

(No Model.)

O. WILLSON.

TWO WHEELED VEHICLE.

No. 312,690.

Patented Feb. 24, 1885.

Fig. 1.

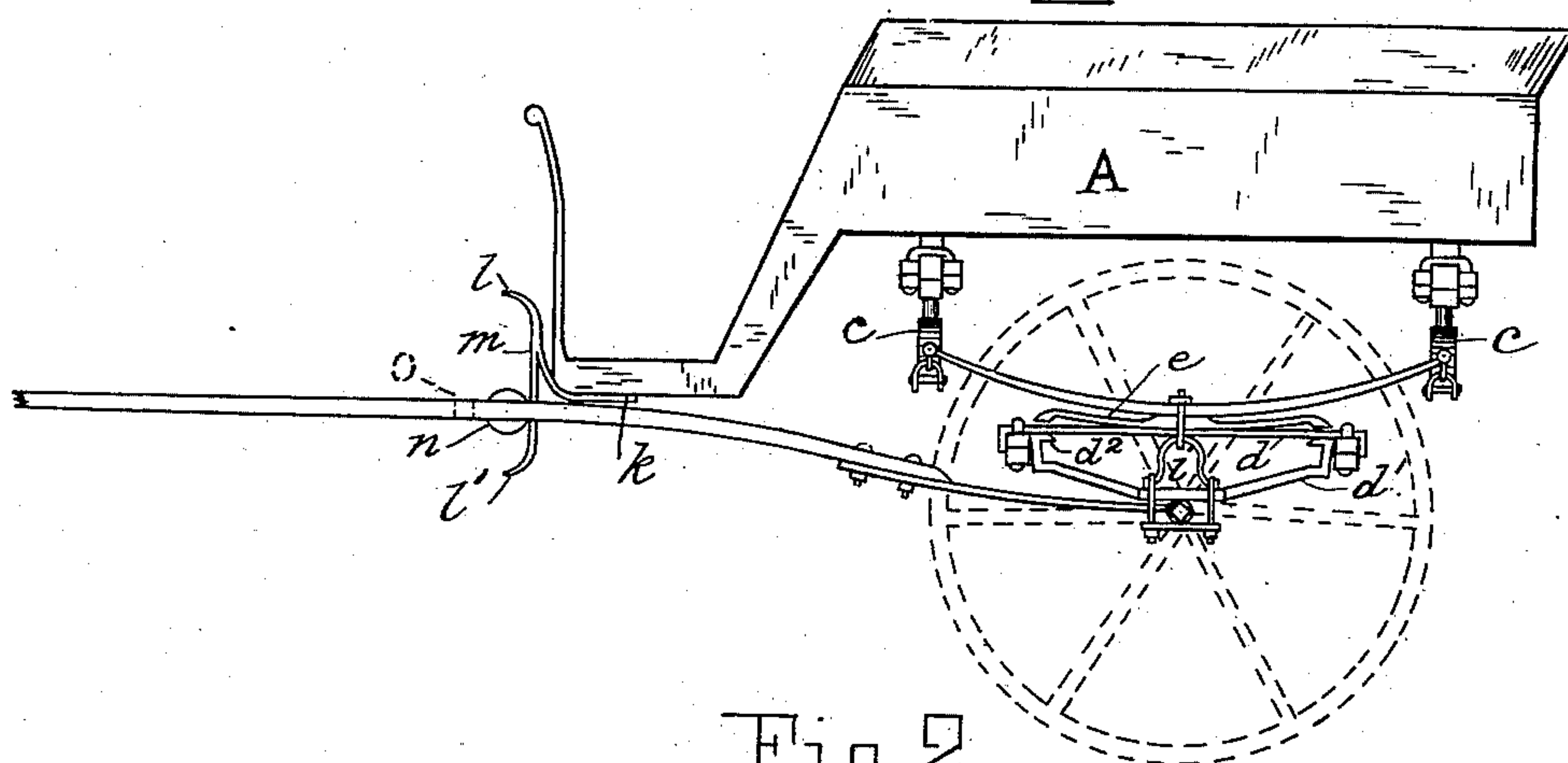


Fig. 2.

