

Oct. 28, 1941.

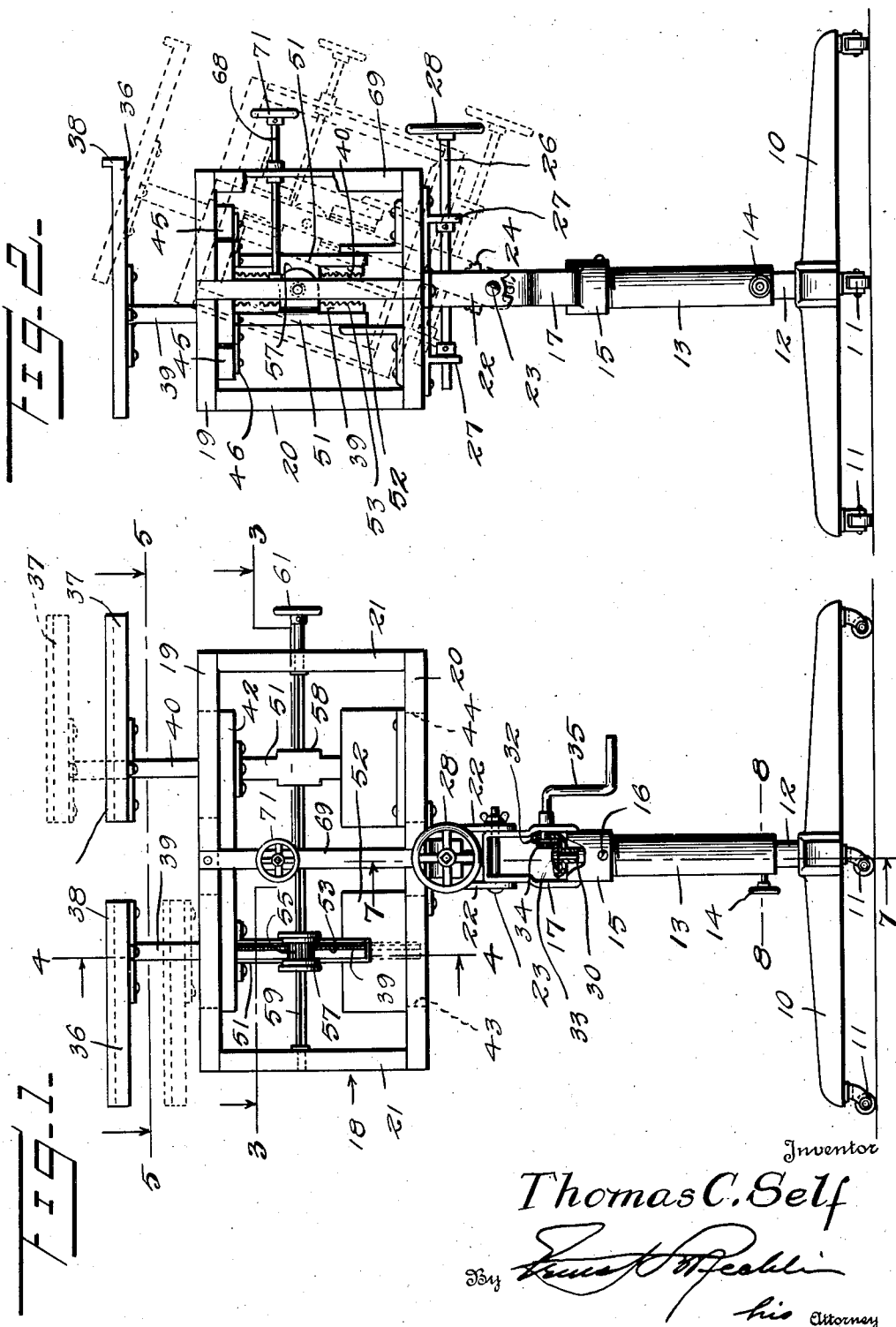
T. C. SELF

2,260,694

BOOKSTAND

Filed Oct. 27, 1937

3 Sheets-Sheet 1



