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THE CHECKERBOARD ALBUM STRUCTURE
"The Flexible Chain Back Album"

A small photo album with an unusual structure appeared at the Guild of Book Workers' 16th Annual Standards Seminar Meeting in Pasadena, California, October 17-19, 1996. It was brought by Barbara Wampole to the session "Opening Up Photo Album Possibilities" being taught by Richard Horton. On the tail of the spine, it was labeled "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 wonderful Victorian promotional prose extolling its virtues. At first the album appeared to be of the common cloth V hinge construction. On closer examination however it had some rather curious characteristics. The cloth hinges facing each other in the gutter margin were of two different colors (brown and blue) which certainly would not have been the case with a normal V hinge. In looking down the hollow back, the spine had a distinctive checkerboard pattern, alternating covered and uncovered sections, as well as changing color. Clearly this was something quite different. Perhaps most impressive, however, was how wonderfully well this structure had held up to the wear and tear it had obviously received. In fact, the manufacture's superlative claims seem to have been justified as to its exceptional durability. Here at last appeared to be a truly superior structure, worthy of further study in the quest to find an improved structure for use in the conservation of Victorian photo albums.

In order to recreate this structure, the obvious place to start was with the diagrams of the patent. Unfortunately that did not prove to be as easy as one might think. The search to find William Harding's October 17, 1865 Philadelphia patent turned up instead a Letters Patent No. 50,521 entitled "Improvement in Photographic Albums" issued to Richard van Velthoven and Joseph H. Hazzard of Philadelphia, Pennsylvania on October 17, 1865. Although the diagrams accompanying the 50521 patent show a structure that is similar, there are some distinct differences from the Harding's Flexible Chain Back. Authoritative sources are certain that a second patent for such a similar item, on the same date and at the same place, would have not been allowed, and that therefore the 50521 patent must be the 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 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 50521 patent, which would have allowed him to use the original patent date. A year

later, on May 21, 1867, the 50521 patent was reissued (No. 2,617) to William Harding. The reissued 2617 patent very likely contained the modifications to the 50521 patent necessary for the Flexible Chain Back Album. Tragically, according to the National Archives Patent Archivist, Marjorie Siarlante, the 19th century Reissue Patents were not kept. That being the case, the diagrams of the Flexible Chain Back are probably lost forever unless a foreign patent appears or a copy is discovered in the archives of a successor to Harding's Philadelphia company.

Based on the example in California and Harding's enthusiastic description, the following instructions have been developed for the Flexible Chain Back. It is rather difficult to describe and even more difficult to diagram (oh for those original diagrams!), but it is actually quite easy to make.

WORKING INSTRUCTIONS

If the boards (alias leaves) of the album have a particular sequence, number them. Divide the boards of the album alternately into two piles, to be called A & B, which will result in all of the odd numbered boards in A and the even numbered boards in B. On the spine edge of each board adhere a cloth hinge on the front side of the board (it is better to apply the adhesive to the board rather than to the cloth hinge) so that it runs the length of the board and extends half way off of the board. It may be helpful to use two different colors of cloth, one for the A pile and one for the B pile. The original used brown and blue. Once all of the hinges have been attached, cut the hinges back to the board at regular intervals to create equally spaced tabs. Cut all of them exactly the same using a template. Do not cut any tabs off! It does not matter whether there is an even or an odd number of tabs. (Alternatively, it may be easier to batch cut the tabs in the hinges before the hinges are attached to the boards).

Starting with the A boards, fold the ODD number tabs back and adhere them to the back side of the same board. Leave the even number tabs free, sticking out like fingers. Then take the B boards, fold the EVEN number tabs back and adhere them to the back side of the same board. Again it is probably better to apply the adhesive to the boards rather than to the cloth tabs. All of the A boards and all of the B boards may be prepared separately in advance or they may be done individually, alternately, as the album is assembled.

When assembling the album, it can be worked either from the back forward as described here, or from the front backward. The different result is only on which side the solid part of the hinge appears, the front side or the back side, and on which side the tabs appear.

