The Jacob's Ladder Artists' Book structure is borrowed from a folk toy traditionally made of blocks of wood held together with ribbons.

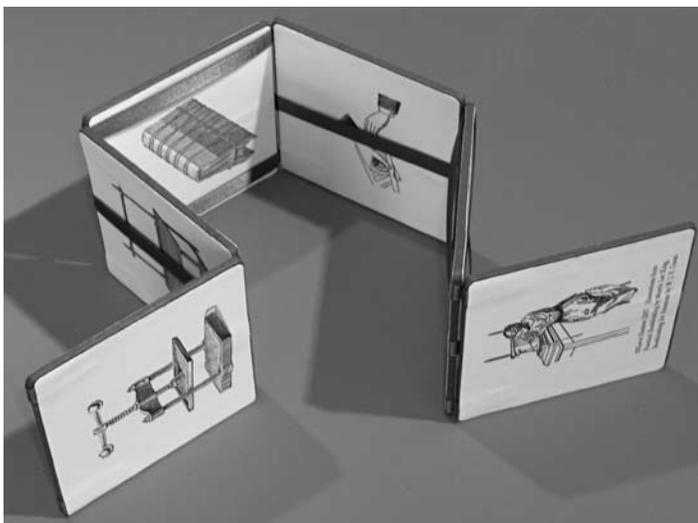# JACOB'S LADDER BOOK STRUCTURE
A MODULAR APPROACH
BY KAREN HANMER

A TRIBUTE

Hedi Kyle had a profound influence on my work long before I ever heard her name. I had spent several years exploring ways to make my photography more physically engaging, and in an introductory artists' books class I saw my first Hedi Kyle structure, Susan King's Women and Cars. This flag book layers autobiographical narrative, vintage photographs, and literary quotes from various sources. I had never seen anything like this accordion-based structure, both so simple and so complex. It functioned as a traditional codex, a sculpture, and a puzzle; it could both reveal and conceal its richly layered content. I never went back to making two-dimensional work.

A few years later I took a workshop from Hedi and was immediately struck by her boundless energy. She folded accordions and more complex structures so fast that no one could see her hands moving, we could only hear the tap-tap-tap of her bone folder on the bench. And, of course, the folds were crisp and square – each segment was identical.

I know of no connection between Hedi Kyle and the Jacob's Ladder, the child's toy. But the instructions that follow are written in the spirit of her teaching: demystifying the complex.

INTRODUCTION

The Jacob's Ladder artists' book structure is borrowed from a folk toy traditionally made of blocks of wood held together with ribbons. The structure is held from one end and allowed to dangle vertically. When the block being held is tilted, the remaining blocks flip over in succession, producing a cascading visual effect.
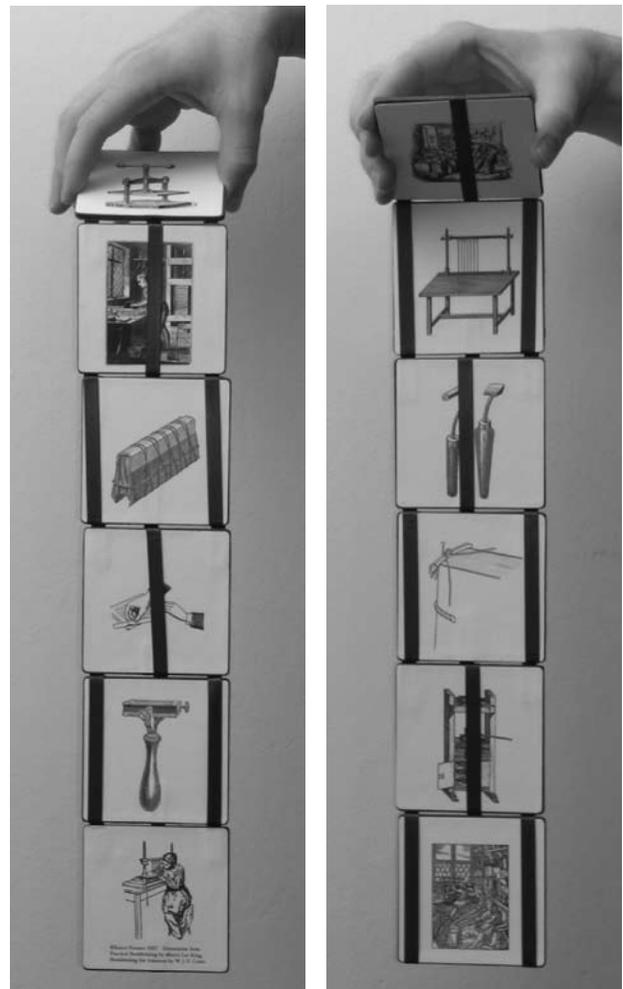
The structure is held from one end and allowed to dangle vertically. When the block being held is tilted, a cascading visual effect is created as the remaining blocks flip over in succession, each now showing a different image from before.