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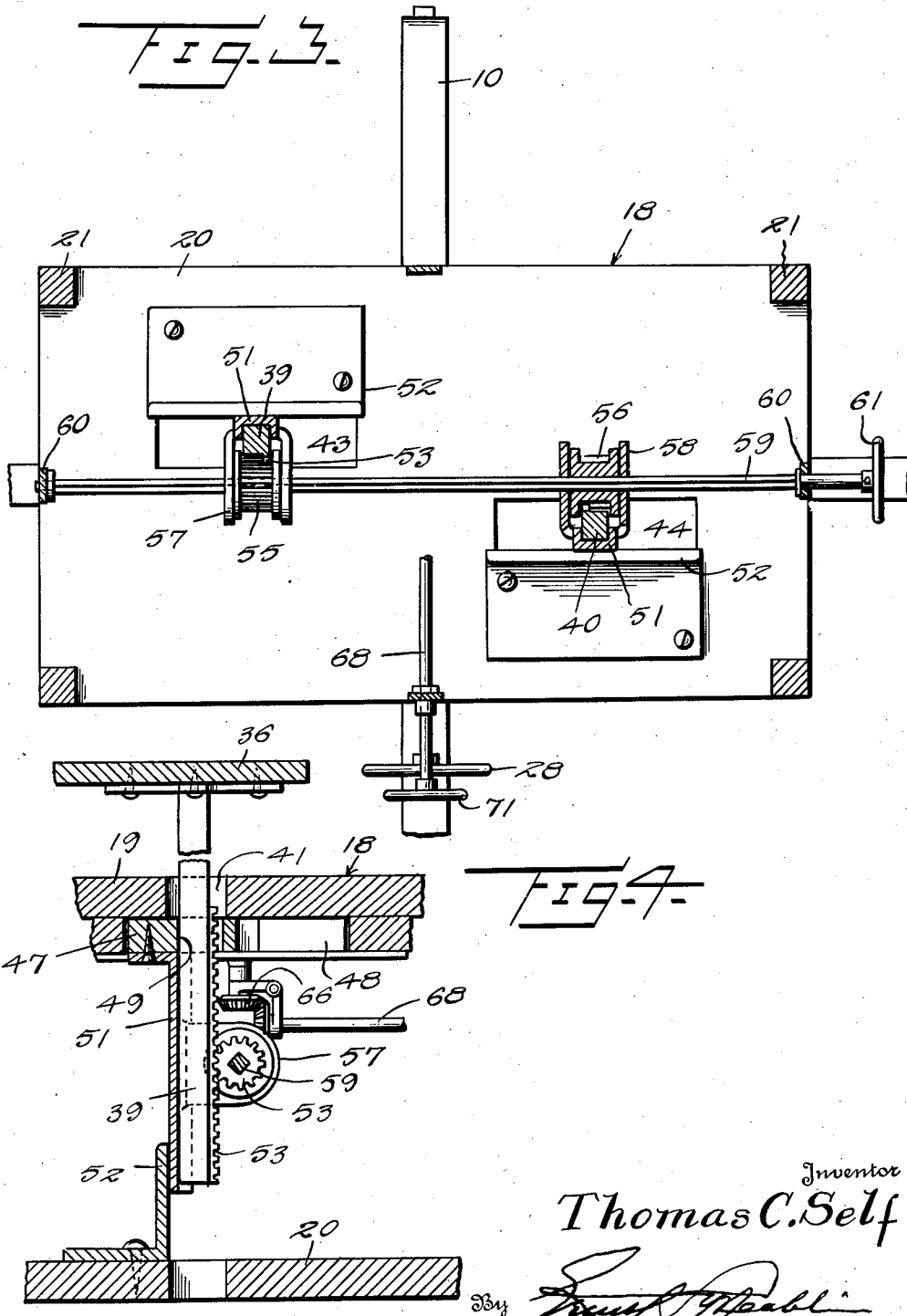
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3 Sheets-Sheet 2



