.

To the thills A, near their forward ends, are attached the ends of two arched bars, I, which cross each other at the center, and the forward arms of which are arranged at right angles with the thills A, or nearly so, while their rear arms are inclined somewhat to the rearward. To the arched bars I, at their point of crossing, is attached a knob, J, or other ornament. To the forward arms of the bars I, at a little distance above their ends, are attached the ends of a strap, K, which is made of a less length than the arch of the said bars, and is designed to rest upon the neck of the horse and support the weight of the thills and their attachments. To the thills A are attached the ends of the bar L, the middle part or the whole of which is made of steel, and which is designed to rest against the hips of the horse when holding back the load. The middle part of the bar L should be padded or covered with leather, to prevent it from chafing the horse. Each of the thills A is made in two parts, having right and left screw-threads formed upon their adjacent ends to receive the right and left screw-threads of the long nut M, so that by turning the nuts M in one or the other direction the thills may be lengthened or shortened to adjust them for use with a longer or shorter horse, as may be required. The rear ends of the thills A are bent downward into a vertical position, or nearly so, and are made hollow to receive the thill-irons N. The thill-irons N are connected with the axle of the vehicle by clips or other convenient

means, and upon the forward side of their upper parts are formed rack-teeth, into which mesh the teeth of the gear-wheels O attached to a rod, P. The rod P works in bearings attached to the thills A, and to one of its ends is attached a knob or hand-wheel, Q, for convenience in turning it. With this construction, by turning the gear-wheels O, the thills may be raised or lowered upon the thill-irons M to adjust them for use with a larger or smaller horse, as may be required. The movement of the thill-irons N within the cavity of the thills A is limited by a pin attached to the said thill-irons, and which passes through a slot on the rear side of the ends of the thills A. The forward side of the rear parts of the thills A is slotted to receive the gear-wheels O. The rear parts of the thills A are connected and held in their proper relative positions by a cross-bar, R, in the usual way.

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

1. The bow B, carrying the breast-strap and hinged to the forward end of one of the thills,

and its free end detachably secured to the end of the other thill, substantially as described.

2. The combination of the yoke D and the breast-strap E with the hinged bow B and the thills A, substantially as herein shown and described.

3. The combination of the martingale F and the belly-band G with the hinged bow B and the thills A, substantially as herein shown and described.

4. The combination of the arched bars I and the neck-strap K with the thills A, substantially as herein shown and described.

5. The combination of the steel bar L with the thills A, to rest against the horse's hips and serve as a holdback, substantially as herein shown and described.

6. The combination of the gear-wheels O and the sliding toothed thill-irons N with the slotted hollow rear ends of the thills A, substantially as herein shown and described.

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