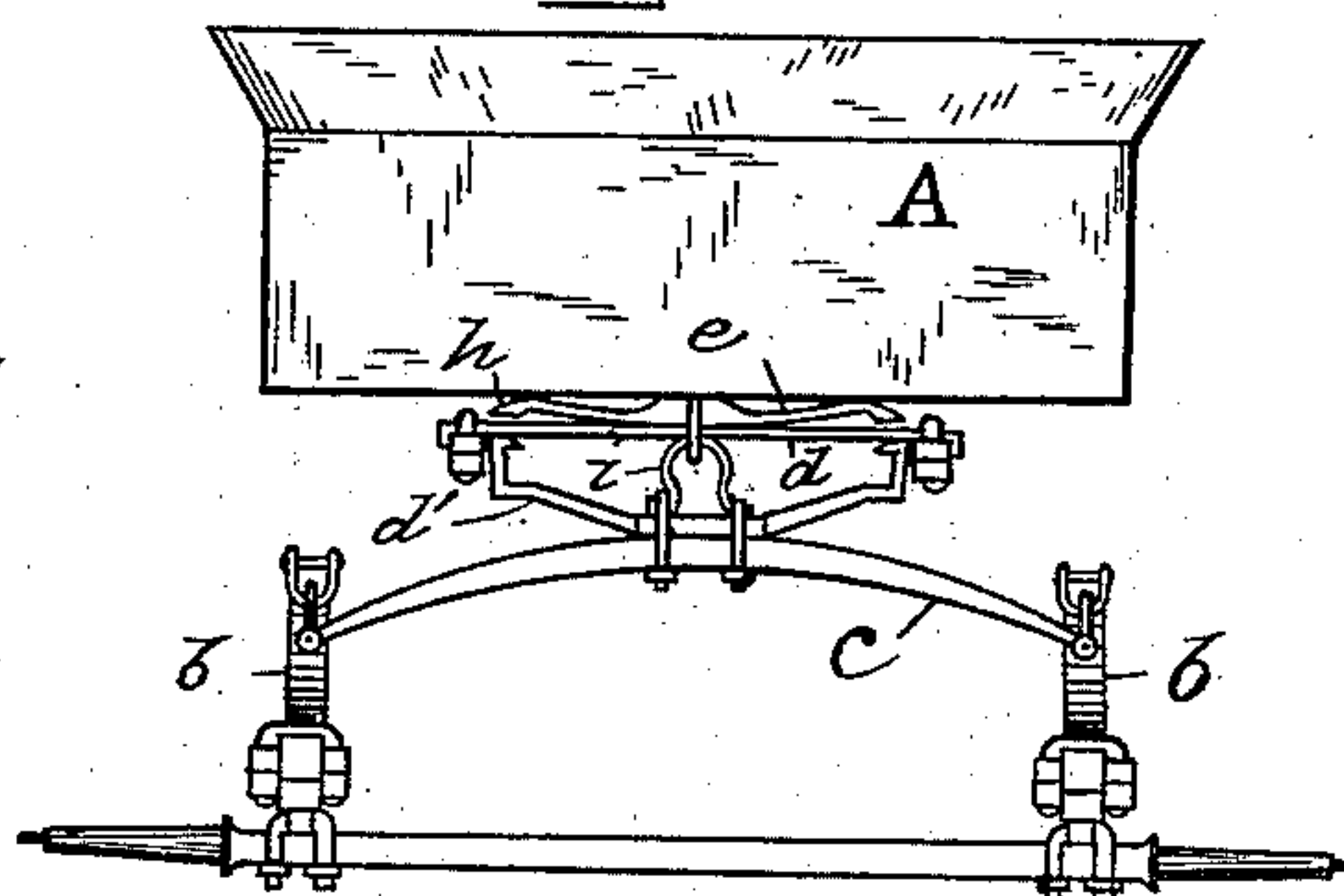


Fig. 7.

