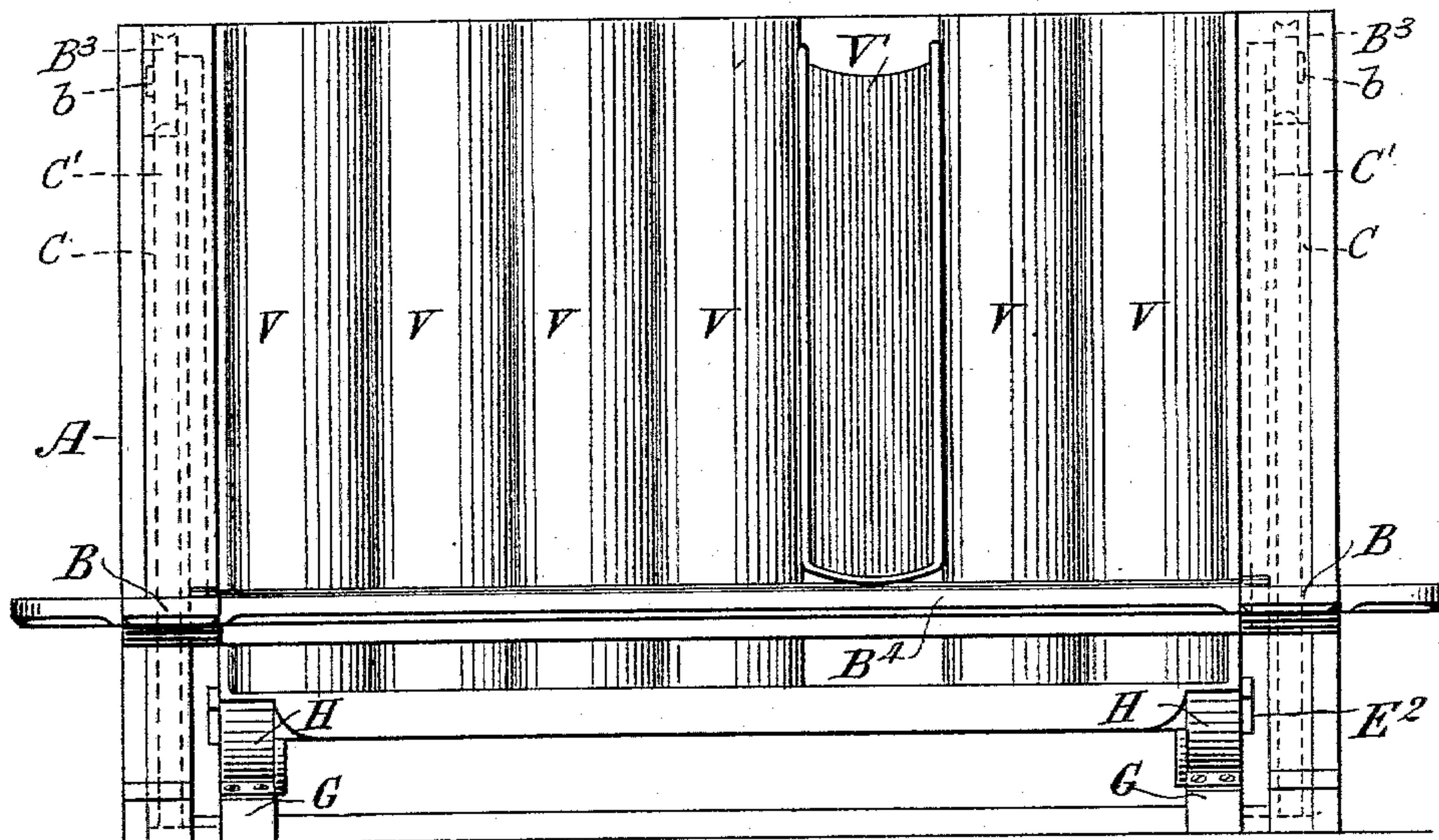
