W. M. CUTHBERT.

Spring Links for Draft Tugs or Traces.

No. 212,840. Patented Mar. 4, 1879.

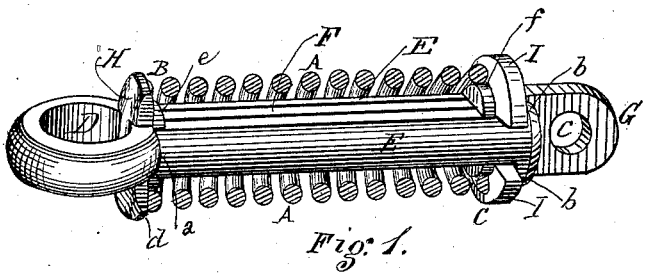

Fig. 1.

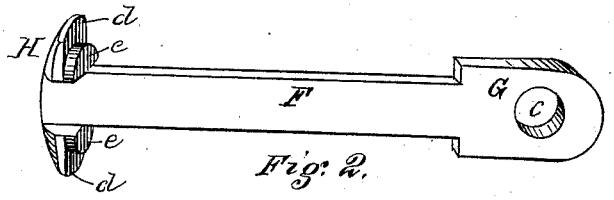

Fig. 2.

Fig. 3.

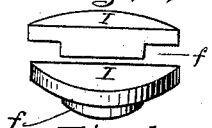

Fig. 4.

Witnesses

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WILLIAM M. CUTHBERT, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN SPRING-LINKS FOR DRAFT-TUGS OR TRACES.

Specification forming part of Letters Patent No. **212,840**, dated March 4, 1879; application filed January 20, 1879.

To all whom it may concern:

Be it known that I, WM. M. CUTHBERT, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Spring-Links for Draft-Tugs, which improvements are fully set forth in the following specification and accompanying drawings.

The object of my invention is to provide a spring-link, the wearing parts made of steel or other hard metal, so as to be durable, the different parts of which can be quickly and easily put together without extra fitting, so as to be cheap in their manufacture.

The invention consists in certain improvements in the construction of the several parts, which will be hereinafter set forth in the specification, in connection with the drawings, and specifically embodied in the several clauses of claims.

In the drawings similar letters of reference indicate like parts.

Figure 1 is a perspective view of the invention, all the parts being in proper relation and the front of the spring being removed. Fig. 2 is a perspective view of the central shaft and its two heads; Fig. 3, a view, in perspective, of the staple, showing its head and short lateral projecting lugs. Fig. 4 is also a perspective view, and shows the two plates rabbeted so as to fit in and also project over the end of the spring.

A is a spiral spring of suitable resistance. D is the ring or head of the staple. *a a* are its shoulders, which bear on the end of the spring. E E are the staple-stems extending longitudinally through the spring. *b b* are the short lugs projecting from each side of the free ends of the staple-stems, and of such length that they may freely pass through the spring. F is the central shaft. It passes longitudinally through the center of the spring between and in close relation to the staple-stems E E. G is its flat head, which projects beyond the end of the spring, and is perforated with the hole *c* for attachment to the harness. Its width relates to the internal diameter of the spring, and where it joins the shaft forms square shoulders, so as to bear on the plates, as hereinafter mentioned.

H is the T-shaped head of the shaft. It is about a quarter of an inch thick, and of the length of the external diameter of the spring on which it bears. Its inner face is cut away, so that it may slightly enter the spring and be held centrally, as shown by *e e*.

d d are notches cut in each side of the head H in line of the shaft F, through which freely slide the staple-stems E E, so that said stems and shaft mutually guide each other in their longitudinal movements. I I are two plates, each being in width about one-third the external diameter of the spring with the periphery of which they correspond. Their internal face is straight, so as to bear against the sides of the shaft F and staple-stems E E. Their outer edge or periphery is rabbeted out the width of the thickness of the spring. Said plates are placed one on each side of the staples and stem, and hold them centrally and guide the shaft in its longitudinal movements. They also provide bearings for the shoulders of the head G and lugs *b b*, and, being held in place by the spring, become lock-plates or keys, so as to lock all the parts together by reason of the expansion of the spring.

When the various parts are put together the shaft F is placed between the stems E E, the head H entering at the ring D, which is of relative diameter thereto, and when it is moved longitudinally the notches *d d* of the head receive the staple-stems. These two pieces are then passed longitudinally through the spring-shaft head G until the shoulders of the staple-head and the shaft-head H engage the end B of the spring. The spring A is then contracted slightly, and the lock-plates I I are easily slipped into place, their shoulders entering the spring and bearing against its internal face, and the spring, by its expansion, forcing them out and against the lugs *b b* and the shoulders of the shaft-head G, it being understood that the distance longitudinally between the shoulders of head G and the lugs *b b* and those of the ring D and head H at the opposite end are just equal to the length of the spring, and that when the lock-plates I I are in place the spring is no longer at rest, but is contracted equal to the thickness of said plates, and it is this active expansion which, by the plates I I, binds all the parts together.

The shaft, staple, and plates may all be cast

of steel or of malleable iron, and the shaft and staple may be case-hardened before the parts are put together, thus making them very durable. The parts are also cast in proper proportions—the one to the other, so that they go together without any fitting.

Having thus described my invention, what I claim, and desire Letters Patent for, is—

1. The shaft F, staple D E E, provided with the shoulders *a a* and lateral lugs *b b*, spring A, and the lock-plates I I, all combined, constructed, and arranged as and for the object set forth.

2. The shaft-heads H G, staple heads and lugs D *b b*, and the plates I I, all combined and operating to confine the spring between them on the shaft F and staple-stems E E, as and for the object specified.

3. The shaft-heads H G, staple head and lugs D *b b*, and plates I I, in combination, the one with the other, and the shaft F and staple-stems E E, all arranged and operating to indent the spring, as and for the object set forth.

4. In a spring-link, the combination of a central shaft and a staple, said shaft operating directly between the staple-stems and in relation therewith, the one sliding on and mutually guiding the other, and being locked together by the spring and plates I I, as described.

5. The lock-plates or keys I I, operating in combination with the spring to indent and lock all the parts of a spring-link together, substantially as and for the object set forth.

WILLIAM M. CUTHBERT.

Witnesses:

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ALBERT J. HARNACK.