

No. 724,709.

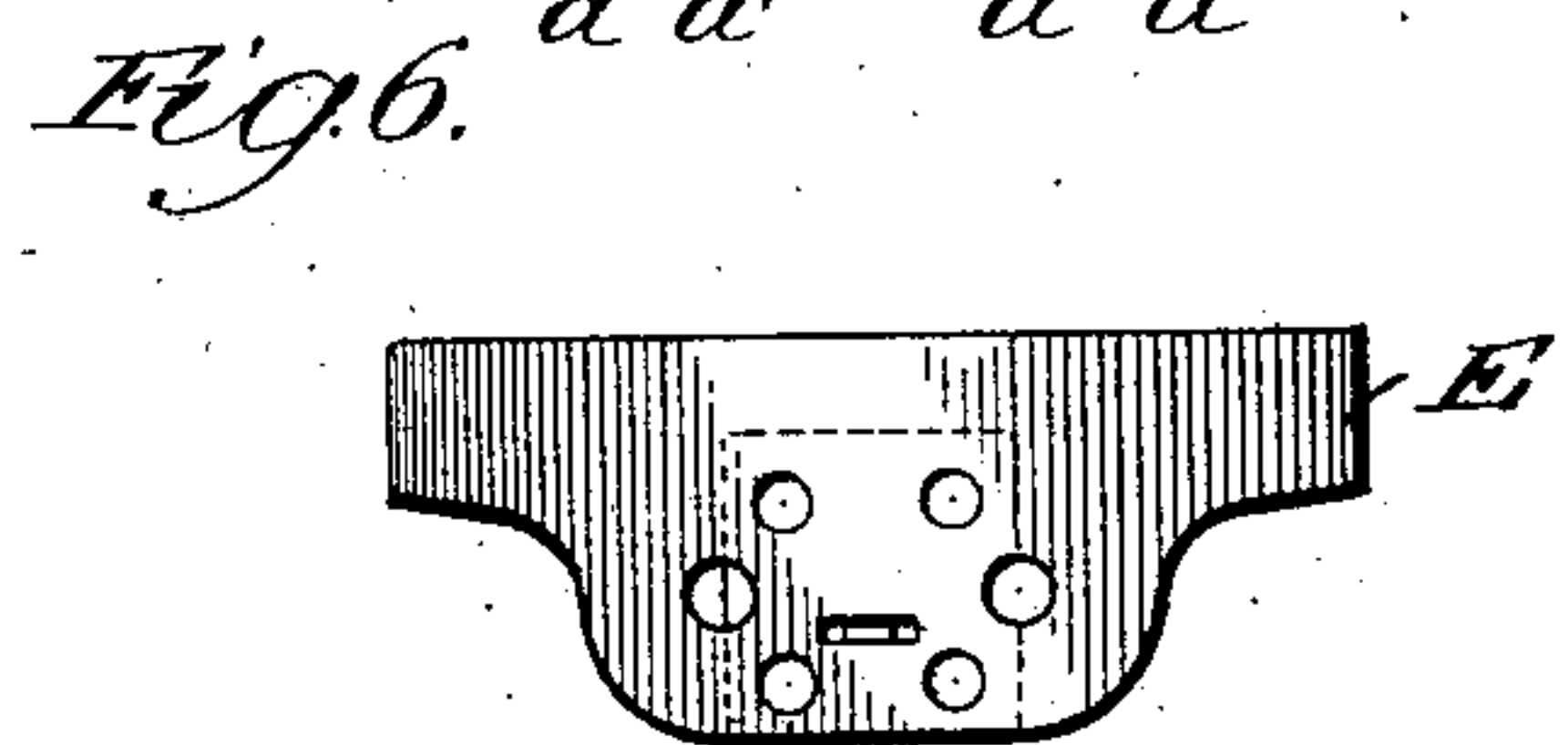