I spent several days trying to figure out how to construct my own Jacob's Ladder, deconstructing examples by other artists while trying not to destroy them completely. My early prototypes took many frustrating hours to assemble; attaching, tearing off and reattaching straps and images to the pieces of board until the structure moved properly and the images were all oriented correctly.

Various instructions I found online added to my confusion. Eventually, I threw them all out and came up with a method of assembly akin to preparing ingredients for an elaborate stir fry dish: the majority of assembly time is spent up front in systematic preparation, then the structure is completed quickly with a few simple repeated motions.

PREPARING THE BOARDS

1 Cut pieces of heavy book board to your preferred size. *The Jacob's Ladder will function more smoothly if each segment is either square or linked to the adjacent segment along the long dimension. Both the orientation of the boards and the weight of the boards contribute to the momentum necessary to flip the segments smoothly.*

2 Cut three straps twice the length of the boards for all but one of the boards. The final board needs no straps. It will attach to the structure with the straps affixed to the next-to-last board.
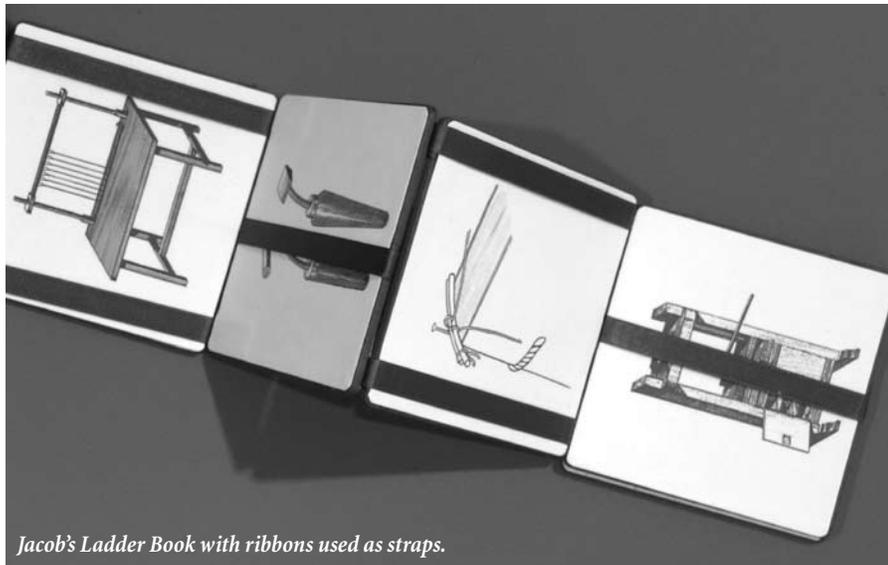
Jacob's Ladder Book with ribbons used as straps.

A variety of materials may be used for the straps. **Ribbon** is readily available, quick and easy to prepare, inexpensive, affixes to board securely with PVA, and can add color to the piece. However, ribbons will obscure the imagery decorating the structure. The width of the ribbon will determine how much of the imagery on the board is obscured. Also, the thickness of ribbon will determine how visible or unsightly its bulge under the images glued over it.
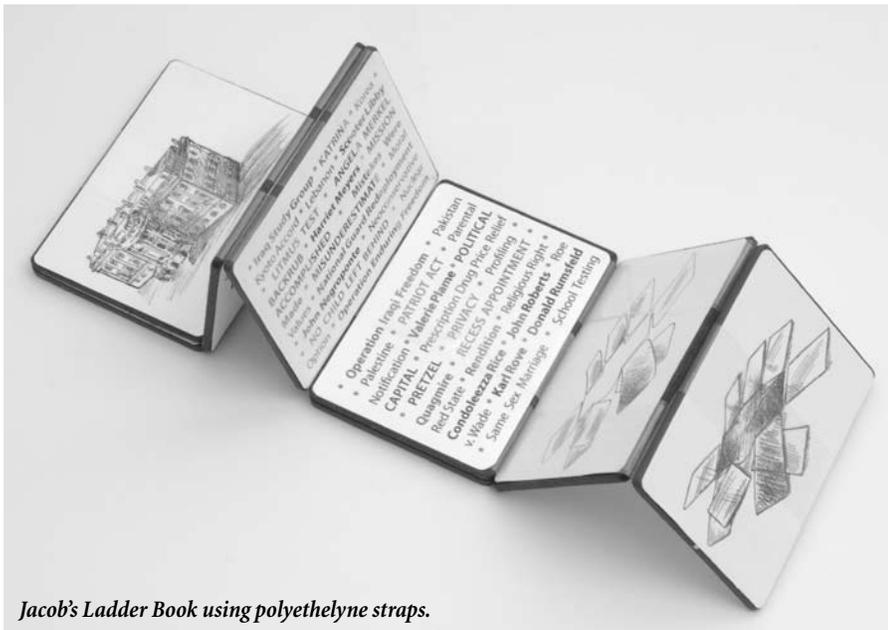

