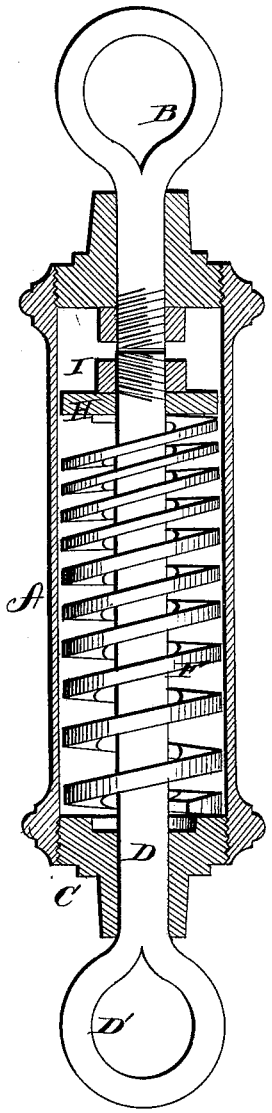
A. T. NICHOLS.
Spring Draft-Tug.

No. 200,749. Patented Feb. 26, 1878.



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UNITED STATES PATENT OFFICE.

ALBERT T. NICHOLS, OF WILLIAMSPORT, PENNSYLVANIA.

IMPROVEMENT IN SPRING DRAFT-TUGS.

Specification forming part of Letters Patent No. **200,749**, dated February 26, 1878; application filed January 11, 1878.

To all whom it may concern:

Be it known that I, ALBERT T. NICHOLS, of Williamsport, in the county of Lycoming, and in the State of Pennsylvania, have invented certain new and useful Improvements in Spring Draft-Tug; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to spring draft-tugs; and it consists in a graduated spiral spring, arranged in such a manner that the lighter coils will be first compressed, and then, according to the weight, the heavier coils are gradually compressed, all as hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which represents a longitudinal section of my invention.

A represents a case or cage of any suitable dimensions, provided at one end with an eye, B, which may be either solid with such case or cage, or swiveled therein, as shown in the drawing.

In the other end of the case or cage A is attached a head, C, by screw-threads or otherwise, and through the same is passed a rod, D, having an eye or hook, D′, formed on its outer end. This rod extends the entire length of the case, and has a spiral spring, F, surrounding the same; and upon the inner end of the rod is placed a washer, H, held by a nut, I, to bear against the end of the spring, the other end of said spring bearing against the inner side of the head C.

The spiral spring F is graduated, made of a square or flat-sided steel bar, drawn tapering regularly from one end to the other before being bent. This spring will thus spring easy for a light load, and gradually grow stiffer as it settles by adding more weight, and at the same time coiled fine enough, so that the coils will all come together before they can break, thus making it both cheap and durable.

The length of the spring is to be regulated by the distance it is required to spring.

The spring may be used in a round case fitted to the outside of the spring, or in any other suitable manner, whether open or perfectly closed, as the weather has no effect on steel when painted.

This device may be used for a variety of purposes where a spring-draft is applicable.

Though I prefer to use a square or flat spring, I may in some cases make the spring in the same manner of round steel rod.

The graduated spring may also be used for other purposes besides draft-tugs, and in some cases it may be graduated only for a portion of its length.

I am aware that a graduated spiral spring is of itself not new; and I am also aware that an ordinary spiral spring incased and adapted for common draft purposes is not new; but I am not aware that the combination of devices herein shown and described has ever before been known.

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

In a spring draft-tug, the combination of the cage A with eye B at one end, the head C at the other end, the rod D with eye D′ passing through the head, the washer and nut H I, and the spiral spring F, graduated in thickness from one end to the other and surrounding the rod, all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 11th day of January, 1878.

A. T. NICHOLS.

Witnesses:
FRANK GALT,
JERRY MCCARTHY.