

(No Model.)

2 Sheets—Sheet 1.

A. F. PUREFOY.

SPRING BED BOTTOM.

No. 278,362.

Patented May 29, 1883.

Fig. 1.

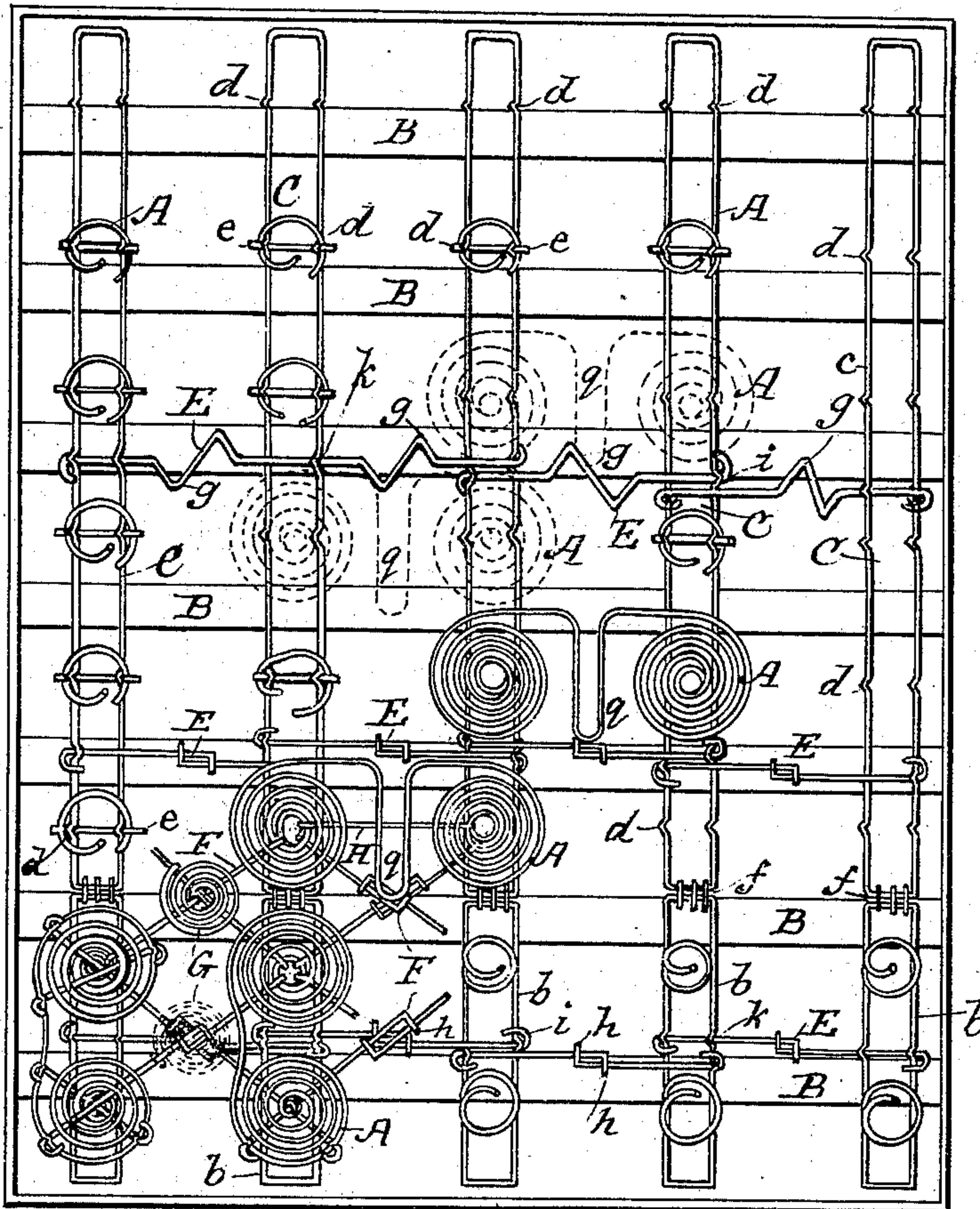


Fig. 2.

