

(No Model.)

H. W. ELLSWORTH.

BINDING REVERSIBLE FORMS OF WRITING BOOKS.

No. 565,381.

Patented Aug. 4, 1896.

Fig. 1.

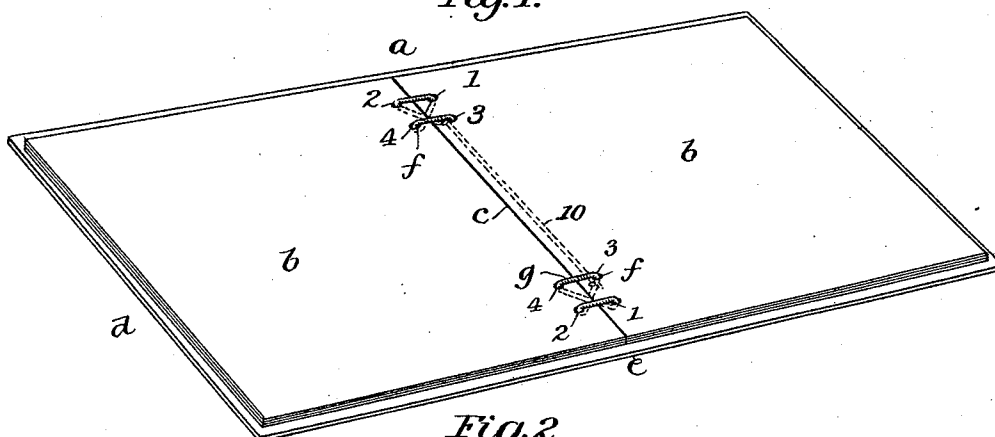


Fig. 2.

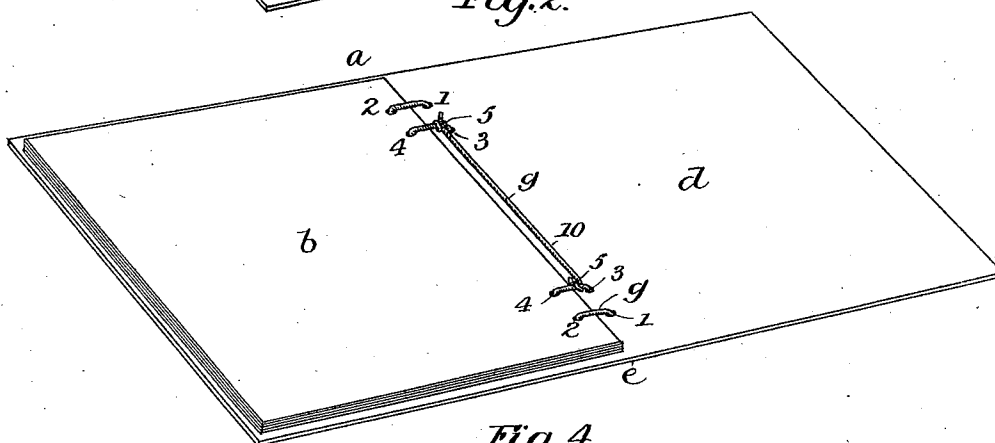


Fig. 4.

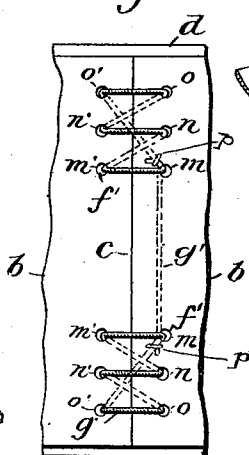
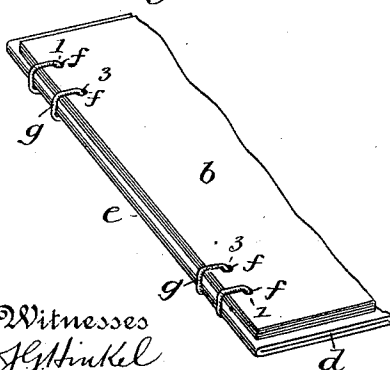
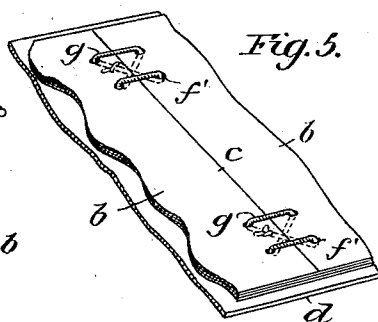


Fig. 3.



Witnesses
J. Hinkel
E. Everett Ellis

Fig. 5.



Inventor
Henry W. Ellsworth
by Foster Freeman
Attorneys

UNITED STATES PATENT OFFICE.

HENRY W. ELLSWORTH, OF MONTVALE, NEW JERSEY.

BINDING REVERSIBLE FORMS OF WRITING-BOOKS.