To assemble, set the B board (front up) on top of the A board, carefully lining up the spine edges. Take the second A board and do the same as with the first, folding back the ODD number tabs and adhering them to the back of that board, leaving the even number tabs free and sticking out. Now before placing the second A board (front up) on top of the B board, stop and adhere the even number tabs from the first A board into the vacant interstices on the back of the second A board, thereby attaching the third board to the first

board and adding it to the pile. Similarly, take the second B board and do the same as with the first, folding back the EVEN number of tabs and adhering them to the back of that board, leaving the odd number tabs free and sticking out. Now before placing it (front up) on top of the second A board, stop and adhere the odd number tabs from the first B board into the vacant interstices on the back of the second B board, thereby attaching the fourth board to the second board and adding it to the pile. The process continues, using alternating boards with their alternating tabs, and results in linking all of the A or odd numbered boards to each other and all of the B or even numbered boards to each other, with the two groups inter-linked. The first and last boards - as is the case in most binding structures - are atypical and require a small modification. After the boards are linked together, the hinges and tabs can be trimmed back if desirable, or covered by a facing paper as was usually done with a cloth V hinge structure.

The regular inter-linking of the two groups results in the characteristic checkerboard pattern on the spine. The checkerboard pattern is caused not only by the changes in the two colors (if two colors were used) but also by alternating areas that are not covered by a tab (completely bare) with areas that are double covered by two tabs. The original had no additional spine linings, which left the checkerboard pattern in plain view down the hollow back of the spine.

EVALUATION

The structure is a variation of the common cloth V hinge album structure, where one board is attached to the next by a long V hinge. The frequently observed problem with the V hinge structure is that the cloth tends to break down at the fold due to the stress that the sharp angle puts on the fabric. Textiles - especially linen - have good tensile strength, but poor flex or fold strength. In contrast, the cloth tabs in this structure wrap around the intervening boards before they attach to the next board, which lessens the stress.

The strength of the structure undoubtedly comes not only from the lack of stress put on the cloth at the fold but also from the lack of adhesive put on the cloth at the fold and its attendant deterioration. The fact that the hinges are a double layer of cloth may also play a role although the amount of cloth making the attachment is the same as in the common V hinge structure.

The promotional information inside of the album read as follows:

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 (sic) book, furnishing a convenient method of registering and preserving the photograph portraits of RELATIVES, FRIENDS, DISTINGUISHED STATESMEN, MILITARY AND NAVAL HEROES, etc., etc.

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*."

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

BOOK COVER, patented July 5th, 1864, October 17th, 1865

Patented Oct. 17. 1865.

Fig. 1.

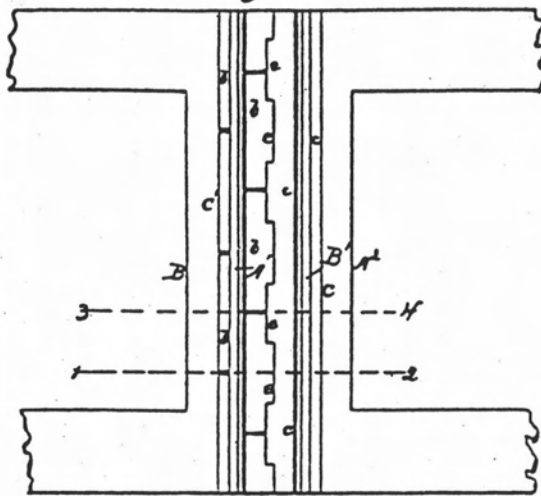


Fig. 2.

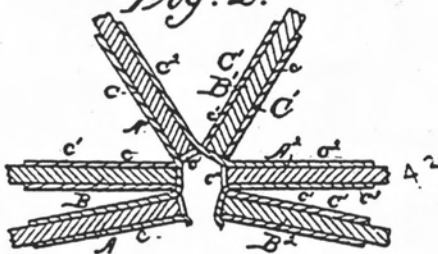


Fig. 3.

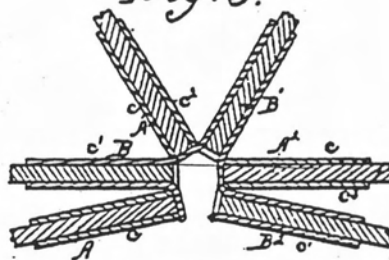


Fig. 5.



Fig. 4.



Fig. 8.

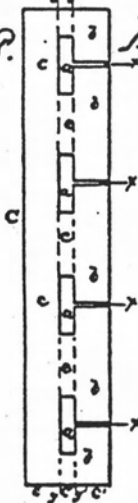
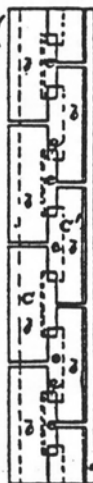


Fig. 7.



Inventors:
R. Van Kethoven
J. de Haeghe
By their atty
H. H. H. H.

