G. E. Garretson.

Running Gear.

No. 109608. Patented. Nov. 29. 1870.

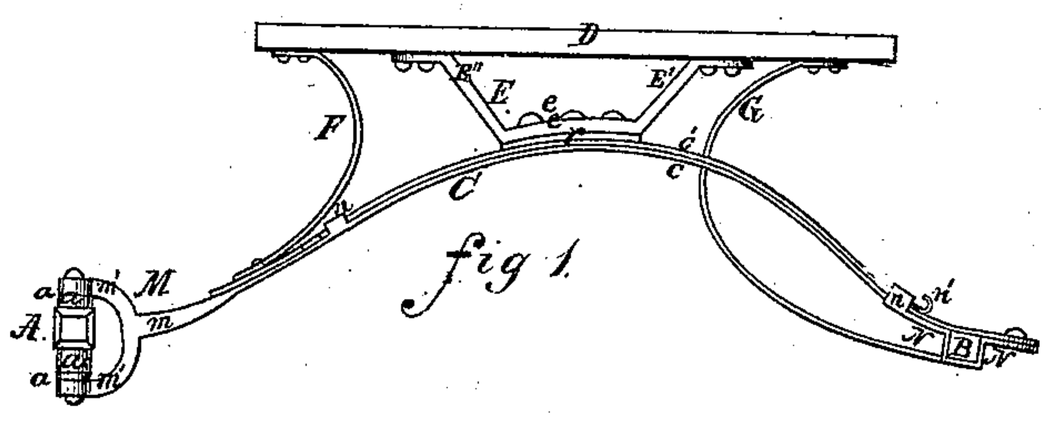


fig 1.

fig 2.

