

(No Model.)

2 Sheets—Sheet 1.

A. C. FLETCHER.
SPRING BACK BOOK.

No. 446,858.

Patented Feb. 24, 1891.

Fig. 1.

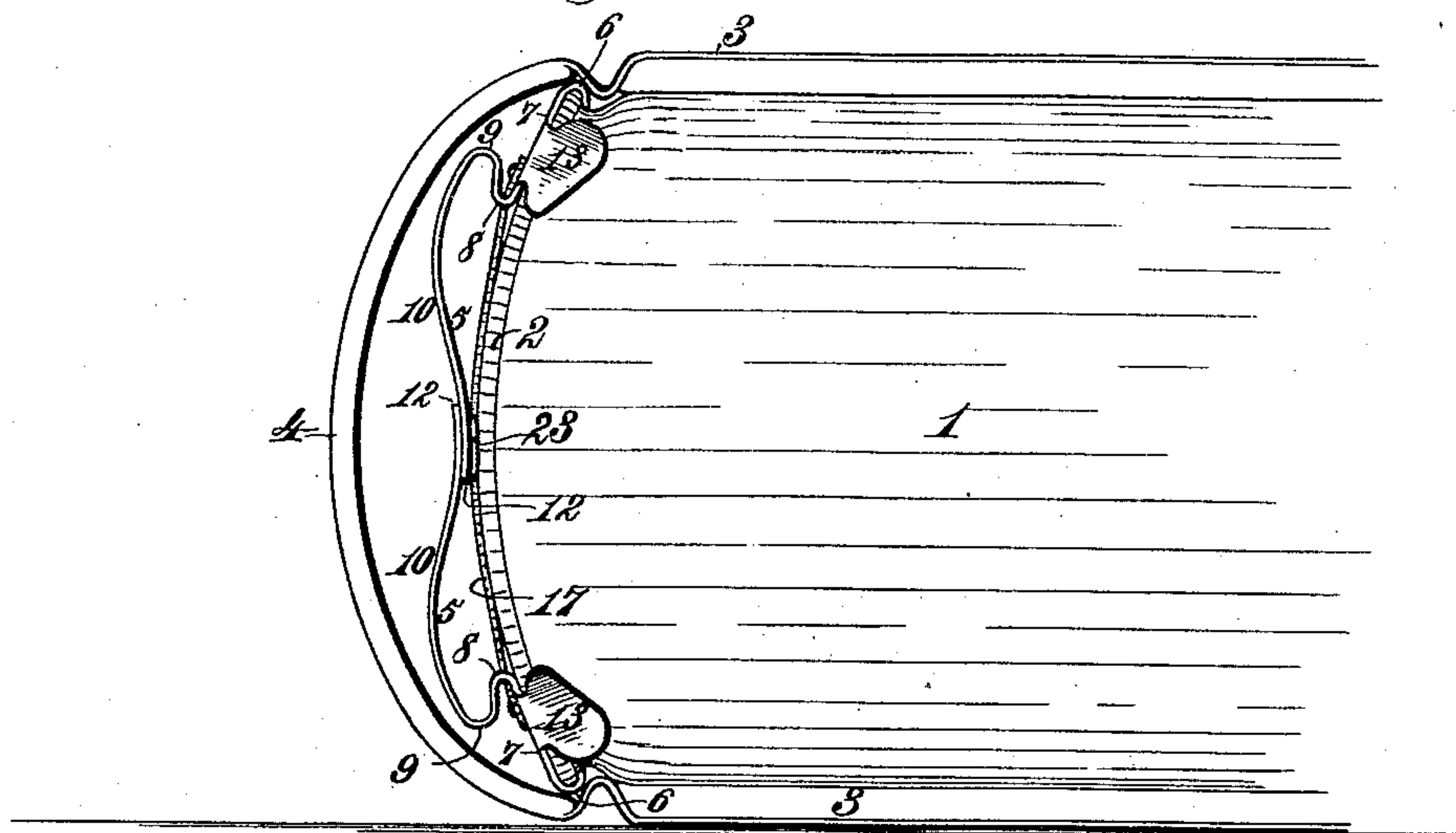
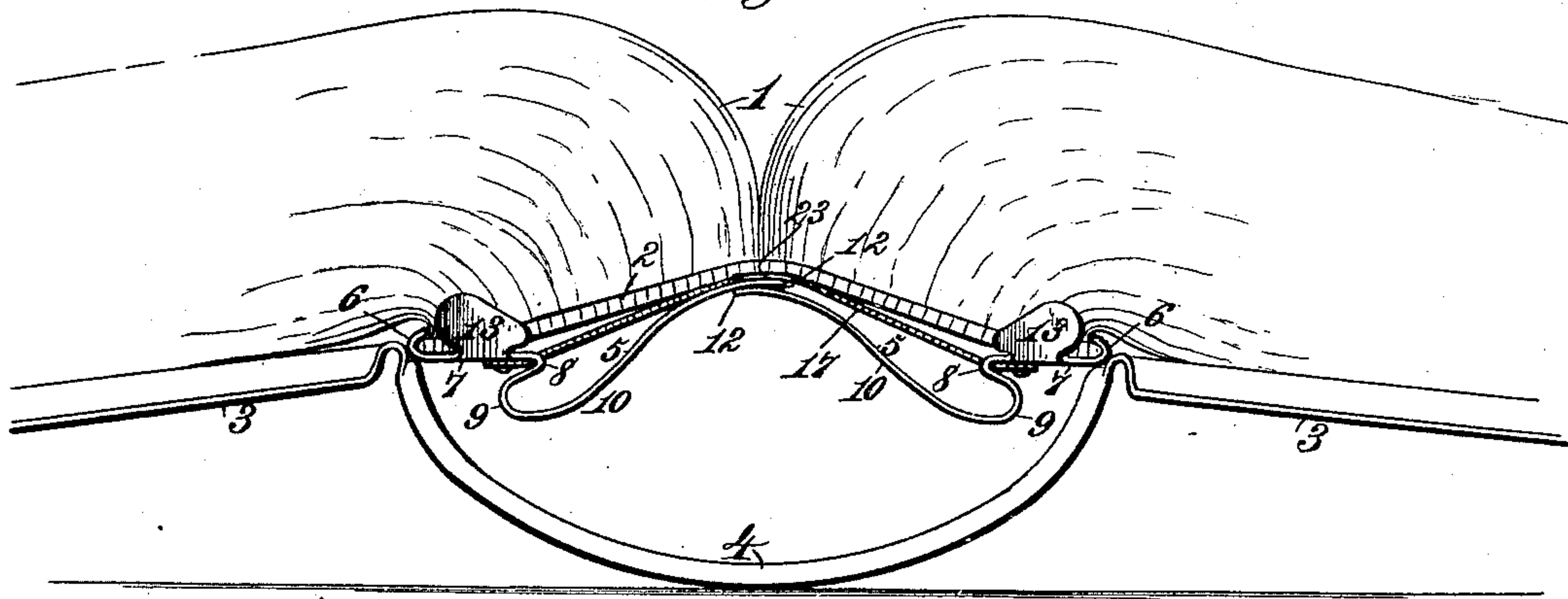


