

MSU Extension Publication Archive

Archive copy of publication, do not use for current recommendations. Up-to-date information about many topics can be obtained from your local Extension office.

How to Upholster Overstuffed and Occasional Chairs

Michigan State University

Cooperative Extension Service

Louise Woodruff and Alice Mae Alexander

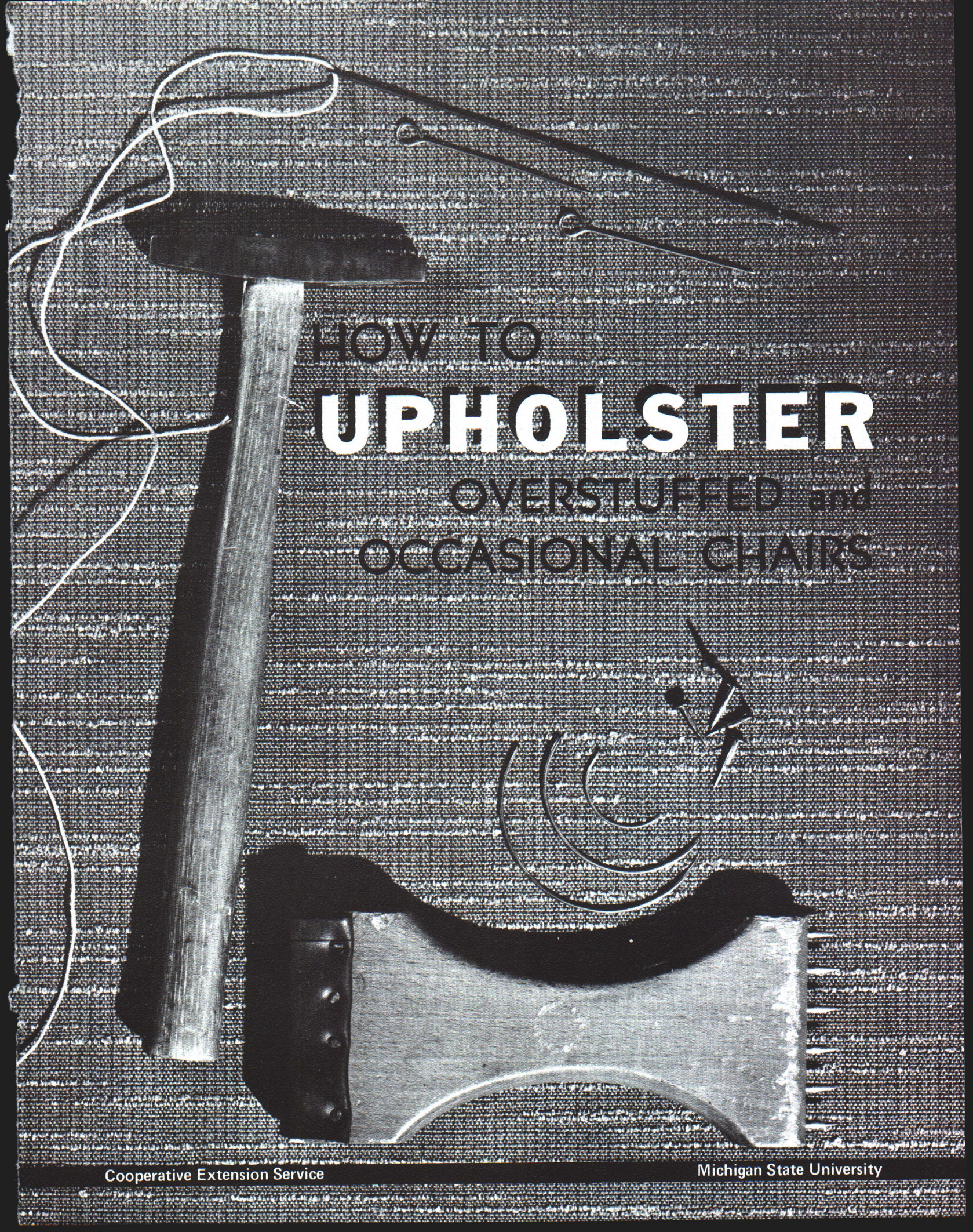
Home Management Specialists, University of Missouri-Columbia

(N.D.)

28 pages

The PDF file was provided courtesy of the Michigan State University Library

Scroll down to view the publication.



HOW TO **UPHOLSTER** OVERSTUFFED and OCCASIONAL CHAIRS



HOW TO

CONTENTS

GETTING READY TO UPHOLSTER	4	Foam Padding	16
Tools and Supplies	4	Bases for Foam	16
Your Work Place	6	Steps in Using Foam	17
Preparing the Chair	6	Using Separate Foam Cushions	18
UPHOLSTERING A WING CHAIR	7	Plan the Outer Cover	19
Tack On Jute Webbing	7	Putting On the Cover	19
Sew Springs	8	Covering Separate Cushions	20
Tie Springs	8	OTHER TYPES OF CHAIRS	21
Cover the Springs	10	A Club or Easy Chair	21
Other Types of Springs	11	Occasional Chairs	21
Roll for Seat Front	11	OUTER COVERING	24
Edge Roll for Wood Frame	13	Fabrics	24
Padding Seat With Moss or Hair	13	Plastic	25
Padding the Back	14	Steps in Using Plastic	25
Padding the Arms	15	Plastic and Varnish	26
Padding the Wings	16	Plastic With Rubber	26

UPHOLSTER

OVERSTUFFED and OCCASIONAL CHAIRS

**Louise Woodruff
and
Alice Mae Alexander***

THE BASIC UPHOLSTERING PROCESSES shown in this bulletin are easy to learn. You can find how to adapt the basic processes to different styles of chairs by noticing how they are used as you take off the old cover and padding.

The beginner should learn on a simple article such as a stool or chair seat. To get good results, you must work carefully and use your artistic judgement. It helps if two persons can work together.

Before you begin, decide whether the chair is worth the time and expense necessary to do a good job. Costs depend on the kind of materials used. A chair can often be completely restored with good quality new materials at from one-fourth to one-half the cost of a new one.

*Home management specialists, University of Missouri - Columbia, University Extension Division.

GETTING READY TO UPHOLSTER

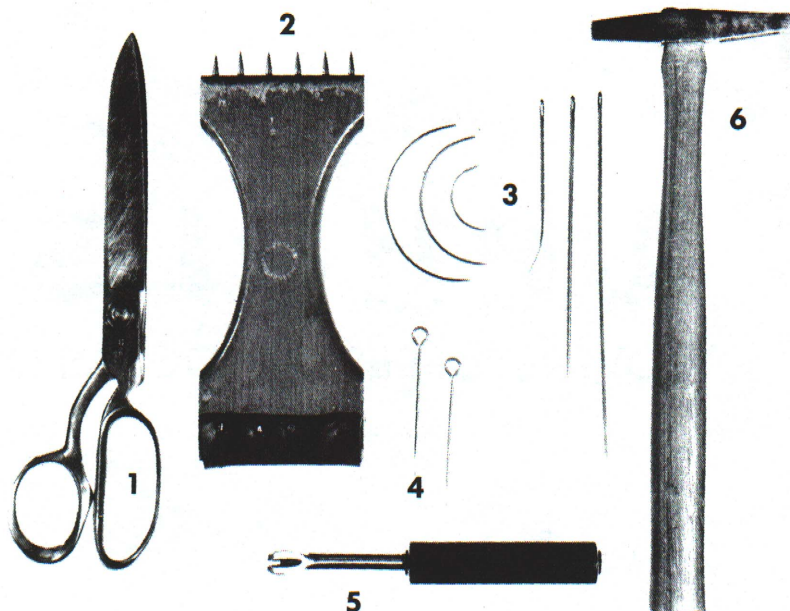


Fig. 1—Professional tools

1. Large shears
2. Webbing stretcher
3. Upholsterer's needles

4. Upholsterer's pins

5. Tack puller
6. Magnetic hammer

Tools and Supplies

You can do simple upholstery with the tools available in most homes. A few professional tools help make the work easier. (Fig. 1) You can buy most tools and supplies from mail-order companies (Fig. 2). Local upholsterers may sell what you need.

For Most Upholstery Work You Will Need:

Heavy, sharp shears

Hammers

1. Medium weight claw hammer
2. Magnetic tack hammer (optional)
3. Upholster's mallet (optional)

Yardstick, ruler, and tape measure

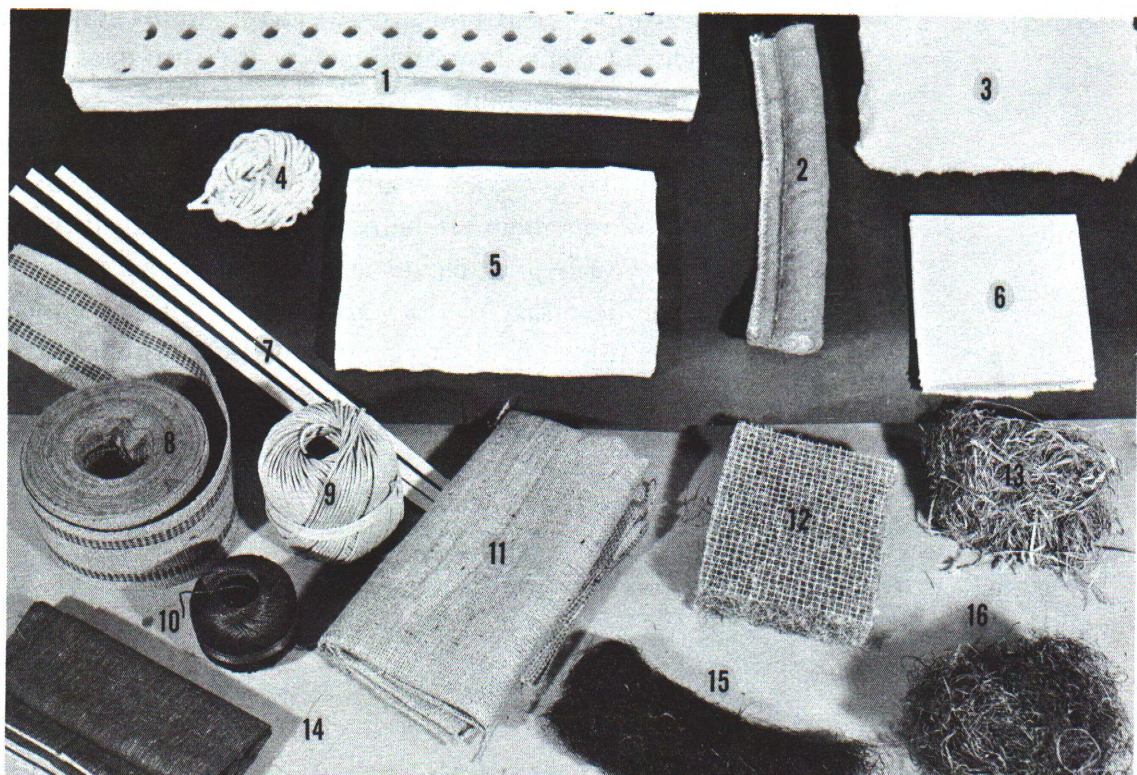
Pins, large pin cushion, needles, and thimble

A carpenter's apron (good to hold tools)

A means for raising the chair about 22 inches off the floor (You can use boards on saw horses.)

