

No. 653,155.

Patented July 3, 1900.

M. TILDEN.  
COIL SPRING.

(Application filed Mar. 26, 1900.)

(No Model.)

Fig. 1.

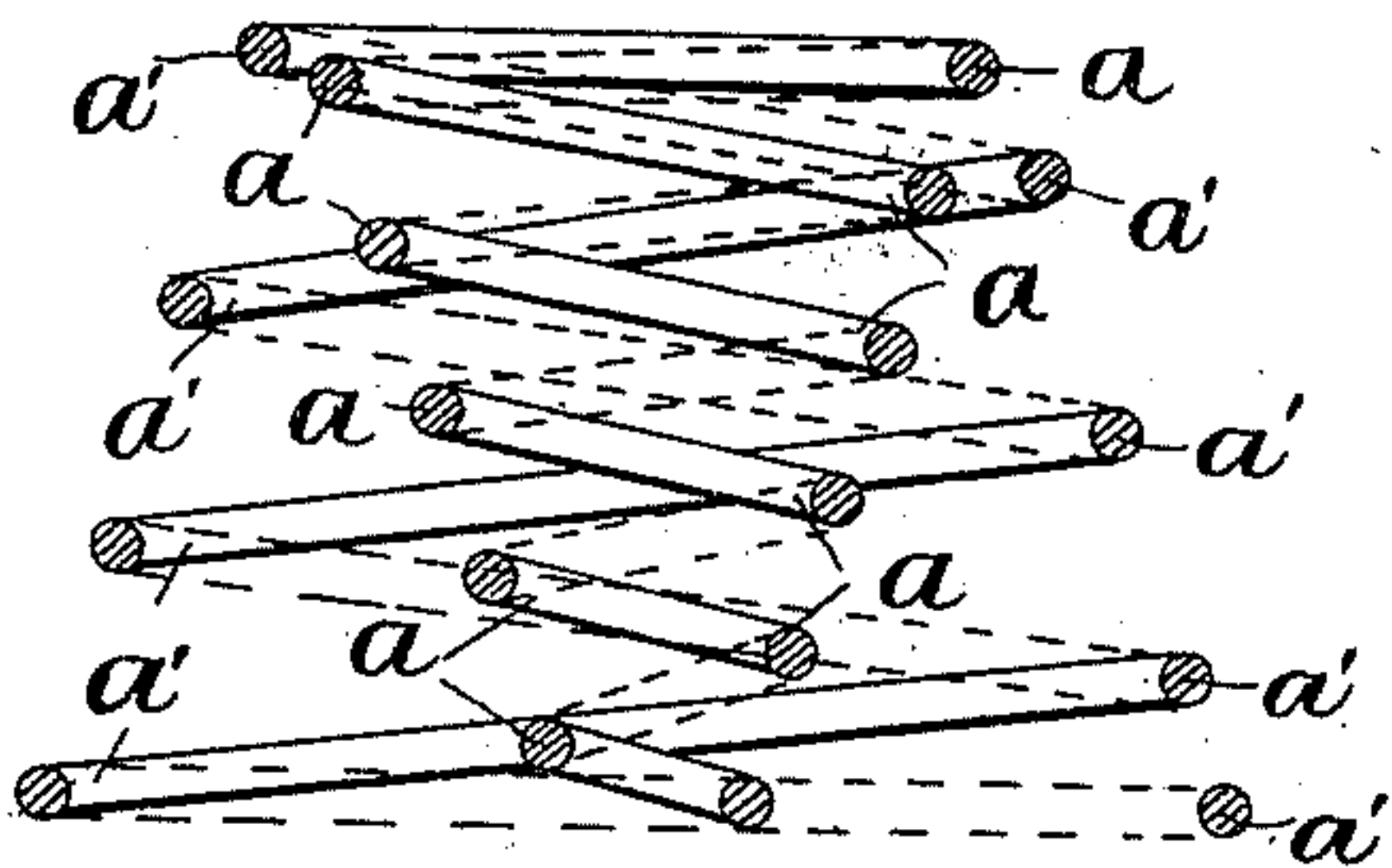


Fig. 5.

