No. 648,376. Patented May 1, 1900.

J. BAUER.

TEMPORARY BINDER.

(Application filed Apr. 3, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

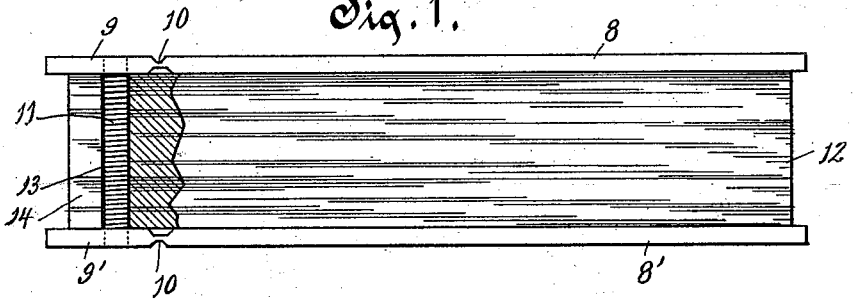


Fig. 5.

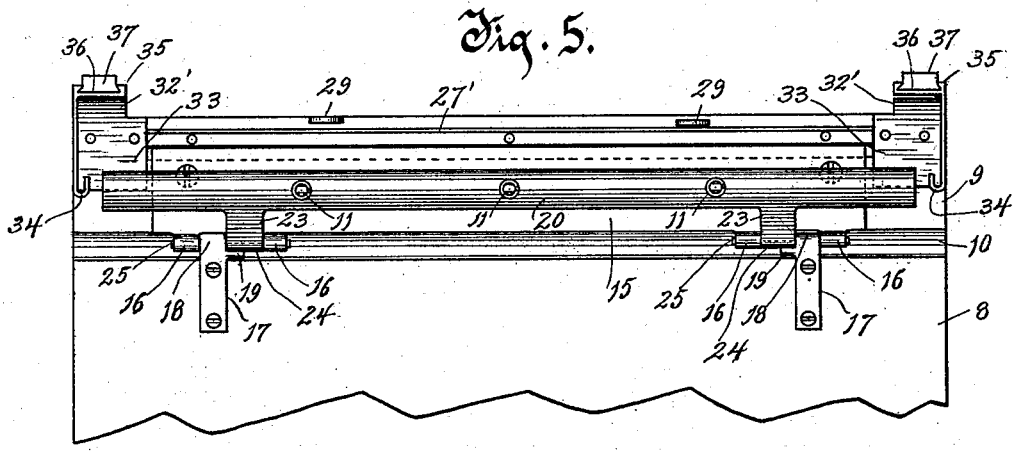


Fig. 6.

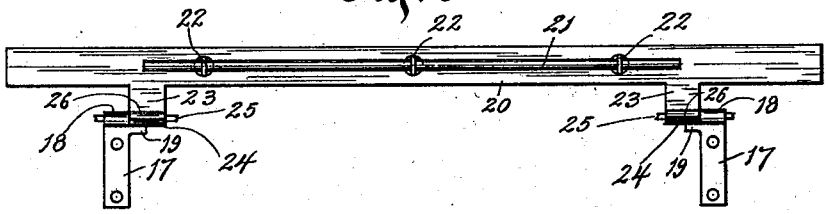
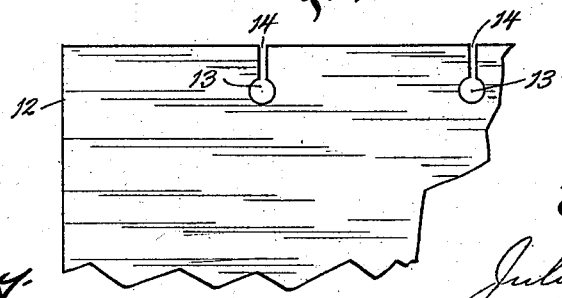


Fig. 7.



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TEMPORARY BINDER.

(Application filed Apr. 3, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

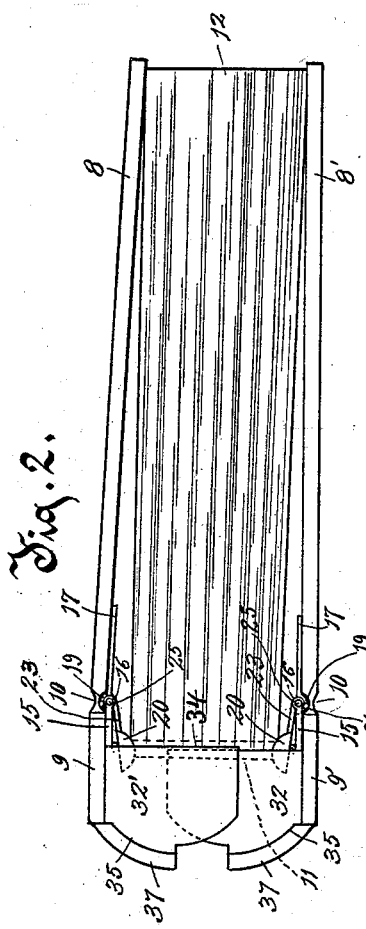


Fig. 3.

