

A Photo Album Structure from Philadelphia, 1865

ABSTRACT

This article discusses a little known nineteenth-century photo album structure, the Harding Flexible Chain Back Album, patented October 17, 1865. The structure is a variation of the common cloth V-hinge structures used for stiff-leafed albums, but one that avoids their normal breakdown difficulties. The structure can be used in the restoration of Victorian photo albums or in the construction of new stiff-leafed albums.

INTRODUCTION

The advent and popularity of photography in the last half of the nineteenth century created a demand for albums in which to store and display the photographs. While most of the photo albums used traditional book structures, specific needs often had to be addressed, such as the need for additional spacers or fillers to compensate for the mounted material. There were many ingenious new designs. Some of them, typically of that inventive period, were patented. A hundred years later, the strengths and weakness of those designs are now evident. Various designs have been described, diagrammed, and discussed in detail in recent professional conferences and publications.

One photographic process in particular gave the most difficulty: the albumen print. The thinness and fragility of the albumen print required that it be mounted on a heavy, stiff paperboard as a secondary support. The small carte-de-visite and the larger cabinet card are examples. Too heavy to be mounted on a regular album page, they were generally inserted into a pocket window created in a stiff-leafed album page. As these stiff leaves had no flexibility, a binding structure had to be chosen that provided the flex-

ibility and allowed the leaves to turn. The most common choice was a solution that attached the leaves to each other via cloth V hinges in the gutter margin. As a result, the leaves could pivot on their spine axis. In addition, the leaves themselves were often jointed with a cloth hinge at the guard to allow more flexing at a secondary mid-leaf axis.

However the problem with the cloth V-hinge solution and the secondary mid-leaf cloth joint was that the cloth—especially linen, which has great tensile strength but poor fold strength—could not tolerate the stress of the sharp fold and would break (fig. 1). Reportedly this was also the reason that linen was no longer used to make men's shirt collars at the end of the nineteenth century. This breakdown of the cloth hinge is the most common problem found in photograph albums of that early period.

THE CHECKERBOARD STRUCTURE

At the Guild of Book Workers' 16th Annual Standards Seminar in Pasadena, California, October 17-19, 1996, an unusual album structure was brought into Richard Horton's session on photo albums. A small stiff-leafed album designed for cabinet cards, it was labeled on the tail

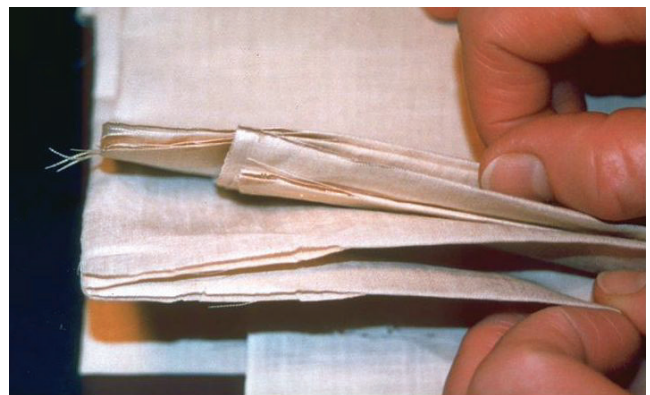


Fig. 1. Spontaneous fractures at the fold of "airplane" linen

Presented at the Book & Paper Group Session, AIC 30th Annual Meeting, June 6-11, 2001, Miami, Florida. Received for publication Fall 2002.

HARDING'S
Flexible Chain Back Album,

PATENTED, OCTOBER 17, 1865.

The discovery and many improvements in the art of Photography, created a great demand for some convenient, ornamental, and durable contrivance for preserving its numerous productions. To supply that demand, human ingenuity soon invented the Photograph Album, which was first introduced to public notice at a period the most momentous and eventful in the history of our country, and soon became a very desirable and almost indispensable book, furnishing a convenient method of registering and preserving the photograph portraits of RELATIVES, FRIENDS, DISTINGUISHED STATESMEN, MILITARY AND NAVAL HEROES, &c., &c.

It was soon discovered, however, that the Photograph Album as constructed, did not possess the lasting and durable qualities for a book that should last a lifetime. To remedy this, the invention of "THE HARDING PATENT FLEXIBLE CHAIN BACK ALBUM" is one which, for *great strength, durability, and neatness*, has no equal, and which will last for generations.

The superiority of "*The Harding Patent Flexible Chain Back Album*" over all others heretofore manufactured, will, upon the slightest examination, be apparent to all. Those who may possess one of these Albums, will not fail to recommend them to their friends as "*The Album of the Age.*"

Fig. 2. Harding's promotional prose

Construction and Advantages.

The links will not break or cut by opening and closing the book, as each link forms a half circle around the edge of an intervening leaf when the book is closed, and is nearly straight when the book is opened.