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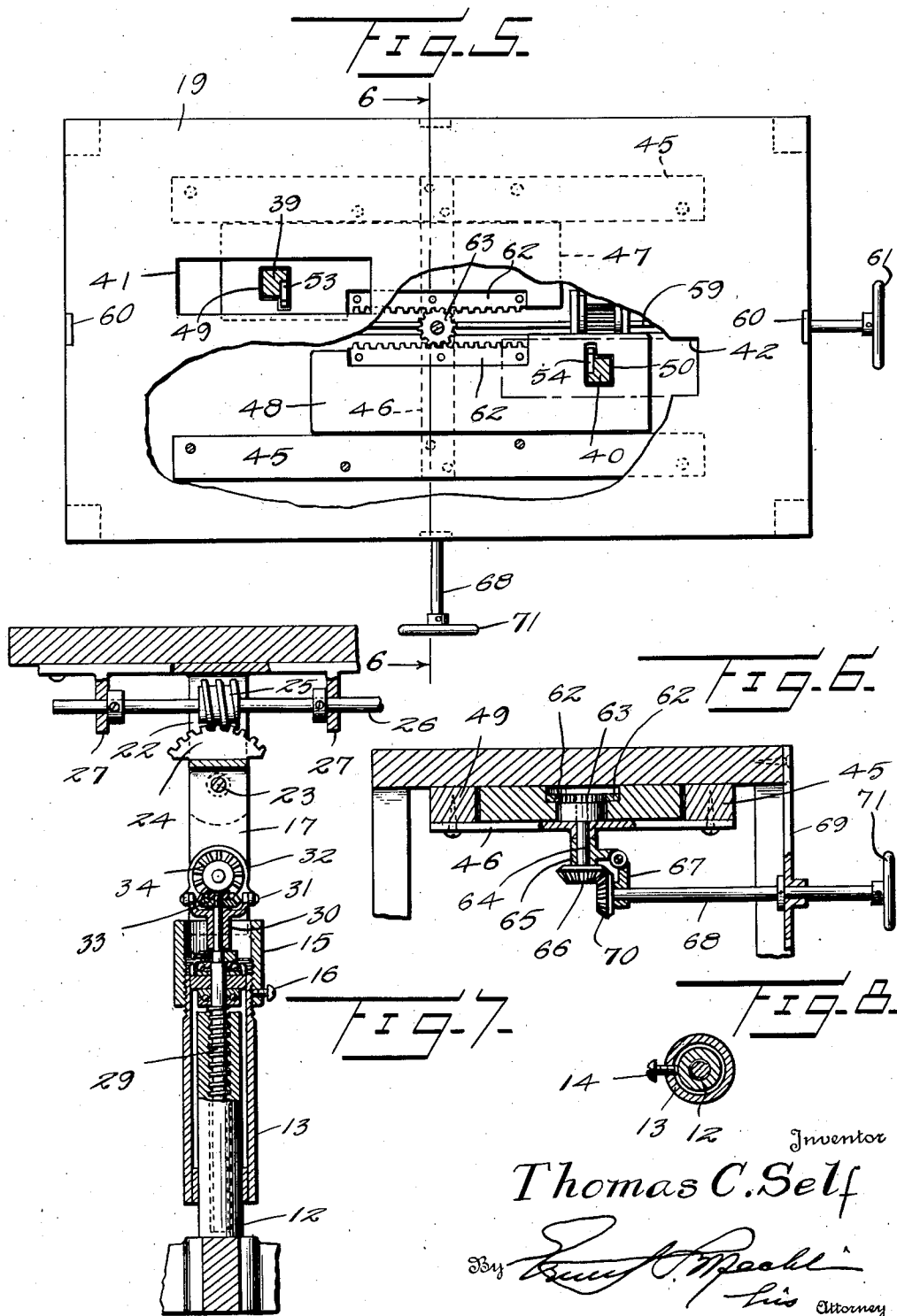
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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

2,260,694

BOOKSTAND

Thomas C. Self, Martinsville, Va.

Application October 27, 1937, Serial No. 171,300

13 Claims. (Cl. 45—86)

The invention relates to book stands and has for its general object the provision of a novel device of this character particularly designed and adapted for supporting large, heavy and cumbersome books such as dictionaries, directories, atlases, ledgers, tax and land record books and the like, in a manner greatly facilitating their consultation or use.

An important object of the invention is to provide a stand having numerous adjustments to take care of different conditions or situations, that is to say it is adjustable as to height, width and tilt.

An important object is to provide a stand of this character embodying relatively movable table, platform or shelf sections which may be brought together or spaced apart and which may, in addition, be located at different adjusted heights, it being a feature that one may be used for supporting a book while the other is employed as a desk for the convenience of the user copying data or the like from the book.

Another object is to provide a stand which is capable of adequately and conveniently supporting a book in open position and which may be adjusted to support one or more books or books of different thicknesses in vertical position and closed condition.

