No. 687,740. Patented Dec. 3, 1901.

N. G. FRENCH.

FOLDING BOOKCASE.

(Application filed Nov. 20, 1900.)

(No Model.)

Fig. 1.

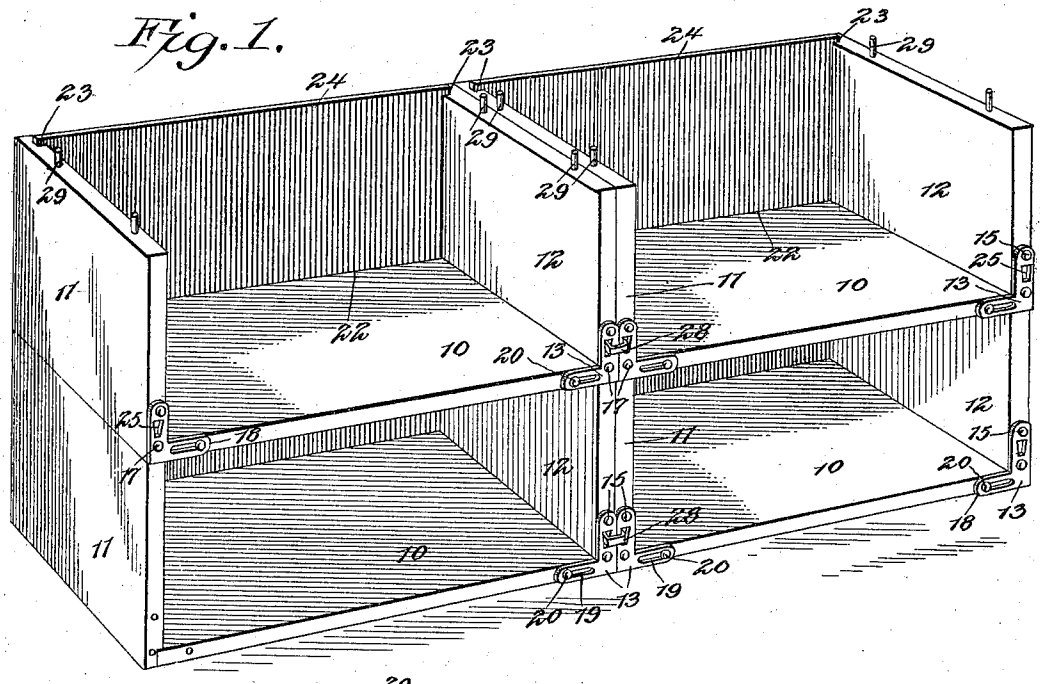


Fig. 2.

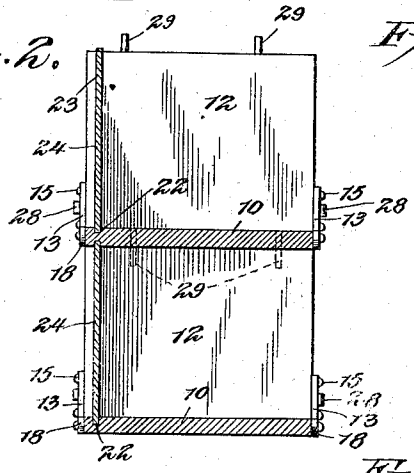


Fig. 3.

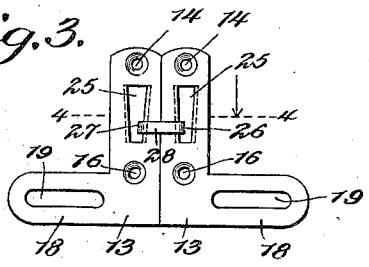


Fig. 4.

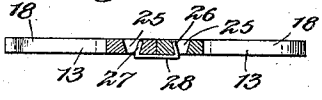


Fig. 6.

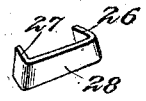


Fig. 5.