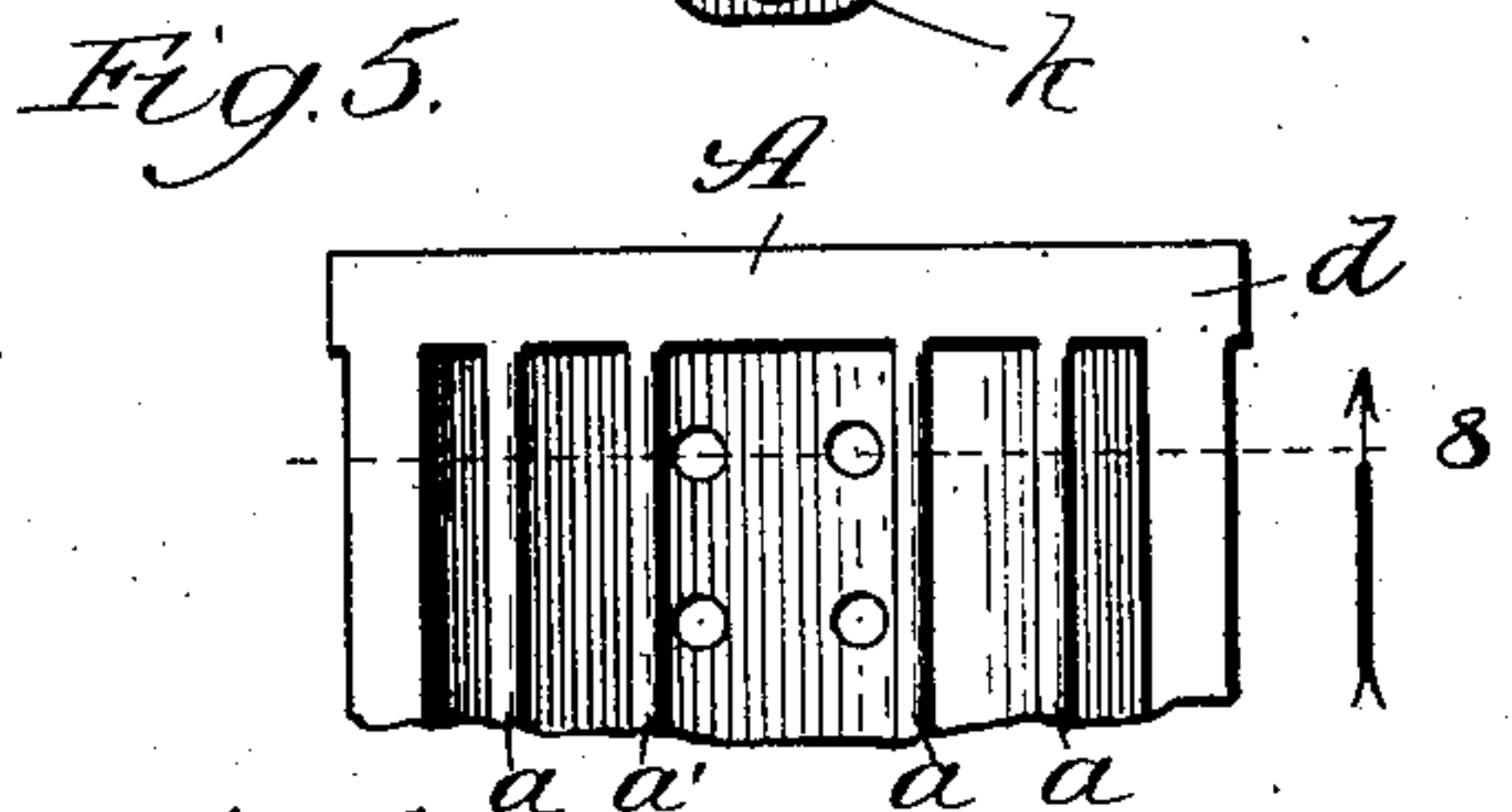