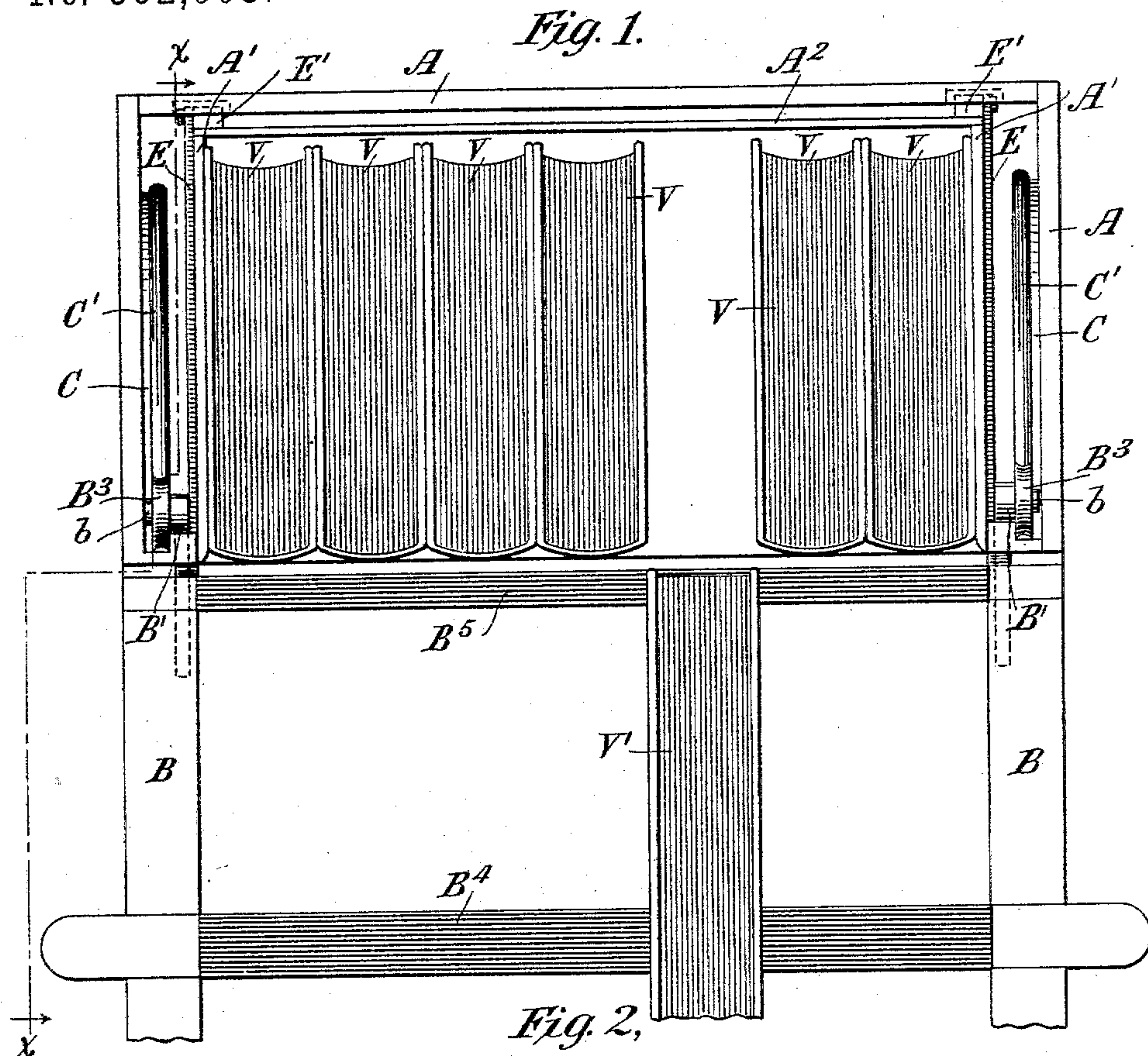