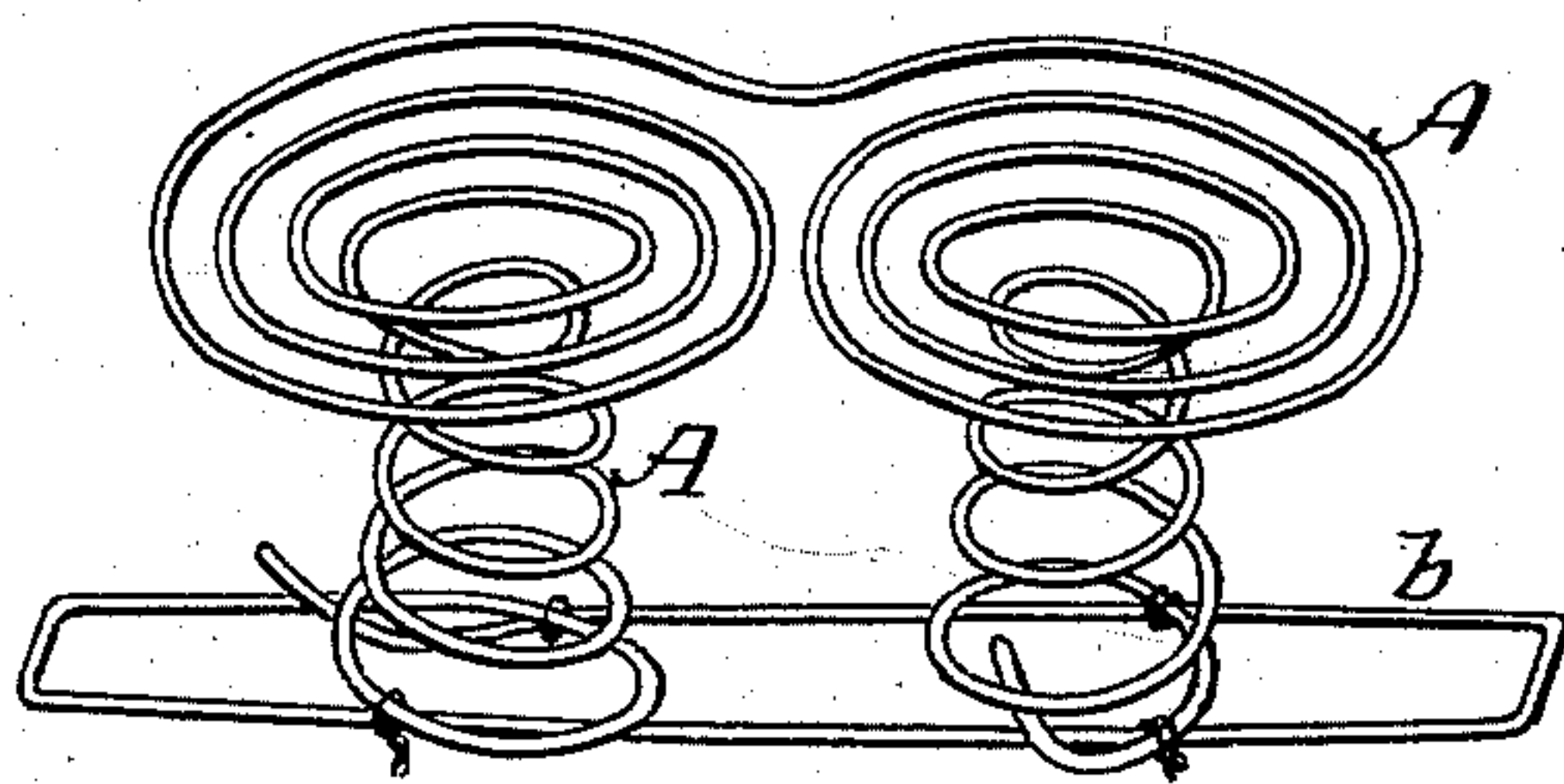


Fig. 4.