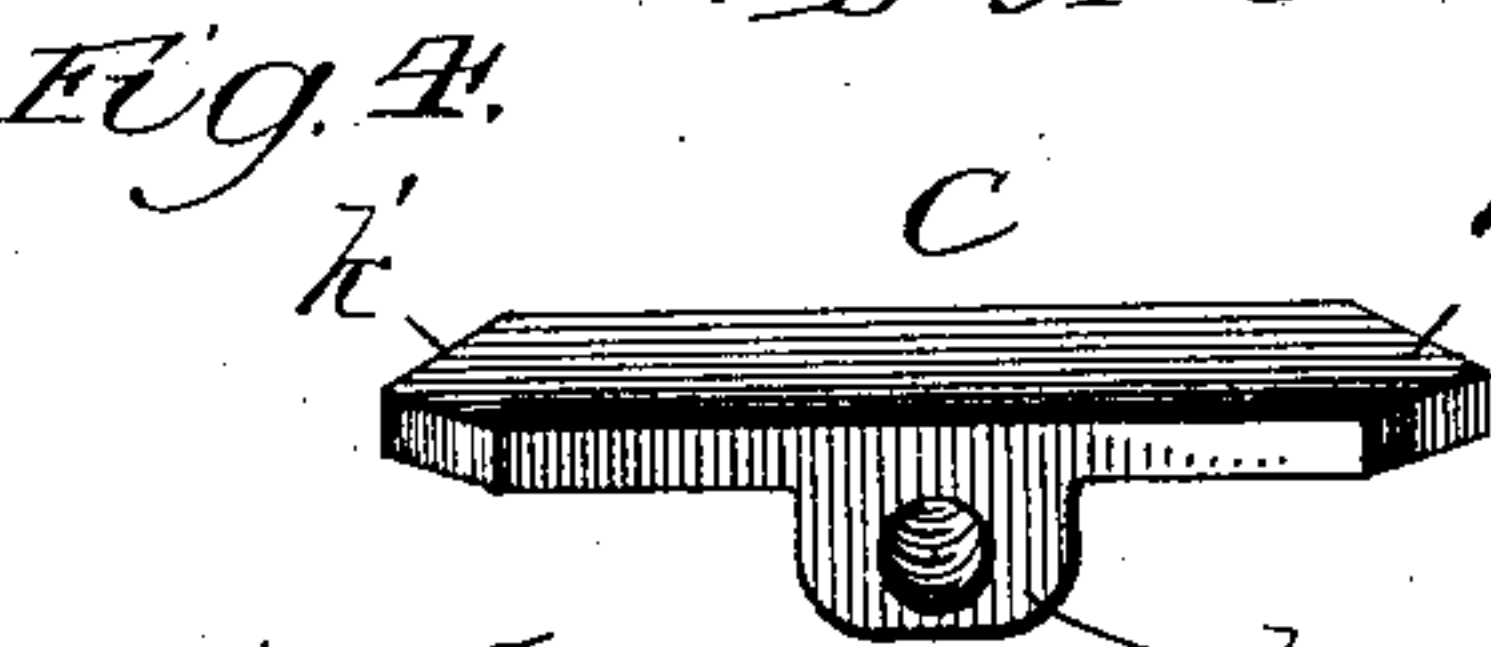
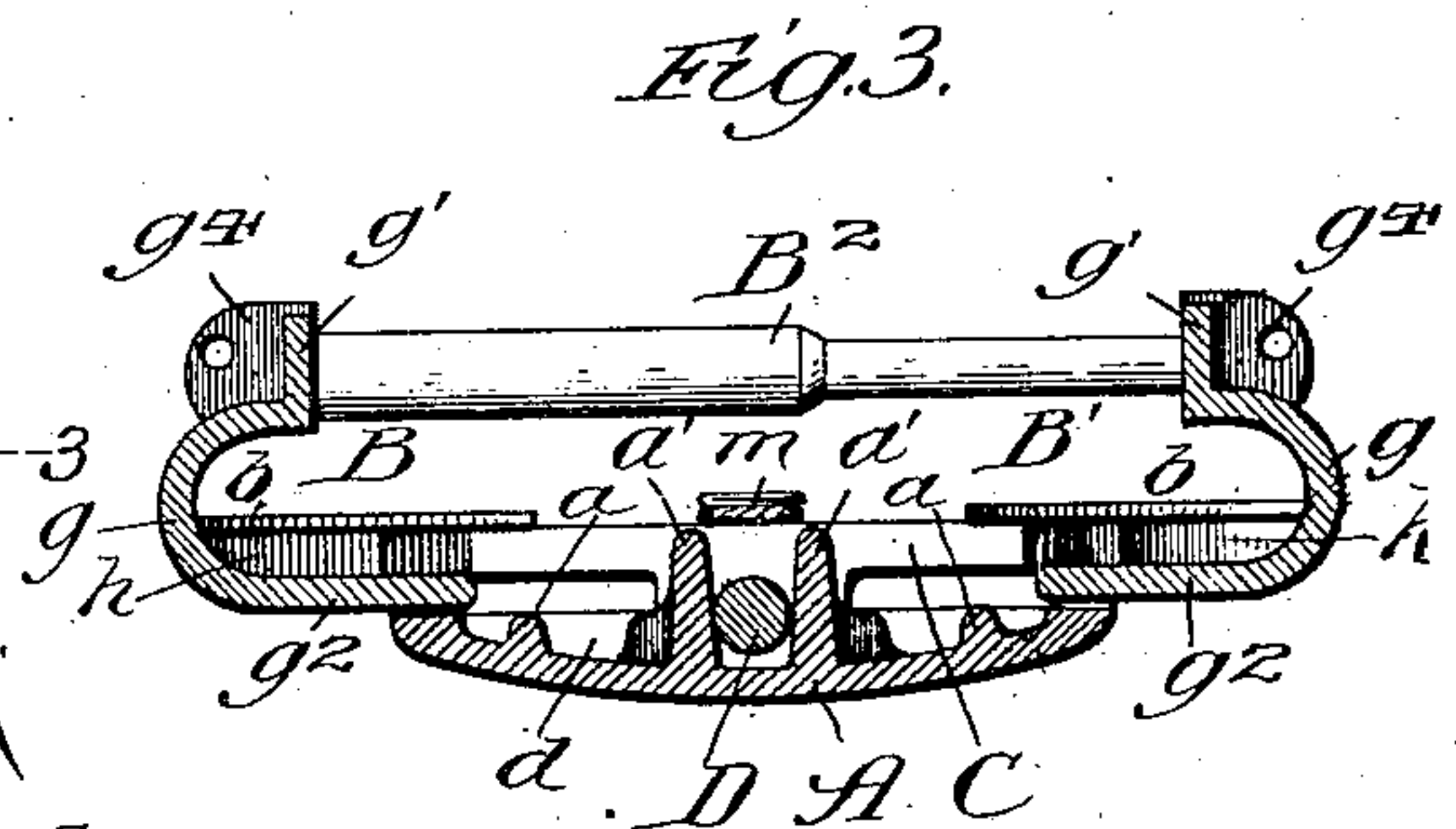
