

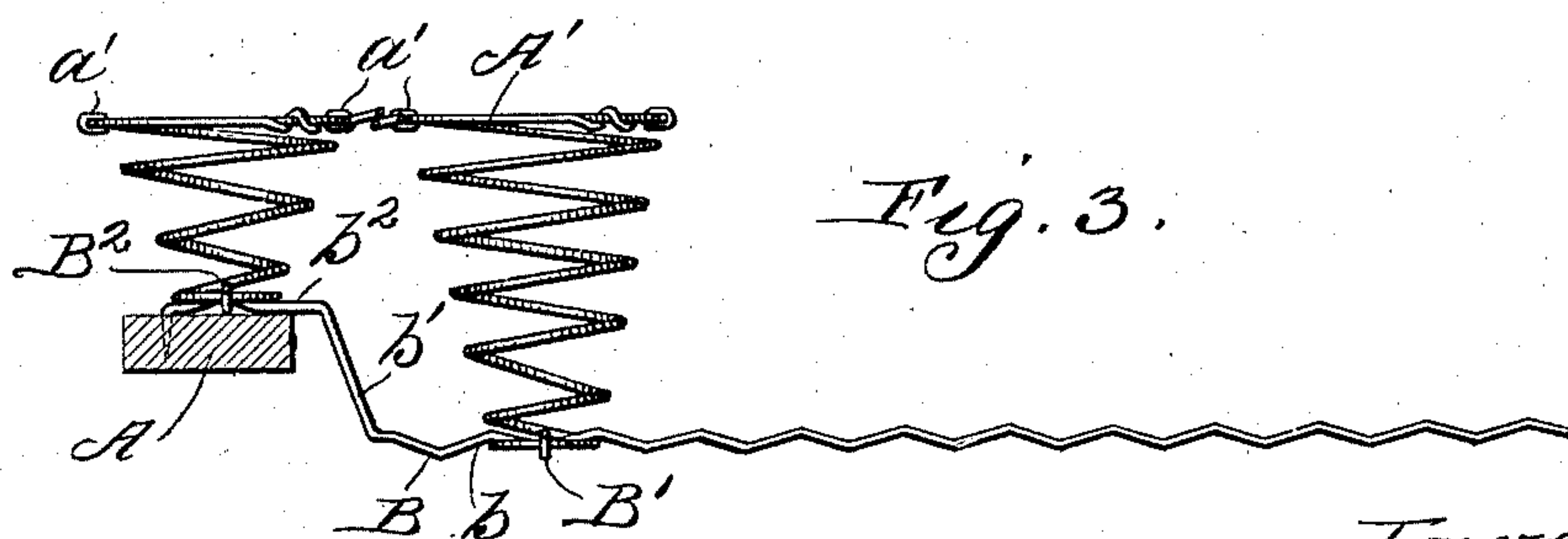
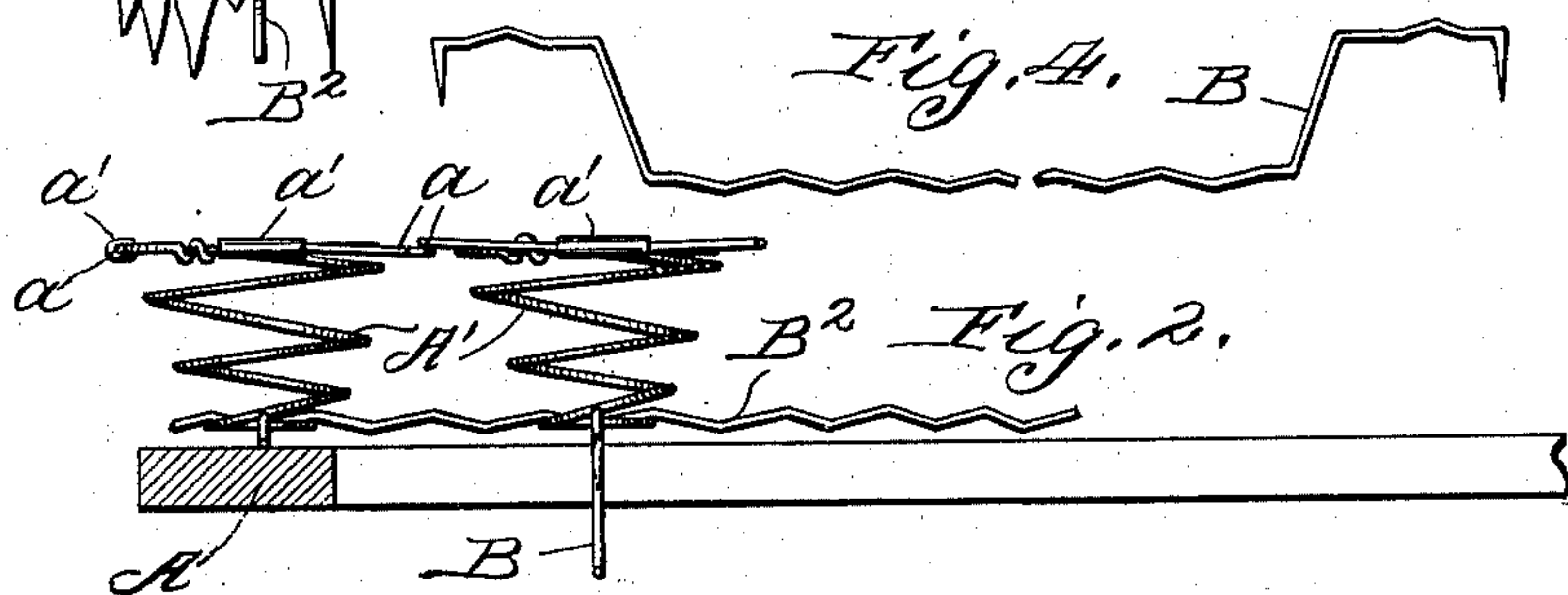