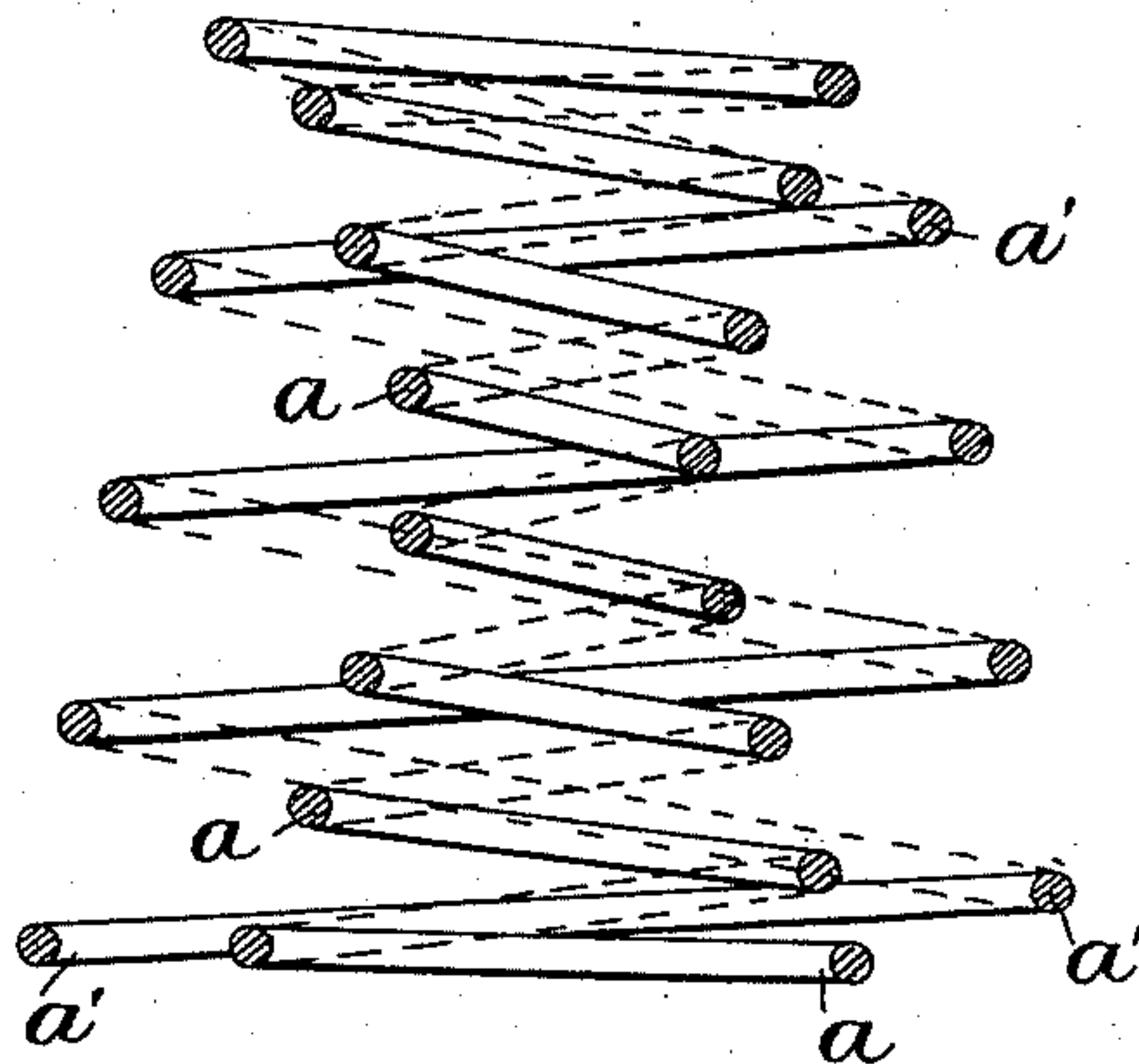


Fig. 2.