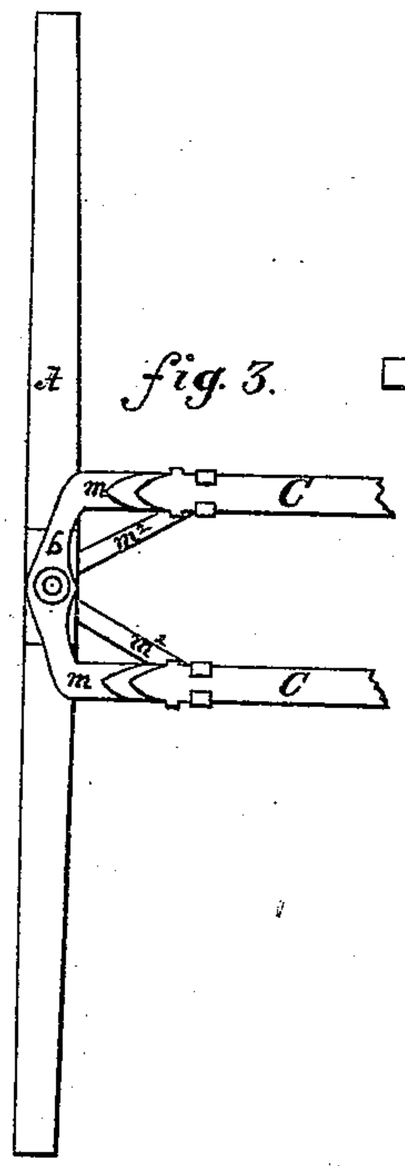
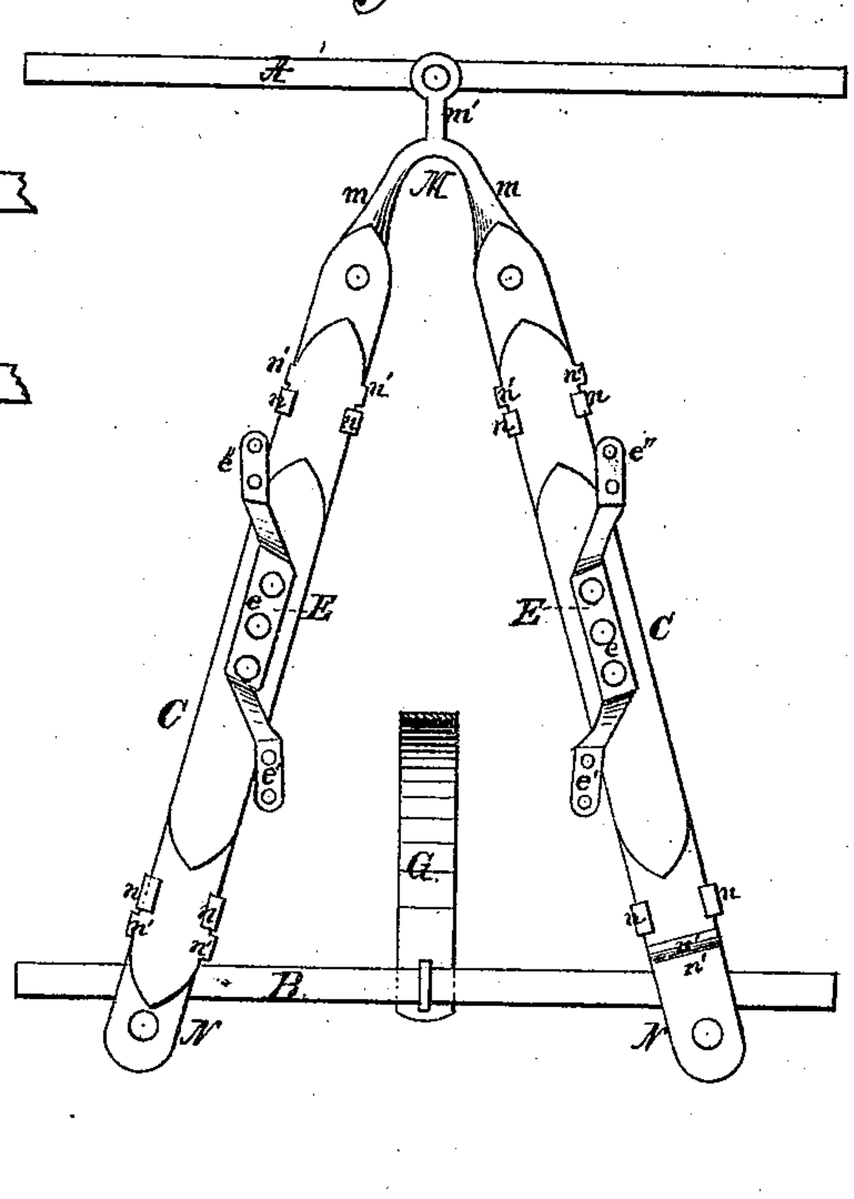


fig. 3.



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GEORGE E. GARRETSON, OF RUSSELLVILLE, KENTUCKY.

Letters Patent No. 109,608, dated November 29, 1870.

IMPROVEMENT IN ELASTIC RUNNING-GEAR FOR CARRIAGES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE E. GARRETSON, of Russellville, in the county of Logan and State of Kentucky, have invented a new and improved Elastic Running Gear for Carriages; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side view.

Figure 2 is a horizontal section.

Figure 3 represents a modification of the construction shown in figs. 1 and 2.

The object of this invention is to increase at once the strength and lightness of buggies and other carriages, and to render them safer than heretofore in case of the accidental breaking of a spring.

To accomplish this object I have devised a new construction of "anti-rattling elastic gearing," in which are comprised several improvements upon the old forms now in use, said improvements consisting—

First, in a new device for connecting the springs to the forward axle;

Secondly, a new form of loop for supporting the carriage-body; and

Thirdly, a novel method of preventing the fall or tripping of the carriage-body in case a spring should break.

In the drawing—

A represents the forward and B the rear axle;

C, the main springs, consisting of several leaves, *c c;*

D, the carriage-body;

E E, the loops that support the body;

M N, the devices that connect the springs to the axles; and

F G, supplementary springs, attached to the parts M N or M B respectively, and employed, if desired, for the purpose of furnishing additional elastic supports for the extremities of the body D, as shown in the drawing.