Fig. 2.



Witnesses:
Phat Smith,
W. W. Lea.

Inventor:
Addison C. Fletcher.
By
James L. Norris.
Atty.

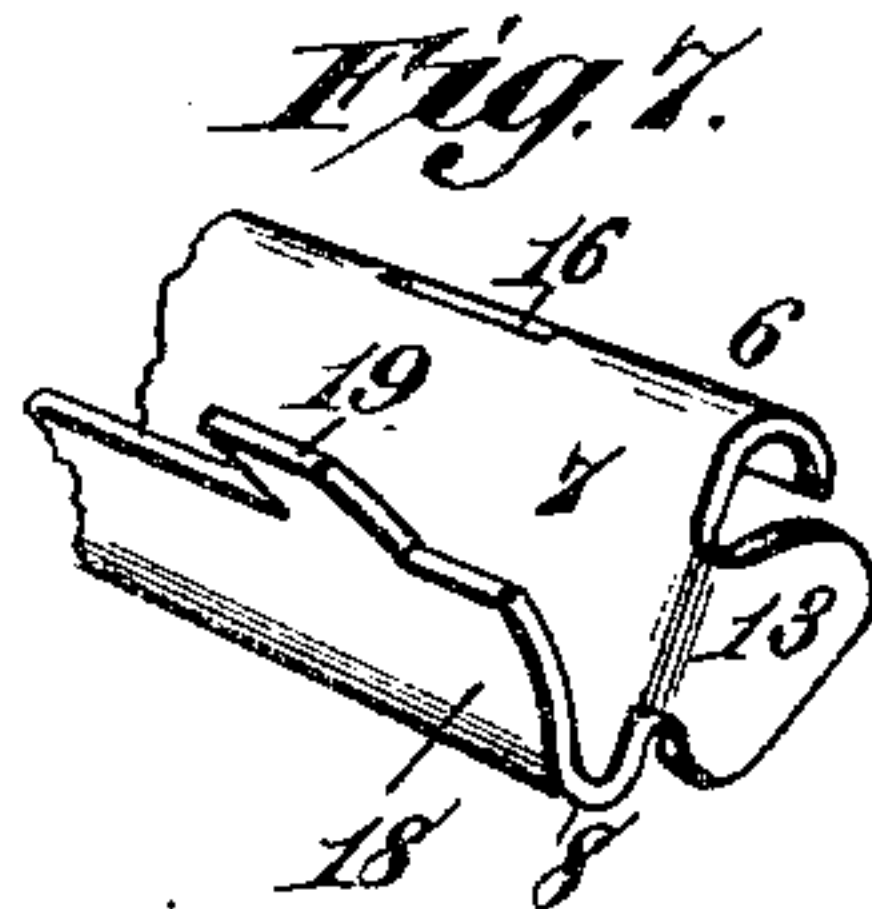
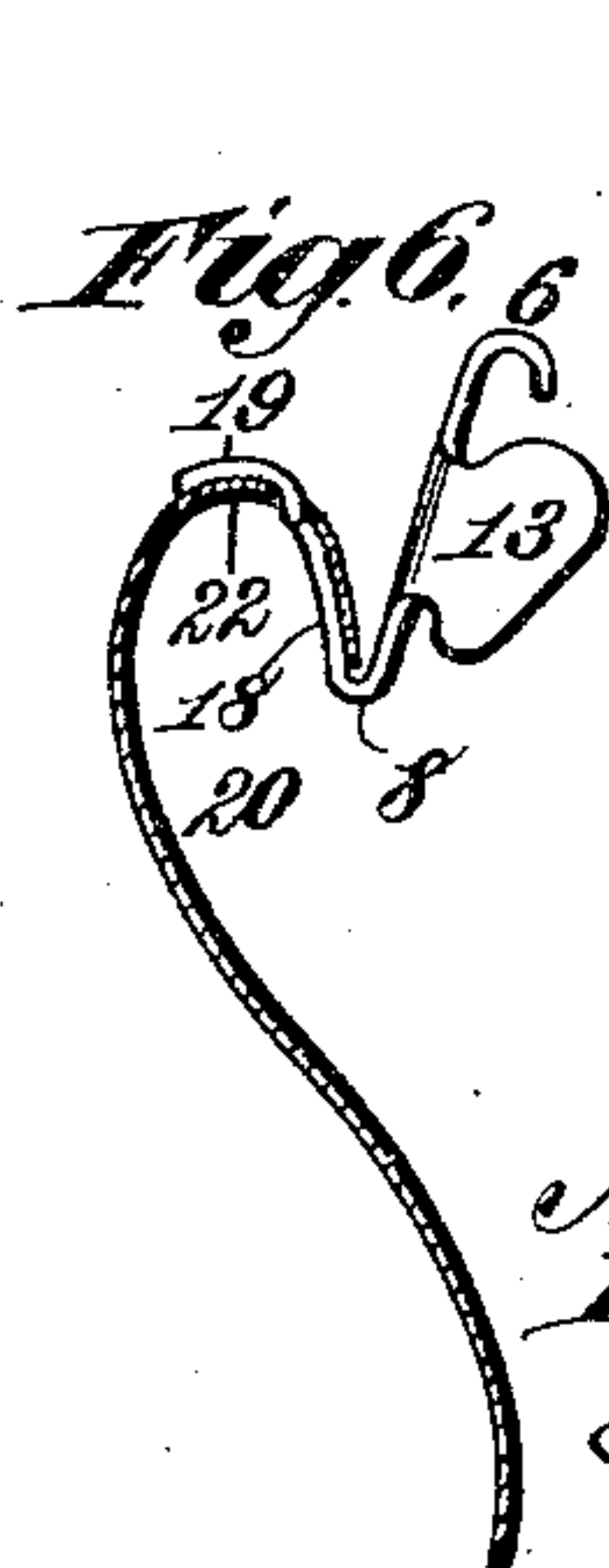