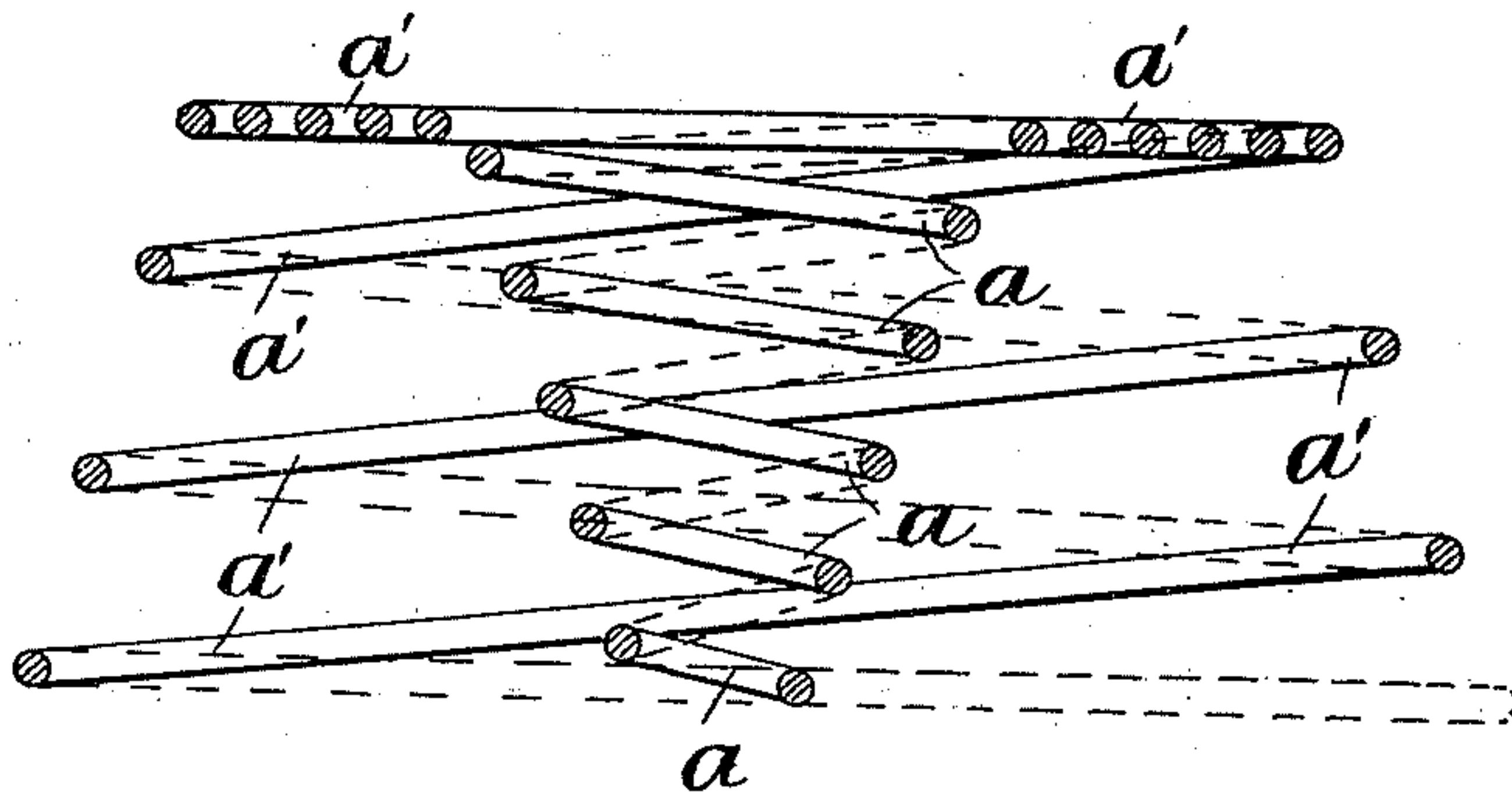


Fig. 4.

