M. E. BURRIS.
Vehicle-Spring.

2 Sheets—Sheet 1.

No. 200,169. Patented Feb. 12, 1878.

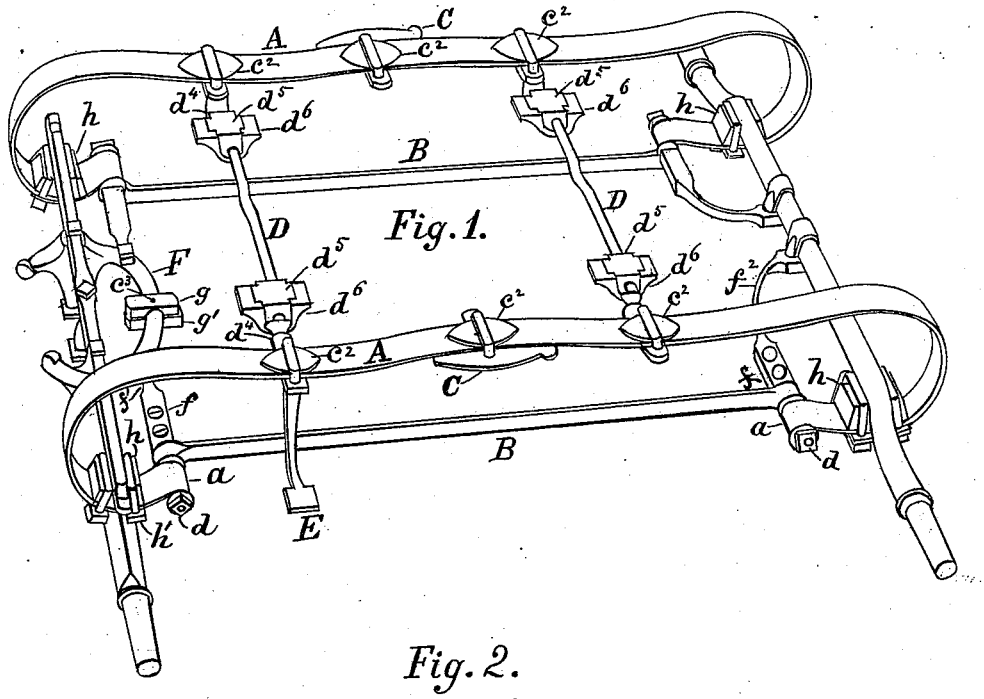


Fig. 1.

Fig. 2.

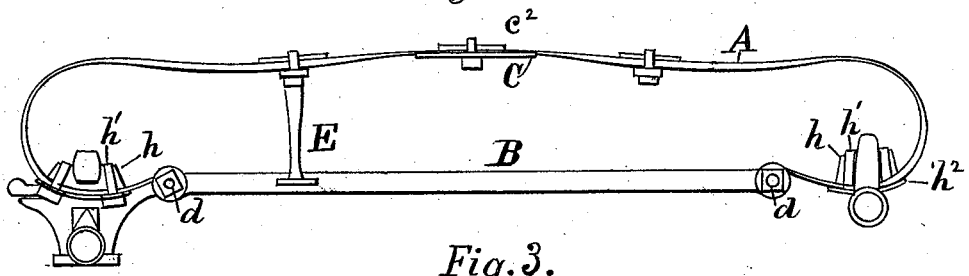
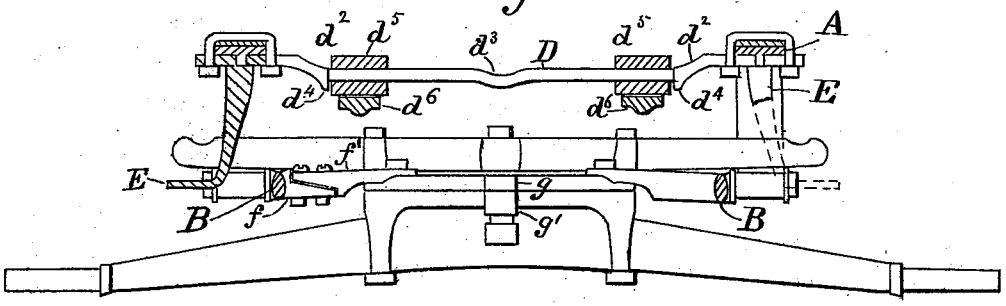


Fig. 3.



