

(No Model.)

2 Sheets—Sheet 1.

C. T. ROSENTHAL.
TEMPORARY BINDER.

No. 507,388.

Patented Oct. 24, 1893.

Fig. 1

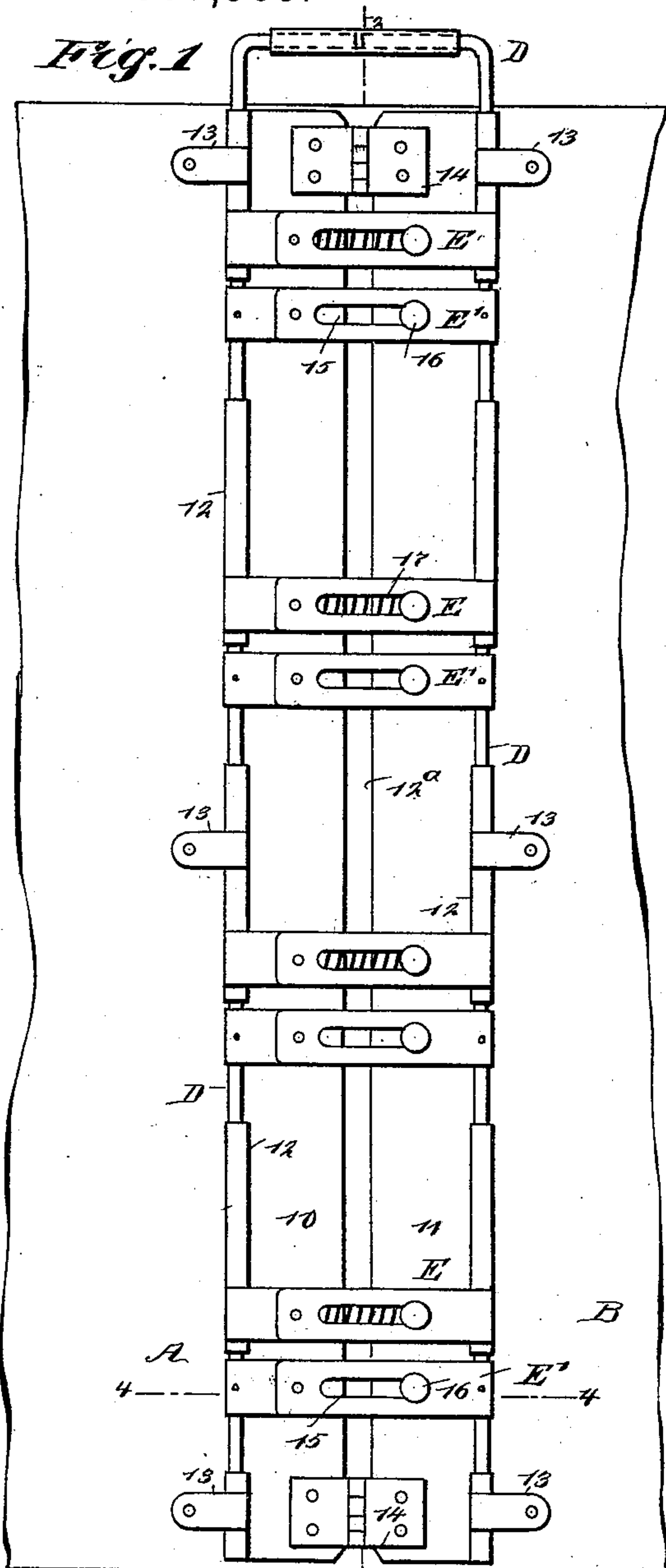


Fig. 2

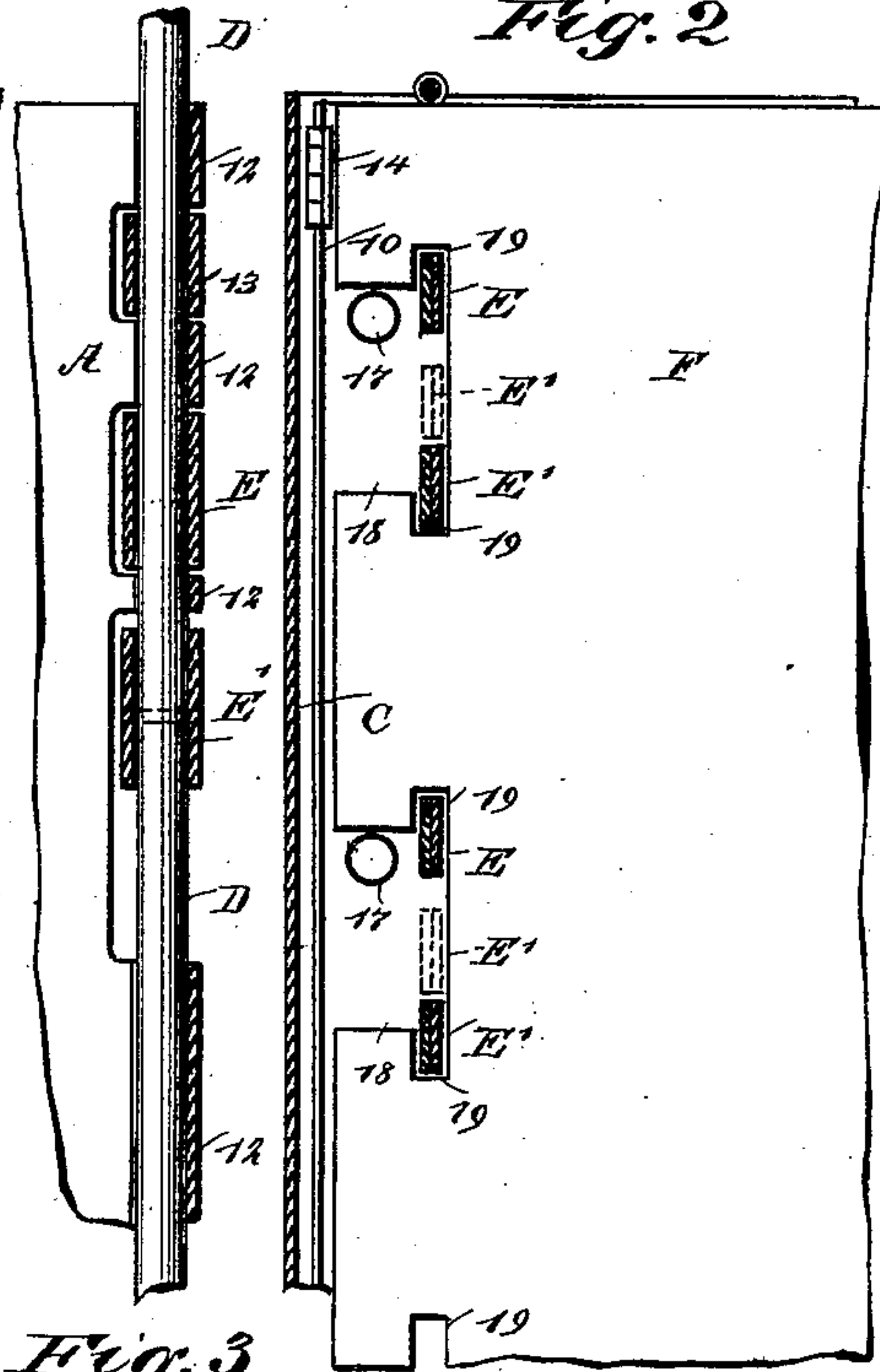


Fig. 3

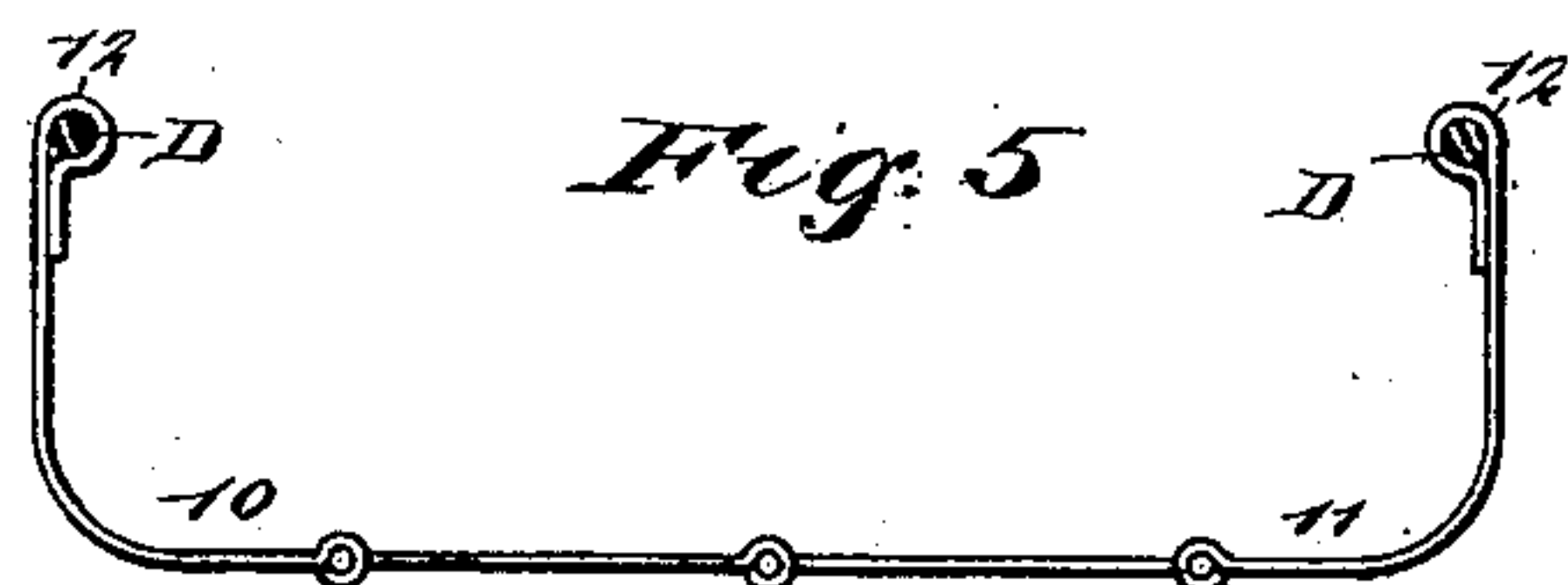


