(No Model.)

E. S. KEELER.

SULKY.

No. 571,003. Patented Nov. 10, 1896.

Fig. 1.

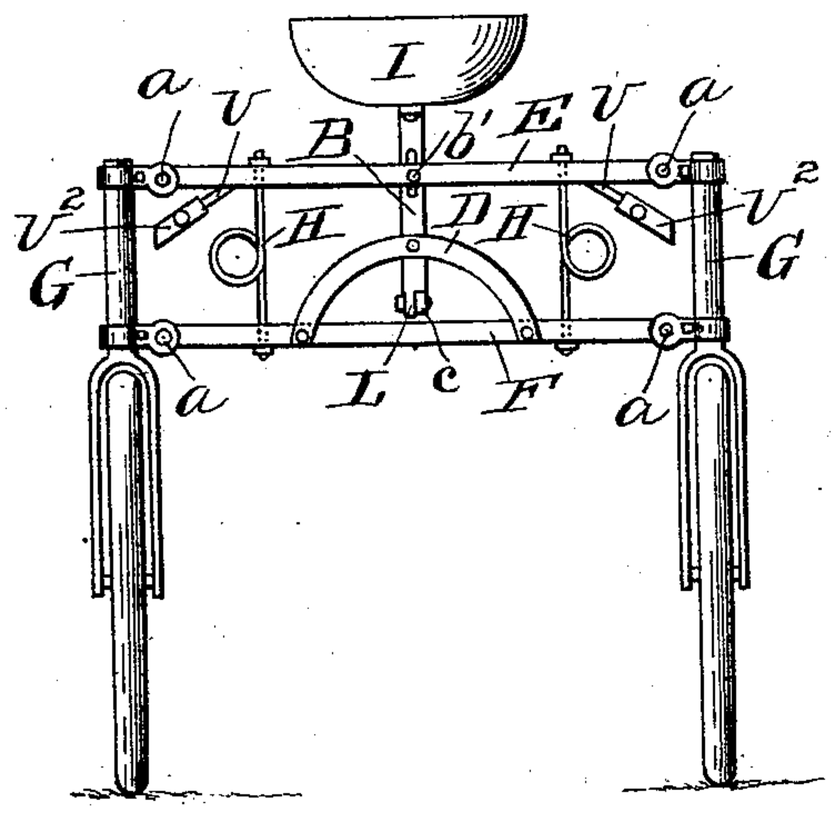


Fig. 2.

