T. G. MANDT.

Platform-Spring for Vehicles.

No. 212,716. Patented Feb. 25, 1879.

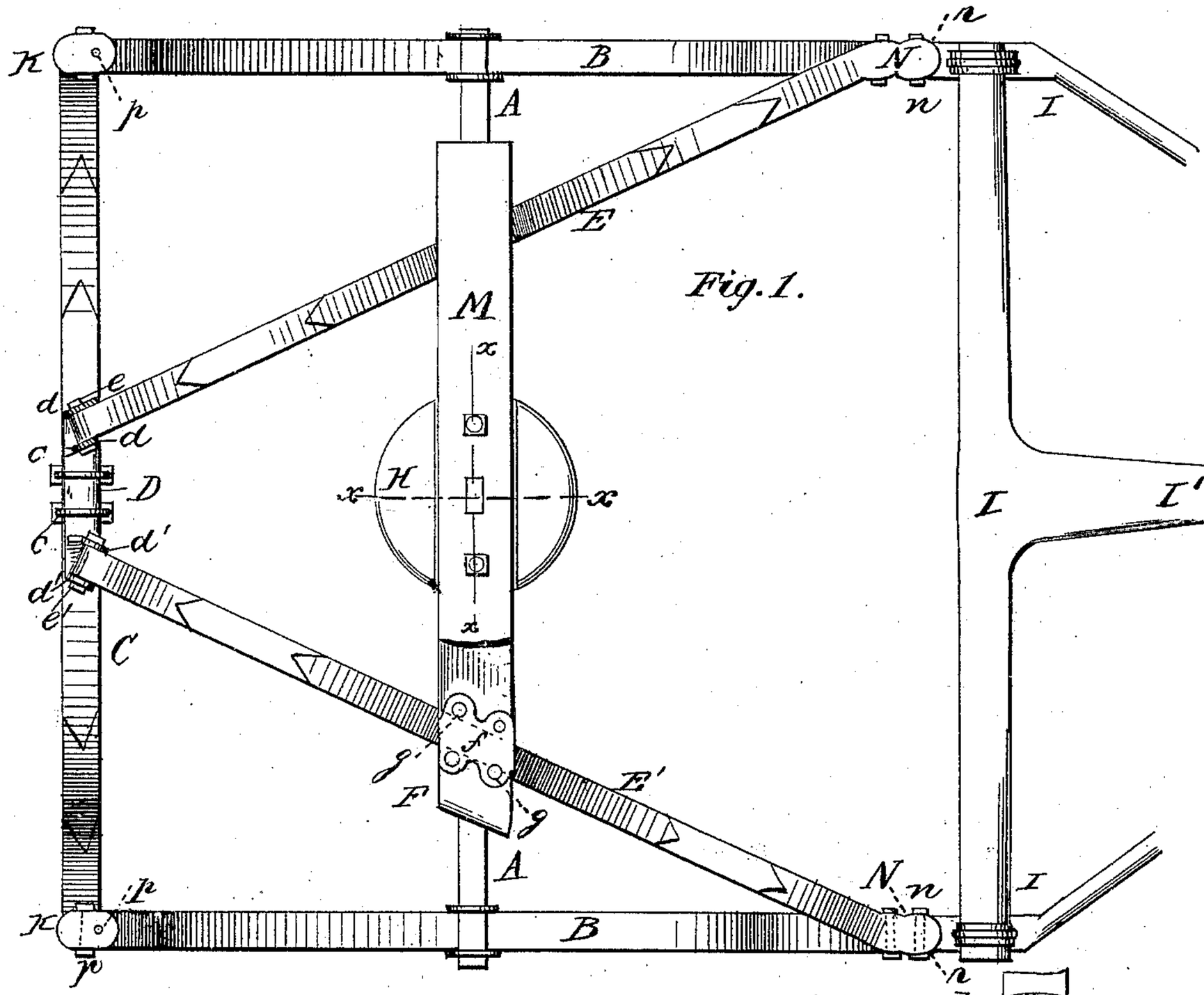


Fig. 1.