Fig. 2—Upholstering supplies

1. Cored rubber
2. Hard front roll
3. Cotton felt
4. Cable cord
5. Slab foam rubber
6. Muslin
7. Cardboard strips
8. Webbing
9. Spring tying twine
10. Sewing twine
11. Burlap
12. Rubberized hair
13. Tow
14. Denim
15. Hair
16. Moss



Other Supplies You Will Need For Special Processes:

A. To prepare the chair:

1. Screw driver with a thin blade to remove tacks.
2. A tack puller or ripper (optional).
3. Pliers to remove tacks with broken heads.
4. Screws, glue, angle irons, corrugated fasteners, or plastic wood for repairing the frame.
5. Supplies for refinishing wood.

B. To put on webbing:

1. Jute webbing, $3\frac{1}{2}$ " to 4" wide. Measure the number and length of strips. Add $1\frac{1}{2}$ " at each end for tacking.
2. Webbing stretcher—buy or make (optional). Make from $\frac{1}{2}$ " hard wood as shown in Fig. 3. Drive ten-penny nails in one end. Cut off heads and file to tapering points. Cover the other end with felt, rubber, or leather.

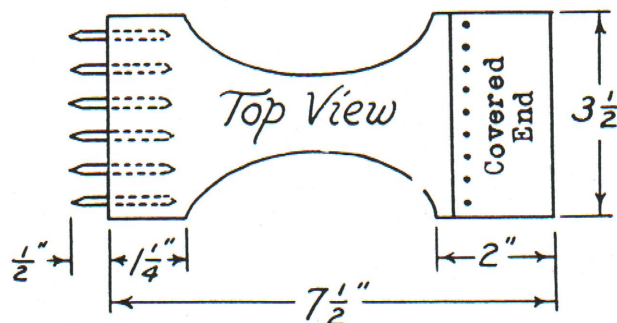


Fig. 3—Homemade webbing stretcher.

3. A block of wood, about 1" x 2" x 5" for a substitute webbing stretcher.
4. No. 12 or 14 webbing tacks.

C. To work with springs and moss or hair padding:

1. Springs—Re-use springs which are in good condition. Buy for replacement the type and size originally used. Springs from old automobile seats may be suitable.
Kinds of springs used in chair frames are:
 - a. Cone springs on band or bar. (Fig. 4). Sold by length of bar. Don't use on webbing.
 - b. Hourglass shape (Fig. 4) heavy for seat, and light for back.
 - c. Zig-zag Springs (Fig. 5) with clips, connecting links and cement coated nails to apply.
2. Twine
 - a. Waxed linen or cotton mattress or upholsterers' sewing twine. A half-pound ball will do several chairs.

- b. Six ply no. 60 hemp, jute, or flax tying twine. Flax wears best but costs most. A one-pound ball will do several chairs.

3. Tacks (Fig. 6).

- a. No. 14 for webbing and springs. (About $\frac{1}{4}$ to $\frac{1}{2}$ lb. for a large chair)
 - b. No. 3 or 4 for light use—no. 6 for heavy use with fabric. (About $\frac{1}{2}$ lb. for a large chair.)
4. Heavy burlap or cotton mesh to cover springs and edge rolls.
 5. Upholsterers' moss or sheets of rubberized, curled hair. (About 4 or 5 lbs. for a club or wing chair).
 6. Upholsterers' cotton (felted padding). About 3 to $3\frac{1}{2}$ yards for club or wing chair (not including cushion).
 7. Needles.
 - a. Straight upholsterers' needles, 6", 8" or 10" for springs and padding.
 - b. Curved upholsterers' needles, 4", 5", or 6" to sew burlap to padding and springs and cushion units.
 - c. Five or six-inch sack needles can be substituted for upholster's needles for an easy project.
 8. Muslin for undercover
 9. Prebuilt edge rolls (if used)

D. To use foam padding:

1. Plastic or rubber foam of the type and thickness needed.
2. Adhesive tape, 1" to 3" wide.
3. Ball point pen or indelible pencil.
4. Muslin for tacking strips or self-adhesive tacking strips.
5. Rubber cement.
6. Tacks, no. 3 or 4, or stapler gun.
7. Water for scissors.
8. Paper for pattern.

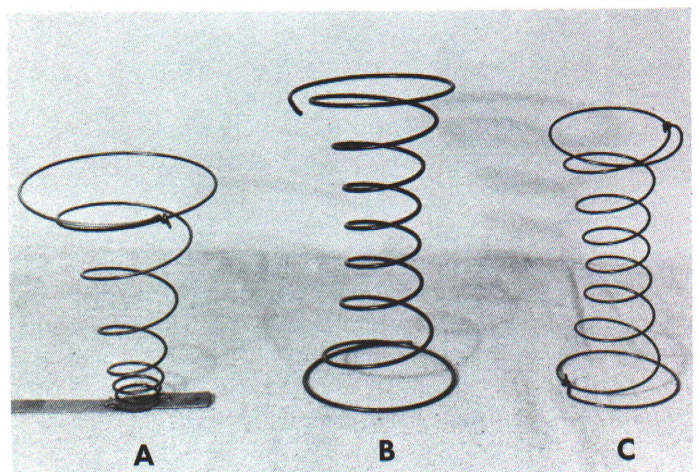


Fig. 4—Springs—

(A) Spring on metal bar. (B) Hour-glass shape for seat. (C) Hour-glass shape for back.

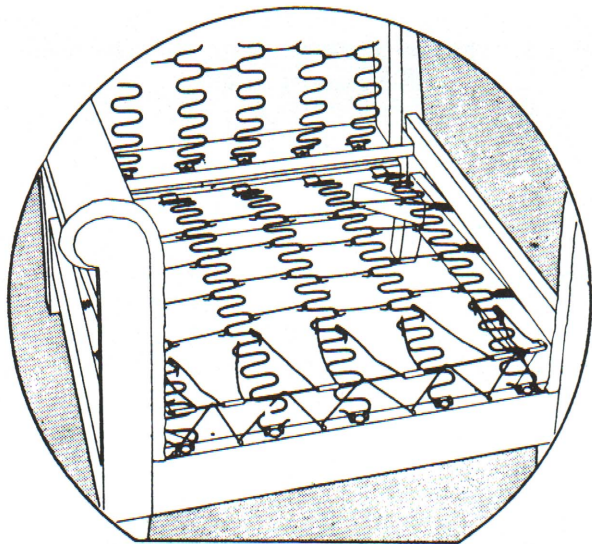


Fig. 5—Zig-Zag springs.

E. To put on outer covering:

1. Covering material (see yardage table).
2. Heavy duty sewing thread to match cover (About 3 spools).
3. Muslin for undercover (see yardage table).
4. Black cambric for dust cover on bottom.
5. Welt cord, fringe, or gimp braid for trim.
6. Large pins or upholsterers' pins for temporary fastening.
7. Ice pick or regulator to correct lumps under muslin.
8. Dressmaker's chalk.
9. Cording foot for sewing machine.
10. Cutting table.
11. 1½" to 3" curved needle for invisible joining of fabric.
12. Tacks.
 - a. No. 3 or 4 for light tacking and no. 6 for heavy.
 - b. No. 4 gimp tacks for gimp braid.
 - c. No. 1½ for covered wood arm panels.
 - d. Decorative nails for trim.
13. Eight oz. cardboard for tacking strips.
14. Denim to match outside covering. (For seat under separate cushion).

Your Work Place

You will want a cleared working place where you can leave the chair until finished. Good light and ventilation are important. Provide space for laying out tools and

supplies. Raise the chair to a comfortable working height (about 22" off the floor).

Preparing the Chair

Examine the chair to see what repairs you must make. If padding is lumpy or sagging it probably means that the foundation needs repair. By removing the cloth from the bottom of the chair you can see what repairs the springs, webbing, or padding may need. To repair springs or webbing you usually must strip entirely the parts of the chair involved. You can repair the seat without taking padding from arms and back. Don't take apart more of the chair than is necessary. Before you take the chair apart measure the length of new cording you will need.

Use tack puller, screw driver, or ripper to remove tacks. Drive the tool under the tack head with a hammer or upholsterer's mallet. If you knock tacks out lengthwise of the grain of the wood, you are less likely to split it.

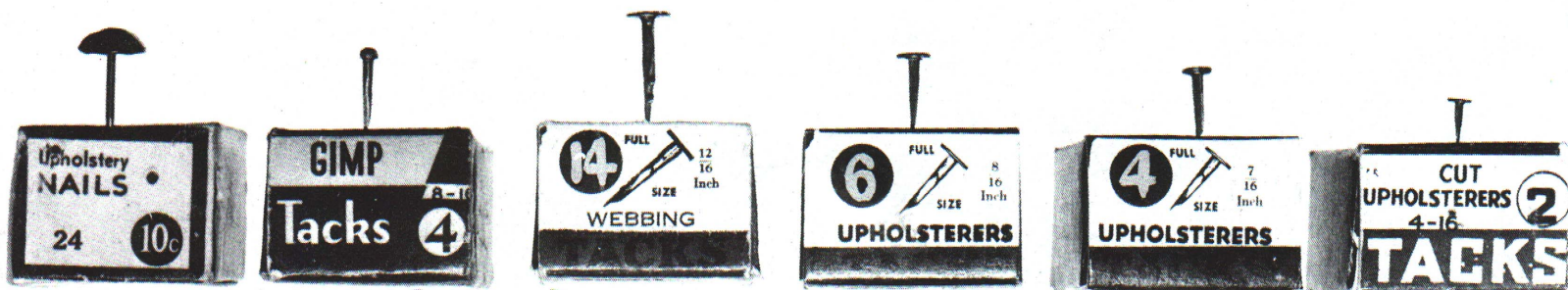
As you remove the old covering, padding, and springs note exactly how they were put on. Note spring height, the size of tacks, the amount of padding used and method of sewing and tying. If the work is well done, use it as a guide for your work. If it is not good, try to improve it. It is easier to tell how the cover was put on if you remove it in the reverse order of the original work. For an overstuffed chair remove pieces in the following order: 1. cambric bottom, 2. skirt (if used), 3. outside back, 4. outside wing, 5. front arm panels, 6. outside arm, 7. inside wing, 8. inside arm, 9. inside back, 10. seat.

Use the old cover as a guide for cutting the new cover. Of course, if you add more padding, the new cover will have to be larger. Clean and label each piece, as some of it may be reused. Don't wash pieces to be used as a pattern, since they may shrink.

You may save for reuse rolls of padding from the front of the seat. Leave edge rolls tacked to the wood if possible. Other good padding may also be reused. Tow or sisal padding (a fiber that looks like excelsior) is usually broken and matted and should not be reused. Remove the dust from moss or hair by beating it outdoors. Pull it apart to fluff it.

Remove all tacks from the frame, even those with broken heads. Clean, repair, reglue, reinforce, or restyle the frame if needed. See bulletin, "How to Glue Furniture," available at your county Extension office. If there are a great many tack holes from previous upholstering fill them with plastic wood. Refinish exposed wood if it is marred. (See Missouri bulletin on refinishing furniture.) Clean the springs. Remove rust from them with steel wool. Pull and stretch them to straighten.

Fig. 6—Upholstery tacks commonly used.



UPHOLSTERING A WING CHAIR

Tack On Jute Webbing

Put the chair upside down on the work surface with the front next to you. Measure and mark the location of webbing strips on the bottom of the seat frame. Strips should be no more than 2 to 2½ inches apart—2 inches is better. When possible, locate webbing so two pieces cross where a spring is to be placed.

