

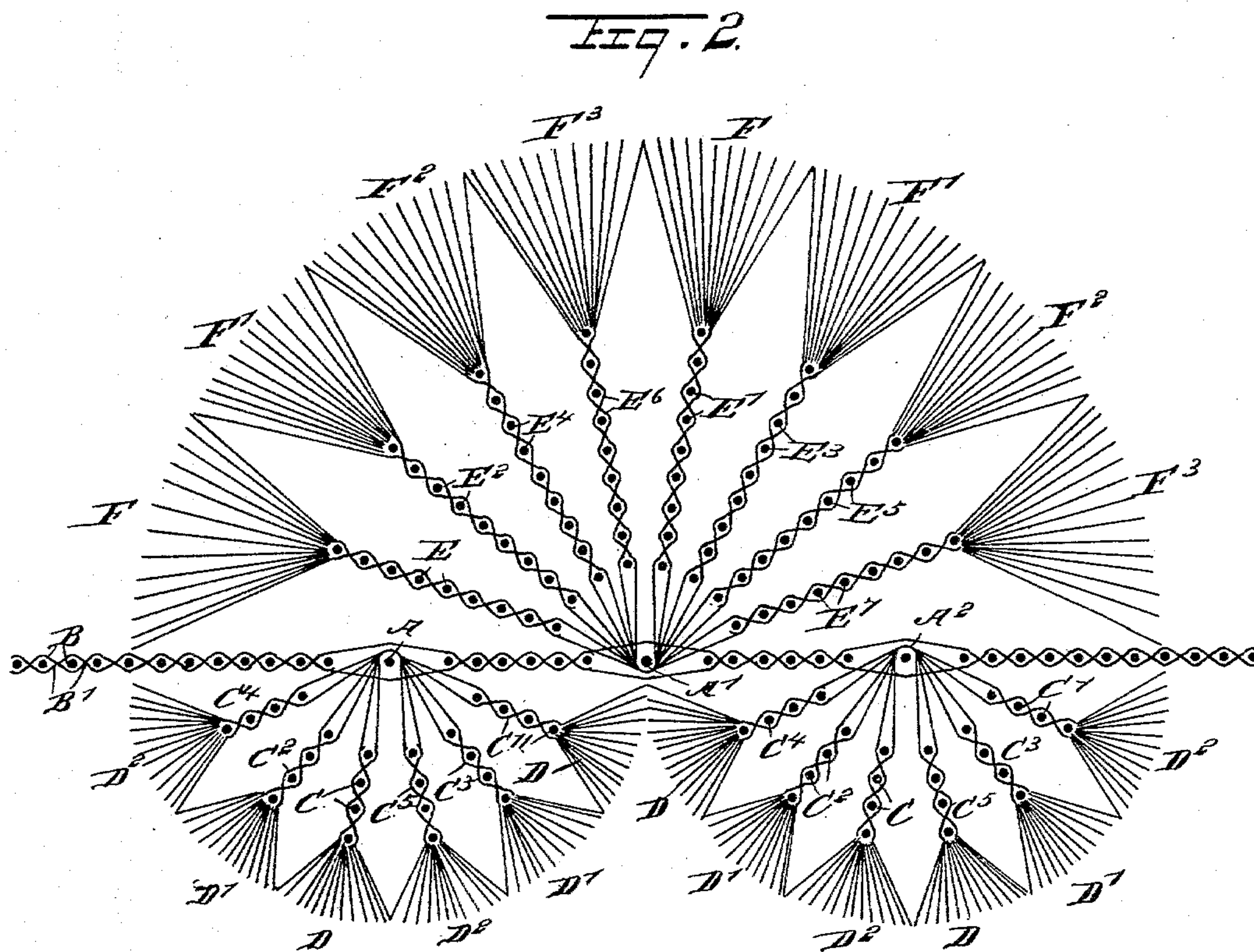
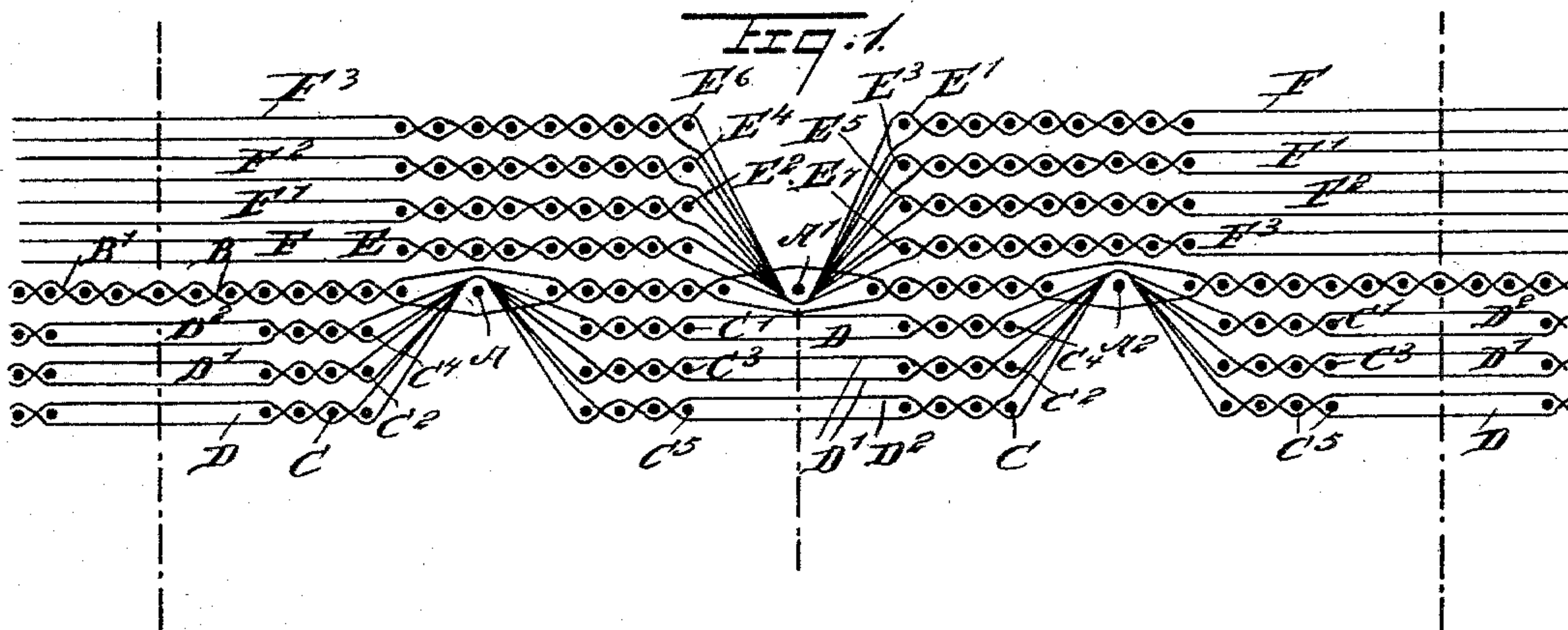
(No Model.)