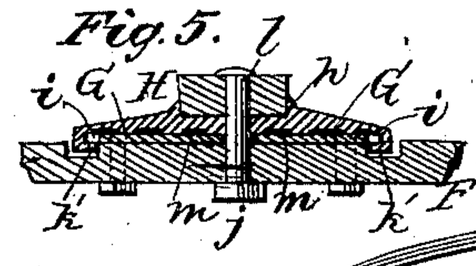


Fig. 5.

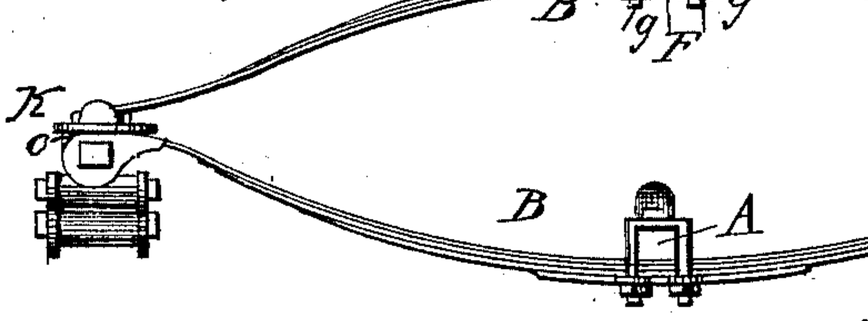


Fig. 3

Fig. 2.

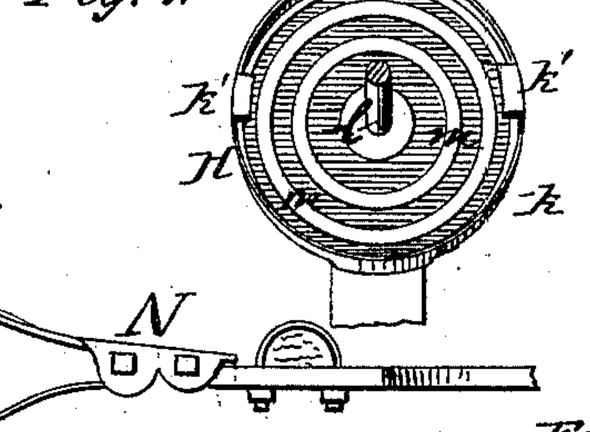


Fig. 4.

