(No Model.)

H. S. SMITH.

CARRIAGE SPRING.

No. 386,937. Patented July 31, 1888.

Fig. 1.

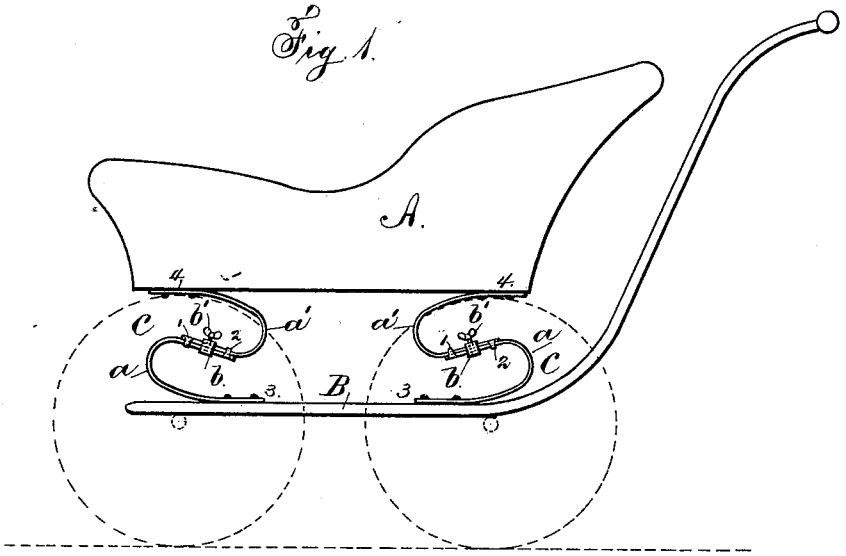


Fig. 2.

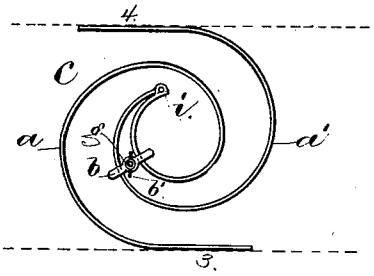


Fig. 3.

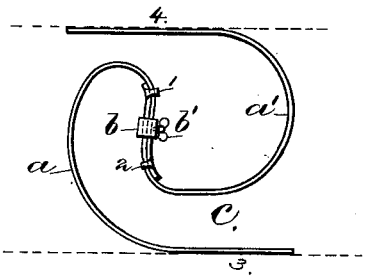


Fig. 4.

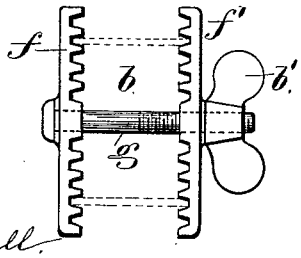
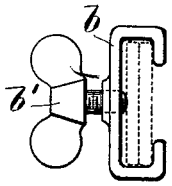


Fig. 5.



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UNITED STATES PATENT OFFICE.

HERBERT S. SMITH, OF NEW YORK, N. Y.

CARRIAGE-SPRING.

SPECIFICATION forming part of Letters Patent No. 386,937, dated July 31, 1888.

Application filed January 3, 1888. Serial No. 259,607. (No model.)

To all whom it may concern:

Be it known that I, HERBERT S. SMITH, of the city, county, and State of New York, have invented a new and useful Improvement in Springs for Baby-Carriages; and the following is declared to be a description of the same.

Springs of various forms have been employed in connection with baby-carriages for supporting the body of the carriage upon the side bars; but these springs have generally been of such shape that they were liable to break easily under extra weight, and springs have heretofore been made capable of adjustment for varying weights; but the same were adjusted at the fastened ends of the springs, which point is that of least action.

My invention relates to springs for baby-carriages wherein springs are employed, either one at each corner of the carriage or two at one end and one at the other end to support the same upon the side bars or axles; and my invention consists in a spring having two leaves in the same vertical plane, one end of one part being attached to the body and the other end of the other part being attached to the running-gear, the adjacent ends of the respective leaves being joined by a hinge, rivet, or shackle, or may lap past one another and be secured or adjustably held together by a clamp at different positions to vary the flexibility of the spring.