4 Sheets—Sheet 1.

L. BINNS.
WOVEN CHENILLE FABRIC.

No. 559,667.

Patented May 5, 1896.



WITNESSES:

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ATTORNEYS.

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Fig. 3.

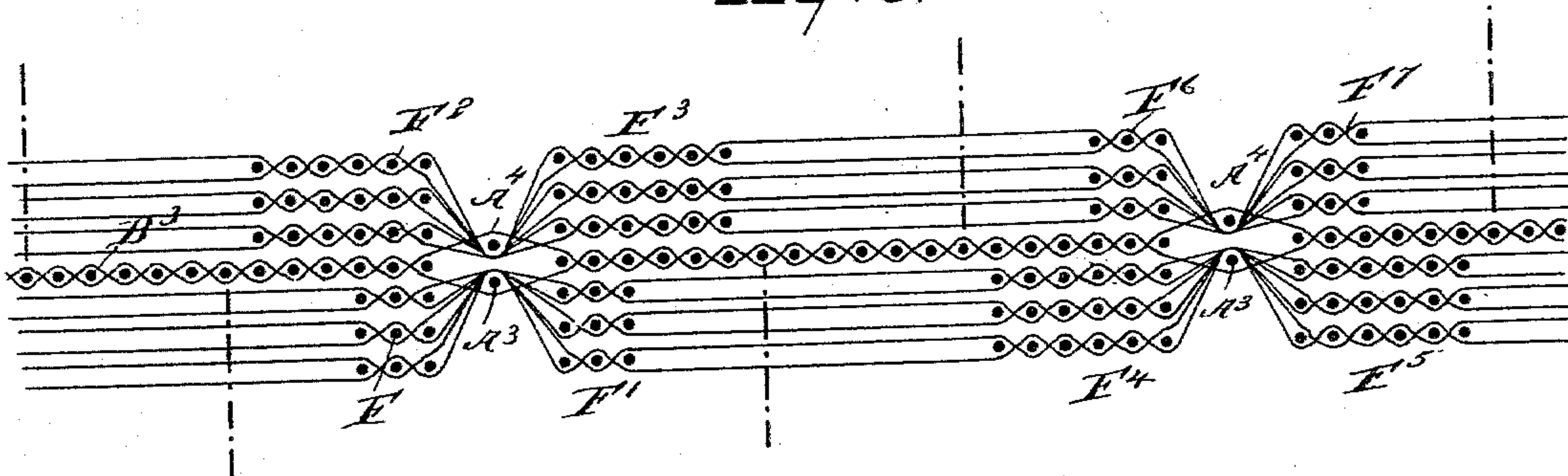


Fig. 4

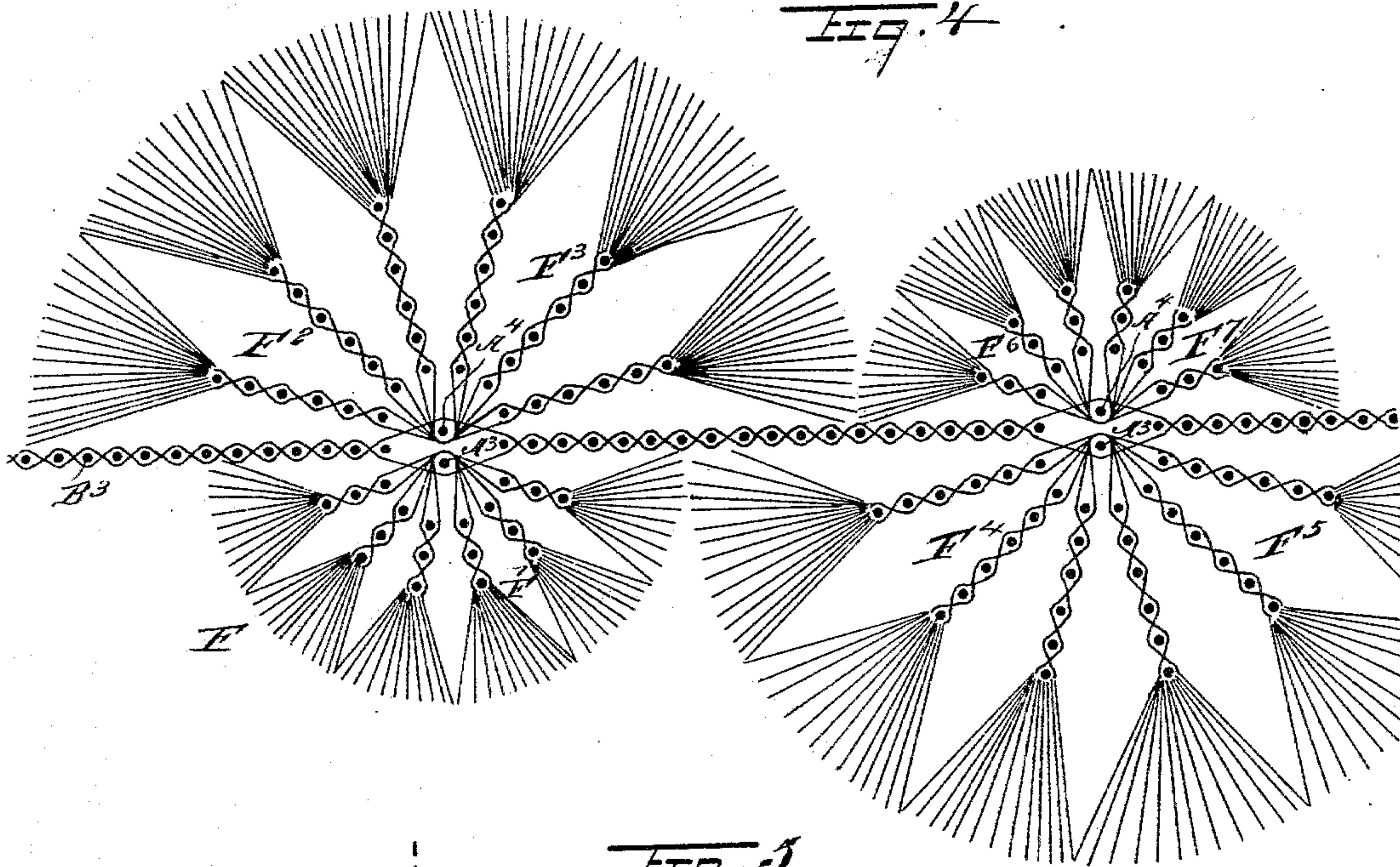
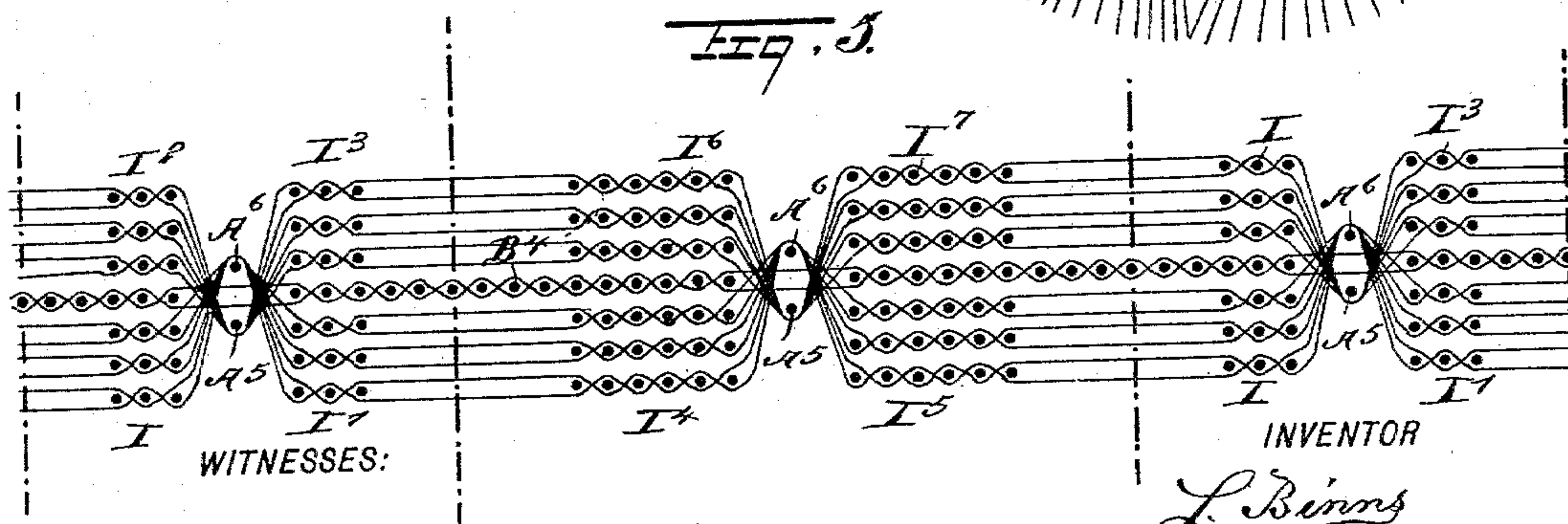


Fig. 3.