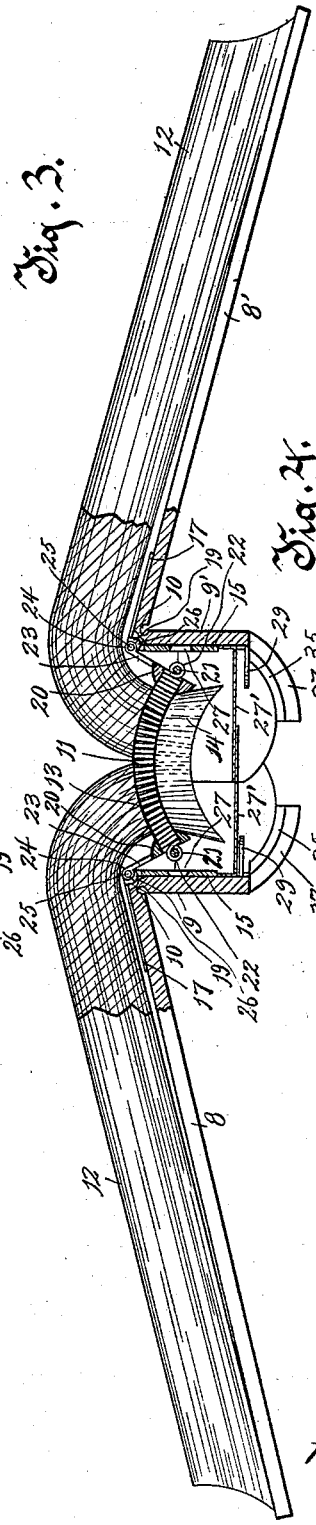
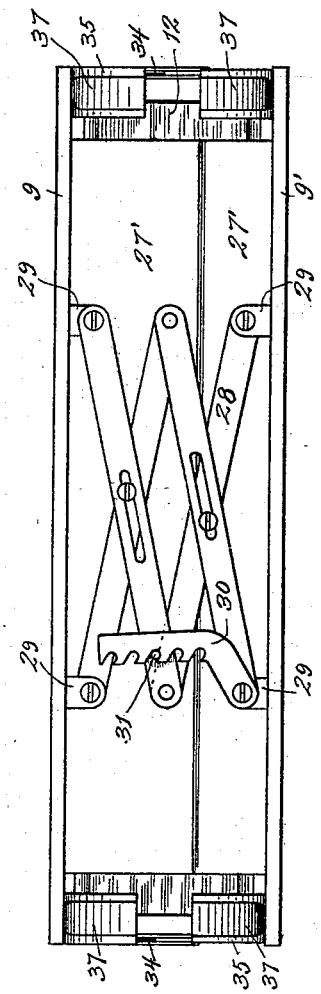


Fig. 4.



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UNITED STATES PATENT OFFICE.

JULIUS BAUER, OF MILWAUKEE, WISCONSIN.

TEMPORARY BINDER.

SPECIFICATION forming part of Letters Patent No. 648,376, dated May 1, 1900.

Application filed April 3, 1899. Serial No. 711,573. (No model.)

To all whom it may concern:

Be it known that I, JULIUS BAUER, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Temporary Binders, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in temporary binders.

The primary object of my invention is to provide in a temporary binder an improved arrangement and combination of flexible binding devices, in connection with means acting on the leaves inserted between the cover-sections for the purpose of raising the leaves at their inner portions or crotch as the cover-sections or leaves are opened out.

My invention also comprehends as an object the provision of an improved form of curved overlapping back portions for the binder.

With these primary and other incidental objects in view the invention consists of the devices and parts or their equivalents as hereinafter set forth.

In the accompanying drawings, Figure 1 is an elevation of the most simple embodiment of my invention with parts broken away. Fig. 2 is an elevation of another form of the invention. Fig. 3 shows the binder of the Fig. 2 form open, parts in section and parts broken away. Fig. 4 is a rear elevation of Fig. 2. Fig. 5 is a view of one cover-section and connected parts of the Fig. 2 form. Fig. 6 is a detail view of the bar for forcing upwardly the leaves, showing the manner of detachably securing the ends of the flexible binding devices and also showing the hinge connection of said bar; and Fig. 7 is a fragmentary detail view of a preferred form of leaf to be used in connection with my invention.