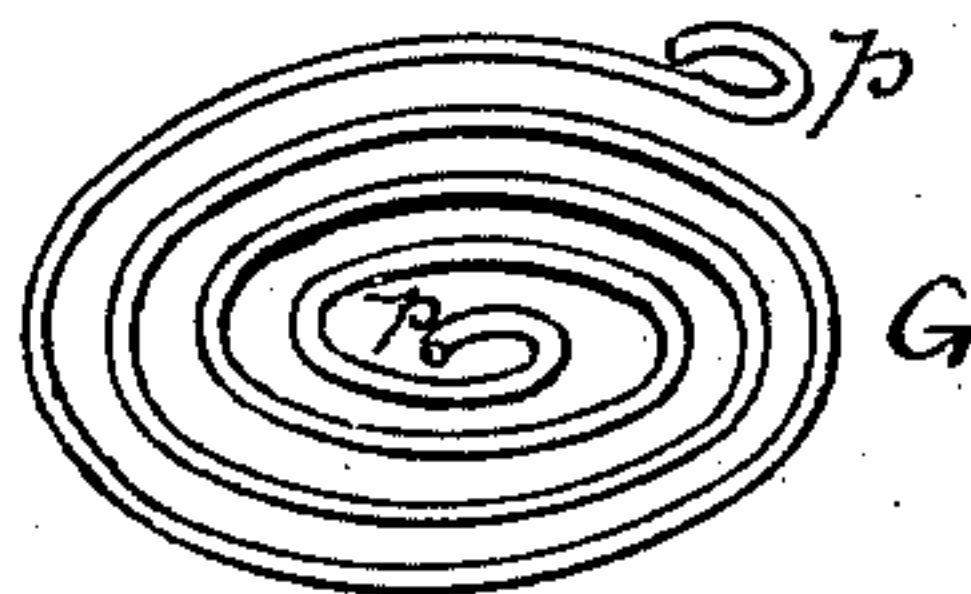


Fig. 3.



Witnesses:

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(No Model.)

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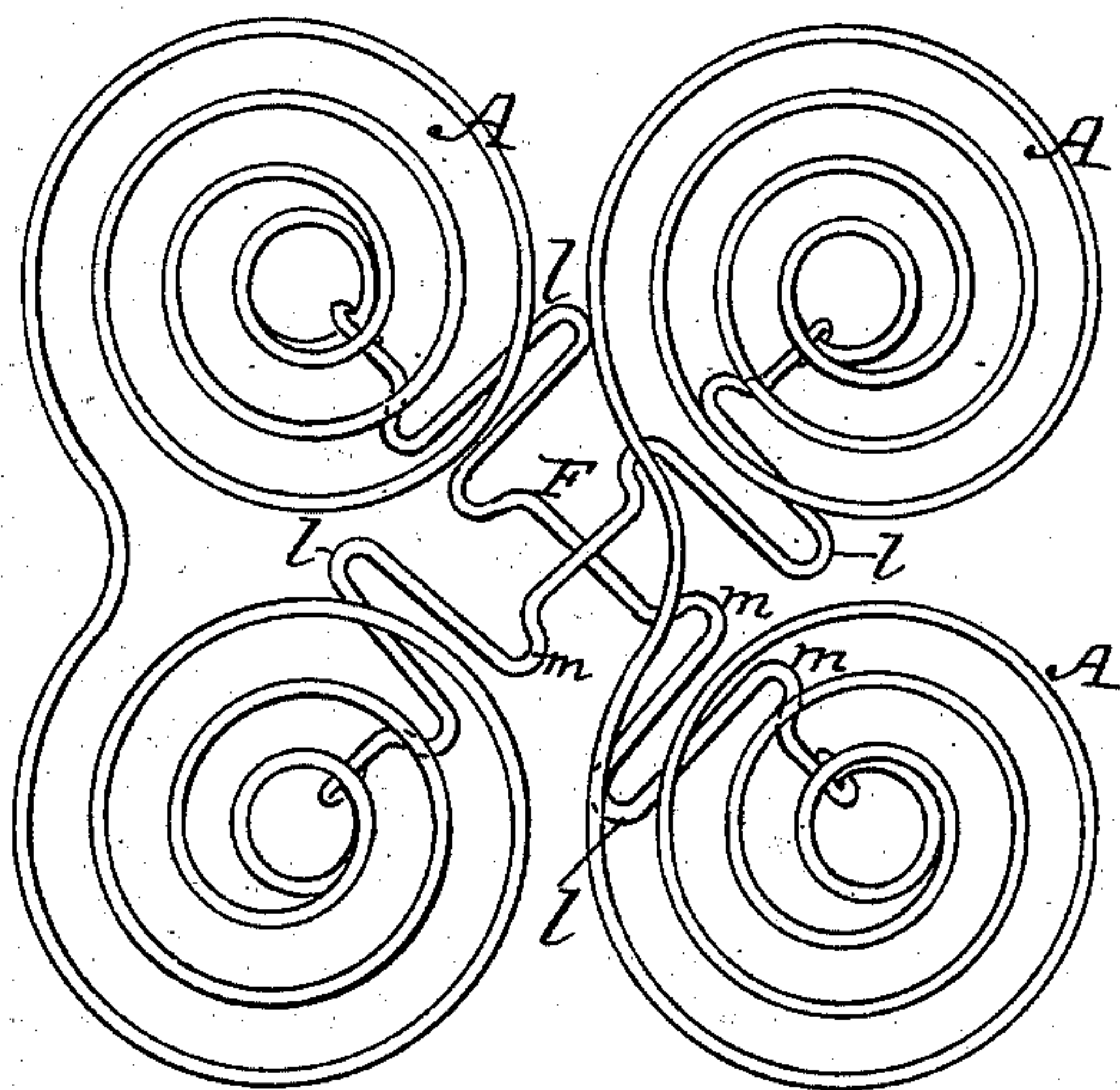
A. F. PUREFOY.