The leaves are interlocked in such a manner that they are held firmly in their places, and cannot slip over each other; or move in any other direction than the way intended for opening and closing the book, and when opened, will lay perfectly flat, without regard to the part of the book which is opened.

The back, although possessing greater strength, is more elastic and flexible than that of any other Album now offered to the public, and is constructed in such a manner, that it will always keep its original shape, so long as it is not torn to pieces, thus presenting a neater and more beautiful appearance when opened, than any other Photograph Album made.

The materials used are of the best selections. The leaves are beautifully printed on the finest cards; the bindings are of the best Philadelphia styles, new and beautiful designs, bound in rich Turkey morocco, fine extra gilt clasps, chased edges, and pearl ornaments, to protect the covers.

The New Patent Flexible Chain Back Albums are manufactured only by the well-known publisher of HARDING'S EDITIONS OF THE HOLY BIBLE, who was one of the first to introduce to the public, Photograph Albums of American manufacture.

Purchasers should always ask for the *Chain Back Album*, and see that they are stamped on the back of each Album "Flexible Chain Back Album, Patented October 17, 1865."

WILLIAM W. HARDING,
326 Chestnut Street, Philadelphia.

Fig. 3. Construction and advantages

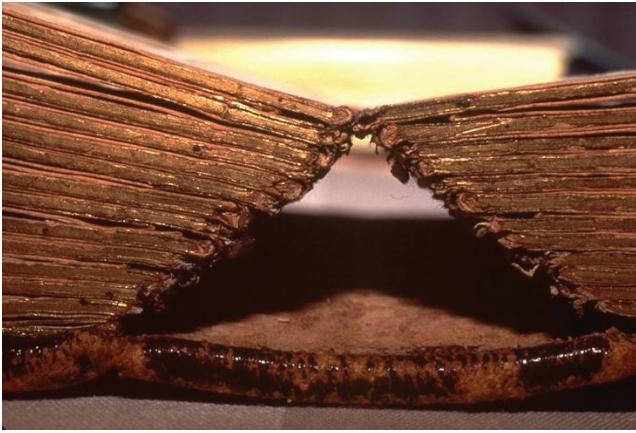


Fig. 4. Spine action when open

of the spine “Flexible Chain-Back, Pat’d Oct. 17, 1865.” Inside the cover, it was more fully identified as a “Flexible Chain Back Album, patented October 17, 1865 by William W. Harding, 326 Chestnut Street, Philadelphia P.” with two pages of Victorian promotional prose extolling its many virtues (figs. 2 and 3).

At first the album appeared to be of the common cloth V-hinge construction. On closer examination however it had some rather curious characteristics. First, the cloth hinges facing each other in the gutter margin were of two different colors—brown on one side and blue on the other. With a normal V hinge, the cloth hinges facing each other would have been of the same color. Second, in looking down the open hollow back, the spine had a distinctive checkerboard pattern, with bare areas alternating with covered areas and rows of both hinge colors. This was clearly something quite different.

Perhaps the most unusual feature however was how well this structure had survived the last one hundred and thirty years. Despite the obvious wear and tear it had received, it was functioning perfectly and in a completely sound condition. When open, the spine rose in a sharp arc, allowing the leaves to be displayed completely flat (fig. 4). The checkerboard pattern could be seen down the spine (fig. 5). Mr. Harding’s superlative claims seem to have been justified as to its exceptional durability. Here at last apparently was a truly superior album structure that could be used in the conservation of stiff-leafed Victorian photo albums.

THE PATENT SEARCH

The obvious place to start in trying to recreate this structure was with the diagrams of the patent. Unfortunately that search did not turn out to be either very easy or very successful. The search to find William Harding’s October 17, 1865, Philadelphia patent turned up instead a Letters Patent No. 50521 entitled “Improvement in Photographic

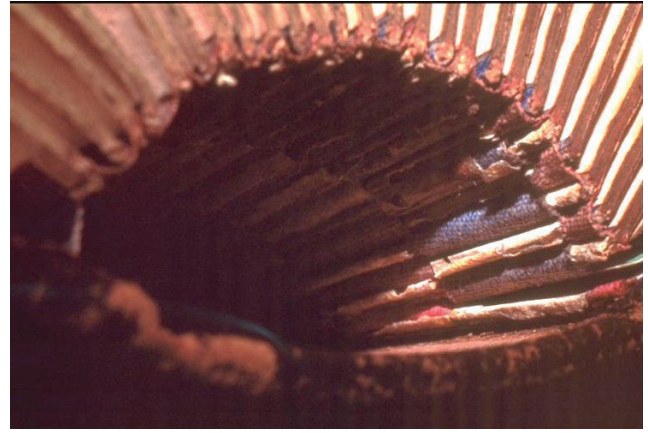


Fig. 5. View of “checkerboard” spine pattern

Albums” issued to Richard van Velthoven and Joseph H. Hazzard of Philadelphia, Pennsylvania on October 17, 1865. Although the diagrams accompanying the No. 50521 Patent show a similar structure (fig. 6), Harding’s Flexible Chain Back has some important differences. According to a patent expert, a second patent for such a similar item on the same date and at the same place would not have been allowed, and therefore the No. 50521 Patent must have been Harding’s original patent.