Fig. 6

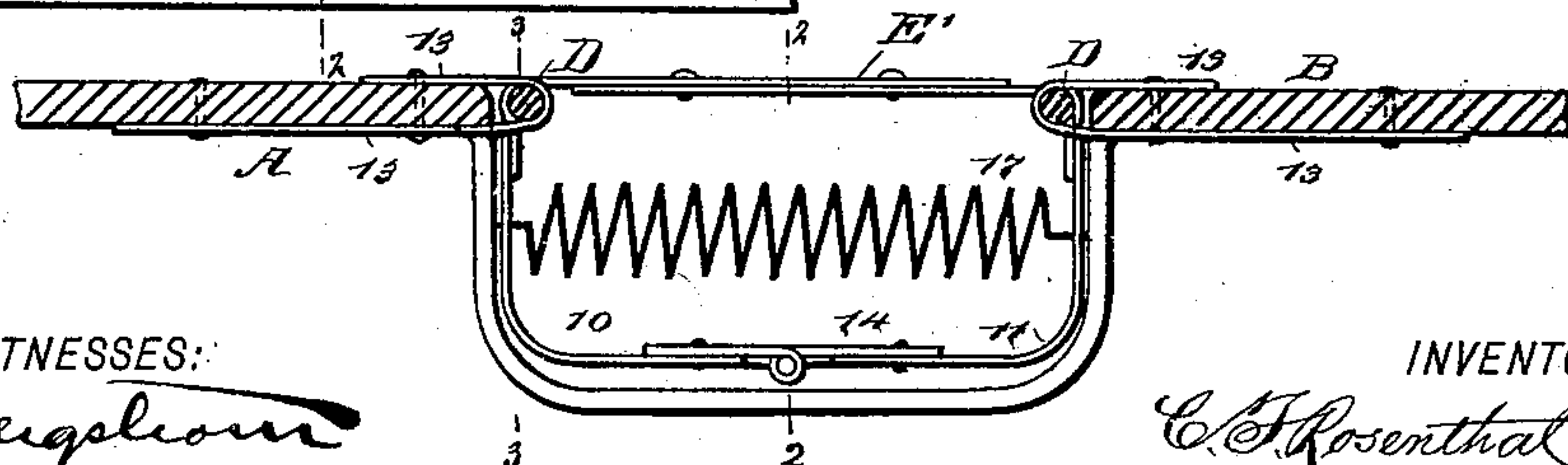


Fig. 4

WITNESSES:
J. A. Beeghly
L. Sedgwick

INVENTOR
C. T. Rosenthal
BY Munn & Co.
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

C. T. ROSENTHAL.
TEMPORARY BINDER.

No. 507,388.

Patented Oct. 24, 1893.