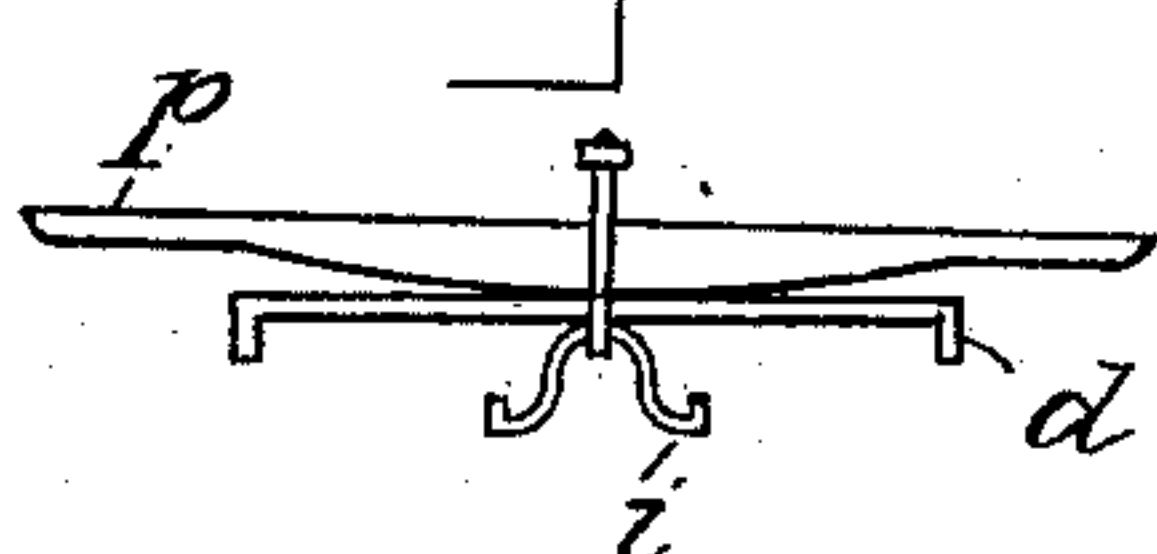


Fig. 4.

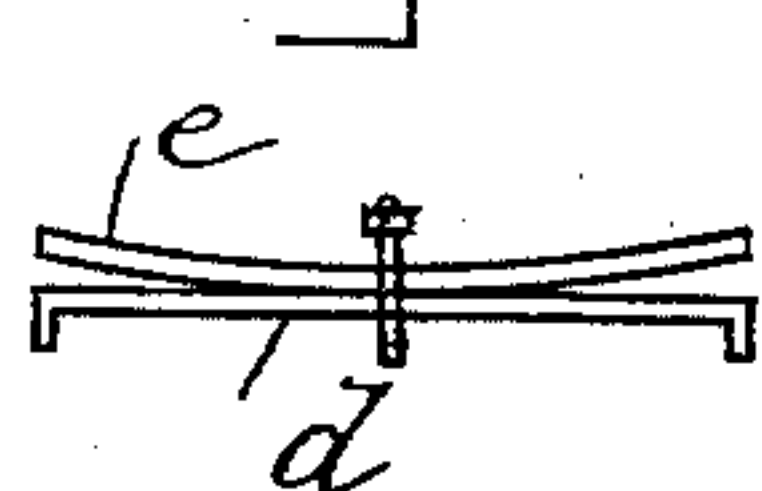


Fig. 3.

