M. J. STARK, JR.

BOOK HOLDER.

APPLICATION FILED JAN. 14, 1911.

1,001,900.

Patented Aug. 29, 1911.

2 SHEETS—SHEET 1.

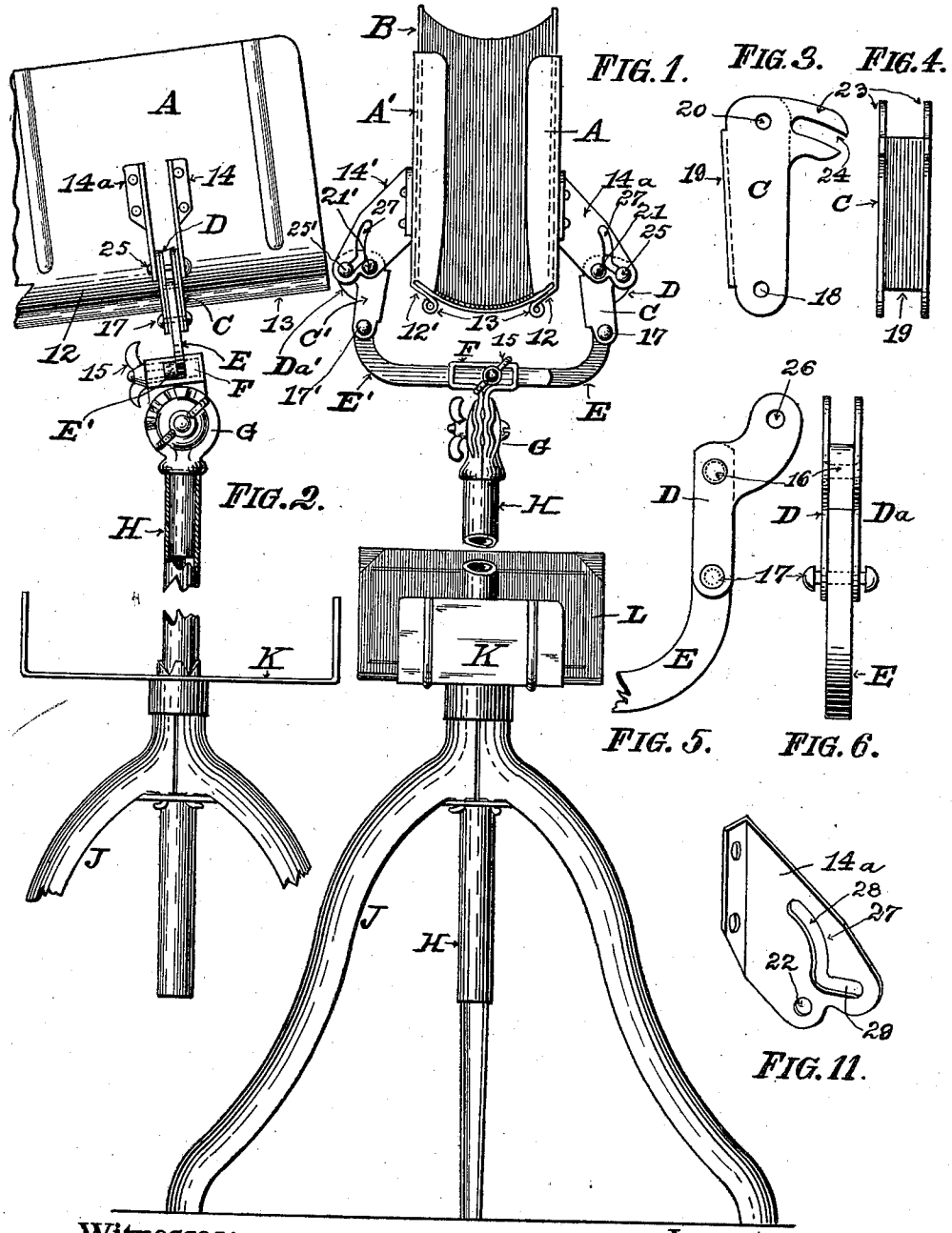

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 11.

Witnesses:

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2 SHEETS—SHEET 2.

FIG. 10.

