

H. F. NEHR.
 SPRING.
 APPLICATION FILED JUNE 24, 1909.

988,490.

Patented Apr. 4, 1911.

Fig. 1.

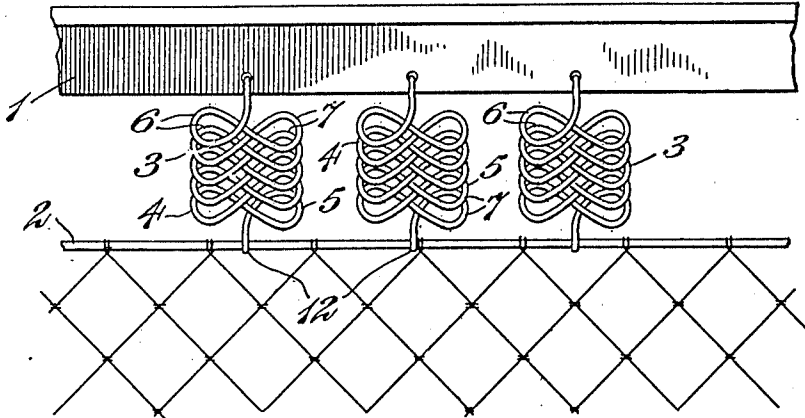


Fig. 2.

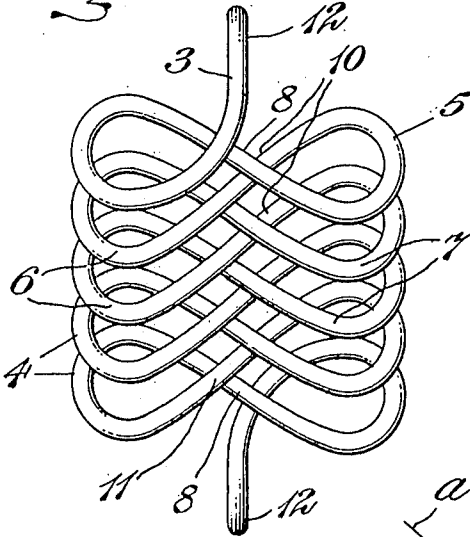


Fig. 4.

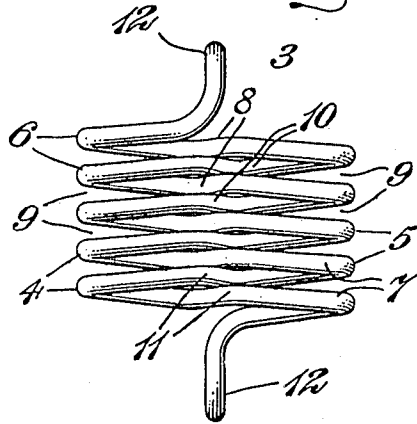
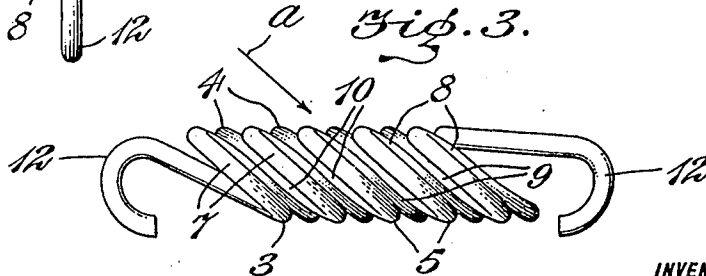


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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SPRING.

988,490.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HERMAN F. NEHR, a citizen of the United States, and a resident of Rutherford, in the county of Bergen and State of New Jersey, have invented certain Improvements in Springs, of which the following is a specification.

This invention relates to certain improvements in that class of springs which are formed from strips or wires of resilient material bent in such a manner as to afford an increased degree of resilience without liability of deformation or fracture, and the object of the invention is to provide a spring of this general character of a simple and comparatively inexpensive nature, and of a strong and durable construction, wherein the resilient strip or wire is so bent or formed as to impart to the completed spring a maximum of resilience commensurate with the length of the wire or strip employed in the construction of the spring, whereby an important economy is attained in the practical manufacture of the springs.

The invention consists in certain novel features of the construction, and combinations and arrangements of the several parts of the improved spring, whereby certain important advantages are attained, and the device is rendered simpler, less expensive and otherwise better adapted and more convenient for use all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein—

Figure 1 is a fragmentary view showing a portion of a bed bottom provided with springs constructed according to my invention affording connection between the metal frame and the wire fabric commonly provided in such bed bottoms; Fig. 2 is a plan view drawn to an enlarged scale and showing one of the springs embodying my invention, detached from the bed bottom; Fig. 3 is an edge view of the spring shown in Fig. 2, and Fig. 4 is a perspective view showing the improved spring as viewed from the direction indicated by the arrow *a* in Fig. 3.