Begin with a back-to-front webbing strip which is near the center of the seat. Place end of webbing on the back of the seat frame with 1 inch extending beyond the frame edge. Place five No. 12 or 14 webbing tacks as in Fig. 7-A. Don't use old tack holes. Fold the short end of webbing over the five tacks and put four more a little below the first ones (Fig. 7-B). Stretch the webbing straight across the seat to the front edge. Hook the

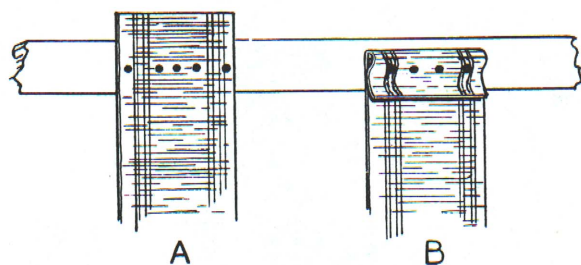


Fig. 7—Tack on webbing.
(A) Step 1
(B) Step 2

stretcher into the webbing as in Fig. 8. Then press it down as in Fig. 9 to pull the webbing very tight. While it is held with the stretcher (Fig. 9) put in five tacks as before. Cut webbing 1½" beyond the tacks. Fold over and fasten with four tacks. Put on the rest of the front-to-back strips the same way.

Next stretch and tack the side-to-side webbing strips. As you place these strips, interlace them over the front-to-back strips as in Fig. 10.

To stretch a short piece of webbing, pin it to an extra piece of webbing with a mattress needle until it is tacked (Fig. 11). If you cannot get a webbing stretcher you can stretch webbing by wrapping it around a block of wood. Brace the wood against the chair and pull the webbing as tight as possible (Fig. 12). Also one person can stretch webbing with a pair of pliers while another tacks it. Next put webbing on the chair back (Fig. 10).

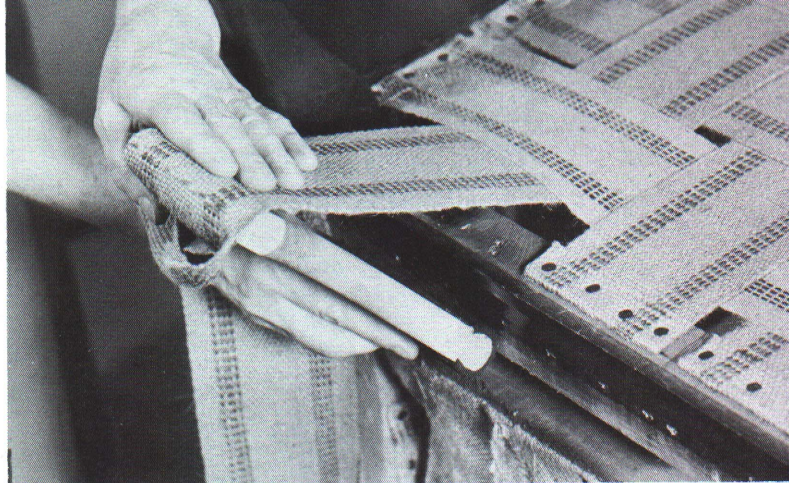


Fig. 8—Stretch webbing with a webbing stretcher.

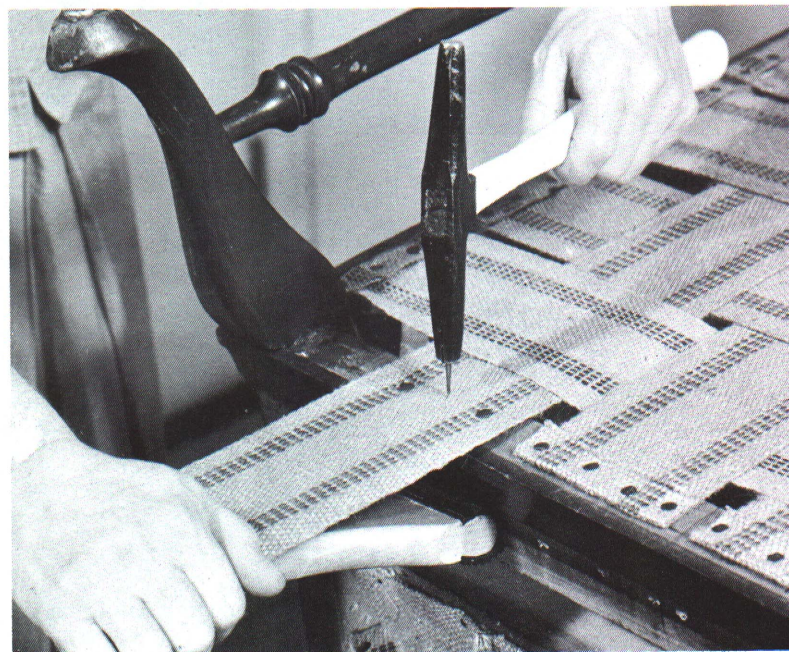
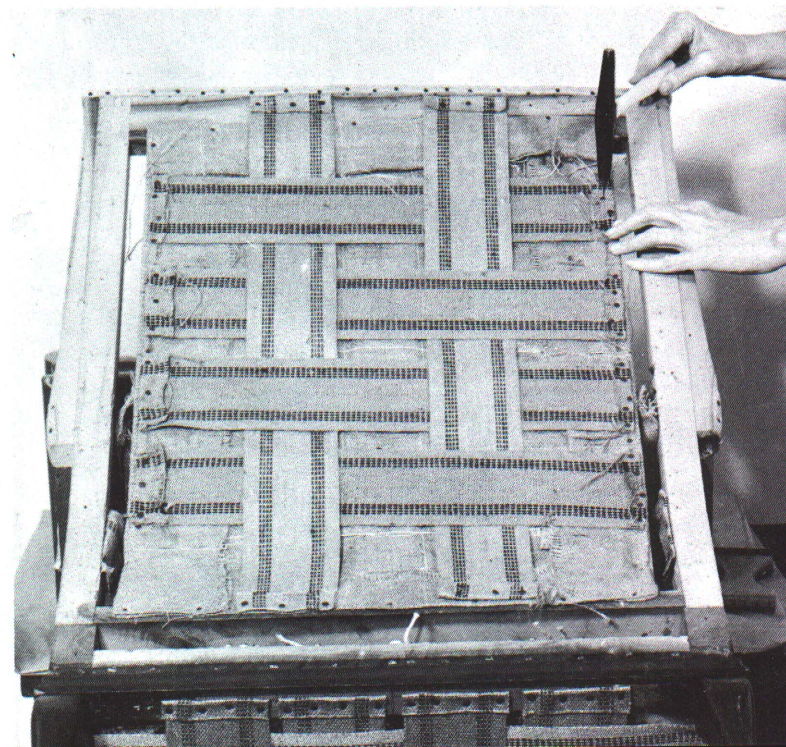


Fig. 9—Hold tension and put in tacks.

Fig. 10—Interlace webbing.



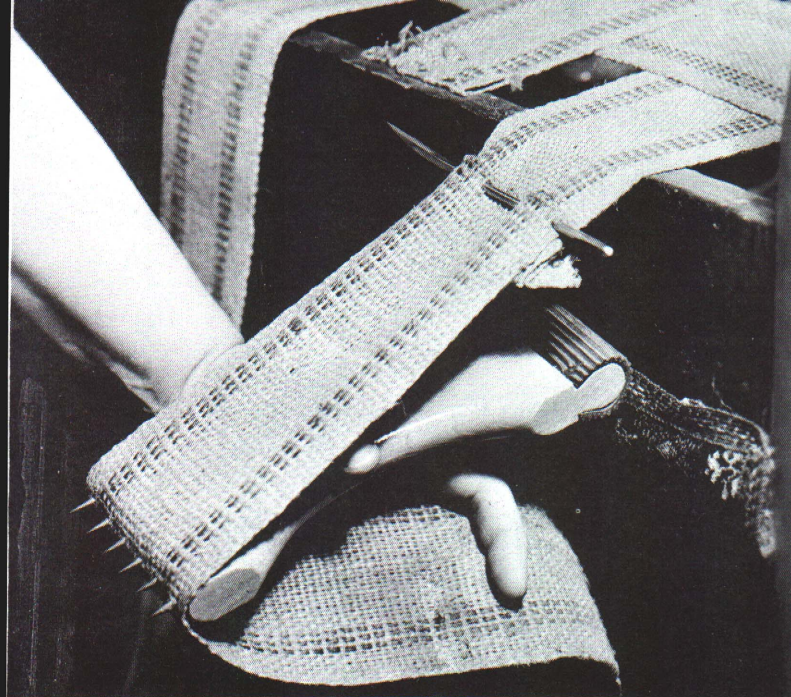


Fig. 11—Stretching a short piece of webbing.

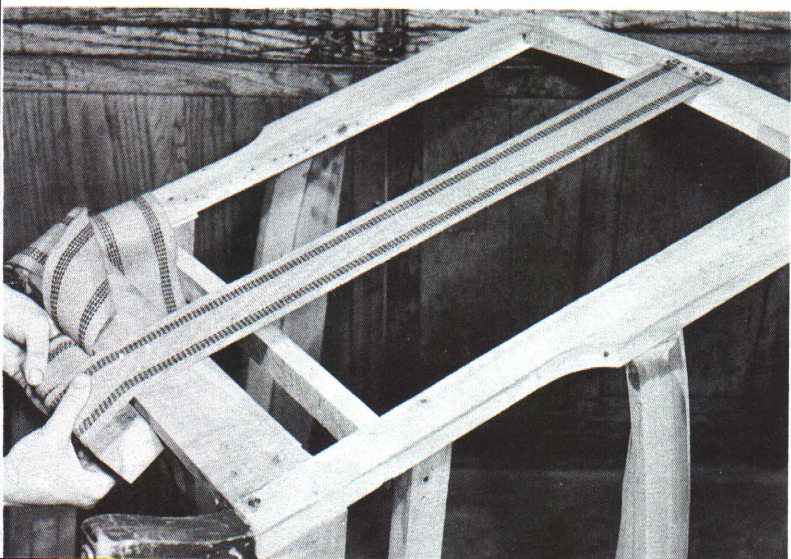
Stretch two pieces of webbing up and down and one piece across the inside arm frame. The webbing here supports the burlap and padding even though springs are not used. No webbing is needed on the wings.

Metal webbing can be used in place of jute webbing. You can buy a repair kit of metal webbing with tools and directions. You can also use metal webbing to reinforce jute webbing which has been stretched or broken.

Sew Springs

Turn the chair right side up. Arrange the springs on the webbing as they were placed before. If possible, place each spring where two pieces of webbing cross but move them if necessary for a better arrangement. From three to twelve springs may be used in a seat. Add springs if too few were used originally. When possible line them up in straight rows. (Fig. 14) If the seat has a wire edge, place the front springs very close to the front of the frame. (Fig. 19) For other types, springs are usually back

Fig. 12—Stretching webbing with a wooden block.



about 2 inches from the front.

Mark the position of each spring on the webbing. Remove all but one of the corner springs which you will sew first. Be sure this spring is right side up. On top, the spring wire is either bent down or twisted around the first coil (Fig. 4). This is to keep the sharp end of the spring from working through the padding. Place the loose end of the spring on the side toward the center of the seat. Thread about 36 inches of mattress or upholsterers' sewing twine into a straight upholsterers' needle or sack needle. Fasten the twine with a heavy knot on the bottom of the webbing. Take three or four closely spaced stitches over the bottom spring coil and very close to it, in four different places. (Fig. 13) Carry the twine under the webbing to the next spring. Space stitches so you can move from one spring to another without cutting the twine. When new twine is needed, tie it on the end of the first piece. When all springs are sewed, tie the twine to fasten.