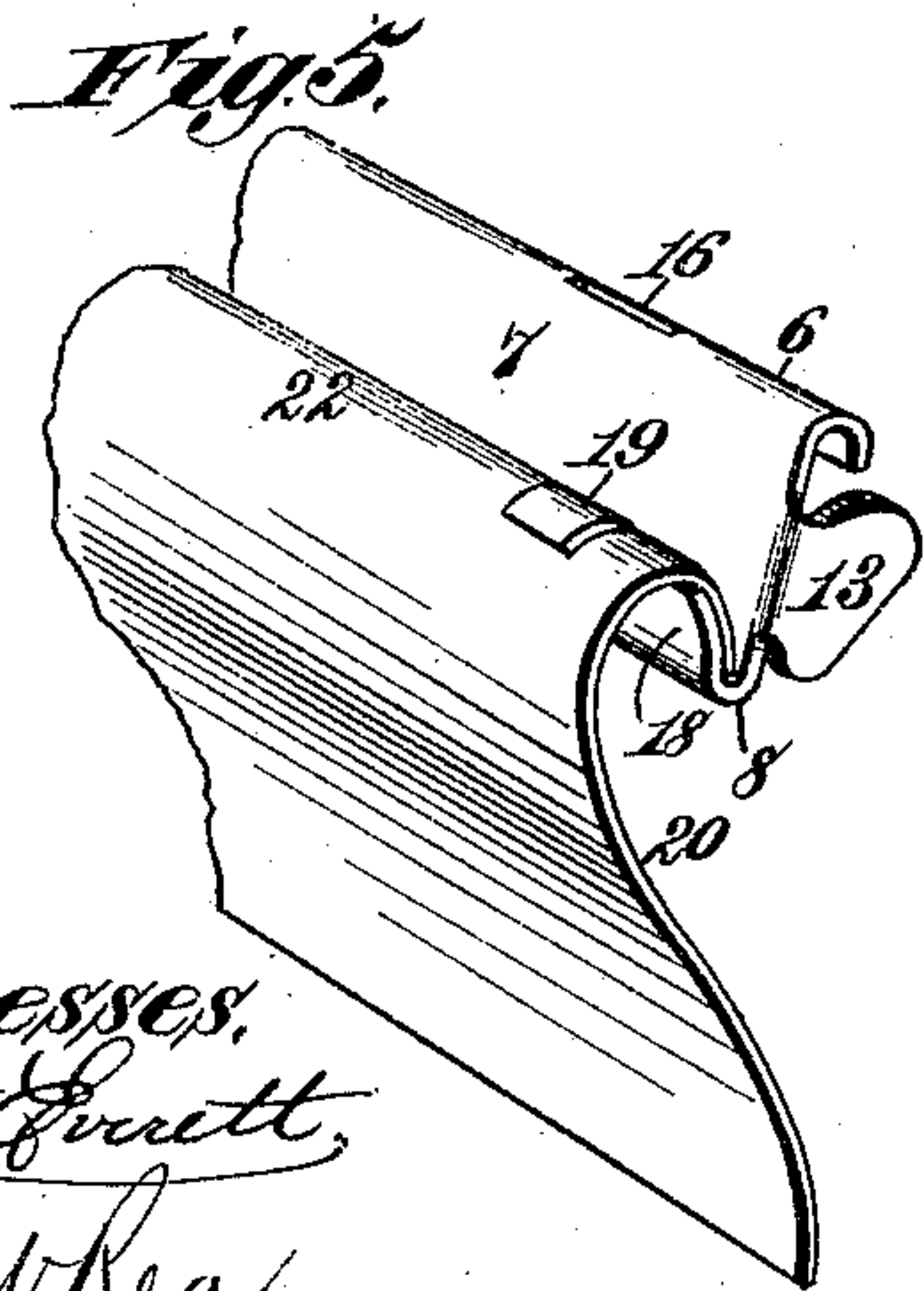
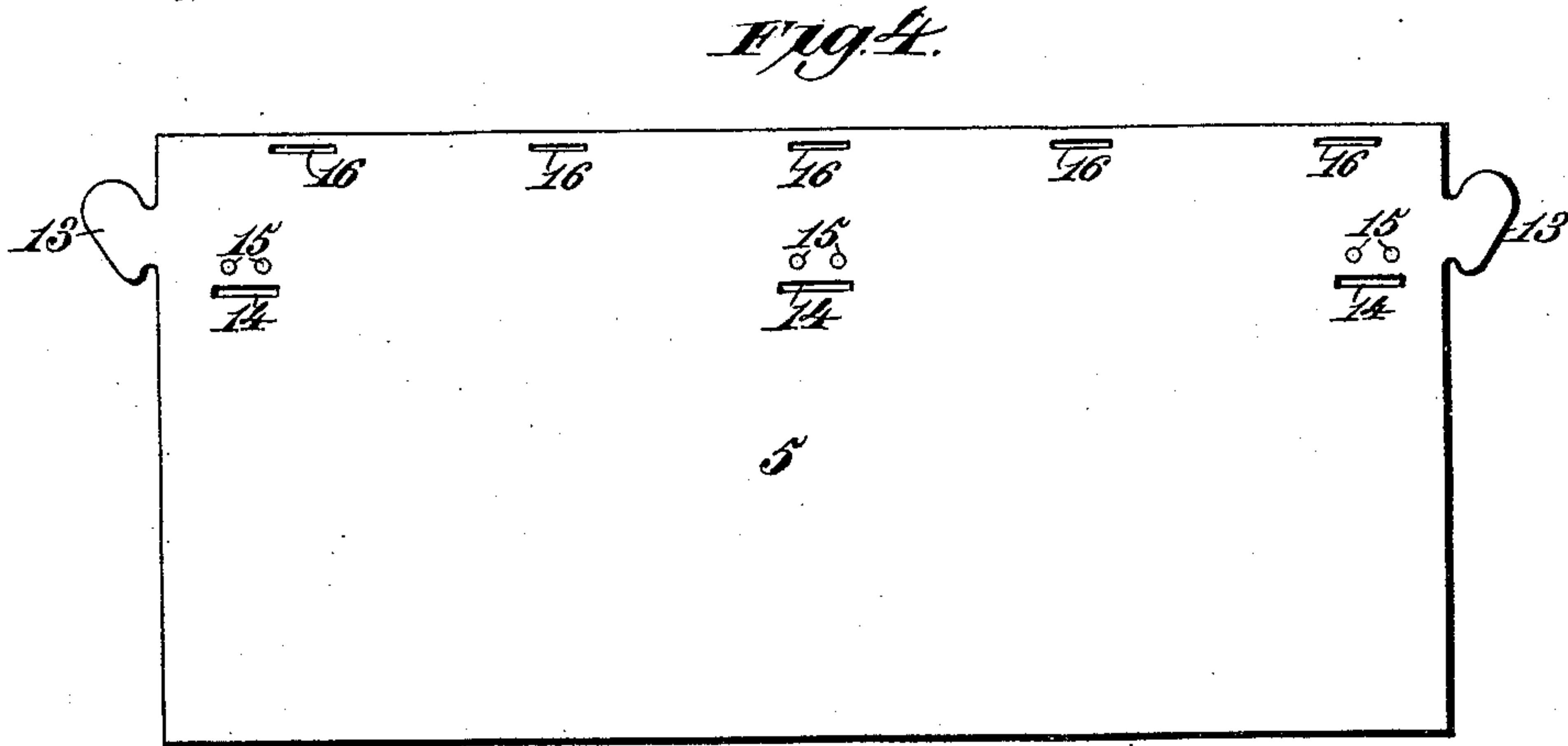
