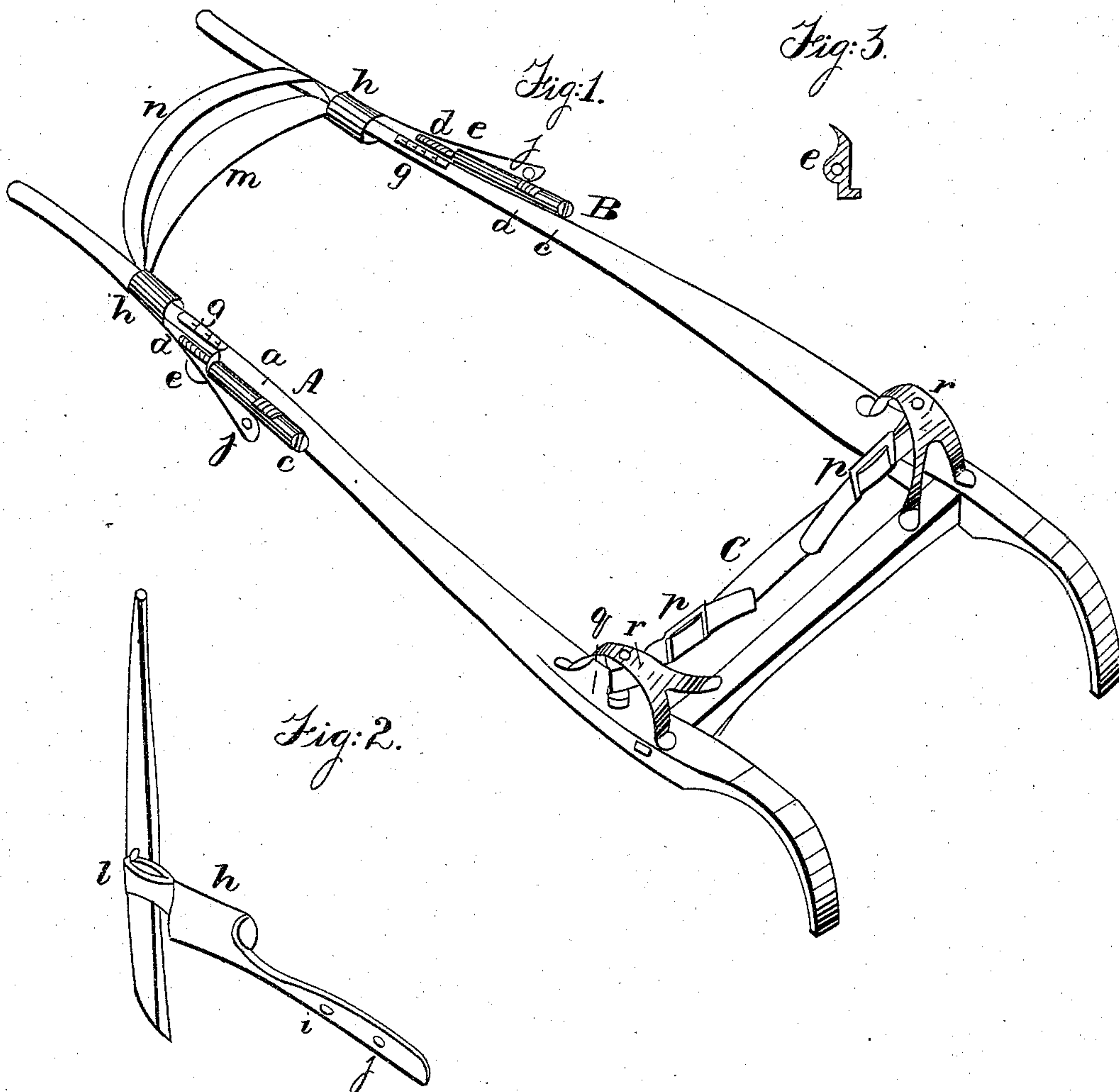


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Whiffletree.

No. 43,388.

Patented July 5, 1864.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN ATTACHING HORSES TO CARRIAGES.

Specification forming part of Letters Patent No. 43,388, dated July 5, 1864.

*To all whom it may concern:*

Be it known that I, LEANDER W. BOYNTON, of Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Attaching Horses to Carriages; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make part of this specification, in which—

Figure 1 is a perspective view of a pair of shafts, with all the harness and appendages attached, when the breast draft-collar is used. Fig. 2 is a perspective view of a portion of the harness when hames are used. Fig. 3 is a plan of the draft-hook, nut, and index.

My improvement consists in attaching to each of the shafts, on the outer side, a metallic tube or case, in which I fit a helical or spiral spring, with a rod or screw-bolt passing longitudinally through it in such a manner that the whole of the force of the draft will be sustained by the compressed spring; and in attaching to the upper side of the shaft a graduated scale, on which an index will point out the amount of power expended by the horse at any time in drawing the carriage; and in attaching the draft portion of the harness to the shafts by means of leather or other suitable pipes or tubes, to be slipped onto the shafts, a strap with suitable holes to be passed onto the draft-hooks, which are appended to the rods or screw-bolts in the spiral springs, and connecting these leather pipes or tubes with a breast draft-collar and shoulder-strap, or with hames, at pleasure; and in so fitting the breech-strap that it may be tightened or raised or lowered at pleasure, to suit the size of the horse.