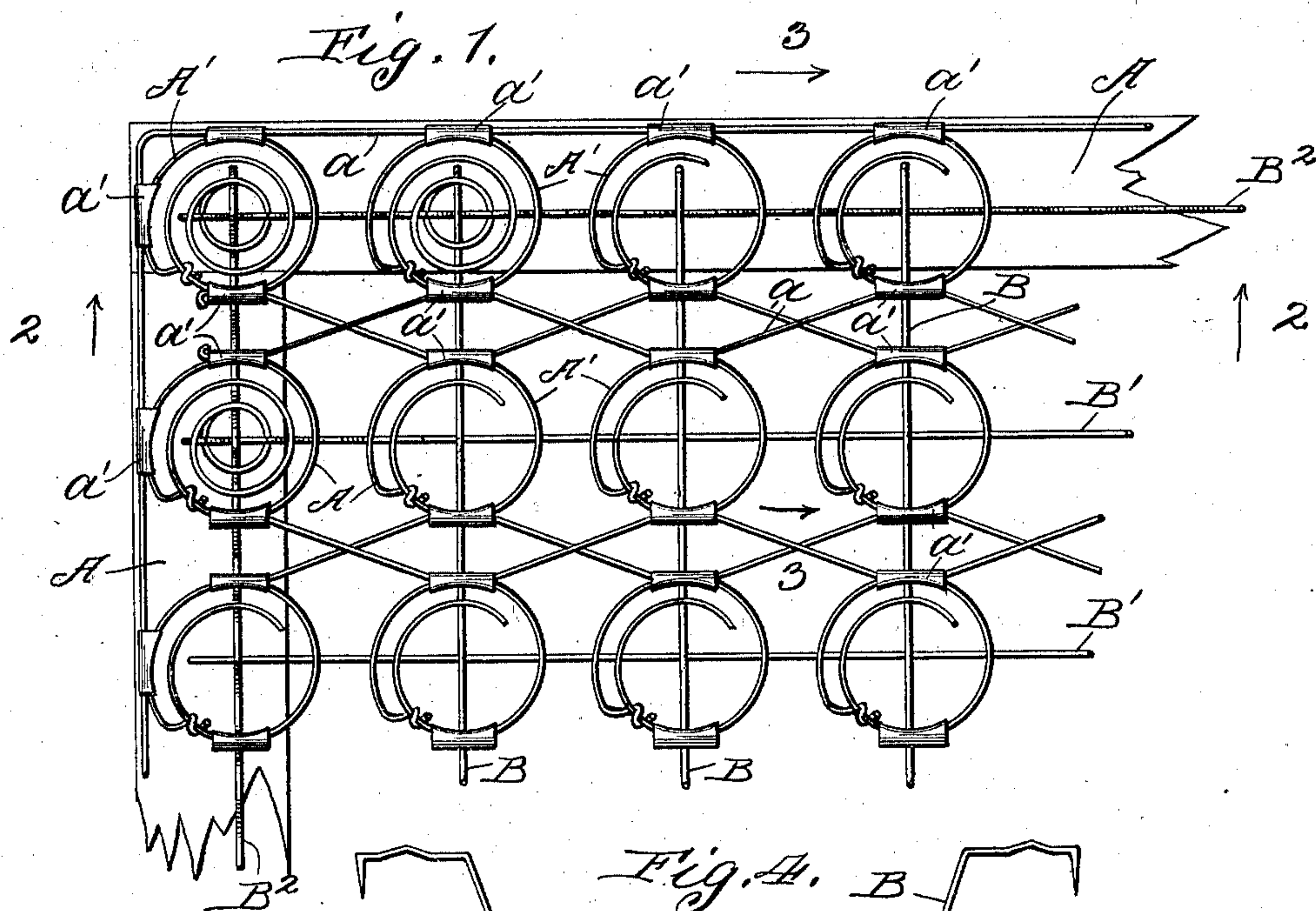
No. 748,433.