The National Archives in Washington shed some interesting light on the matter. The assignment book for that period shows that on December 5, 1865, van Velthoven and Hazzard assigned half of their rights to the No. 50521 Patent over to William Grant. Then on May 1, 1866, it shows that van Velthoven and Hazzard assigned their remaining half of the rights and Grant assigned his half of the rights over to William Harding. At that point, Harding would have owned the entire No. 50521 Patent, which would have allowed him to use the original patent date of October 17, 1865. A year later, on May 21, 1867, the No. 50521 Patent was reissued as Reissue No. 2617 to William Harding. The Reissue No. 2617 Patent very likely contained the modifications to the No. 50521 Patent necessary for the Flexible Chain Back Album (the 50521 hinges interlock; Harding’s tab hinges overlap as well as interlock). Unfortunately according to a patent archivist at the National Archives, the nineteenth-century reissue patents have not been retained. That being the case, it seems unlikely that original diagrams for the Flexible Chain Back will ever be available.

WORKING INSTRUCTIONS AND DIAGRAMS

Without the original diagrams, the following working instructions and diagrams have been developed based on the California example and an experimental model based on it (fig. 7). Although the checkerboard structure is rather difficult to describe and even more difficult to diagram, it

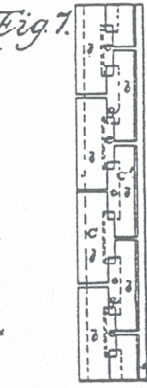
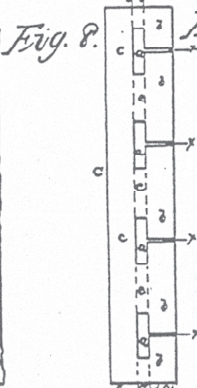
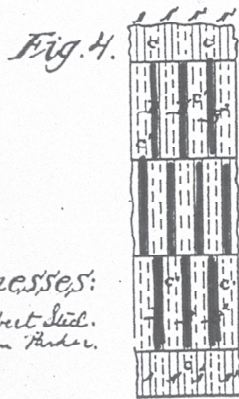
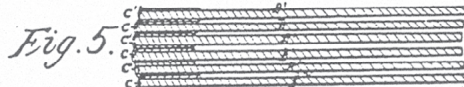
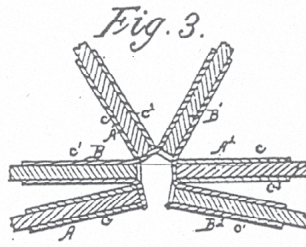
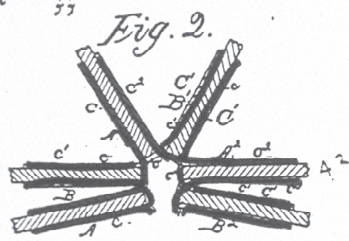
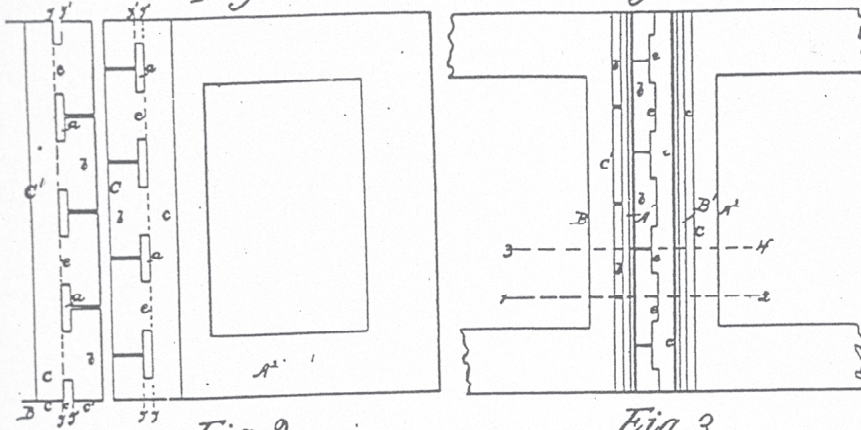
Van Velthoven & Hazard.
Photographic Album.

No. 50521.

Patented Oct. 17, 1865.

Fig. 6.

Fig. 1.



Witnesses:
Wm. Albert Seidel.
John Parker.