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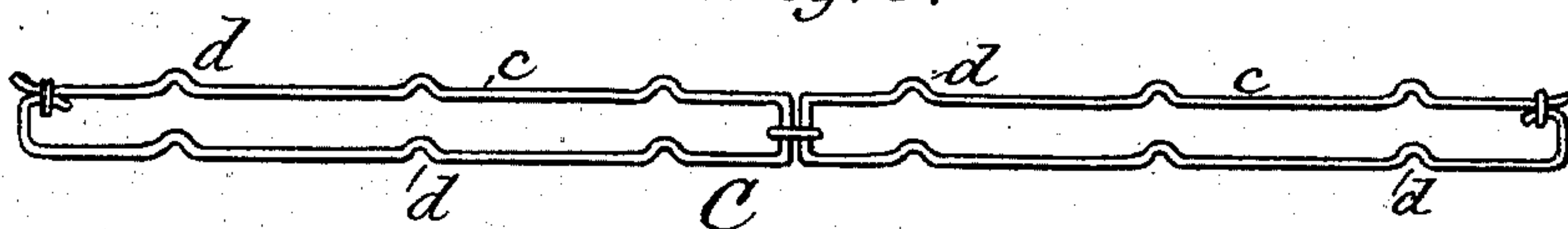
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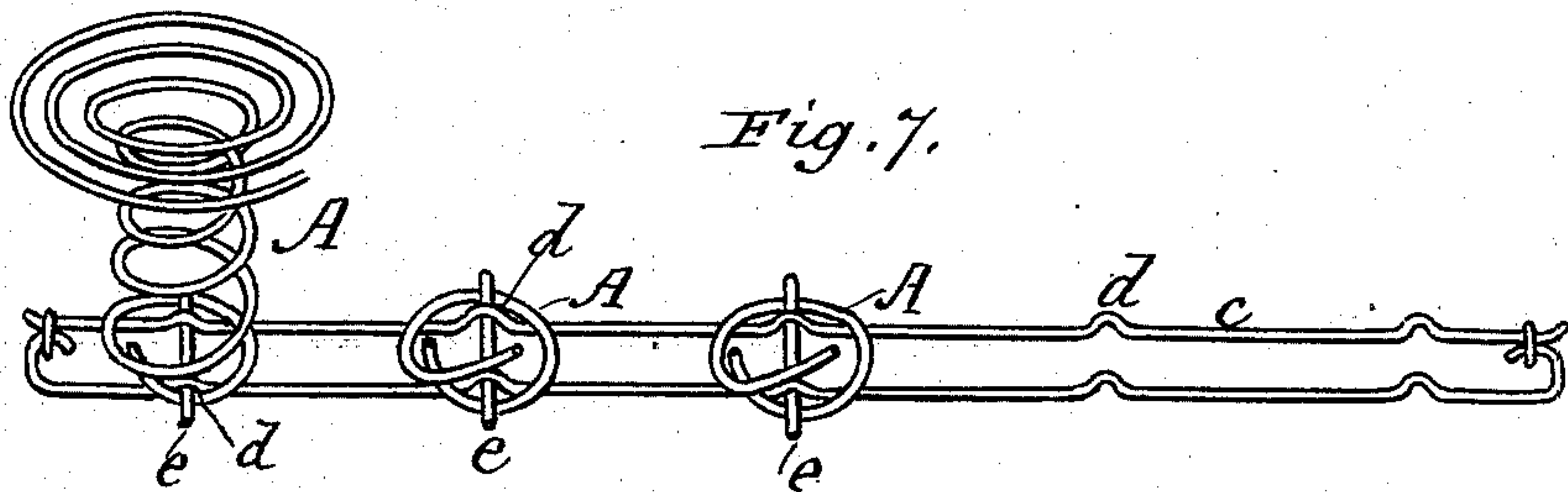
*Fig. 5.*