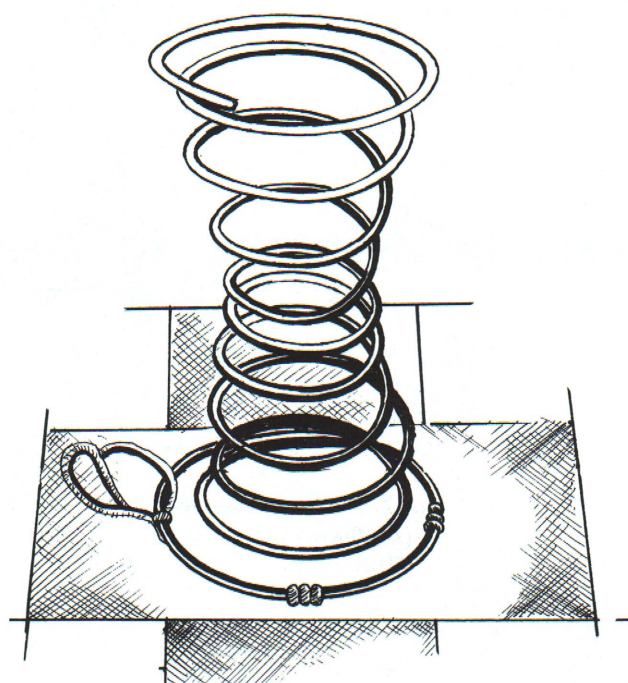


Fig. 13—Sewing spring to webbing.

Tie Springs

The shape, comfort and durability of the chair depend a great deal on how well you tie the springs. Various knots are used for this purpose. Professional workers select a method because of its speed or quality or both. The knot shown here is strong and easy to do.

The way you tie seat springs depends on how high the springs are to stand above the frame, whether the finished seat will be round or flat on top, and whether it has a wire edge or a hard stuffed edge.

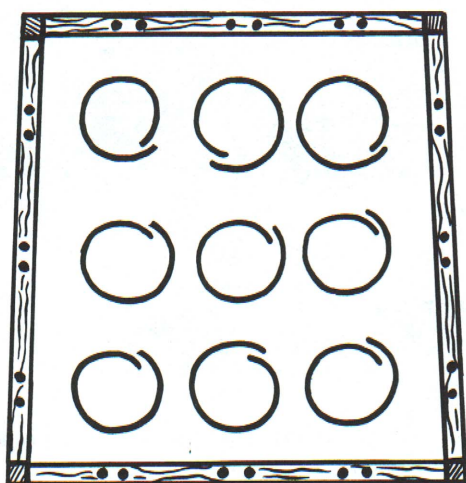


Fig. 14—Locate a pair of tacks at each end of a row of springs.

Flat Top Seat—We will first show how to tie springs on the wing chair which has a flat top seat with a hard stuffed front edge. You tie each row of springs exactly through the center, first from back to front, then from side to side. Then tie them in both directions diagonally. That means that each spring will be tied in 8 places. (Fig. 18) In cheap construction, diagonal ties are often omitted. When redoing a chair of that kind always add the diagonal tie.

Use 6-ply, No. 60 tying twine. As an anchor for tying twine, drive a pair of no. 12 or 14 webbing tacks, about one-half inch apart, partially into the seat frame, straight in line with the end of each row of springs (Fig. 14). Leave tacks high enough so twine can be wrapped around them.

Measure and cut off the amount of twine you need for one row of springs from *front to back*. This will depend on the number of springs in the row and whether or not you use a return tie. For this chair which has a row of three springs and a return tie, cut off a length about three times the distance across the seat from back to front over the top of the springs.

Tie first the center row of springs from back to front. About 20" from one end of the twine, loop the twine over the pair of tacks on the back rail as in Figure 15A. The short end will be used for the return tie. Pull

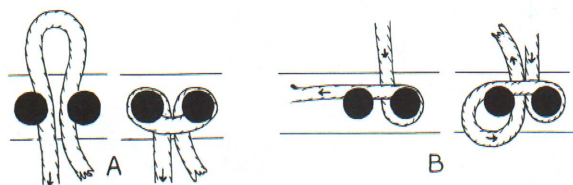


Fig. 15—Fasten ends of cord to frame.
A. At back of chair.
B. At front of chair.

the twine to draw it very tightly around the tacks, well under the tack heads. Otherwise the edge of the head may cut the twine. Drive the tacks down firmly.

With the long end of twine, tie across the row of springs at points 2, 3, 4, 5, 6, and 7 as in Fig. 17. Use the knot shown in Fig. 16. Press the springs down to

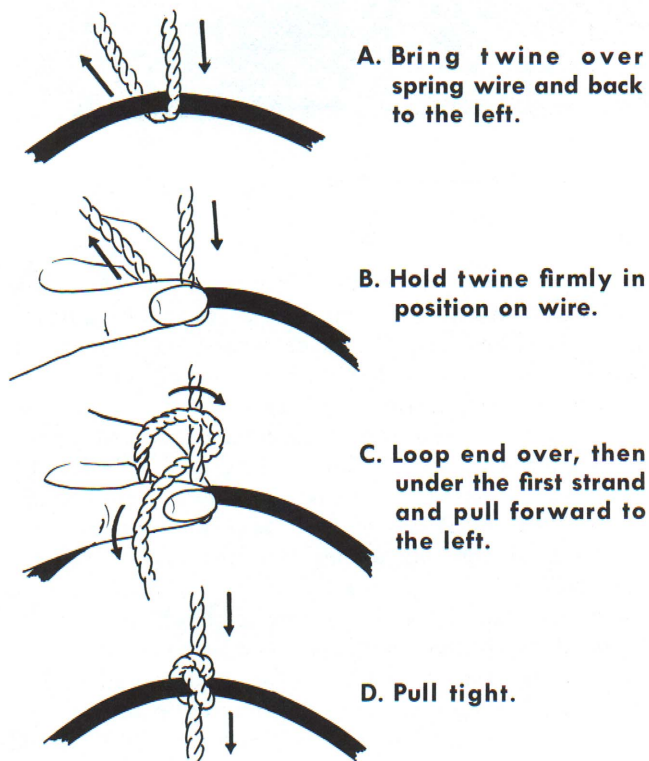


Fig. 16—Knot used to tie springs.

the correct height as they are tied. The height and spacing of spring ties will determine the shape of the seat. For a chair with a removable cushion you usually tie springs down slightly lower than the lower arm and back stretchers. All springs should stand vertical when tied. The top of the seat should be flat, sloping slightly down to the back. Next fasten the twine to the front seat rail (Point 8, Fig. 17). Fasten as shown in Fig. 15B. Bring the

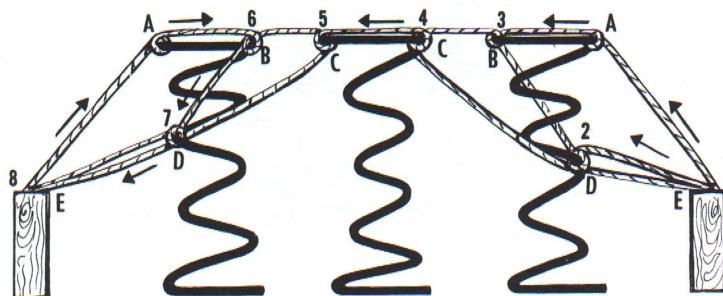


Fig. 17—Return tie method for three springs in a row.

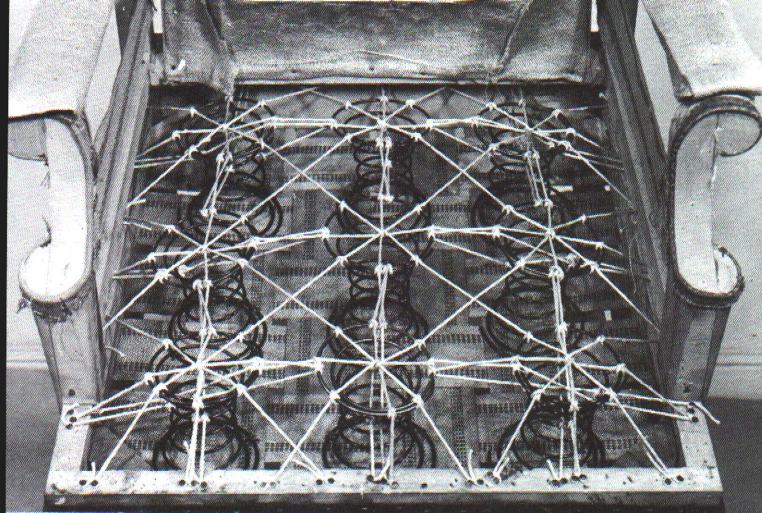


Fig. 18—Springs tied.

cord between the two tacks. Wrap it tightly around one and stretch it across the other to brace it. Drive in the first tack. Then wrap the twine around the second tack with the free end under the cross strand. Pull twine tightly and drive in the second tack.

Use the remaining twine to make return ties at both front and back at points A, B, C, and D in Fig. 17. At E, fasten twine to frame by looping it around a tack. Tie other rows of springs from back to front the same way. Repeat from side to side (Fig. 18).

Next tie springs in *diagonal* rows. Cut a length of twine for diagonal ties, only twice the distance to be covered, as you will not make a return tie. Knot the twine at the top of each spring on opposite sides. (Fig. 18). The last time across each intersection tie together all crossing cords. This keeps cords from rubbing and cutting.

The only difference in tying springs for a seat with a wire edge is that the front row of springs is pulled forward so their top coil can be attached to the wire edge (Fig. 19). Sometimes the top coil of front springs is spread to a larger circumference than on the other springs.

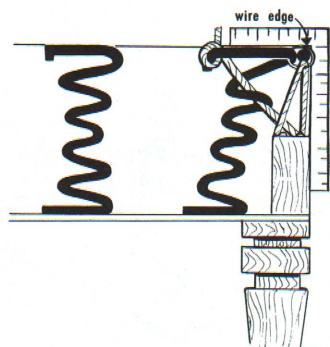


Fig. 19—Anchoring spring to wire edge at front of seat.

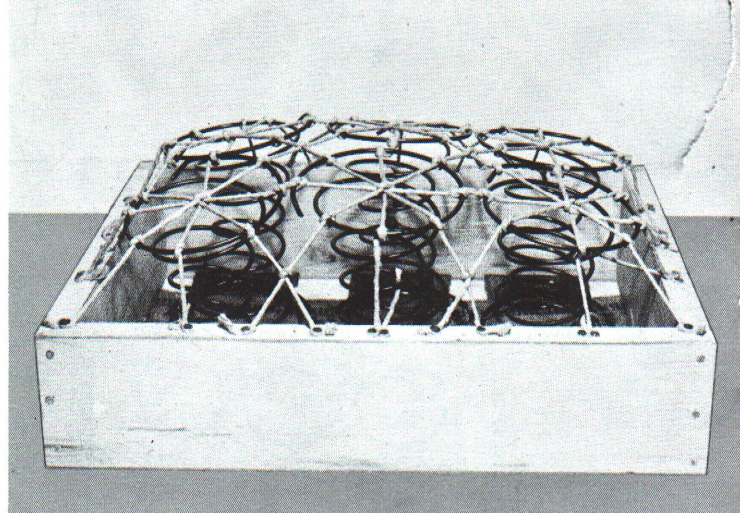


Fig. 20—Springs tied for a rounded seat.

