

MAP CASE (TO HOLD MAPS, AIR PHOTOS, NOTEBOOK, FORMS, PENCILS, RULERS, ETC.)

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These plans are based on a map case (fig. 1) that I made for myself when I was a grad student more than 30 years ago and which is still going strong. It is very durable and provides good protection for maps, airphotos, and whatever else you choose to put inside it.

The case consists of a rectangular 3/4" thick wood frame with a masonite bottom and hinged masonite lid. The case is held shut by means of either two very heavy large rubber bands or preferably two 1" wide bands of old inner tube slid around it. In use, the map or airphoto you're mapping on is held to the top of the case by the rubber bands -- it functions like a clipboard, but with no chance for the map or photo to flap in the wind or come loose (fig. 2). When you need to protect the map or photo -- from rain, or because you're scrambling, just pop it inside the case. It works much better than a clipboard. In fact, one time I slipped while scrambling along a rocky streambank and the map case flew out of my hands and into the small stream. It floated nicely, and the airphotos and map inside were unharmed!

The case is quite inexpensive -- I made mine mostly from scrap materials -- and can be easily constructed in no more than a couple of hours time. Waiting for the glue to dry is what takes longest.

Materials needed:

Two pieces 1/8" thick tempered masonite (or equivalent) cut to form 12" x 12.5" rectangles

Four 1-ft lengths of fir or pine 1 x 1 (actual dimensions will be 1 ft x 0.75" x 0.75"), or 0.75" wide pieces ripped from a 1 x 12, cut as follows:

2 pieces 11.25" long (actual dimensions will be 11.25" x 0.75" x 0.75")

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Three small brass hinges 1/2" x 3/4"

Six 1/8" diameter pop rivets w/ 1/8" - 1/4" grip range, or 1/8" soft rivets that can be flattened with a ball-peen hammer.

Fifty 3/4" x 18 small finishing nails (optional)

Carpenters' wood glue (e.g. Titebond or Elmer's -- don't use ordinary white glue, it's not strong or waterproof enough)

Tools needed:

saw (any kind will work, but easiest if you have access to a power saw, esp. a table or radial arm saw)

small screwdriver (for hinge screws)

small wood chisel or sharp pocket knife (to cut recesses for hinges)

drill w/ 1/8" bit (to drill holes in masonite for hinge rivets)

hammer

pop riveter or ball-peen hammer

clamps and/or weights or innertube sections (to hold pieces together when gluing)

sander or file (to round the sharp corners)

Instructions:

1. Measure and cut all pieces of wood and masonite to the proper dimensions.
2. Start by making the map case frame. Butt the pieces of wood together as shown in fig 3. Be sure everything fits, then glue and clamp. (I DON'T recommend nailing or screwing the pieces to one another for two reasons: 1) you'll tend to split the wood along the grain, and 2) you won't be able to round the corners.) Let it dry for at least two hours.
3. Carefully glue one sheet of masonite to the frame to form the bottom of the case. Clamp it down or weight it firmly and uniformly along the frame margins so that you get a good bond. Let it dry for at least six hours (overnight is best). Later, if you wish, you can drive the small finishing nails in at 1" intervals (fig 4). This provides a little extra solidity but is not necessary if you've done a good job of gluing. Alternatively, you could use about 16 small flat-head screws. You'll need to drill holes in the masonite if you use screws.

4. As shown on fig. 3, position the hinges on the frame and outline them. The pivot of each hinge should be flush with the edge of the frame, not protruding beyond it (if they protrude, you can snag your clothing or your skin on them!) The outside hinges have their outer margins 1.25" from the edges of the frame; the middle hinge has its center 5-5/8" from the edge.
5. After the hinge positions have been outlined, use a wood chisel or a sharp pocket knife to cut an approximately 1/8" deep recess for each hinge, so that the map case top can lie flush against the frame when it is closed. The bottom of each recess must be flat, and the recess deep enough that the closed hinge will have its upper surface flush with the frame. Fig. 5 shows you how it should look.
6. Screw the hinges to the frame.
7. Open the hinges out flat and butt the piece of masonite that will form the top against the frame, aligning it carefully with the sides. Be sure the hinge plates lie flat against the top and mark the positions of the hinge holes. Check to see that the hole positions are at least 0.25" from the edge of the masonite; if they are too close to the edge, the masonite may break in use.
8. Using a 1/8" bit, drill holes in the masonite for the pop rivets (or, if you wish, rivets that you flatten with a ball-peen hammer.)
9. Attach the hinges to the inside surface of the lid using 1/8" pop rivets or 1/8" diameter rivets that you flatten with a ball-peen hammer. Fig. 6 shows the case with the lid open.
10. Hold the case firmly shut, and use a belt sander, disc sander, rasp, or file to round its corners. I found a stationary belt sander worked very well.
11. Cut some old auto inner tube into 1 - 1.5" wide strips, and use it to hold the case shut. If you can't get auto inner tube, you can cut a dead bicycle inner tube into a 1.5" wide, 26" long strip. Overlap the ends by 2.5 in. Mark the areas of overlap and paint contact cement (e.g. Pliobond) on the surfaces of contact. Let them air dry for about 10 min -- till the surface is glossy, and then press the glue-covered surfaces together. Weight the overlap down thoroughly and let it dry overnight. Alternatively, you may be able to find some large (8 - 10" long) rubber bands to use in place of inner tube.