SPECIFICATION forming part of Letters Patent No. 565,381, dated August 4, 1896.

Application filed May 4, 1896. Serial No. 590,103. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. ELLSWORTH, a citizen of the United States, residing in Montvale, State of New Jersey, have invented certain new and useful Improvements in Binding Reversible Form of Writing-Books, of which the following is a specification.

This invention relates to bindings for books; and it consists substantially in such features of improvement as will hereinafter be more particularly described.

The invention is adapted to books generally, but has especial reference to copy-books, drawing-books, and the like, and while the principal objects of the invention will be hereinafter specifically stated it will be understood from the general description that other objects are also included. With copy-books and drawing-books, as well as other kinds of books, it is very desirable that when the book is spread open for use the same shall lie flat upon the desk or other support, so as to render it much easier and more convenient to write upon the pages; and it is still further desirable where space is limited that both the cover and leaves at one side of the open book be turned under or folded beneath the leaves and cover at the other side and still lie perfectly flat and not interfere with the drawing or copying. With many forms of copying and drawing books both the cover and leaves thereof are folded lengthwise at the center and then united at the fold by stitching; but this construction has proven undesirable for the reason that when the book is spread open for use, or when the cover at one side, together with any number of the leaves, are turned under or folded beneath the leaves and cover at the other side, a buckling or bulging of the leaves takes place at the fold and the book cannot be made to flatten out without the weight or pressure of some object, as the hand or a paper-weight. As a means of overcoming these objectionable features, it has been proposed heretofore to divide or sever the leaves at the point where previously it was usual to fold them and then to provide a hole or opening in the leaves at or near each end and adjacent the inner severed edges thereof, and to likewise provide the cover with corresponding holes, but

without severing or dividing the cover, and through these corresponding openings in both the leaves and the back or cover a continuous flexible loop or ring was passed in such manner that the book could either be opened out flat upon a desk or table or else a part of the cover, together with any number of the leaves, could be folded back to back with the others and still the book would be perfectly flat. This form or construction, while possessing certain advantages or desirable characteristics, was still open to the objection that the flexible binding-loops would either pull out entirely or else they would so saw upon and tear the edges of the openings in the cover and leaves as to render it difficult to keep the parts of the book together in compact form, and very frequently some of the leaves would become lost or misplaced, all of which tended to confusion, loss of time, and inconvenience.

The object of the present invention is the prevention of buckling or bulging of the book at the center or elsewhere, either when the book is laid open for use or when the parts of the cover are turned back to back together with any number of leaves.

A further object of the invention is the distribution in right lines of all strain upon the connected portions of the leaves and cover, and the provision of a plurality of bearing-points for the binding or connecting medium for said leaves and cover, substantially as will hereinafter more fully appear when taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view representing a copy-book embodying my improvements, the book being thrown open and lying perfectly flat. Fig. 2 is a similar view with only one side of the cover thrown open, so as to show the manner of connecting the ends of the single continuous binding-cord on the inside of said cover. Fig. 3 is a perspective view showing the two parts of the cover thrown back to back, together with a number of the leaves of the book. Fig. 4 is a view of a book thrown open and showing a greater number or plurality of bearing-points for the flexible cord than in Fig. 1 and also showing a slightly-different way of threading said cord; and Fig.

5 is a similar view to Fig. 1 and representing the use of a separate continuous binding-cord for each set of openings or bearing-points, instead of a single cord for both sets of such

5 openings.

While my invention may be carried into effect in a great many different ways, I prefer as a convenient means to resort to either one of the embodiments substantially as I have

10 herein illustrated, and which I will now proceed to describe.

a represents a book, shown in this instance as an ordinary copy-book, such as is used in schools as an aid to instruction in penman-

15 ship, or the same may be a drawing-book or any kind of book, the leaves *b* of which are severed or disconnected lengthwise at *c*, instead of being folded, as is the case with many former books used for these purposes.

20 The cover *d* for the book, instead of being disconnected in like manner, is folded at the center, as shown at *e*, and at a suitable distance from each end of the book, and adjacent the fold *e* of the cover and the severed

25 or disconnected edges of the leaves, a set of openings *f* is punched or otherwise formed in both the cover and leaves, and through these openings a flexible connecting or binding medium *g* is threaded in and out in such man-

30 ner as to bind the leaves and cover together in a way to permit or enable the book to be opened at any page and to at all times lie flat down upon a desk or other support without buckling or warping at the middle or central

35 portion. The said flexible binding or connecting medium is not drawn very tightly through the openings, but is left sufficiently slack to constitute practically a hinge for the cover and leaves when it is desired to turn

40 the cover and leaves back to back, as shown in Fig. 3.

When the book is laid open, as shown in either Figs. 1, 2, or 3, the portions of the said connecting or binding cord or other medium

45 lying between corresponding openings of the opposite leaves serve as hinges or guides upon which the leaves on either side of the open book may be moved or turned over from one side to the other.

