June 26, 1928. 1,675,269

J. W. HINE

BOOK SUPPORT

Filed Sept. 13, 1923 5 Sheets-Sheet 1

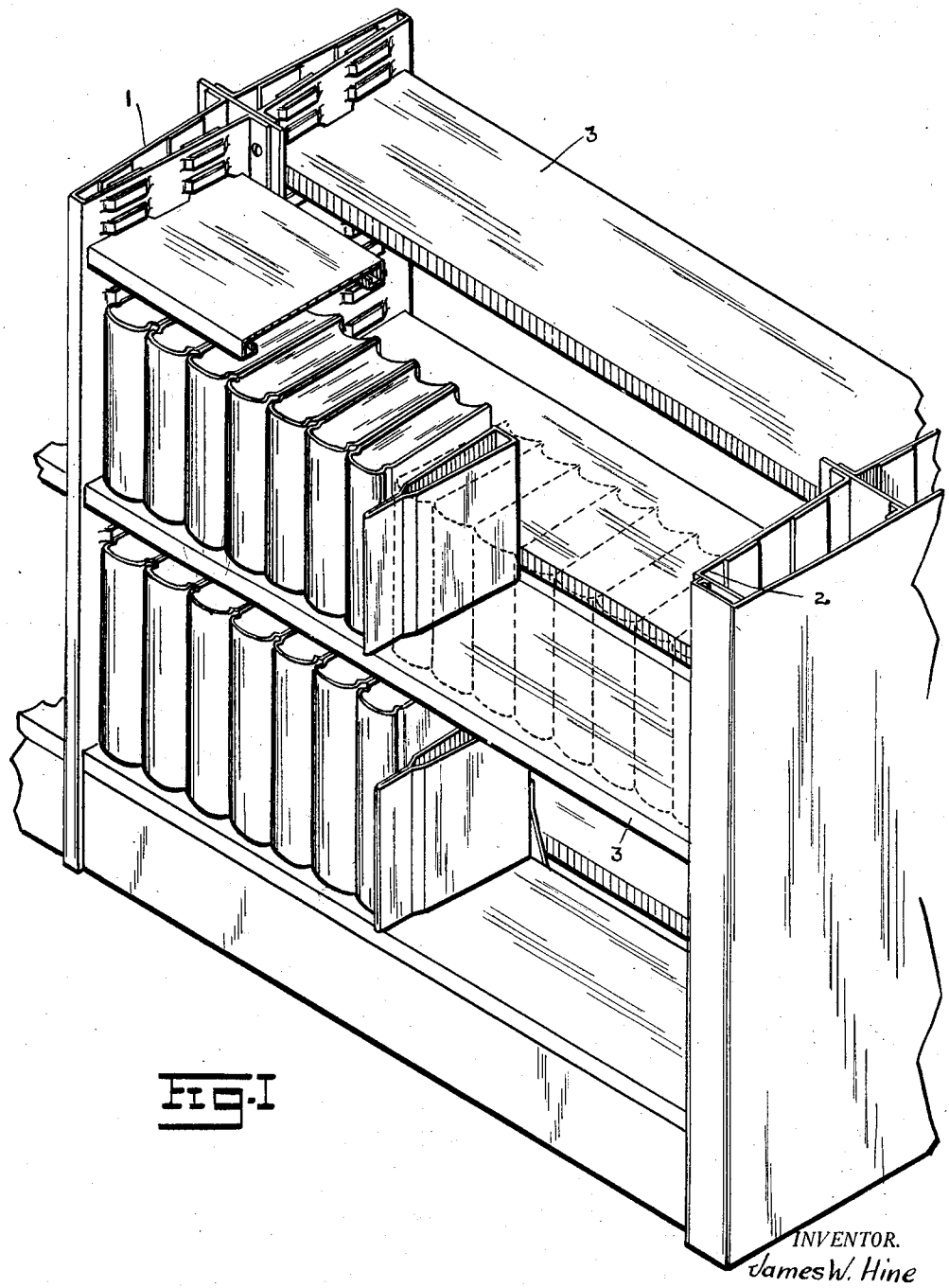


Fig. 1

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June 26, 1928. 1,675,269

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BOOK SUPPORT

Filed Sept. 13, 1923 5 Sheets-Sheet 2

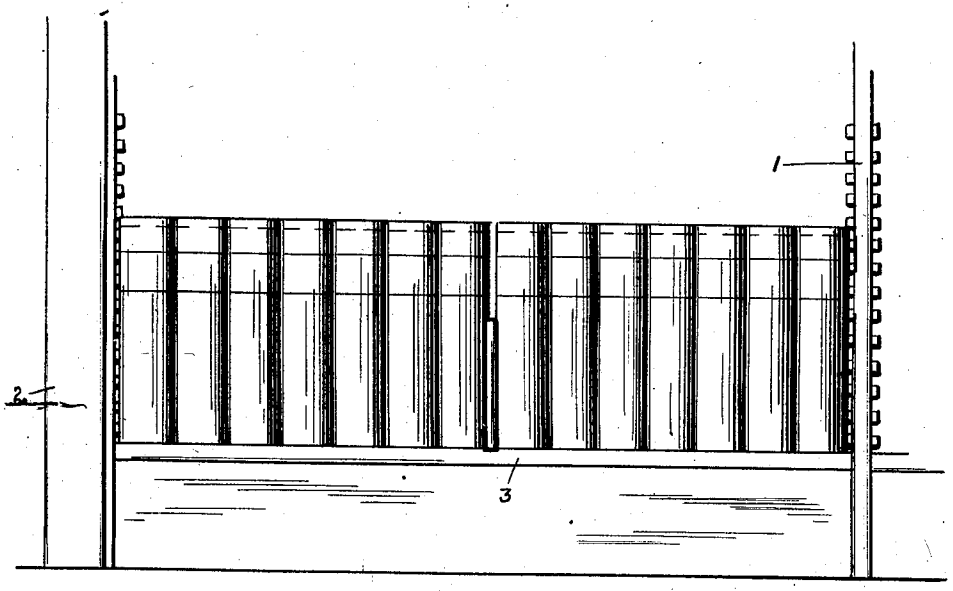


Fig. 2

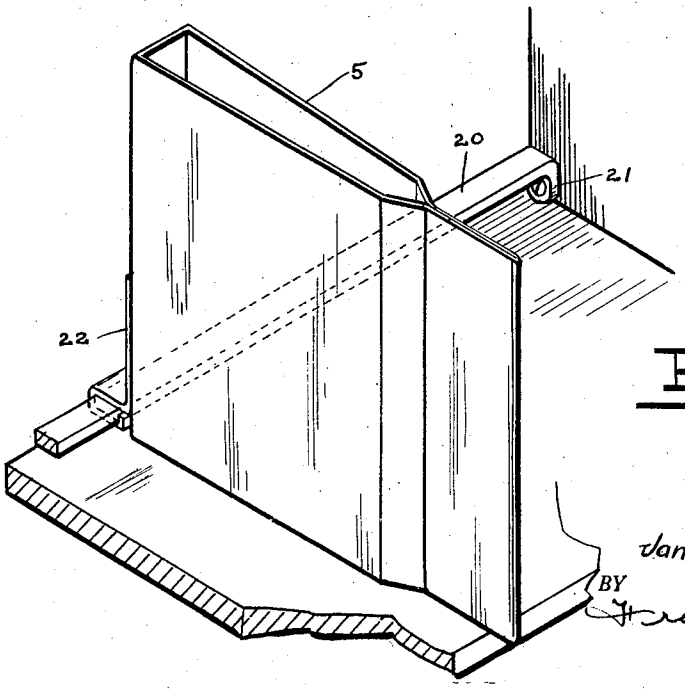


Fig. 6

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BOOK SUPPORT

Filed Sept. 13, 1923 5 Sheets-Sheet 3

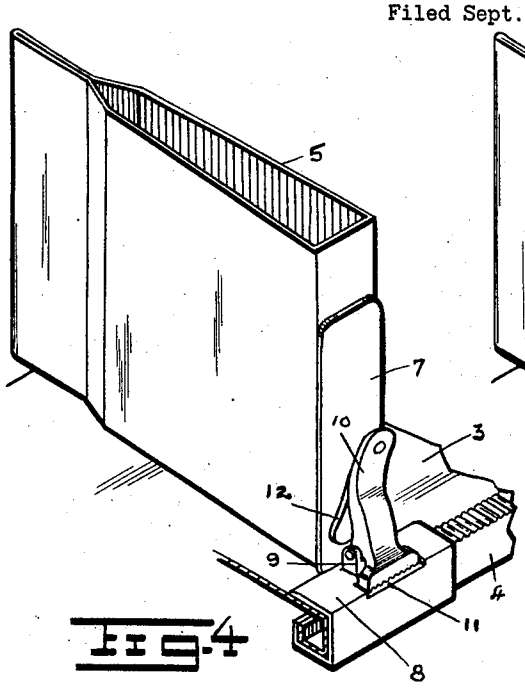


Fig. 4

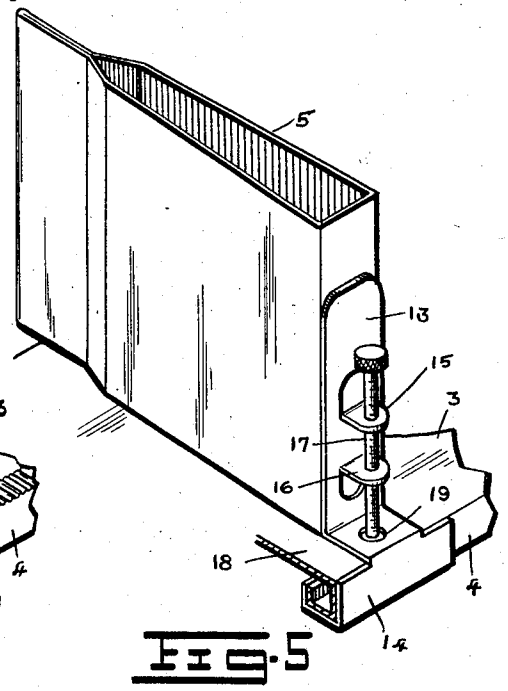


Fig. 5

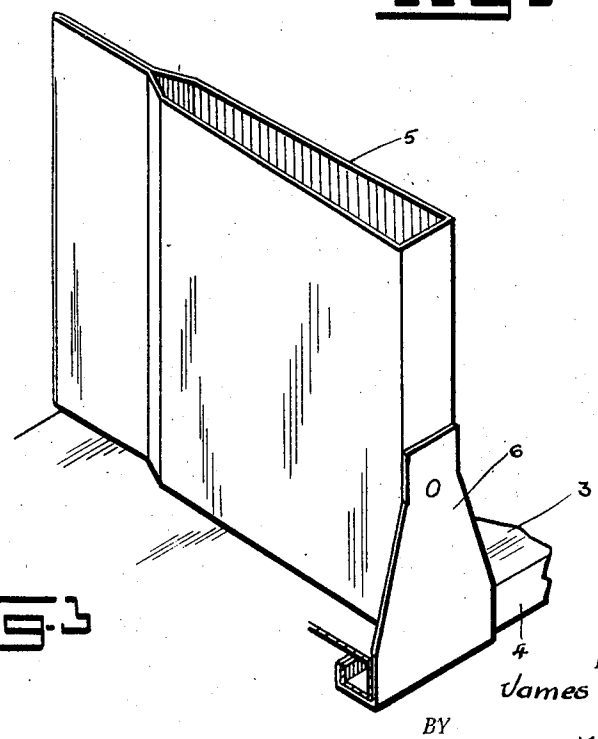


Fig. 3

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BOOK SUPPORT

Filed Sept. 13, 1923 5 Sheets-Sheet 4

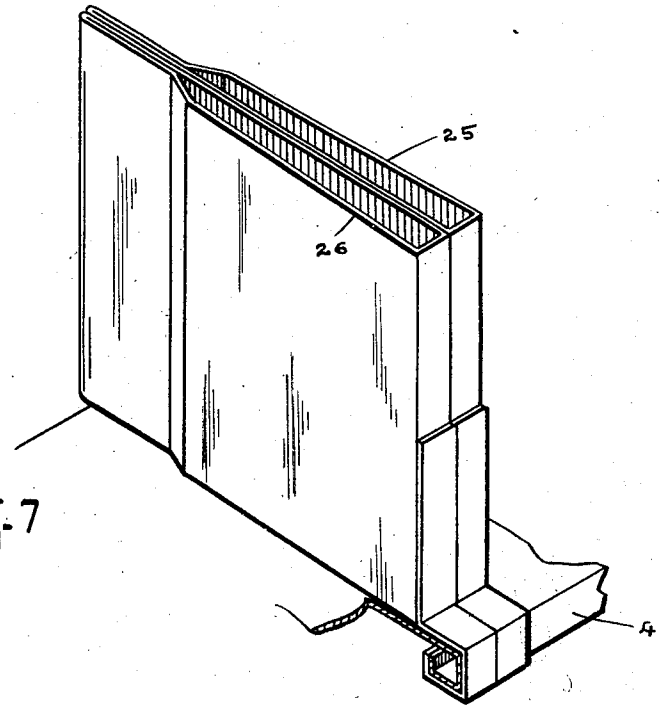


Fig. 7

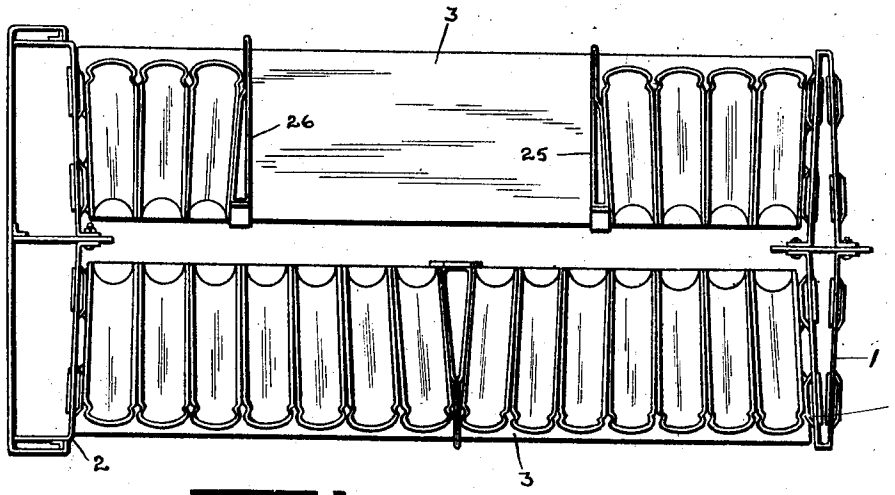


Fig. 8

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June 26, 1928. 1,675,269

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BOOK SUPPORT

Filed Sept. 13, 1923 5 Sheets-Sheet 5

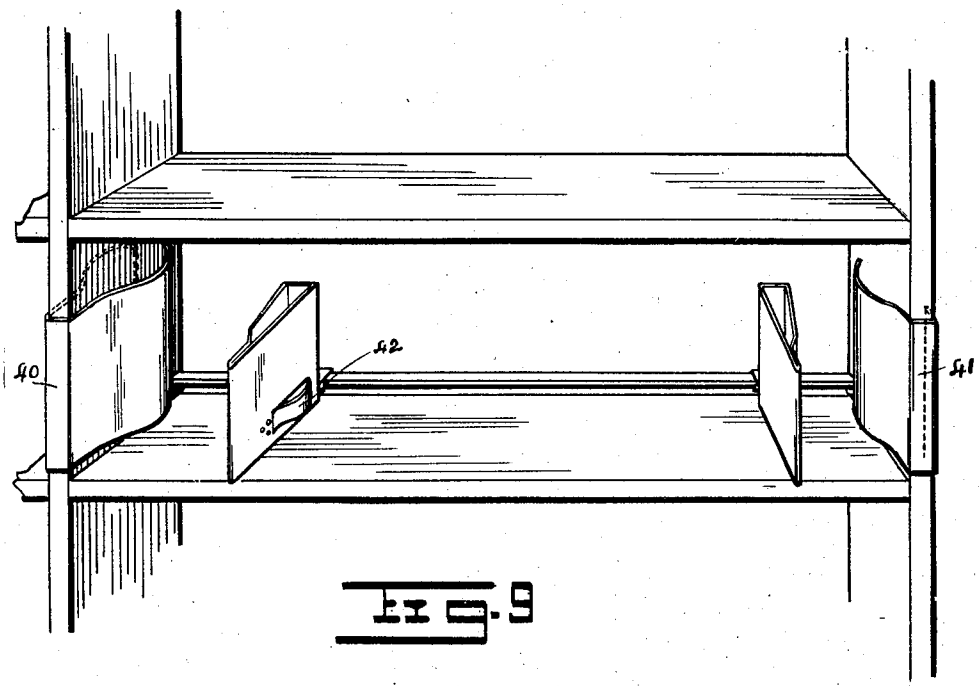


