

JOSEPH KIESER,
Improvement in Wagon Springs.

No. 123,108.

Patented Jan. 30, 1872.

Fig. 1

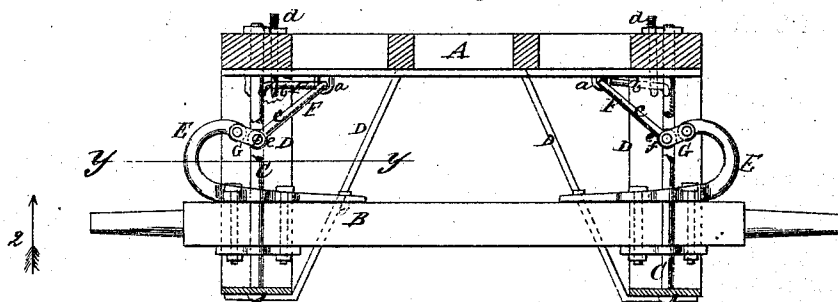


Fig. 2

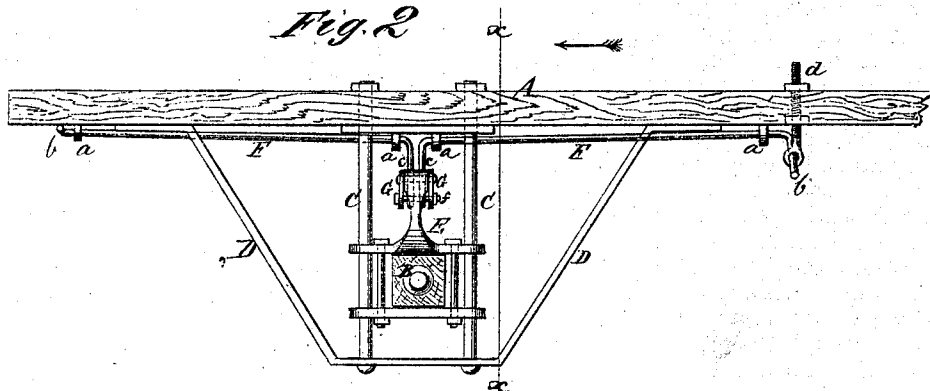


Fig. 3

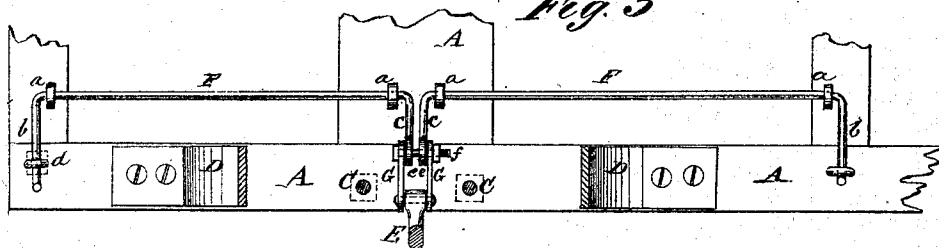


Fig. 4

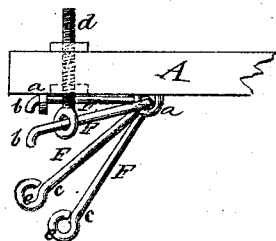


Fig. 5

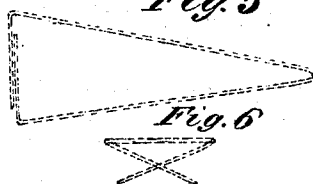


Fig. 6

Witnesses:
H. S. Amable
E. J. Davis

Inventor:
Joseph Kieser

UNITED STATES PATENT OFFICE.

JOSEPH KIESER, OF NEW YORK, N. Y.

IMPROVEMENT IN WAGON-SPRINGS.

Specification forming part of Letters Patent No. 123,108, dated January 30, 1872.

SPECIFICATION.

I, JOSEPH KIESER, of the city, county, and State of New York, have invented certain Improvements in Wagon-Springs, of which the following is a specification:

My invention relates to the class of springs known as torsion-springs, where the resistance of a steel bar to lateral or twisting strain is utilized as spring power for vehicles; and it consists in the combination of two or more single-shanked steel bars or springs, adjustable and adjusted to different torsion, and attached so as to act together when a heavy load is bearing on their point of attachment, and singly when a less weight is applied, as will be hereinafter more fully described.

Figure 1 represents a cross-section of a portion of a wagon with my improvement applied to it, taken through the line *xx* of Fig. 2, and seen in the direction of the arrow 1. Fig. 2 is side elevation of the same. Fig. 3 is a bottom view of one side of the same, seen from the section line *yy* of Fig. 1, in the direction of the arrow 2. Fig. 4 is a detail end view of two springs on one side of the wagon, showing the same adjusted to different torsion, in the position they will assume when disengaged from their brackets. Figs. 5 and 6 are plan and end views respectively of the double-shanked torsion spring, as heretofore made, the disadvantages of which have led to the present improvement.

Similar letters of reference indicate like parts.

A is the body of the wagon. B is one of its axles, sliding on guides C, which are secured by and between the wagon A and braces D, and provided with brackets E for attaching the springs. F are the springs, which consist merely of a steel bar, bent at an angle in either end, and secured to the body A of the wagon by means of loops or other devices, *a*, in which it is fitted loosely enough to allow of a turning or twisting motion acting throughout its whole length. Either ends, *b* *c*, of the springs F are bent at an obtuse, or at a right angle to the length of the springs F. One or both of the ends *b* are held in position by being inserted through the eye of an eye-bolt, *d*, se-

cured by nuts to the body A of the wagon. The other ends, *c*, are bent downward at an angle to the ends *b*, having its apex in the axis of the main part of the spring F, as seen in Fig. 4. The ends *c* are each bent at their extreme ends in the shape of a loop or eye, *e*, through which they are attached by a bolt, *f*, to one end of a link or links G, the other end of which is similarly attached to the bracket E, so that the ends or lugs of the link G may move freely on the said bolts, and so that the body A of the wagon, supported on the springs F, will be suspended to the brackets E by means of the links G. By adjusting the eye-bolt *d* of one of the springs F so that the end *b* will be either raised or lowered, the other end *c* being stationary, the torsion of the said spring will be decreased or increased so as to act in conjunction with the weight applied on the wagon and against the torsion of the other spring for a moderate load, and in conjunction with the other spring against any weight sufficiently heavy to deflect one spring so far as also to bring into effect the action of the other.

With the double-shanked spring, Figs. 5 and 6, no such adjustment is possible; but the spring is either too weak for sustaining a heavy load, or, if made suitable thereto, so far too strong for a small load, that it throws the driver off the seat and few dare to ride on it. The torsion acting in opposite directions on the apex of the necessarily very acute angle at which the two shanks meet, the springs invariably break at that point, particularly so when the ends of the spring after a short use have worn a cavity in the plate on which they rest, and thereby check their sliding motion. But by my present invention, amply tested, these objections are removed, and a cheap and durable spring effected, which is comfortable to ride on, and adjusts itself to the requirements of the load.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

Claims.

1. The combination of two or more single-