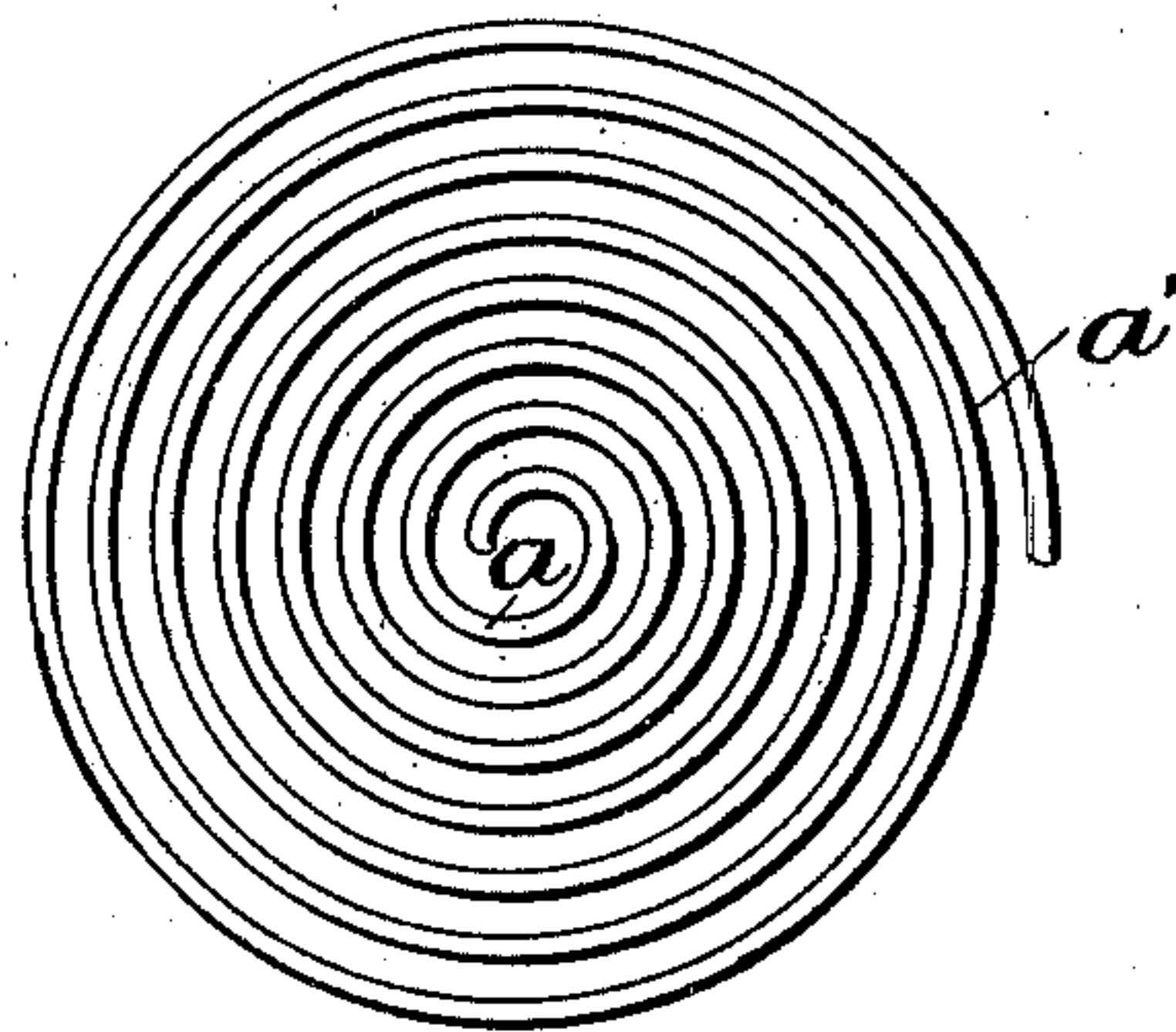
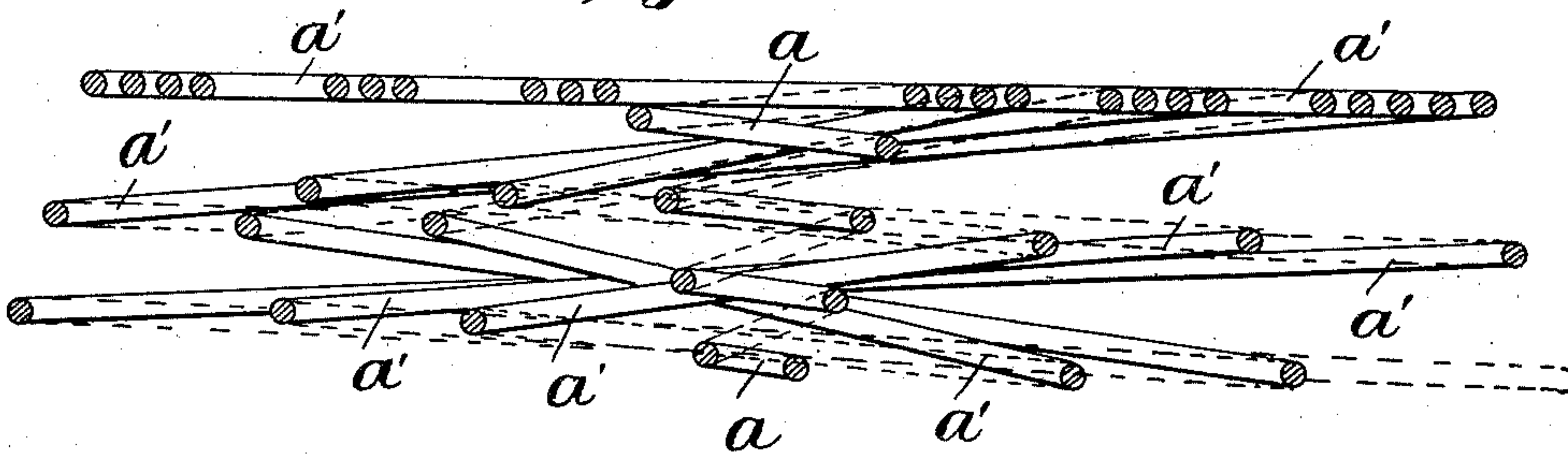


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## COIL-SPRING.