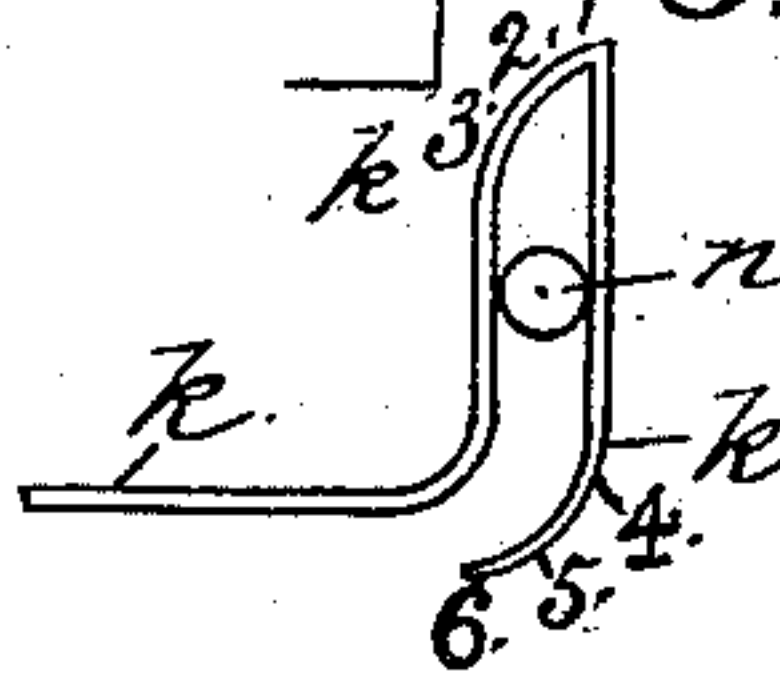


Fig. 5.

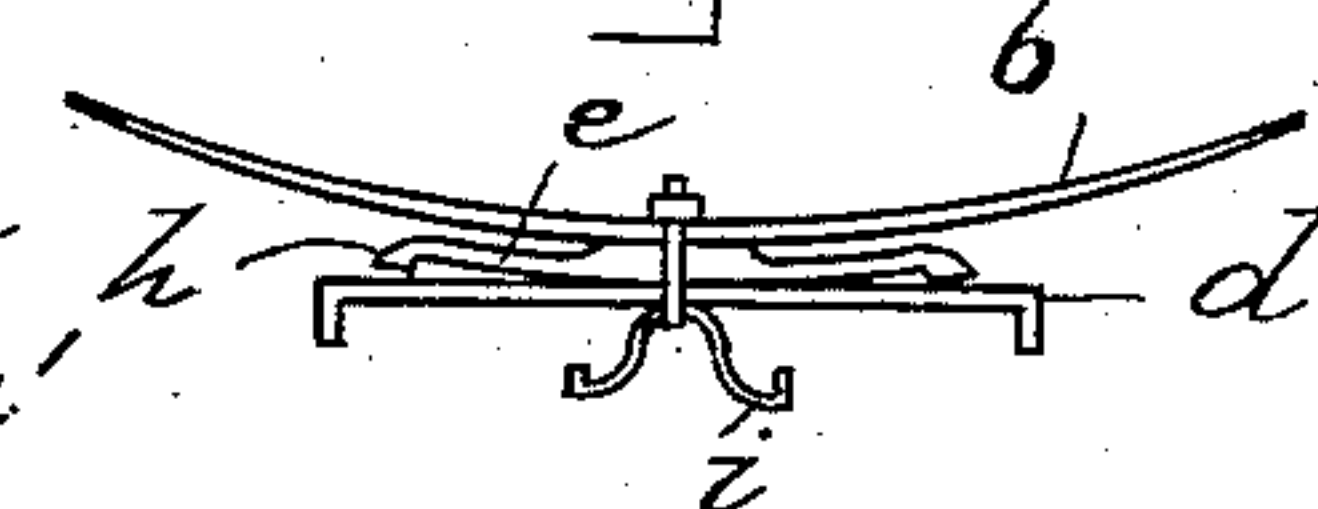


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

OSBORN WILLSON, OF AURORA, ILLINOIS.

TWO-WHEELED VEHICLE.

SPECIFICATION forming part of Letters Patent No. 312,690, dated February 24, 1885.

Application filed December 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, OSBORN WILLSON, of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Vehicles or Road-Carts; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention is a further improvement on the road-cart or two-wheel vehicle patented to me February 27, 1883, and numbered 272,928; and my present improvements relate to a novel arrangement of devices, to a brake or check device to control or limit the dip and also the upward movement of the body of the vehicle while a person is getting in or out of it and at other times, to a means for increasing the strength of the truss and its chord, and to a novel means for limiting the wave-line movement of the chord.