G. MORTON.

DEVICE FOR WITHDRAWING BOOKS FROM BOOKCASES.

No. 562,905.

Patented June 30, 1896.



Witnesses
C. E. Ashley
H. W. Lloyd.

Inventor
Galloupe Morton
By his Attorneys
Willard Parker Butler

DEVICE FOR WITHDRAWING BOOKS FROM BOOKCASES.

Patented June 30, 1896.

Fig. 4,

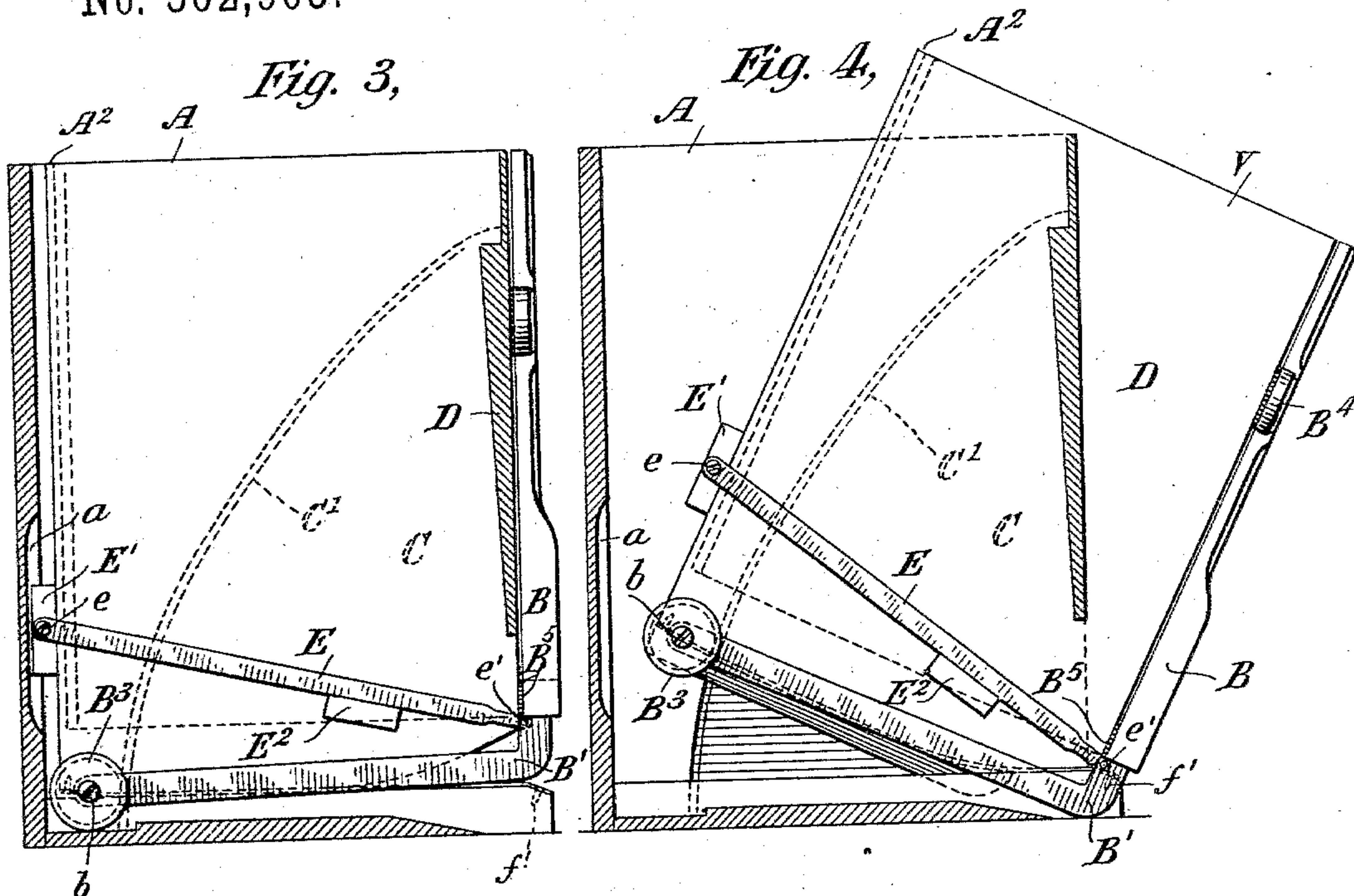
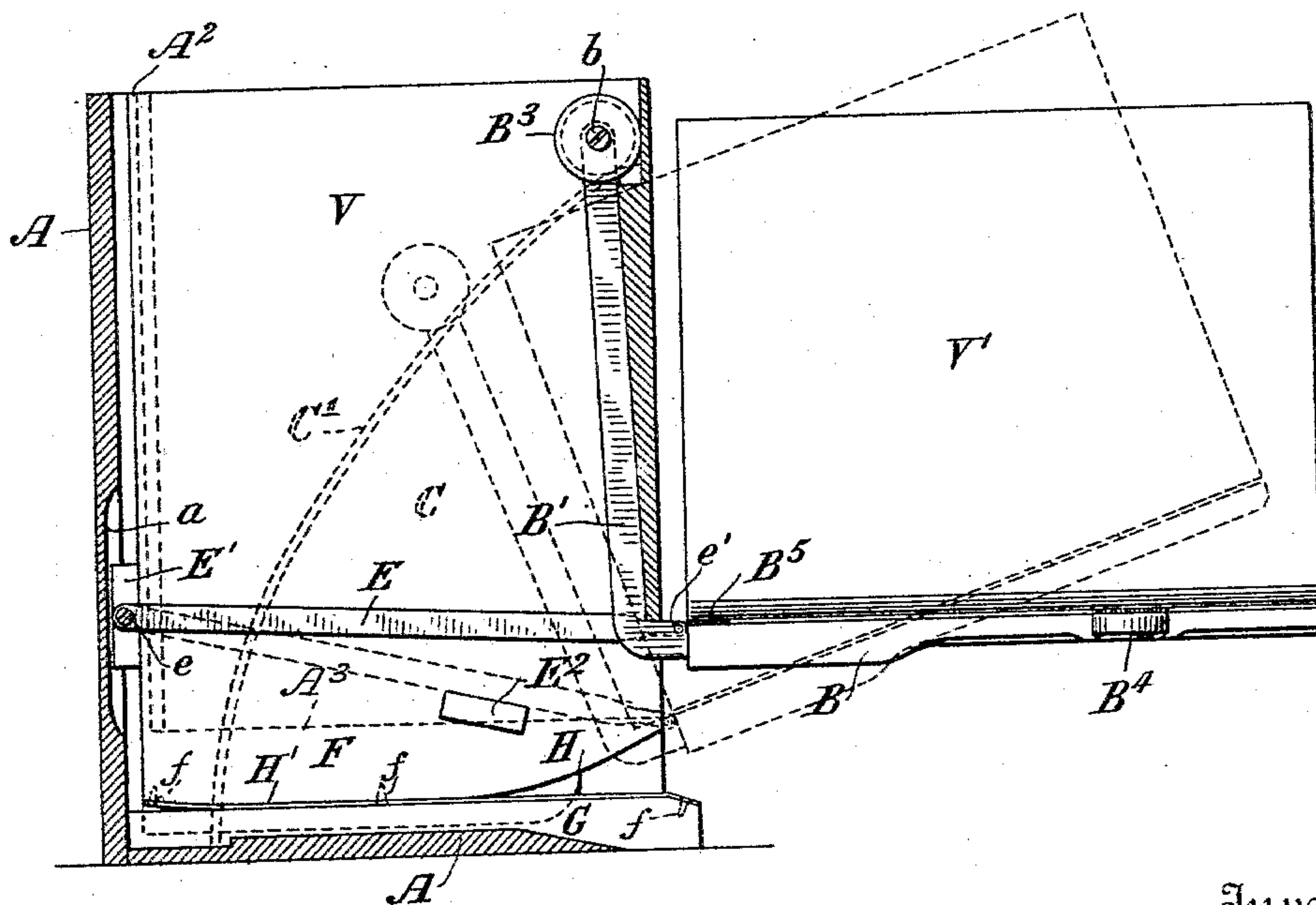


Fig. 5.