SPECIFICATION forming part of Letters Patent No. 653,155, dated July 3, 1900.

Application filed March 26, 1900. Serial No. 10,181. (No model.)

*To all whom it may concern:*

Be it known that I, MARSHALL TILDEN, a citizen of the United States, residing at Willimantic, in the county of Windham and State of Connecticut, have invented certain new and useful Improvements in Coil-Springs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of spiral springs used in upholstering of any kind or for mechanical purposes; and it consists in the construction and arrangement of parts of the spring, as hereinafter more fully set forth, described, and particularly claimed.

Various objections arise to the use of the ordinary spring used in upholstering from the fact that they lack a suitable support at the base and so work out of position, and when pressed upon they often have a lateral instead of a vertical expansive and compressive movement. Again, the springs often cut or injure the fabric with which they come in contact. Again, in the ordinary spring the outer upper coils are practically of little use or strength when under compression.

The object of my invention is to overcome the objections above enumerated and to provide a spring self-supported from the base, so that securing the tops to one another by tying, as is now the custom, becomes unnecessary. Again, all noise is avoided from the fact that the coils cannot touch each other when compressed.

Figure 1 represents a vertical section of a spiral spring embodying my invention. Figs. 2, 3, and 5 represent similar views of the same with modifications. Fig. 4 represents a top view.

Referring by letter to the drawings, *a* represents the coils of the inner spring.

*a'* represents an extension of the inner spring, which forms the outer spring. The outer spring increases in diameter to the base, thus forming a support for the inner spring, which prevents it from tipping, increases its

strength, equalizes the resistance to pressure, and gives more elasticity.

The strength of my spring may be regulated by the number of coils in the outer spiral. 55

Any well-known method of fastening the spring at the base may be employed.

Fig. 2 shows my invention with enlarged surface or extension at top, made by continuing the upper coil one or more coils on the same level before forming the outer spring. 60  
Fig. 3 illustrates the same as utilized in the manufacture of a spring for use in chair-seats, one spring being sufficient for the entire seat. This is an extension of Fig. 2. 65  
These extensions may be continued indefinitely.

Fig. 5 represents an ordinary spring with my support or outer spring.

Fig. 4 shows the coil into which my spring may be compressed for shipment, thus occupying very little space. 70

What I claim as new is—

1. An extension-spring made of a single piece of wire, comprising a conical body or spring having its enlarged end at the top, and another conical spring having its enlarged end at the base as shown and described. 75

2. An extension-spring made of a single piece of wire comprising a conical body or spring having its enlarged end at the top, and a lateral extension-top, formed by continuing the upper coil one or more turns around the end, and another conical spring having its enlarged end at base, as shown and described. 80

3. An extension-spring formed of a single piece of wire, comprising one spring encircled by another; the outer spring having a less number of coils than the inner spring, formed by continuing the upper coil of the inner spring conically, increasing in diameter to a base horizontal with the other end of said inner spring. 85

4. An extension-spring formed of one piece of wire comprising a spiral body and an outer skirt or support formed by extending the upper coil around said body to the base; the general direction of said skirt being divergent relatively to the general direction of the coils of said body. 90

5. An extension-spring formed of one piece of wire comprising a spiral body, a lateral ex- 100



5 tension-top formed by continuing the upper coil one or more turns around the end of said body, and an outer spring, having a less number of coils than the inner spring, extending to the base.

10 6. An extension-spring formed of a single piece of wire, comprising a conical body and a flat or horizontal top formed by continuing the upper coil one or more turns on the same level, and then conically, each coil increasing in diameter, to a base horizontal with the other end of said conical body.

15 7. An extension-spring formed of a single piece of wire comprising a conical body and a flat or horizontal top formed by continuing

the upper coil one or more turns on the same level, then conically, each coil increasing in diameter, to a base horizontal with the other end of said conical body; then continuing in a series of like conical extension - springs 20 around this central body, until a spring of sufficient diameter is formed; as shown and described.

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

MARSHALL TILDEN.

Witnesses:

EMILY R. PECK,  
B. E. SEITZ.