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Fig. 6.

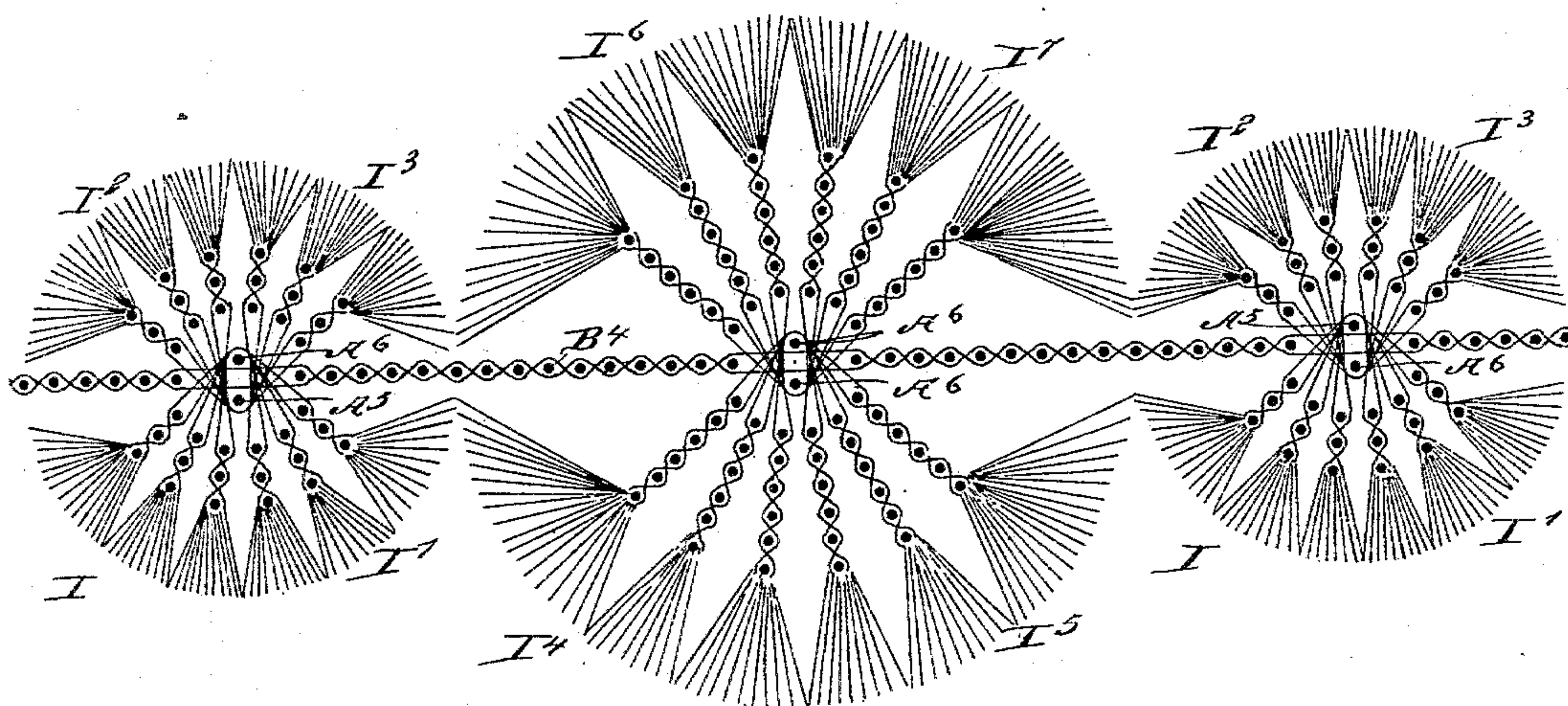


Fig. 7.

