(No Model.)

H. H. PIEPER.

VEHICLE SPRING.

No. 502,318. Patented Aug. 1, 1893.

Fig. 1

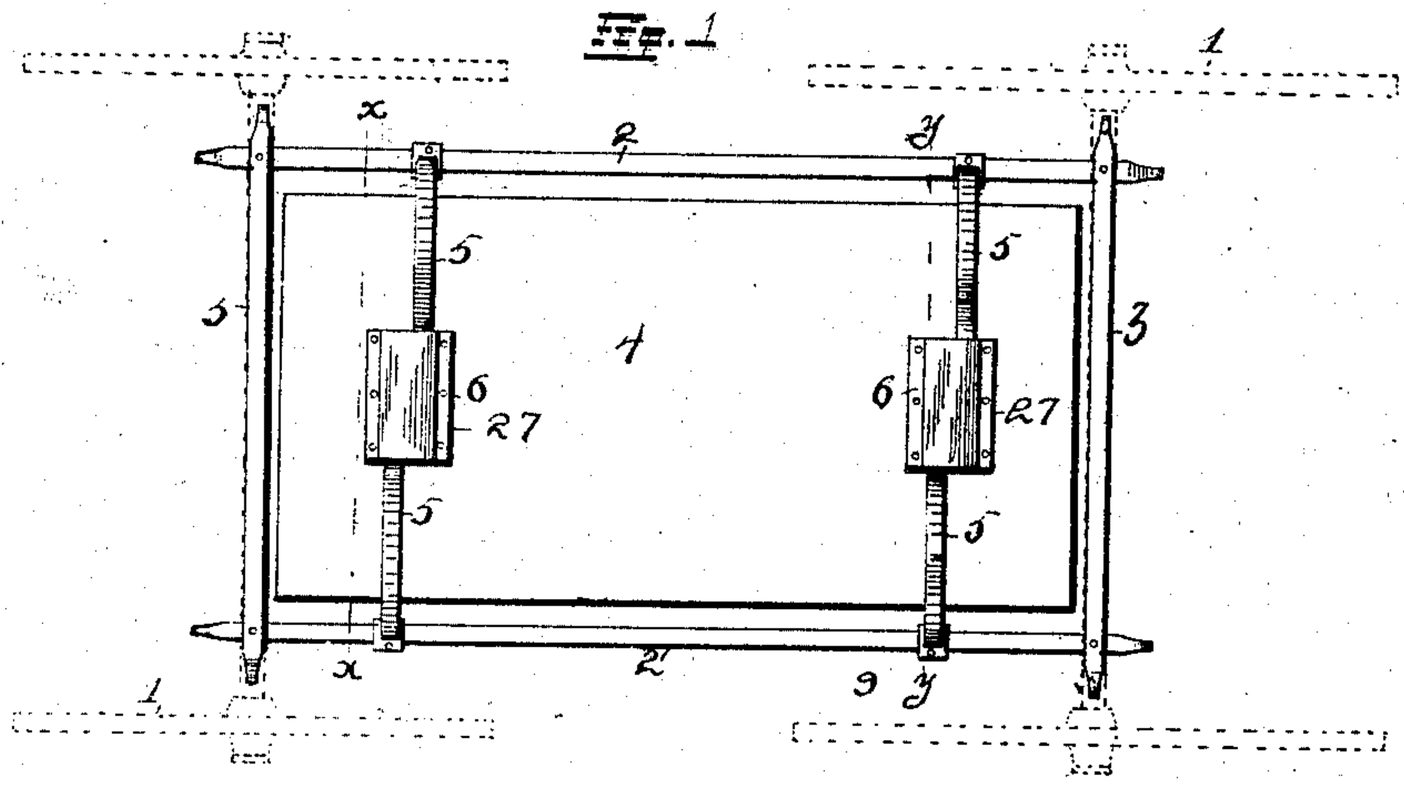

Fig. 2

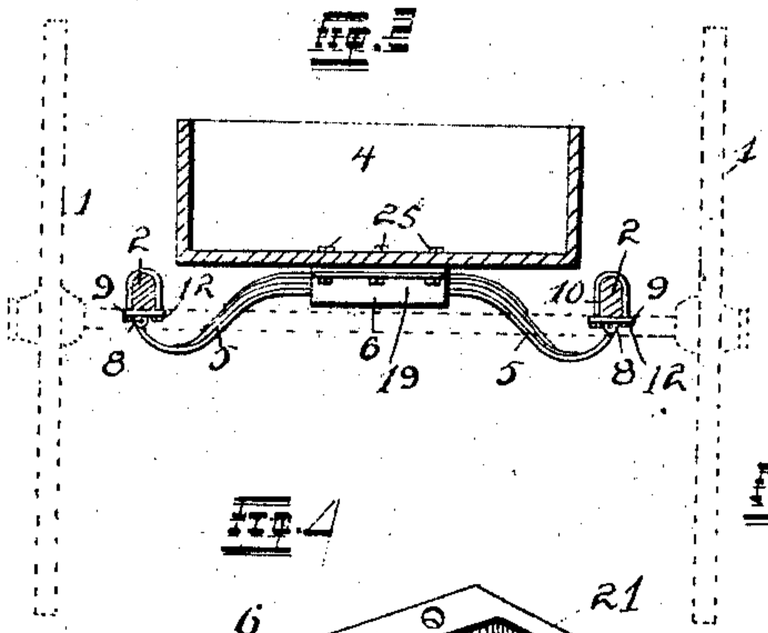

Fig. 3

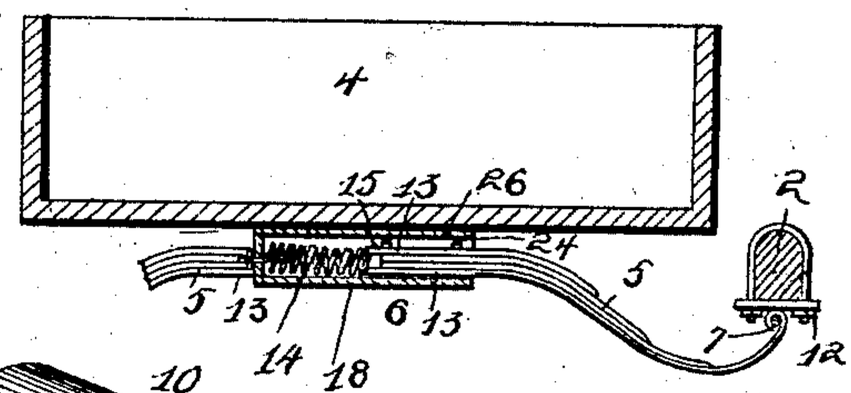

Fig. 4

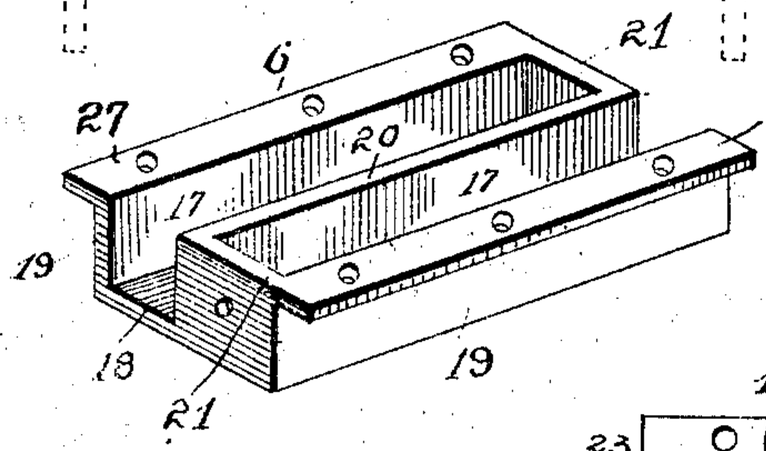

Fig. 5

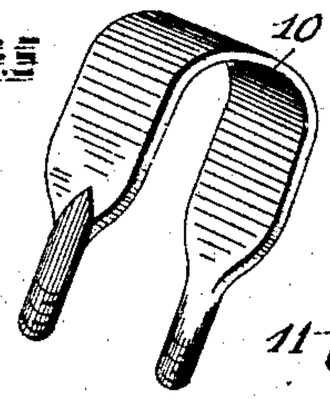

Fig. 6

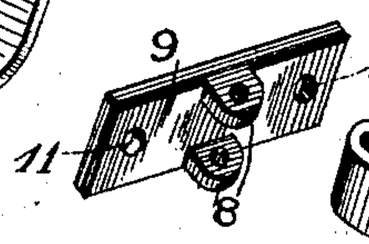

Fig. 7

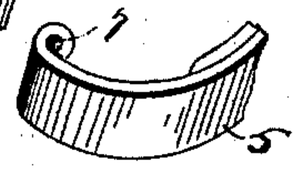

Fig. 8

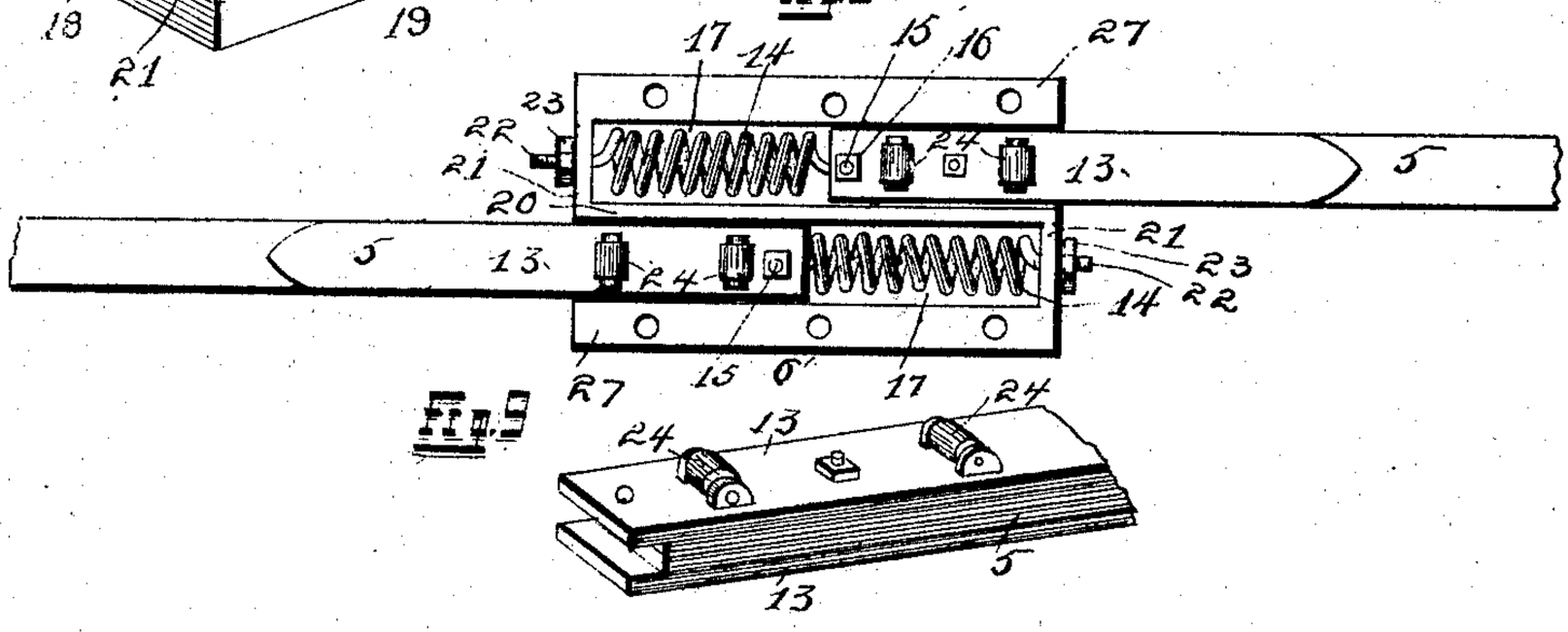

Fig. 9

Witnesses
Alfred A. Ficker
Herbert L. Robinson

Inventor
H. H. Pieper
By his Attorneys Higdon & Higdon & Longan

UNITED STATES PATENT OFFICE.

HERMAN H. PIEPER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO GUSTAV F. STAATS AND THEODORE KLEIN, OF SAME PLACE.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 502,318, dated August 1, 1893.

Application filed October 3, 1892. Serial No. 447,641. (No model.)

To all whom it may concern:

Be it known that I, HERMAN H. PIEPER, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Vehicle-Springs, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in "vehicle springs," and consists in the novel arrangement and combination of parts as will be more fully hereinafter described and set forth in the claims.

The improvements refer particularly to the balancing of the bed of the vehicle upon the springs, and combine features which absolutely guarantee the successful operation of parts and give to the buggy an easier motion.

In the drawings: Figure 1 is an inverted plan view of the gearing of an ordinary four wheeled spring vehicle, showing the wheels in dotted lines. Fig. 2 is a transverse cross-sectional view of the vehicle bed and springs, taken on a line *x x* in Fig. 1 and showing the gearing in dotted lines. Fig. 3 is a transverse cross-section taken on a line *y y* in Fig. 1, with the gearing removed and a portion of one spring broken away. Fig. 4 is a perspective view of the cast box in which the improvements are operated. Fig. 5 is a perspective view of the clip made use of in the construction. Fig. 6 is a perspective view of a casting used in conjunction with the clip. Fig. 7 is a perspective view of the terminal extremity of one of the springs. Fig. 8 is a top plan view of the box with parts located therein, the cover of said box removed and portions of the springs broken away. Fig. 9 is a perspective view of a portion of the inner terminal of one of the springs, showing the parts in enlarged detail.

Referring to the drawings: 1 indicates the wheels and gearing of an ordinary four wheeled spring vehicle, said parts being shown in dotted lines.

2 indicates the side bars and 3 the end cross pieces upon which said side bars 2 are secured, these parts forming a rectangular shaped frame work.

4 indicates the bed or body of the vehicle, supported as hereinafter described.

5 indicates leaf springs which are made use of to render the body capable of adapting itself to the unevenness of roads and so forth.

6 indicates rectangular shaped castings in which the inner ends of said springs 5, terminate and are engaged. The outer end of said spring 5 terminates in an eye 7 which is longitudinally the width of the spring, and through which a bolt is adapted to pass and engage in perforated ears 8 upon a plate 9, said plate 9 being held upon the under side of the side-bar 2 by U-shaped clips 10 which fit over the upper side of said side bar 2, the ends of said clip 10 provided with screw threads and adapted to pass through perforations 11 in said plate 9 and be held thereto, by means of nuts 12. The springs which are preferably used in this construction are what are known as "leaf" springs, consisting of a number of pieces of spring steel underlapping each other.