Jacob's Ladder Book using polyethelyne straps.

One inch wide **transparent straps of polyethylene** can be purchased from Gaylord, or cut from freezer bags (a suggestion from Emily Martin). This option will not obscure imagery on the boards and is virtually without thickness, so no bulge will be visible under the image later glued to the boards. The Gaylord product is more expensive than freezer bags, but need not be cut neatly and evenly into strips. Polyethylene straps are difficult to attach securely to the boards (I use 3M 415 double sided tape and rub firmly with my Teflon folder).

Figure A

3 You may add two details at this point to make the boards more attractive:

>Round the corners (not a viable option unless you have access to a heavy duty corner rounder – a hand held model for scrap booking will not cut book board).

>After rounding the corners, line the edges with colored tissue (*figure a*).
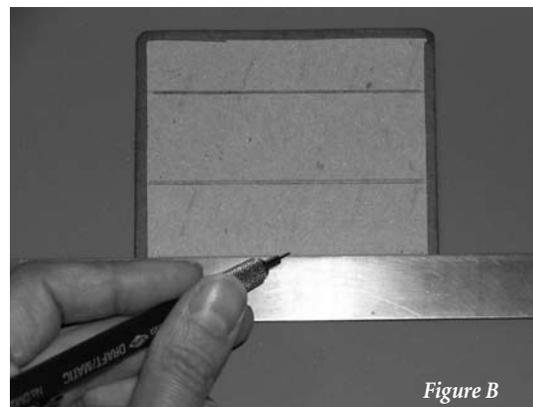
Figure B

ATTACHING THE STRAPS

4 Mark the boards front and back with pencil guide lines for where to attach the straps. Place these lines the width of the straps plus a small offset from what will be the left and right board edges, plus a third line half the width of the strap material from the center of the board (*figure b*).
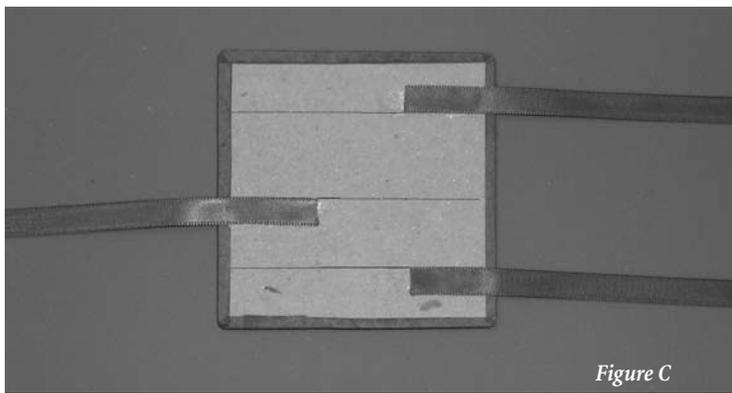
Figure C

5 Using the guide lines drawn in Step 4, attach straps at the top and bottom of each board extending to the right, and a strap at the center line extending to the left (*figure c*).

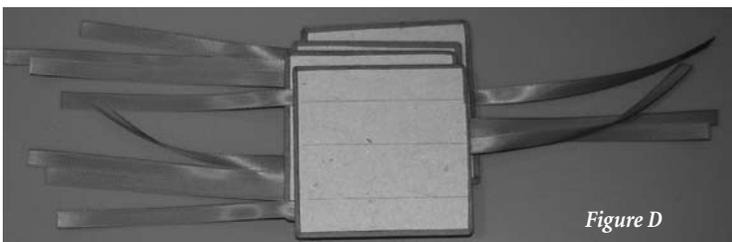**6** Attach straps to all but one of the remaining boards.