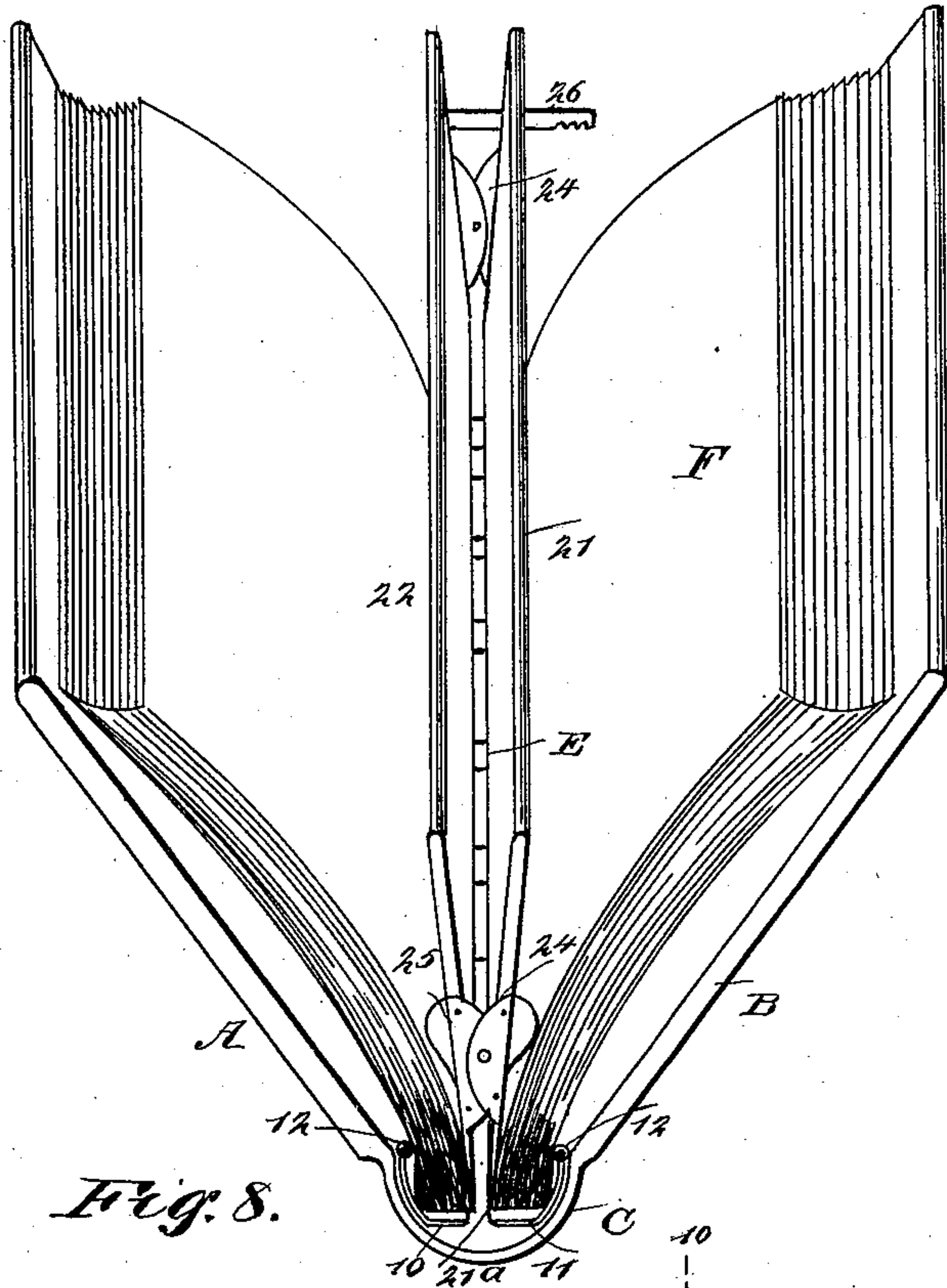


Fig. 7.