My improvements consist, first, in the construction of the part M, and its combination with the springs C C and forward axle A.

The part M is designed to furnish a horizontal bearing for the main springs, and a vertical socket for the king-bolt, the said bearing and socket being so connected together that they cannot be rocked independently of each other.

In figs. 1 and 2, the part M is represented as formed in a single piece, having four arms, two, *m m*, extending backward nearly in a horizontal plane, and adapted to support the springs, and two, m^1 m^1, extending forward in a vertical plane, one of them passing over and the other under the axle, so as to give a firm bearing for the king-bolt, and to allow the free movement of the axle in turning the carriage.

It is not absolutely essential, however, that the device be confined to the precise form above described, for, if preferred, it may be constructed as represented in fig. 3, the two arms *m m* running forward to a point over the axle on each side of the head of the king-bolt, and distant a few inches therefrom, and being there attached to a head-block or bolster, *b*, made either of metal or wood, and if of metal constructed in one piece, with the arms *m m* or not, as may be preferred.

When the arms *m m* are thus connected to the part *b*, a connection is made with the lower end of the king-bolt by means of a U-shaped brace, m^2, as shown, the bolt passing through the center of the curve of the brace, and the ends of the brace being bent up and attached to the arms *m m*.

This form of apparatus preserves the horizontal bearings for the springs, and the vertical socket for the king-bolt, as before. The arrangement of the parts is, however, slightly different, and has some advantages over the other form.

The part m^2, for example, serves to brace the apparatus laterally. The weight of the carriage-body rests more directly on the axle, so that in the event of a fracture of the springs or the part M, the body would not be likely to fall to the ground.

In form, too, it more closely resembles the common bolster arrangement, and therefore is less likely to arouse the prejudices of the public, so long accustomed to the old construction.

Other equivalent methods of construction may, perhaps, be adopted, it being only essential, first, that a horizontal part or parts should be employed equivalent to *m m*, for the purpose of firmly holding the springs; secondly, that two parts should be employed as equivalents of m^1 m^1, viz., one to hold the head, and the other the foot of the king-bolt, the former above and the latter below the axle; and, thirdly, that the parts thus holding the springs and the king-bolt should be rigidly connected together, so that one cannot be turned or rocked independently of the other.

I am aware that a device has heretofore been in use that might be considered as having the equivalents of the parts *m m*, and also of the parts m^1 m^1, but as said parts were constructed so as to turn or rock independently of each other, and thereby cause the turning of the carriage to very frequently result in the overturning of it, the operation of said device is essentially unlike that of mine, and I make no claim to its invention.

Disks or washers *a a* of leather, raw-hide, or other suitable material may be employed on either side of

the axle, between the parts m^1 m^1, for the purpose of preventing the jarring and rattling of the carriage.

The metal employed in the part M is preferably the finest and toughest charcoal iron, so that there can be no possible danger of fracture.

The rear ends of the arms *m m* are to be widened and flattened, to adapt them to receive and hold the ends of both springs C C and F F.

It will be observed that by the employment of this device the necessity for a fifth wheel is obviated, and that no head-block or bolster is necessary, unless the part *b*, shown in fig. 3, be regarded as the equivalent thereof.

The second feature of my invention is in the peculiar shape of the loops E E to adapt them for use in connection with the springs C C, when the latter are arranged in the triangular position represented in fig. 2.

It is an obvious necessity that the base of the loops should conform to the direction of the spring, while the upper ends, that support the body, should be in line with the body. The result is a twist in the shape of the loop, which, when the latter is made of wood, as has been the practice heretofore, prevents the shape of the loop from conforming to the grain of the wood, and the loop is thereby rendered very weak, and liable to break with any slight strain.