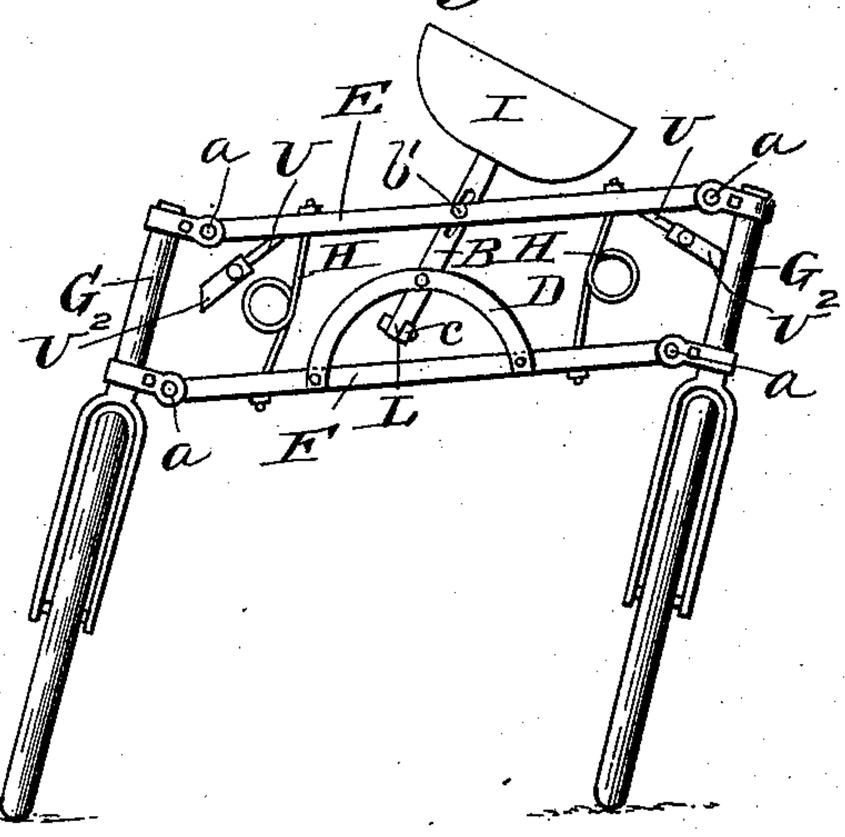
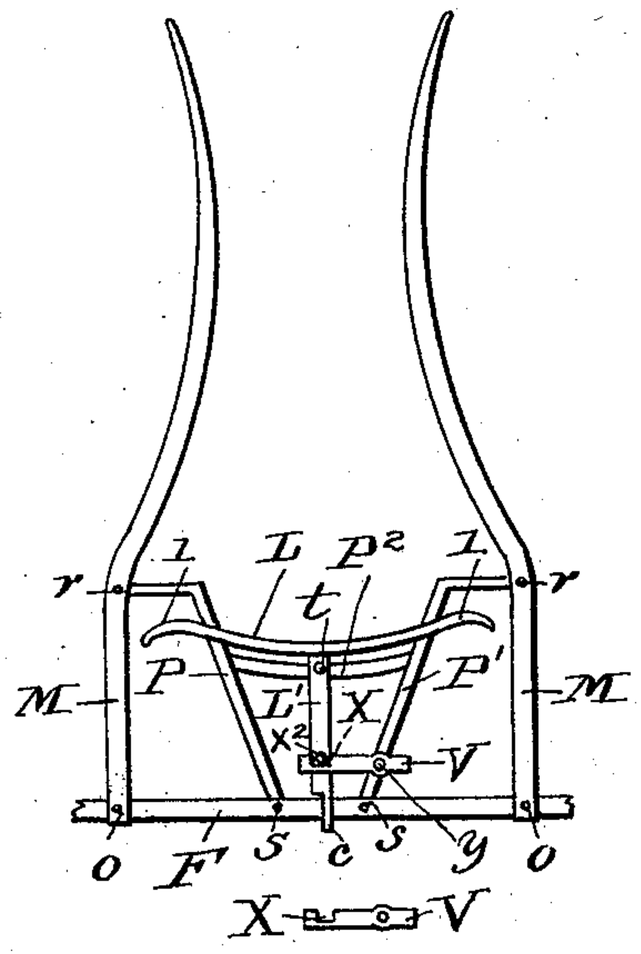


Fig. 3.



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UNITED STATES PATENT OFFICE.

ELISHA S. KEELER, OF NEW ALBANY, PENNSYLVANIA.

SULKY.

SPECIFICATION forming part of Letters Patent No. 571,003, dated November 10, 1896.

Application filed March 2, 1896. Serial No. 581,556. (No model.)

To all whom it may concern:

Be it known that I, ELISHA S. KEELER, a citizen of the United States, residing at New Albany, in the county of Bradford and State of Pennsylvania, have invented certain new and useful Improvements in Sulkies; 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.

My invention relates to improvements in sulkies or similar vehicles; and it consists of certain adaptations to a sulky of some of the leading features applicable to a bicycle, as set forth in my application Serial No. 581,557.

The objects of my invention are to maintain the vehicle in an upright position when used in a straight course, to throw the seat either to the right or left regardless of the curve, at the same time keeping the load squarely in the center of the wheels, or when traveling over uneven or sliding surfaces, and to enable two or more wheels to be inclined either to the right or left, as the operator may desire, in making a sharp curve at great speed.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a rear end view in elevation of a sulky; Fig. 2, a similar view showing the position of such a vehicle in an inclined position going around a curve, and Fig. 3 a plan showing the thills of a sulky and connection therewith of the coupling arrangement.

Referring to the drawings, G G constitute the wheel-frames and side standards. Connecting the wheels is a coupling-frame, composed of upper and lower cross-bars E F, which are pivoted at their ends at *a* to the standards G. The cross-bars E F are connected by one or more straight or coiled springs H, which are of such strength and so rigidly secured at their opposite ends to said cross-bars as to hold the vehicle in an upright position. The lower cross-bar F is provided with a central arch D, rigidly secured to bar F, or which is preferably made integral with said bar.

I is a seat rigidly secured to a vertical seat-bar B, which bar is pivoted at *b'* to top cross-bar E and to the center of arch D. The lower end of seat-bar B extends below the top of the arch to receive a lever-bar, as hereinafter described.