Round seat—For a rounded seat top a return tie is usually not used. For this kind of seat all springs are tied directly to the top coil (Fig. 20). Cut length of tying twine from $1\frac{1}{2}$ to $1\frac{3}{4}$ times the distance across the seat. Tack one end of twine to the back of the seat frame as in Fig. 15A. As you loop the twine around the top coil of the first spring, press the spring down to the height of the seat frame. (It will be higher when released). Hold the spring in position while you complete the knot. Tie the top coil of the same spring on the opposite side. When tied, all springs should stand straight (not pulled to one side), but the top coil of the spring next to the rail will tip slightly toward the rail. (Fig. 20).

Continue to tie other springs in the same row across the chair as you did the first one (Fig. 20). Have another person press springs down to the proper level as you tie them. Springs will be about the same distance apart at the top as at the bottom. The length of twine you leave between the springs determines the height of the finished seat. Be guided by the height of the original seat. Too much twine lets the springs stand too tall. If springs are tied too low, the seat is too hard. At the opposite side of the chair tack the twine to the seat frame as in Fig. 15B. Study spring height and make needed adjustments before you tack twine permanently.

Tie from side to side in the same way. Make diagonal ties as described for the flat seat.

Chair Back—Tie springs in the chair back like those in the seat. Use a return tie only when the chair has a flat back with a square edge. Diagonal ties are not needed.

Cover the Springs

Put a heavy duty material such as heavy burlap or upholsterers' cotton mesh over the springs to support the padding. Tack to the top of the seat frame turning under 1" on each edge. Start to tack in the center of each side and work toward the corners. Space tacks about $1\frac{1}{2}$ " apart. Pull the material firmly, but not tight enough to

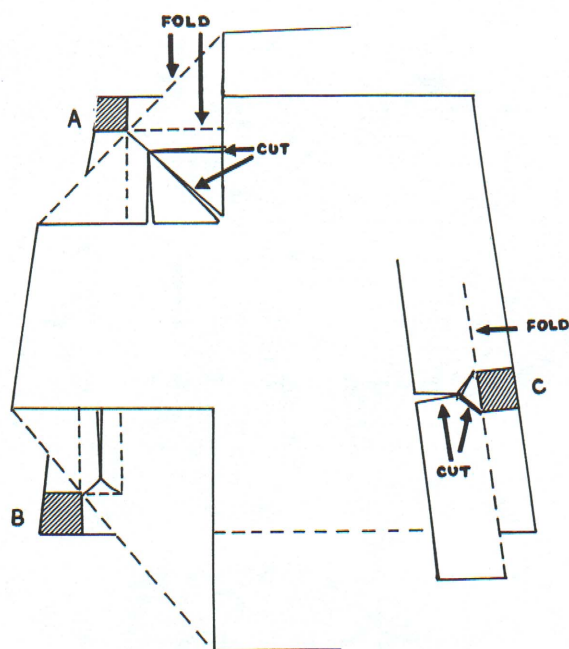


Fig. 21—Fitting material at posts.

- A. Corner post not covered with fabric.**
- B. Corner post with fabric to cover post.**
- C. Side post not covered.**

depress the springs. If necessary, cut and fit material around the posts (Fig. 21).

Sew the burlap to the top of the springs. This is an important step that is often omitted in cheap construction. It cuts down wear by reducing friction on the cloth. Use a 4-6 inch curved or sack needle and sewing twine. Take two stitches at three or four places on each spring. Locate stitches so you can go from one spring to another without breaking the twine (Fig. 22).

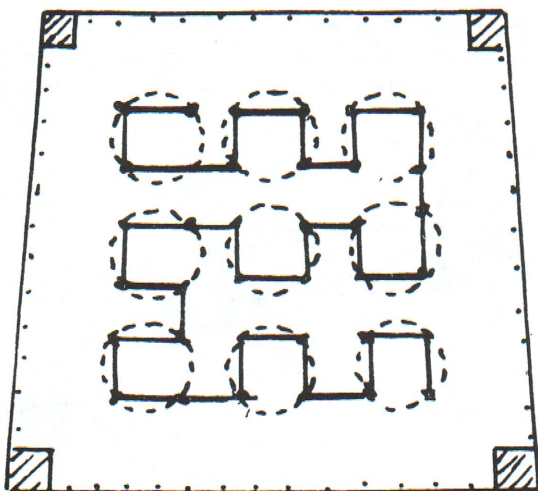


Fig. 22—Sew burlap to springs.

Cover the back springs as you covered the seat springs. If the springs are wired together and encased in burlap which is still in good condition, retack it to the frame. Or you can re-cover such a unit with burlap before tacking it on.

Other Types of Springs

It is usually better for the amateur to repair a chair with the same type springs originally used, but springs can be added to some chairs which did not have them originally.

Bar Springs—Some chairs have cone shaped springs mounted on metal bars. (Fig. 4A) You can buy a new strip of springs to replace old ones which are broken or weak. Select springs with the same length bar originally used. Usually three bars of springs are used on the seat of a chair and nine on a sofa. Attach to the chair by nailing the bar to the wood frame with a large headed nail. Tie springs as described previously.

Zig-Zag Wire Spring—This is a flat spring which arches across the chair frame without webbing support. (Fig. 5) Place strips across the frame no more than three inches apart. Attach to front and back frame with metal clips and cement coated nails. Attach to side frame with small springs. Join strips of spring crosswise with connecting links or with spring twine.

Roll For Seat Front

A firm roll along the front of the seat is needed for both comfort and appearance. If the original roll is in good condition, you may use it again by tacking or sewing it to the wood frame or spring covering. As you put on the old roll, keep the outer edge flush with the front edge of the chair. (Fig. 23) If a new roll is needed, you can save time and labor by buying one ready made.

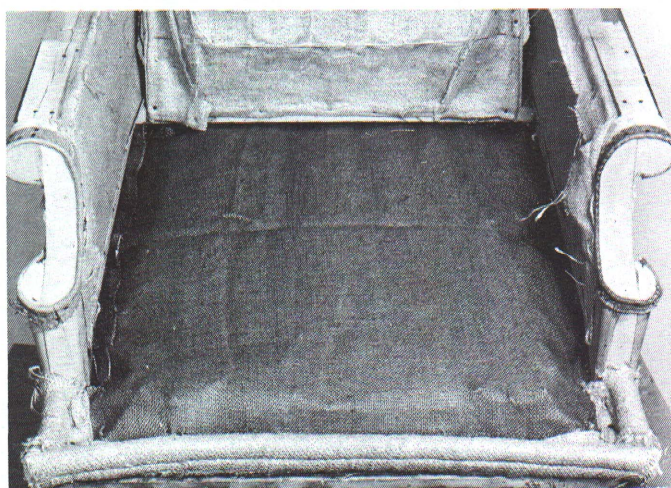


Fig. 23—Cover springs with burlap and tack hard roll to seat frame.

There are various ways to form and hand stitch a roll on the chair. We shall explain one method to use for a seat with a wire edge and one for a seat without.

Hard-Edge Seat—Sew an extra strip of burlap across the front of the chair to cover the extra edge padding. If the chair has a rectangular cushion, sew the burlap on a line drawn through the center of the front row of springs. If it has a "T" cushion, attach the burlap on a line drawn about 2 inches back of the front edge of the front posts. Mark this line with chalk on the spring covering.

Measure the chair to get the size of the burlap covering for the roll. Cut the burlap as long as the distance from the chalk line on the seat to the bottom of the front chair rail plus 3 inches (about 10-12 inches on most chairs). Cut it 6 inches wider than the chair seat. Note the *length* in this case is the shorter dimension. *Length* in upholstery always means the up and down measurement (vertical to the floor) Center the burlap over the chalk line on the chair seat. Sew in place with the curved needle and mattress twine. Lay a thick pad of moss under the burlap. (Fig. 24) Use enough moss so that when compressed firmly the roll will be about 1 1/4 inches high and flush with front seat rail. Distribute the moss evenly across the seat. Pull the burlap tightly over the moss and baste tack it to the front seat frame (Baste tacking is driving tacks part way in to hold material temporarily). Use an ice pick to distribute moss evenly. Add more moss at each end if needed. When the roll is firm and smooth, you are ready to hand stitch it.

Draw a dotted chalk line across the front curve of the seat. (Fig. 24). Draw lines C and D, one inch on each side of the dotted line. Draw line E and B 1/2 inch beyond C and D. Draw lines A and F, 2 inches beyond B and E.

Do the *first row* of stitching on lines E, F, A and B as shown in Fig. 25. Begin at the left side of the seat. Put the needle in at 1, out at 2, in at 3 and out at 1. Work the padding well into the roll with the needle or

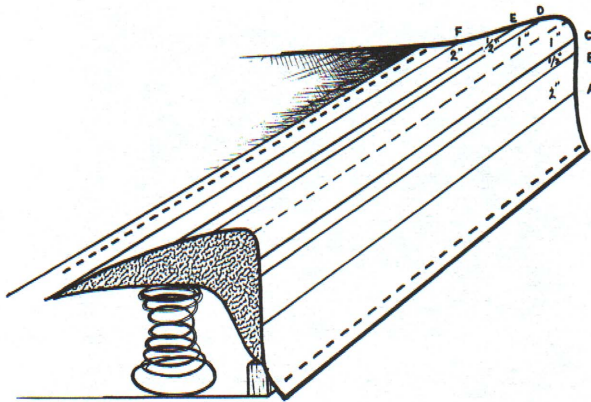


Fig. 24—Moss stuffing for edge roll with guide lines drawn for stitching roll.

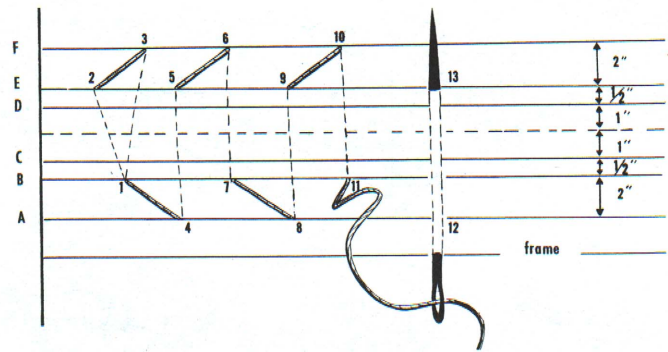


Fig. 25—First stitching of stuffed roll.

ice pick. Pull the twine tight and tie at 1. Put the needle in at 4, out at 5, in at 6, out at 7 and pull tightly. Proceed across the seat in the same manner (Fig. 26)

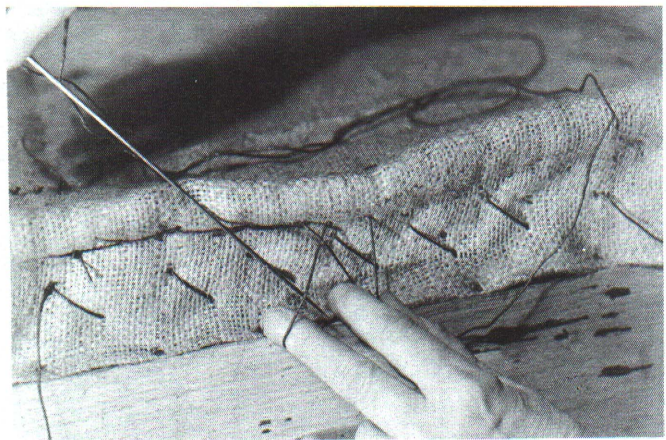


Fig. 26—Second row of stitches for edge roll.

