J. F. MILLER.

Spring-Link for Draft-Tugs.

No. 223,370. Patented Jan. 6, 1880.

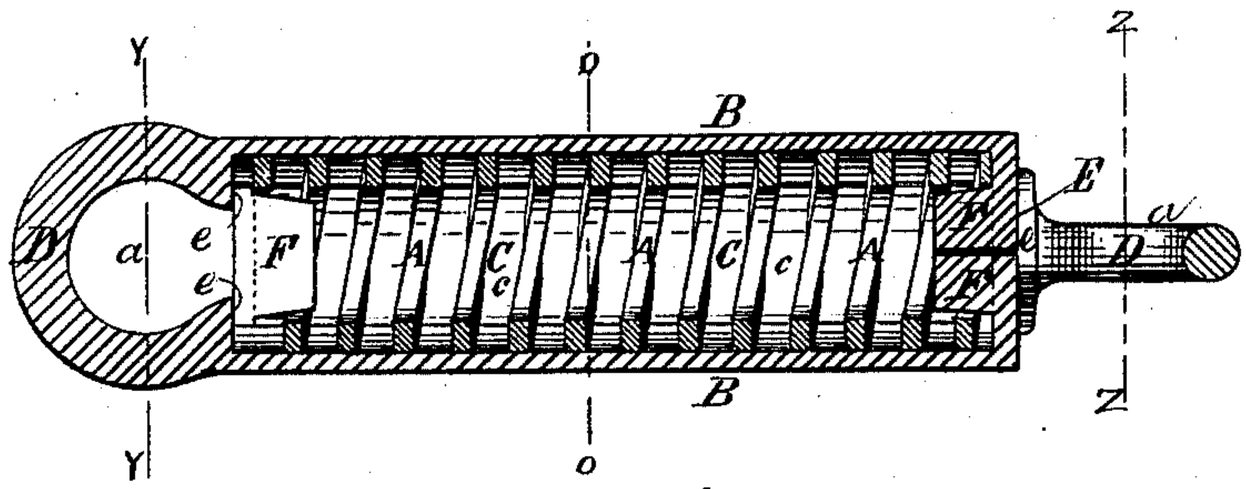

Fig. 1.

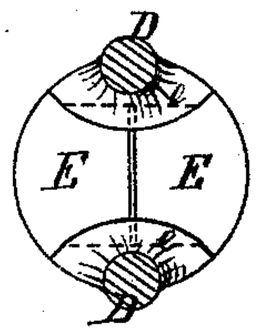

Fig. 3.

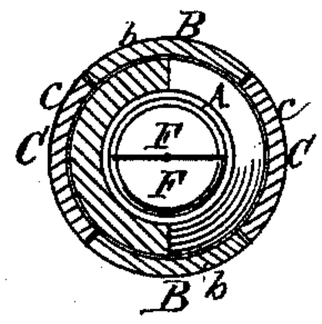

Fig. 4

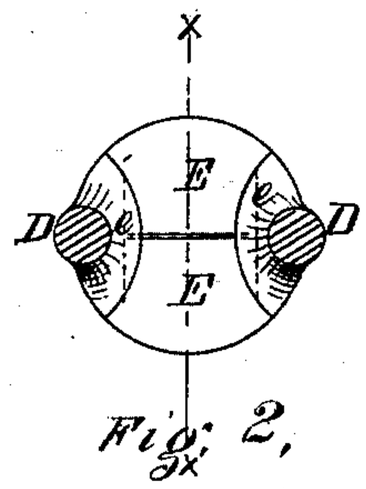

Fig. 2.

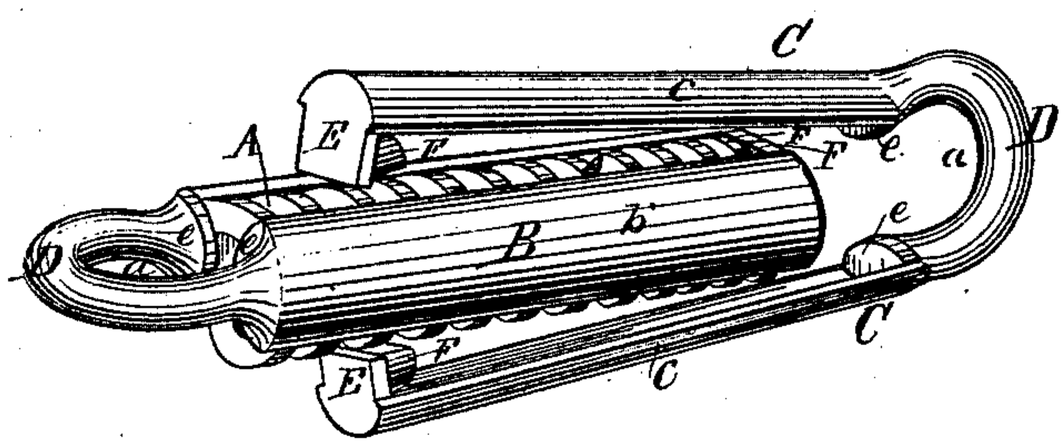

Fig. 5.