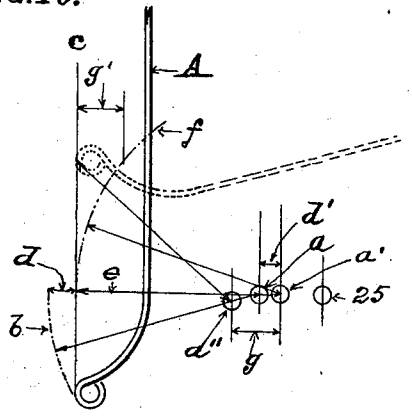
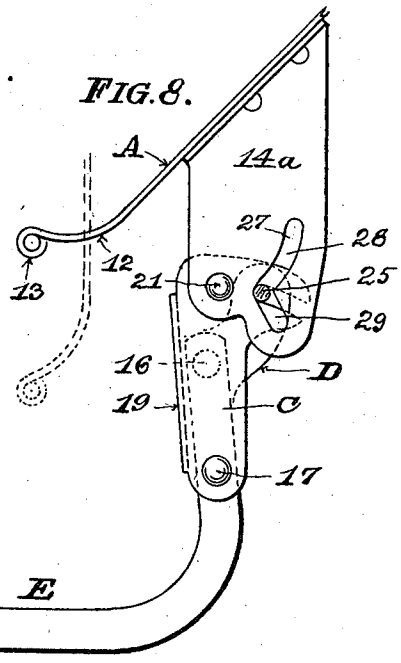


FIG. 8.



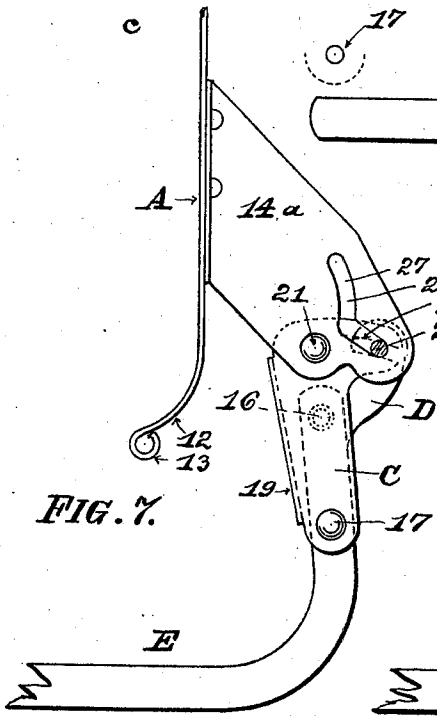


FIG. 7.

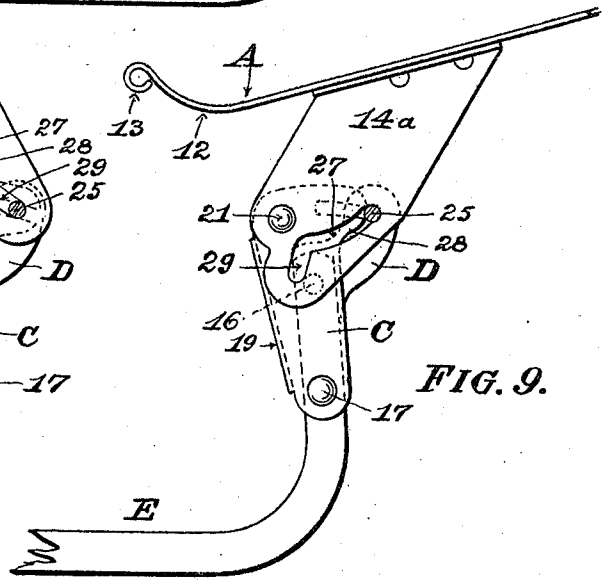


FIG. 9.

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UNITED STATES PATENT OFFICE.

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BOOK-HOLDER.

1,001,900. Specification of Letters Patent. **Patented Aug. 29, 1911.**

Application filed January 14, 1911. Serial No. 602,620.

To all whom it may concern:

Be it known that I, MICHAEL J. STARK, Jr., a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Book-Holders; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheets of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to a combined book-holder and book-stand; and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described and then pointed out in the claims.

In the drawings already mentioned, which serve to illustrate this invention more fully, Figure 1 is an end elevation of my improved book-holder and stand. Fig. 2 is a side view of the same. Fig. 3 is a side view of the guide-member detached. Fig. 4 is an end view of the same. Fig. 5 is a side view of the pivot-members and a portion of the extension bar detached. Fig. 6 is an end view of the same. Fig. 7 is a side elevation of a portion of the device illustrating the closed position of the book-holder. Fig. 8 is a similar view showing the partly-open position, and Fig. 9 is a similar view depicting the entirely-open position of the book-holder. Fig. 10 is a diagrammatic plan solving the problem of causing the leaves or boards of the book-holder to move at their lower ends in substantially parallel lines when being opened. Fig. 11 is a perspective view of one of the brackets attached to the board, detached.