Witnesses
C. E. Ashley
H. W. Lloyd

Inventor
Galloupe Morton
By his Attorneys
Willard Parker Butler

UNITED STATES PATENT OFFICE.

GALLOUPE MORTON, OF NEW BRIGHTON, NEW YORK.

DEVICE FOR WITHDRAWING BOOKS FROM BOOKCASES.

SPECIFICATION forming part of Letters Patent No. 562,905, dated June 30, 1896.

Application filed January 19, 1895. Serial No. 535,445. (No model.)

To all whom it may concern:

Be it known that I, GALLOUPE MORTON, a citizen of the United States of America, and a resident of New Brighton, Richmond county, State of New York, have invented a new and useful Improvement in Devices for and Methods of Withdrawing Books from Bookcases and Shelves, of which the following is a specification.

My invention relates to an improvement in bookcases, and primarily to a bookcase which is especially adapted for handling and preserving heavy books of reference, and at the same time providing means whereby the same may be readily opened and used from time to time as may be necessary.

The invention may also be used for any other purposes in which it is desired to bring forward and rotate a heavy body without the use of counterweights.

The invention relates more particularly to that class of bookcases in which each row or shelf of books is mounted upon or contained in an independent case which is provided with mechanical devices whereby any desired book may be withdrawn from the bookcase proper, and then caused to assume such a position on a shelf or frame that it may be readily consulted.

The invention will be best understood by reference to the accompanying two sheets of drawings, forming a part of this specification, in which—

Figure 1 is a plan view of the bookcase, showing the front portion operating as a shelf, with a book resting thereon which has been carried out with the shelf. Fig. 2 is a longitudinal view of the bookcase with the shelf and book in the same position as shown in Fig. 1. Fig. 3 is a vertical cross-section showing the bookcase closed. Fig. 4 is a similar cross-section showing the bookcase partly opened. Fig. 5 is a similar cross-section with the shelf opened or thrown outward and carrying a book in position to be opened for use.

Similar letters refer to similar parts throughout the several views.

In the drawings, A is the exterior case of the bookcase or shelf, in which a row of books is to be supported, which may be of wood or other convenient material, and which may be

of any convenient height, according to the number of shelves used, and of convenient dimensions, according to the size of the books.

A' A' A' is the interior case of the bookcase, or bookcase proper, composed of two sides A' A' and the back A², and is provided with a suitable horizontal bottom A³, which case is arranged to fit snugly within the exterior case A, leaving only at the rear and at either end such space as is necessary to contain the mechanism hereinafter described.

The lower portion of the interior case A³ is mounted at either end on two rockers H, provided with suitable flanges on each for keeping the interior case in place, each of which rests upon a rib G at the end of the exterior case. A strip of metal F is provided, which strip is placed between the rocker H and the rib, and is fastened at the rear of the case by screws *ff* to the rocker H, and at the front of the case it is similarly attached to the rib G, as shown in Fig. 5. If necessary, the rocker may rest directly upon the rib G, and any other device may be employed for keeping the interior case in position and from sliding, as may be found convenient.

The front of the interior case is composed of a front board, shelf, or frame B, provided with the cross-pieces B⁴ B⁵, which are flat on the interior, as shown in Fig. 1, and which, when the shelf or frame B is thrown forward, as shown in Fig. 1, will serve as a rest or shelf for any one of the books V' which it may be desired to use. The frame B is rigidly attached at either end to a bent bar or lever B', of metal, as shown in Figs. 1, 3, 4, and 5. This bar or lever carries at its inner extremity *b'* a roller B³, pivoted at *b*. This roller, in turn, travels upon a curved track C', Figs. 1, 2, 3, and 4, at the end of the exterior case A, according as the frame B is moved, in the manner hereinafter described. The curved track C' is rigidly attached to the exterior case A in any manner that may be desired. A strap E, Figs. 1, 3, 4, and 5, is provided, attached by a pivot to the bent bar B' at *e'*, while the other end of the strap E is attached by a pivot *e* to a block E', rigidly fastened to the back A² of the interior case.