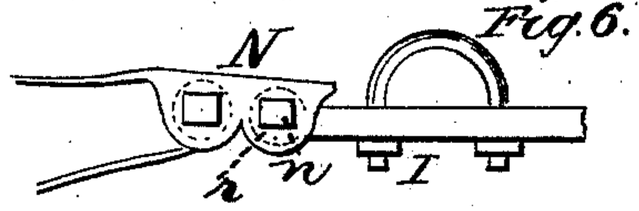
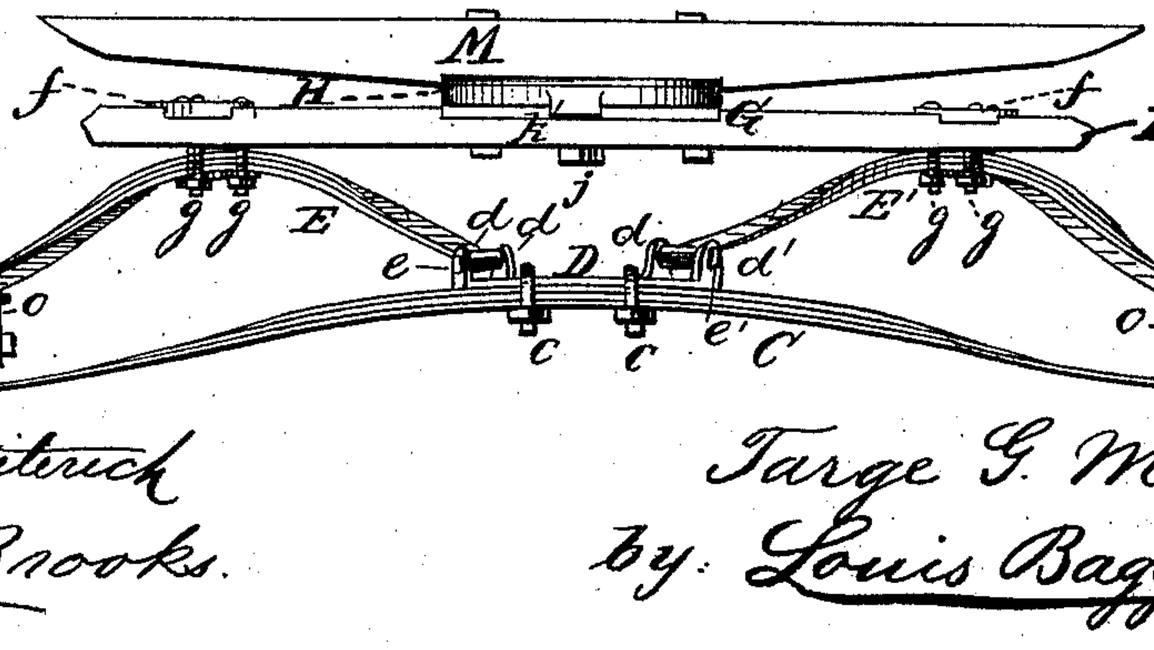


Fig. 6.



Witnesses:
Fred G. Dieterich
Jno. P. Brooks.

Inventor
Targe G. Mandt
by: Louis Bagger & Co.
attorneys

UNITED STATES PATENT OFFICE.

TARGE G. MANDT, OF STOUGHTON, WISCONSIN.

IMPROVEMENT IN PLATFORM-SPRINGS FOR VEHICLES.

Specification forming part of Letters Patent No. **212,716**, dated February 25, 1879; application filed March 21, 1878.

To all whom it may concern:

Be it known that I, TARGE G. MANDT, of Stoughton, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Platform-Springs; 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, which form a part of this specification, and in which—

Figure 1 is a top plan. Fig. 2 is a side elevation. Fig. 3 is a rear view. Fig. 4 is a perspective view of the under side of the upper concentrically-grooved disk, which takes the place of fifth-wheel. Fig. 5 is a vertical section of the two disks and axle, on line *x x*, Fig. 1; and Fig. 6 is a side view, on an enlarged scale, of the double head at the end of springs, which forms a part of and is used with my improvement.

Similar letters of reference indicate corresponding parts in all the figures.

My invention relates to an improved construction and combination of parts of so-called "platform-springs" used in vehicles, the nature of which will be fully understood from the following description, taken in connection with the drawings.

A is the axle, to each end of which, on its under side, are clipped the side springs, B B. C is the rear connecting-spring, the ends of which are connected with the rear ends of springs B B by cross or angle heads in the usual manner. To the middle of spring C is secured, by clips *c c* or in any other suitable manner, a block or plate, D, made of cast or malleable iron, of a width corresponding to that of the spring, and having at each end two oblique ears, *d d d' d'*, with perforations for the bolts *e e'*.

E E′ are two oblique or converging springs, each of which is secured, at one end, to the ends of the side springs, B B, and at the other converging ends to the oblique heads of the plate D by the bolts *e e'*.

The sand-board F is secured upon springs E E′ by clip-plates *f* and bolts *g*, just over the axle, and has secured upon its middle a flat metal disk, G, having a central perforation, *h*, and side notches, *i i*. Upon this plate or disk rests a corresponding cap-plate, H, having an annular downward-projecting flange, *k*, and central bolt, *l*, which fits into the perforation *h* in plate G and beam or board F, and serves as the king-bolt, having a nut, *j*, at its lower end.