Like parts are designated by corresponding symbols and characters in all the various figures.

The object of this invention is the production of a book-stand and book-holder combined in which the leaves or boards of the book-holder shall move at their lower ends in substantially straight, parallel, lines to prevent pinching the book when the book is being opened, and to cause the book to serve as the means for clamping the book tightly in closed position to preserve the same in the best possible condition.

In a book-holder with which I am acquainted, which has two pivoted leaves or boards between which the book is held in closed condition, and in which the weight of the book tends to cause the wings, leaves, or boards of the book-holder to impinge upon the book to hold the same and preserve its correct form, the pivotal points of the leaves are fixed. In order to cause the weight of the book to serve as the means for clamping the same to the exclusion of springs, these pivotal points must be located above the lower edges of the leaves, in consequence of which the lower edges of the leaves describe arcs of circles when the book is being opened and closed. This condition I have graphically illustrated in Fig. 10. Assume the point a to be the pivotal point of one of said wings or leaves then the lower edge of the leaf A will describe the arc b when being unfolded or folded up. There being two of these leaves moving in opposite directions, it follows that the lower edges of said leaves approach each other when being unfolded and press with considerable force upon the lower end of the book thereby causing a thump or jar in opening, which is very disagreeable and detracts considerably from the value of the otherwise very satisfactory book-holder. To avoid this thump or jar, which is the principal object of my present invention, I make the pivotal points of the leaves movable, and the principle upon which this feature is based is also graphically illustrated in Fig. 10. Thus when the leaves of the book-holder are being unfolded, the pivotal point a moves away from the vertical line $c\ c$, a distance equal to the rise d of the arc b, to the position indicated by the reference-letter a'. When the lower edge of the wing or leaf reaches the line e, it would begin to describe the arc f, provided the pivotal point a' were fixed, but this point will then retrace its former movement and move beyond its normal position to the point a''; the distance g through which the point has moved, being equal to the rise g' of the arc f. It will thus be seen that the opening or unfolding of the leaves A A′ causes the lower ends of said leaves to move in substantially straight, parallel, lines so that in opening the book there is no pinching of the same and hence no jar or thump whatsoever. To accomplish this compound movement of

the leaves or boards of the book-holder, I construct this device, as follows:

A, A′, as already stated, are the two leaves of the book-holder. These leaves and the mechanism appertaining thereto, are alike in construction, and I shall, therefore, describe as far as necessary, one of the same only, it being understood that a description of one of these devices applies equally to the other, the reference-symbols applied to them being the same except that a "prime" (′) is added to the reference-symbols designating the corresponding parts of the other of said leaves and appurtenants. The leaf A has at its lower end an inward curve 12, to provide a ledge upon which the book B will be supported in vertical, closed position, a roll 13, being formed at the lower edge of said shelf to stiffen the same. To the back of this leaf there are secured two brackets 14, 14ª, spaced apart to permit the location between them of a guide-member C, and two pivotal members D, Dª, to be hereinafter more fully described.

E, E′, are two curved extension bars. They are movably retained in a socket F, and secured in adjusted position by a set-screw 15. These bars are upwardly curved and to the end of the curved portion there are secured, by a rivet 16, and a pivotal bolt 17, two pivotal members D, Dª. Upon this pivotal bolt 17 swings the guide-member C, said pivotal bolt 17 engaging the bolt-holes 18, Fig. 3, located at the lower ends of said guide-member C. This guide-member C comprises two walls in spaced relation, said walls being connected by a web 19, to preserve their spaced relation, there being at the upper ends of the side-walls holes 20, for the passage of a pivot-bolt 21, which pivot-bolt engages correspondingly-arranged bolt-holes 22, Fig. 11, in the brackets 14, 14ª. The guide-members C have lateral projections 23, slotted at 24, as illustrated in Fig. 3, said slots being adapted to engage a stud-bolt 25, passing through the holes 26 at the upper ends of the pivotal members D, Dª, as shown in Fig. 5. In the brackets 14, 14ª, there are slotted apertures 27, substantially L-shaped in contour, which slotted apertures are engaged by the stud-bolt 25, the object of which will hereinafter fully appear. The socket F is attached to, or formed integrally with a swivel connection G, which connection admits of the inclining of the book-holder, as illustrated in Fig. 2, for convenience in reading the book when opened, said swivel connection being rotatably placed into the upper end of a stand pipe H, forming a part of a tripod J; a shelf K, mounted upon said tripod and rotatively arranged upon said stand pipe being provided to afford space for additional books L, in convenient position.