The top and bottom leaves 13 project over the intermediate parts and furnish a means for securing one end of a spring 14, which has said end screw threaded and projecting through an opening in the upper leaf and upon said screw threaded end 15 is adapted to be located a nut 16 for holding said spring in position. Said spring 14 is located in a chamber 17 which forms one-half of said casting 6. Said casting 6 is substantially rectangular in form and has a bottom-plate 18, side-plates 19 at right angles with said bottom-plate 18 and a central partition or wall 20 midway between said side walls 19 and in alignment with same. This divides the same into two compartments 17, which open in opposite directions, as ends 21 are provided for the same upon each end of the entire casting, that is to say each chamber 17 has but one end 21, the open ends of said chambers opening in different directions. The free end of said spring 14 has a screw threaded projection 22 which passes through a perforation in said end 21 and is held in place by a nut 23. Thus it will be seen, as the constructions are exactly similar, that each one of the castings 6 has a complete spring 5 projecting in opposite directions therefrom, to the side bars 2. The springs 5 at a point normally within the boundary of the castings 6, are provided upon their upper surfaces with rollers 24 suitably

mounted thereon to render the successful operation of the parts more certain.

A lid or cover for the casting 6 is provided and which is secured thereto by the bolts 25 which pass through the bottom of the body 4, through perforations in the lid 26 and through perforations in flanges 27 which extend outwardly at right angles from the upper edges of the side walls 19.

The operation of my device is as follows: The weight of the body 4 and contents falls squarely upon the two box castings 6 in which the inner ends of the four springs 5 terminate. When the relative position of the body is altered, owing to inequalities in the road upon which the vehicle is traveling, it is absolutely necessary for something to give way to compensate for said inequality. Therefore, as before stated, the weight falls substantially upon the inner ends of said springs 5 and instead of causing them to spread outwardly, the tendency pushes said inner ends down and inwardly toward each other. The springs 14 are provided in order that the spring will operate slowly and immediately return to its normal position. The rollers 24 insure the certain operation of the spring within the chamber 17. The object of securing the inner ends of the springs by means of the nuts 23 lies in the fact that it is desirable to take up all of the slack in the spring, in order to render the entire coil available.

Having fully described my invention, what I claim is—

1. As an improvement in vehicle springs, the combination, with a casting comprising two parallel chambers open at opposite ends, of sectional springs 5 having their opposing ends located and working in the respective chambers, and auxiliary coil springs disposed between the closed ends of the latter and the inner ends of the springs, said auxiliary springs having their ends connected with the casting and the springs 5, substantially as set forth.

2. An improved vehicle spring, consisting of sectional springs, the outer ends of said sectional springs movably secured in castings 6 secured to the side bars 2 by clips 10, the inner ends of said springs adapted to operate downwardly and inwardly toward each other, substantially as set forth.

3. An improved vehicle spring, consisting of sectional springs, said sectional springs arranged in pairs, the outer ends of said springs 5 pivotally secured between ears 8 upon plates 9, rectangular shaped castings 6 consisting of a bottom-plate 18, two right angular sides 19, a central partition 20 dividing the interior space into two compartments 17, ends 21 half of the width of said bottom-plate 18 and closing one end of each of the chambers 17 at opposite ends of the casting 6, and the inner ends of said springs 5 adapted to be operative in said chamber 17, substantially as set forth.

4. An improved vehicle spring, composed of sectional springs 5, the top leaves 13 of said springs 5 projecting inwardly into chambers 17, said leaves 13 being a part of said springs 5, a spring 14 located in each of said chambers 17, the screw threaded end of said spring adapted to pass through a perforation in said projecting leaf 13 and be engaged by a nut 16, the opposite screw threaded end 22 of said spring 14 adapted to pass through a perforation in said end plate 21 and be engaged by a nut 23, and rollers 24 mounted upon the top inner ends of said sectional springs 5, substantially as set forth.

5. An improved vehicle spring, having sectional springs 5, arranged in pairs, the inner ends of said springs adapted to be operative in oppositely terminating chambers 17 in the casting 6, a top plate 26 provided for said casting 6, the side walls 19 of said casting having right angular flanges 27, perforations in said top 26, said flanges 27, and bolts 25 adapted to be placed through the floor of the body, said lid 26 and flanges 27, substantially as set forth.

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

HERMAN H. PIEPER.

Witnesses:
HERBERT S. ROBINSON,
ED. LONGAN.