Inventors.
R. Van Velthoven
J. Hazard
My true atty
H. Howland

50521

Fig. 6. No. 50521 patent

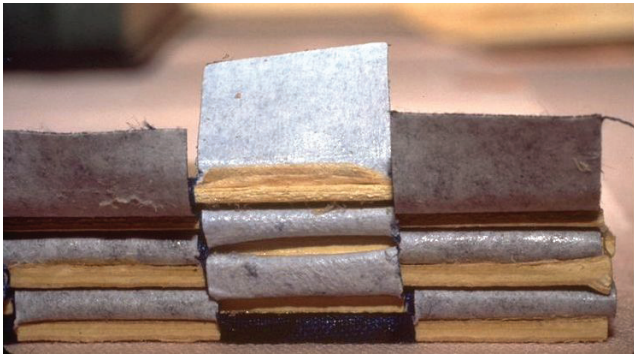


Fig. 7. First experimental model

is actually quite simple to construct. It would have been very easy and fast in a production setting, competing favorably with the normal V-hinge construction.

STEP ONE: PREPARE LEAVES

1. The leaves (or boards) of an album in sequence divide alternately into two groups: the odd numbered leaves (A group) and the even numbered leaves (B group) (fig. 8, #1). The hinges may be added to the leaves in each group in advance, or individually, alternately, at the time of assembly.
2. A cloth hinge is mounted onto the recto of each leaf at the spine edge so that it runs the length of the leaf but extends half way off of the leaf (fig. 8, #2). The original example used two hinge colors, brown and blue: one for the A group and one for the B group. Of course they all can be of the same color. Instead of applying the adhesive to the cloth hinge, the spine edge of the leaf can be run through a shallow pan or triangular trough of adhesive. Historically the adhesive was animal glue undoubtedly; PVA can be substituted. Strips of double-stick adhesive tape can also be used in less archival situations.
3. Slits are cut halfway back in the extended part of the hinge at regular intervals to create equally spaced tabs (fig. 8, #3). The number and size of the tabs will depend upon the length of the spine; the tabs may be an even or an odd number. However as the cuts and tabs in all of the hinges must be identical, the use of a template is advised. The tabs may be cut after the hinges are mounted or they may be cut in batches before the hinges are mounted.
4. Once the hinges are mounted, the alternate tabs are then wrapped around the spine edge of the leaf and attached to the same leaf's verso (fig. 8, #4). In the A group the odd number tabs (1,3,5, etc.) are wrapped around to the back, while in the B group the even number tabs (2,4,6, etc.) are wrapped around to the back.
5. The other tabs are folded up temporarily (fig. 8, #5). In the A group the even number tabs (2,4,6,etc.) will be