I construct the loop, however, of iron, with a base, *e*, conforming to the direction of the spring, an arm, *e'*, at its rear end, extending upward, backward, and inward, provided with a flange through which it may be bolted to the body, and another arm, *e''*, at its forward end, extending upward, forward, and outward, and provided with a similar flange, the lateral inclination of the two arms *e' e''* being such as to bring them in line with each other under the body, so that a line passing through the two top flanges of one side loop will be nearly or quite parallel to a similar line passing through the top flanges of the other side loop.

My third improvement consists in the means adopted for preventing injury to the passengers from the accidental fracture of a spring. The only danger of this kind that needs to be guarded against arises from the possibility of the lower leaf, *c*, being accidentally broken, the upper leaves not being liable to give way, and, if they were, being supported by the lower leaf, so that the carriage could not fall.

To prevent the carriage from falling in case of the fracture of the lower leaf, I connect the second leaf, as well as the lower leaf, to the bearings M N, so that if the lower leaf breaks the second leaf will hold and save the carriage and passengers.

To this end the supporting-plates M N are each constructed with lips, *n n*, turned over the two leaves, so that the spring may work freely in a longitudinal direction, and a shoulder, offset, or lip, or other projection, *n'*, is formed upon the second leaf, either on its side, as shown in fig. 2, or its end or upper surface, as represented in fig. 1, which cannot be drawn past the lips *n n*, but will lock against them and prevent the leaf from being detached from the bearings by any longitudinal strain, however great it may be. If, then, the lower leaf should part, the weight of the carriage-body, coming directly upon the second leaf, will depress it and draw its ends toward each other; but, as they cannot be withdrawn from the socket formed by the lips *n n*, the carriage-body will still be firmly supported and all danger to the passengers will be obviated.

I do not wish to limit myself to the precise details of construction herein described, but desire to be at liberty to use any method of connecting the second leaf to the bearing in such a way as not to interfere with the proper action of the spring in its ordinary work, but to hold the second leaf firmly in case the first leaf should give way at any time.

The details of construction shown in the drawing may be modified at will to adapt my improvements to the different varieties of vehicle in use. For example, in constructing what is known to the trade as a drop-front carriage, the forward arm *e''* of the loop may be dropped down lower than represented; and in any crooked work the arms *e' e''* may be more or less inclined vertically or laterally, to suit the shape of the body.

An elastic strip, *r*, may be inserted between the base *e* and the top leaf of the spring, to prevent rattling, if desired.

A skeleton carriage for fast driving may be constructed by making the part E of H-iron, properly bent, as above described, one side of the H serving to support the seat, and the other resting upon the spring. In this case the forward end of the part that rests on the spring may be elongated and bent up to form a foot-rest for the driver. The spring may be made in a single leaf. The carriage will then be reduced merely to wheels and connections, the lightest and simplest form possible.

In heavier carriages the rear end of the springs may be prolonged and bent up into the C-form, for the support of the rear end of the vehicle, the whole thus combining in one an elliptic and a C-spring.

The supplemental springs F G may be made of any degree of rigidity, and will serve to equalize the pressure on the main springs, and also to prevent the falling of the carriage-body in case of fracture of one of the main springs. If these springs are employed, there may be three or four of them. When four are used, they will rest upon the parts *m m* N. When three, two of them will be thus supported, and the third will bear directly upon the rear axle or upon the center of the part M.

It will be observed that the connection between the two axles consists only of the springs C C, which thus form an elastic gearing. A reach may, however, be employed, if preferred.

Having thus described my invention,

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

1. The part M, combining a horizontal bearing for the springs C C, and a vertical connection for the king-bolt, when so constructed that the bearing and socket cannot be rocked independently of each other.

2. The loop E, when constructed of metal, adapted to rest directly on the springs or on an elastic cushion upon the springs, and provided with arms *e' e''*, adapted to the support of different-shaped carriage-bodies, substantially as described.

3. The combination of the second leaf of the spring, resting upon the first leaf, with their supporting-plates or bearings, when constructed to operate together in case of the fracture of the lower leaf, substantially as described.

4. The described arrangement of the supplemental springs F G, when employed in addition to the main springs, for the purpose specified.

GEORGE E. GARRETSON.

Witnesses:

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