Fig. 1: Overall view of closed map case (this is > 30 yr old)



Fig. 2: Map case in use, with airphoto being used for mapping

Fig. 3
Map Case Frame

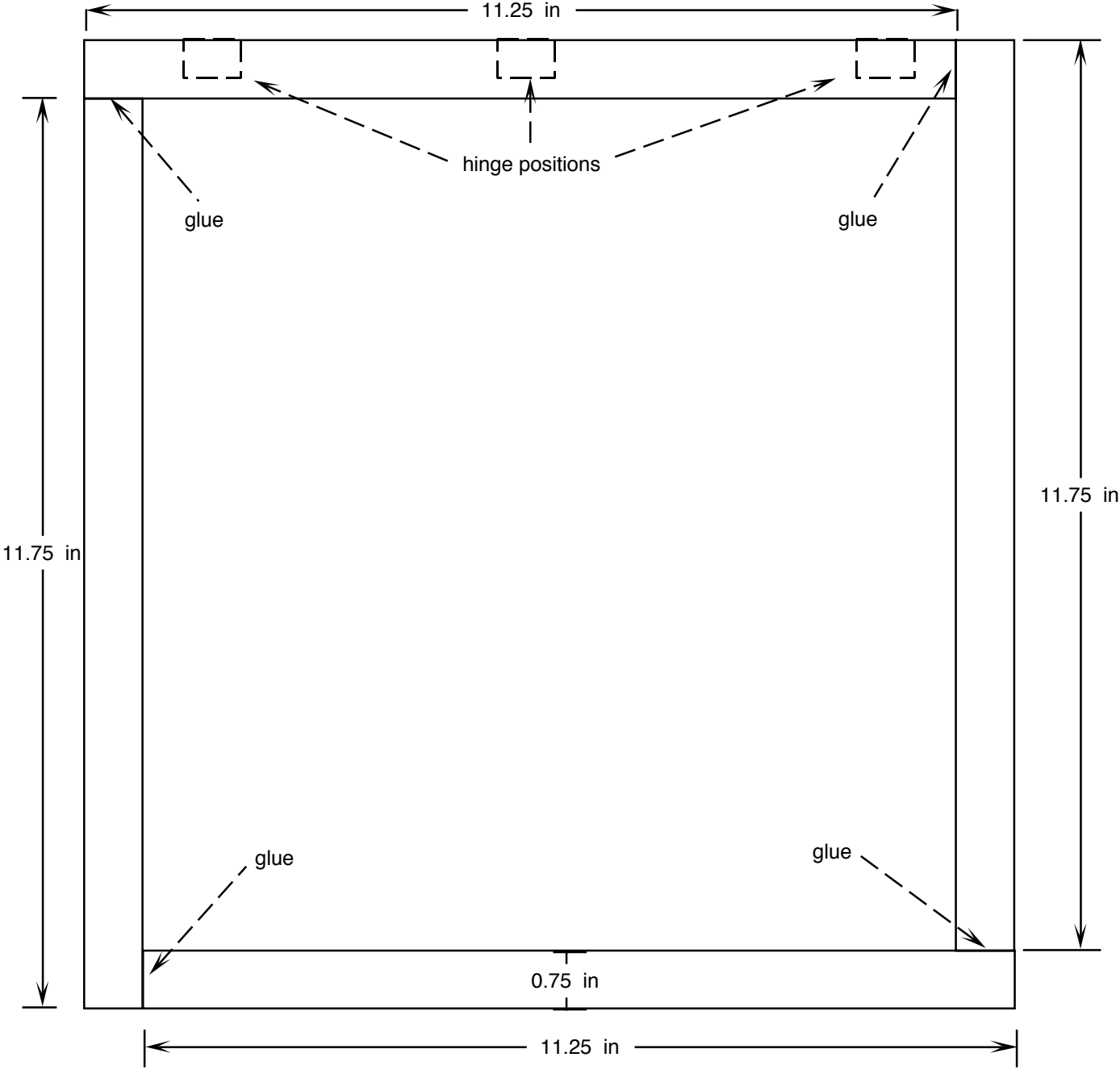