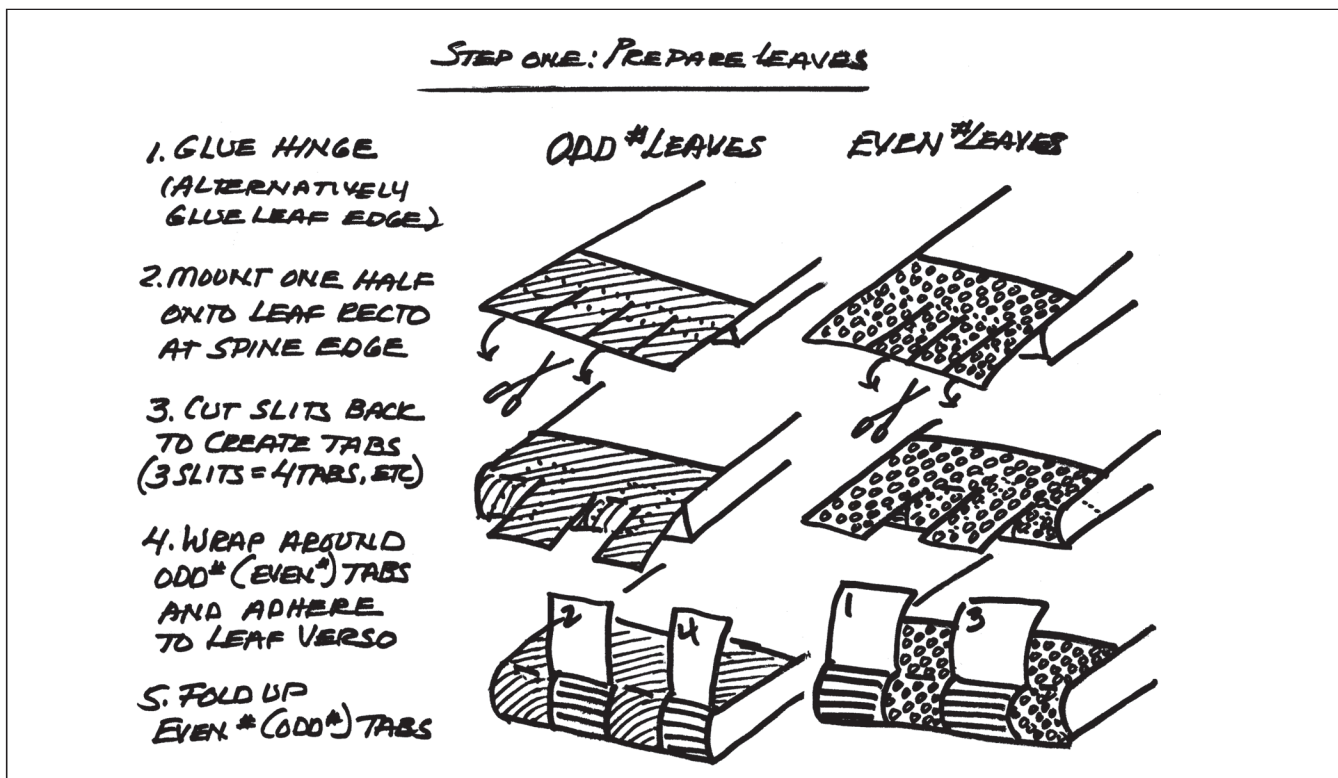


Fig. 8. Step One: Prepare leaves

folded up, while in the B group the odd number tabs (1,3,5,etc.) will be folded up.

STEP TWO: ASSEMBLE LEAVES

1. Alternate A group and B group leaves as the album is assembled (fig. 9, #1). The album may be assembled either from the back forward as described here, or the front backward. The difference will be only which side of the leaf has the solid hinge and which has the tabs.
2. Set an A leaf on the bench with a B leaf on top of it, with the spine edges lined up.
3. Add a new A leaf on top of the intervening B leaf (fig. 9, #2).
4. Attach the new A leaf by attaching the folded up tabs of the first A leaf to the empty spaces on the back of the new A leaf (fig. 9, #3) and (fig. 10). Thereby the third leaf has been attached to the first leaf and is added to the pile. The process continues, using alternating leaves with their alternating tabs, and results in attaching all of the A or odd numbered leaves to each other and all of the B or even numbered leaves to each other, with the two groups inter-linked.
5. The method of assembling the leaves (fig. 10). The folded up tabs of the previous alternate leaf fill in the interstices on the new leaf's verso.

6. The resulting checkerboard spine pattern (fig. 11). Bare spine areas on the leaves alternate with covered areas. The covered areas have two layers of overlapping cloth tabs: the inside one was wrapped down and around, the outside one laps up and over.
7. The resulting gutter views (fig. 12). The two colors are visible on facing leaves.

The first and last leaves that attach to the cover boards are atypical—as is the case in most binding structures—and require improvised modification. After the leaves are all joined together, the hinges and tabs can be trimmed back if desired and/or covered by a facing paper as is typically done with a cloth V-hinge structure. The original example had no additional spine linings, which left the checkerboard pattern in plain view down the hollow back of the spine.

CONCLUSION

The Harding Flexible Chair Back Album, the checkerboard structure, is a variation of the common cloth V-hinge album structure. In the common cloth V-hinge structure, the leaves are attached to their *neighboring* leaves by a single cloth V hinge. In the checkerboard structure, the leaves are attached to *alternate* leaves with tab hinges that overlap and inter-lock. The unusual strength, flexibility, and durability of this structure come from several