Figure D

7 Stack boards with straps attached, strap attachment side down, all with the straps in the same orientation (figure d).
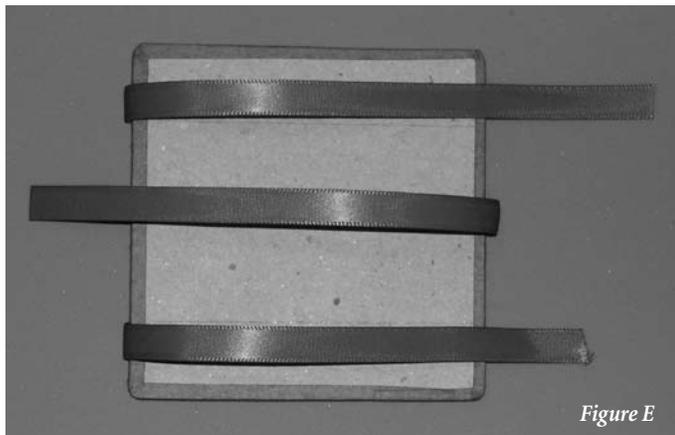

Figure E

8 Take the first board and place it in front of you, strap attachment side down. Now take the straps and pull each straight across to the opposite edge of the board, strap ends extending onto your work surface (figure e).
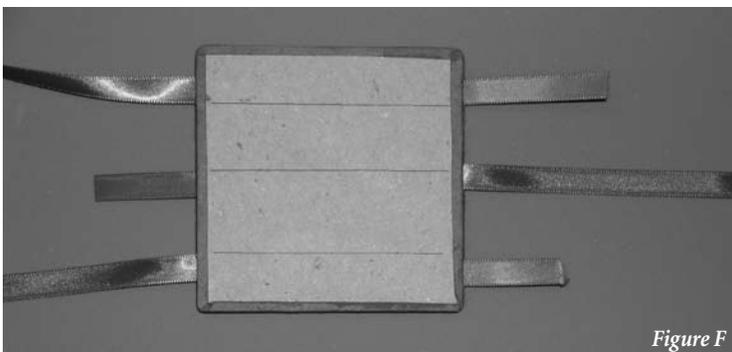

Figure F

9 Place the next board directly on top of the first, strap attachment side down, in the same orientation as the first board (figure f).
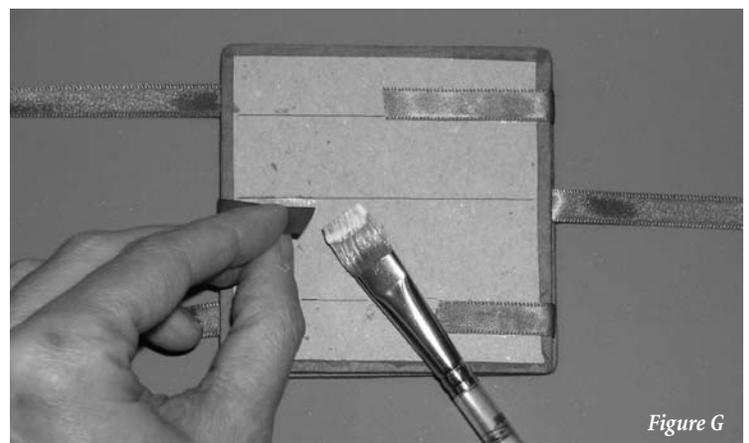

Figure G

10 Attach straps from first board to the top of second board (figure g). Tension should be such that there is no slack in the strap, but DO NOT pull tightly. Trim any excess strap.

Figure H

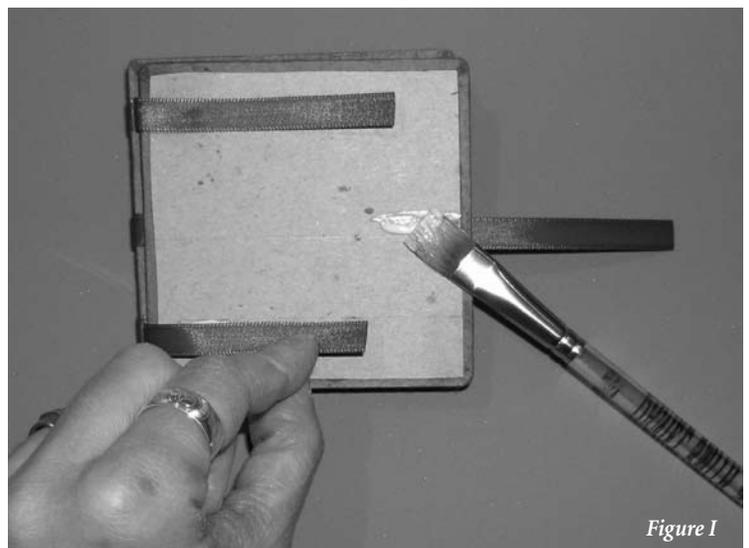**11** Repeat steps 8, 9 & 10 with remaining boards (figure h).