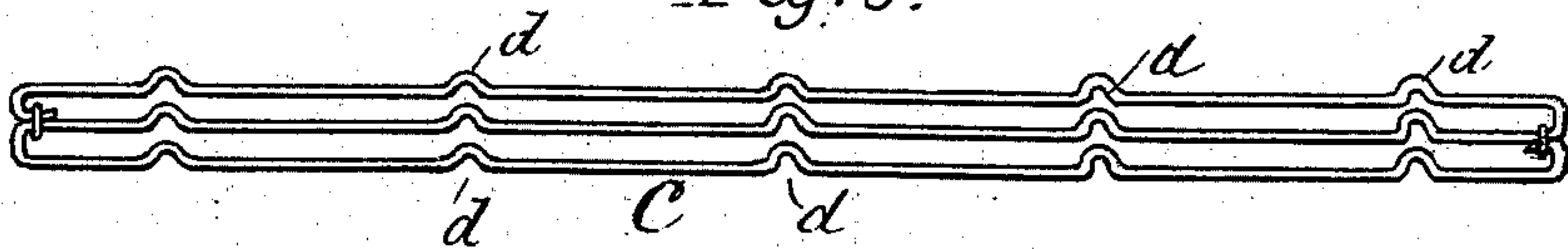
*Fig. 6.*



*Fig. 7.*



*Fig. 8.*



Witnesses:

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# UNITED STATES PATENT OFFICE.

ADDISON F. PUREFOY, OF WAKE FOREST, NORTH CAROLINA.

## SPRING BED-BOTTOM.

SPECIFICATION forming part of Letters Patent No. 278,362, dated May 29, 1883.

Application filed October 19, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ADDISON F. PUREFOY, a citizen of the United States, residing at Wake Forest, in the county of Wake and State of North Carolina, have invented certain new and useful Improvements in Spring Bed-Bottoms, of which the following is a specification.

This invention relates more particularly to spring bed-bottoms in which the springs are connected together throughout the bed-bottom, although it is not wholly limited thereto, and it has special reference to base-pieces for the springs which enable them to be distributed on the slats independent of the number and spacing of the latter, so that the same set of springs can be used equally well in bedsteads differing from each other in the number of the slats; to the combination of the springs and their said base-pieces with braces for uniting and steadying the whole; to a system of extensible braces and connection-wires which, by permitting the bed-bottom to be expanded or contracted, adapt the same article to use in bedsteads of different widths; to table-pieces which rest upon the braces and form supports for the mattress between the springs; and to certain features of improvement in other respects, as hereinafter specified.

The invention does not consist, broadly, in so constructing a spring bed-bottom that the same article can be used with bedsteads having the slats different in number and spacing, or that it can be expanded to different widths, or that it has mattress-supports between the springs; but it consists in the new constructions, combinations, and arrangements of parts for accomplishing or securing these and other results or advantages.

In the accompanying drawings, which form a part of this specification, Figure 1 represents in plan and horizontal section a spring bed-bottom constructed in accordance with the invention; and Figs. 2 to 8 are detail views, Fig. 2 being a perspective of a twin spring with base-piece formed integral therewith; Figs. 3 and 4, perspectives of a slip-joint brace and a detached table-piece, respectively; Fig. 5, a plan of a pair of twin springs with extensible connecting-braces having lateral crooks; and Figs. 6, 7, and 8, perspectives of wire slats or base-pieces with attached springs, as in Fig. 7, and without them, Figs. 6 and 8.

