

No. 731,270.

PATENTED JUNE 16, 1903.

J. BERMAN.
BINDER.

APPLICATION FILED DEC. 16, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

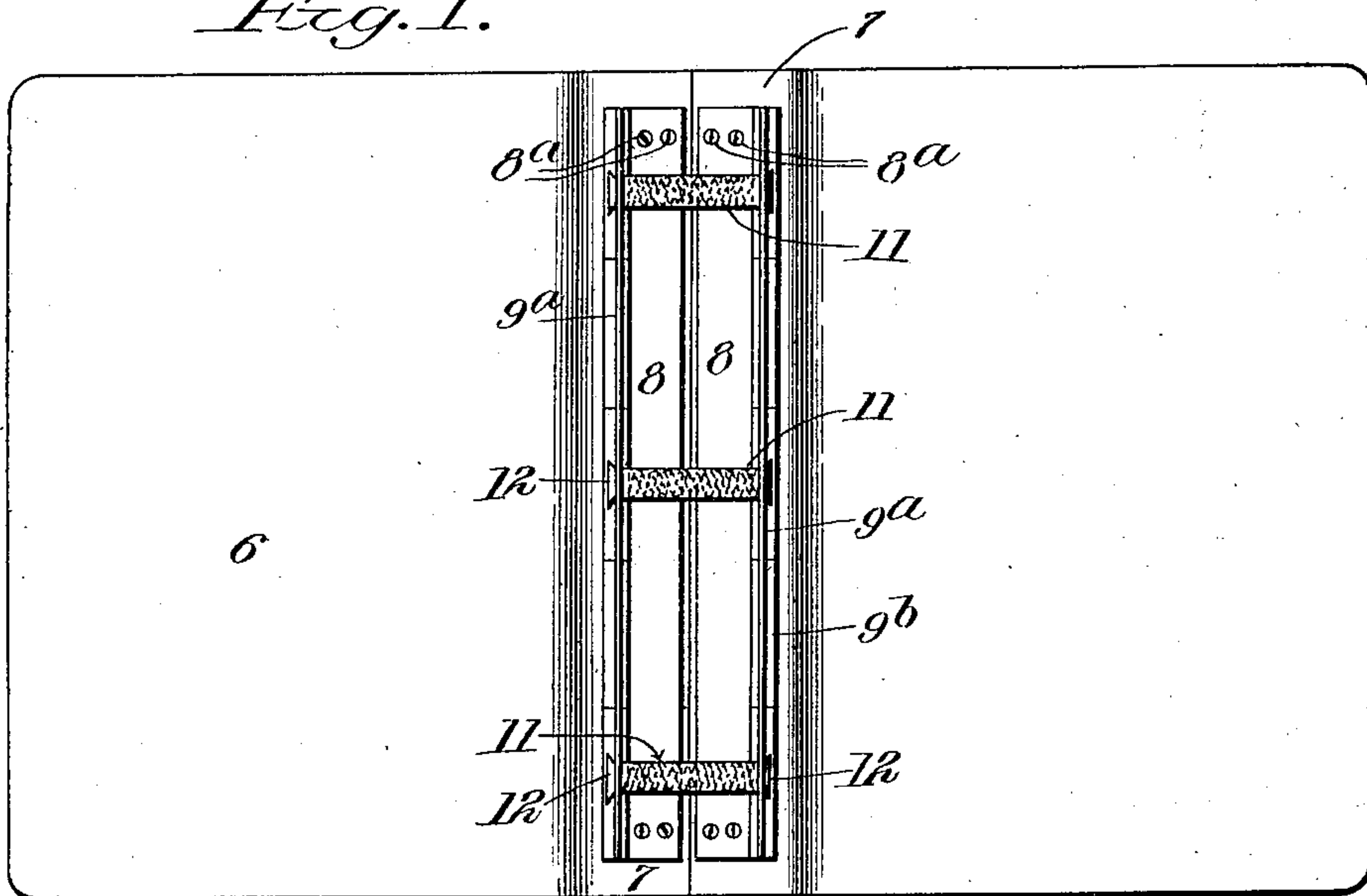
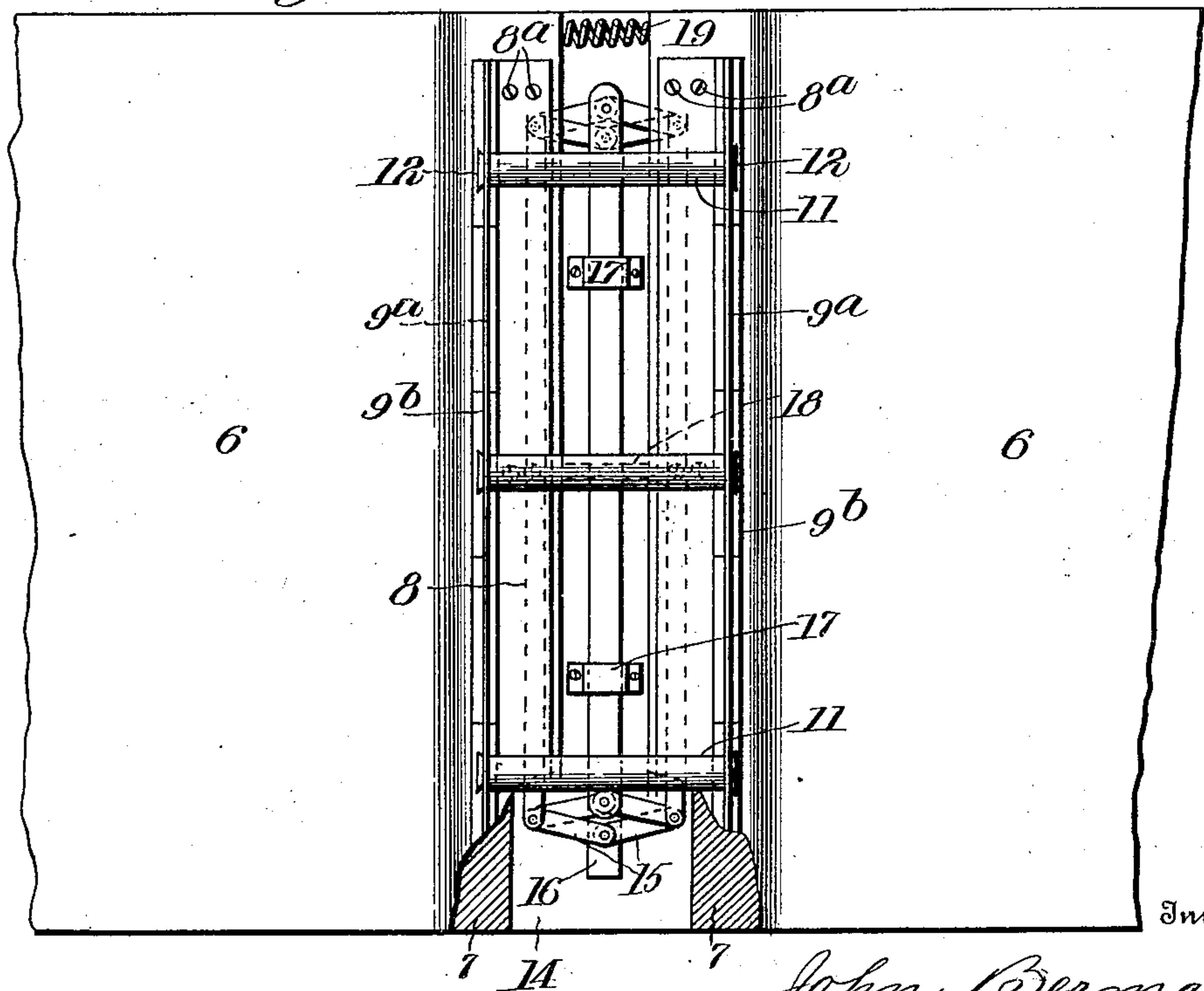