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Wm. J. Osgood

Inventor:
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by W. T. Burris
Attorney.

M. E. BURRIS.
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Fig. 4.

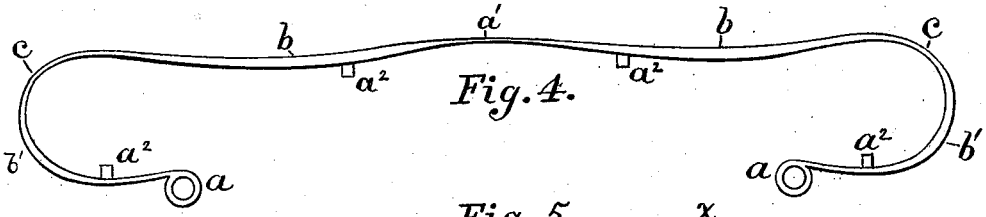


Fig. 5.

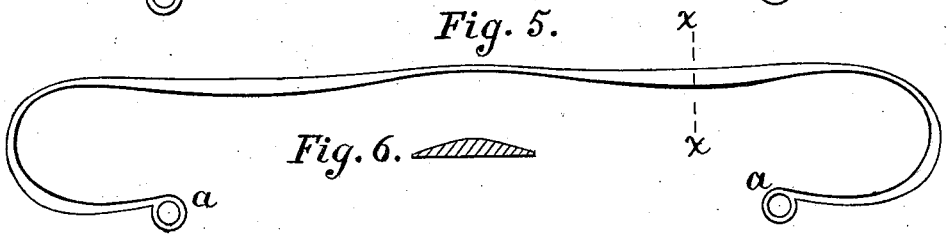


Fig. 6.

Fig. 7.

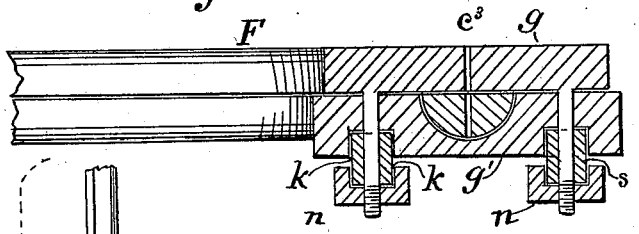


Fig. 8.

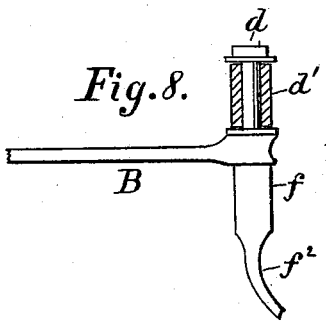


Fig. 9.

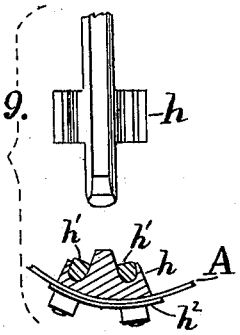


Fig. 10.

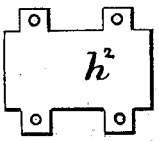


Fig. 11.

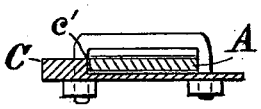
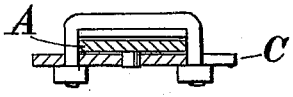


Fig. 12.



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UNITED STATES PATENT OFFICE.

MICAJAH E. BURRIS, OF NEW YORK, N. Y., ASSIGNOR TO WILLIAM BURRIS, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **200,169**, dated February 12, 1878; application filed December 15, 1877.

