

A Bellows Fit for Photos

by Hugh Phibbs

Fitting photographs is certainly one of the most tedious parts of framing. Their glossy surfaces and intense dark passages make the presence of any dust all too noticeable. The dust may be removed from the surface with a very fine sable brush, but this is both slow and painstaking. Removal of the dust with a stream of air can be effective when the dust is not stuck to the surface of the photograph, but the source of the air can be a problem.

If air from a compressor or a can of compressed air is used, it is possible that the stream may be difficult to control and may dislodge cracked parts of the photograph's emulsion. However, it is possible to construct a hand-powered bellows which can provide an ample supply of directed air. The design described here uses inexpensive materials and can be done in an hour or two.

Only three materials are needed to make such a bellows: aluminum/plastic laminate sheet, plastic double-wall board, and hot melt glue. The sheet can also be used to seal rabbets and the backs of fillets and for making sealed packages in environments which have the proper conditions. The board can be used for making backing boards which will have a high puncture resistance and will give resistance to the passage of pollution. These materials can be quite useful in a conservation framing establishment and can be found in archival supply catalogues.

Old-fashioned bellows which were used to supercharge fires in the forming of metal had a design flaw: the boards which comprised the majority of their structure were aligned so that they came together

near the nozzle and were furthest apart at the rear. As they worked, they first pushed the air backward toward the accordion-like covering at the rear of the bellows, and only when pressure was high enough inside was the air forced out the nozzle. If the boards are designed so that they come together in the rear of the bellows, they will push the air forward as soon as they are squeezed together.

A piece of four millimeter polypropylene double-wall board should be cut in to a hexagon which measures four inches on a side. The cells of the board should be aligned so that they run from corner to corner along one of the hexagon's bisectors. The board can now be folded along that bisector (Figure 1). This will create the skeleton of the bellows.

The next part of the bellows to be created is the in-flow valve. This is made by cutting two holes which run for an inch down the length of the cells in the center of one of the sides of the bellows (Figure 2). If the cells cut are separated by an uncut cell, a two inch square flap of the aluminum/plastic laminate can be secured with hot melt glue to the center of the uncut cell with its matte, polyethylene, side facing the board. This will produce a simple valve which will allow air to be sucked in as the sides of the bellows move apart, but which will block the escape of most air when the bellows is squeezed closed.

A nozzle for the bellows can be fashioned out of the aluminum/plastic laminate by cutting a cone-shaped piece four to six inches long and rolling it so that the straight sides of the cone come together and can be folded into the tapering tube which this has created. This should be done so that the matte, polyethylene, side of the laminate is



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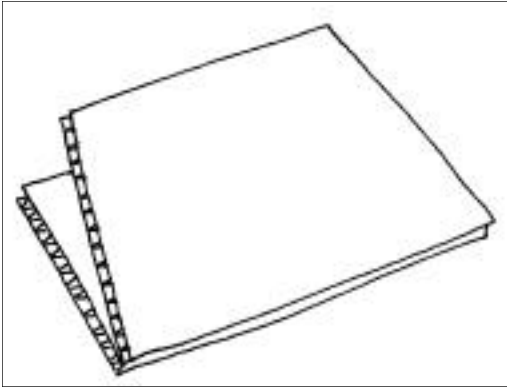


Figure 1

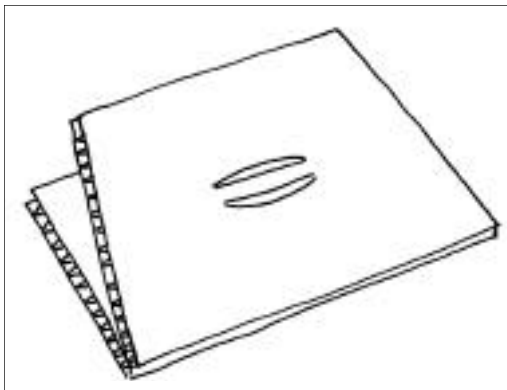


Figure 2

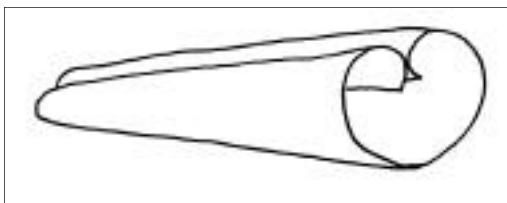


Figure 3

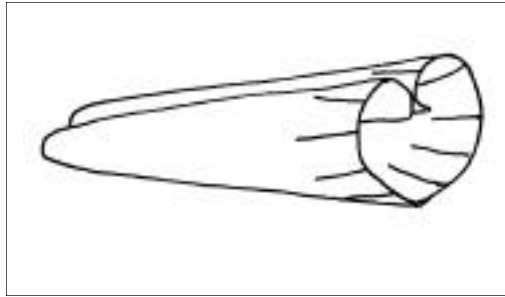


Figure 4

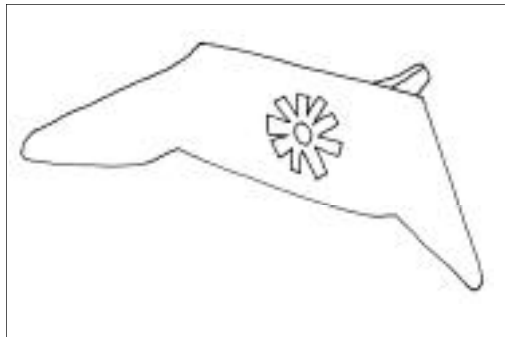


Figure 5

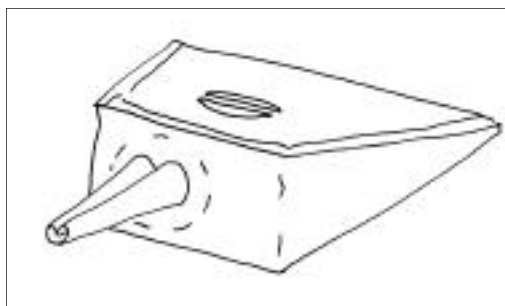


Figure 6

out. A bead of hot melt can be run down the in-turned parts and then squeezed together so that the nozzle will be thoroughly bonded (Figure 3). The small end of the nozzle should be cut so that an even hole is created and the large end should have slits made in it so that the material in between these slits can be folded out to secure the nozzle to the inside of the bellows (Figure 4).

The final piece of the bellows is the portion which covers its front and through which the

nozzle is secured. This is made from a piece of the aluminum/plastic laminate which is fourteen inches long and six to seven inches wide. In the center of this strip, a set of cuts should be made which intersect in a starlike pattern. The lengths of these cuts should equal the diameter of the wide end of the nozzle at the point at which its slits end (Figure 5). The nozzle is inserted through this cut part of the strip and the cut portions of the nozzle are folded out and adhered to the inside (polyethylene side) of the strip with hot melt. Extra pieces of laminate should be added around the base of the nozzle so that this part of the front of the bellows is stiffened and the nozzle will not move out of position as the bellows is worked.

The strip which contains the nozzle is now bonded to one side of the board with hot melt glue so that the nozzle is in the center of the central facet of the board (Figure 6). The outer edges of the strip are positioned so that they will properly align with the rest of

that side and are glued into place. This process is followed to secure the remaining side of the laminate and to close the bellows. The excess of laminate should be trimmed off and glue added to any area which seems to need reinforcement. Handles of nylon webbing can be glued to each side so that one will accommodate the user's thumb while the other fits the user's fingers. When all the glue is cool a durable and effective tool should result. ■