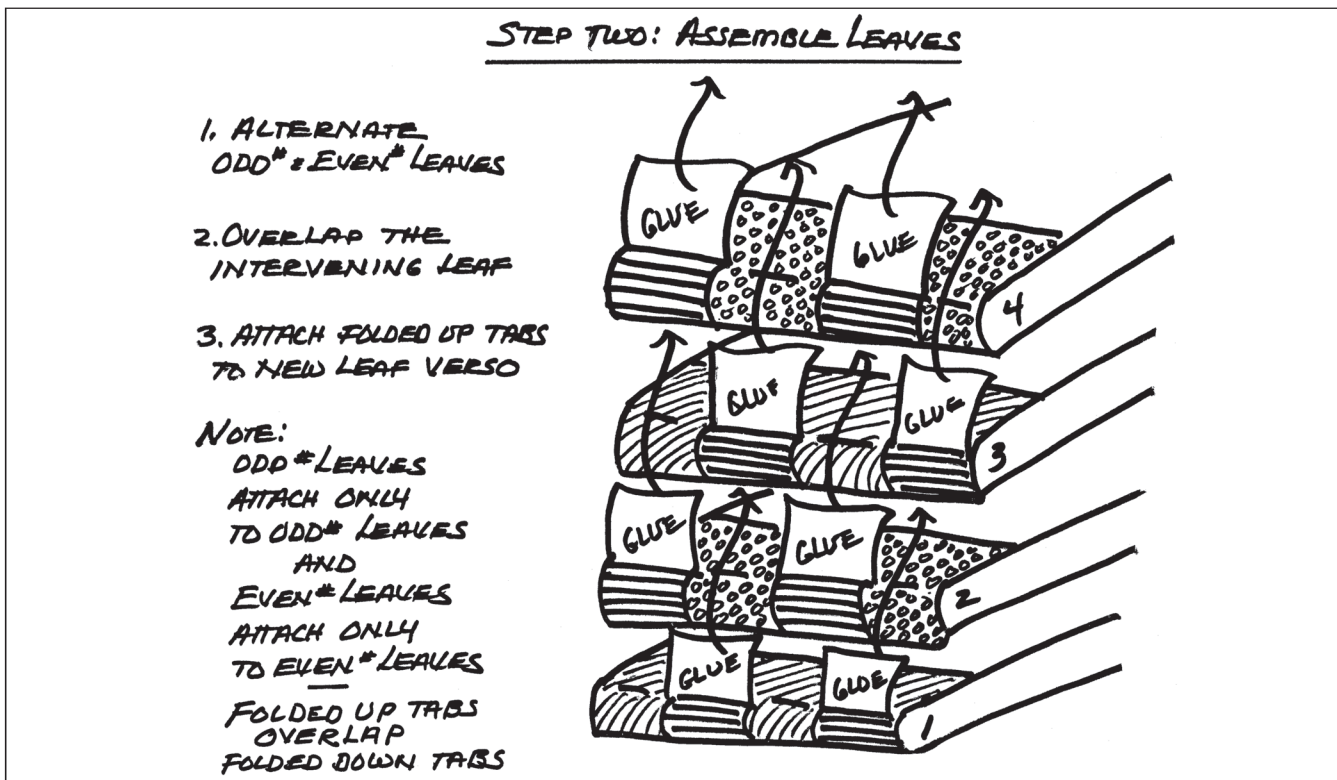


Fig. 9. Step Two: Assemble leaves

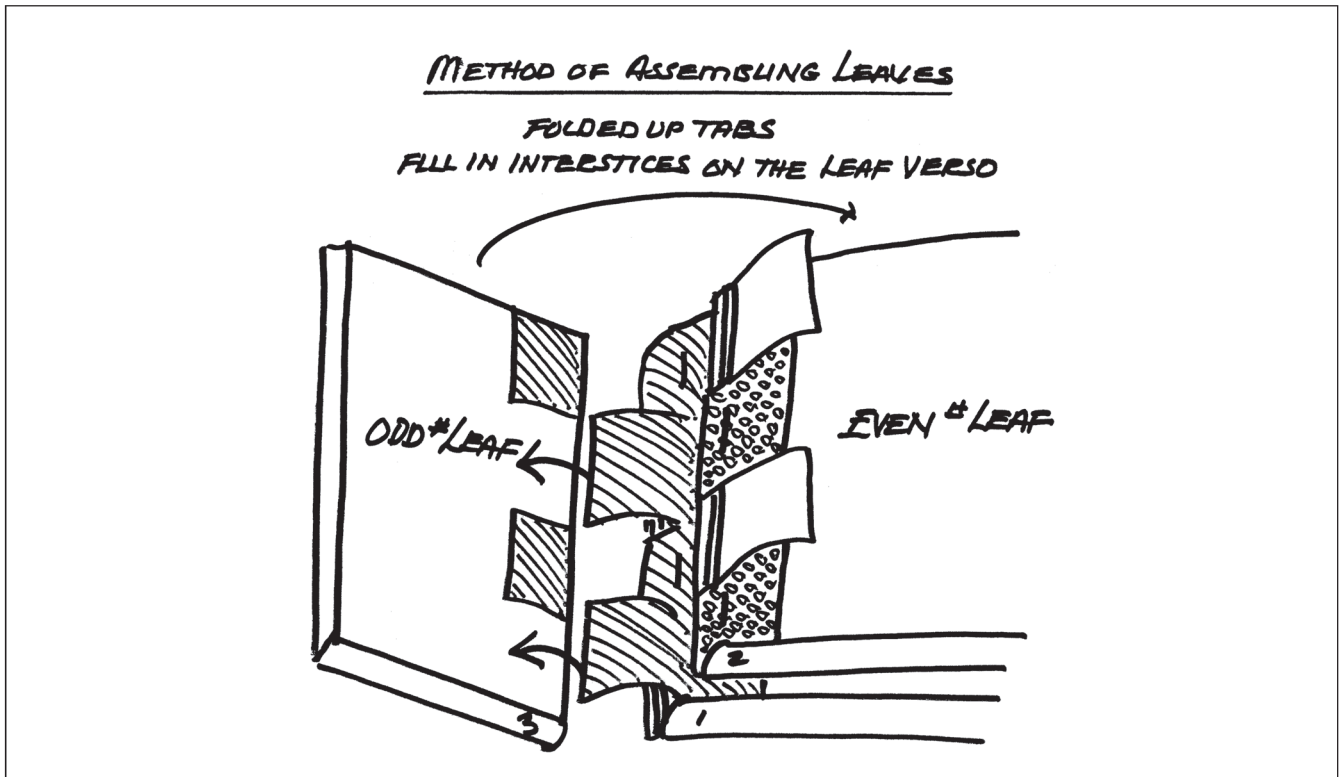


Fig. 10. Method of Assembling leaves

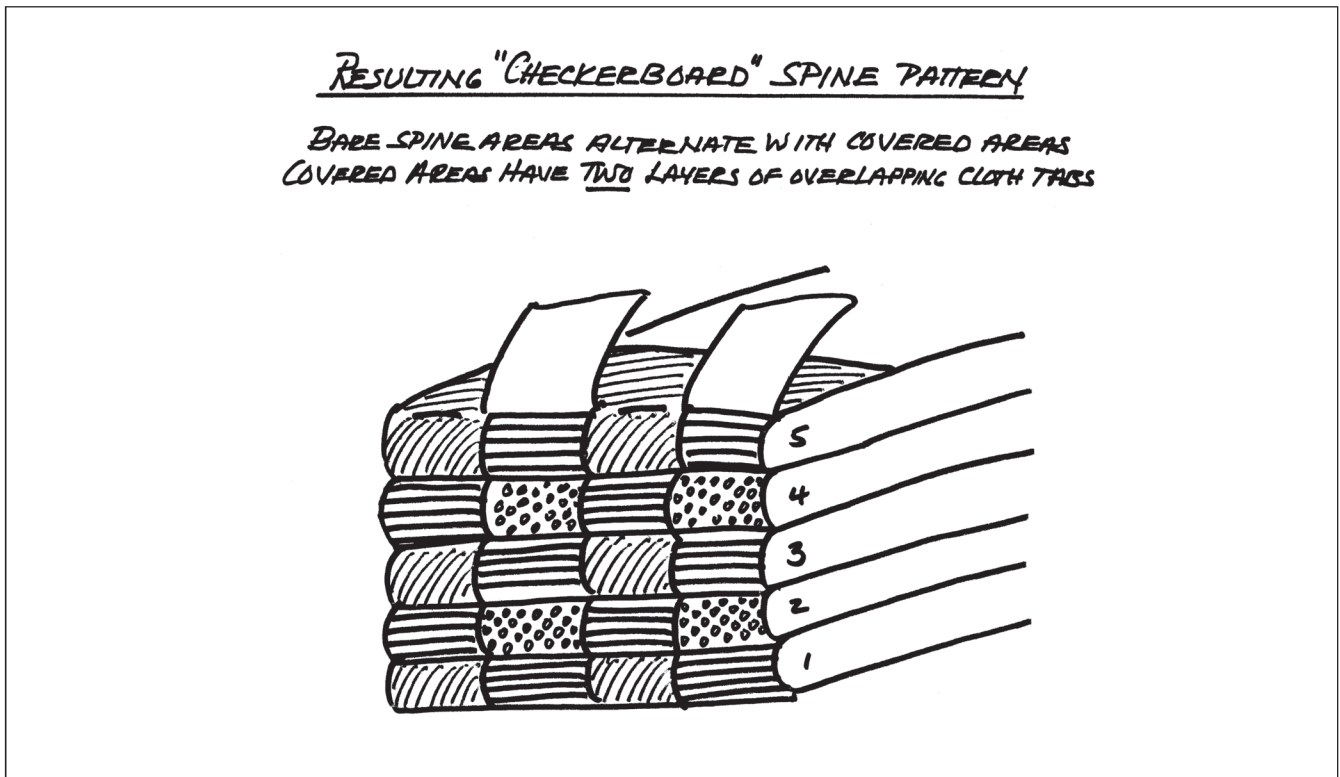


Fig. 11. Resulting "checkerboard" spine pattern

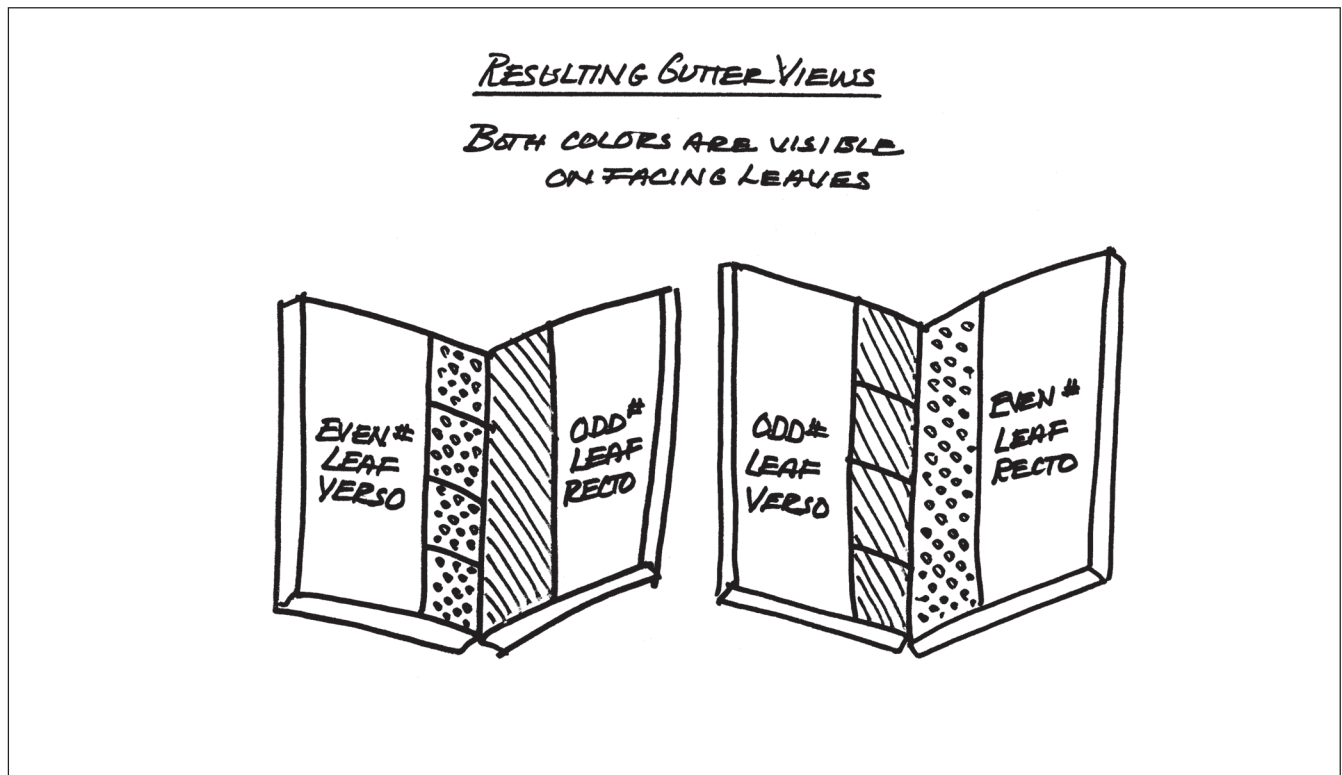


Fig. 12. Resulting gutter views

factors. First, the sharp fold of the normal V hinge has been avoided. These tab hinges wrap around the intervening leaf in a curved U shape. Second, the connecting tab hinges wrap around the intervening leaf where it was previously wrapped with its own tab. Cloth is working against cloth instead of cloth against leaf or board. And third, the tab hinges do not have any adhesive in the critical area where they flex.

The lack of stress at the fold, and the lack of adhesive with its attendant deterioration, are obvious advantages. Those advantages