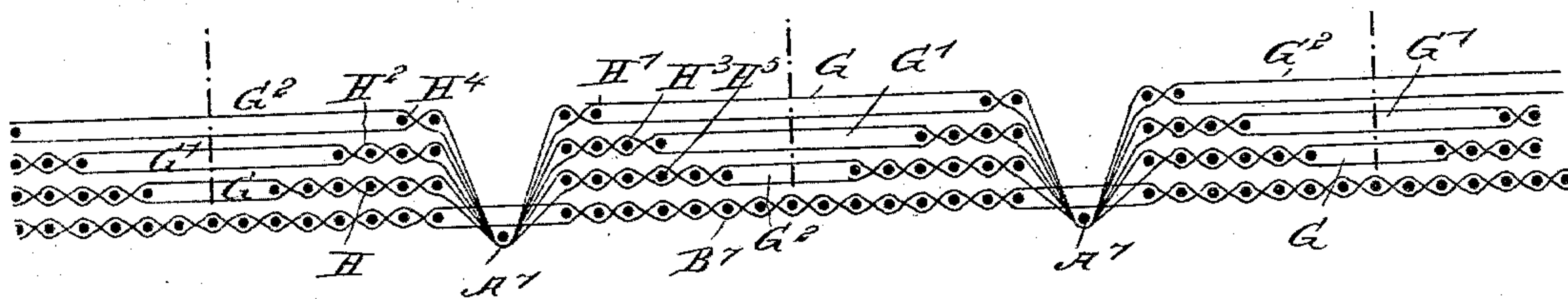
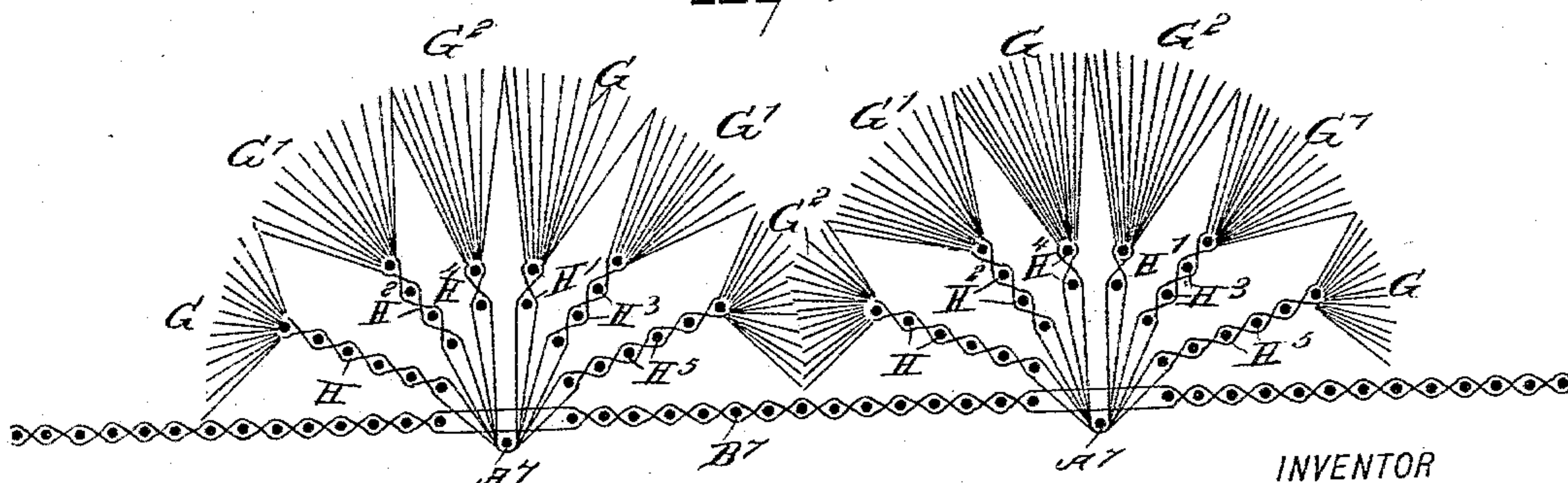


Fig. 8.



