

(No Model.)

R. EICKEMEYER.
CUSHIONING SPRING.

No. 352,812.

Patented Nov. 16, 1886.

Fig. 1.

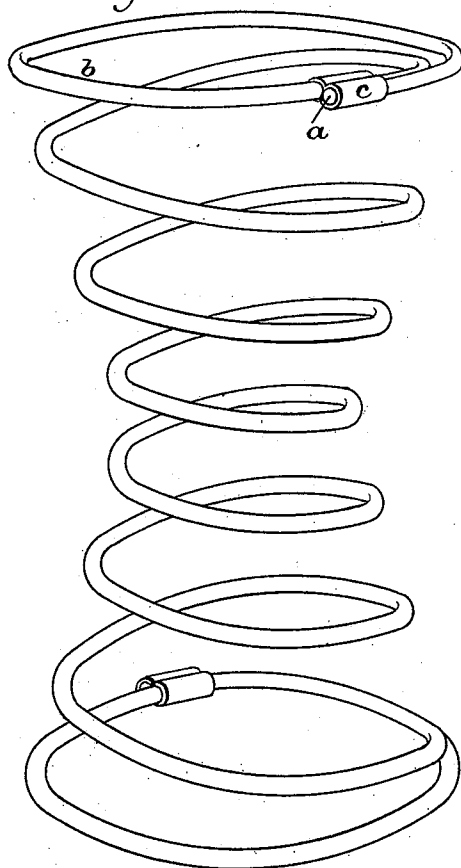


Fig. 4.



Fig. 5.



Fig. 6.

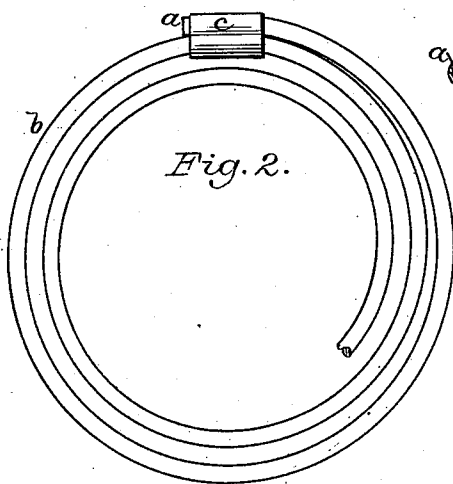


Fig. 2.

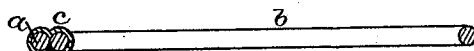


Fig. 3.

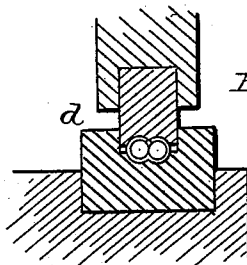


Fig. 7.

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UNITED STATES PATENT OFFICE.

RUDOLF EICKEMEYER, OF YONKERS, NEW YORK.

CUSHIONING-SPRING.

SPECIFICATION forming part of Letters Patent No. 352,812, dated November 16, 1886.

Application filed July 22, 1886. Serial No. 208,749. (No model.)

To all whom it may concern:

Be it known that I, RUDOLF EICKEMEYER, of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Cushioning-Springs; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of my invention.

My said improvements relate to that class of spiral springs which are used in beds and cushions, and have in each the terminal ends of wire and the end coil united, to afford bearings for the top and bottom of the spring. As a rule, the terminal ends of wire have been coiled around an adjacent portion of an end coil; but this is a comparatively expensive operation, and does not afford the smooth even bearing-surface sought by me. It has been heretofore proposed to cover the wire with textile and other protecting material, and to wrap with twine or wire the terminal end of the spring to the end coil; but this method does not secure in the same horizontal plane the two parts thus joined, the end being then liable to overlie the coil to which it is joined. It has also been proposed to employ sheet-metal bands for thus joining the ends to the adjacent coils; but, so far as my knowledge extends, such bands have been so applied as to merely hold the end, without confining it to the coil and in the same horizontal plane, which is the prime object of my invention. I accomplish this object in a cheap and effective manner by combining with the terminal and the end coil a metallic binding-clasp, which is crimped on a central longitudinal line, and thereby caused to separately clamp these portions of the spring and confine and maintain them in one horizontal plane, thus affording a smooth uniform circular bearing-surface for the spring at the terminal ends of its wire.