Yet another object is to provide a stand of this character in which the relative vertical adjustability of the table or platform sections or members will enable one to support the relatively thick portion of an opened book while the other supports the thinner portion, in case the book is not opened at the center, this feature making it possible to bring the reading surfaces of both portions at the same level.

A more specific object is to provide a stand of this type having easily operable separate adjusting means for carrying out the above mentioned functions in an expeditious manner.

To the attainment of the foregoing and other objects and advantages, the invention preferably consists in the details of construction and the arrangement and combination of parts to be hereinafter more fully described and claimed, and illustrated in the accompanying drawings in which:

Figure 1 is a front elevation of the complete device, different relative vertical positions of the supporting platforms or sections being shown by dotted lines.

Figure 2 is a side elevation with a tilted position indicated by dotted lines,

Figure 3 is a horizontal section taken on the line 3—3 of Figure 1.

Figure 4 is a vertical section taken along the line 4—4 of Figure 1.

Figure 5 is a horizontal section taken on the line 5—5 of Figure 1.

Figure 6 is a horizontal cross sectional view taken on the line 6—6 of Figure 5.

Figure 7 is a detail section taken on the line 7—7 of Figure 1.

Figure 8 is a detail cross section taken on the line 8—8 of Figure 1.

Referring more particularly to the drawings the numeral 10 designates a base here shown as of cruciform shape and mounted upon casters 11. Rising from the center of this base is a post 12 having a central threaded bore and surrounded by a vertically slidable sleeve 13 which may be secured in adjusted position with respect to the post by means of a set screw 14 and which has its upper end carrying a collar 15 shown as screwed onto the sleeve and held against accidental rotation by a set screw 16. This collar carries an inverted U-shaped yoke 17 welded or otherwise fastened in place.

The main supporting portion of the device comprises a rectangular frame structure indicated as a whole by the numeral 18 and including vertically spaced upper and lower table members 19 and 20 connected as by posts 21. Secured to the underside of the lower table member 20 are angle plates 22 which embrace the yoke 17 and which are pivoted thereto by a suitable bolt 23 which provides a pivot connection enabling the entire structure 18 to be tilted, the means for accomplishing this comprising a segmental gear 24 secured upon the top of the yoke 17 and engaged by a worm 25 carried by a shaft 26 journaled through bearings 27 on the underside of the table section 20 and equipped with a hand wheel 28. Clearly by turning the handle 28 the worm 25 meshing with the segmental gear 24 will cause the entire structure 18 to be tilted forwardly or backwardly.

It is intended that the frame structure 18, and the mechanism mounted thereon and to be described, be bodily vertically adjustable and to accomplish this I provide a threaded rod or screw 29 journaled through an appropriate bearing structure within the collar 15 and extending into the threaded bore in the post 12 and through a U-shaped yoke 30 to which is pivoted at 31 an upstanding yoke 32. Within the confines of the yoke 30 the upper reduced end of the rod or screw 29 carries a bevel gear 33 mesh-

ing with a bevel gear 34 carried by a cranked shaft 35 journaled through one side of the yoke 17 and through the yoke 32. By turning the cranked shaft 35 the coacting gears 34 and 33 will operate to rotate the threaded rod or screw 29 which reacting with the threaded bore in the post 12 will cause the sleeve 13, together with the collar 15 and yoke 17 to be moved up or down as may be desired, the sleeve 13 sliding telescopically upon the post 12 as will be readily understood. The purpose in pivotally connecting the yokes 30 and 31 is to provide for sufficient freedom of movement that there will be no danger of binding. As before mentioned, the vertically adjusted position can be maintained by tightening the set screw 14.

The means for directly supporting a book or books or for serving as a writing desk comprises a pair of shelf or platform members 36 and 37 having retaining ledges 38 at their forward edges, these members being mounted upon depending posts 39 and 40 which extend respectively through slots 41 and 42 in the upper table member 19 and through slots 43 and 44 in the lower table member 20. Secured upon the underside of the upper table member 19 are spaced longitudinally extending guides 45 bridged by a metal strip 46, and slidably engaging these guides and block-like carriers 47 and 48 formed with openings 49 and 50, respectively, through which the depending posts 39 and 40 are slidably engaged. Secured upon the underside of the carriers 47 and 48 are guides 51 against which the posts are slidably engaged, and these guides are in turn slidably engaged against L-shaped guide brackets 52 secured upon the lower table member 20 at the slots therein. The entire purpose of these guides 51 and 52 is to guide the posts 39 and 40 during their vertical movement so that they cannot move laterally in one direction.