PATENTED DEC. 29, 1903.

J. A. STAPLES.  
SPRINGWORK.

APPLICATION FILED OCT. 17, 1901.

NO MODEL.



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# UNITED STATES PATENT OFFICE.

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## SPRINGWORK.

SPECIFICATION forming part of Letters Patent No. 748,433, dated December 29, 1903.

Application filed October 17, 1901. Serial No. 78,977. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. STAPLES, a citizen of the United States, residing at Newburgh, in the county of Orange and State of New York, have invented certain new and useful Improvements in Springwork; and I do hereby declare that the following is a full, clear, and exact description of the construction and organization of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

My invention relates to springwork for furniture, and especially to spring constructions designed and intended to be used in connection with car-seats, box spring-mattresses, couches, and other pieces of furniture which have wide frames. In this class of devices it is desirable to make a spring edge and to have the rims of the coiled springs in the outer rows or ranges extend out perpendicular above the outside of the wooden frame. In the organizations as now constructed for this class of devices it has been found necessary to employ separate fastenings for the edge rows of springs on the top of the wooden frames, which construction is objectionable, as these separate fastenings are liable to become loose, and they are also expensive, and much time is consumed in applying the same in place.

The object of the present invention is to provide a form of support for springs in which, in addition to the means for supporting the interior rows or ranges of springs in proper position and relation, seats or rests are also provided for the coil-springs of the outer or edge rows or ranges to permit these springs to stand over or on the upper surface of the frame.

With this object in view the invention consists in the novel constructions and arrangements of the parts and devices hereinafter set forth, whereby the objectionable features of the present construction are obviated, and seats or rests for the edge rows of springs along the upper surface of the wooden frame are provided on the same support by which the interior rows or ranges of springs are supported.

In the accompanying drawings, which form a part of this specification, Figure 1 is a top

view of a spring structure adapted for a box-couch or box-mattress or other piece of furniture having a wide frame constructed in accordance with my invention. Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 is a sectional view on the line 3 3 of Fig. 1, and Fig. 4 is a detail of one of my improved wire hangers employed in the organization of springwork for the above purposes.

In the drawings the reference-letter A represents a wooden frame which, as herein shown, is adapted for box-couches, box spring-mattresses, car-seats, and other pieces of furniture which require wooden frames giving strength and rigidity; and it consists of four wooden strips assembled in any suitable size and form. These strips are relatively much wider and heavier than the strips employed for ordinary seat-frames, such as are used for chairs, &c.

The reference-letter A' represents the springs, which are arranged and disposed in as many rows or ranges properly spaced apart as may be necessary and desirable to give the desired finish to the article in question. The lower ends of these springs are supported by suitable supports, as hereinafter fully described, and the upper ends of the springs are connected together to form a compact and strong upper surface, preferably by suitable connecting or bracing wires *a*. The bracing-wires may be arranged in any suitable manner and preferably will connect the alternate top coils of the springs in the adjacent rows, as has heretofore been done, and preferably will be formed with short straight portions at the points of contiguity with the top coils of the springs, to which they are attached by any suitable means, such as the sheet-metal clips *a'*, the straight portions being hinged or pivoted in the clip, so that when a particular spring is depressed there will be no strain upon the connection.

The reference-letter B represents an exemplification of one form of my improved metal hangers by which the coil-springs are supported. Each of these supports has a horizontal portion which is approximately as long as the measurement of the opening of the frame, and the ends are bent upwardly to provide a deep drop, as at *b'*, and are then finished with means for permanent attachment



to the upper surfaces of the frame, preferably by providing points which may be driven into the rails of the frame, though of course it is understood that the ends may be finished off in the form of eyes for receiving nails or screws to secure the supports in place. The supports are thus in the form of hanging or drop supports, and their horizontal portions, which are normally within the opening of the frame when the parts are assembled, are formed with any suitable means for supporting the usual interior springs. The end portions  $b^2$  are also provided with seats or rests for the springs of the edge rows where they rest on the upper surfaces of the frame, whereby a "spring edge" is produced, as the springs of the edge rows when seated thereon will stand over the upper surface of the frame and their top coils will project out flush with or beyond the edges of the rails. For this purpose the end portions of the supports are somewhat longer than is usual in chair-frames, and seats or rests for the edge springs are provided therein in any suitable manner similar to those in the drop portions of the supports. The springs of the edge rows are shorter than the springs of the interior rows, this difference in height being approximately equal to the length of the drop portions  $b'$ .

