May 18, 1948. G. W. CURRY 2,441,932

EASEL-TYPE SUPPORT

Filed March 12, 1947

FIG. 1

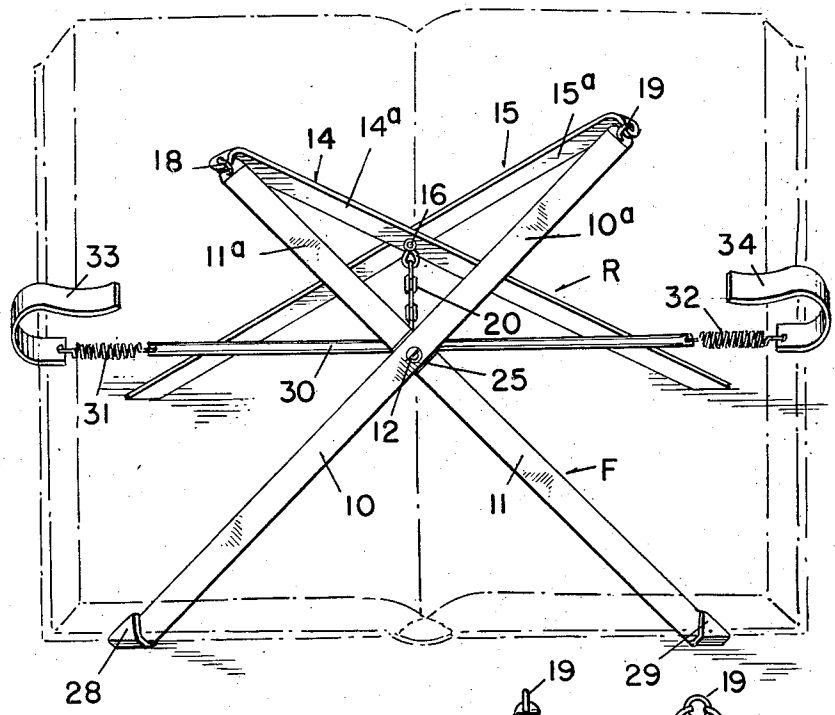


FIG. 2

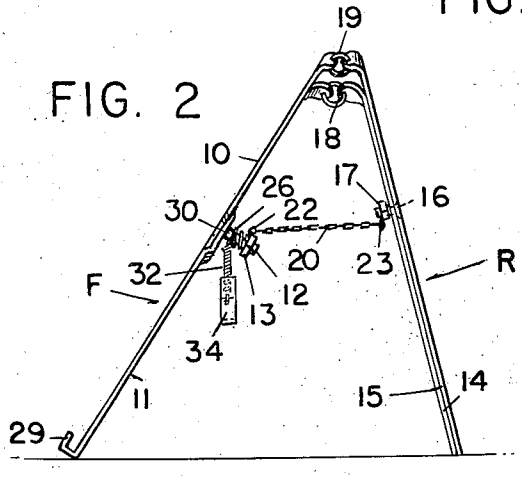


FIG. 3

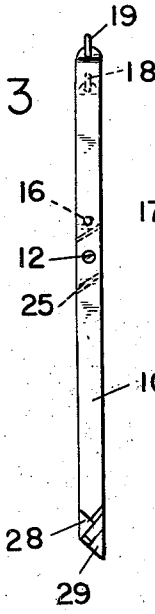
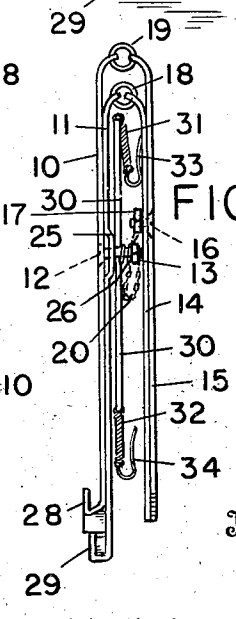


FIG. 4



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EASEL-TYPE SUPPORT

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10 Claims. (Cl. 45—57)

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This invention relates to improvements in easel-type supports and more particularly to an improved easel-type support designed and especially adapted for use as a bookrest by students and others engaged in reference work. Accordingly the invention will be described in relation to such application, but it will be understood that without material modification an easel-type support as herein contemplated may be applied to other uses and for other purposes.

