

Preservation Practices



by Hugh Phibbs

Designing the Appropriate Hinge

The use of Japanese tissue hinges and starch paste to support works on paper is becoming widely understood and practiced among framers who adhere to high preservation standards. As with other preservation techniques, hinging must be designed to meet the needs of each item of art.

For instance, cockled items must have their hinges placed on the portions of the paper that will be in contact with the back mat. Items with weak edges need their hinges adhered further into the body of the paper, away from those edges.

Items that have degraded back surfaces (ones which would peel if the stress of a hinge were placed directly on them), must have a piece of tissue pasted and dried on the hinge site. The hinge can be applied to this tissue, since it will have created a strong enough back surface to accommodate the hinge. Finally, since artwork to be hinged varies widely in the thickness and weight of the paper it is created on, differing hinging designs are needed to address that fact.

Most framers understand that the

hinging tissue used to support the work must be thinner than the paper on which the work was executed. This allows the hinge to tear before the artwork does if the frame is dropped. The fact that Japanese tissues come in a wide variety of weights means that hinges can be made that are thinner than any paper used to make art or artifacts and thick enough to hold the

thickest papers.

Beyond weight selection, there are other important aspects of hinging: different designs for application of paste, drying techniques,

and various structures for the hinge itself. Together these techniques enable the creation of hinges that can be applied to light papers without causing cockling and for hinges that can hold heavy papers.

When hinging very thin papers, holding the weight of the paper is not a critical issue, but the prevention of cockling is. Since any application of moisture to one side of a thin sheet will cause it to expand within a few seconds, the hinging of such materials has, in the past, appeared quite perilous. In these situations, limiting

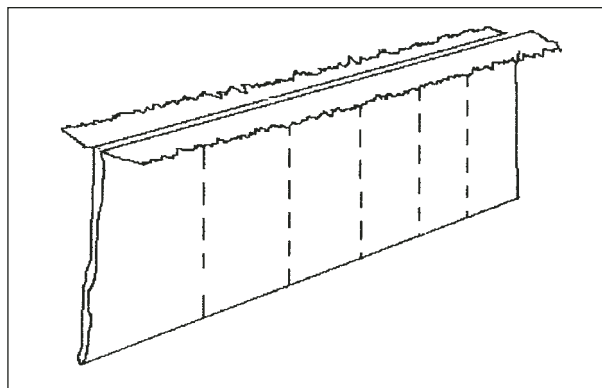


Figure 1

the amount of moisture to which the paper is exposed is critical. This can be accomplished when the paste is applied in small dots, or “micro dots,” as first envisioned by Professor K. Masuda (see PFM’s *Preservation Practices*, Jan. 2002).

Once the dots of paste are set on the hinge, the paste immediately begins to dry, sideways, into the hinging tissue. After the hinge is applied to the sheet, the paste will also dry into the portions of the sheet which surround the paste dots. This is an important benefit, since there is as minimal exposure to moisture as possible. It also makes the application of such hinges a time-sensitive procedure. If the hinge is not pressed onto the back of the sheet as quickly as safe handling permits, the paste dots may dry out and adhesion may not be achieved. There is no harm in this, since the hinge can be charged with more paste dots and applied again.

There is also a limit to the carrying power of such hinges, since the amount of paste that bonds the hinge to the sheet is greatly reduced. If this technique were used on very heavy papers, the small amount of adhesive might not hold up under the normal handling that a frame may encounter, even if the hinges were enlarged well beyond their normal size. Such heavy papers are also those that are much less likely to cockle, so the addition of more paste to the hinge is much less likely to deform the sheet.

Paper Weight Considerations

The distinction between lighter and heavier papers can be roughly described as the difference between printmaking paper (excluding Japanese papers used in printmaking) and watercolor paper. Watercolor papers come in a variety of weights. Thinner grades of watercolor papers are about as thick as one ply of the paper used to make matboard. If such papers are secured with traditional hinges, which have

had paste applied to them with a brush, the amount of moisture to which the sheet is exposed can be limited through hand blotting with desiccated blotter cards.

This procedure is useful for micro-dot hinges, too. The blotters can be dried in a dry mount press and stored in a clean cookie tin. Papers that have as much surface texture as watercolor papers often do may need their hinges pressed

onto the paper surface with a dry bristle brush. This pressure can form the hinge to the shape of the paper surface and should improve adhesion. It will slow down the blotting process, but the small likelihood of cockling with such papers limits that risk. In every case, after the hinge has been blotted dry, it should be left under a non-desiccated blotter and a weight for at least an hour.

For watercolor papers whose weights are classed in the hundreds of pounds and other very thick sheets, drying issues become much less important than the need for very strong hinges that can sustain the weight of the sheet as the frame is moved. Hinging is only necessary when the edges of the sheet will show. If the edges of the sheet will be overmatted, friction between the paper and the mat will provide significant support; also, the addition of folded paper edge strips can ensure that the sheet will not become displaced should the window warp away from the back mat.