By employing supports of the form herein disclosed the edge rows of springs form an integral part of the spring structure and provide an efficient spring edge. By this construction separate fastenings to plant the edge rows of springs on the top of the frame are dispensed with, and the springs of the edge rows are united with the frame in the same manner and by the same means as are the springs of the interior rows.

The material and form of the supports may of course be varied, as these parts may be made of suitable lengths of wire, which is the preferred form, or of any other suitable material, such as strap-iron or any flat metallic strip. When the wires are used, they may be corrugated throughout their lengths or they may have eyes or bends at suitable intervals in the lines of the ranges or rows of interior springs. The springs may be supported directly upon the drop-wires, as by providing the wires with suitable seats to receive the lower ends of the springs in any desired manner or the springs may rest directly upon supplemental cross-wires  $B'$ , which in turn rest upon and are supported by said drop-wires, or the springs may rest directly upon both sets of wires at their points of crossing and may bind the wires together, as by interweaving therewith. Any arrangement and organization of this part of the device is within the scope of my invention and the preferable form and construction is that illustrated in the drawings, where the drop-wires suitably corrugated or bent upon their horizontal portions within the openings of the frame have their ends attached to the front and rear rails thereof and the brace or cross-wires  $B'$ , which pref-

erably also are corrugated or bent, are then placed upon the drop-wires in corrugations or bends thereof, one in the longitudinal line of each row or range of springs, and the springs are connected to the wires at their crossing-points by rotating the springs to interweave their reduced lower coils with the wires in the manner shown and now well understood. The same organization will preferably be employed for the springs of the edge rows when wire supports are employed, these springs then being assembled on the end portions  $b^2$  in conjunction with brace-wires  $B^2$  in the same manner as the interior springs are secured.

When the supports are made of strap-iron, the springs may be supported in any suitable manner or by any desired connection, the end portions being provided with seats for the edge springs to produce the spring-edge effect. In any form of support that may be employed my invention contemplates the production of this spring edge by means of springs seated on the end portions of the supports, as it is impossible to produce this edge by means of the usual interior springs, as their top coils do not extend out over the frame.

It is obvious that where wire supports are used, as the brace-wires  $B'$  are usually merely suitable lengths lying wholly within the opening of the frame, the edge rows will be provided only on the sides of the structure; but where it is desirable to provide this feature at the ends the brace-wires  $B'$  are extended into drop-wires either with or without end fastening means similar to the supports  $B$  and coact with end brace-wires  $B^2$ , similar to the side brace-wires. Such organization is shown in Fig. 1, and it is understood that in either form the construction is substantially the same. Also the spring edge may be provided at the ends of a structure employing strap-iron in substantially the same way.

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

1. A spring-support having a horizontal body portion of approximately the measurement of the opening of a frame to support the interior springs, the end portions of the supports extending upward and laterally to rest upon the upper surface of the frame, and provided with seats for edge rows of springs above the said upper surface, and means to attach the ends of the supports to the frame.

2. A spring-support formed of wire, having a horizontal body portion of approximately the measurement of the opening of a frame, provided with seats to support the interior springs, and having end portions extending upward and laterally to rest upon the upper surface of the frame, and provided with seats for edge rows of springs above said upper surface, and having hooked ends for attachment to the frame, and springs resting upon such latter seats.



3. A spring-support formed of corrugated wire with hooked ends, having a horizontal body portion of approximately the measurement of the opening of the frame, provided  
5 with seats to support the interior rows or ranges of springs, and having end portions extending upward and laterally to rest upon the upper surface of the frame and provided with seats to support edge rows of springs  
10 above the top of the frame.

4. The combination with a frame, of wire supports, having horizontal body portions of approximately the measurement of the opening of the frame and hooked end portions ex-  
15 tending upward and laterally to rest upon the

upper surface of the frame, said supports being corrugated upon their end and body portions, corrugated brace-wires in the bends of the body and end portions of the supports, and springs interwoven at their lower ends 20 with the supports and brace-wires at their crossing-points of both their body and end portions.

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

JOHN A. STAPLES.

Witnesses:

ALEX DARROGH,  
JNO. WISE.