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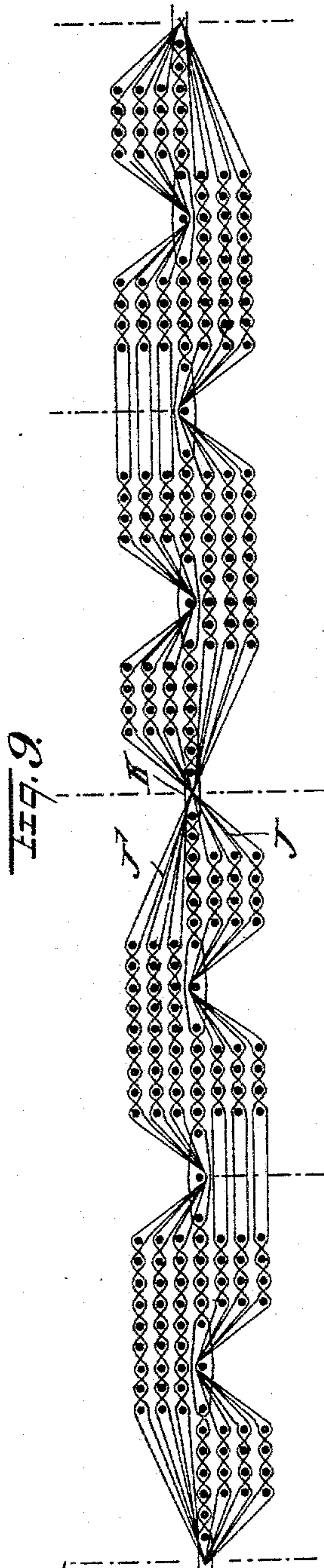
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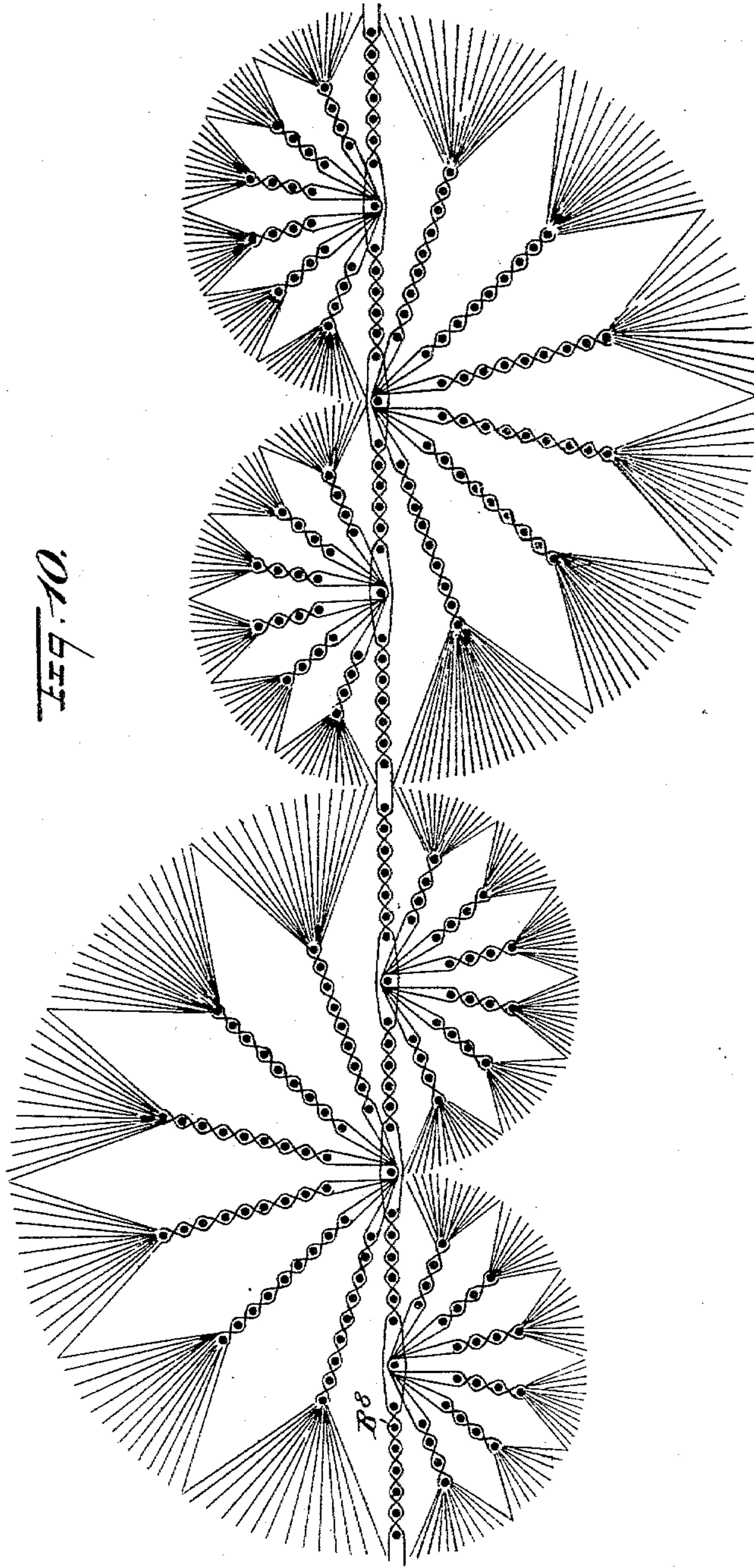
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LEEDHAM BINNS, OF PHILADELPHIA, PENNSYLVANIA.

WOVEN CHENILLE FABRIC.

SPECIFICATION forming part of Letters Patent No. 559,667, dated May 5, 1896.

Application filed January 18, 1895. Serial No. 535,348. (No specimens.)

To all whom it may concern:

Be it known that I, LEEDHAM BINNS, a subject of the Queen of Great Britain, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Woven Chenille Fabric, of which the following is a full, clear, and exact description.

The invention relates to woven chenille fabrics, such as shown and described in the Letters Patent of the United States, No. 514,809, granted to me on February 13, 1894.

The object of my present invention is to provide a new and improved chenille fabric of a highly-ornamental appearance and so woven that when the wefts are cut in the usual manner the radiating fabric portions formed thereby will be of different lengths, thus producing a novel effect.

The invention consists principally of a central web and sets of warps arranged in clusters in such a manner that one set contains a different number of warp-threads from other sets, either of the same cluster or of different clusters, the warp-threads being bound in place by wefts connected with the central web, the ends of the wefts projecting from the outermost warp-threads to form tufts.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of an uncut fabric embodying my invention, showing the arrangement with a single central warp in the web. Fig. 2 is a like view of the same as cut on opposite sides of the web and showing the finished article. Fig. 3 is a sectional side elevation of a modified form of the improvement, showing two central warps and sets of oppositely-arranged warps with the warp-threads of the sets on one side of the web differing in number from those of the sets on the opposite side of the web. Fig. 4 is a like view of the same as cut and showing the finished article. Fig. 5 is a sectional side elevation of another modified form of the improvement, showing sets of oppositely-arranged

warps with the threads alike in number in the sets of the same cluster, but varying in the number of threads relative to the sets of the next following cluster. Fig. 6 is a like view of the same as cut and showing the finished article. Fig. 7 is a sectional side elevation of another modified form of the improvement, showing the number of warp-threads varying in each set of one and the same cluster. Fig. 8 is a like view of the same as cut and showing the finished article. Fig. 9 is a sectional side elevation of another modified form of the improvement, showing the weft-threads crossing the web; and Fig. 10 is a like view of the same cut and showing the finished article.

The improved chenille fabric, as illustrated in Figs. 1 and 2, is provided with a series of central warps A, A', and A², arranged at suitable distances apart in a web B, so as to form part thereof, as will be readily understood by reference to the said figures. On one side of the central warp A and a suitable distance below the web B is arranged a set of warps C, comprising, say, four threads, and bound by the weft-threads D, which extend upwardly from the innermost warp-thread of the set of warps C to pass over the said central warp A and then to the other side thereof to bind in a second set of warps C', located directly below the web B, but in a different horizontal plane to that in which the sets of warps C are located. The two warps C and C' are thus bound by the same weft-threads D, but a suitable distance apart on the opposite sides of the warp A, below the web B, and in a different horizontal plane.