The operation of this book-holder is substantially as follows: When the book B is in closed vertical position and clamped between the leaves A, A′, its weight causes these leaves to press inwardly toward each other, the bolts 17, 17′ being the pivotal points on which the leaves rotate. To open the book, hold is taken of its two covers, or the two leaves A, A′, as the case may be, and the same swung outwardly. In this case the pivotal bolts 21, 21′, form the pivots on which the leaves A, A′, will move, and the stud-bolts 25, engaging the L-shaped slots in the brackets 14, 14ª, 14′, and 14ª′, cause the leaves to swing the guide-members C outwardly, the initial position of the parts being shown in Figs. 1, 2, and 7. As soon as the leaves are partly unfolded and have reached the position where the L-shaped slots 27, 27ª, 27′, and 27ª′ change their direction, as shown in Fig. 8, the remaining portions of the L-shaped slots cause the guide-members C to retrace their movement and to continue their inward movement beyond their initial position, such final position being illustrated in Fig. 9.

Again referring to Fig. 10, wherein the point designated by the letter *a* corresponds to the pivot bolt 21, it will be seen that the first movement of the leaves A A′ brings the position of this pivotal point to the position indicated by *a′*, the distance *d′* moved being equal to the rise *d* of the arc *b*, so that, in unfolding, the lower edges of the leaves A A′ move vertically in straight parallel lines. As soon as the lower edges of the leaves reach a horizontal line drawn through the centers of the pivotal bolts, designated by *e*, the curved portion 28 of the slotted apertures 27 cause the guide-members C to retrace their movements, the points *a′* moving inwardly beyond their initial position to the position *a″*, the distance *g* moved being equal to the rise *g′* of the arc *f*, so that the entire upward movement of the lower ends of the leaves A, A′, is in straight parallel lines. To close the book, the operations and movements of the parts heretofore described are reversed. And again referring to Fig. 10, it will be noticed that in unfolding, the latter part of the movement of the lower ends of the leaves A, A′, is the reverse of the initial part of the same. I will here state that this latter part of the movement of the lower ends of the said leaves needs not of necessity be an inward one. Thus, were the curved portions of the slotted apertures in the brackets concentric with the pivotal bolts 21, the book-holder would unfold and the lower ends of the leaves would follow the arcs *f*, or away from each other. This movement is, however, objectionable because the distance between the opposing lower ends of the leaves would be increased so that in folding up, the book B would be likely to

slip down past the lower ends of said leaves and thereby prevent the book-holder from being closed. This lateral movement of the lower ends of the leaves would also be likely to scratch and mar the book on its back, wherefore, while I consider such a concentric construction of the slots the equivalent of the L-shaped one, I prefer the latter on account of its producing the effect of a continuous parallel movement of the lower ends of the leaves, for the reasons mentioned. It will be observed that the lower ends of the leaves moving in straight parallel lines the book B is never pinched except when the book is in closed condition and clamped between said leaves, which condition I term the normal one.

While this combined book-holder and book-stand is primarily designed to hold, for ready and convenient access, such works of reference as dictionaries, sample-books of woolens, cloth, &c., for merchant tailors, samples of the graphic arts of lithographers, &c., it is adapted for use in many other establishments, offices, &c., where books of reference are frequently consulted and where it is desired to preserve the book when not in use in the best possible condition.

I have heretofore described the members C by the term guide-members because these members are located in the spaces between the bracket-walls at the back of the leaves and serve to guide the movement of the leaves, and for this purpose the slots 24 therein are adapted to engage the stud-bolts 25. These guiding members also perform the function of connecting links or intermediaries between the curved arms and the brackets. As such, these guiding members do not, however, require the slotted extension 23, and these extensions may be dispensed with if desired, without materially affecting the operation of the device, a dotted line in Fig. 3 illustrating the condition of said guiding member without the extension. I have also heretofore described the parts riveted to the upper end of the curved extension arms E, E′, as pivot-members, for the reason that the stud-bolt which controls the cam-movement of the brackets 14 is located therein, said pivot-members forming, as it were, a continuation of the curved arms. This construction may be modified by continuing the curved arms to afford the position of, and means for securing, the stud-bolts, without departing from the scope of my invention.