To all whom it may concern:

Be it known that I, MICAJAH ELLIOTT BURRIS, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Vehicle Springs and Gears; and I do hereby declare that the following is a full, clear, and exact description of my 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 the letters of reference marked thereon, which form a part of this specification.

My invention consists of certain improvements in vehicle springs and gears, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view. Fig. 2 is a side elevation. Fig. 3 is a transverse section through the front hanging-iron, looking toward the front of the vehicle. Fig. 4 is a side view of the spring varied in thickness lengthwise. Fig. 5 is a side view of a spring thickened from the edges to the longitudinal center. Fig. 6 is a transverse section of the spring on line *x x* of Fig. 5. Fig. 7 is a vertical section of a portion of the fifth-wheel, showing the anti-rattling devices. Fig. 8 is a detached portion of one of the connecting-bars with lateral arm and spindle, with the sleeve in section. Fig. 9 shows, in plan and section, detached views of the head-block with the solid lug, clips, and plate for holding the spring. Fig. 10 is a plan view of one of the double clip-plates. Figs. 11 and 12 are vertical transverse sections of the rub-irons.

A is the spring, of one continuous plate or piece, having scrolls at the ends, forming the eyes *a a*, to receive the spindles of the connecting-rods. The plate of the spring is gradually increased in thickness lengthwise from the cross-center a^1 to about the points *b b*, then gradually diminished in thickness from the points *b b* to about the points *c c*, then gradually thickened from the points *c c* to about the points $b^1 b^1$ on the bend of the spring, and then gradually diminished in thickness to the scrolls, as shown in Fig. 4 of the drawings.

The spring is provided with nibs a^2, formed on the inner and under surface at the points shown, which fit in sockets in the hanging-irons, axle, and head-block.

Instead of making nibs on the springs, they may be provided with indentations to receive nibs on the hanging-irons, axle, and head-block.

By varying the thickness of the plate of the spring at the parts described, the required strength and elasticity are secured with reduced weight, and the several plates heretofore used are dispensed with, and the appearance of the spring is improved.

The spring-plate may be increased gradually in thickness from the edges to the longitudinal center at the points requiring increased strength by tapering or beveling the top, leaving the under surface flat, as shown in Figs. 5 and 6 of the drawings.

B B are connecting-rods, provided with lateral spindles *d d* at right angles to the rods, inserted through sleeves d^1 d^1, made of any suitable material, adjusted in the eyes of the springs, to lessen the friction and wear on the spring and to prevent rattling, and the connecting-rods are provided also with lateral arms *f f*, connecting with the guy-stays f^1 f^1 in front, attached to the fifth-wheel, for sustaining the level of the fifth wheel, and the guy-stays f^2 f^2 at the back, attached to the hind axle. The lateral arms *f f* may be constructed to connect directly with the fifth-wheel and the hind axle, thus dispensing with the separate guy-stays.

Double lugs *h* are formed on or attached to the axle and head-block, and the springs are fastened to the axle and head-block by means of clips h^1, extending through double clip-plates h^2, and adjusted in grooves formed in the upper side of the lugs.

The rub-irons C are constructed with shoulders c^1, to bear against the outer edges of the springs; and they are attached to the springs by clips, having bearing-plates c^2, for securely holding the the rub-irons in place.

Instead of forming a shoulder on the rub-iron, it may be provided with a hole to receive a nib formed on the lower side of the spring; or the rub-iron may be provided with a nib to fit in an indentation in the under side of the spring, as shown in Fig. 12 of the drawings.

In running rapidly over rough roads the

springs, in their vertical motion, are liable to strike against the rub-irons, causing a rattling noise if the rub-irons are attached to the body; and to avoid this difficulty I attach the rub-irons to the springs, as described.