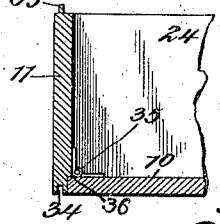
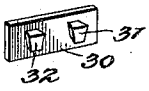


Fig. 7.



Witnesses
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UNITED STATES PATENT OFFICE.

NATHANIEL GRANT FRENCH, OF AUBURN, MAINE.

FOLDING BOOKCASE.

SPECIFICATION forming part of Letters Patent No. 687,740, dated December 3, 1901.

Application filed November 20, 1900. Serial No. 37,143. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL GRANT FRENCH, a citizen of the United States, residing at Auburn, in the county of Androscoggin and State of Maine, have invented a new and useful Folding Bookcase, of which the following is a specification.

This invention relates to folding bookcases in general, and more particularly to that class wherein the case is composed of a plurality of individual sections removably connected and each of which when disjointed from the rest may be folded into small compass.

The object of the invention is to provide a simple and efficient construction and one that is cheap of manufacture and wherein the several sections may be readily connected and disjointed and when in their assembled positions will be held firmly against displacement.

A further object of the invention is to provide means for holding the sections together firmly and also means for permitting the end portions of the sections to be folded flat against the bottoms thereof.

Further objects and advantages of the invention will be evident from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a perspective view showing a number of sections set up and connected to form a composite case. Fig. 2 is a sectional view showing the arrangement of the sliding backs. Fig. 3 is an elevation showing two of the close-folding hinges and the means for engagement therewith to hold the sections of the case together. Fig. 4 is a section on line 4 4 of Fig. 3. Fig. 5 is a sectional view showing the use of a common form of hinge for the end piece and the employment of a tongue and groove instead of dowels to hold the sections. Fig. 6 is a perspective view showing one form of clip for holding sections of the case together. Fig. 7 is a perspective view of a second form of clip for holding the sections together.

Referring now to the drawings, and more particularly to Figs. 1, 2, 3, 4, and 5 thereof, the case is made up of a plurality of individual sections mutually connected. Each of these sections consists of a bottom 10, having suitable length, width, and thickness, and to which are hinged the end pieces. These end pieces (shown at 11 and 12) are in the present instance connected to the bottom 10 in such manner that when in their upright or operative positions they will stand with their side faces against the ends of the bottom and resting with their ends upon whatever support may be provided for said bottom. When the end pieces are folded from their operative positions, they lie flat upon the bottom. The connections for the end pieces consist of angular plates 13, each of which has a perforation 14 at one end, through which is passed a screw 15, which holds the plate to the edge of the end piece to be fastened, while a second perforation 16 is formed near to the angle of the plate to receive a second screw 17, passed into the edge of the end piece, these two screws acting to hold the plate, with its laterally-projecting leg or base, flush with the lower end of the end piece.

In the laterally-projecting leg 18 of the angle-plate is formed a longitudinal slot 19, and through this slot is passed an attaching-screw 20, which holds the plate to the front edge of the bottom of the section. The plates 13 are secured at both the front and rear sides of the section of the bookcase, as shown.

The action of the plates 13 is to permit of upward swinging movement of the end pieces from a position lying upon the upper face of the bottom 10 and also to permit of outward bodily movement of the end pieces to carry them beyond the ends of the bottom, so that they may stand against the ends of said bottom, the length of the slot of each plate being such that when the screw passed therethrough lies at the outer end of the slot it will act as a pivot to direct the end of the case to its position against the end of the bottom and will furthermore hold the end against displacement from its vertical position in a direction away from the bottom 10. When the ends are folded onto the bottom, the slots of the plate permit the plates to be moved downwardly when tilted, the screws traveling upwardly through the slots, so that the ends may lie flat against the bottom.

In the upper face of the bottom 10 and adjacent to the rear edge thereof is formed a longitudinal groove 22, and alining therewith are grooves 23 in the inner faces of the ends, these alining grooves being adapted to slid-

ably receive a back 24 in the form of a plate or board, as shown. This back acts to hold the end pieces against inward displacement from their vertical positions, as will be readily understood.