Witnesses

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JOHN F. MILLER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO DANIEL RISHER AND DANIEL R. McCLURE, OF SAME PLACE.

SPRING-LINK FOR DRAFT-TUGS.

SPECIFICATION forming part of Letters Patent No. 223,370, dated January 6, 1880.

Application filed March 4, 1879.

To all whom it may concern:

Be it known that I, JOHN F. MILLER, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements on Spring-Links for Draft-Tugs and other purposes, which invention is fully described in the following specification and accompanying drawings.

The object of my invention is a spring-link for tugs the spring of which is confined in a sectional case formed by the other moving parts, and which can be easily constructed and be cheaply manufactured.

The invention consists in a sectional case, each section being provided with a projecting head having shoulders and an eye, the other end of each section terminating in a flat head, from the internal face of which projects a boss which enters the end of the spring, each section of the case moving in opposite direction the one to the other, and in confining the spring in and indenting it by said case.

The invention is illustrated in detail in the drawings, in which all similar letters of reference indicate like parts.

Figure 1 is a longitudinal section taken at the lines X X of Fig. 2. Figs. 2, 3, and 4 are cross-sections, 2 and 3 being taken, the one at line Y Y and the other at Z Z of Fig. 1, and Fig. 4 at line O O of Fig. 1. Fig. 5 is a perspective view of the invention, and shows the manner of putting the sections together and inclosing the spring.

A is the spring; B C, the sectional case, B being one section and C the other. D D are the heads of the sections, which project beyond and from each end of the case, and are provided with the eyes *a a* for attachment to the harness, and have also the shoulders *e e*.

b b and *c c* are segmental stems, which extend longitudinally from the heads D D the full length of the spring, and are of a width equal to one-fourth part of a circle, the diameter of which corresponds to the external diameter of the spring, so that the case formed by the union of these segments will encircle or inclose the spring. The free ends of these segmental stems are turned in and jointly form a head, E, over the end of the spring. From the internal face of this head project longitudinally into the spring short bosses F, which prevent the free ends of said stems from separating or pulling off of the spring.

In constructing the link the case should be cast of malleable metal. The free ends of one section of the case are then separated to such an extent that the spring can be passed longitudinally inside of it until the end which entered first will engage the shoulders *e e*. The spring is then contracted slightly, and the separated ends come together, and the spring, being allowed to expand, receives and encircles the boss F of this section, confining the free ends of the section together. The free ends of the other section are then separated in like manner, and then passed longitudinally over the spring, each of its segments passing between the segmental stems of the other, their edges joining. When its bosses reach the opposite end of the spring they take bearing on it. Slight traction is then made in opposite directions on the heads D D, (which are at the opposite ends of the spring,) so that the spring is again contracted, and when the head E of the last section C has passed the shoulders *e e* of section B the separated free ends are struck together, so that the boss F of this section enters the end of the spring, which being allowed to expand, the head E of each section will take bearing against and under the shoulders of the loop-heads D D, thus inclosing and indenting the spring and locking all the parts together.

The operation is as follows: When traction is made on the link the section B will move in direction opposite to that of section C, the one guiding the other by their edges, and jointly guide the spring in its contraction or expansion, and completely cover the spring and protect it from receiving any dirt or water, the bosses F acting to hold the segments of the case together.

Having thus described my invention, the process of its construction, and its operation, what I claim, and desire Letters Patent for, is—

1. The sections B C, meeting and working on each other along their sectional edges, and provided with end bearings for an inclosed

spring, and in combination with such spring, substantially as set forth.

2. In a spring-link, the sectional case B C, each section terminating in an eye at one end, and being open at the other, whereby the parts forming each open end can be separated to receive the spring and closed down and secured to the same, substantially as set forth.

3. In a spring-link, a section, B, having at one end a loop and shoulders for the end bearing of an inclosed spring, and at the other open end bosses F, for interlocking with the opposite end of the spring, substantially as set forth.

4. The method of making spring-links—that is to say, casting the inclosing-case in sections, with the ends of each section opposite the loops open, introducing the spring successively into the sections through their open ends, and then closing down and locking such open ends of the sections into the open ends of the spring, substantially as set forth.

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In presence of—
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