Figure I

12 To finish, place final board, with no pre-attached straps, on top of next-to-last board and affix straps from lower board to top of final board (figure i).
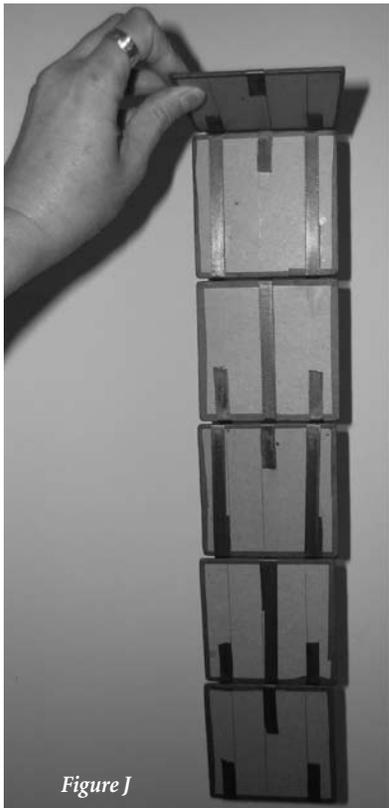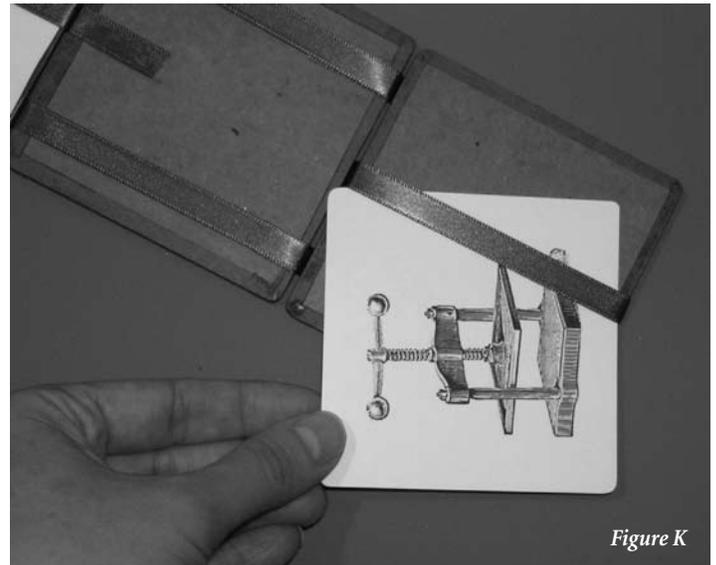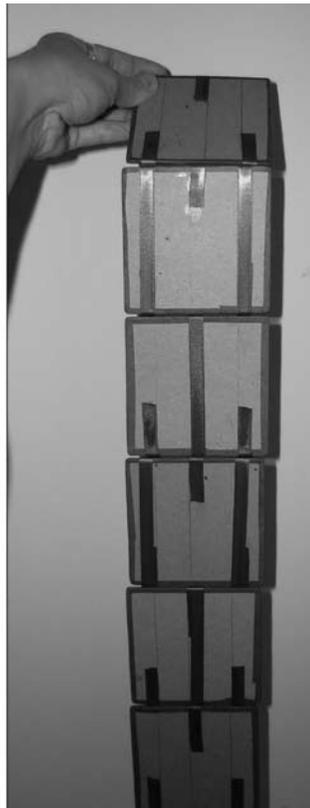
Figure J

Figure K

CHECK FOR PROPER TENSION

13 When all boards and straps are affixed, grasp structure by the first or last board, letting the remainder hang down vertically Pivoting your wrist, flip the board you are holding top to bottom until all the boards in the structure flip upside down and back (figure j).

Examine the structure for any excessive looseness in the straps. Correct if necessary by detaching and reattaching the loose strap at one end only.