Fig. 4 Detail of nailing mapcase bottom to frame



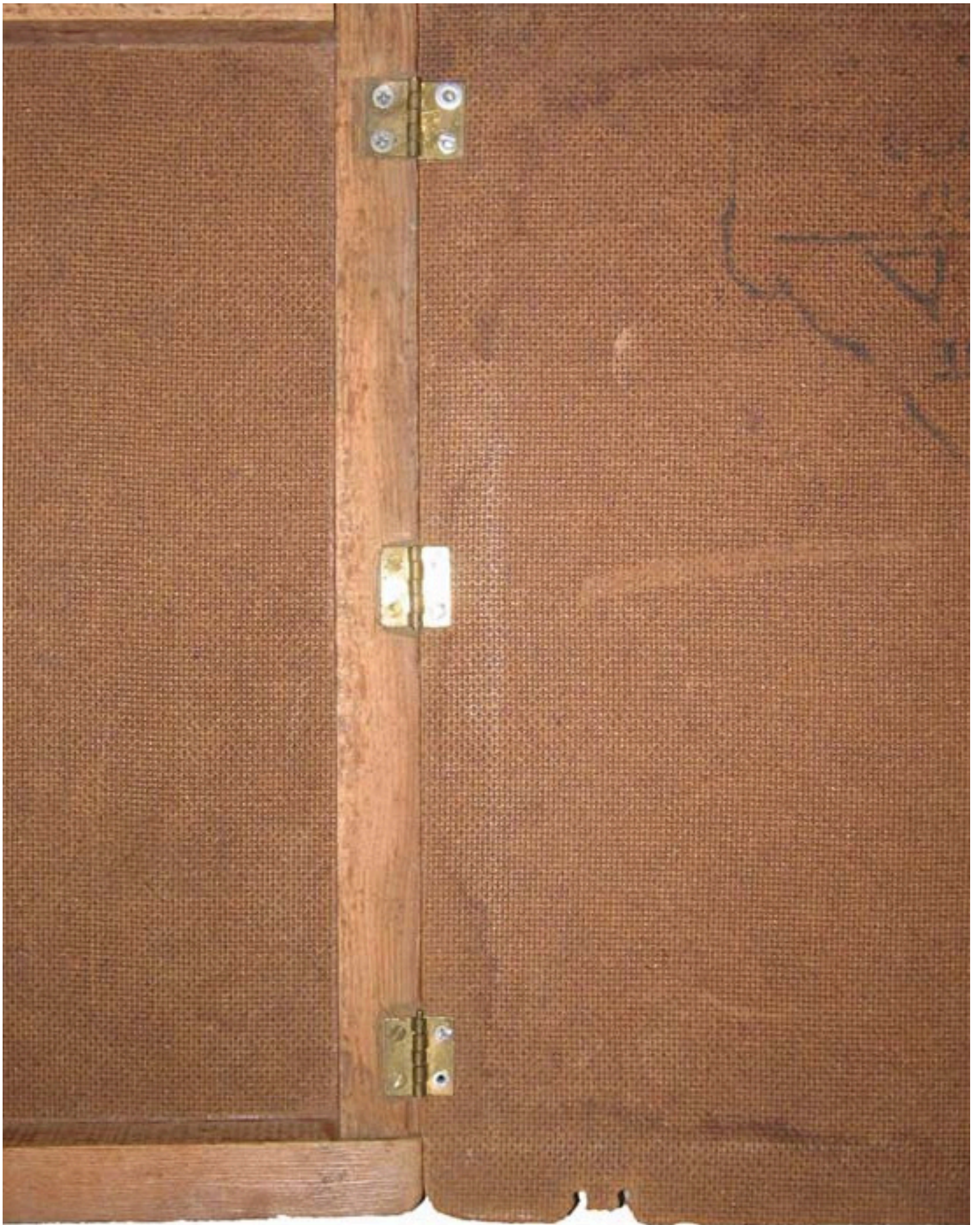


Fig. 5 Detail of hinges. Hinges on left are inset about 1/8" below level of frame.