In the upright portion of each plate 13 is formed a slot 25, which in cross-section is tapered in the direction of the front side of the plate and which is also tapered from its upper end in the direction of the lower end. When two sections of the case are placed end to end, the upwardly-extending portions of the mutually-adjacent plates 13 lie in close relation with their slots in such position as to permit of the engagement therewith of the ends 26 and 27 of a U-shaped clip 28, the ends of this clip being slightly converged to conform to the cross-sectional taper of the slots, while their free extremities are so spaced as to permit of initial engagement thereof with the upper broadened ends of the slots. The clip may be then pressed downwardly to engage the sides of the slots with its ends, and thus to draw the sections of the case close together and hold them in this position.

In the lower ends of the end pieces of each section of the case are formed perforations, (shown in dotted lines in Fig. 2,) while in the upper ends of the end pieces there are engaged dowel-pins 29, these pins and perforations being so positioned that when one section is placed on another the pins will engage the corresponding perforations and will hold the sections against lateral displacement with respect to each other.

In place of the U-shaped clip above described for engagement with the plates 13 a plate 30, having dovetail lugs 31 and 32 thereon, may be used, these lugs having such arrangement and dimensions as to permit the plate to be manipulated to engage the lugs with the slots 25, when by pressing the plate 30 downwardly the lugs will be forced into the lower narrowed ends of the slots and will act to draw the plates, and therewith the case-sections, toward each other. Also in substitution of the dowels at the ends of each section the said ends may be provided with tongues and grooves 33 and 34, respectively, at their upper and lower ends.

With this construction of case it will be seen that one section may be set up and used alone, or a number of sections may be connected either end to end, one on top of another, or a combination of both, so that the desired shape of the completed article may be secured. The bottom pieces 10 have grooves in their lower faces to receive the edges of the backs when the sections are placed on top of one another. Furthermore, in place of the plates 13 common forms of hinges may be used for connecting the ends to the bases of the sections, as shown at 35 in Fig. 5, said hinges being connected to the end pieces at points above their lower ends to permit of the ends lying against the ends of the bases, and in either arrangement of hinge connections the end pieces are slightly reduced in thickness at their lower portions, so as to form shoulders 36 to rest upon the upper face of the base to limit the unfolding movements of the end pieces.

What is claimed is—

1. A bookcase-section comprising a base having end pieces pivotally and slidably connected thereto for bodily upward and lateral movement to lie above and parallel with the base and for return movement to stand erect against the ends of the base.

2. A device of the class described comprising a base having end pieces adapted to stand at angles thereto, said end pieces being connected with the base for upward and lateral bodily movement to lie parallel with and above the base and for subsequent downward movement to lie upon the base.

3. A bookcase-section having end pieces, and angular plates each of which has one arm fixed to one member and its other arm slidably connected with the other member, to permit of pivotal and bodily movement of the end pieces to lie alternately against the upper and end faces of the base, said plates having slots therein for engagement of clips to hold the end pieces of mutually-adjacent sections in close relation and prevent folding of the end pieces.

4. A bookcase comprising a plurality of separable sections, each including a base, end pieces and angular plates each having one arm fixed to an end piece and the other arm slidably connected with the base, the first-named arms having slots therein, and clips removably engaged with the slots of mutually-adjacent plates to hold the end pieces in close relation and to prevent folding thereof against the bases.

5. A bookcase comprising a plurality of separable sections, each section including a base having end pieces and angular plates, one arm of each of which is fixed to an end piece and the other arm is slidably connected with the base, the first-named arms having longitudinal slots formed with the adjacent walls of adjacent slots diverging, and a clip having laterally-turned ends engaged with the slots and adapted for movement therethrough in the direction of divergence of the slots to clamp the sections in close relation.

6. A bookcase comprising a base and end pieces, and hinges connecting the end pieces with the base and each consisting of an angular plate having one leg rigidly attached to one member and the other leg pivotally and slidably connected with the other member, whereby the end pieces may be folded to lie flat upon the base.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

NATHANIEL GRANT FRENCH.

Witnesses:

E. L. SMITH,

W. P. ATWOOD.