Fig. 9

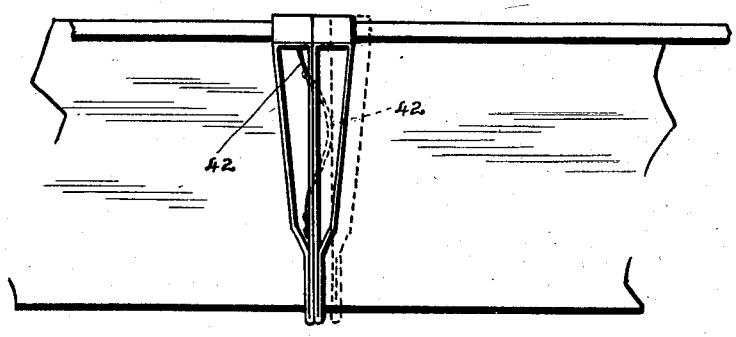


Fig. 10

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Patented June 26, 1928. 1,675,269

UNITED STATES PATENT OFFICE.

JAMES W. HINE, OF BROOKLYN, NEW YORK, ASSIGNOR TO JAMES H. HINE, OF DENVER, COLORADO.

BOOK SUPPORT.

Application filed September 13, 1923. Serial No. 662,435.

The object of this invention is to provide a new and improved form of shelf divider and book protector and book support.

Another object of the invention is to make said shelf divider and support adjustable and to provide means for clamping it in adjusted position.

Another object of the invention is to provide a protector support that will put lateral pressure on the front of the book so as to keep the book closed and support the leaves thereof and take the strain off of the binding welt of the book and avoid undue lateral pressure on the back of the book and even keep the backs of the books apart.

Another object of the invention is to provide a method of protecting the binding welts of books as they are placed on a library shelf so that they will not be injured when the books are being placed in close order on a shelf or as they stand there or are removed therefrom.