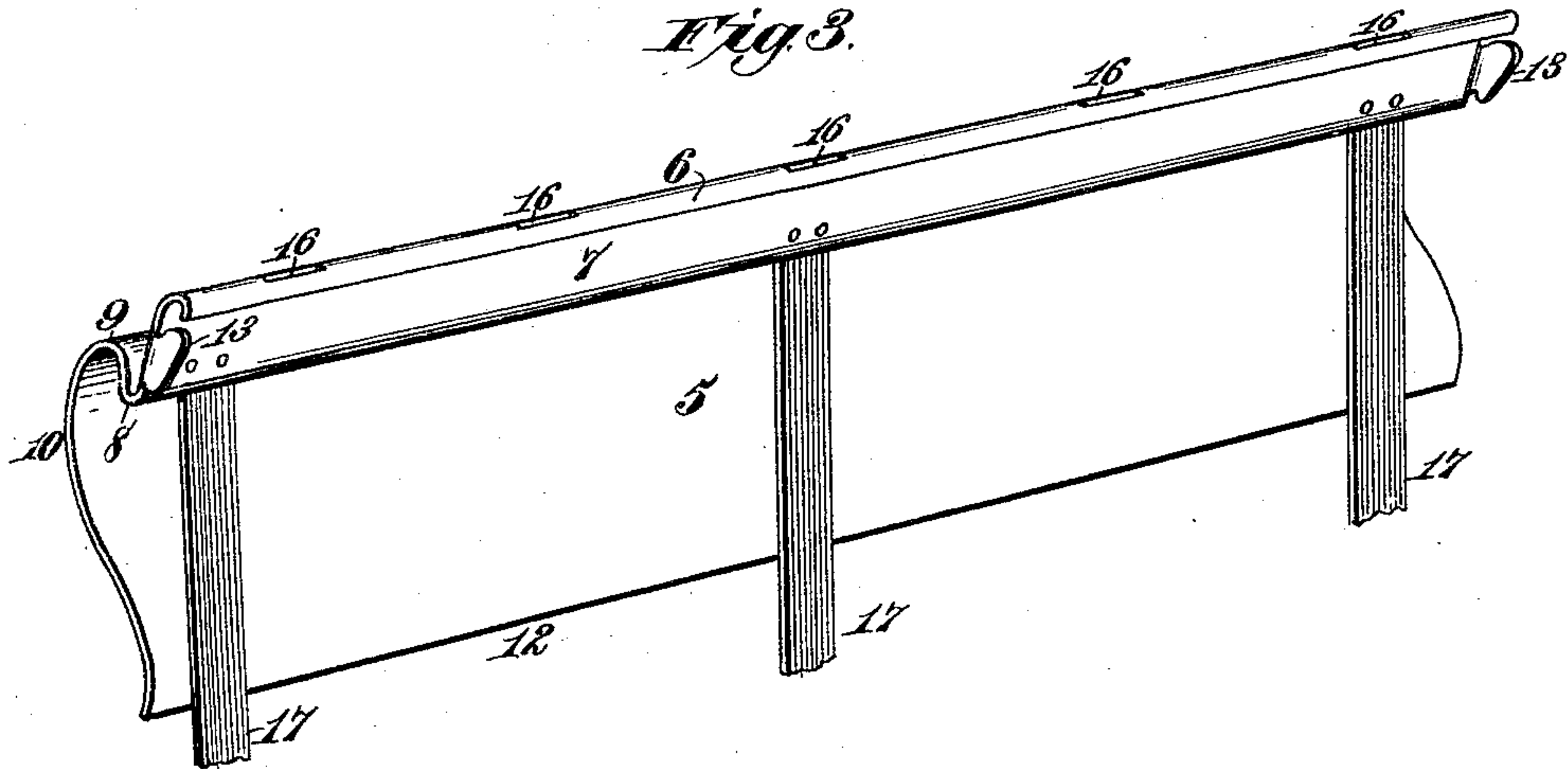
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2 Sheets—Sheet 2.