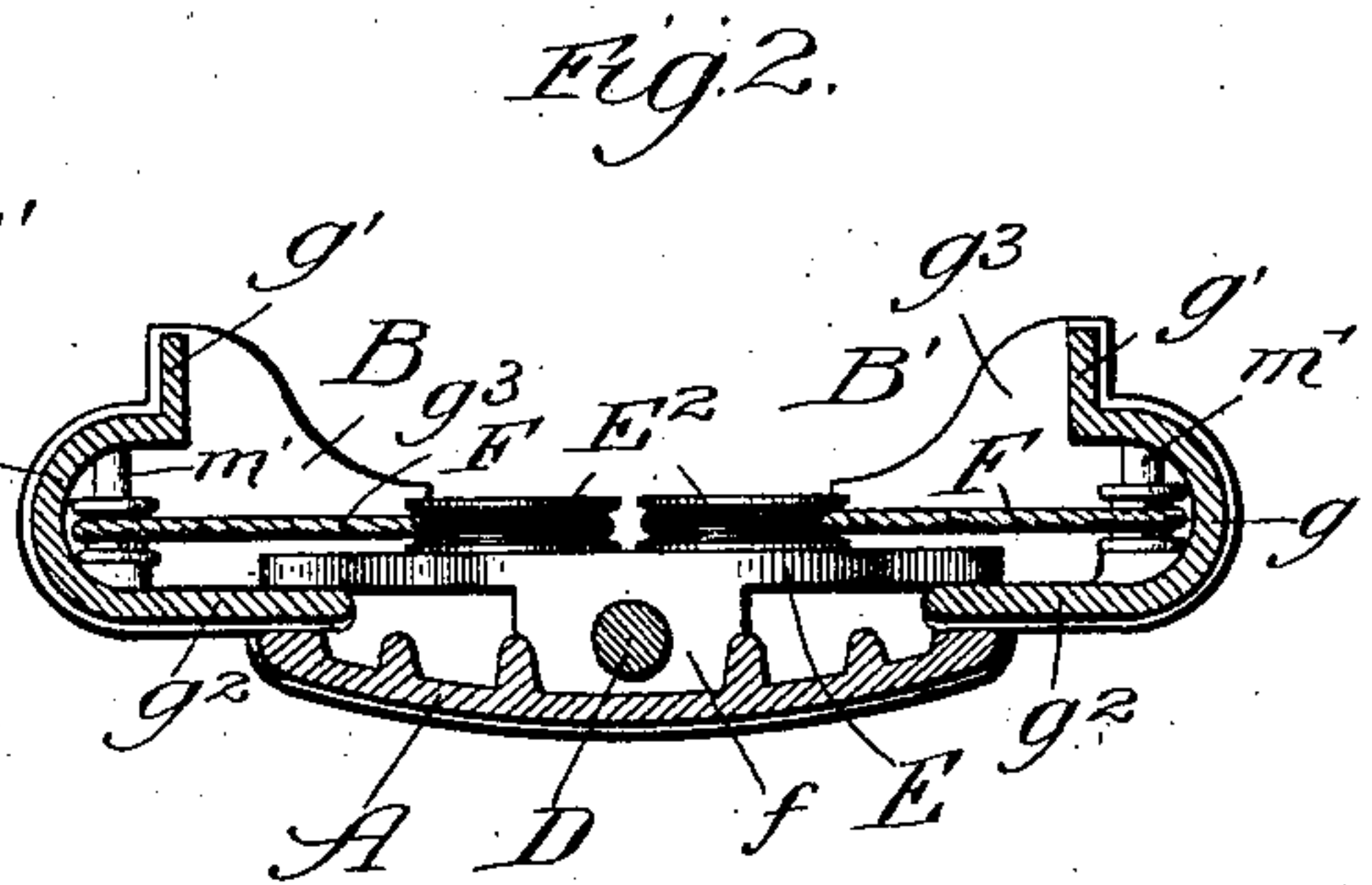