Next make a *second row* of stitching on lines D and C (Fig. 27). Put needle in at 1, out at 2, in at 3 and out at 4. Now tie the loose end of twine at 1 around the twine at 4 and pull to the right to tighten. Make each stitch 3/4" to 1" long. Keep the needle at right angles

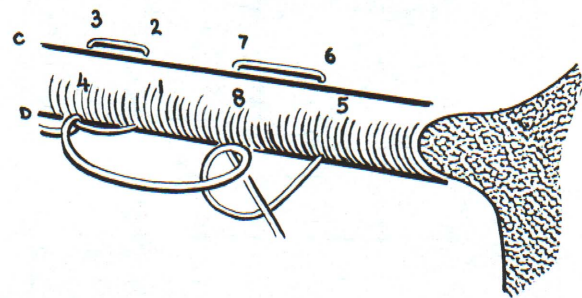


Fig. 27—First stitching in place. Second row being done.

to the roll and draw moss into the roll. Next put the needle in at 5 and out at 6, in at 7 and out at 8. Loop the twine hanging at 4 around the needle at 8 as shown in Fig. 26 and 27. Pull the twine firmly to the right. Continue in this same way across the front of the seat, regulating and pulling the moss into the roll.

Wire-Edge Seat—Sew a wire-edge seat as shown in Fig. 28.

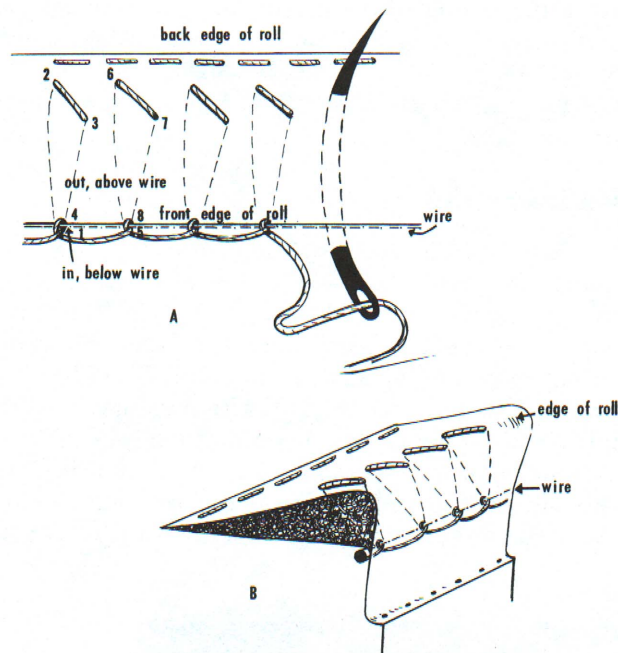


Fig. 28—Stitch for roll with wire edge.

Edge Roll For Wood Frame

A small roll of padding should be tacked on the edges of the frame of the arms, back and wings which will be covered. This roll (1) keeps stuffing from working away from the edges, (2) gives a firm foundation for other padding, and (3) keeps edge of wood from wearing the cover. You can buy prebuilt edge rolls, make them on a chair or make them and tack to the chair. (Figs. 29, 30 and 31).

To make a small edge roll on the chair, cut a piece of burlap 2 inches wide and as long as the edge to be padded. Cut it straight with the thread for straight edges and bias for curved. Use wider burlap strips for larger rolls. Place $\frac{1}{2}$ " of one edge of burlap on the edge of the wood, covering it with a $\frac{1}{2}$ " strip of cardboard. On outside curves lay a few pleats in the burlap to give needed fullness. The cardboard must be flush with the edge of the wood (Fig. 29). The other $1\frac{1}{2}$ inches of burlap will extend beyond the wood. Tack the burlap and cardboard to the wood. Pack some moss into a very firm even roll about $\frac{3}{4}$ " to 1" in diameter—tapered to $\frac{1}{2}$ " at the ends (Fig. 30). Lay the roll of moss on the

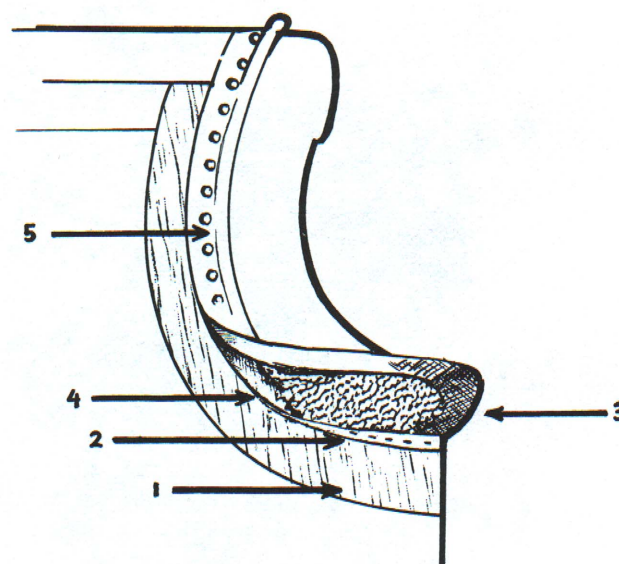


Fig. 29—A stuffed edge roll for front of arm.

1. Wood frame
2. Cardboard strip
3. Burlap strip
4. Moss
5. Completed roll

cardboard, pull the burlap very tightly over it, and tack to the frame with a second row of tacks just outside the first (Fig. 29).

You can make a separate edge roll by sewing a firmly packed roll of moss into a strip of burlap with upholsterers' twine. Tack this roll onto the edge of the wood as for a commercially made roll.

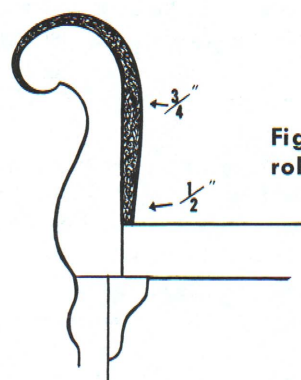


Fig. 30—Shaped edge roll on curved arm.

Padding Seat With Moss or Hair

You are now ready to put moss or hair padding on the seat, inside back, inside arms and wings. You will need about 4 to 5 pounds of moss for this wing chair. Over this padding, cotton felt is used to give a smooth surface.

Moss Padding on Seat Springs—Fluff about one pound of moss and spread it over the burlap covering the



Fig. 31—Sew moss padding to seat.

seat springs. Use enough so you cannot feel the springs through it. This is a layer of loose moss about 2 inches thick which can be compressed to $\frac{3}{4}$ inch. Pack the moss evenly and firmly over the entire seat area (Fig. 31). Padding for a seat with a loose cushion is thinner than for one without. Sew the loose moss to the burlap base with a large curved needle and a long strand of mattress twine (Fig. 31). Tighten the twine and tie the ends together. If you have no long curved needle you can sew the moss with a straight needle. Put it back and forth between the springs and webbing so stitches go through only the moss and burlap.

Rubberized Hair Padding— Sheets of rubberized curled hair may be used as padding in place of moss. This is sold in $\frac{3}{4}$ inch or 1 inch thicknesses. It consists of an even layer of rubber coated curled horse or winter hog hair attached to a firm mesh backing. (See Fig. 2—No. 12) It is lightweight, resilient, strong and inexpensive. You can cut it easily with scissors.

For an even flat layer of padding simply cut rubberized hair to the desired size and cement, sew or tack it in place. Have hair side up. At places where you need thicker padding simply put extra pieces of hair padding under the top layer. You can bevel the edges of the sheets of rubberized hair by trimming with scissors.

Cotton and Muslin Cover—Always put a layer of cotton felt padding over the moss or hair. Cut so cotton comes just to the sides of the seat frame. Simply lay cotton over the seat. You may have to use a few tacks to hold it on the arms and back.

At this point a professional worker would stretch the outer covering over the padding. It is easier, however, for the beginner to shape each part if he first puts on a muslin undercover. Cut muslin large enough to turn under 1 inch and baste tack to the frame all around (drive tacks in only part way), so you can later make needed adjustments. Fasten muslin first in the center back, then center front, then center of each side. Work toward the corners. Keep the threads of the muslin straight each way and pull evenly. Space tacks about 1 inch apart. Miter corners to fit smoothly around corner posts and arms (Fig. 21). Cut out excess material and fit smoothly around front corners of seat.

Padding the Back

Lay the chair on its back and cover the inside back quite thickly with about 1½ pounds of moss. Sew moss to the burlap covering of the springs (Fig. 32). Cover with a layer of upholsterers' cotton. Cut muslin cover large enough to tack to the frame on the back of the chair. Use baste tacks until you are satisfied with the shape. Mark the middle of the top and the bottom of the back rails and the middle of the top and bottom of the muslin. Tack the middle of the muslin to the middle of the bottom rail at the back, then again 5 inches on each side of the

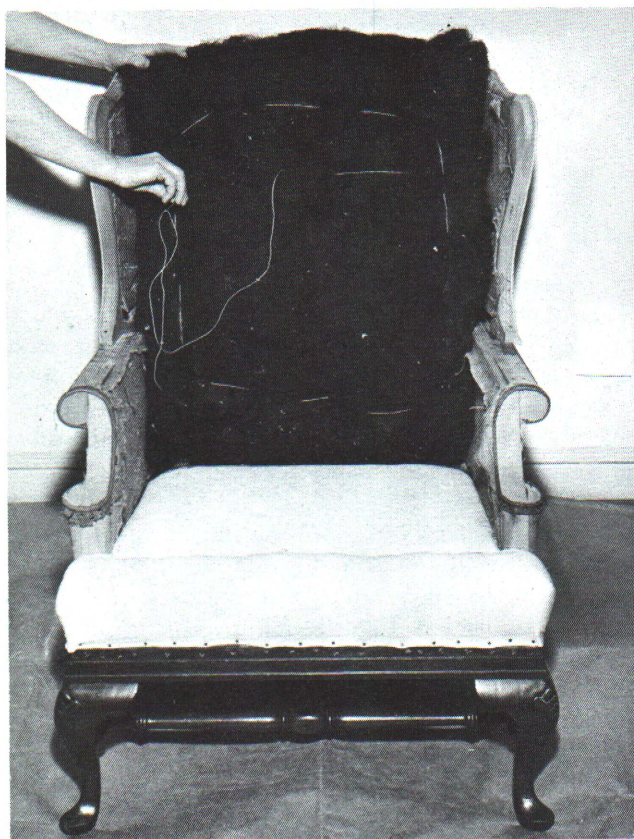


Fig. 32—Tack muslin on seat and sew padding on chair back.

center. Pull the muslin tightly up over the inside back while you compress the filling. Tack the muslin at the middle of the top rail, then again 5 inches on each side of the middle. Cut muslin to fit around the bottom corner posts. Leave a strip of muslin at the corner called a "string" which you pull down between the bottom rail and seat rail and tack on the front edge of the rear post. Baste tack across bottom rail. You must remove these tacks when you put the outer cover over the seat and back. Next, cut the inside back muslin to fit around the arms. Make two cuts on the weave of the muslin from the edge toward the arm. Locate them about 2 inches below the finished upright top of the arm and $\frac{3}{4}$ inches apart. Pass the muslin "string" under the arm so it can be tacked at the extra rail. You will make this same cut in the outer covering. A cutting error you might make on the muslin can be corrected on the outer covering.