50 Any desired number of openings may be comprised in each set, and the binding-cord or connecting medium may be threaded in and out of said openings in any preferred way to accomplish the results desired. As shown

55 in Fig. 1, two openings are comprised in each set, and the binding cord or medium *g* for each set is inserted or threaded by first being passed up through, say, opening 3, then across and down through opening 4, thence diagonally across the outside of the cover to open-

60 ing 1, as shown in dotted lines, up through said opening, and across to and through opening 2, whereupon the cord is returned and crossed diagonally on the outer side of the cover and the end secured at 5 after being brought on the inside of the cover, as shown

65 at Fig. 2, it being understood that the free

end at the start is also brought up. Preferably a single cord or binding medium *g* is employed for the two sets of said openings, (see 70 Fig. 2,) and the two ends are passed through the openings of the two sets, as already described, leaving a connecting portion 10 intervening.

A single cord is advantageous because it is 75 less trouble than when composed of several pieces; but, if desired, a separate continuous cord can very easily be employed for each set of openings, as shown in Fig. 5. By thus provid-

ing a number of openings a plurality of 80 turning-points or bearings is obtained for the cord with less liability of the cord sawing upon or pulling out of or tearing the edges of the openings, and any strain imposed upon

the said cord is equalized and distributed in 85 right lines in consequence of the bends or turns given thereto and the manner in which the cord is crossed in being passed from one opening to the other and then returned and

fastened. The intervening portion 10 of the 90 binding cord or medium may of course be made to extend on the outer side of the book-cover at the fold thereof and the ends secured thereto, as explained; but as a means of conceal-

said cord it is preferable to have the 95 same arranged inside of the cover, as herein shown.

It is of course apparent that I am not limited to the number of openings comprised in each set, although two is the preferred number 100 because of the excellent results obtained from the particular manner in which I am enabled to thread or insert the binding or connecting cord.

In some instances, however, I employ three openings *f'* in each set, as shown 105 in Fig. 4, and with this form I may also use either a separate continuous cord or medium *g'* for each set and fasten the ends between the outermost leaf and the cover on one side

or the other of the book, substantially the 110 same as before, or else I may use a single cord for both sets, also the same as before.

With the employment of three openings to a set it is not entirely practical to return and cross the threaded portions of the cord as 115 before without passing said cord through some of the openings more than once, and this would interfere to a marked degree with the proper distribution of the strain in right

lines and would not obviate the tendency or 120 effect of the cord to pull out of the openings. In order, therefore, to obtain substantially the same results or effect, I first open the

book and thread the cord up through one of the holes or openings, say *m*, then over to *m'*, 125 diagonally across the outer side of the cover to hole *n*, (see dotted lines,) up through the latter, across to *n'*, down through the latter and diagonally across to *o*, up through the

latter and over to *o'*, and down through the 130 latter, whereupon the end is fastened at *p*, substantially the same as before. In explaining the threading of the cord through the

openings in each instance I have only select-

ed the easiest and simplest way; but it will be understood that the same is threaded in any way as long as it becomes finally disposed in the manner and for the purpose herein shown and described.

From the modification just described it is obvious that the number of openings could be continued indefinitely, and it will be understood that I am not limited in this respect, although, as already stated, two, or perhaps three, of such openings is the preferred number employed in practice. For the binding or connecting medium I may employ either ordinary cord or wire, or in some instances a narrow ribbon, and it will be likewise understood that I am not limited in this particular.

What I claim is—

1. A copy-book or drawing-book comprising a folded cover or back, a number of independent or separated leaves inclosed within the cover or back, both the leaves and back being formed a suitable distance from each end and adjacent the inner edges of the leaves with a series of holes or openings, and a flexible binding medium inserted through said openings to extend across or between the opposite leaves when the book is opened, the said flexible binding medium being passed diagonally from one opening to the other, whereby a number of bearing-points is obtained therefor, substantially as shown and for the purpose set forth.

2. A copy-book or drawing-book comprising a folded back or cover, a number of separated leaves inclosed within the cover, both the cover and leaves being formed or provided a suitable distance from each end and adjacent to the fold with a series of holes or openings, and a continuous binding cord or medium passing through the openings of each set, the same being crossed diagonally on the outer side of the cover and having its ends secured between one side of the cover and the outermost page of the book, substantially as shown and for the purpose set forth.

3. A copy-book or drawing-book comprising a folded back or cover, a number of separated or independent leaves, both the leaves and cover being provided adjacent to the fold and at a suitable distance from each end with duplicate holes or openings, and a single flexible binding cord or medium having its ends passed in and out of the openings of each set and crossed over each other on the outer side of the cover at the fold, the said flexible cord or medium having its ends secured on the inner side of the cover, substantially as shown and for the purpose set forth.

HENRY W. ELLSWORTH.

Witnesses:

CHARLES O. ELLSWORTH,
HARRIET M. ELLSWORTH.