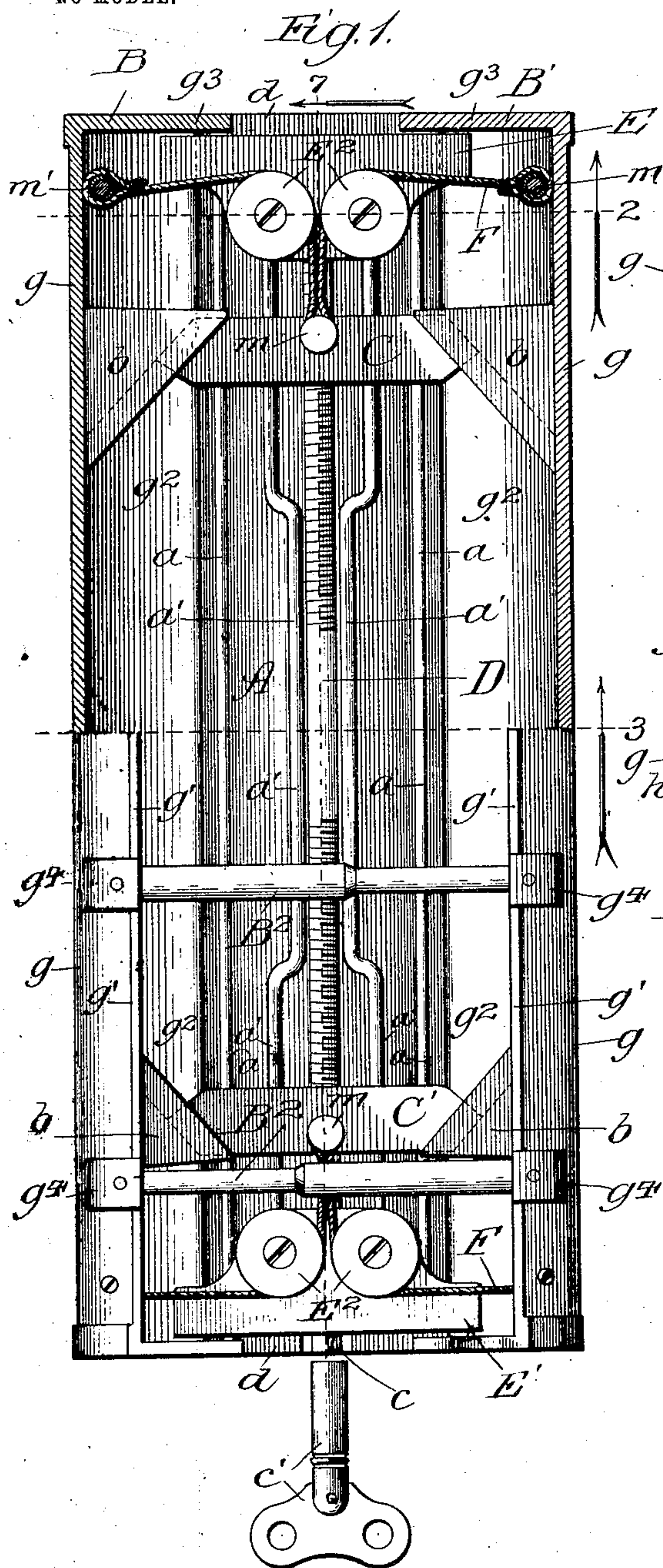
PATENTED APR. 7, 1903.