In these views 1 represents the metal frame of a bed bottom to which I have shown my improved spring applied for use, and 2 represents the wire fabric extended

across such bed bottom in the usual way and connected with said frame 1 by the intermediation of such springs 3, 3 constructed according to my invention and arranged at intervals suitable for affording effective support for said fabric and maintaining the same strained under tension such as is requisite to support the person using the bed bottom.

As shown in these views, each spring 3 embodying my invention is formed from a single piece or strip of metal wire of suitable resilience, such as steel wire, for example, such strip or piece being provided with bends 4, 4 and 5, 5, produced in parallel series along the opposite sides of the device, and forming similar, but reversely arranged loops or spirals 6, 6, and 7, 7, arranged in two series, one of which is extended along each side of the completed spring, such loops or spirals 6 and 7 of the respective series being spaced apart from each other, as indicated at 9, 9 on the drawings, and the spaces 9, 9 between the loops or spirals of one series, as 6, 6, being opposite to and in alignment with the several spirals or loops of the other group or series, as 7, 7. In this way it will be seen that the loops or spirals of one series, as 6, 6, are caused to alternate in position between the loops or spirals of the other series when viewed in the direction indicated by the arrow *a* in Fig. 3, and each loop or spiral of each group or series is connected with those loops or spirals of the other group or series by means of connecting members 8 and 10 integrally joined with its opposite ends and crossed one over the other adjacent to the central part of the improved spring, as clearly shown upon the drawings, so as to insure the reverse direction of the loops or spirals above referred to.

The connecting parts or members 8 and 10 are provided with slight bends 11 produced in them adjacent to their points of intersection, as clearly shown in Fig. 4 of the drawings, whereby the several loops or spirals of each group or series are caused to stand as closely adjacent as possible, and the extremities of the metal wire or strip from which the improved spring is produced are herein shown provided with integral attaching loops or members 12, 12, which are extended in alinement with each other from the opposite ends of the resilient body portion of the spring and are positioned centrally between the two series or groups of

loops or spirals 6 and 7, so as to permit of being conveniently engaged with the parts desired to be connected by the spring.

The two groups or series of spirals 6 and 7, positioned along the opposite lateral sides of the body portion of the improved spring are herein shown extended in planes directed at substantially equal and similar inclinations to the longitudinal axis of the spring, as clearly indicated in Fig. 3 of the drawings, so that the oppositely arranged loops or spirals 6 and 7 are substantially parallel with each other, and the loops or spirals of each such group or series are so formed and arranged as to overlap one upon the other, as clearly indicated in Figs. 1, 2 and 3, so that a spring of comparatively short length is afforded compared with its resilient qualities.

The improved spring constructed according to my invention is of an extremely simple and comparatively inexpensive nature, requiring a minimum length and weight of material for its construction, and is therefore particularly well adapted for use, and it will also be obvious from the above description that the improved spring is susceptible of considerable modification without material departure from the principles and spirit of the invention, and for this reason I do not desire to be understood as limiting myself to the precise formation and arrangement of the several parts of the device herein set forth in carrying out my invention in practice.

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

1. A spring formed from a strip of resilient material having two parallel series of reversely wound spirals, and connecting members extended between said two series of spirals and affording integral connections from the spirals of one series to the spirals of the other series, the spirals of each series being extended in planes directed at right angles to the length of the spring and being overlapped one upon the other, the end portions of the material being extended at

right angles to the spirals to form hook members, the open portions of the hooks being entered from the same face of the spirals.

2. As an improved article of manufacture, a spring including a body member constructed of continuous double loops transversely and flatly laid and having connecting straight portions, the corresponding straight portions being substantially in parallelism, said article being formed from one piece of material, the free end portions of the material being coiled to form attaching means substantially opposite its longitudinal center, said means being arranged in a plane at approximate right angles to the plane of the double loops.

3. As an improved article of manufacture, a spring including a body member constructed of continuous double loops transversely and flatly laid and having connecting straight portions, the corresponding straight portions being substantially in parallelism, said article being formed from one piece of material, the free end portions of the material being extended substantially opposite its longitudinal center to form attaching means.

4. As an improved article of manufacture, a spring including a body member constructed of continuous double loops, transversely and flatly laid and having connecting straight portions, the corresponding straight portions being substantially in parallelism, said article being formed from one piece of material, the free end portions of the material being extended substantially opposite its longitudinal center to form attaching means, said means being arranged in a plane at approximate right angles to the planes of the double loops.

In witness whereof I have hereunto signed my name this 11th day of June 1909, in the presence of two subscribing witnesses.

HERMAN F. NEHR.

Witnesses:

FRED KAUFMANN,
ARTHUR M. WENDT.