Pull the muslin which is below the arms between the two back rails and tack. Pull the muslin above the arms, between the rails to the back and tack on the rear edges of the back post. Continue baste tacks across the top rail. Have another person compress the padding as you tack. Work fullness at corners into evenly spaced pleats that face downward. When the chair back is smooth, firm and shaped as desired, drive tacks in completely on top and sides.

Padding the Arms

Tack burlap or cotton mesh tightly over the webbing on the inside of the arm frame. (Fig. 32)

Cover the inside and top arms with moss and cotton as you did the back. (Figs. 33 and 34). Make the moss thickest at the front of the arms and pack very tightly. The amount you use governs the shape of the arms. You can make the top of the arms more firm and durable if you pad and cover them before you pad the inside arms (Fig. 35).

Cut muslin to cover arms. To find the size, measure the length from the outside of the bottom arm rail up over the filling on the inside arm to the outside edge of the tack rail, under the top



Fig. 33—Stitch padding to burlap on inside arm.

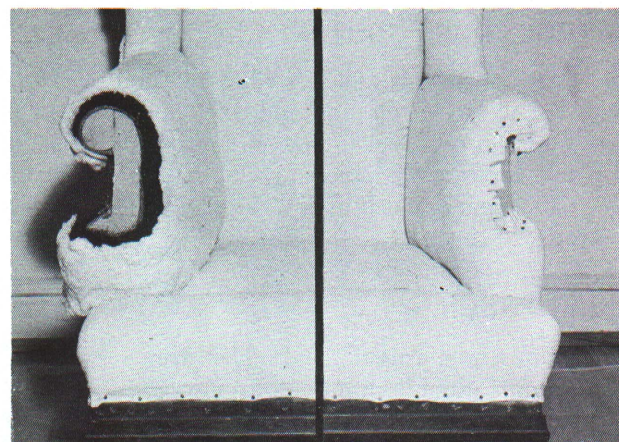


Fig. 34—Finish inside arm.
Left—Cover moss with cotton.
Right—Fit and tack muslin.

arm rail. For the width, measure from center of the front post to the back of the back post. Add two inches extra to both length and width.

Keep the grain of the muslin straight. Baste tack until you are satisfied with the shape of the arms. Tack first at the top of the front of the arm. Next tack at the front of the wing where it joins the arm. Cut muslin here to fit around the wood. Next pull the muslin over the edge roll on the front of the arm. Stretch around front curve and tack. (Fig. 34) Stretch muslin through the point where arms join seat at the front and cut to fit around the wood post, and tack. Stretch and tack top outside arm along the bottom arm rail (Fig. 35). Next cut muslin to fit around the point where the bottom arm rail meets the bottom back rail. Leave a "string" here to attach to inner side of rear post below the bottom back rail. Study shape of both arms, make needed adjustments, finish driving tacks and trim the muslin. Leave baste tacks where muslin is tacked to side seat rail. You must take out these tacks when you put on the outer covering.

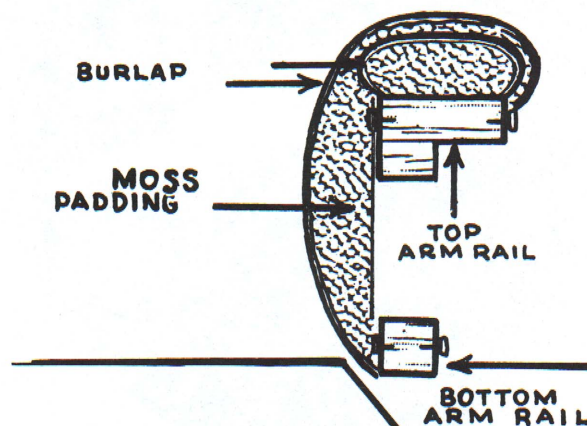


Fig. 35—Cross-section of arm with two-compartment padding.

Padding the Wings

You have already attached edge rolls and burlap to the wings. Next put on moss and cotton padding as you did on other parts. Then stretch muslin over padding and baste tack on back and outside of wing frame. When both wings are smooth and firm and the same size, tack permanently.

Foam Padding

Both urethane (plastic) and rubber foam are resilient, comfortable, durable, lightweight, allergy-free and resistant to moth, mildew and bacteria. They never lump, mat, shift, or sag, and can be washed. They are easy to use for upholstering.

They respond differently to pressure, however. Urethane has a slower "bounce back" than rubber. This reaction is not a disadvantage. Urethane combines excellent support with easy response to pressure. You have the sensation of sitting "in" rather than "on" urethane.

Urethane is not damaged by dry cleaning solvents, is resistant to oils, ultra-violet light, and abrasion. Rubber must be protected from all of these. Urethane can be used in direct contact with plastic while rubber deteriorates plastic unless they are separated by a layer of fabric. Urethane is more slip-retardent than rubber. This means that with urethane, cushion welting stays in place and fabric covering is not likely to creep or wrinkle. Urethane is tough and can stand tacking that would tear rubber. Urethane is about half the weight of rubber and is also less expensive.

In upholstering, the two foams are used much alike.

Any difference is due to greater toughness of urethane which requires less protection from strain.

Urethane Foam—is sold in sheets of different thicknesses and densities. Sheets are uniform throughout. Molded cushions with open inside pores are made. Urethane has various trade names such as: polyfoam, polyurethane, polyether, polyester, etc.

Rubber Foam—Types used for upholstery include solid slab, cored stock, and molded cushions. Use firm or medium density on plywood seats, medium on spring and webbing seats and soft on arms or back of chairs.

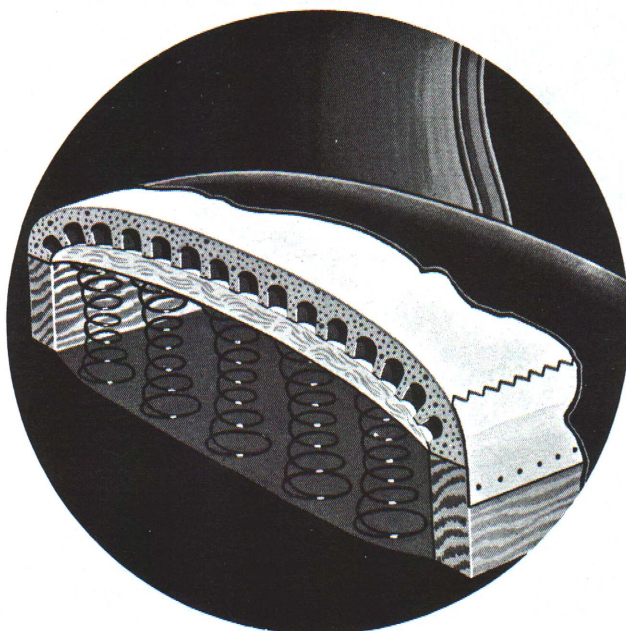
Solids slabs or sheets are used for thin padding on wood or metal bases, over other padding or on back or arms of chairs. It is from ¼ to 2 inches thick.

Cored stock has molded openings on the underside (See Fig. 2, No. 1) Usual thicknesses are 1½ to 4½ inches. Use it where deeper cushioning is needed over plywood, webbing, coil springs or zig-zag spring. You can cement two layers together to make a loose cushion.

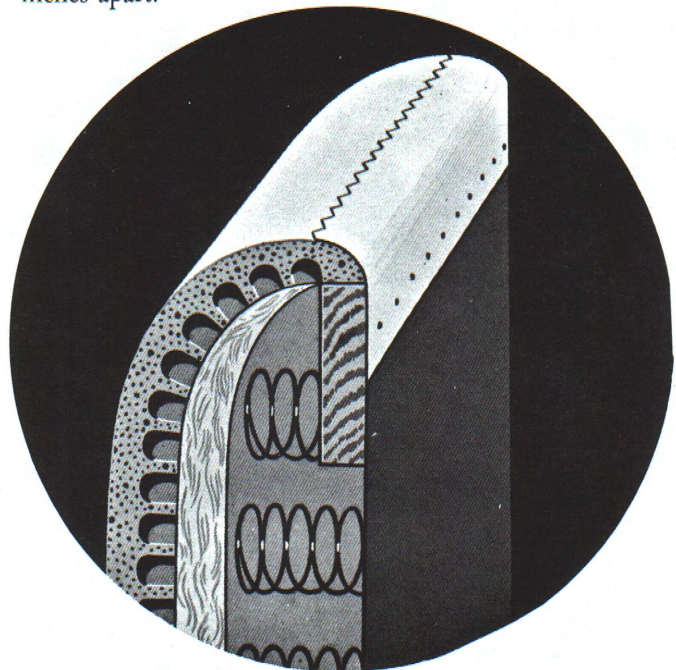
Molded cushions in a variety of sizes and shapes can be bought already shaped and ready to use.

Bases for Foam

Both Urethane and rubber foam may be used over any of these bases: (1) Coil or zig-zag springs covered with burlap or with burlap and a thin layer of padding (Fig. 36). (2) Interlaced strips of jute webbing about 1 inch apart and tacked to the top of chair frame (Fig. 37). If webbing must be spaced wider, use burlap under the foam. (3) Plywood, ¾ to ¾ inches thick with ¼ inch holes to permit air passage. Space holes about 3½ to 4 inches apart.



A. On seat.



B. On back

Fig. 36—Foam over springs and padding.



Fig. 37—Webbing base for foam.

Steps in Using Foam

1. **Make a Pattern** as a guide for cutting foam. Fit paper on area to be covered. Mark exact size, fitting it carefully around arms and posts (Fig. 21). Next draw an oversizing allowance on all sides of pattern. This extra size is needed to make the covering material fit snugly and stay in place. Amounts to add to all sides of the pattern are: (a) for slab foam on small pieces, $\frac{1}{4}$ inch all around; (b) for cored foam on chairs, and love seats, $\frac{1}{2}$ inch all around; (c) for larger two-cushioned davenports and built-ins, $\frac{3}{4}$ inch on all sides; (d) for full length davenports $2\frac{1}{2}$ inches on the length.

This oversizing allowance should be a little more for soft densities of foam and a little less for firm densities. For a rounded "cushion" edge (Fig. 39B) add an extra $\frac{1}{2}$ inch. Mark openings for arms and posts $\frac{1}{4}$ inch smaller than actual measurements to get a snug fit. Cut out pattern.

2. **Cut Foam**—Fasten pattern to smooth side of foam with adhesive or masking tape. Mark around pattern with an indelible pencil (first dampen the foam on the cutting line) or a ball point pen. Cut on

the outside of the marked line with sharp shears (6-inch blades preferred). Dampen shears for easy cutting.

Cut clear through foam which is $1\frac{1}{2}$ inches or less thick. To cut thicker pieces hold shears vertically and cut through the top inch only. Move to the edge of the table, spread, and cut through the lower part. For a beveled edge cut vertically first, then trim to desired contour. Smooth with sand paper if needed.

Reinforce rubber foam with strips of adhesive tape before making curved cut-outs for arms or posts. This is not needed on plastic foam. Lay strips of tape to extend at least 1 inch inside cutting line. Re-mark from pattern and cut through tape. For inside cuts with straight edges, reinforce cut edges with 1 inch strips of tape.

3. **Test Foam**—Put foam on chair to try out for comfort and appearance. Fasten to frame with adhesive tape where needed. If you want a more rounded or shaped effect you can add an extra piece of foam or other padding under the regular piece (Fig. 38). Cement or sew insert in place.