To more particularly describe my invention, I will refer to the accompanying drawings, in which—

Figure 1 illustrates in side view a well-known form of cushioning-spring embodying my improvement. Fig. 2 is a plan view of an end coil and a terminal with my clasp applied. Fig. 3 is a sectional view of the spring through

the clasp. Fig. 4 illustrates one form of my clasp detached. Fig. 5 illustrates another form of my clasp detached. Fig. 6 illustrates still another form of my clasp detached. Fig. 7 illustrates in section a set of dies, by means of which either form of clasp may be applied to a spring.

In Figs. 1, 2, and 3, *a* denotes the terminal end, *b* the end coil, and *c* the longitudinally and centrally crimped clasp.

In Figs. 1 to 4, inclusive, the clasp *c* is shown to be composed of a rectangular piece of sheet metal, preferably brass, although the kind of metal is immaterial, so far as my invention is concerned. The length of this piece may be more than one-half or three-quarters of an inch long; but it must be heavy and strong enough when clinched and crimped, as shown, to securely hold the terminal end in the same horizontal plane as that occupied by the adjacent portion of the end coil, *b*. The width of the sheet metal will be varied according to the diameter of the wire, and for obtaining the best results the two edges, when brought together by the crimping-dies *d*, should be in abutting contact, although they may overlap more or less without any serious disadvantage, and the joint or seam is preferably located so as to present the opposite or smooth side for a bearing-surface. The clasp being separately clamped upon each portion of the wire inclosed, it is axially confined, and therefore the terminal end cannot rise and leave the plane in which it should be held, and the spring has not only a smooth uniform bearing-surface at each end, but the ends of the wire cannot present abrasive surfaces to the injury of upholstery and mattress fabrics frequently in contact therewith.

It is not essential that the clasp be composed of flat sheet metal, because a cheap, effective, and very desirable seamless clasp can be produced by the use of seamless drawn brass or other metal tube, cut into proper lengths and flattened, as shown in Fig. 5. In this case care should be taken to provide internal dimensions which will enable it to freely receive the two portions of wire by passing it upon the terminal and sliding it along the coil until the point is reached where the terminal

is to be located, and then inserting the free end, after which the clasp is longitudinally and centrally crimped, as before described, by means of the dies *d*. This seamless clasp may, obviously, be composed of much lighter metal than the one previously described, there being no open seam to yield to expanding influences.

In Fig. 6 I show a form of clasp which partakes of the characteristics of both of the other forms, in that while it is composed of a strip of sheet metal it has nevertheless the seamless characteristic. In this case the sheet metal is cut into a long narrow strip, and ovaly coiled upon an arbor corresponding to the required internal dimensions, and applied like the seamless clasp, Fig. 5; or it may be coiled directly upon the two portions of wire, and then crimped as before by the use of the dies *d*.

I am of course aware of the extensive use of compressed metal clasps in the manufacture of hoop-skirts, wire bustles, hat-wires, and corsets, and in many other connections for joining two or more parts together; but so far as my knowledge extends said prior clasps, like those hereinbefore referred to, as heretofore used on cushioning springs, were mere ties or binders; but I believe I am the first to confine the terminal end of a cushioning-spring to the end coil by means of a metal

clasp crimped centrally and longitudinally, for not only binding the terminal to the end coil, but also maintaining the two in the same plane rectangular to the axis of the spring.

While it is not essential that any further union of the clasp and the wire be provided for, solder may be applied cheaply and effectively—as, for instance, soft-solder wire or grains can be inserted into the clasp with the spring-wire before the clasp is crimped. A drop of acid should then be applied, and the whole subjected to a flame capable of melting the solder; or the inner surface of the sheet metal used may be thinly coated with a readily-fusible metal in lieu of the separately-applied solder.

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

In a coiled cushioning-spring, the combination, with the terminal and the end coil, of a metallic binding-clasp crimped on a central longitudinal line to separately clamp said portions of the spring and confine and maintain them in one horizontal plane, and thereby afford a smooth uniform circular bearing-surface for the spring at its terminal, substantially as described.

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Witnesses:

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