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Phat Smith,
Geo. W. Rea.

Inventor
Addison C. Fletcher.
By James L. Norris,
Atty.

UNITED STATES PATENT OFFICE.

ADDISON C. FLETCHER, OF NEW YORK, N. Y.

SPRING-BACK BOOK.

SPECIFICATION forming part of Letters Patent No. 446,858, dated February 24, 1891.

Application filed October 10, 1890. Serial No. 367,694. (No model.)

To all whom it may concern:

Be it known that I, ADDISON C. FLETCHER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Spring-Back Books, of which the following is a specification.

My present invention relates to the manufacture of bound volumes of books, and especially to books of large size, such as account-books, books of entry for various purposes, dictionaries and encyclopedias, and other volumes of considerable size.

It is the purpose of my invention to combine with bound volumes of books of these or of other substantially similar description means whereby the book when opened shall remain or tend to remain open at any given point without imposing any unusual strain upon the binding and without the necessity of imposing weights upon the open portions of the book.

It is one purpose of my invention, also, to combine with the backing of the volume a series of elastic devices whereby the volume may be repeatedly opened and closed without injury to the backing or to the signatures attached thereto, and whereby, also, the backing which lies within the spring-back of the book and to which the signatures are attached shall be normally turned or arched upward upon opening the book and supported by an elastic pressure, thus enabling the leaves to assume and preserve a natural position.

It is my purpose, also, to combine with the spring plates or devices auxiliary springs which shall assist the action of the former; to provide means whereby longitudinal displacement of the spring-plates shall be prevented; to so construct said spring-plates as to afford convenient means in combination therewith, whereby the securing-tapes may be applied; to simplify and cheapen the manufacture of the spring-plates or other devices; to improve the operation of the same, and to provide a ready, simple, and durable attachment therefor.