Fig. 10 shows, diagrammatically, the principle upon which the movements of the leaves A, A′, are based. Concerning the solution of this problem of causing the lower ends of the leaves to move in straight parallel lines, I desire to state that the location of the three points, 17, *a*, and 25, are empirical, but the shape of the cam-slot 27 depends upon the location of these three points. Thus the pivotal point 21 should be located above the lower edges of the leaves when in vertical position. Then the rise of the arc *b* determines the angular position and length of the portion 29 of the cam-slot, and the rise of the arc *f* governs the curvature, position, and length of the portion 28 of said cam-slot. It follows that the location of the various points and the shape of the corresponding parts may be varied within certain limitations, and still be within the scope of my said invention. I am, furthermore aware that many of the details of construction heretofore described may be varied by persons skilled in the art to which this invention appertains without departing from the essence of my invention which, broadly speaking, resides in the combination of parts and details of construction whereby the lower ends of the leaves of the book-holder when being opened and closed move in substantially straight parallel planes.

Nearly all the parts comprising this combined book-holder and book-stand may be made from sheet-steel stampings in suitably constructed dies, whereby a very substantial, rigid, and eminently efficient article can be produced at a comparatively low cost.

In order to enable books of different thickness being clamped in, and supported by, this device, the curved extension bars are laterally movable in their socket F, and retained in adjusted position by the set-screw 15, in an obvious manner.

Having thus fully described this invention, I claim as new and desire to secure by Letters Patent of the United States—

1. A combined book stand and book holder, comprising, in combination, a supporting base, a standard vertically movable in said base, a clamping device at the upper end of said standard, two arms laterally adjustable in said clamping device, two leaves having inwardly turned ledges adapted to support said book in vertical position, brackets on said leaves, connecting members pivoted in said brackets at one end and to said arms at the other end, and means for imparting to said connecting members a lateral movement at the point where said connecting members engage said brackets, as set forth.

2. A combined book stand and book holder, comprising, in combination, a standard, two leaves mounted on said standard and adapted to hold a book between them when in closed condition and to afford a support for said book when in unfolded condition, arms on said standard, intermediary members pivoted to said arms at one of their ends and to said leaves at their other ends, and means for imparting to said interme-

diary members a lateral movement at the point where said intermediary members connect with said leaves, as specified.

3. A combined book stand and book holder, comprising, in combination, a standard, two leaves mounted on said standard and adapted to hold a book between them when in closed condition and to afford a support for the book when in unfolded condition, brackets on the back of said leaves, arms on said standard, intermediary members pivotally connected to said arms at one of their ends and to the brackets at their other ends, and means for imparting to the said intermediary members lateral movement at their point of connection with said brackets, whereby the lower ends of said leaves are adapted to move in substantially straight parallel planes when being unfolded and folded up, as stated.

4. A combined book stand and book holder, comprising, in combination, a standard, arms projecting from said standard in opposite directions, two leaves adapted to hold a book between them when in folded up position and adapted to serve as a support for the book when in open position, intermediary members pivoted to said arms and connecting said arms to said leaves, and cam-shaped members adapted to impart a lateral movement to said intermediary members at their point of connection to said leaves, to cause the lower ends of said leaves to move in substantially straight parallel planes when being unfolded and folded up, as specified.

5. A combined book stand and book holder, comprising, in combination, a tripod, a central stand pipe, a socket at the upper end of said stand pipe, laterally-projecting arms adjustably secured in said socket, two leaves, brackets projecting from the back of said leaves, there being in said brackets cam-shaped slots, intermediary members pivoted to said arms at one of their ends and to said brackets at the other of their ends, there being at the ends of said arms stud-bolts adapted to engage the cam-shaped slots in said brackets, as and for the object specified.

6. A combined book stand and book holder, comprising, in combination, a tripod, a standard supported by said tripod, a socket on said standard, oppositely-projecting, upwardly-curved, arms mounted in said socket, pivotal members at the upper ends of said arms, stud-bolts in said pivotal members, guide-members pivotally connected at one of their ends to said arms, two leaves or boards adapted to retain a book between them, brackets on the back of said leaves, said brackets being pivoted to said guide-members, there being cam-slots in said brackets adapted to engage said stud-bolts.

In testimony that I claim the foregoing as my invention, I have hereunto set my hand in the presence of two subscribing witnesses.

MICHAEL J. STARK, JR.

Witnesses:
W. A. MARGUERAT,
MICHAEL J. STARK.