H. P. JONES.  
BINDER.

APPLICATION FILED JUNE 26, 1902. RENEWED MAR. 12, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:  
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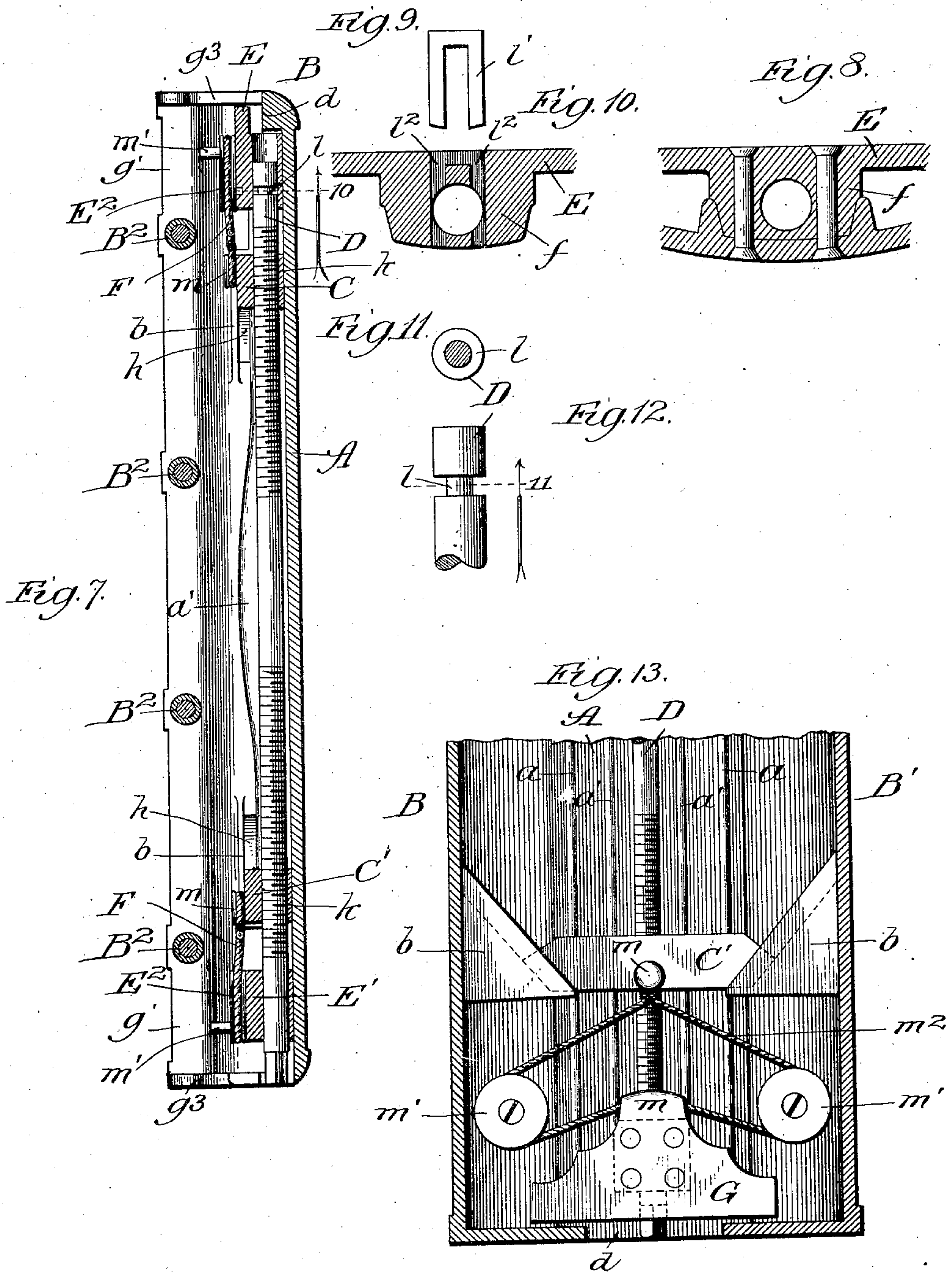
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2 SHEETS—SHEET 2.



Witnesses:  
Edw. Gaylord,  
Geo. C. Lawton,

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# UNITED STATES PATENT OFFICE.

