

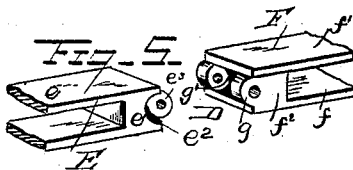
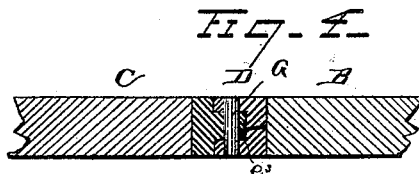
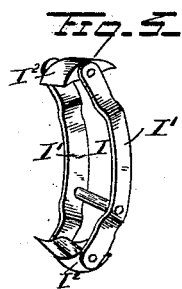
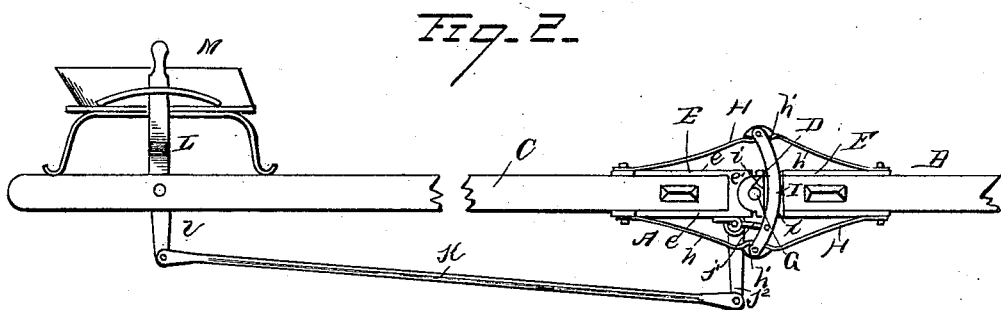
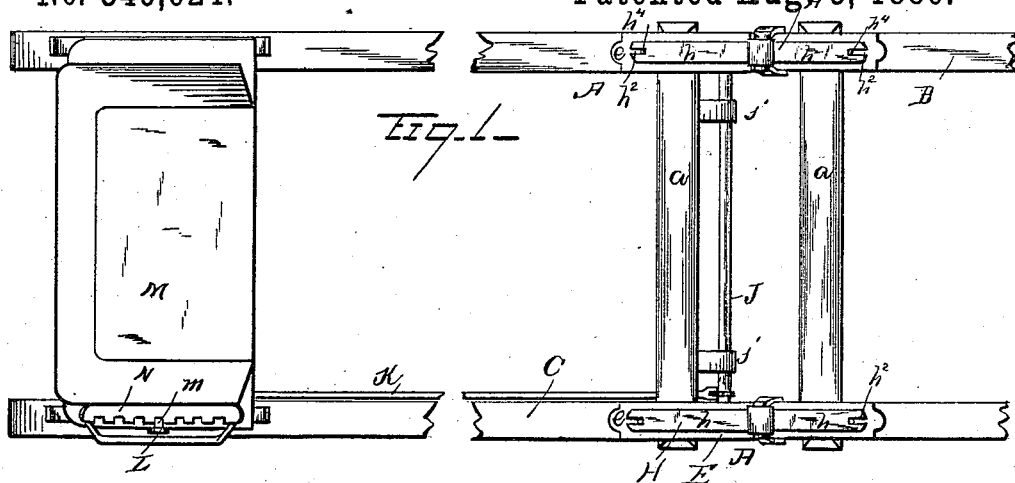
(No Model.)

W. L. WALKER.

SHAFTS FOR TWO WHEELED VEHICLES.

No. 346,624.

Patented Aug. 3, 1886.



Witnesses

*Amey Rice*

*W. B. Berchard*

Inventor

*Wm L. Walker*

By his Attorneys

*C. A. Snow & Co*

# UNITED STATES PATENT OFFICE.

WILLIAM LEWIS WALKER, OF BROOKS, CALIFORNIA.

## SHAFT FOR TWO-WHEELED VEHICLES.

SPECIFICATION forming part of Letters Patent No. 346,624, dated August 3, 1886.

Application filed April 24, 1886. Serial No. 200,013. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM LEWIS WALKER, a citizen of the United States, residing at Brooks, in the county of Yolo and State of California, have invented a new and useful Improvement in Draft Poles or Shafts, of which the following is a specification.

My invention relates to improvements in draft poles or shafts for vehicles; and it consists of the peculiar and novel construction and combination of parts, substantially as hereinafter fully set forth, and specifically pointed out in the claims.