D D represent the hanging-irons for supporting the body of the vehicle, which are attached to the springs by means of clips having bearing-plates c^2, and the front hanging-irons are provided with the steps E E, formed on or attached rigidly to them, so that the strain and pressure may be directly on the springs instead of the body, to prevent tipping it sidewise and the liability of pressing it against the springs by heavy weights on the steps when they are attached to the body of the vehicle; and the hanging-irons, both front and back, are bent at d^2 d^2, to drop them below the level of the springs, and they are provided with depressions d^3 d^3 in the center, to avoid contact with the stay-bar attached to the bottom of the body, and they are also provided with shoulders d^4 d^4, forming bearings for the ends of the rubber cushions d^5 d^5, which project beyond the hanging-boxes d^6 d^6, to prevent contact of the metallic surfaces of the boxes and the hanging-irons to avoid rattling.

In adjusting the body on the hanging-boxes, the ends of the cushions are pressed closely against the shoulders on the hanging-irons, and the boxes in this position are firmly bolted to the body.

The motion of these springs tends to rock the head-block and open and close the back portion of the fifth-wheel, and to loosen the ordinary clips or bolts used for holding them in position, causing thus a rattling noise; and hence it is readily seen that vehicles having such springs require peculiar fifth-wheel devices. To avoid these difficulties, the guy-stays or arms are attached to or connected with the upper plate of the fifth-wheel F, to sustain it in a level position, and the upper plate is provided with a clip, g, formed on and solid with the plate. The arms of the clip extend downward through the bearing-plate g', which is provided on the upper side with a groove to fit the rounded under surface of the bottom plate, and cups k are formed in the lower side of the bearing-plate and the upper side of the nuts n n, to receive the rubber cushions s, adjusted over the arms of the clip g in the cups to hold the two plates of the fifth-wheel closely together with a yielding pressure, allowing the required free motion of the plates of the fifth-wheel without a rattling noise; and a hole, c^3, is made through both of the plates of the fifth-wheel from the top, to convey oil to the groove of the bearing-plate, as seen in Figs. 1 and 7 of the drawings.

I apply these springs to sleighs as well as buggies and other vehicles.

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

1. A vehicle-spring formed of one plate, gradually thickened from the cross-center a^1 to the points b b, and from the points c to the points b', and gradually diminished in thickness from the points b to the points c, and from the points b' to the scrolled ends, substantially as and for the purposes described and shown.

2. A spring, A, of one plate, varied in thickness at the several parts, and having the ends scrolled, forming the eyes a a, in combination with the connecting-rod B, provided with the lateral spindles d d, adjusted in the sleeves d^1 in the eyes of the spring, and lateral arms f, connecting with the fifth-wheel and the hind axle, substantially as and for the purposes described.

3. The double lugs h, formed on the head-block and hind axle, and provided with recesses in the upper side to receive the clips h^1, for holding the springs in place, substantially as described.

4. In combination with the side springs A, the hanging-irons D, provided with the steps E, attached to the springs, and bent at d^2 to drop them below the level of the springs, and having the depressions d^3 in the center, to avoid contact with the stay-bar, and provided with the shoulders d^4, forming bearings for the rubber cushions d^5 in the hanging-boxes d^6, substantially as and for the purposes described.

5. The rub-irons C, provided with shoulders c^1, and attached to the springs A, substantially as and for the purposes described.

6. In a vehicle having the springs A, the fifth-wheel, held in a level position by the guy-stays or arms connected with or formed on the rods B, substantially as described.

7. In a vehicle having the springs A, the fifth-wheel, having a hole, c^3, through both plates for conveying oil to the bearing-plate, and having a solid clip formed on the upper plate, and a bearing-plate, g', provided with a groove to fit the under surface of the bottom plate, and the rubber cushions s, adjusted in cups in the bearing-plate and clip-nuts, substantially as and for the purposes described.

8. The spring A, formed of one plate, varied in thickness at the several points, as set forth, the connecting-rods B, having lateral spindles d d and lateral arms f f, connecting with the hind axle and with the fifth-wheel, the rub-irons C, and the hanging-irons D, fastened to the spring, and the fifth-wheel F, provided with the anti-rattling devices g g' k n n s, all constructed and combined substantially as and for the purposes described.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

M. ELLIOTT BURRIS.

Witnesses:
G. B. TOWLES,
WM. DAVIE.