Referring to the drawings, the numerals 8 8′ indicate the cover-sections of the binder, provided, respectively, with the rear binding or clamping strips 9 9′, there being a flexible joint 10 between each cover-section and its binding or clamping strip.

Referring to the flexible binding device employed by me, practice has demonstrated that a convenient form of flexible binding device which shall possess the capabilities of contraction and expansion and of bending laterally is provided by a closely-wound coiled spring. I have illustrated this particular construction of the flexible binding devices throughout the drawings and have designated the same by the numeral 11. It will be understood, however, that I do not limit myself to the specific form of flexible binding device shown, inasmuch as any other form which is capable of expanding and contracting and bending laterally—as, for instance, a rubber tubing or rubber or elastic band or the like—I consider within the spirit and scope of my invention.

In the most simple embodiment of the invention (illustrated in Fig. 1 of the drawings) I show a temporary binder in which the flexible binding devices 11 are merely secured at opposite ends to the respective binding or clamping strips 9 9′ in any desirable manner. It is obvious that when the binder is open the flexible binding devices will lengthen or expand as the inner portions of the divided leaves draw away from each other in the process of opening, and said flexible binding devices will also bend upwardly, thereby permitting the leaves to be more readily turned and securing a less abrupt bend to the leaves than would otherwise be the case. The flexible binding devices in the process of expanding of course necessarily turn the clamping-strips 9 9′ at angles. When the binder is closed, the flexible binding devices of course contract to a normal length and the upward bow is necessarily taken out of the flexible binding devices.

The detachable leaves are indicated by the numeral 12, and these leaves are provided with openings 13 for the passage therethrough of the flexible binding devices 11. Straight cuts 14 preferably extend from the openings 13 rearwardly to the rear edge of each leaf. (See Fig. 7.) When it is desired to insert a leaf, the binder is opened and the fingers placed in the crotch of the leaves formed by the divided leaves, and the two divided sections of the leaves thereby forced apart. Another leaf is now inserted and the straight cuts 14 thereof forced past the flexible binding devices until the openings 13 of the leaf are reached, the flexible binding devices finally

fitting said openings. A leaf is removed by forcing the sections of the divided leaves apart, as before explained, and then merely pulling outwardly on a leaf and freeing it from engagement with the binding devices.

As it is desirable that the leaves, when the binder is opened, should be forced upwardly at the rear portions thereof, so as to diminish to the greatest possible extent the bend in the leaves, and consequently make them lie as flat as possible in order to facilitate writing thereon, I have shown in Figs. 2 to 6 of the drawings a construction for accomplishing this purpose. Referring to these figures, it will be seen that the clamping-strips 9 9′ each have a plate 15 secured to the inner side. Each plate is provided with sets of projecting knuckles 16 16. Each cover-section has secured to its inner side straps 17 17, the ends of said straps being provided with knuckles 18, each one of which being located between and in line with two of the knuckles 16 and closely adjacent to one of said knuckles. The straps are also provided with laterally-extending lugs 19.

The numerals 20 20 indicate bars which extend parallel with the binding or clamping strips 9 9′. These bars have their inner sides rounded or convex, as clearly shown. The ends of the flexible binding devices 11, extending through the leaves, also pass through the widest portions of these bars and are preferably removably secured by means of rods 21 21, which extend through terminal eyes 22 22, formed at the extremities of the flexible binding devices. Each bar 20 has extending therefrom the projecting straps 23 23, each strap being provided at its extremity with a knuckle 24, which is in line with the knuckles 16 16 and the knuckle 18 and is between one of said knuckles 16 and the knuckle 18. Through each set of alined or registering knuckles 16, 18, and 24 passes a hinge-pin or pintle 25. The knuckles 24 have projecting therefrom shoulders 26, which are adapted to be engaged by the lugs 19 when the binder is open, as will be hereinafter more fully explained.

The plates 15 are advisably provided with openings 27, which are adapted to receive and accommodate the eyes 22 of the flexible binding devices when the binder is closed, so that the parts will fit as closely together as possible.

