

R. J. COLLINS.
 SPRING.
 APPLICATION FILED AUG. 26, 1911.

1,087,729.

Patented Sept. 3, 1912.

Fig. 1.

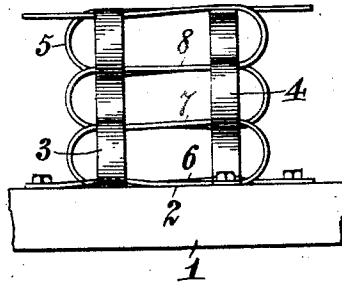


Fig. 2.

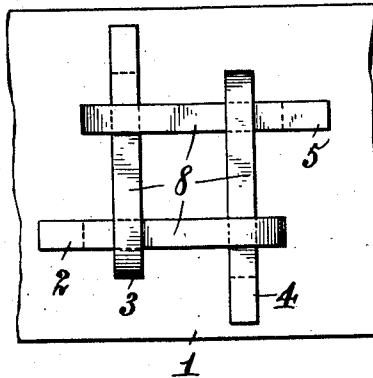
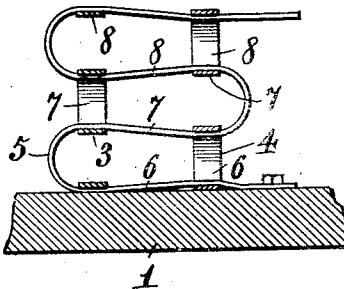


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

ROBERT J. COLLINS, OF SIOUX CITY, IOWA.

SPRING.

1,037,729.

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To all whom it may concern:

Be it known that I, ROBERT J. COLLINS, a citizen of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented new and useful Improvements in Springs, of which the following is a specification.

This invention relates to springs.

The object of the invention is to provide a device whereby a plurality of looped springs are combined together in such a manner that each independent loop limits the movement of another loop of a separate spring and is in turn limited by the loop of a separate spring when all of the springs are expanded and whereby each loop operates and is independent of the other loops when the spring is compressed.

A further object of the invention is to provide a simple and durable device of this character which may be utilized for any purpose or in any place where a compression spring is required.

A further object of the invention will appear as the following specific description is read in connection with the accompanying drawings which form a part of this application and in which:—

Figure 1 is a side elevation Fig. 2 a top plan view and Fig. 3 a vertical sectional view.

Referring more particularly to the drawing, 1 represents a support of any suitable character upon which the lower terminal ends of four springs 2, 3, 4 and 5 are secured. Each spring consists of a plurality of loops 6, 7 and 8 which are interwoven or connected with the loops of the other springs in the following manner: The lower portion of the spring 2 is extended over the loop 6 of the spring 3, beneath the lower portion of the spring 4, and then the lower leg of the loop 7 of the spring 2 extends over the lower leg of the loop 7 of the spring 4, under the lower leg of the loop 7 of the spring 3, then over the lower leg of the loop 8 of the spring 3, and under the lower leg of the loop 8 of the spring 4. The end of the spring 2 or the upper leg of the loop 8 thereof extends over the upper leg of the loop 8 of the spring 4 and beneath the upper leg of the loop 8 of the spring 3. The spring 3 is interwoven with the

springs 5 and 2 in a similar manner, that is, it extends over and under the separate loops thereof and has its end terminating beneath the upper leg of the loop 8 of the spring 5. The spring 4 is interwoven in a similar manner and has the upper leg of the loop 8 terminating beneath the upper leg of the loop 8 of the spring 2 while the spring 5 has the upper leg of the loop 8 terminating beneath the upper leg of the loop 8 of the spring 4. In this manner it will be seen that each loop of the four springs constitutes a unit, three of which are shown in the accompanying drawing. It will, of course, be understood that these units may be built up by forming additional loops and interweaving the springs as shown, each unit consisting of a plurality of springs having one loop, and, when compressed to its full extent, the loops 8 of each spring will engage upon the top of the loops 6 and intermediate loops 7 have their legs arranged between the legs of the upper and lower loops of one of the springs which is at right angles thereto. It will be noticed that the loops of the spring 2 are arranged in a plane parallel with the loops of the spring 5 but in staggered relation thereto while the loops of the spring 3, which are arranged in parallel planes with the loops of the spring 4 but are in staggered relation thereto are arranged at right angles to the springs 2 and 5.

Having thus described the invention, what I claim as new is:—

A spring comprising four resilient members having a plurality of horizontally arranged loops, two of said members being arranged in parallel planes and having their loops arranged in staggered relation, the other two members being arranged in parallel planes and having their loops in staggered relation and interwoven in opposite directions with and at right angles to the plane of, the two first-mentioned members.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT J. COLLINS.

Witnesses:

CLIFFORD FORTIES,
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