5
0
5
2
1

STEP ONE: PREPARE LEAVES

1. GLUE HINGE

(ALTERNATIVELY
GLUE LEAF EDGE)

2. MOUNT ONE HALF ONTO LEAF RECTO AT SPINE EDGE

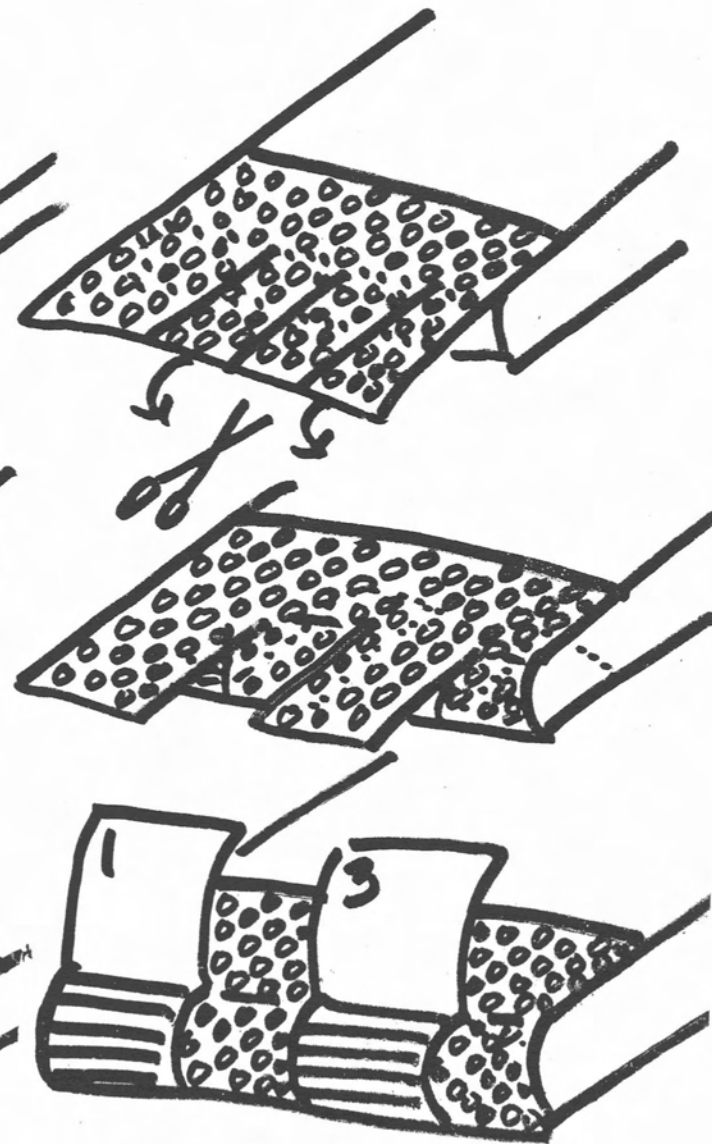
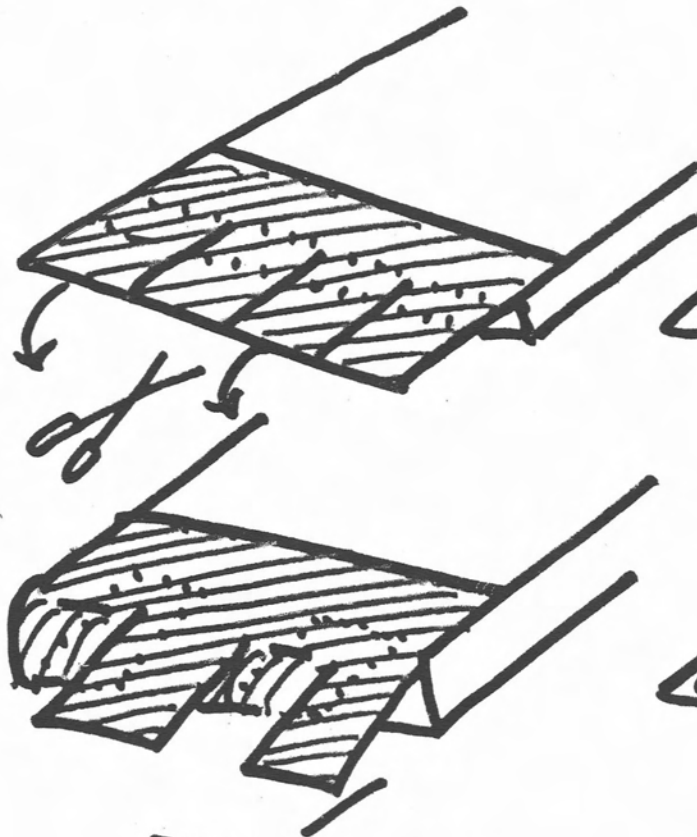
3. CUT SLITS BACK TO CREATE TABS (3 SLITS = 4 TABS, ETC)