Stated generally, the principal object of the invention is the provision of an improved and simplified design of easel-type support having wide utility in fields where it is desirable both to support a book, a magazine and the like in substantially upright position and to hold it open at any particular place or page. A further important object of the invention is the provision of an easel-type support of collapsible construction which, when set up, is capable of providing a support of exceptional rigidity and which may be collapsed to extremely compact form in which it is capable of being carried from place to place in a brief-case, for example. A still further object of the invention is the provision of a collapsible easel-type support which may be simply and quickly set up and collapsed. Yet another object of the invention is the provision of an easel-type support characterized by simple design, inexpensive manufacture and thoroughly dependable operation.

The above and other objects and advantages of the invention will appear from the following detailed description thereof, taken with the accompanying drawing illustrating a preferred embodiment of the invention selected for purpose of simple disclosure, in which

Fig. 1 is a front perspective view of an easel-type support according to the invention in its set-up position, designed for use as a bookrest capable of holding a book (shown in dotted lines) in substantially upright position and open at any desired place or page thereof;

Fig. 2 is a side elevation thereof;

Figs. 3 and 4 are front and side views, respectively, of the support in its collapsed position.

Referring to the drawings, wherein like reference characters designate like parts throughout the several views, the easel-type support of this invention comprises hingedly connected front and rear frame members designated F and R, respectively, which, in the set-up or in use condition of the support, are disposed in mutually supporting, inclined relationship to one another. The front frame member F is formed by

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a pair of crossed legs 10, 11, preferably of strap metal such as aluminum, which are pivotally connected intermediate their ends by a pivot pin or bolt 12 secured by a nut 13 (Fig. 2). Similarly, the rear frame member R is made up of a pair of crossed legs 14, 15 which are pivotally connected intermediate their ends by a pivot pin or bolt 16 secured by a nut 17. Preferably, the frame members F and R are hingedly connected by hinge loops 18, 19, of which the hinge loop 18 connects the upper ends of the corresponding front and rear legs 11, 14, and the hinge loop 19 connects the upper ends of the corresponding front and rear legs 10, 15. To facilitate the hinging action of the loops 18, 19, the upper ends of the corresponding legs connected thereby are offset towards one another, as best seen in Fig. 4, such offsetting also increasing the spacing between the front and rear frame legs when the device is collapsed and thereby preventing binding or interference of the parts in the collapsing and setting up operations.

As seen in Fig. 2, the frames are connected intermediate their ends by a flexible chain-type link 20 whose length determines the angular inclination of the frames when the support is set up for use. Due to the flexibility thereof, the link imposes no interference to the collapsing operation. The link 20 may be and preferably is anchored at its ends to connecting eyes 22, 23 carried by the pivot bolts 12, 16, respectively, and secured by their nuts 13, 17.

To preclude unintentional or accidental pivoting movement of the frame legs relative to each other when the support is set up for use, one of the legs, for example the leg 11 of the front frame F is formed with a slot or channel 25 located in its approximate mid-portion which is crossed by the leg 10, the width and depth of the channel corresponding to the width and depth of the leg 10, and its inclination determining the angular disposition of the legs 10, 11. The arrangement is such that with the legs 10, 11 extended by the proper amount, as in Fig. 1, leg 10 seats in the channel 25 under the action of coil spring 26 wrapped around the shank of the pivot bolt 12 (Fig. 2) and reacting between the bolt and the under face of leg 11. Any pivoting or swinging movement of the legs 10 and 11 in either direction, as causes the leg 10 to lift out of channel 25, is resisted by the spring 26 whose action is to tighten the pivotal connection between the front frame legs. As the legs of the frame R are hingedly connected to the legs of the front frame and must follow the movement

and positioning of the latter, the aforesaid spring lock, while directly effective on the front legs 10 and 11, also maintains the rear frame legs 14, 15 in their properly extended position.