To these ends my invention consists in the several novel features of construction and new combinations of parts hereinafter fully

set forth, and then definitely pointed out in the claims following this specification, the same constituting an improvement upon the invention shown and described in Letters Patent of the United States, granted to me the 29th day of April, 1890, No. 426,790.

To enable others skilled in the art to make and use my said invention, I will proceed to describe the same in detail, reference being had to the accompanying drawings, wherein—

Figure 1 is an end elevation of a bound volume embodying my invention, the book being shown as closed. Fig. 2 is a similar elevation showing the volume opened. Fig. 3 is a detail perspective view showing one member of the metallic spring with the auxiliary spring tapes or strips connected therewith. Fig. 4 is a face view of the blank from which said spring-plate is formed. Fig. 5 is a partial or broken perspective view showing a modified construction. Fig. 6 is a transverse section of the modified device shown in Fig. 5. Fig. 7 is a partial perspective of the clip, by which a connection is afforded between the backing and the spring-plate.

In the said drawings, the reference-numeral 1 denotes the body of the bound volume, composed, as usual, of a series of "signatures," as they are ordinarily termed, stitched or otherwise fastened together and united to a flexible backing 2, which forms the mechanical attachment for said body portion.

The numeral 3 denotes the covers of the book, and the numeral 4 the spring-back or outer backing connected to said covers.

Referring now to Figs. 3 and 4, the reference-numeral 5 designates a plate formed of elastic metal and having a length nearly or substantially equal to that of the book itself. One edge of this plate is bent throughout the length of said edge to form a hook or shoulder 6, which is of such form and size that it may hook over or engage with one of the longer edges of the backing 2 in the manner shown in Figs. 1 and 2. From this point of engagement the plate extends in a comparatively narrow strip 7 to a point where it is abruptly bent upon itself, forming an edge or bend 8 parallel with the hook or shoulder 6, and from said point or edge 8 it is bent to form a spring-curve 9, its main portion being

brought into a gentle reverse curve 10, terminating in a free edge 12. At each end of the strip or section 7 is formed an integral lug 13, which is bent or turned to form substantially

5 right angles with the strip.
In the edge of the strip or section 7, which lies opposite the hook or shoulder 6 of the plate 5, are formed any suitable number of slots 14, and in close proximity thereto and
10 parallel therewith I form openings 15. The functions of these slots and openings will be shown hereinafter. In or substantially in the line of bend forming the hook or shoulder 6 I also cut a series of slots 16, for a pur-
15 pose which will presently be explained.

The spring-plates having the construction set forth are formed in duplicate, two being used upon each volume. In the binding thereof the hooks or shoulders 6 are caught
20 over the edges of the backing 2, and the free edges of the plates are lapped one upon the other upon the central portion of the backing. The inelastic tapes or strings, which unite the covers of the book in the ordinary
25 manner, are passed through the slots 16 in each plate, their ends being buried in the rearward edges of the cover or attached in any other suitable manner.

Within the slots 14 I insert the ends of
30 elastic tapes 17, which are drawn through said slots far enough to permit their attachment to the plate by means of rivets inserted in the openings 15. These tapes pass over the lapped edges of the spring-plates be-
35 tween the same and the backing 2, and at both ends they are secured to the said plates in the manner set forth.

The spring-plates being arranged and attached in the manner described, and the
40 spring-back 4 being formed with a somewhat greater convexity than usual in order to give said spring-plates free space within which to lie and move, it will be readily apparent that when the volume is closed, as in Fig. 1, the
45 elastic tension of said plates will be relaxed and their free edges will ride or slip one upon the other to a limited extent at the same time that they remain in contact with and exert a slight pressure against the back-
50 ing 2. When the book is thrown open, however, the leverage exerted upon the hooks or shoulders 6 throws the free edges of said plates against the backing, curving it upward, as shown in Fig. 2, and thereby exert-
55 ing an elastic sustaining action upon the backing, thus giving a more complete parting to the separated portions, causing the book to remain open at any point, promoting the convenience of the user, preserving the
60 binding, and rendering the book far more durable. The lugs 13 at the ends of the spring-plates prevent longitudinal displacement of the plates, and thus dispense with the necessity of employing pointed hooks or
65 other forms of attaching devices which might pierce the binding and in time destroy the same.