This and other objects of the invention will be illustrated in the drawings described in the specification and pointed out in the claims at the end thereof.

In the drawings:

Figure 1 is a perspective view of a book stack or library shelving with my improved book support in place thereon.

Figure 2 is a front elevation of a shelf of books with my improved support thereon.

Figure 3 is a perspective view of one form of my book support, more especially as applied to metal shelving.

Figures 4 and 5 are perspective views of other forms of my book support having clamps thereon.

Figure 6 is a perspective view of a modified form of my book support more especially adapted to wooden shelving.

Figure 7 is a modified form of my book support in which the support is divided longitudinally.

Figure 8 is a top plan view of book shelves to which the support shown in Figure 7 is applied.

Figure 9 is a perspective view of a set of wooden book shelves the uprights of which are equipped with spring clips to form a taper thereon and one of the shelves of which is provided with a tapering support divided longitudinally.

Figure 10 shows the divided support in which a spring is provided to press the halves thereof apart.

In the drawings like reference numerals indicate like parts.

The invention which forms the subject matter of this application is an improvement intended to be used more especially in connection with the library shelving and stacks shown in my Patent Number 1,059,464, issued to me April 22, 1923, although it has other uses as well and can be used in connection with other types of stacks or book shelves already in use.

It is a well known fact that a three foot shelf usually has a capacity of from 18 to 36 books dependent upon the thickness of the books placed upon it. It is also a known fact that a large majority of books are bound with a binding welt and that this binding welt projects from one sixteenth to one eighth of an inch beyond the flat cover, which protects the pages of the book. This makes the back of a book bound in that way thicker than the sides or front of a book by that amount. It is also a known fact that the capacity of a book shelf is governed by the diameter of the books at the binding welt. It is also well known that the life of a book binding depends upon the preservation of this binding welt which is not accomplished so long as these binding welts are allowed to be pressed together while standing on, or being placed on, or taken from a shelf. These binding welts also come in contact with the shelf supporting uprights, and are put under pressure by contact with the uprights and by contact with each other. This pressure tends to break the binding. In short the bindings of the books are started on the road to ruin the moment they are placed upon the shelves and particularly is this true in large libraries where capacity seems to be a great consideration regardless of the injury to the book bindings, caused by the crowding of the books on the shelves. It is a well known fact that in circulating libraries the binding and rebinding of books stands second to the item of salaries in the expense of maintenance.