I make a pair of metallic or any other suitable tubes, as shown at A and B, Fig. 1, of a size suited to receive spiral or helical springs, as shown at *a*, of sufficient strength to sustain the greatest draft which the carriage is designed to require, and fit a proper head or stopper to the forward end of each, and secure it with sufficient firmness to sustain all the force of the draft, as the front end of the spiral spring will rest against that only for its support. I make the spiral or helical springs, as shown at *a*, of steel wire, or any other suitably elastic substance, of the proper length for the tubes A

and B, and of sufficient strength and elasticity to sustain all the force of the draft which is designed to be used in drawing the carriage, so that the strain may at all times be wholly on the springs, and therefore always yielding. I make the rods or screw-bolts of iron or any other suitable material of a greater length than the tubes, as shown at *c d*, Fig. 1. On the ends *c*, I have heads of suitable size to work freely in the tubes A and B, and nicks in the ends for a screw-driver, (or some other suitable device for turning a screw,) and on the ends *d*, I cut male screws, running the thread for considerable length, as shown at *d*. I make the nuts or female screws (into which the male screws *d* are to be turned) of a shape similar to Fig. 3, (shown also at *e* and *e*, Fig. 1,) so that they also serve both as draft-hooks for the harness and indexes for the dynamometers, as shown at *e* and *e*, Fig. 1, pointing to the graduated scale *g*. On the upper side of one or both of the shafts I secure or make a graduated scale, as shown at *g* and *g*, Fig. 1, on which the index *e* or *e* will point out the amount of the draft or power applied. I make the harness of leather, or any other suitable material, of a tube or pipes, as shown at *h*, Figs. 1 and 2, draft-straps with holes in them to slip onto the draft-hooks *e* and *e*, as shown at *i* and *j*, Fig. 2, and at *j* and *j*, Fig. 1, and with straps to attach them to the hames, as shown at *l*, Fig. 2, or a breast girt or collar, *m*, and shoulder-strap *n*, which forms a draft-collar.

Having made the several parts as above described, I attach a pair of these tubes A and B, firmly to the outer sides of the shafts of a carriage in a convenient position, as indicated in Fig. 1, slip in the spiral springs *a* and *a* from the rear end, and put in the screw-bolts *c d*, (from the rear end,) with a suitable washer between the head of the bolt and the end of the spring, and turn the screw part of the bolt *d* through the nuts *e* until the springs *a* are sufficiently set up to compare with the graduated scale *g*, so as to constitute a dynamometer, all as represented in Fig. 1. I then put the collar or hames onto the horse, place him between the shafts, slip the leather tubes *h h* onto the shafts, pass one of the holes, as *i* or *j*, in each of the two draft-straps onto each of the draft-hooks at *e* and *e*, as shown in Fig. 1, when all will be ready for going



forward. And to release the horse, I have only to slip the draft-straps from the draft-hooks, and let him walk out.

For holding back, I secure a strap of leather, (or other suitable material,) as C, Fig. 1, on properly-sustained supports, and tighten the strap to the desired extent with proper buckles, as shown at *p p*, or otherwise; but as horses are of different heights, to graduate this breech-strap to suit any horse used, I make the supporting-rods on each shaft considerably longer than the width of the strap, and put several loose washers or sliding collars, as shown at *q*, Fig. 1, (the others being concealed by the brace *r* of the support.) By unbuckling the breech-strap the loose collars may be so arranged above or below the strap as to give the proper elevation to suit the horse being used.

The advantages of my improvement consist in that the horse can be attached to and detached from the carriage in less time and with less labor than with any harness heretofore known; and in that in starting a load the horse is much relieved by drawing on the springs, which yield at first, and then add the power which the horse has given them, to assist in starting the load, thus avoiding the suddenness of a dead strain, and when the

carriage meets with any obstruction the resistance comes gradually upon the horse, and is less liable to injure or fatigue him; and in that it furnishes a complete and very simple dynamometer, which is always convenient, and sometimes very useful on a carriage.

I am aware that the use of spiral springs in drawing carriages has long been known, and that attaching a dynamometer to a carriage is not new, and that attaching a strap to the shafts as a holdback is now in use. I therefore do not claim either of them as such; but

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

1. The draft harness, in combination with the metallic tubes, springs, bolts, and graduated scales, when the whole is constructed, arranged, and fitted for use substantially as herein described and set forth.

2. The above, in combination with the breech-strap C and its shifting collars *q*, for adjusting the height of the breech-strap, when the whole is constructed and fitted for use substantially as herein described.

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Witnesses:

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