The springs A, instead of being carried directly by the ordinary slats, B, of the bed-bottom, as customary, are attached to and carried by auxiliary slats or base-pieces C, which rest upon the slats B, hereinafter termed for convenience of reference the "supporting-slats," and span the spaces between them, so that it is unnecessary to have a supporting-slat under each spring, and the disposition of the springs is, therefore, independent of the number of slats in the bed. The auxiliary slats, composed of one or more base-pieces, are separable, so that they can be moved apart or drawn together, and thus the rows of springs carried by them may be separated by a greater or less distance. The supporting-slats ordinarily run across the bed, and the auxiliary slats or base-pieces, with the rows of attached springs, extend lengthwise thereof. By properly separating the said auxiliary slats or base-pieces, therefore, the springs may be uniformly distributed in different bedsteads or frames notwithstanding variations in their widths.

The auxiliary slats or base-pieces may be made of wood or metal in any suitable form; but it is deemed most advantageous to construct them of wire, and such construction itself forms part of the invention. The wire is bent into a general oblong shape, and the ends are secured by wrapping with fine wire, by welding or brazing, or in other suitable way. Each base-piece is of sufficient length to extend over two or more supporting-slats, said length being ordinarily greater than the top diameter of one of the springs carried thereby. Ordinary round wire of about the same diameter as the springs, or larger, is preferred; but no particular size or shape is necessary, so long as the wire has sufficient stiffness to sustain the springs. The wire may be doubled one or more times upon itself, so that each base-piece has two longitudinal wires, as shown in Figs. 1, 2, 6, and 7, three such wires as shown in Fig. 8, or a larger number.

The wire slats or base-pieces may be made integral with the springs or of a separate wire. Both forms are shown in Fig. 1, the longitudinal wire slats C consisting each of two parts or base-pieces, *b c*, the former integral with the spring, the latter formed of a separate wire and having the springs fastened thereto. In both cases the same base-piece is common to a num-



ber of springs. The two springs connected with each base-piece *b* are made of one wire, so that they form what is commonly known as a "twin spring." The sides of the base-piece *b* are fastened to the bottom coils of the two springs of the twin by wrapping with wire, or in other suitable way. The springs are attached to the base-pieces *c* by means of the bends *d*, which are upright or vertical, and which are embraced by the lower coils of the springs. A wire, *e*, passes through and under each bend and over and around the spring-coil which fits over the bend, so as securely to hold the spring in place. The wire *e*, being contained in the bend *d*, does not extend below the bottom of the wire slat. The object of the bends *d* is twofold: first, to enable the springs to be fastened in place without having any device below the bottom of the base-piece to make it rest uneven on the supporting-slats *B*; and, second, to insure the springs against moving lengthwise of the base-piece.

The auxiliary slats *C*, whether made of wire or otherwise, and whether integral with the springs or not, may each be made in one piece without joint; or they may be made in two or more parts, rigidly connected, or in two or more parts connected by flexible joints. The latter construction admits of their being folded, and is shown in Fig. 1, where the wire base-pieces *b c* are connected with each other by a flexible joint at *f*. The square ends of the two base-pieces abut and are wrapped with wire, so as to form a hinge-joint.

The auxiliary slats *C* are connected with each other by braces *E*. To allow the separation of the auxiliary slats or their drawing together, the braces are made extensible by means of a series of crooks, *g*, so as to expand or contract in length by opening and closing the crooks, or by means of a slip-joint formed between two parts of a brace, an eye, *h*, on each part embracing the other part, and the brace expanding and contracting by the sliding or slipping of the eyes *h* on the parts of the brace. The braces *E* are connected with the slats *C* so as to prevent the tilting of the latter. In the case of the wire slats each brace extends alternately over and under the sides or longitudinal wires forming said slats, and is jointed at each end to the side of the slat farthest removed from the slat to which the opposite end is jointed. Where a brace passes under a slat-wire, whether at the point of joining, as at *i*, or at a crossing, as at *k*, the slat-wire is preferably bent upward so that the brace will lie flush with the bottom of the wire slat. Of the braces which cross the same slat-wire, alternate ones lie above and below it, so as to prevent the slat from tilting in either direction. This is deemed the best arrangement to adopt, but it is obvious that the wire slats could be connected with the braces in other ways—as, for example, by suitable clips. With wooden auxiliary slats or base-pieces, staples or clips could be used. A single brace may extend across and connect all the slats *C*, or

every two adjacent slats may be connected by a separate wire or a number greater than two and less than all may be connected by one brace, and the said brace, whatever may be the number of slats connected thereby, may be extensible by means of crooks or by a slip-joint, as already explained; or in case it is not desired to have the bed-bottom expansible, then the said brace may be plain and straight. The braces are preferably of wire, but might be of other material. As shown in Fig. 1, the auxiliary slats *C* are connected by extensible slip-joint braces of wire, a brace being placed between each pair of slats, except at the upper part of the figure, where an extensible crooked brace connecting together three slats and two similar braces connecting each a pair of slats are represented.