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

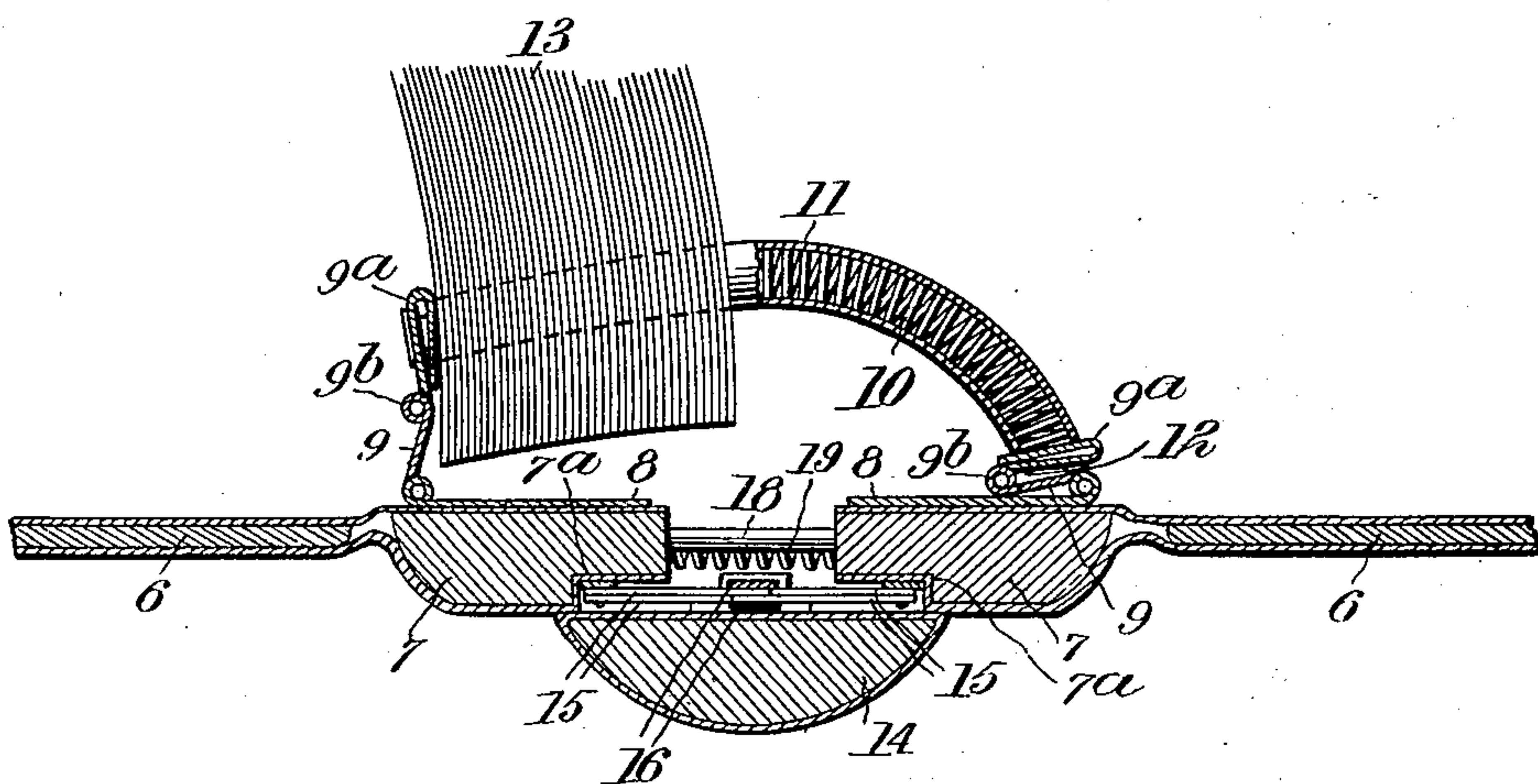
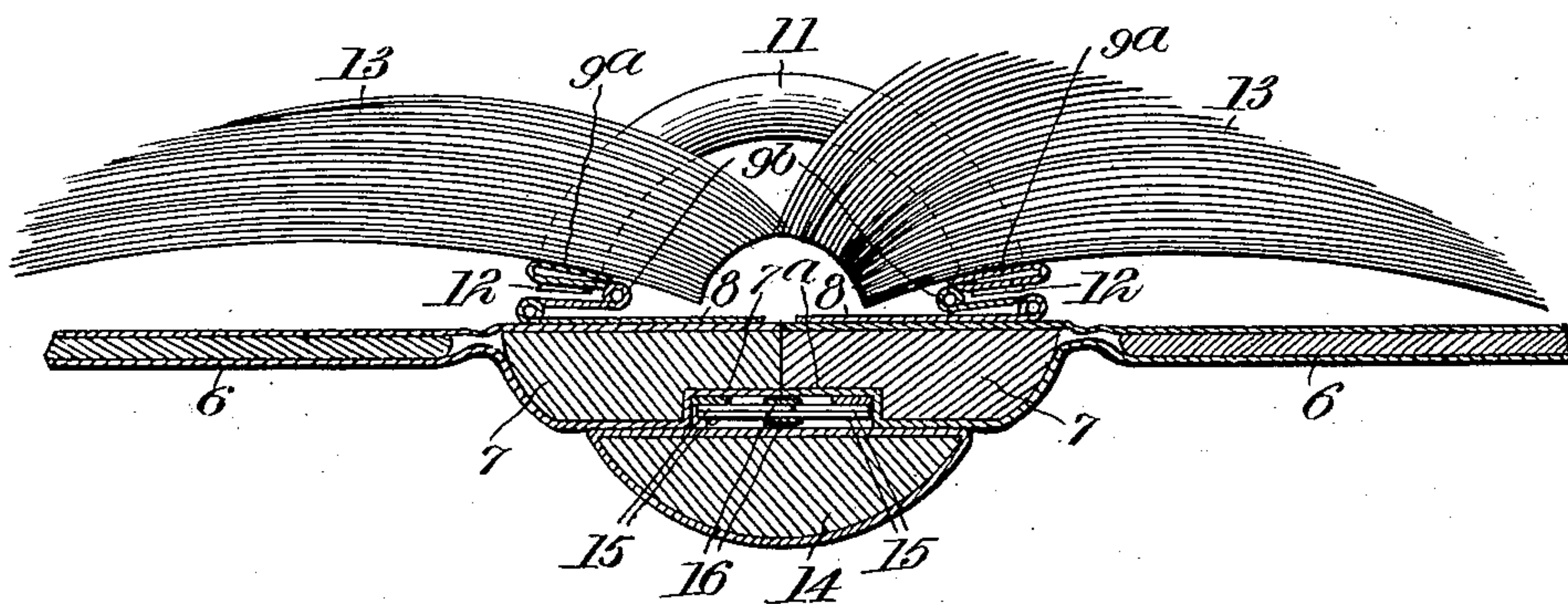