My improved spring is capable of being adjusted and made stiffer or more flexible by shortening or lengthening the spring on itself. This I accomplish by clamping the leaves of the spring together at varying points near the connected adjacent ends of the respective leaves, and thus changing the length of the spring action under varying loads at its point of greatest action and least rigidity.

In the drawings, Figure 1 is an elevation of the body, springs, and side bar of a baby-carriage, the wheels being shown by dotted lines. Figs. 2 and 3 represent modified forms of the springs, and Figs. 4 and 5 represent forms of clamps.

The carriage-body A, side bars, B, and the running-gear may be of any desired character, material, and construction without affecting my invention.

The springs C are placed either one at each of the four corners of the carriage, two upon each side, connected, respectively, to the body A and side bar, B, or they may be placed two at one end and one at the other end, if desired, and there may be in this latter instance one or more of my improved springs employed in connection with one or more of an ordinary type.

Each spring C is composed of two parts or leaves, *a a'*, located in the same vertical plane, one end of one part being united at 3 to the side bars or running-gear, and the other end being united to the body, and the adjacent ends of the leaves are brought together and united. Where the leaves are C-shaped or convoluted, as shown in Fig. 2, the inner or adjacent ends are joined by a hinge, rivet, or shackle at *i*, and in the other figures the adjacent ends are lapped past one another from opposite directions, and securely but adjustably held together by a clamp, *b*. In these latter cases the edges of the adjacent ends of each leaf are provided with lugs 1 2, which are bent around and grasp the edges of the opposite leaf to preserve the springs in their relative position laterally.

The clamp *b* (shown in Figs. 1, 3, and 5) passes around the edges of both leaves, and is provided with a thumb-screw or clamping-nut, *b'*, the turning of which confines the leaves of the spring within the clamp and securely holds them together.

If the spring is too stiff for the weight of the occupant of the carriage, it can be lengthened upon itself and made more flexible by loosening the clamping-nut *b'*, pulling out and lengthening the spring, and again clamping the nut *b'*. If it is desired to stiffen the spring, the reverse operation is employed—viz., shortening the spring on itself by lapping the ends to a greater extent.

In the double-C or convolute form of spring shown in Fig. 2 the operation of shortening or lengthening the leaves of the spring to make the same stiffer or more flexible is accomplished by a clamp, *b*, of the form shown in Fig. 4, which is composed of the two bars or plates, *f f*, having transverse grooves and teeth upon their inner faces, and there is a headed stem, *g*, passing through these plates, one end of which is threaded and provided with a clamping-nut, *b'*. The position of this clamp is shown in Fig. 2, the stem *g* passing between the confined leaves *a a'*, and the plates of the

clamp coming at opposite edges of the leaves, the edges of the leaves passing into the grooves between the teeth of the plates, so as to grasp the edges of the leaves of the spring and hold them firmly. The clamps can be placed nearer to or farther from the hinge *i*, for varying the stiffness of the spring and at the same time maintain the proper height of the carriage above the side bars. If desired, this spring can be stiffened or made more flexible by sliding this clamp nearer to the hinge *i* or farther away from it, the edges of the leaves *a a'* in this case being kept within the same teeth, and raising or lowering the carriage-body in its relation to the side bars as the clamp is moved nearer to or farther from the hinge.

I claim as my invention—

1. The combination, with the carriage-body and running-gear, of springs, each of which is composed of two parts or leaves occupying the same vertical plane, one end of one part being attached to the body and the other end of the other part being attached to the running-gear, lugs upon the edges of the respective leaves near the ends that lap upon each other to preserve the springs in their proper relative positions laterally, and an adjustable clamp for holding the two lapping parts of the spring together, substantially as specified.

2. The combination, with the carriage-body and running-gear, of springs, each of which is composed of two parts or leaves occupying the same vertical plane, one end of one part being attached to the body and the other end of the other part being attached to the running-gear, a connection between the adjacent ends of the respective leaves, and a movable clamp for varying the stiffness of the two-part spring by varying the distance of the clamp from the adjacent ends of the spring, substantially as specified.

3. The combination, with the body and running-gear, of a spring made of two parts, one of which is attached at its lower end to the running-gear and rises above the same and is convoluted, and the second part is attached at its upper end to the body and passes downwardly below the upper end of the lower part and is convoluted, and a connection between the two parts of the springs at or near their adjacent ends, substantially as set forth.

Signed by me this 27th day of December, A. D. 1887.

HERBERT S. SMITH.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.