According to the invention, the support is collapsible merely by the act of gripping either the upper or lower ends of both the front frame legs 10 and 11, and thereupon exerting finger pressure thereon in direction as to swing said legs to overlying position. The applied pressure will of course be sufficient to lift the leg 10 out of the channel 25 of leg 11 against the holding effect of spring 26. Since the rear frame legs follow the movement of the front legs, they also swing relatively to each other to a position in which they overlie. Due to the flexibility of the frame connecting link 20, the collapsed front and rear frames may be brought together to their compact relationship illustrated in Fig. 4.

To insure that one set of hingedly connected front and rear legs, for example, legs 11, 14, may swing in under the other set of hingedly connected legs 10, 15, the length of the upper ends 11*a*, 14*a* of the former is somewhat less than the length of the corresponding upper ends 10*a*, 15*a* of the latter legs. Hence, upon collapsing of the frame as aforesaid, the upper ends of the hingedly connected legs 11, 14 nest under the longer upper ends of the legs 10, 15, as seen in Fig. 4; the spacing between the latter legs as provided by the offsetting of the terminal upper ends of all legs contributing to the aforesaid nesting action. If the foot ends of the front legs 10, 11 are devoid of hooks or the like, the length of said legs below their pivotal point may be equal. However, if such foot ends are provided with bookcover engaging hooks, the length of the leg 10 below the pivot is somewhat shorter than the corresponding length of leg 11, so that the former may swing into overlying position with reference to leg 11 without hook interference.

An easel-type support as described may be readily adapted for use as a bookrest capable both of supporting a book in inclined position and of holding the book open at any desired place. To perform the first or supporting function, the lower or foot ends of the front frame legs 10, 11 are formed as integral, upwardly directed hooks 28, 29 which are extended forwardly of the plane of the legs, being spaced therefrom by an amount corresponding to the maximum thickness of the usual bound book-covers. Thus, to set up a book so that it assumes an inclination corresponding to that of the front frame F, it is only necessary to mount the book on the frame so that the lower edges of both front and rear covers is held by the hooks 28, 29 in the manner illustrated in Fig. 1. To provide the function of securing the book in open position, the invention provides a swing rod 30 which may be provided intermediate its ends with an eye (not shown) through which the front frame pivot bolt 12 is passed whereby it may be secured just to the rear of the front frame. Preferably, the spring 26 is arranged to bear on the rod eye so as to resiliently secure the rod in both its active and inactive positions. Affixed to the ends of the rod 30 are extensible connectors 31, 32, which may take the form of light coil springs, to the free ends of which are secured spring clasps 33, 34. When the support is set up and the rod swung to horizontal position (Fig. 1) the spring clasps may be brought forwardly and slipped over the side edges of the book-cover and pages lying thereagainst, thereby to hold the book open at any desired place

or page thereof. The length of the rod 30 is such that it may be swung to a relatively vertical position and disposed in the space between the front and rear frame legs when the support is collapsed as indicated in Fig. 4. It will be observed that the flexibility of the extensible connectors 31, 32 permit such connectors and also the clasps 33, 34 to accommodate themselves in the aforesaid space between the front and rear frame legs.

Without further analysis, it will be appreciated that the invention achieves the above stated and other desirable objects and advantages in the provision of a collapsible, easel-type support characterized by extremely simple construction and design and one that is capable of being set up or collapsed with a minimum of effort. When set up the support as herein provided has exceptional rigidity for a light-weight frame structure and when collapsed it forms a compact portable unit of size such that it may be carried about in a brief-case, for example. When adapted for use as a bookrest, an easel-type support of the invention provides a simple, convenient means of supporting a book open at any desired place or page thereof, and in a substantially upright position such that its page contents are readily viewable for copying, reference and the like.

As many changes can be made in carrying out the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. In a support of the class described, front and rear frames each comprising a pair of crossed legs pivotally connected intermediate their ends, hinge means connecting the upper ends of each front frame leg with a corresponding rear frame leg, and a flexible link extending between and operative to secure the frames in angularly inclined, mutually supporting relation, the arrangement being such that the support may be set up and collapsed by hand pressure applied to the ends of one pair of crossed legs in a direction as to cause said legs to swing relatively to each other.