M M are the sulky-thills, rigidly clipped to the lower cross-bar F at *o o*.

P P' are diagonal braces connecting the thills and lower cross-bar F at *r r* and *s s*.

P^2 is a cross-bar connecting the braces P P'.

L L' is a foot-lever, composed of the cross-bar L, which is provided with the foot holds *l l* and the central straight bar L' at right angles to L, secured to or forming part of bar L. The lever-bar L' is pivoted at *t* to the cross-brace P^2 and at its outer end to the lower end of seat-bar B at *c*.

The pivoted frame E F is provided with stay-braces U U, projecting from the under side of upper cross-bar E toward the side standards G, which braces are provided with adjustable slides U^2, held in place by set-screws. These slides, either or both, are adapted to be slid against the standards G to hold the sulky rigidly upright and prevent it from inclining to the right or left, as the case may be, in turning a curve. To aid this action of the said slides, or to take the place thereof, if necessary, a catch-lever V is employed, pivoted at *y* to the thill-braces P' and provided with a notch at X. The notch X is adapted to engage with a pin or projection at X^2 on the bar L'.

The operation of the device is as follows: Let it be desired to turn the vehicle on a curve to the right. Naturally more weight at such a time is thrown on the left foot. The lever L L' being pivoted to the seat-bar and the latter pivoted to the top cross-bar and rigid arch, and the arch being rigidly secured to the lower cross-bar, the pressure exerted on the foot-lever will throw the latter to the left and the upper cross-bar E to the right, inclining also to the right the seat I and the wheel-frame or standards G G. The reverse inclination is of course had on pressure being exerted in the right foothold.

The inclination of seat-bar B is necessarily greater than the inclination of wheel-standards G, but this can be varied by making arch D higher or lower. If arch D is made higher, it brings it closer to cross-bar E, and the same inclination of the wheel-standards will make a greater inclination of the seat-bar B. If

the arch is made lower, the inclination of the seat-bar will be less. The displacing of the load to the right or left by the inclination of the seat-bar B is very advantageous, as it requires less inclination of the wheel-standards to accomplish the desired results.

On a straight course the connecting spring or springs are of such strength and tension as to hold the vehicle in an upright position without help or effort of the rider. Catch-lever V and the adjustable slides or braces U can, one or both, be used also to hold the frame rigid. The braces U without the slides prevent the vehicle from inclining farther than desired to the right or left; but these braces, *per se*, a catch-lever and a flexible coupling, broadly speaking, are the subject of claims in my said application, Serial No. 581,557.

Having thus described my invention, what I claim is—

1. In a vehicle of the character described, in combination with the wheels and wheel-supports, a flexible frame having upper and lower cross-pieces, separately connecting and pivoted to said supports, and a seat and seat-bar, said seat-bar pivotally connected to both said cross-pieces of the frame, substantially as described.

2. The combination with side wheel-frames, of a coupling-frame pivoted thereto, a seat-bar pivoted to said frame, a lever-frame also pivoted to said coupling-frame, and thills to which the lever-frame is secured, substantially as described.

3. The combination with the wheel-frame, of the flexible coupling-frame pivoted thereto, a spring connection for holding said frame upright, the seat-bar carrying the seat, pivoted to said flexible frame, and a foot-lever pivoted to said flexible frame, substantially as and for the purpose described.

4. In combination with the wheel-frame, a coupling-frame composed of cross-bars and a spring connection, said frame pivoted to the wheel-frame, the lower one of said cross-bars provided with a rigid arch, and a seat-bar carrying the seat pivoted to both the upper cross-bar and to said arch, substantially as described.

5. In combination with the wheel-frame and seat and seat-bar, a flexible connecting-frame, the thills rigidly connected to said flexible frame, brace-bars rigidly connected to said thills and to the flexible frame, and a foot-lever pivoted to said braces and to the seat-bar, substantially as described.

6. In combination with the wheel-frame, the flexible coupling-frame having cross-bars pivoted to the wheel-frame, the upper cross-bar provided with diagonal braces extending toward the wheel-frame, and adjustable slides on said braces, substantially as described.

7. The combination with the wheel-frame, of the coupling-frame pivoted to the wheel-frame, the thills and the thill-braces rigidly secured to the said coupling-frame, a lever-frame secured to said braces, and a locking-catch pivoted to one of the thill-braces and adapted to engage with the foot-lever to hold the said lever from swinging, substantially as described.

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

ELISHA S. KEELER.

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