Directly above the set of warps C is arranged another set of warps C², preferably containing the same number of threads as the set of warps C, and these warps C² are bound by weft-threads D', which likewise extend upwardly and pass over the central warp A to then pass downward on the other side of the said central warp A to bind the set of warps C³, located directly below the set of warps C' and in the same horizontal plane as the warps C². Above the latter and directly below the web B is arranged a set of warps C⁴, bound in by weft-threads D², also passing over the central warp A to then pass downward on the opposite side thereof to bind in

a set of warps C^5 , located below the warps C^3 and in the same horizontal plane in which the warps C are located.

The weft-threads D , D' , and D^2 extend from the last set of warps C' C^3 C^5 under the web B and past the central warp A' to then bind the sets of warps C , C^2 , and C^4 , to extend over the third central warp-thread A^2 , and to then bind another set of warps C' C^3 C^5 , as indicated in Fig. 1. This arrangement is repeated throughout the length of the web B at the under side thereof—that is, sets of warps C C^2 C^4 and C' C^3 C^5 are bound by weft-threads D D' D^2 on central warps A and A^2 , arranged alternately with the central warps A' . A similar arrangement of warps and wefts is produced above the web B in connection with the central warps A' ; but the number of warps in each of these sets is increased relative to the number of warp-threads in the sets of warps below the web B .

As shown in Fig. 1, a set of warps E , containing, say, nine threads, is bound in by weft-threads F , which pass from the innermost warp-thread E under the central warp A' to the other side thereof, to then extend upwardly to bind in a set of warps E' , located in a different horizontal plane to the warp E .

Now by reference to Fig. 1 it will be seen that the threads in the warp E extend beyond the central warp A , and in a like manner the threads in the warp E extend beyond the central warp A^2 . Above the set of warps E is arranged a set of warps E^2 , bound in by the weft-threads F' , also passing under the central warp A' , to rise on the other side thereof to bind in a set of warps E^3 , located below the warps E' . Above the warps E^2 is arranged another set of warps E^4 , bound in by weft-threads F^2 , extending downwardly and passing under the central warp A' , to rise on the other side thereof, to bind in a set of warps E^5 , arranged under the set of warps E^3 . Another set of warps E^6 may be arranged over the set of warps E^4 and bound in by weft-threads F^3 , extending downwardly, and also passing under the central warp A' , to rise on the other side thereof and bind in a set of warps E^7 , located under the warps E^5 and directly above the web B . The weft-threads F , F' , F^2 , and F^3 , after leaving the warps E' , E^3 , E^5 , and E^7 , bind in a second set of warps E , E^2 , E^4 , and E^6 , respectively, in the manner above described, to pass over a central warp located in the web B similarly to the warp A , and then under a central warp located similarly to the warp A' . The entire fabric throughout its width is composed of such sections, each comprising sets of warps bound by wefts, as has been described, it being understood, however, that the number of warp-threads in the sections above and below the web vary in the manner described. The central warps A , A' , and A^2 are held in position in the web B by the weft-threads B' for the

central web, as will be readily understood by reference to Fig. 1. Now by cutting the weft-threads above and below the web B in the manner indicated by dotted lines in Fig. 1, a fabric is produced, as shown in Fig. 2, in which the warps C C^2 C^4 and C' C^3 C^5 radiate from the central warp A on the under side of the web B , forming a small semicircular cluster, and the sets of warps E E^2 E^4 E^6 and E' E^3 E^5 E^7 radiate from the central warp A' above the web B , forming a large semicircular cluster. From the under side of the web also radiate the sets of warps C C^2 C^4 and C' C^3 C^5 from the central warp A^2 , forming a small cluster similar to that at the warp A ; and as the number of warp-threads in the sets of warps above the web is about double that of the warp-threads in each set of warps below it the fabric has the appearance of one semicircle above the web and two semicircles below the web, the aggregate diameters of the two semicircles being equal to the diameter of the semicircle above the web. The cut ends of the wefts form tufts, so as to form the fabric desired as the cut ends of the wefts spring back to the position shown in Fig. 2 and in line with the row of warp-threads of the set they bind. It is to be understood that when the wefts are cut between two sections either above or below the web B , then the ends of the wefts projecting from the outermost warp-threads must spring back to the position described, as there is no connection with the warps of the next following section, and consequently they have no support for holding the same in the inclined position shown in Fig. 1, but must assume a radial position with the corresponding central warp A , A' , or A^2 as the center. Thus a fabric is produced having a central warp arranged in a longitudinally-extending warp and with wefts passing around the central warp, either above or below, as will be seen by reference to Fig. 2.