The springs *A* are not only connected at the bottom through the braces jointed to their slats or base-pieces, but are also connected at the top by connection-braces *F*, which are made extensible by a slip-joint, as shown in Fig. 1, or by means of crooks, as shown in Fig. 5. The latter form differs from the braces with lateral crooks shown and described in Letters Patent No. 261,954, granted to myself and S. Abernathy, as my assignee, August 1, 1882, in having a larger capacity of expansion, owing to the novel arrangement of the crooks—to wit, to the arrangement in each half of each brace of a long crook, *l*, between two smaller crooks, *m*.

Springs of ordinary or of any suitable form may be carried by auxiliary slats or base-pieces and be braced, as above described; but extension-top springs, such as described in the aforesaid patent and that granted to the same persons February 28, 1882, and numbered 254,372, are shown, the use of these springs being most advantageous, and their combination with other elements forming part of the invention. The connection-braces *F* extend under the said tops, which are formed by a series of flat or nearly flat coils. As shown, the braces *F* are diagonally disposed, and this arrangement is preferred; but both the braces with slip-joint (shown in Fig. 1) and those with crooks (shown in Fig. 5) may be otherwise disposed. When the springs *A* are separated, as shown in Fig. 1, the space between the longitudinal rows will in part be occupied by the connection-braces, and these will aid in holding up the bed or mattress; but the contact or bearing surface of the braces is small, and, moreover, with the extension-top springs the said surface, unless the braces are bent upward between the springs, as set forth in the latter of the aforesaid patents, (which upward bend it may not always be convenient or possible to impart,) will be below the level of the extension-tops. The bed is improved by the table-pieces *G*, which are attached to and supported by the braces between the springs. They increase the bearing or contact surface, and in the case of extension-top springs, being of the same depth or thickness as said tops,



their upper surfaces are flush with those of the extension-tops, and they thus "level up" the bed-bottom. Table-pieces of various materials, shapes, and sizes, may be used; but a flat wire coil, provided with hooks *p* at the center and outer end, as shown, is preferred. (See Figs. 1 and 4.) The diagonal disposition of the spring connection-braces *F* gives a good seat for the table-pieces. The character and disposition of the springs carried by the base-pieces *b* have hereinbefore been described, but not those carried by the larger base-pieces, *c*.

As shown, (see Fig. 1,) the springs *A*, carried by the base-pieces *c*, are for the most part twin springs; but the two springs or elements of the twin, instead of being carried by the same base-piece or slat, are connected with adjacent base-pieces, or, more definitely, with the base-pieces in adjacent slats. The springs themselves thus aid in binding together the auxiliary slats *C*. The twin springs, as shown, are arranged to "break joints," so to speak—that is, they are so arranged that the connection-wires *q* of the springs in one transverse row are opposite the space between adjacent springs in the next transverse row. The small spaces left at the ends of alternate rows are filled with single springs.

In order that the connection-wires *q* may not interfere with the expansion of the bed-bottom, each of said wires is bent between the springs once, as shown, or oftener, if desired, so that the opening and closing of the bend allows the two springs or elements of the twin to be separated or brought nearer together. The bent connection-wires *q* also furnish platforms between the springs, which, when the latter have extension-tops, form continuations of said tops. The said platforms or bent connection-wires may be upheld by extensible or slip braces *H*, additional to the diagonally-disposed braces *F*; or the platform can be made of such shape and size as to rest on the diagonal braces. When the auxiliary slats *C* or base-pieces, with their springs *A*, have been properly connected, braced, and distributed on the supporting-slats *B*, the said auxiliary slats or base-pieces are preferably secured to the supporting-slats by clips, nails, staples, or like fastening devices, so as to prevent them becoming disarranged. Other means may, however, be used to prevent disarrangement—as, for example, the wrapping of the diagonally-disposed braces at their point of crossing.

It is obvious that the bed-bottom could be set up on the floor or other plane surface as well as on a series of slats.