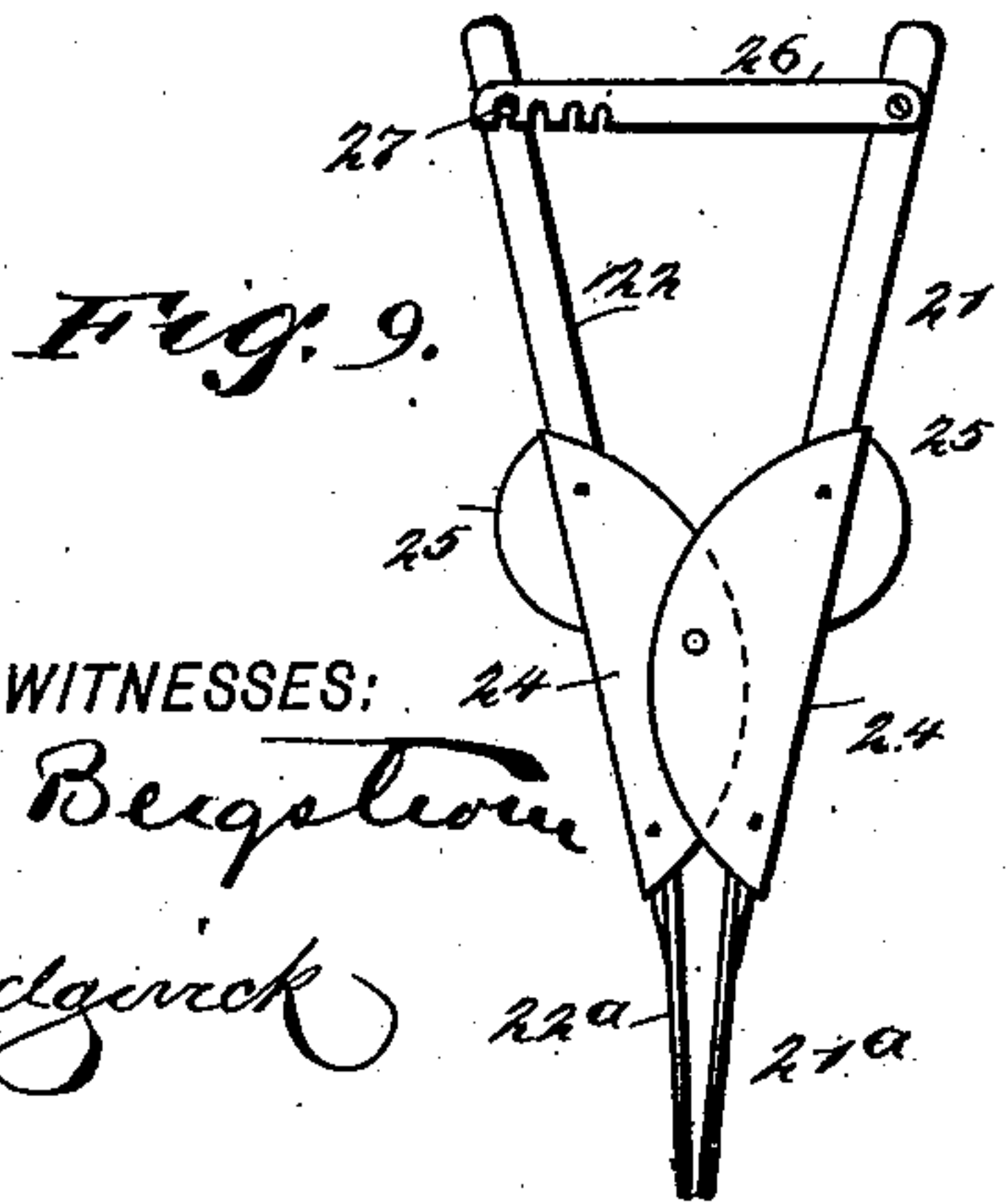
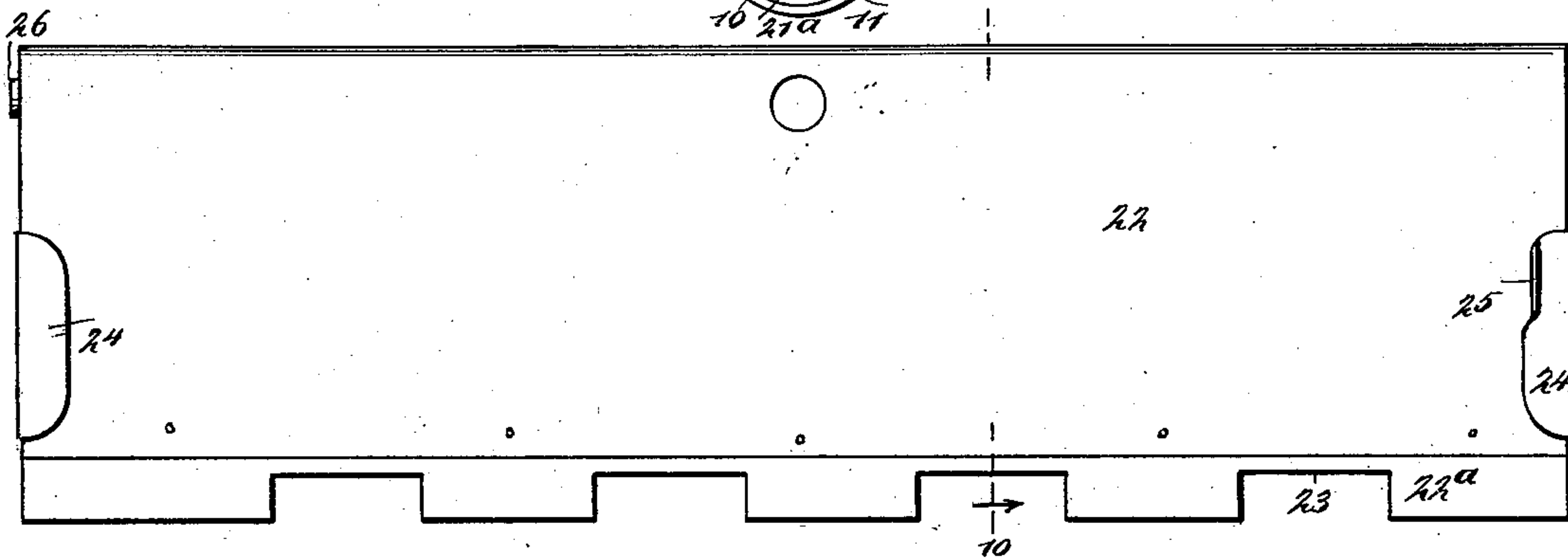