INSERTING IMAGERY

14 Cut card stock weight paper printed with desired imagery, sizing slightly smaller than boards in height and width. Round corners of decorative cards if board corners are rounded.

15 Apply PVA to rear of cards and carefully slip under straps Rub down gently through a paper barrier. (figure k).

For reference, I keep a previously assembled model of a Jacob's Ladder with the same imagery positioned on the bench directly above the one I am assembling (figure l).

For the imagery to read correctly no matter which way the Jacob's Ladder is flipped, imagery for cards on the second side of the boards should be inserted so that they read upside down relative to the cards on the first side.

The cards could be attached to the boards as the straps are being attached (steps 7-12), but it is a lot to keep track of to place all the cards in the correct orientation, and if you discover that one of the cards has been glued on with the imagery reading upside down, repairs are difficult and much of the Jacob's Ladder must be torn apart and discarded.
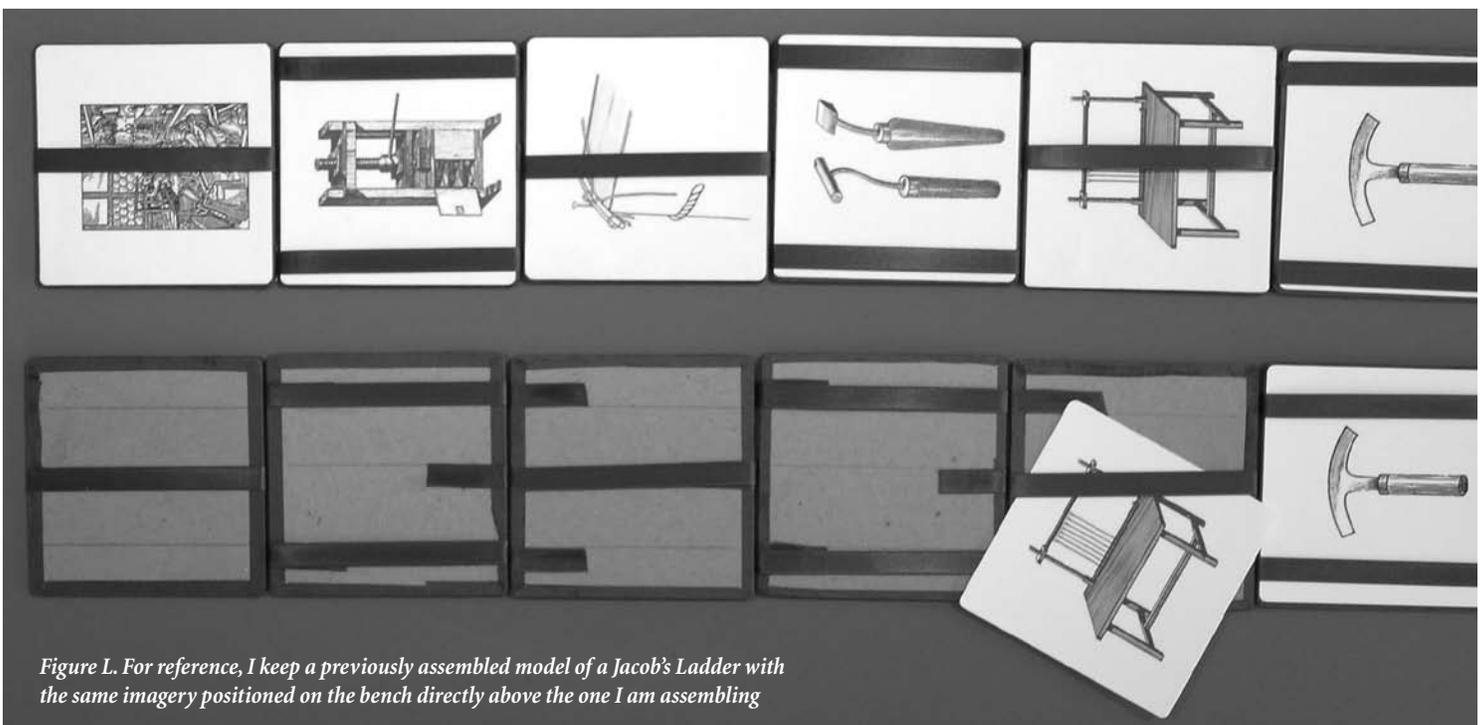

Figure L. For reference, I keep a previously assembled model of a Jacob's Ladder with the same imagery positioned on the bench directly above the one I am assembling