4. WRAP AROUND ODD* (EVEN*) TABS AND ADHERE TO LEAF VERSO

5. FOLD UP EVEN* (ODD*) TABS

ODD # LEAVES

EVEN # LEAVES



STEP TWO: ASSEMBLE LEAVES

1. ALTERNATE
ODD# & EVEN# LEAVES

2. OVERLAP THE
INTERVENING LEAF

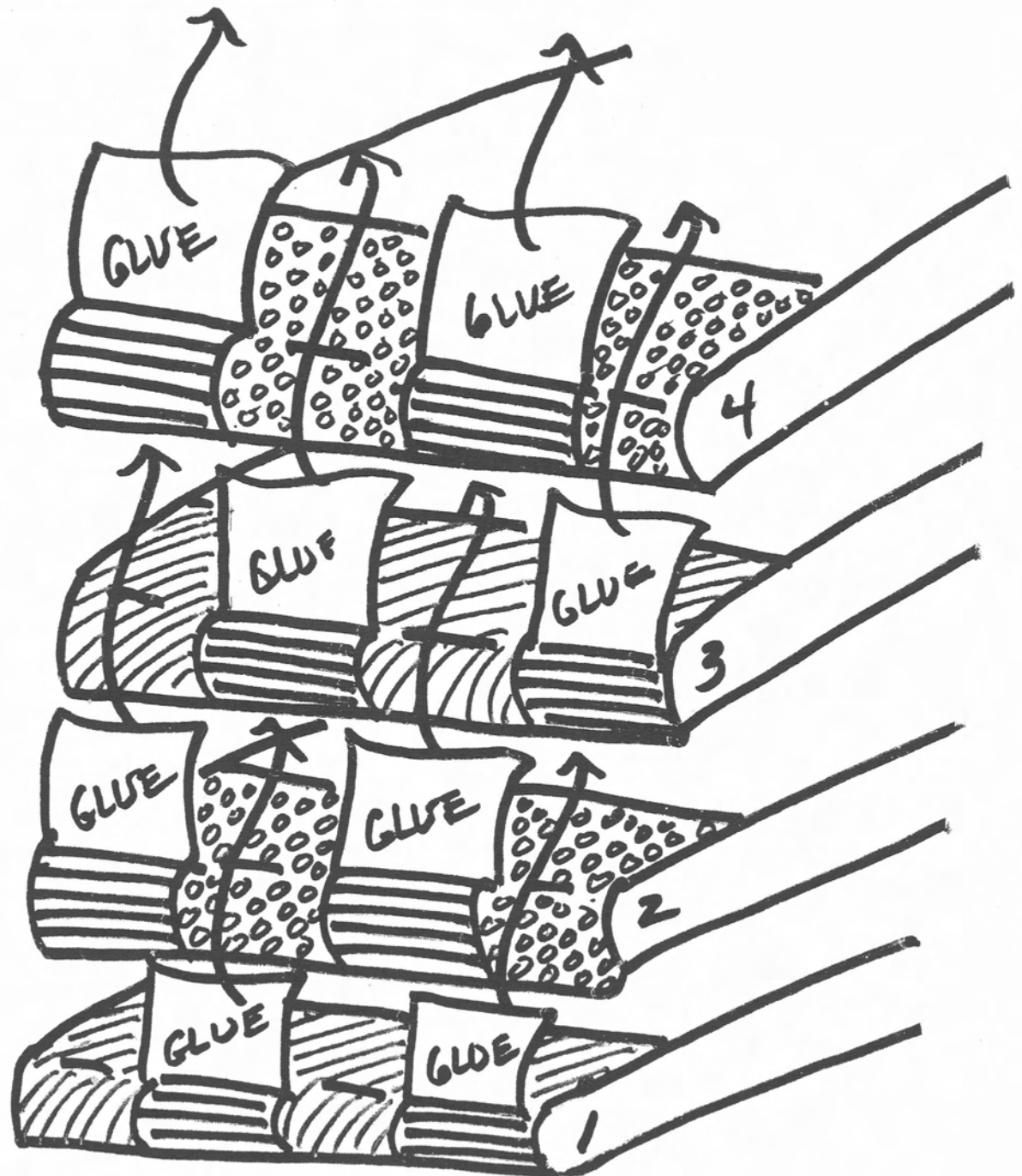
3. ATTACH FOLDED UP TABS
TO NEW LEAF VERSO