Fig. 9.

WITNESSES:

J. A. Bergstrom

C. Sedgwick

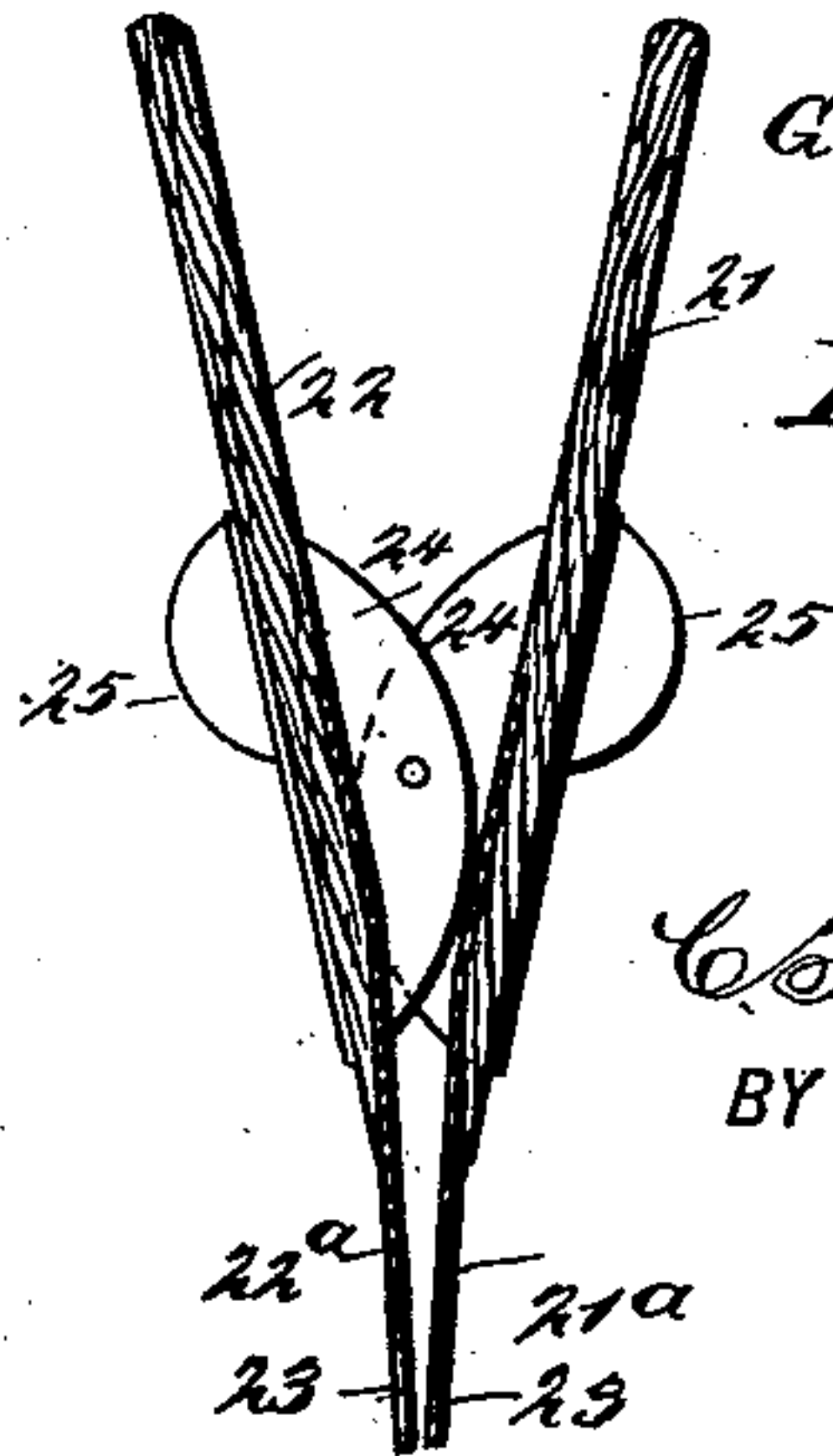


Fig. 10.

INVENTOR

C. F. Rosenthal

BT Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES T. ROSENTHAL, OF BATESVILLE, ARKANSAS.

TEMPORARY BINDER.

SPECIFICATION forming part of Letters Patent No. 507,388, dated October 24, 1893.

Application filed March 9, 1893. Serial No. 465,287. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. ROSENTHAL, of Batesville, in the county of Independence and State of Arkansas, have invented a new and useful Improvement in Temporary Binders, of which the following is a full, clear, and exact description.

My invention relates to an improvement in the construction of books, and especially to an improvement in the binding of books, and it has for its object to provide a means whereby any number of leaves may be introduced into and bound between the covers of a book, or whereby any number of leaves may be readily removed without injury to the leaves and without disturbing the leaves adjacent to those to be displaced.

Another object of the invention is to provide a binding capable of manipulation in the above named manner, which will be simple, durable and economic in its character, and in addition to the cover and devices for holding the leaves between the cover, it is the object of the invention to provide a device which used in conjunction with the said parts will enable the leaves to be expeditiously and readily removed from between the covers.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

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

Figure 1 is a plan view of a portion of the covers of a book and the binding apparatus to be carried by the covers. Fig. 2 is a partial vertical and longitudinal section through the covers and the binding apparatus, the section being taken practically on the lines 2—2 in Figs. 1 and 4. Fig. 3 is a partial vertical and longitudinal section taken essentially on the line 3—3 of Fig. 4. Fig. 4 is a section taken essentially on the line 4—4 of Fig. 1, and Figs. 5 and 6 are detail views of modifications in the construction of the binding apparatus. Fig. 7 is a perspective view of a book bound in accordance with my invention, and illustrates the application of the device which is applied to the binding to fa-

cilitate the withdrawal of leaves. Fig. 8 is a side elevation of the expander shown in Fig. 7 in connection with the book. Fig. 9 is an end view of the expander; and Fig. 10 is a vertical transverse section through the same on the line 10—10 in Fig. 8.