coupled with the checkerboard's ease of construction leave only one question: why was it not used more widely? Perhaps the answer is that Harding's patent would have limited its use initially. Eventually of course, gelatin prints supplanted albumen prints and reduced the need for the stiff leafed albums altogether.

Otherwise, it is hard to dispute Harding's enthusiastic claim that "The superiority of *The Harding Patent Flexible Chain Back Album* over all others heretofore manufactured, will, upon the slightest examination, be apparent to all." Most conservators who have tried it seem to agree.

ACKNOWLEDGEMENTS

I would like to thank Barbara Wampole of Saugus, California, for providing information on the original example of the Harding album; Hedi Kyle and her daugh-

ter, Ursula Warchol, for obtaining a copy of the No. 50521 patent; and Marjorie Ciarlante, Patent Archivist at the National Archives, for researching and responding so promptly to my inquiries. My personal thanks go to Ann Douglas, Metro Toronto Library, and Shannon Zachary, *BPG Annual* editor, for their encouragement and support. In a solo private practice it is often difficult to sustain interest and enthusiasm for extracurricular projects such as this.

REFERENCES

- Conservation of scrapbooks and albums: postprints of the Book and Paper Group/ Photographic Materials Group Joint Session at the 27th Annual Meeting of the American Institute for Conservation of Historic and Artistic Works, June 11, 1999, St. Louis, Missouri.* 1999. Washington, D.C.: AIC.
- Rutherford, Jane. 1999. Victorian album structures. *The Paper Conservator* 23:13-25.

BETSY PALMER ELDRIDGE
Conservator in Private Practice
Books, Paper, and Archival Material
Toronto, Ontario, Canada
bpeldridge@aol.com