HARVEY P. JONES, OF CHICAGO, ILLINOIS.

## BINDER.

SPECIFICATION forming part of Letters Patent No. 724,709, dated April 7, 1903

Application filed June 26, 1902, Renewed March 12, 1903, Serial No. 147,529. (No model.)

*To all whom it may concern:*

Be it known that I, HARVEY P. JONES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Binders, of which the following is a specification.

My invention relates particularly to binders for loose-leaf ledgers, though the invention is adapted to other purposes.

My preliminary object is to provide a binder of this character of exceedingly simple and durable construction, capable of ready manipulation, and more compact in form than binders of this character have heretofore been made.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents an inner view, partly in section, of a binder-frame, showing the same in its expanded position; Fig. 2, a section taken as indicated at line 2 of Fig. 1; Fig. 3, a similar section taken as indicated at line 3 of Fig. 1; Fig. 4, a perspective view of a wedge-piece or expanding member employed; Fig. 5, a broken inner face view of the back employed; Fig. 6, a detached view of a combined bridge-piece and sheave-block employed; Fig. 7, a longitudinal section taken as indicated at line 7 of Fig. 1; Fig. 8, a broken section taken as indicated at line 8 of Fig. 5 and showing the manner of attaching the sheave-blocks; Fig. 9, a view of a staple employed for holding the screw-rod against longitudinal movement; Fig. 10, a broken sectional view taken as indicated at line 10 of Fig. 7 and illustrating the manner in which the screw-rod is connected with the bridge-piece by means of said staple; Fig. 11, a transverse section of the screw-rod, taken as indicated at line 11 of Fig. 12; Fig. 12, a fragmentary view of the screw-rod, and Fig. 13 a view of a modification of the binder-frame.

The preferred construction is as follows: A represents a back piece of substantially concavo-convex cross-section and equipped on its inner surface with longitudinal ribs *a a'*; B B', clamping members or binding-plates mounted to slide transversely on the back A and equipped with binding-posts B<sup>2</sup>;

C C', wedges or expanding members engaging oblique guides *b*, with which the clamping members are provided; D, a right and left threaded rod having screw connection with the members C C' and having a squared end *c* for receiving a key *c'*; E E', combined bridge-pieces and sheave-blocks connected with the back A and equipped with rollers or pulleys E<sup>2</sup>, arranged in pairs, as shown, and F flexible members, preferably chains or cables, passing about the rollers E<sup>2</sup> and connected with the members C C' and with the binding-plates B B'. The back A is provided at its end with transverse ribs or flanges *l*, upon which the binding-plates B B' slide. Each bridge-piece is of the configuration shown in Fig. 6 and is provided on its lower side with a lug *f*, which has a perforation through which the screw-rod extends. The ribs *a* are straight throughout their length, as shown, while the ribs *a'* have their central portions lying adjacent to the rod D and their extremities offset with relation to their central portions, so as to pass on opposite sides of the lugs *f*. The central portions of the ribs *a'* are higher than the end portions, as illustrated in Figs. 3 and 7. The binding-plates are preferably of the form shown in cross-section in Figs. 2 and 3, having portions *g* substantially half-circular in cross-section, upturned flanges *g'*, intumed flanges *g''*, and rudimentary end flanges *g'''*. The plates are equipped adjacent to the flanges *g'* with perforated lugs *g<sup>4</sup>*, whereat the cover-sections (not shown) are to be pivotally connected. The guides *b* have oblique inwardly-open channels *h*, into which the ends of the wedges project. The wedges are of flat form, being provided on their under side with lugs *k*, which have threaded connection with the rod D. The wedge-pieces have oblique surfaces *k'*, which engage the oblique surfaces of the guides. At the end opposite the squared end *c* the rod D is provided with a circumferential groove *l*, which receives a staple *l'*, passing into channels *l''*, with which the corresponding bridge-piece E is provided. This serves to hold the rod against longitudinal thrust. As shown in Fig. 1, the flexible members F are formed by bending a cable at its center and securing the same by means of a stud *m* to the corresponding wedge-



piece. The extremities of the cable are secured to studs  $m'$ , provided within the bowed portions  $g$  of the binding-plates, said studs being located near the ends of the binding-plates. The rollers  $E^2$  are secured to the bridge-pieces by means of screws, as shown. The outer surfaces of the bridge-pieces bear against the inner surfaces of the flanges  $g^3$ , thereby actuating the binding-plates transversely on the back.