2. In a support of the class described, front and rear frames each comprising a pair of crossed legs pivotally connected intermediate their ends, hinge means connecting the upper end of each front frame leg with a corresponding rear frame leg, and a flexible link extending between and operative to secure the frames in angularly inclined, mutually supporting relation, means for establishing an extended predetermined angular position of the crossed legs of one frame member, the arrangement being such that the support may be collapsed by hand pressure applied to the ends of said crossed legs in a direction as to cause them to swing from said extended position to a position in which they overlie.

3. In a support of the class described, front and rear frames each comprising a pair of crossed legs pivotally connected intermediate their ends, hinge means connecting the upper end of each front frame leg with a corresponding rear frame leg, and a flexible link extending between and operative to secure the frames in angularly inclined, mutually supporting relation, spring means effective to secure the crossed legs of one frame member in an extended predetermined angular position, the arrangement being such that the support may be collapsed by hand pressure

applied to the ends of said crossed legs in a direction as to cause them to swing from said extended position to an overlying position.

4. In a support of the class described, front and rear frames each comprising a pair of crossed legs pivotally connected intermediate their ends, hinge means connecting the upper end of each front frame leg with a corresponding rear frame leg, and a flexible link extending between and operative to secure the frames in angularly inclined, mutually supporting relation, a leg of one pair thereof being formed with a channel for receiving the other leg of the pair when said legs are extended to a predetermined angular relation, and spring means operative to maintain said other leg seated in said channel, the arrangement being such that the support may be collapsed by hand pressure applied to the end of the legs of said one pair in a direction as to cause said legs to swing from said extended position to a position in which they overlie one another.

5. A support as set forth in claim 2, wherein the length of the hingedly connected corresponding front and rear legs above their pivotal connection is such that the hinged ends of the legs nest with each other when the support is collapsed.

6. A support as set forth in claim 2, wherein the foot ends of the front frame legs are formed as forwardly disposed upwardly extending hooks, and the length of the front frame legs and of the hingedly connected corresponding front and rear frame legs is such that the legs of both frame members may be swung to overlying position without interference one from the other.

7. In a support of the class described, front and rear frames each comprising a pair of crossed legs pivotally connected intermediate their ends, hinge means connecting the upper end of each front frame leg with a corresponding rear frame leg, and a flexible link extending between and operative to secure the frames in angularly inclined, mutually supporting relation, spring means for securing the crossed legs of the front frame in an extended angular relationship, the foot ends of the front frame legs being formed as forwardly disposed and upwardly directed hooks adapted to secure an open book against the front frame, and means carried by the front frame for securing the book open to any desired page, the arrangement being such that the support may be collapsed by hand pressure applied to the ends of the front frame legs in a direction as to cause said legs to swing from said extended to an overlying position.

8. A support as set forth in claim 7, wherein the means for securing the book in open position

comprises a rod pivotally connected intermediate its ends to the front frame and mounted to the rear thereof, flexible connectors secured at their one ends to the ends of the rod, and clasps carried at the free ends of said connectors operative to engage over the side edges of the book-cover and the book pages lying against the same.

9. In a support of the class described, front and rear frame members, each comprising a pair of crossed legs, and a pivot bolt for pivotally connecting said legs intermediate their ends, hinge means connecting the upper end of each front frame leg with a corresponding rear frame leg, one leg of the front frame being formed with a channel in its connecting portion for receiving the other leg therein when said legs are extended to a predetermined angular relationship, a spring carried by the front frame pivot bolt operative normally to maintain said other leg seated in the channel, a flexible link extending between the frame pivot bolts and being operative to secure the frames in angularly inclined mutually supporting relation, the foot ends of both front frame legs being formed as upwardly directed hooks adapted to engage over the bottom edges of the cover of a book disposed against the front frame, a swing rod pivoted intermediate its ends to the front frame by the frame pivot bolt, flexible connectors affixed at their one ends to the ends of the rod, and clasps carried at the free ends of said connectors operative to engage over the said edges of the book-cover and pages lying thereagainst.

10. A support as set forth in claim 9, wherein the length of the front frame legs beneath the pivot bolt and of the hingedly connected corresponding front and rear frame legs above their pivot bolts is such that the support may be collapsed to a position in which the legs of each frame overlie one another, and a corresponding pair of front and rear legs nests within the other corresponding pair of said legs.

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