Construction Concerns

When the edges of art will show (i.e. if it is “floated”) the hinges take not only the entire weight of the sheet, they are also folded back on themselves so as to be invisible. This folded structure entails a physical weakness for the hinge: rapid movement of the frame (of the kind that would cause the paper to move in the direction that the fold in the hinge points) could peel the hinge off of the back of the art should the frame stop moving abruptly. Having hinges on the top and sides of the sheet will help to address this problem, since their different orientations (horizontal and vertical) will provide redundant support. However, over

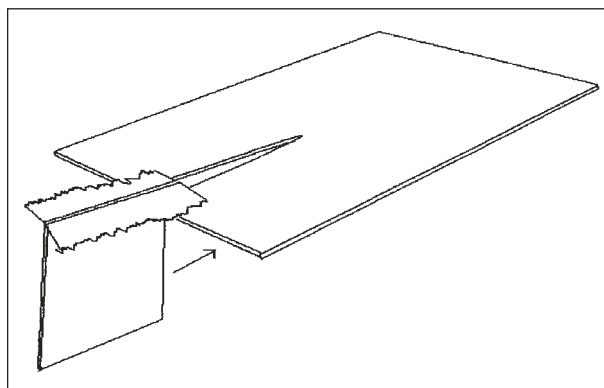


Figure 2

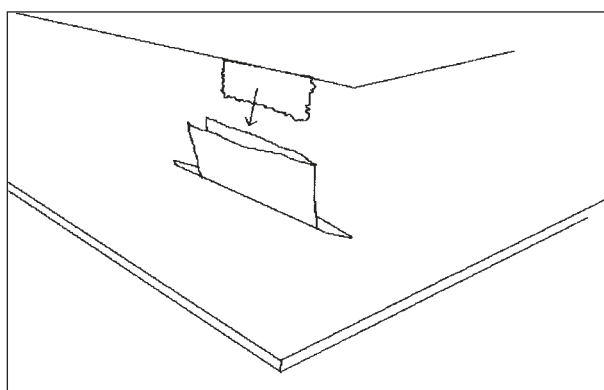


Figure 3

time this sort of damage can accumulate, and dangerously loose or failed hinges may result.

A change in the design of the hinge can address this problem. Instead of having one fold in the hinge, it can be made with two folds, so that in cross-section it resembles a "T" rather than an inverted "V". Such a hinge can be made if a folded strip of Japanese tissue is laminated to itself through most of its width with a heat-activated adhesive.

For instance, if we said that the paper measures 8½" x 16" unfolded, it could be folded lengthwise to measure 4¼" wide. This allows a sheet of dry mount holding film (4" x 16") to be inserted into the fold so that one edge of the film touches the fold in the paper. This leaves the last ¼" of each side of the paper beyond the outer edge of the film. When the combination comes out of the press, there will be one edge along which there is no adhesive (see Figure 1). That unbonded portion can be folded out to form the contact surface of the hinge.

The strip can then be cut into sections that will form the hinges and then the two unbonded sections of the tissue can be folded away from

each other to form the top of the "T" hinge structure. The paste will be applied to that surface. This is best accomplished if a slit is made in one edge of a blotter card and the bonded portion of the hinge (the stem of the "T") is slipped into that slit. The portions of the card on either side of the hinge can support its folded out parts while the paste is brushed on (see Figure 2). This hinge can then be set on the back of the art and blotted and weighted. The wider contact area of the hinge and its central stem will mean that the slits through which the hinge will pass in the back mat will be made further in from the edges of the mat than is normal.

Pass Through Hinges

Passing the hinge through the back mat has two distinct advantages that can be enjoyed by framers and which are largely unavailable to those working in museums. Pass-through hinges are much stronger than hinges that have been folded over a cross-piece on the front of the back mat. The pass-through design also allows for more lateral movement of the hinge as the hinged sheet expands and contracts, and yet the sheet is still

steadily kept in place. Since museum collections store their matted items in boxes, pass-through hinges are not often used because they show up on the back of the back mat.

The slits for passing the hinges through should be cut so that they bevel out and away from the edges of the art. They should be positioned on the back mat so that they are slightly inside of the edges of the paper. One critical aid in passing them through the back mat is a pass-through folder. This folder is a thin, folded strip of paper that is fed into one of the slits before the hinged work is laid on the back mat. Each hinge is set in a corresponding folder and when they are all in place, the folders are slowly pulled through the slits, taking the hinges with them (see Figure 3).

Preservation techniques are constantly refined and improved. As our experience with new techniques grows, their strengths and weaknesses become apparent and our understanding of where each fits in the vocabulary of preservation technology becomes evident. Since each item to be preserved must be considered as an individual set of problems, it is critical to have a wide range of techniques with which to address them. It is this need for innovation and improvement along with solution of aesthetic challenges that, ultimately, make preservation framing rewarding. ■

Hugh Phibbs, Preservation Editor, is the coordinator of graphics conservation services in the Department of Exhibitions and Loans, Conservation Division, National Gallery of Art, Washington, D.C. He has taught workshops for the National Conference, the AIC, PPA, the conservation programs at Winterthur/University of Delaware, and the Smithsonian Resident Associates Program. He also compiled the matting and framing section of *The Book and Paper Group Outline*.