In carrying out the invention the covers A and B of the book are connected by the usual concaved back C. Within the concaved back, adjacent to the inner edges of the cover, the binding device constituting the main feature of my invention is located. This binding device comprises two angular strips 10 and 11 of metal, which may be termed body strips, and these angular strips are adapted to extend practically from top to bottom of the concave back section of the cover. The horizontal members of the strips extend transversely across the concave back section, as shown in Fig. 4, and preferably the said members are of such length that a space is created between the horizontal members of the two strips when the strips are placed in position. The vertical members of the strips or plates extend outward from within the concaved section of the cover, and the outer edges of the vertical members of the plates are essentially flush with and are located adjacent to the inner edges of the covers A and B; and what may be termed the outer edges of the vertical members of the plates 10 and 11, are provided with sleeves 12, formed either integral therewith or attached thereto, the sleeves being of different lengths and located at different distances apart.

A draw bar D, is used in connection with the binding plates 10 and 11, and this draw bar is preferably made of substantially U-shape, the body portion being located at the top of the book, while the members of the draw bar are passed through the sleeves 12 of the binding plates or body sections of the binding device, and the members of the bar have free or sliding movement in the said sleeves. The draw bar is preferably made in two pieces connected at the body portion by a sleeve or tube, thus admitting of the bar being increased in width to accommodate a greater or less number of leaves, and also to receive the device by means of which the leaves are removed or introduced.

The binding or body plates 10 and 11 may

be attached to the covers in any suitable or approved manner. Ordinarily, however, at the top, bottom and central portions of the plates tie strips 13, are located, which strips
 5 are loosely passed around the members of the draw bar between the two sleeves 12, the sleeves fitting somewhat close to the strips, and the strips after being carried around the members of the bar have one of their ends fastened by rivets or other equivalent fastening
 10 devices upon the inner faces of the covers, while the other end is carried through the back portion of the covers and is secured to the outer face thereof, as shown in Fig. 4. The
 15 outer attachment may be made an ornamental one, or the outer portions of the tie strips may be so embedded in the covers as not to be visible. The two body or binding plates have their horizontal members connected at top
 20 and bottom preferably by hinges 14, in order that the back may be bent at the center, and insuring also a proper return of the binding plates when the back is restored to its normal position either open or closed.

