F. ARMSTRONG.

COIL SPRING BAND.

No. 189,986. Patented April 24, 1877.

Fig. 1.

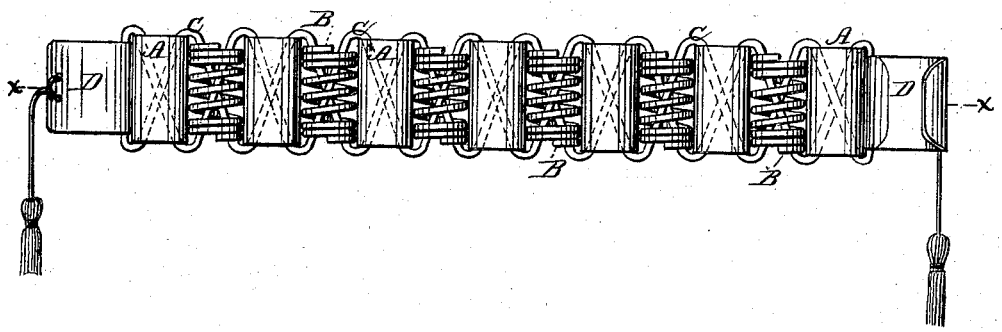


Fig. 2.

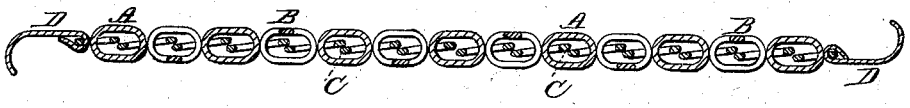
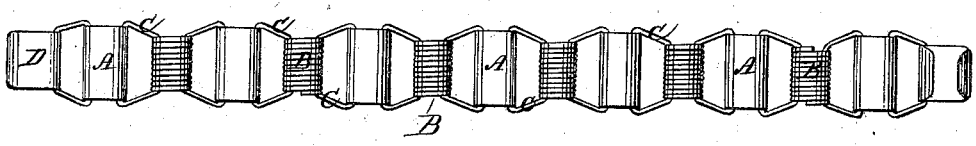


Fig. 3



Witnesses:

John Tyler

Jno. J. Bonner

Inventor.

Frank Armstrong

By Attorney

Wm. C. & W. Slater

UNITED STATES PATENT OFFICE.

FRANK ARMSTRONG, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN COIL-SPRING BANDS.

Specification forming part of Letters Patent No. **189,986**, dated April 24, 1877; application filed April 6, 1877.

To all whom it may concern:

Be it known that I, FRANK ARMSTRONG, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Coil-Spring Bands and Garters; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

My invention relates to certain new and useful improvements in metallic spring-garters. It has for its object economy in construction, novelty in design, and durability of the stringing-cord, all as will be hereinafter more fully set forth.

Previous to my invention, metallic garters have been made composed of two or more strands of coiled wire arranged longitudinally, with suitable clasps or securing devices at each end. They have also been constructed of a series of short strands of coiled-wire springs, arranged side by side vertically, and strung or laced together by a cord or connecting-links, the elongation of the garter being dependent upon the contraction of the coiled springs in a transverse direction, as more clearly understood by reference to Letters Patent No. 187,510, dated February 20, 1877.

My invention consists of a garter, band, or belt composed of a series of short coiled-wire springs and short metal tubes, arranged alternately side by side, and strung together by an elastic or non-elastic cord, as will be hereinafter more fully set forth.

To enable those skilled in the art to understand and make my improvement, I will proceed to describe its construction and operation, referring to the accompanying drawing, in which—

Figure 1 is a front view of a garter embodying my invention as it appears when simply straightened out. Fig. 2 is a longitudinal section at the line *x x*, Fig. 1; and Fig. 3 is a similar view to Fig. 1, but showing the garter as distended, and the spring-coils consequently collapsed.

Similar letters indicate like parts in the several figures.

A A are a series of short metal tubes, preferably elliptical in cross-section; and B B are a series of short, similarly-shaped coils of spring-wire, the coils being open in the center to form a spring, and closed at either end, to afford a rigid bearing for the stringing-cord to move upon. C is a cord, elastic or non-elastic, laced from end to end, as clearly seen at Figs. 1 and 3. Said lacing-cord, at either end of the band formed by the alternate coils and tubes, is clasped within one end of a flat metal hook, D, which hooks are secured in such manner, as clearly shown at Fig. 2, that the free or hook ends will be on opposite sides.

This construction and application of the hook forms the subject-matter of another application filed by me simultaneously with this.

From the foregoing description, it will be seen that as the garter is distended, or the ends pulled apart, the alternate intermediate coil-springs B collapse, by reason of the pressure of the lacing-cord at either end of said coils, the presence of the non-elastic metallic tubes between each of the coil-springs serving to hold the cord beyond its plane of contact with the ends of the coils, over which it slides, so that the contact is always pulling obliquely over the wire, and thus avoiding the abrasion which would ensue if the garter were composed wholly of spring-coils, in which case the cord always slides over the wires at about a right angle, and is subjected to great friction, and consequent wear.

It will be observed that when the garter is distended the wire coils necessarily shorten, while the metal tubes, of course, maintain their given length, and, as a result, the design of the garter, as shown at Fig. 3, is materially different from what it is when in its normal condition, as shown at Fig. 1.

The garter is secured in position by passing one or both of the hooks over either a tube, A, or a coil, B, in an obvious manner.

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

An elastic metallic garter or band, composed of a series of alternate short metal tubes and coiled-wire springs, strung together as described, and provided, at each end, with a hook or other fastening device, substantially as described.

Witness my hand this 28th day of March, 1877.

FRANK ARMSTRONG.

Witnesses:
JNO. J. BONNER,
JOHN TYLER.