In a shelf containing 24 books the backs of the books, which are exposed at the front of the shelf will occupy under pressure from 1½ to 2″ more space than the covers occupy from the binding welt to the extreme front

of the book. The covers occupy the space at the rear of the shelf incompletely and thus the books stand open to that extent at the front. In all such cases if the shelf is full the books will stand somewhat open at the front leaving the pages somewhat exposed and permitting the pages to sag and touching the shelf at the lower front corner. This draws forward on the binding at the top and pulls it out of shape and tends to soften and break the binding. This practice is injurious to the binding of the books and it admits dust and soot to the pages as well.

The present capacity of a book shelf is therefore determined by the width of the back of the books placed thereon. The books are frequently forced into place on the shelf and this puts a great lateral pressure on the binding welts forcing them together causing great injury to the binding of the books, the life of which depends on the preservation of the binding welt.

The object of my invention is to transfer the capacity of a book shelf to the rear of the shelf from the front of the shelf in such a manner as to (*a*) keep the books closed, (*b*) prevent injury to the binding welts by avoiding pressure thereon, (*c*) render it easy to place books on or take from a shelf without injuring the binding, (*d*) absolutely prevent the over crowding of book shelves to the detriment of the binding.

It is the object of my invention to put pressure on the forward part of the book to hold the book shut at the front so that the pages will be pressed together and will be supported by friction from the covers pressed against them and the backs of the books will be relieved from pressure and even stand apart from each other on the shelf and will therefore retain their normal shape and will be protected from improper stresses while the books remain on the shelf.

A further object of this invention is to transfer the capacity of the book shelf to the rear of the book shelf by taking up the space that is usually occupied by permitting the books to stand open. This is accomplished by inserting one or more wedges between the books at their forward end. This limits the capacity of the shelf at the rear without diminishing its capacity at the front thereby preventing the binding welts from coming together, to any extent sufficient to injure the same while standing on the shelf or while being placed thereon or while being removed there from. All of this adds much to the life of the book binding.

It frequently happens that a book shelf is not filled full of books and in such case one end of the row of books placed thereon will ordinarily be supported by the upright which is firmly held in place and the other end of the row of books must be held in place by a special support placed on the shelf.

As is shown in my prior patent the front of the upright is made thinner than the back of the upright. Or the back of the upright is made thicker than the front of the upright. The upright is usually made so that it is an inch thick at the back and is ½ inch thick at the front although this difference in thickness may be made greater or less as occasion may require. This tapering of the upright is an advantage for it tends to compress the fronts of the books and tends to relieve the pressure on the binding when the shelf is full of books. When the shelf is partially filled with books this result can only be secured by a special kind of tapering book support, this special kind of support being subject matter of my invention.

As is shown in Figure 1 reference numerals 1 and 2 indicate the tapering uprights of the stack and 3 indicates the shelf. The shelf is provided with a flange or channel formed at the back. It will be understood that the uprights and the shelves are preferably formed of sheet metal cut and bent to the desired form although wooden uprights and wooden shelves may be used.

The book support comprises a tapering body 5 which is made of sheet metal and is hollow and wedge shaped and tapers from the back to the front. The taper is gradual from the back to a point beyond the middle after which the taper is very sharp bringing the sides close together so as to form a comparatively thin section having parallel sides projecting beyond the tapered portion. This thin section or a portion of it may project beyond the front of the shelf so as to form a guide by which the book that contacts with it is directed to place.

At the back of the support is fastened a bracket 6 which extends down below the shelf and is bent forward and up so as to form a guide that engages the channel formed on the shelf. This guide makes a good sliding fit with the channel 4. It also binds thereon when pressure is applied to either side of the support forward of the channel substantially the same as when books are placed in contact with the support by pushing them into place on the shelf. In such case the support will be locked to the shelf and will be firmly kept in place by the grip of the guide on the channel regardless of whether the pressure placed thereon is much or little.

In Figure 4 I have shown a modification in which the bracket 7 is offset rearwardly at the bottom to form the channel 8 which engages the channel 4 on the shelf. To make the engagement more positive I serrate the upper surface of this channel as is indicated at 9 and I pivotally mount a locking

dog 10 on the channel, said dog being pivoted in lugs 9 struck up from the channel 8 on the bracket 7. The channel 8 is perforated to form a slot 11 therein on the upper surface through which slot the upper surface of the channel 9 is exposed and through which it can be engaged by the lower edge of the dog 10, which is serrated for that purpose. A spring 12 is provided on the handle of the dog 10 by which the dog is held in locking engagement with the serrated surface of the channel 4.