NOTE:

ODD# LEAVES
ATTACH ONLY
TO ODD# LEAVES

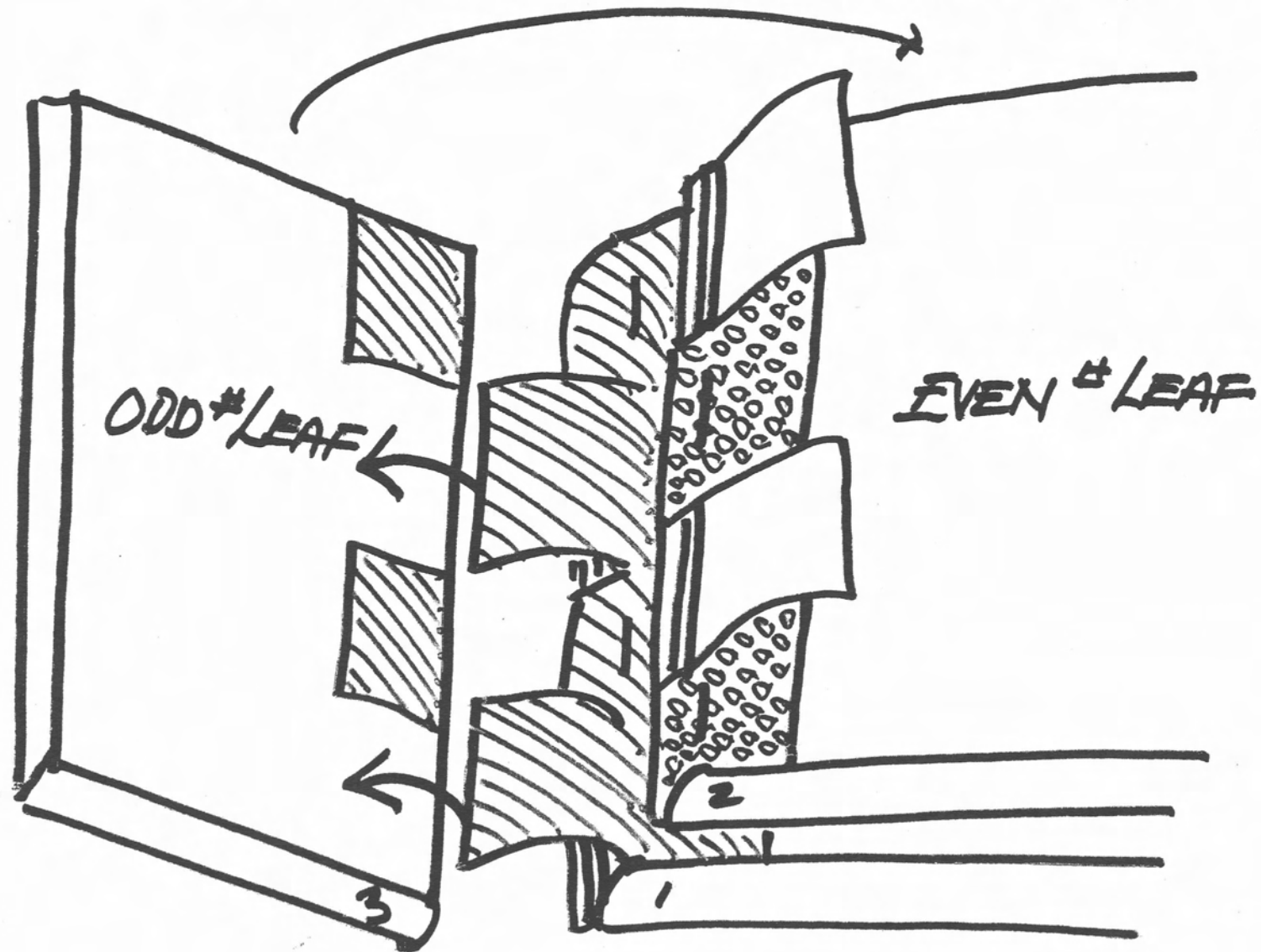
AND
EVEN# LEAVES
ATTACH ONLY
TO EVEN# LEAVES