The primary object of my invention is to provide an improved pole or shaft for vehicles which shall obviate the motion of the draft-animal becoming communicated to the body of the vehicle; to provide an improved form of hinge which shall limit the movement of the pole-sections and take up the "horse motion;" to provide means for regulating the angle or level of the vehicle-body, which can be operated by the driver in the body without moving from his seat, and to provide improved means which shall be simple and durable, effective, easy of adjustment and operation, and cheap.

In the accompanying drawings, Figure 1 is a plan view showing a pair of connected shafts provided with my invention and the means for operating the same from the vehicle-body, which, however, is omitted. Fig. 2 is a side elevation of the hinge, the yoke, and springs applied to the shaft or thill of a vehicle, the connecting-bars thereof being shown in section. Fig. 3 is a detached perspective view of the yoke and springs. Fig. 4 is a sectional view through the hinge or coupling, and Fig. 5 is a detached perspective view of the hinge-sections.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the shafts of the vehicle of any class, which are made in a front and rear section, B and C, respectively, and the contiguous ends of the said pole-sections are connected by transverse connecting-bars *a*, to adapt the sections B or C to move together or simultaneously.

I will now proceed to describe the connections intermediate of the sections of one of the

shafts A; but it will be understood that the sections of both of the shafts are connected by similarly-constructed devices, and which operate in the same manner.

The contiguous ends of the front and rear sections of each of the shafts are cut off squarely or at any desired angle, and they are each provided with one section of the hinge or coupling D, that pivotally connects the sections B and C, and has a limited amount of play to prevent the horse motion from becoming communicated to the vehicle-body. The section E of the hinge or coupling D consists of two parallel plates or straps, *e*, that are arranged one above the other, and a vertical plate, *e'*, connecting the parallel plates at one end, and provided with semicircular or rounded recesses or seats *e''* at its side edges, and a similar lug or projection, *e'''*, projecting forwardly and beyond the same, all of which are cast or formed in one piece of metal. The section F of the hinge or coupling D is made in two pieces, *f f'*, one of which, *f*, has a vertical plate, *f''*, at one end, which is provided at its side edges with forwardly-curved or rounded lugs *g*, and a socket, *g'*, intermediate of the lugs *g*, which is concaved to correspond with the convexity of the lug *e'''* of the hinge-section E. The hinge-section E is secured upon the front end of the shaft-section C, with the plates *e* bearing on the upper and lower face thereof and secured thereto, and the hinge-section F is secured upon the rear end of the pole or shaft section B, the plates *f f'* thereof being secured on the section B and to each other by suitable screws or through-bolts. The lugs *g* and *e'''* of the hinge or coupling sections E F are perforated transversely, and when the hinge-sections are fitted together the openings in the legs thereof register or coincide to receive a pivot pin or bolt, G. The lugs *g* of the hinge-section F fit in the recesses or seats *e''* of the section E, and the lug *e'''* of the latter section fits in the seat or recess *g'* of the section F. These lugs are thus pivotally connected together to adapt the shaft-sections to move freely in a vertical plane, and the upper and lower edges of the hinge-sections are provided with an intermediate space that allows a limited amount of movement between the hinge-sections, the edges thereof coming in

contact or engagement to limit the play or movement.

H designates the take-up springs, which are arranged on the upper and lower sides of the shaft and bear against the sections thereof. These springs H are provided with two inclined or angular portions, *h*, that extend in opposite directions, and the inner ends of these inclined portions of the springs are connected by an intermediate curved portion, *h'*, that forms a bearing for the yoke, the portions *h* *h'* of the springs being in one piece of resilient or elastic metal. The free ends of these take-up springs are slotted longitudinally, as at *h*<sup>2</sup>, and in these slots are fitted limiting shoulders or stops *h*<sup>3</sup>, that are cast or formed integral with free ends of the plates of the hinge-sections E F. The springs are held under the proper degree of tension to bear on the shaft-sections by means of a yoke, I, that straddles the shaft and is free to move vertically. This yoke comprises two curved or segmental plates, I<sup>1</sup>, that are disposed vertically and on opposite sides of the shaft and the springs, and the transverse blocks I<sup>2</sup>, which are secured in and connect the free ends of the segmental plates. These blocks I<sup>2</sup> are suitably pivoted to the plates and are curved or rounded to snugly fit in the seats in the take-up springs H, and the segmental plates are guided in their vertical movements by slots or recesses *i*, cut or formed in the vertical or side faces of the shaft-section B and the hinge or coupling section F.