In the operation of the mechanism for forcing the inner portion of the leaves 12 upwardly, when the binder is being opened, the cover-sections will turn on the hinges formed by the several knuckles and the pins or pintles, hereinbefore described, and just before the binder has been fully opened the lugs 19 of the straps 17 will contact with the shoulders 26 of the straps 23, and thereby throw said straps upwardly, so as to cause the rounded sides of the bars 20 to act against the leaves and thrust said leaves upwardly, as clearly shown in Fig. 3. The sides of the bars 20 adjacent to the leaves are rounded or convex, so as to avoid sharp corners being brought into contact with the leaves, which would mutilate or cut the same.

It will be observed that the plate 15 and the straps 17 are secured, respectively, to the binding-strips 9 9′ and the cover-sections 8 8′ by means of screws. When, therefore, the cover-sections and the binding-strips after continued use of the binder become worn, they may be readily detached from the plate 15 and the straps 17 and new cover-sections and binder-strips secured in place thereof.

The back of the binder is shown as formed of plates 27′ 27′, slidingly fitted together, so as to widen or narrow the space with the increased or diminished thickness of the binder. The outer edges of these plates are flanged, and the flanged portions are secured to the binding-strips 9 9′.

It is necessary where provision is made for thrusting the leaves upwardly at the crotch of the leaves to permit of the binding-strips 9 9′ spreading apart, and were the binding-strips 9 9′ held stationary it would be impossible to accomplish the upward forcing of the leaves. At the same time, however, it is desirable when the binder is opened to hold the binding-strips as nearly upright as possible, or, in other words, in the position shown in Fig. 3. This I accomplish by providing an ordinary form of lazy-tongs, (designated by the numeral 28,) the outer ends of the levers of said tongs being connected to projecting lugs 29. Two of the levers are provided with the usual elongated slots, through which screws pass and enter the other levers. When it is desired to insert or remove a leaf, the fingers are inserted in the crotch of the leaves, as previously explained, and the divided sections of the leaves spread apart, and in order to lock the binder in this position I provide a dog 30, provided with a series of teeth, any of which are adapted to engage a pin 31, extending from one of the levers of the lazy-tongs. In this manner the binder can be conveniently locked in its spread-apart condition until a leaf is inserted or removed without the necessity of keeping the fingers in the crotch of the leaves.

The numerals 32 32′ indicate rear side plates, which are adjacent to the side edges of the binding-strips 9 9′. These plates are provided, respectively, with inwardly-turned flanges 33, secured, respectively, to the inner sides of said binding-strips. Each plate 32′ also has its forward edge turned inwardly, forming a guideway 34, in which the forward edge of the plate 32 fits and slides. The rear edges of the plates 32 and 32′ are curved in the arc of a circle, and these rear edges are bent laterally inwardly to form curved supplemental back portions 35, the convexities of the curves being outermost. By this provision the binder when opened is permitted to turn on the curved back flanges or portions 35, the circles described by said back flanges

being in the same or substantially the same arc, so that no matter to what extent the cover-sections are adjusted apart—that is to say, whether the space between them is increased or diminished by the insertion of additional leaves or the removal of leaves, as the case may be—the binder is permitted to turn on the curved back portions, whereby the effect of a continuous rounded back is obtained and the leaves thereby permitted to lie more nearly flat than could possibly be the case if the binder were provided with a straight or flat back or with a curved flange extending only from one of the binding-strips.

By the particular manner of connecting the ends of the flexible binding devices 11—viz., by passing the rods 21 through the eyes 22—said flexible binding devices can be readily removed when they become worn or otherwise damaged by merely pulling out the rod 21. New flexible binding devices can then be readily substituted and secured in place.

It will be noticed that the outer curved sides of the supplemental back portions 35 are provided with dovetail grooves 36, in which are fitted dovetail tongues projecting from wear-strips 37, of leather or any other desirable material.

What I claim as my invention is—

1. In a temporary binder, or book, the combination, of cover-sections, a binding device or devices adapted to be inserted through the openings in leaves disposed between the cover-sections and said binding device or devices, being expansible, and contractible and bendable laterally, mechanism engaging the ends of the binding device or devices between the cover-sections and the leaves, to prevent said device or devices from being withdrawn through the openings of the leaves, and means acting on the leaves for the purpose of raising said leaves at their inner portions or crotch, as the cover-sections and leaves are opened out.

2. In a temporary binder, or book, the combination, of cover-sections, a flexible binding device or devices adapted to be inserted through the leaves disposed between the cover-sections, bars bearing against the leaves and to which bars the ends of the binding device are secured, and means for raising said bars, as the binder or book is opened, in order to force the inner portions or crotch of the leaves upwardly.

3. In a temporary binder, or book, the combination, of cover-sections, a flexible binding device or devices adapted to be inserted through the leaves disposed between the cover-sections, bars bearing against the leaves and through which bars the ends of the binding device pass, and are secured on the outer sides of the bars, and means for raising said bars, as the binder or book is opened, in order to force the inner portions or crotch of the leaves upwardly.