25 The binding device is completed by the addition of binding straps arranged in pairs and extending transversely across the tie or binding plates, and these binding straps are designated respectively as E and E'. One
 30 binding strap of each pair is adapted to remain stationary, while the other binding strap is adapted to have movement to and from the stationary one, the movement being given to all the movable straps simultaneously by
 35 imparting sliding movement to the draw bar D. The pairs of binding strips are arranged at predetermined intervals apart, one pair, for example, being located near the top of the book cover, another pair near the bottom,
 40 and one or more pairs are placed intermediate of the upper and lower ones. The upper binding strap of each pair is securely held between the sleeves 12, the member of the draw bar having sliding movement in the
 45 ends of the stationary straps, as the said portions of the straps have eyes formed therein, or are equivalently shaped, while the sliding straps are attached at their ends to the members of the draw bar D, by means of rivets or
 50 in any other approved manner; and a sufficient space is made to intervene the sleeves between which the sliding plates are located, to permit a predetermined movement of the said sliding straps or plates. All of the
 55 straps are preferably made in two or more sections of an elastic material, the sections having a sliding connection, and this connection may be effected as shown in Fig. 1 of the drawings, in which the two sections of
 60 the strap overlap one another, and the sections are provided with slots 15 and guide pins 16 passing through the slots, while in the event the back of the book is sprung outward for any cause whatsoever, or the inner
 65 edges of the covers are forced apart, the concave back of the book, and consequently the binding straps, will be restored to their nor-

mal position the moment that such pressure is removed from the covers, by connecting the vertical members of the tie or binding
 70 plates 10 and 11, preferably beneath the stationary straps E, through the medium of springs 17.

The binding straps are made of elastic material, in order that when the book is opened
 75 the straps will bend upward to allow the leaves to lie flatter than they otherwise would. By reason of the sectional construction of the binding strips, a greater or less quantity of leaves may be bound as occasion may de-
 80 mand. If, however, the book is to be very large, the binding straps may be provided with a number of slots 15 and a corresponding number of guide pins 16 to insure a proper movement of the sections. The binding
 85 straps as shown in Fig. 4, are preferably straight, and when the book is made exceedingly large, as shown in Fig. 5, the binding or tie plates 10 and 11 may be made in two or more pivotally connected or hinged sec-
 90 tions.

In Fig. 3 I have illustrated the manner in which the draw bar passes through the sleeves 12 of the body or tie plates 10 and 11, and likewise the manner in which the binding
 95 straps are held in relation to the draw bar.

Each leaf F to be bound in the cover, as shown in Fig. 2, is provided with recesses 18 in its inner edge, or the edge that is to enter the concave section of the cover; and the
 100 rear wall of each recess 18 at its junction with the side wall is under-cut or counter recessed, as shown at 19 in the said Fig. 2, giving somewhat of a T character to the said recesses 18. The recesses correspond in number and loca-
 105 tion to the number and location of the binding straps, as each recess is adapted to receive a stationary and a sliding binding strap.

In the operation of binding a set of leaves, the draw bar D is drawn upward or outward,
 110 whereupon the sliding binding straps will be carried quite close to the stationary ones, as shown in Fig. 1, and in Fig. 2 this position of the sliding straps is shown in dotted lines. The leaves may now be placed in the back or
 115 concave of the book cover, and each recess will receive a pair of binding straps. The leaves are drawn downward until the stationary binding straps enter the upper extensions 19 of the recesses 18; and when a suffi-
 120 cient quantity of leaves have been placed in the book the draw bar is forced downward, whereupon the shifting or movable binding straps will be carried downward to their lowermost position, and at that time will be
 125 forced into the lower extensions of the leaf recesses 18, as shown in positive lines in Fig. 2, and the leaves can not be withdrawn. Any particular leaf, however, may be taken out and another inserted by simply drawing out-
 130 ward the draw bar and carrying upward and drawing outward the leaf to be removed, and inserting in the back and carrying downward the leaf to be introduced; and after a leaf

has been withdrawn or has been introduced, as the case may be, the draw bar is carried downward to its normal position. A number of leaves may be introduced at any time or removed at any time, and in order to facilitate the removal of a leaf or leaves, and also to insure at the same time that none of the other leaves shall be disturbed, I have invented what may be termed an expansion device, shown in Figs. 7, 8, 9 and 10. This expanding device, or expander, comprises preferably two body boards 21 and 22, having attached to their lower ends so as to be practically flush with their inner faces, downwardly-extending plates 21^a and 22^a, and these plates are provided with transversely aligning recesses 23, the recesses in the plates being so located that when the expander is forced between the leaves of a book the recesses 23 will receive the binding straps of the book. The body boards 21 and 22 of the expander are pivotally connected at one end below their centers ordinarily through the medium of ears 24, placed at these points; and one set of ears is provided with outwardly-extending lips 25, which serve as guides for the introduction of the expanding device into the binding portion of the book, as the said leaves are at that time brought into engagement with either the top or bottom edges of the leaves.

At one end of the expansion device a toothed latch bar 26, is pivotally attached preferably at the center; and the spaces between the teeth of the latch are adapted to receive a pin 27, located upon the opposite body board, as shown in Fig. 9. I desire it to be distinctly understood that although the expander is made of wooden body sections 21 and 22 and metal lower sections 21^a and 22^a, if in practice it is found desirable the entire device may be made of metal or other approved material.