Disk H has a series of concentric depressions or flat grooves, (denoted by *m m*,) which form receptacles for cotton waste soaked in tallow or oil, or other lubricating material, besides reducing the area of contact or wearing-surface, so that the two disks will slide easily upon each other. Its flange *k* has inwardly-bent lugs or ears *k' k'*, which fit into the notches *i i* in the periphery of plate G, and project in under this when, after placing disk H upon disk G, the former is turned to either side. Thus, it will be observed that even if bolt *l* were withdrawn, the two disks cannot come apart except when the catch-lugs *k' k'* are immediately opposite to the notches *i i*; and it will also be seen that the annular flange or guard *k* will prevent sand or dirt from entering between the plates and obstruct the free motion thereof.

The forward ends of each of the springs E E′ terminate in what I call a "double head," N—that is, the downward-bent flanges of the end of the spring which constitute the head are provided with two perforations or bolt-holes on each side instead of one, as usual. The bolt or pin which unites the ends of springs E B and E′ B, respectively, is inserted into the rearmost of these perforations, the forward part of the flanges projecting out over the uniting-point, so as to form a recess, into which are inserted the eyes *r r*, one on each end of the cross or end bar I of the tongue, the coupling-eyes *r* being pivoted upon and held in place by the bolts *n*. In the drawings I have shown these double heads N as part of the upper converging springs E E′; but it is obvious that this arrangement may be reversed, and that the side springs, B B, may be made with double heads for the insertion of the tongue-couplings.

The advantages of this construction are, that I dispense with all gear, making the draft direct by the ends of springs without the use of intermediate links or couplings. The ends of

the springs are not weakened by riveting connecting-plates or hinges onto them, while the increase in cost of making the springs with a double head at one end, instead of the ordinary single head, is merely nominal.

Another important advantage is the elastic or flexible spring-joint, made by the extended head N between the tongue and ends of springs to which this is connected, thereby avoiding the rigidity of the connection between the tongue and springs consequent upon the employment of cast or malleable heads.

K K are the steps, each of which consists of an oval plate having a concave step or shoulder, *o*, on its under side, which fits over the curve of the rear head of the side spring, upon which it is secured by a single bolt or rivet, *p*. The shoulder *o* prevents the plate from turning to either side, so that it will always remain rigidly in its position without the use of clips, hangers, or equivalent devices.

By clipping the side springs onto the under side of the axle, instead of upon the upper side, as usual, I make the draft from the under side of the axle, besides lowering the platform and bringing it closer to the ground, one objection to this class of springs as ordinarily made being their height, which raises the wagon-box a greater distance from the ground than is, as a rule, desirable.

The double heads or ears N N are constructed in one piece with each spring E E′ by first thickening their forward ends, then rolling or hammering the thickened portions to the thickness of the body of the spring, by which said ends will be widened or spread out, when the same may be perforated to form the apertures for the reception of the side-spring-connecting bolts and those of the thill-couplings. The next step is to bend or turn the spread-out portions downwardly at right angles to the body or plates of the springs, when the turned-down portions or heads or ears may be finished in the manner shown or otherwise, thus completing the construction of the heads or ears.

I am aware that, broadly, the use of an end spring, side springs, and converging springs in combination is old.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a platform-spring for vehicles, the springs E E′, having the double heads or clips N N, in combination with the springs B B and cross-bar I of the tongue, substantially as and for the purpose set forth.

2. The combination of the spring-platform composed of the parallel side springs, B B, end spring, C, and converging springs E E′, provided at their front ends with double heads N N, constructed as described, with the tongue I′ I, provided with coupling-eyes *r r*, substantially as and for the purpose herein shown and described.

3. The step-plates K, having concave steps or shoulders *o* on their under side, fitting over the convex heads of springs B B, and secured thereto by a single bolt or rivet, *p*, substantially as and for the purpose herein shown and described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

TARGE G. MANDT.

Witnesses:

JNO. W. HADIGAN,

AUGUST PETERSOHN.