In the drawings, in Figure 1 is shown the device for counteracting the horse motion, placed between the axle and springs. Fig. 2 shows the same device placed crosswise of the body, and between the spring-bars and springs, to break the side lurch. Fig. 3 shows a modified form of the brake; and Figs. 4, 5, 6, 7, details.

The body A of the vehicle may be of any desired form, and the springs may be either elliptic, semi-elliptic, or of other form, as preferred, my improvements being adapted for springs as ordinarily made.

In the present instance, instead of connecting the springs to the carriage-body, I employ directly beneath such body and extending crosswise of it, and placed above but connected to the side springs, *b*, two cross-springs, *c*, one being fastened or clipped at its ends to the forward ends of the side springs, and the other being similarly clipped or fastened to the rear ends of said springs. The flexible strip or chord *d* is made of soft steel, and it and its rigid bow *d'* are similar to the bow-shaped piece and its steel strip placed beneath the springs, as shown in my above-named patent. In place,

however, of the rocker or steel piece shown in said patent as placed between the chord and the spring, I employ a long piece, *e*, preferably of wood, clipped to the center of the chord *d* and to the spring, and this piece reaches to the clips at the ends of the chord, and is substantially rigid. Its underside is very slightly curved. This long rocker and the pier, clipped as hereinafter stated, serve to limit, govern, and control the wavy motion of the chord, incident to the horse motion and to the attachment of the spring to the chord, and act positively, while at the same time affording all the advantages due to the bow and its chord. The piece *e* is not only a rocker, but by reason of its length it becomes a governor. It may be made without the feet or buffers *h*, and when pressed it may then feel the chord the whole length of the latter, and then have its end strike the end of the flexible chord, solid on the end *d'* of the truss or bow *d'*. Beneath the chord *d*, I place a pier, *i*, of any suitable form. I make it of bent band-iron, preferably such form as shown, which I clip firmly to the bow *d'*, and its top is in contact with the under side of the chord and clipped to it by a single clip, as shown. The pier strengthens the chord and the truss, the axle thereby (through this pier) receiving the shock given to the loaded vehicle. These piers may not only be placed with their truss or bow, rocker, and chord at the sides of the vehicle and beneath the side springs, but also may be placed, if desired, directly beneath the cart-body and above the springs.

The rocker on the flexible bridge or chord constitutes what may be styled a "limited pivot" for the swaying of the body, and it graduates the movement of the load.

I prefer to place these devices not only at the sides, but also crosswise of the vehicle above, and connected to the side springs and to the under side of the vehicle-body, as already mentioned, it being understood that the object of this construction is more especially to avoid or overcome the sudden jar or side lurch which must otherwise be caused when one wheel meets with an obstacle—such as when going over a stone or suddenly dropping into a rut or hole. If platform-springs be used, I

place the combined parts d d' and i between the springs and the spring-bars, as shown at p in Fig. 7, and clip them to such bar. The spring-bars (one at the front and one at the rear of the vehicle) thus serve as and become the rockers. If elliptic springs be used, my devices are hung in a similar manner to that above described. The pier increases the strength of the truss and its chord, lessens the cost of manufacture, and leaves the piece e to perform its duty as a rocker in its relation to the chord, and prevents the rocker hugging the chord more with a heavy than with a light load, thus reaping the full benefit under varying circumstances of the pivotal action.

The pier, the device consisting of the truss or bow, the chord, and the piece or rocker e constitute what I term "the devices," and invariably go together, and I use them, as stated, both for the horse motion and for the side lurch.