In the operation of the expander, after the draw bar D, has been carried outward, bringing the sliding binding straps in position to admit of the withdrawal of the leaves, the book is partially opened, as shown in Fig. 7, and supported in that position in any approved manner. The lower ends of the expander are then brought into engagement with each other, giving to the entire device in cross section a V-shape; and in this manner the lower portion of the expanding device is forced between the leaves and to an engagement with the binding devices of the cover, the binding straps entering the spaces or recesses 23 of the expander, after which, by drawing the upper edges of the body of the expander in direction of each other, the leaves at each side of the inner end of the expander are crowded in opposite directions, and when a sufficient space has been created to receive the number of leaves to be introduced, the latch 26, is brought into action to hold the expander in that position, and the operator at that time is free to insert and fas-

ten the extra leaves in the cover, which is done in the manner heretofore described.

When a number of leaves are to be removed, the expander is carried downward at each side of the leaves to be detached, after such leaves have been bunched, and the expander is then operated in the manner above specified.

It will thus be observed that when a binder constructed as has been described is employed, leaves may not only be expeditiously and conveniently placed within a cover and bound therein, but any one leaf, or any number of leaves may be removed from the binding in an expeditious and convenient manner without in the slightest degree interfering with the leaves that are to remain.

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

1. In a binder for books, pamphlets, &c., bearings attached to opposite sides of the central or concave back section of the cover, rods held to slide in the bearings, and binding straps arranged in pairs, one strap of each pair being rigidly fastened to the bearings and the other strap of each pair being attached to the rods and actuated thereby, as and for the purpose set forth.

2. In a device for binding the leaves of books, pamphlets and like objects, the combination, with a cover and bearings attached to opposite longitudinal edges of the central concave or back section of the cover, of a rod having members sliding in the said bearings, and binding straps arranged in sets, the straps being constructed in adjustable sections, one strap of a set being rigid and the other strap movable and actuated by the rod, as and for the purpose specified.

3. In a device for binding the leaves of books, pamphlets, &c., the combination, with a cover, bearings located at opposite side edges of the central concave or back section of the cover, and a rod provided with members having sliding movement in the bearings, of straps extending across the said concave or back cover section, the said straps being arranged in sets, one strap of a set being stationary and the other capable of sliding movement, having connection with the members of the rod, and leaves provided with recesses in their inner edges, the recesses being adapted to receive the sets of straps, as and for the purpose specified.

4. In a device for binding the leaves of a book, pamphlet, or like device, the combination, with a cover and bearings attached to opposite side edges of the central or back section connecting the cover sections, and a rod provided with members having sliding movement in the bearings, of straps constructed in sliding sections arranged in pairs, one strap of a pair being rigidly connected with the bearings and the other strap being capable of sliding movement and attached to the members of the rod, and leaves provided with

recesses in their inner edges to receive the said straps, the said recesses being somewhat T-shaped, as and for the purpose set forth.

5. In a device for binding the leaves of books, pamphlets, &c., bearings adapted to be attached within the back or concaved section of the book cover, straps connecting the bearings, sundry of the straps being stationary and others movable, and devices, substantially as shown and described, for carrying the movable straps to and from the stationary ones, as and for the purpose set forth.

6. As an improved article of manufacture, a device for binding the leaves of books, pamphlets, &c., the same consisting of angle plates having sleeves formed along the side edges of one of their members, rods having sliding movement in the sleeves, and straps arranged in pairs, one strap of a pair being rigidly held in the sleeves and the other strap attached to the rods, as and for the purpose set forth.

7. As an improved article of manufacture, a device for binding the leaves of books, pamphlets, &c., the same consisting of angle plates having sleeves formed along the side edges of one of their members, rods having sliding movement in the sleeves, straps arranged in pairs, one strap of a pair being rigidly held in the sleeves and the other strap attached to the rods, a hinged connection between the angled plates, and springs likewise connecting the angled plates over the hinged portions, as and for the purpose set forth.

8. An expander adapted for the insertion of leaves in a binder or the withdrawal of leaves therefrom, the same consisting of body sections pivotally connected, a latch device located at the upper portion of the body, and plates located at the lower portion thereof, the plates being adapted to engage with each other and be forced apart by the movement

of the upper portion of the body, as and for the purpose set forth.

9. An expander adapted for the introduction of leaves in a binder, or for the withdrawal of leaves therefrom, the expander consisting of two body sections pivotally connected below their centers, a latch device located at the opposite portion of the body section, and plates projected from the lower edges of the body of the expander, the said plates being provided with recesses, as and for the purpose specified.

10. In a binding device for the leaves of books, pamphlets, &c., the combination, with bearings adapted for attachment to the cover, and straps arranged in sets, one strap of each set being rigidly secured to the bearings and the other strap having sliding movement therein, of an expander, the same consisting of pivoted body sections provided with plates projected from one of its edges, the said plates being recessed to receive the sets of straps, as and for the purpose set forth.

11. In a binding device for the leaves of books, pamphlets, &c., the combination, with bearings adapted for attachment to the cover, and straps arranged in sets, one strap of each set being rigidly secured to the bearings and the other strap having sliding movement therein, of an expander, the same consisting of body sections pivotally connected and having recesses formed in one of their edges adapted to receive the sets of straps, and a locking device located at the other edge of the sections, as and for the purpose set forth.

CHARLES T. ROSENTHAL.

Witnesses:

T. J. OWENS,
CLINT JACKSON.