In Figure 5 I have shown the same kind of book support having a bracket 13 fastened on the back thereof which bracket is offset rearwardly at the bottom to form the channel 14 which engages with the channel 4 on the back of the shelf. On the bracket 13 is provided the lugs 15 and 16 which carry a screw 17 which makes threaded engagement therewith. This screw engages the top of the shelf 18 through an opening in the channel at 19 so that by turning the screw into contact with the shelf the bracket may be firmly clamped in place thereby thus preventing movement along the shelf.

In Figure 6 I have shown the same type of support adapted for use in connection with a wooden shelf support on wooden uprights, which are here shown parallel. In this case I provide a bar 20 made preferably of metal having the ends turned down as indicated at 21 which ends are perforated so as to receive a screw by which the end of the bar is fastened to the upright. The support 5 is provided with a bracket 22 the bottom of which forms a channel which engages the bar 20 so as to slide thereon or bind thereon according to the way pressure is applied thereon to move it as above explained.

In Figure 7 I have shown a modified form of the support in which the support is divided into two sections 25 and 26. The two sections when placed close together form a single support substantially the same as shown in Figure 3 or 4. These sections of the support may be spaced apart and may be used to hold books in place substantially the same as shown in Figure 8. As is shown in Figure 8 on the rear shelf the support is separated into two sections one holding several books against the left hand upright the other holding several books against the right hand upright, but each section of the support serves to put ample pressure on the fronts of the books thus holding the books closed and in shape and preventing any pressure from being placed on the backs of the books.

It will be seen from an inspection of Figures 1 and 8 that my improved support either by itself or in connection with the taper of the uprights of the book stack puts ample pressure on the fronts of the books holding the books firmly closed at the front and at the same time relieving the backs of the books from pressure from the uprights, or from the supports, or from each other.

In Figure 9 I have shown a set of shelves and uprights having parallel sides such as would be found in an ordinary wooden book stack. On the uprights I have placed spring clips 40 which are slipped on over the uprights from the front thereof. The front portion of the clip is U-shaped with parallel sides and is made to fit the upright closely. The rear portion flares out and in with a suitable curve to give a sufficient taper to the clip or the upright. The flared portion will serve to co-operate with the movable book support for the purpose of keeping the books closed and putting pressure on the covers thereof near the front thereof.

On the left of Figure 9 I have shown a clip 40 that is adapted to serve shelves on both sides of the upright support and on the right of Figure 9 I have shown a clip 41 that is adapted to serve a shelf on but one side of the upright support. In this figure I have also shown the movable book support preferably of the divided type adapted for use on a wooden shelf. On one half of this support I provide a spring 42 that is adapted to bear on the other half of the support for the purpose of pressing the two halves apart. The movable supports are held in place on the shelf in the same way as is shown in Fig. 6.

I claim:

1. The combination of a shelf, having a guide extending along the edge thereof, an upright book support supported on said shelf and adapted to maintain sliding engagement with said guide, said support tapering from back to front and having a wide back adapted to compress the pages of books at the front without compressing the backs of the books.

2. The combination of a bookcase, of a pair of uprights tapering from back to front, a straight line shelf supported between said uprights, a book support supported on, and adjustable along said shelf, said support having a wide back and tapering to a narrow front at the top and bottom thereof, and being capable of cooperating with either upright to keep the book held there between, closed at the front, said wide back being adapted to be placed at the front of a book to hold it closed and said narrow front being adapted to be placed near the back of the book.

3. The combination of a straight line shelf, fixed supporting devices at the end thereof, a movable spacing device attached to the rear of the shelf, said supporting devices and spacing device being tapered to a point beyond the center of the book covers for the purpose of preventing the binding welts of

the books from coming into injurious contact with each other or with the fixed supporting and spacing devices, said spacing device having a wide back adapted to be placed at the front of a book to hold it closed.

4. A book support having a wide back, sides that taper gradually from the back to a point forward thereof, and then taper sharply to a thin section which extends forwardly therefrom, said support being divided longitudinally into two symmetrical halves, said halves being capable of being spaced apart and being capable of independent use, a spring between said valves adapted to press them apart.

5. A book support having a wide back, sides that taper gradually from the back to a point forward thereof, and then taper sharply to a thin section which extends forwardly therefrom, said support being divided longitudinally into two symmetrical halves, said halves being capable of being spaced apart and being capable of independent use.

In testimony whereof I affix my signature.

JAMES W. HINE.