My brake or check device for controlling the dip or sweep of the front of the body when a person is stepping into the vehicle is made of spring-steel, and is as follows: A steel piece, k , of the shape substantially as shown, and, say, one and one-quarter inch broad, is fastened to the under side of the carriage-body, and projects forward of the body, and has, as shown at l l' , a forward curve both at its top and bottom, serving, as will presently be seen, to limit the up or down movement of the body. Its front face between these curves is straight, and substantially in a vertical line, as shown at m , when the body of the vehicle is substantially level. A small roller, n , (see Fig. 1,) is fastened to the cross-bar o of the shafts, so as to be in close or touching proximity to the face m . When the front of the carriage moves up or down, its movement is in a curve, or in the arc of a circle of which the axle is the center, and this movement thus necessarily crowds the straight rubbing-surface m , which should be about two inches in length, harder and harder against the friction-roller n , in proportion to the degree or extent of the up or down movement of the body, and the curves come into action after the extreme of such crowding may have taken place to serve as a positive arrest of any further movement either up or down, while they, as well as the face m , also serve to prevent a too abrupt rebound or reaction when a person jumps quickly from the vehicle. I deem the best form for this piece k to be as shown in Fig. 1—namely, with a strong flexible portion, k , of spring-steel, say one and one-quarter inch broad and one-quarter of an inch thick, against which the roller works, though I sometimes make this piece k k' so that it shall go both to the front and rear of the roller, as shown in Fig. 3, so that it will both pull and push. When the front of the body dips, the flexible part k rubs at 1, 2, and 3, and when the front of the body makes an upward sweep the flexible piece k' rubs the roller at 4, 5, and 6. The

flexible piece is about six inches long. Then it runs back to the body for fastening. I make it of one-and-one-quarter by one-quarter inch spring-steel. The brake and roller, and which I call the "brake device," assist horse-motion device and compel the body of the vehicle, even in emergencies, to maintain a horizontal position. This operates to make the movement of the body, when leaving its horizontal position, gradual instead of sudden at all points between its extremes of motion as controlled by the curves, and it permits a vertical movement of the carriage-body up or down, free of any resistance from the face m ; but as the sweep of the front of the body up or down increases, the resistance increases correspondingly. The pulley or roller n may be of any size convenient—say, for instance, about three-quarters of an inch in diameter—and covered with rubber hose. When the body of the vehicle moves up and down equally—that is, with its horizontal line preserved—the piece k or k' does not act as a brake, because the vertical movement of the vehicle is parallel with the vertical face of this piece, and no increase of resistance ensues, and thus this brake, while always in place ready for action, when there is too much sweep of the front of the body of the cart, does not interfere with the motion of the body or shafts, except in such emergency.

As previously stated, my combined devices—viz., the united bow or truss d' , chord d , pier i , and rocker e —placed, as shown, between the springs and axle lengthwise of the body, counteract the horse motion, and, placed crosswise of the body and directly under it, they counteract the side lurch.

The ordinary spring-bar for the body to rest upon may by my construction be dispensed with, if desired, the rocker serving in its stead, or I place my "crosswise" devices between the ordinary spring-bars and the ordinary springs.

Whenever my devices d d' and i are used crosswise of the body for counteracting the side lurch, I invariably make the spring-bar serve instead of a special rocker—that is, it performs the duty of the rocker as well as that of the spring-bar.

I claim—

1. In a two-wheeled vehicle, in combination with the bow or its chord and pier, the wooden rocker e , extending the whole length of the chord, and serving the twofold purpose of a rocker and of a governor, all substantially as set forth.

2. The pier i , combined with and clipped to the axle or springs beneath it, and also to the chord, rocker, and springs (or spring-bar) above it, and serving to strengthen the truss and the chord, and to preserve the proper mutual relations of the chord and rocker under the changing conditions of the load, as set forth.

3. The described device consisting of the

5 bow, chord, rocker, and pier, arranged under and crosswise of the cart-body, and between the body and the side springs, and clipped to the middle of the cross-springs and secured to the body, as set forth.

10 4. In combination with the cart-body, the brake $k k'$, secured to its front, and the roller secured to the cross-bar of the shafts, the combination being and operating substantially as set forth.

5. The combination of the described brake $k k'$ and the roller with the devices consisting of the described bow, chord, rocker, and pier.

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Witnesses:

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