J designates a rock-shaft, which is suitably supported or journaled in proper bearings, *j*, and this rock-shaft is provided with two arms, J<sup>1</sup> J<sup>2</sup>, that are arranged at different angles and rigidly thereon, the arm J<sup>1</sup> being pivotally connected to a rigid arm carried by the segmental plates I<sup>1</sup> of the yoke, and the arm J<sup>2</sup> being also pivotally connected to a rod or link, K, that extends rearwardly, and the opposite end thereof is pivotally connected to the lower arm, *l*, of a pivoted operating-lever, L. This lever L is disposed in a vertical position, and the upper end thereof is projected above the seat M of the vehicle-body, so as to be within easy and convenient reach of the driver, whereby he can adjust the angle or level of the body without dismounting or moving from his place. The lever L is made of spring-metal and bent laterally, as shown, so that it can be very conveniently forced to one side to disengage the locking shoulder or lug *m*, carried thereby, from one of the notches of a segmental rack, N, that is suitably secured in place; and, in lieu of providing the spring-lever and its shoulder to engage the notched rack, the lever may be rigid and carry a binding-screw; or other means may be employed to hold the operating-lever to its adjusted position.

This being the construction of my invention, the operation thereof is as follows: To elevate the front end of the vehicle-body, the upper end of the pivoted operating-lever is thrown forwardly, and thus drawing rearwardly on rod or link K and the arms of the

rock-shaft J, serves to draw the yoke downwardly, whereby the block at the upper end thereof is brought to bear with force on the upper spring, H, and the latter bears on the pivoted ends of the pole-sections, the free outer end of the front pole-section, B, being depressed and thus changed in its relative positions to the rear pole-section, the front end of which will be elevated, and thus raise the front end of the body. When the yoke is drawn downwardly, the pressure on the upper spring is increased and that on the lower spring is correspondingly decreased to permit the above-described movement of the shaft-sections to take place, and as the front and rear shaft-sections are connected by transverse bars *a* they will be simultaneously operated to attain the desired end. When the desired adjustment of the vehicle-body has been attained, by shifting the operating-lever to the desired position it is locked in place to prevent retrograde movement of the parts, and if it is desired to lower the front end of the vehicle-body the lever is moved or shifted in the reverse direction. When the vehicle is in motion, the movement of the horse or animal will be taken up by the springs H, which are unaffected in their operation by the yoke, and thus prevent the unpleasant jogging motion to the vehicle-body. It will thus be seen that I provide for relieving the vehicle of all horse motion, and for the adjustment of the body without the driver dismounting and while the team or animal is in motion.

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

1. The combination of the pivoted shaft-sections, the pressure-springs bearing against the opposite sides thereof, and a yoke connecting the springs, substantially as described.

2. The combination of the pivoted shaft-sections movable in a vertical plane, the pressure-springs bearing at their free ends against the contiguous ends of the shaft-sections, and a yoke connecting the springs intermediate of their ends, substantially as described.

3. The combination of the pivoted shaft-sections, the springs bearing against the same on opposite sides and each having a seat, and a connecting-yoke having the bearings at its ends that fit in the seats of the springs, substantially as described.

4. The combination of the pivoted shaft-sections, the springs bearing against opposite sides thereof and each having its ends slotted, the stops fitting in the slots to limit the play of the springs, and the yoke connecting the springs, substantially as described.

5. The combination of the pivoted shaft-sections, the springs bearing against opposite sides thereof, the yoke connecting the springs, and means located in the body of the vehicle for moving the yoke vertically, substantially as described.

6. The combination of the pivoted shaft-sections, the springs bearing against the same,

the vertically-movable yoke connecting the springs, a lever, and connections intermediate of the lever and yoke for actuating the latter, substantially as described.

5 7. The combination of the pivoted shaft-sections, the springs, the vertically-movable yoke connecting the springs, a rock-shaft having an arm pivotally connected to the yoke, a piv-  
10 oted lever, and connections intermediate of the lever and rock-shaft, substantially as described.

8. The combination of the shaft-sections, the sectional coupling or hinge pivotally connecting the shaft-sections, the springs, and the  
15 yoke connecting the springs, substantially as described.

9. The combination of the shaft-sections, the hinge or coupling intermediate of the shaft-

sections, made in two sections, and each having the recesses or seats and the lugs that fit 20 in the seats, the springs, and the yoke, substantially as described.

10. The combination, with the pivoted spring-actuated shaft-sections, of operating devices connected with the shaft-sections and located 25 in close proximity to the seat, whereby said sections may be operated for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 30 presence of two witnesses.

WILLIAM LEWIS WALKER.

Witnesses:

GEORGE ABBEY,  
ED. E. PERKINS.