E² is a shoulder or stop attached to the outer end wall A' of the inner case, the object of which is to limit the play of the bar E, and

through the latter the downward motion of the frame or shelf B, relative to the inner case A' A² A'.

In the construction shown in Figs. 1, 3, 4, 5 and 5 a block E' is shown attached to the rear wall A² of the case for the purpose of making a strong connection, the vertical movement of which block is permitted by cutting out the rear wall of the exterior case at the point a, as shown in Figs. 3, 4, and 5, but this construction is not essential and may be modified from time to time, as may be found convenient.

It is a well-known fact that when any mass is balanced or suspended upon its center of gravity it may be readily rotated around that center of gravity at very slight expense of power, and the center of gravity may also be moved laterally in a horizontal plane with an equally small expenditure of power. It is obvious, therefore, that where certain agencies are so combined that a number of large volumes are balanced on or with reference to their center of gravity and in a horizontal row, and are held permanently in such position, they may by means of such agencies be readily moved horizontally forward, and at the same time rotated without the expenditure of a large amount of force. The object, therefore, of the construction above described is, first, to effect a balancing of the volumes V V V, which are shown in place in the bookcase or shelf; second, to permit of the volume to be consulted being rotated and brought forward while maintaining its center of gravity substantially in the same horizontal plane; third, to free the desired volume from the rest of the books, and, fourth, to provide a suitable shelf with the volume resting upon it in such a position as to be readily opened and consulted and then closed and returned to its original position.

The result of the construction above shown and described is that as the interior case is mounted on a rocker, when the hand is laid upon the book it is desired to withdraw, the pressure of the hand upon the particular book causes the entire inner case, with the row of books in it, to rock forward upon the rocker H, as shown in Fig. 4. Up to the point shown, Fig. 4, there will have been no movement of the front frame B relative to the inner case, but the same will have moved as a part thereof and with it, and the roller B³ will have traveled over part of the track C'. From this point, by continuing the pressure of the hand on the particular book that it is desired should be withdrawn, the roller B³ continues to travel on the track, which from this point has such a curve that the bent portion of the arm B' will rise as the roller travels upward, and the desired book now for the first time begins to rest on the frame B, and will be brought forward and out of the interior case, rotating around its center of gravity until the position shown in Fig. 5 is reached. The vol-

ume V' thus becomes free from the remaining volumes in the row, and the frame B then becomes or forms a horizontal shelf, upon which the volume V' may be opened and used. When the inner case reaches the position shown in Fig. 4, the continued pressure of the hand on the volume desired to be removed causes a thrust to be exerted at the point e', which is transferred through the strap E to the pivot e, fastened to the rear wall of the inner case, thereby causing the inner case to resume its original position, as shown by the dotted lines in Fig. 5. In order to maintain the center of gravity of the book to be withdrawn in a substantially horizontal plane, it is necessary, after the inner case has resumed its original position, that the bent portion of the arm B' be free to travel in an upward direction. As the strap E is fastened to the arm B' by the pivot e', this end of the strap E is also free to move in the same direction, and the position of the pivot e is such that this upward movement causes the frame B to be moved away from the under case, thus leaving such space as is necessary to prevent any danger of rubbing against the backs of the volumes at rest in the inner case.

For the purpose of preventing a shock or jar upon the inner case reaching its normal position, caused by the sudden stoppage, the rear portion of the rocker H is also made slightly curved, as shown in Fig. 5, thereby giving a slight play or "give" to the inner case.