In order to pack the bed-bottom for transportation, the width may be reduced by simply contracting the braces and drawing together the auxiliary slats or base-pieces and springs; but the reduction can be carried much further by releasing one end of each of the slat-braces *G* and spring-braces *F* and arranging them parallel with the auxiliary slats, and by removing the twin springs from the base-pieces *c*, or by releasing each from one of the con-

necting base-pieces and turning it so that the line connecting the centers of the springs is parallel with the length of the base-piece to which it remains attached, and by then bundling or packing together as close as may be the auxiliary slats and springs. The jointing of the braces to the auxiliary slats and springs allows them to be laid parallel with said slats without being entirely disconnected therefrom. The length may be reduced by folding back the twin springs seen at the bottom of Fig. 1.

I claim the new improvements herein described, all and several, to wit:

1. The combination, with the supporting-slats of a bedstead, of auxiliary slats resting upon the supporting-slats and spanning the spaces between the latter and twin springs, connecting said auxiliary slats and carried thereby, substantially as described.

2. The combination, with two or more springs, of a wire slat or wire base-piece common to said two or more springs, substantially as described.

3. The combination, with the supporting-slats and the springs, of auxiliary wire slats or wire base-pieces spanning the spaces between said supporting-slats, substantially as described.

4. The combination, with a twin spring formed of wire coiled about vertical axes, of a horizontal oblong base-piece common to the two elements of the spring and made integral or in one piece therewith, substantially as described.

5. The combination, with springs and auxiliary slats or base-pieces, of braces jointed to and connecting the said slats or base-pieces at the bottoms of the springs and additional braces jointed to and connecting said springs at the top, substantially as described.

6. The combination, with springs and slats or base-pieces, of extensible braces connecting said slats or base-pieces at the bottoms of the springs, substantially as described.

7. The combination of the springs, slats, or base-pieces, and extensible braces both at the tops and bottoms of the springs, substantially as described.

8. In a spring bed-bottom, an extensible brace made in parts connected by a slip-joint, substantially as described.

9. The combination, with springs, of extensible braces having slip-joints and connecting the said springs at the top, substantially as described.

10. The combination, with springs having extension-tops, of extensible slip-braces having slip-joints connecting said springs and extending under said tops, substantially as described.

11. The combination, with the elements of a twin spring, each having a series of coils forming an extension-top, of a connecting-wire bent upon itself to form a platform between said elements, substantially as described.

12. The combination, with an extension-top twin spring having a platform between the



- springs formed by bending the connection-wire, of a brace or braces extending under the said top and the said platform, substantially as described.
- 5 13. The combination, with the springs and slats or base-pieces of wire or other suitable material, of extensible slip-joint braces connecting the said slats or base-pieces, substantially as described.
- 10 14. The combination, with a wire slat or base-piece provided with bends therein, of the springs attached to the said bends, substantially as described.
- 15 15. The combination, with the springs, of wire slats carrying the springs and formed in two or more parts or base-pieces jointed to each other, substantially as described.
- 20 16. The combination, with springs and connection-braces, of table-pieces supported on the said braces between the springs, substantially as described.
- 25 17. The combination, with springs having extension-tops and connection-braces extending under said tops, of table-pieces supported by said braces between said tops and adapted to form a continuation of the latter, substantially as described.
- 30 18. A coiled-wire table-piece having hooks for attachment to the braces, substantially as described.
19. The combination, with separable slats or

base-pieces, of twin springs provided with extensible connecting-wires and having the two elements of said spring attached to different slats or base-pieces, substantially as described. 35

20. The combination of twin springs having extensible connecting-wires, base-pieces carrying said springs, and extensible braces at the tops and bottom of the spring, substantially as described. 40

21. The combination of the jointed wire slats, the springs and the extensible braces, substantially as described.

22. The extensible braces provided with six bends—that is to say, with one long and two 45 short bends on each side of the middle—substantially as described.

23. The combination, with the springs and the ordinary series of bed-slats, of a number of separable auxiliary slats or elongated base-pieces carrying the said springs, and adapted 50 to rest upon and span the spaces between the ordinary bed-slats, and to be separated more or less, according to the varying width of different beds, substantially as described. 55

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

ADDISON F. PUREFOY.

Witnesses:

GEORGE A. ISBELL,  
CHARLES SINSLEY.