It is intended that the shelf members 36 and 37 be capable of relative vertical movement and in order that this may be carried out, the posts 39 and 40 carry racks 53 and 54, respectively, which face in opposite directions, that is to say the rack 53 has its teeth pointing toward the front of the stand while the rack 54 has its teeth extending toward the rear. Cooperating with these racks are gears or pinions 55 and 56 confined within yokes 57 and 58 secured to the guides 51. These pinions and their confining yokes are slidable along or splined upon a rod or shaft 59 journaled through bearings in metal strips 60 which extend between the upper and lower table members 19 and 20 centrally of the ends thereof. The shaft 59 projects beyond one end of the frame structure 18 and carries a hand wheel 61. By turning this hand wheel and thereby rotating the shaft 59 the pinions 55 and 56 will be rotated and as they are in engagement with the racks 53 and 54, respectively, the posts 39 and 40 carrying the shelves 36 and 37 will be moved vertically. As the racks face in opposite directions and are at opposite sides of the shaft 59 it is clear that the posts 39 and 40 will be moved in opposite directions, one moving downwardly while the other goes upwardly, as shown by dotted lines in Figure 1.

It is for the purpose of enabling the shelf members 36 and 37 to be moved toward or from each other that the slidable block-like carriage members 47 and 48 are provided. In order that they may be moved relatively to effect the movement of the shelf members and their posts 39 and 40, these carriage members are provided at their

confronting edges with racks 62 between which is a pinion 63 meshing therewith and carried by a shaft 64 journaled through the center of the strip 46 and through a bearing member 65 located therebeneath. The lower end of the shaft 64 carries a bevel gear 66. Pivoted to the bearing 65 is a depending bearing member 67 through which is journaled a shaft 68 extending through a bearing on a metal strip 69 extending between and secured to the upper and lower table members 19 and 20 at the front of the frame structure 18. The inner end of this shaft carries a bevel gear 70 meshing with the bevel gear 66 and the projecting outer end is equipped with a hand wheel 71. By rotating the hand wheel and shaft 68 the gear 70 will drive the gear 66, shaft 64 and pinion 63 and as this pinion meshes with the racks 62 it is clear that the carriage members 47 and 48 will be moved longitudinally and in opposite directions, carrying with them the posts 39 and 40 on which the shelf members 36 and 37 are mounted. This will of course bring about the desired spacing between the shelf members.

In the use of the device a book to be inspected may be laid upon either of the shelf members or upon both of them if they are moved together. Furthermore the book may be laid upon one while the other is used as a desk, this being particularly advantageous in cases where it is necessary to copy matter from the book. For this purpose the shelf members might be disposed at different elevations to suit the convenience of the user. Another feature is that, particularly in the case of a very thick book lying upon both of the shelf members and opened at some point other than its middle, the shelf member upon which the thinner portion rests can be elevated so as to bring the reading surfaces of both sections or portions of the book in a common plane. This will naturally save wear and tear on the book and maintain it in good condition and avoid breaking its back. Another feature is that if the shelf members be moved apart one or more books in closed position may be placed between them so as to rest upon the upper table member 19. The adjustability of the shelf members toward and from each other enables a book or books in closed position to be clamped and enables the device to accommodate books of different thickness or several books in a position convenient for withdrawal and placing upon a shelf member. The vertical adjustability of the entire device by the species of jack structure as the base has been described and the tiltability, so that the shelf members will be disposed at a desired angle, has already been explained.

From the foregoing description and a study of the drawings it will be apparent that I have thus provided an extremely convenient book stand having every desirable and necessary feature of adjustability to take care of any and all conditions which might arise or be present. It is believed that the construction and operation as well as the advantages will be readily apparent to one skilled in the art without further explanation.