The operation will be readily understood from the foregoing detailed description. When the rod  $D$  is turned in one direction by means of the key  $c'$ , the wedge-pieces  $C C'$  are separated, thereby forcing the binding-plates apart, and when said rod is turned in the opposite direction said wedge-pieces are drawn toward each other, thereby drawing upon the cables and moving the binding-plates toward each other.

In the modification shown in Fig. 12 the back and binding-plates are of the construction already described and the rod  $D$  is mounted in the manner already described. In this construction the rollers are omitted from the bridge-pieces  $E$ , which latter are of slightly-modified form, being provided with inward extensions  $m$ . Here the binding-plates are provided with rollers  $m'$ , over which pass cables  $m^2$ , connected with the wedge-piece  $C'$  and with the extensions  $m$  of the bridge-piece. The operation is similar to the operation of the binder shown in Fig. 1, the wedge-pieces serving to separate the binding-plates and the cables serving to draw them together. The only difference between the construction of the modification and the other construction is that the rollers are carried by the binding-plates instead of by the bridge-pieces and the cables are secured to the bridge-pieces instead of to the binding-plates.

It readily will be understood that in both of the constructions described a binder of very compact form is provided, the space between the binding-posts and the back being exceedingly small. Moreover, the binder is actuated positively in both directions with no opportunity for loss of motion, and the requisite expansion of the binding-plates is secured with comparatively small turning movement of the rod  $D$ , the traverse of the wedge-pieces  $C C'$  being short.

Changes in minor details of construction within the spirit of my invention may be made. Hence no undue limitation should be understood from the foregoing detailed description, which has been given for clearness of understanding only.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a binder, the combination of two binding-plates, a back, a threaded rod mounted midway between said binding-plates, a nut connected with said rod, and cable connections whereby the nut in its movement serves to move said binding-plates, for the purpose set forth.

2. In a binder, the combination of two binding-plates, a member movable longitudinally of said binding-plates and having engagement therewith and serving to move the binding-plates in one direction, means for actuating said last-named member, and flexible connections joining said member with said binding-plates and serving to move said binding-plates in the opposite direction, for the purpose set forth.

3. In a binder, the combination of a back, two members movable longitudinally of said back, binding-plates movable transversely on said back and having oblique guides connected with said longitudinally-movable members, a screw-rod connected with said longitudinally-movable members and flexible connections between said longitudinally-movable members, said back and binding-plates, for the purpose set forth.

4. In a binder, the combination of a back, two binding-plates equipped with oblique guides arranged in pairs, cross-heads engaging said guides and serving immediately to actuate the binding-plates in one direction, a right and left threaded rod serving to actuate said cross-heads, and flexible members connected with said cross-heads, said back and said binding-plates and serving to actuate said binding-plates in the opposite direction.

5. In a binder, the combination of a back, two binding-plates having two pairs of guides, each pair of guides having its members convergent toward the adjacent end of the binder, cross-heads connecting said guides in pairs, a right and left threaded rod for actuating said cross-heads, and flexible connections between said cross-heads, said back, and said binding-plates, for the purpose set forth.

6. In a binder, the combination of a back, transversely-movable binding-plates equipped with oblique guides, cross-heads engaging said guides, a right and left threaded rod for actuating said cross-heads, rollers connected with said back, and flexible connections joined to said cross-heads and to said binding-plates, and passing about said rollers, for the purpose set forth.

7. In a binder, the combination of a back equipped on its inner surface with longitudinally-extending ribs having central portions increasing in height as the longitudinal center of the binder is approached and having end portions offset from the plane of the central portions, cross-heads equipped with perforate internally-threaded lugs working between said ribs, near the end portions thereof, a right and left threaded rod connecting said lugs, binding-plates, and connections between said binding-plates and said cross-heads, for the purpose set forth.

8. In a binder of the character described, having a back equipped on its inner surface near its ends with bridge-pieces, a threaded rod extending into one of said bridge-pieces and having a circumferential groove and a staple entering said last-named bridge-piece

and serving to confine said rod against longitudinal movement, for the purpose set forth.

9. In a binder, the combination of a back equipped with rollers having axes at right angles to the back, binding-plates slidable transversely on said back, and means for actuating said binding-plates including flexible members passing about said rollers, and a

threaded rod through the medium of which said flexible members are moved, for the purpose set forth.

HARVEY P. JONES.

In presence of—

ALBERT D. BACCI,  
WM. B. DAVIES.