FOLDED UP TABS
OVERLAP
FOLDED DOWN TABS



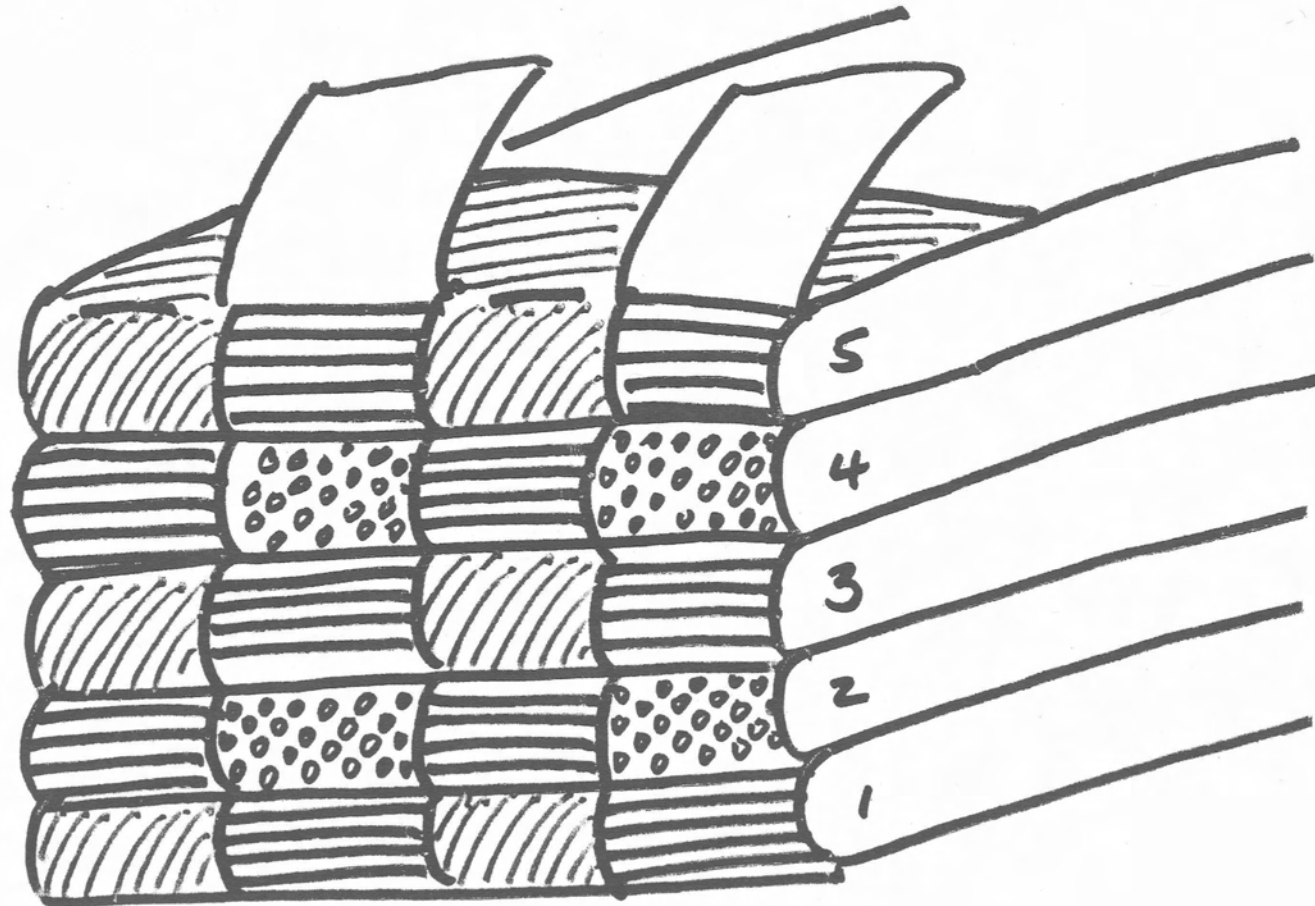
METHOD OF ASSEMBLING LEAVES

FOLDED UP TABS
FILL IN INTERSTICES ON THE LEAF VERSO



RESULTING "CHECKERBOARD" SPINE PATTERN

BARE SPINE AREAS ALTERNATE WITH COVERED AREAS
COVERED AREAS HAVE TWO LAYERS OF OVERLAPPING CLOTH TABS



RESULTING GUTTER VIEWS

BOTH COLORS ARE VISIBLE
ON FACING LEAVES