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN BERMAN, OF CHICAGO, ILLINOIS.

BINDER.

SPECIFICATION forming part of Letters Patent No. 731,270, dated June 16, 1903.

Application filed December 16, 1902. Serial No. 135,402. (No model.)

To all whom it may concern:

Be it known that I, JOHN BERMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have
 5 invented certain new and useful Improvements in Binders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to
 10 make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to binders, and particularly to that class thereof used to form
 15 "loose-leaf" books, so called, in which leaves may be put or from which they may be taken, as desired.

The object of the invention is to form an improved
 20 expansible binder of the kind stated, which may be adjusted to hold more or less leaves.

A further object is to form an improved construction whereby the leaves will lie flat and
 25 make it possible to readily write on all parts thereof.

Further incidental objects and improvements will appear from the following description and the drawings, in which—

30 Figure 1 is a plan view of the binder or book open, part of the covers being broken away and all the leaves being removed. Fig. 2 is a similar view showing the back of the book expanded to take additional leaves. Fig. 3 is an elevation, partly in section, of the binder with
 35 leaves therein. Fig. 4 is a similar view with the back expanded to accommodate additional leaves.

Referring specifically to the drawings, 6 indicates the covers of the book, and 7 the inner
 40 or upper back joined thereto. This back is split longitudinally, as shown, so that it may be pulled apart, as shown in Figs. 2 and 4, to accommodate additional leaves. To each part
 45 or half of this back a longitudinally-extending hinge is attached. This hinge is preferably formed of sheet metal and comprises a lying leaf 8, secured to the back, as by screws 8^a. The standing leaf of the hinge is formed
 50 of two parts 9 and 9^a, hinged together at 9^b, so that the whole hinge is a double or three-leaf hinge with opposite flexion at the two joints.

The posts to hold the leaves are attached to the upper or outer leaves 9^a of the hinges, extending across between the same, as shown. 55 These posts consist of close-wound spiral springs (indicated at 10) covered by rubber tubing 11 and joined to the hinges by screws 12. In consequence of this construction the posts are flexible and extensible. The leaves 60 of the book are indicated at 13 and have suitable holes to receive the posts. They may be removed or inserted by taking out the screws 12 on one side, which will free the corresponding ends of the posts and allow the leaves of 65 the book to be slipped thereon or taken off, after which the screws are put back.

It will be seen that when the book is open the hinge on either or both sides may be flexed or collapsed, which has the effect of 70 bending the posts to form a semicircle or curve which allows the leaves to lie flat on the cover.

To conceal the opening made when the parts 7 of the inner back are separated, a sub or 75 outer back 14 is employed. This is formed of one piece of wood or other suitable material, preferably covered with leather, and is connected to the inner back by means of toggles 15 and strips 16. The arms of the toggles are 80 joined at their ends to the under side of the parts 7 and at their elbows to the strips 16, which overlies each other and slide longitudinally within strap-loops 17, attached to the outer back 14. The toggles bend according 85 to the expansion or contraction of the parts 7, and the rigidity of the strips 16, which connect the toggles in pairs, causes the expansion or contraction to be equal at both ends of the book, so that the parts will not become 90 wedged or uneven.

At 18 is indicated a guide-pin or dowel which projects from one of the parts 7 and enters a hole formed in the opposite part to receive it. This dowel preserves the aline- 95 ment of said parts 7. Springs 19 tend to draw said parts together and prevent excessive separation or expansion. The back side of the parts 7 is suitably recessed, as at 7^a, to give working space for the toggles and the 100 strips 16.

It is to be noticed that the connection between the covers 6 and the back parts 7 is such that the covers open flat or level with said

parts. This is an important advantage in binders of this kind and is essential to the production of a binder in which the leaves will lie flat when opened. Furthermore, the back does not have to be taken apart to put in or take out leaves. The rubber covering for the spring-posts prevents the leaves from getting in between coils of the spring.

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

1. In a binder, the combination with a back and covers opening flat therewith, of flexible leaf-posts joined thereto.
2. In a binder, the combination with a split, separable back, and covers opening flat therewith, of flexible leaf-posts joined to the back.
3. In a binder, the combination with an expansible back, and covers opening flat therewith, of flexible and extensible leaf-posts joined to the back.
4. In a binder, the combination with a back and covers, of flexible leaf-posts, and hinges having a double fold, connecting the posts to the back, substantially as described.
5. In a binder, the combination with an expansible back and covers, of flexible and extensible leaf-posts, and hinges having a double fold, connecting the posts to the back, substantially as described.
6. In a binder, the combination with a back, and covers opening flat therewith, of flexible leaf-posts, and hinges connecting the posts and the back.
7. In a binder, the combination with separable back parts, and a cover connected to each part and opening flat therewith, of flexible and extensible leaf-posts connected to each of said parts.
8. In a binder, the combination with a split inner back, and covers attached thereto, of an outer back covering the split, toggles connecting the outer back and the parts of the inner back, permitting relative movement thereof and a strip connecting the toggles, causing equal motion thereof.
9. In a binder, the combination with a back, and covers connected thereto, of flexible leaf-posts, and hinges connecting both ends of the posts and the back and capable of flexion to bend the posts to substantially a semicircle having its ends perpendicular to the back, substantially as described.

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

JOHN BERMAN.

Witnesses:

W. J. ROBINSON,
H. G. BATCHELOR.