I have shown the plates in Figs. 3 and 4 formed of a single or integral piece of metal; but as a matter of economy and to promote
70 the convenience of manufacture I may form said plates each in two parts, as shown in Figs. 5, 6, and 7, in which the reference-numeral 6 denotes the shoulder or hook forming part of the strip 7, while the numeral 18
75 designates a longitudinal portion of said strip, which is bent to form the angle 8. (Shown in Figs. 1, 2, and 3.) The portion 18 is of less width than the strip 7, and upon its edge are formed at suitable intervals a series of tongues
80 19. This portion of the plate may be formed of any suitable metal, elasticity not being essential.

The numeral 20 denotes the spring-plate proper, or that portion thereof in which a
85 suitable degree of elasticity necessarily resides. One edge of this plate is bent into a curve 22, and a little below or on one side of the highest point or apex of the curve are formed slots adapted to receive the tongues
90 19, which are bent to overlap the outer face of the curve, while the edge of the plate lies within the angle formed by the strip 7 and the bent portion 18 thereof. This forms a
95 secure and stable attachment, which is practically as strong and durable as if the plate were formed in a single piece. It materially diminishes the expense of manufacture also, since that portion of the plate shown in Fig.
100 7 may be formed of a cheaper metal, which may be bent readily into the desired shape. The slots 14 and 16 and the rivet-openings 15 adjacent to the slots 14 will be formed in this modified form of plate in the manner already
105 set forth, and the lugs 13 will likewise be formed upon the ends of the strip 7 in the manners shown. I may divide the straight continuous shoulder or hook 6 into two or more parts, each having a straight extended edge which engages the backing without mutilat-
110 ing or piercing the same. I may also introduce a wear-plate 23 in one or more parts or sections between the flexible backing 2 and the free edge of the sustaining-plate, which rides upon the backing, in order to avoid the
115 wear of the metal upon the softer material of which the backing is composed.

What I claim is—

1. The combination, with a bound volume, of independent elastic sustaining-plates in-
120 terposed between the spring-back and the backing, said plates being provided with hooks or shoulders having extended straight edges and adapted to hook over the edges of the backing, substantially as described. 125

2. The combination, with a bound volume, of elastic sustaining-plates arranged between the spring-back and the backing, said plates being provided with hooks or shoulders hav-
130 ing straight extended edges engaging the edges of the backing and having their free edges lapped one upon the other and lying against said backing, lugs being formed upon the ends of said plates and at right angles

thereto, or substantially so, to prevent longitudinal displacement, substantially as described.

3. The combination, with a bound volume, of sustaining elastic plates having hooks or shoulders provided with straight extended edges engaging the edges of the backing, against which the free overlapping edges of said plates rest, each of the latter being provided with slots or openings to permit the passage of the binding tapes or strips, substantially as described.

4. The combination, with a bound volume, of two similar sustaining-plates having straight-edged extended shoulders adapted to hook over the edges of the backing while their free overlapping edges sustain said backing, and a series of elastic tapes secured at their ends to said plates and lying between the same and the backing, substantially as described.

5. The combination, with a bound volume, of elastic sustaining-plates, each having a straight-edged extended shoulder adapted to hook over one edge of the backing, said shoulder forming part of a flat longitudinal strip, from which the plate is curved backward and then toward the center of the backing, against which the overlapping edges of both plates rest, said plates being provided with slots or openings at the angles of their shoulders to permit the passage of the binding tapes or strings, and elastic tapes secured at their ends to the respective plates and lying under suitable tension between the said plates and the backing, substantially as described.

6. The combination, with a bound volume, of elastic sustaining-plates, each formed in two parts, one of said parts being of elastic metal, while the other part is of inelastic material, the two being united, substantially as described.

7. The combination, with a bound volume, of elastic sustaining-plates consisting of inelastic portions provided with shoulders hooking over the edges of the backing and having lugs upon their ends preventing longitudinal displacement, said parts being united with elastic plates by means of tongues on the former passing through slots in the latter, said elastic plates being lapped at their free edges which rest against the backing, and elastic tapes connected with the inelastic parts and lying between the same and the backing, substantially as described.

8. The combination, with a bound volume, of independent elastic sustaining-plates interposed between the backing and the spring-back of the volume, said plates being provided with hooks or shoulders having extended straight edges adapted to engage the edges of the backing, while their free overlapping edges rest against said backing, and a wear-plate formed in one or more parts and interposed between the backing and the sustaining-plate adjacent thereto, substantially as described.

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

ADDISON C. FLETCHER.

Witnesses:

JAMES L. NORRIS,

JAMES A. RUTHERFORD.