For preventing the book on the shelf, when it assumes the position shown in Fig. 5, by reason of the fact that it is then perfectly balanced, from returning into the case by reason of unintentional extraneous cause, the upper part of the track C' is slightly flattened, so that when the rollers B³ reach this portion they can be less readily moved downward or will only move by means of some slight pressure exerted by the hand.

When it is desired to return the volume V' to its original place in the case, it is shut, and a slight upward pressure is exerted upon it by the hand. Thereupon the roller B³ travels downward on the track C, the book V' rotates and is carried backward into the interior case, and the shelf B closes up after it until the position shown in Fig. 4 is reached. At this point, owing to the curve of the rockers H H, the center of gravity of the inner case, books, and frame, as a whole, is slightly raised above its normal position when at rest, thus causing the inner case, books, and frame to assume their original position, each step in the operation during the closing of the case proceeding precisely in the same manner but in reverse order from that in which it took place in opening.

The principle of the invention above described is not limited in its application to books in a bookcase, but may be used for the purpose of bringing forward any body and

causing it to rotate around its center of gravity without the body being pivoted on its center of gravity or mounted on slides.

I claim as my invention—

5 1. In a bookcase, the combination substantially as hereinbefore set forth, of an exterior case; an inner case, arranged to rock or tip within the exterior case, upon suitable rockers, devices substantially as described, for
10 holding the inner case in position; an exterior frame, or shelf, partially closing the front of the case; a bent lever rigidly attached at each end to said frame; a roller on the end of each lever; a curved track between the two cases,
15 at either end, upon which the rollers travel; and a strap at either end of the inner case, pivoted to the back thereof, and also the frame, or shelf, in the manner and at the point described, for resisting the inward thrust of
20 the shelf.

2. In a bookcase, the combination substantially as hereinbefore set forth, with the exterior case, of an interior case, arranged to rock forward with its contents in the manner
25 shown, while the same is kept balanced and the center of gravity thereof in the same horizontal plane, and the shelf or frame upon which the books are supported.

3. In a bookcase, the combination substantially as hereinbefore set forth, with an exterior case, of an inner case, arranged to rock forward in the manner shown, whereby its contents are tilted forward, a frame, or shelf,
30 supported at either end by a bent lever, each lever carrying rollers traveling on a curved track.

4. In a bookcase, the combination substantially as hereinbefore set forth, with the inner case, of the shelf, or frame B, rigidly attached
40 at either end to the levers, B', and a roller, B³, at the end of each lever running upon a curved track for the purposes set forth.

5. In a bookcase, the combination substantially as hereinbefore set forth, with the inner case, of the shelf, or frame, B, forming the front thereof mounted on the bent levers, B',
45 each carrying the roller, B³, running on a

suitable curve, and devices for receiving the thrust of the frame, or shelf, by the pressure of the hand on the book in the manner set forth. 50

6. In a bookcase, the combination substantially as hereinbefore set forth with the interior case of the rockers H H placed at either end thereof, provided each with a slight curve
55 at the rear end for the purposes set forth.

7. In a bookcase, the combination substantially as hereinbefore set forth, with the exterior case and the interior case arranged to rock within the same in the manner described,
60 of a shelf provided with suitable arms and rollers, a curved track placed between the two cases, at either end, on which said rollers travel, and having a slightly flatter curve at the extreme upper end thereof, for the purposes set forth. 65

8. The combination, substantially as hereinbefore set forth, of a shelf pivoted to one end of a strap, which in turn is pivoted at the other end at a suitable point of support,
70 and rollers attached to the shelf running on curved tracks, attached to a fixed surface upon the sides of the shelf, for the purposes set forth.

9. In a case, the combination substantially as hereinbefore set forth of a shelf upon which articles are supported movable devices upon which said shelf and its contents are balanced and may be brought forward without changing their balance, and a second shelf or
80 frame, upon which the article rests when brought forward, connected with the first shelf by suitable mechanism, by means of which the second shelf and its contents are also balanced. 85

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 15th day of January, 1895.

GALLOUPE MORTON.

Witnesses:

WILLARD PARKER BUTLER,
JOHN FRENCH.