As illustrated in Fig. 3, the central warps A^3 and A^4 are arranged one above the other in the web B^3 instead of being located suitable distances apart, and the number of threads in the sets of warps F F' below and the warps F^2 F^3 above the web B^3 varies in the adjacent sections, so that when the binding-weft threads are cut along the dotted lines indicated in Fig. 3 a fabric will be produced, as shown in Fig. 4, in which a semicircular cluster of radially-arranged sets of warps and their binding-wefts are located opposite a similar semicircular cluster of sets of warps and their binding-wefts, but of a smaller diameter. Furthermore, alternate large and small diameter clusters or sections of such sets of warps and wefts are arranged on each side of the web B^3 by having each set of warps F^4 F^5 of the next fabric-section contain a number of threads corresponding to the threads in each set of warps F^2 F^3

above the web, and likewise the sets of warps $F^6 F^7$ above the web correspond with the number of warps in the sets $F F'$.

As illustrated in Figs. 5 and 6, the central warps A^5 and A^6 are located opposite to each other, similarly to the arrangement described relative to Fig. 3; but in this case the sets of warps $I I'$ and $I^2 I^3$ and their binding-wefts above and below the web B^4 are alike in number so far as the warp-threads in each section are concerned; but in the next or adjacent section of the fabric the number of warp-threads is increased in both sets of warps $I^4 I^5$ and $I^6 I^7$, so that a fabric is produced after cutting the binding-wefts along the dotted lines indicated in Fig. 5 in which large circular fabric parts alternate with small circular fabric parts on opposite sides of the web B^4 , as shown in Fig. 6.

As illustrated in Fig. 7, the central warp A^7 is located below the web B^7 and under it pass the binding-wefts $G, G',$ and G^2 , which bind in the sets of warps $H, H', H^2, H^3, H^4,$ and H^5 , of which the warps H and H^5 are located directly above the web B^7 , and each contains, say, six threads, while the next set of warps H^2 and H^3 is located directly above the warps H and H^5 , respectively, but contains only four warp-threads in each set. The warps H^4 and H' are arranged above the warps H^2 and H^3 , respectively, and contain but two warp-threads in each set. Now when this fabric is cut along the dotted lines indicated in Fig. 7 a finished article, as shown in Fig. 8, is produced. The number of warp-threads in each set of warps for forming a semicircular fabric-section varies, and the semicircular fabric-sections are preferably arranged on one side of the web only, as indicated in Fig. 8. In the modified form shown in Figs. 9 and 10 an article is produced similar to the one shown in Figs. 1 and 2; but in weaving the lower weft-threads J at the end of a section extend upwardly through the central web B^8 at K to remain at the top of the web B^8 for the next following section, and the upper weft-threads J' at the end of the section pass downward and through the web B^8 , and likewise at the point K . The wefts J' then remain below the web B^8 for the next section. The number of threads in the wefts J and J' is preferably alike; but otherwise the weave is exactly like the one shown in Figs. 1 and 2, so that further description is not deemed necessary.

By the arrangement described a varied effect in color can be produced by having, say, the wefts J green and the wefts J' blue, so that the green and blue tufts are arranged alternately on both the upper and lower sides of the finished article. The weft-threads J and J' are cut at the point K to form the sections, as indicated in Figs. 9 and 10.

It will be understood that in all the various forms of construction shown there is displayed the common novel feature consisting in the

provision of tufts of different lengths, which are produced by having sets of warps containing different numbers of warp-threads. It will be seen that a great variety of effects is obtainable, according as to whether the sets of one cluster have all the same number of warps, the sets with different numbers of warps then being in other clusters, Figs. 1 to 6, 9 and 10, or the sets containing different numbers of warps are found in one and the same cluster, Figs. 7 and 8. In either case, however, the sets of warps are arranged in clusters, and some sets contain a different number of warp-threads from other sets, whether of the same or of other clusters.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. As a new article of manufacture, a woven chenille fabric, comprising a web, sets of warps arranged laterally of the web, sundry of the said sets of warps constituting clusters containing a different number of warps from those of the other clusters, and wefts binding the said warps, substantially as described.

2. As a new article of manufacture, a woven chenille fabric, comprising a web, sets of warps arranged laterally of the web, said sets of warps containing different numbers of warps and wefts binding the said warps as described.

3. As a new article of manufacture, a chenille strand comprising a longitudinal strand-body, sets of warps radiating at intervals from the body, sundry of the said sets containing a different number of warps from the other sets, and wefts binding the said warps and projecting beyond the outermost sets of warps to form tufts, substantially as described.

4. As a new article of manufacture, a woven chenille fabric comprising a web, central warps arranged in the said web, sets of warps arranged in clusters on opposite sides of the said central warps and on opposite sides of the said web, and binding-wefts for the said sets of warps, the said binding-wefts also engaging the central warps the number of warp-threads in the sets of warps of one cluster varying relatively to the next cluster, substantially as shown and described.

5. As a new article of manufacture, a woven chenille fabric comprising a web, central warps within the web and arranged opposite each other, sets of warps at each side of said web for each central warp and varying in number with the number of warp-threads in the set of warps, at the next central warp and binding-wefts for each set of warps to bind the latter with its corresponding central warp, substantially as shown and described.

6. As a new article of manufacture, a woven chenille fabric comprising a web, a central warp at the web, sets of warps and binding-wefts for the same and the said central warp, the outer ends of the binding-wefts for each set of warps being cut to form tufts, the lat-

ter being at varying distances from the central warp, substantially as shown and described.

7. A chenille fabric composed of a web, sets
5 of warps radiating therefrom and forming clusters, some of the sets of warps containing a greater number of warps than others,

whether of the same or different clusters and the binding-wefts, substantially as set forth.

LEEDHAM BINNS.

Witnesses:

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C. SEDGWICK.