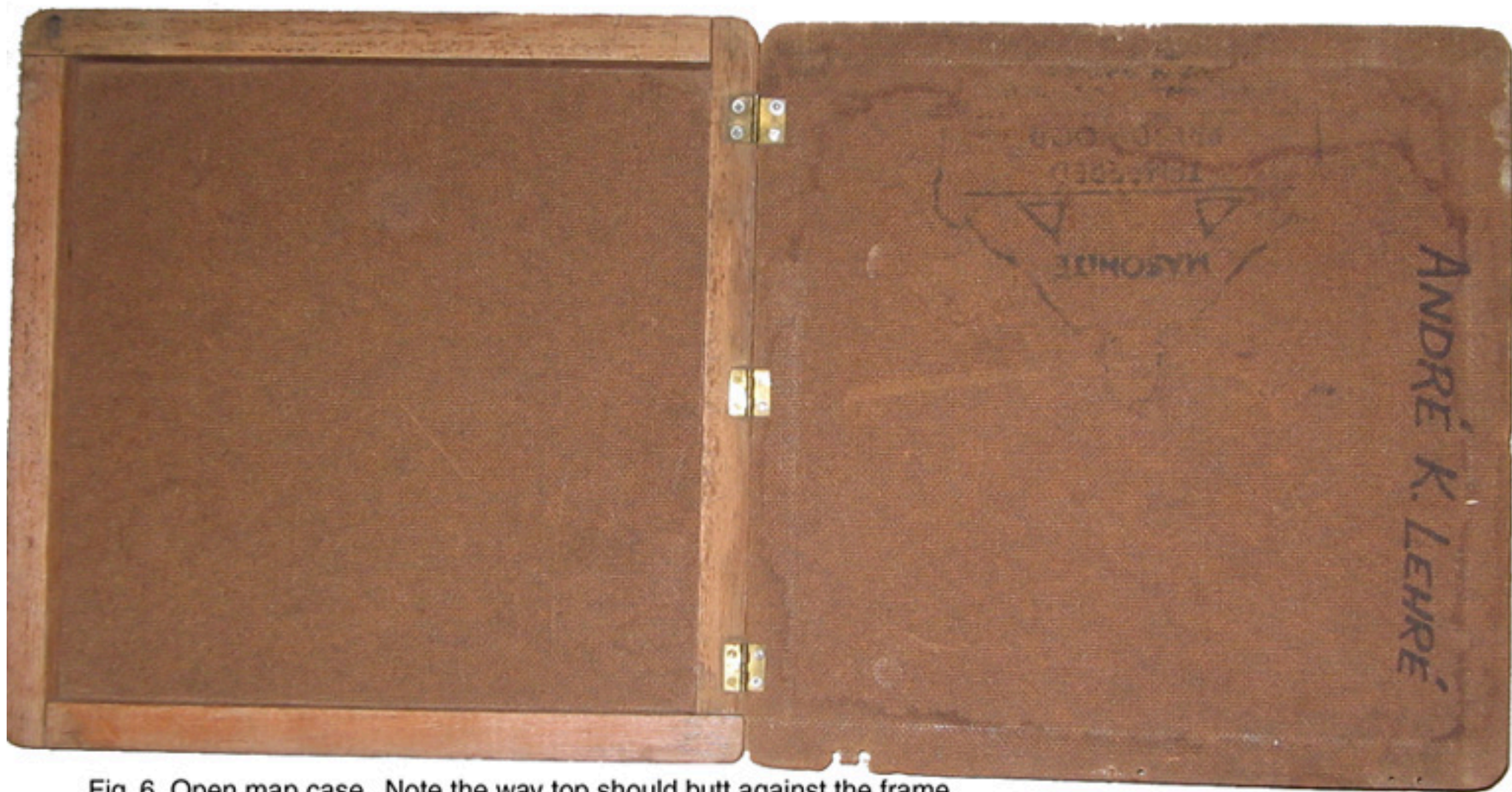


Fig. 6 Open map case. Note the way top should butt against the frame.