4. In a temporary binder, or book, the combination, of cover-sections, a flexible binding device or devices adapted to be inserted through the leaves disposed between the cover-sections, bars bearing against the leaves and to which bars the ends of the binding device are secured, the sides of said bars bearing against the leaves being convex, and means for raising said bars, as the binder or book is opened, in order to force the inner portions or crotch of the leaves upwardly.

5. In a temporary binder, or book, the combination, of cover-sections provided with rear hinged binding-strips, a flexible binding device or devices adapted to be inserted through the leaves disposed between the cover-sections, hinged bars extending along the binding-strips and bearing against the leaves, and to which bars the ends of the binding device are secured, and lugs or contacts carried by the cover-sections and adapted to act on the hinged bars, as the book or binder is opened, so as to throw said hinged bars upwardly, in order to force the inner portions or crotch of the leaves upwardly.

6. In a temporary binder, or book, the combination, of cover-sections provided with rear hinged binding-strips, plates secured to the rear binding-strips, a strap or straps secured to each cover-section and provided with projecting lugs, a flexible binding device or devices adapted to be inserted through the leaves disposed between the cover-sections, and bars extending along the binding-strips and bearing against the leaves, and to which bars the ends of the binding device are secured, said bars, the straps, and the plates having a hinge connection, and the lugs of the straps adapted to act on shoulders provided at the hinge connection of the bars, whereby said bars are raised and caused to act on the inner portions or crotch of the leaves in order to raise said leaves.

7. In a temporary binder, or book, the combination, of cover-sections provided with rear hinged binding-strips, plates removably secured to the rear binding-strips, a strap or straps removably secured to each cover-section and provided with projecting lugs, a flexible binding device or devices adapted to be inserted through the leaves disposed between the cover-sections, and bars extending along the binding-strips and bearing against the leaves, and to which bars the ends of the binding device are connected, said bars, the straps, and the plates having a hinge connection, and the lugs of the straps adapted to act on shoulders provided at the hinge connection of the bars, whereby said bars are raised and caused to act on the inner portions or crotch of the leaves, in order to raise said leaves.

8. In a temporary binder, or book, the combination, of cover-sections provided with rear hinged binding-strips, a flexible binding device or devices adapted to be inserted through the leaves disposed between the cover-sections, hinged bars extending along the bind-

ing-strips and bearing against the leaves, and to which bars the ends of the binding devices are connected, means for raising said hinged bars, as the binder or book is opened, whereby the inner portions of the leaves are raised upwardly, and means for locking the binding-strips and holding said strips in upright position, after said strips are spread apart by the opening of the cover-sections and leaves.

9. In a temporary binder, or book, the combination, of cover-sections provided with rear hinged binding-strips, a flexible binding device or devices adapted to be inserted through the leaves disposed between the cover-sections, hinged bars extending along the binding-strips and bearing against the leaves and to which bars the ends of the binding devices are connected, means for raising said hinged bars, as the binder or book is opened, whereby the inner portions of the leaves are forced upwardly, and a lazy-tongs connecting the rear binding-strips.

10. In a temporary binder, or book, the combination, of cover-sections provided with rear hinged binding-strips, a flexible binding device or devices adapted to be inserted through the leaves disposed between the cover-sections, hinged bars extending along the binding-strips and bearing against the leaves, and to which bars the ends of the binding device are connected, means for raising said hinged bars, as the binder or book is opened, whereby the inner portions of the leaves are forced upwardly, a lazy-tongs connecting the rear binding-strips, and a dog adapted to adjustably engage one of the levers of the lazy-tongs.

11. In a temporary binder, or book, the combination, with cover-sections adapted to be adjusted closer together or farther apart, of plates secured respectively to the side edges of the rear portions of the cover-sections and slidingly fitted together, the rear edges of said plates provided with inwardly-turned flanges, said flanges being curved outwardly, or convex on their outer sides.

12. In a temporary binder, or book, the combination, of cover-sections adapted to be adjusted closer together or farther apart, plates secured respectively to the side edges of the rear portions of the cover-sections and slidingly fitted together, the rear edges of said plates provided with inwardly-turned flanges, said flanges being curved outwardly, or convex on their outer sides, and said convex outer sides being provided with grooves, and strips fitted in said grooves.

In testimony whereof I affix my signature in presence of two witnesses.

JULIUS BAUER.

Witnesses:
A. L. MORSELL,
ANNA V. FAUST.