While I have shown and described the preferred embodiment of the invention, it should be understood that the disclosure is merely an exemplification of the principles involved as the right is reserved to make all such changes in the details of construction as will widen the field of utility and increase the adaptability of the device provided such changes constitute no departure

from the spirit of the invention or the scope of the claims hereunto appended.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. A book stand comprising a base, a standard rising therefrom, a frame structure carried by said standard, a pair of shelf members carried by said frame structure, a shaft rotatably associated with said frame structure, means for moving said shelf members longitudinally of said shaft, and means operated by and slidably engaging said shaft for moving said shelf members relatively in a vertical direction.

2. A book stand comprising a base, a standard rising therefrom, a frame structure carried by said standard, shelf members carried by said frame structure, means for moving said shelf members toward or from each other, and means for simultaneously moving said shelf members relatively in a vertical direction independently of said first named movement.

3. A book stand comprising a base, a standard rising therefrom, a frame structure carried by said standard, shelf members carried by said frame structure, means rotatably mounted on said frame structure for moving said shelf members relatively in a vertical direction, and positive means for moving said shelf members toward or from each other.

4. A book stand comprising a base, a standard rising therefrom, a frame structure carried by said standard, shelf members carried by said frame structure, means attached to said frame structure and cooperating with means carried by each of said shelf members for moving said shelf members oppositely in a vertical direction, and means connected to said frame structure for moving said shelf members toward or from each other.

5. A book stand comprising a base, a standard rising therefrom, a frame structure carried by said standard, carriages slidably carried by said frame structure, means operatively connecting said carriages for simultaneous movement in opposite directions independently of said frame structure, shelf members carried by said carriages, and means for moving said shelf members simultaneously in opposite vertical directions.

6. A book stand comprising a base, a standard rising therefrom, a frame structure carried by said standard, carriages slidably carried by said frame structure and means for simultaneously moving the carriages in opposite horizontal directions, shelf members carried by said carriages, and means rotatably associated with said frame structure for moving said shelf members relatively in a vertical direction independently of said carriages.

7. A book stand comprising a base, a standard rising therefrom, a frame structure mounted thereon, a pair of carriages mounted on said frame structure, means for simultaneously moving the carriages in opposite horizontal directions, posts supported by said carriages, shelf members mounted on said posts, and means for simultaneously moving said posts relatively in a vertical direction independently of said carriages.

8. A book stand comprising a base, a standard rising therefrom, a frame structure carried by said standard, carriages slidably upon said frame structure, means operatively connecting said carriages for simultaneously moving the same in opposite directions, posts carried by said carriages, shelf members mounted on said posts, and means for moving said posts relatively in a vertical direction.

9. A book stand comprising a base, a standard rising therefrom, a frame structure mounted upon said standard, a pair of carriages arranged in spaced relation and slidably mounted within said frame structure, means for moving said carriages relatively in a longitudinal direction, depending shelf-carrying posts extending through said carriages and within the frame structure, and means mounted on said frame structure for raising and lowering said posts relatively to each other independently of said carriages.

10. A book stand comprising a base, a standard rising therefrom, a frame structure mounted upon the upper end of said standard, carriages slidably mounted within said frame structure for relative movement in opposite directions, guide members depending from said carriages, posts vertically slidably mounted within said guide members and carrying shelf members, gear operated means operatively connected with said posts for moving the same, and other gear operated means operatively connecting said carriages for moving them horizontally simultaneously so as to vary the distance between the posts and consequently the shelf members.

11. A book stand comprising a base member, a standard rising therefrom, a supporting frame mounted on said standard, carriages longitudinally relatively movable within the confines of said frame, gear operated means for moving said carriages relatively in opposite directions, shelf-carrying posts carried by said carriages and vertically movable with respect thereto and relatively movable with respect to each other, gear operated means for effecting vertical movement of said posts, and other gear operated means for effecting movement of the posts and consequently the shelves toward each other.

12. A book stand comprising supporting means, a frame structure mounted on said supporting means, a pair of shelf members carried by said frame structure, means for moving said shelf members toward or from each other in a substantially horizontal direction, and means for simultaneously moving said shelf members relatively to each other in a substantially vertical direction independently of said horizontal movement.

13. A book stand comprising supporting means, a frame structure mounted upon said supporting means, a pair of shelf members movably mounted upon said frame structure, positive means for moving said shelf members toward or from each other in horizontal planes, and means mounted on said frame structure for moving said shelf members conversely in directions perpendicular to their planes.

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