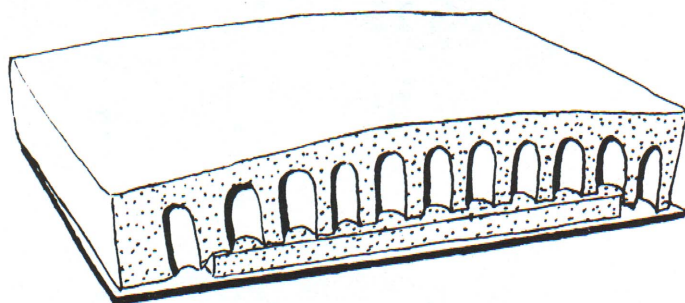
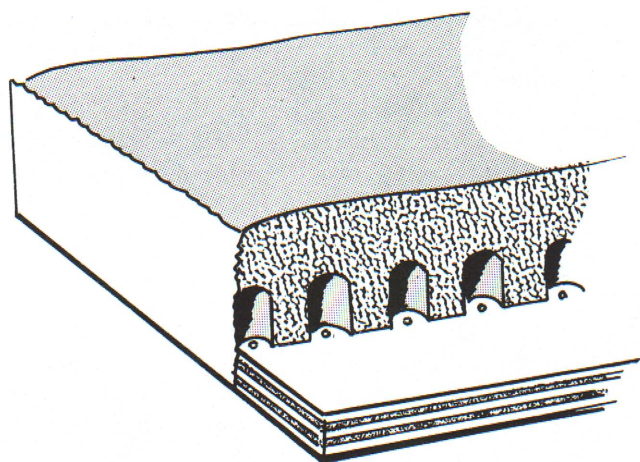


Fig. 38—Insert extra piece of foam to shape.

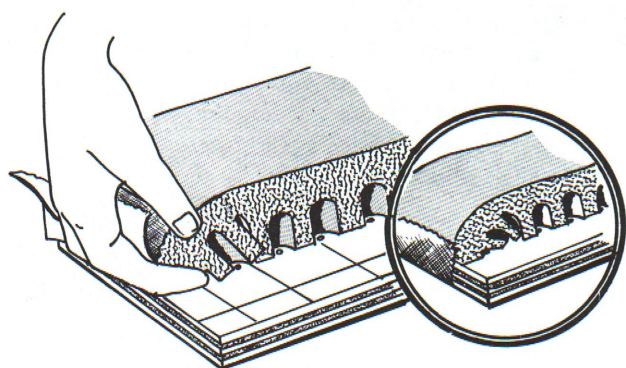
Save left-over pieces. They can be cemented together and used. Reinforce joinings with tape. You can use scraps for cushion stuffing or toys.

4. **Use a Tacking Strip**—A tacking strip is used on the edge of foam to reinforce it, to attach it to the frame or to shape the edge. A tacking strip can be used any of the three ways shown in Figure 39. You can buy a pressure sensitive tape or use strips of muslin 2, 3, or 4 inches wide attached with rubber cement. Spread a 1 inch band of cement on both the edge of the muslin and the edge of the foam. When the cement is tacky, put the two bands together. Pull the muslin slightly to keep it from wrinkling. If the edge of the foam is curved, snip the muslin to fit flat. Don't put the cemented edges under strain for several hours.

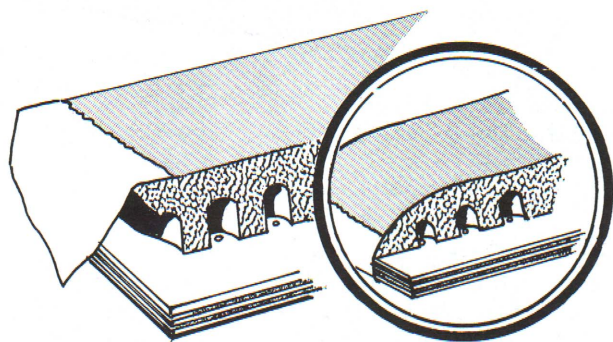
Tack foam to frame through tacking strips (Fig. 36, 37, 39, 40, and 41) using no. 3 or 4 tacks. Baste tack until shape is satisfactory.



A. Square edge



B. Cushion edge



C. Feathered edge

Fig. 39—Using tacking strip.

5. **Cement to Frame**—Flat pieces of foam may be cemented directly to chair. Spread a cross of cement in the center of the piece then a band of cement entirely around the edge. Apply cement to both edges, let set until tacky then press together. Press lightly until properly located then press firmly into place.
6. **Apply Cover**—Avoid fabrics that stretch excessively. Put a muslin cover over the foam if the outside cover has a high pile or is loosely woven. Plastic

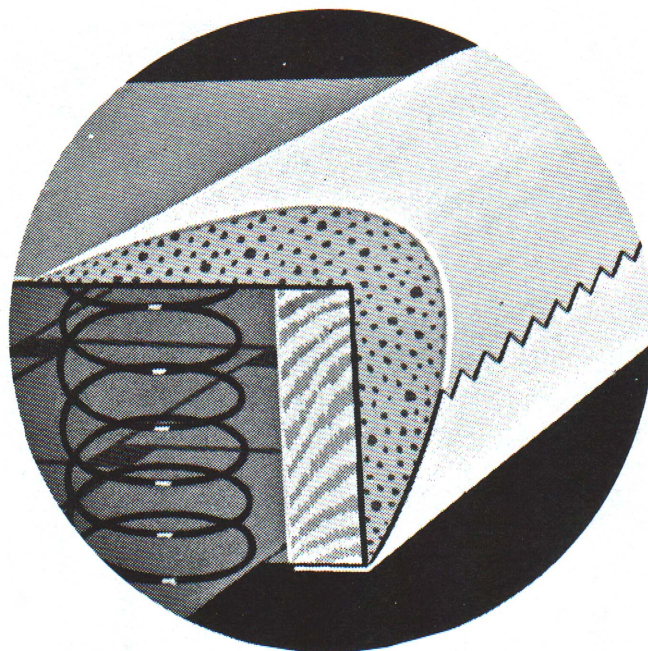


Fig. 40—Foam edge roll on seat.

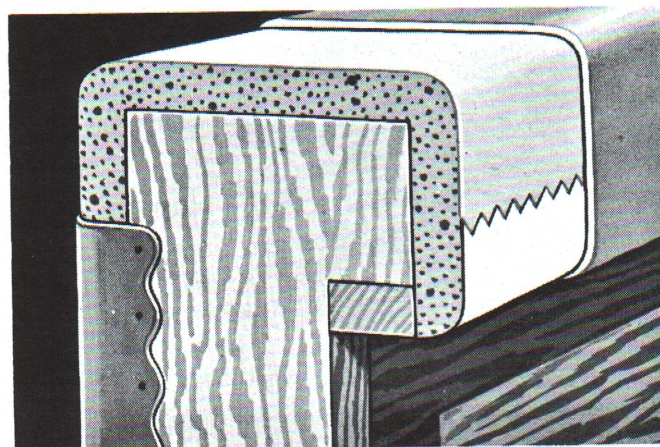


Fig. 41—Foam on chair arm.

covering deteriorates in direct contact with rubber padding. If plastic covering does not have a fabric back, use muslin between it and rubber foam. Other covering materials may be put directly over foam.

Using Separate Foam Cushions

Molded cushions may be bought in many sizes and shapes. If you are replacing a spring filled cushion, buy a new foam one $\frac{3}{4}$ to 1 inch longer and wider than the cord to cord cushion measurement. Make a fabric cover for a foam seat cushion $\frac{3}{4}$ to 1 inch *smaller* than the cushion.

Plan the Outer Cover

Before you start the outer cover, examine the chair and make any needed adjustments in the padding or muslin. Smooth or add extra filling if needed.

Lay old cover on the chair to check for size and for location of designs in the fabric. Plan to change the size or shape of the new cover to provide for changes you made in the thickness or shape of padding. An amateur will find it a little easier to cut the new cover a little larger than the old to give a margin of safety in fitting.

If you use a pile fabric, cut it so the direction of pile on the finished chair is from top to bottom and from back to front.

Block out on the new material all the main pieces so you can avoid waste in cutting. If you are to cover cording for seams, plan where you will cut strips for this use. If cording is to fit around curves it must be cut on the bias. If all seams are straight you can cut cording on the straight of the grain. Cut strips $1\frac{1}{2}$ inches wide.

Join strips for cording with a 45-degree angle seam as in Fig. 42. This lessens bulk at the seam. Press seams open. Stitch the strip over cotton welt cord. Use a cording foot on the sewing machine and stitch as close as possible to the cord.

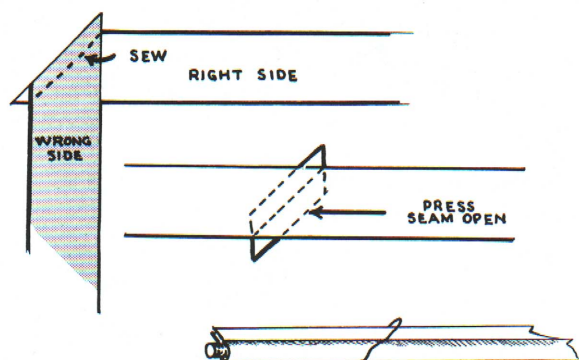


Fig. 42—Joining strips for cording.

When using the old cover for a pattern, match the lengthwise and crosswise grain on the new material. Draw the cutting line on the new material with chalk. Mark slashes from the old cover with chalk. Check them on the chair before you slash the new material.

If the new material has a stripe or design, be sure that both arms are alike, that large designs are centered on major pieces and that stripes on joining pieces match.

Putting On the Cover

Use the following method for putting the outer cover on a chair which has wood exposed around the bottom and a cording finish. Methods of putting covers on

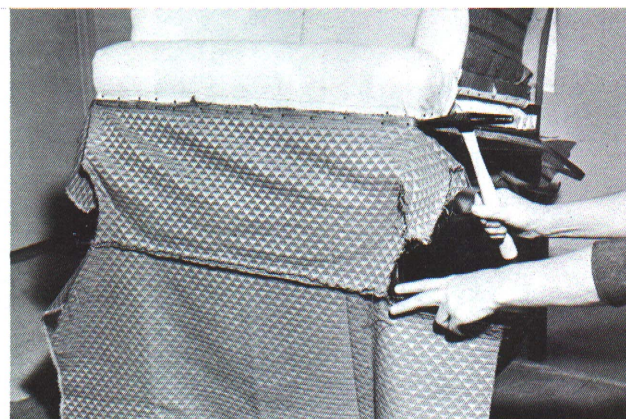


Fig. 43—Blind tack front seat edge.

other styles of chairs are described on pages 21 and 22.

Seat—First, tack cording just above the wood frame all around the bottom of the chair. Have the finished edge of the cording against the finished wood.

You can use denim or lining material for the part of the seat which is always covered with a cushion. You will need from $1\frac{1}{2}$ to 2 yards of this material so you can also use it for piecings and "stretchers." To fit the piece on the front of the seat, pin and then sew in darts at the front corners. Machine stitch the front to the back seat piece. Blind tack the lower edge of the seat front to the frame over the cording (Fig. 43). Use no. 6 tacks and tack through cardboard strips to make a smooth edge. Release the baste tacks that hold the inside arm and back to the seat frame. Pull the covering smoothly over the seat and tack it to the frame (Fig. 44.) Begin to tack on the center of each side and move toward corner posts. Slash material to fit smoothly around posts. If you don't cut far enough you can't stretch the material smoothly. If you cut too far you may leave a hole. Slashing and fitting material is one of the arts of upholstery that you learn from experience.

Fig. 44—Turn seat cover back and tack to frame under arms and back.

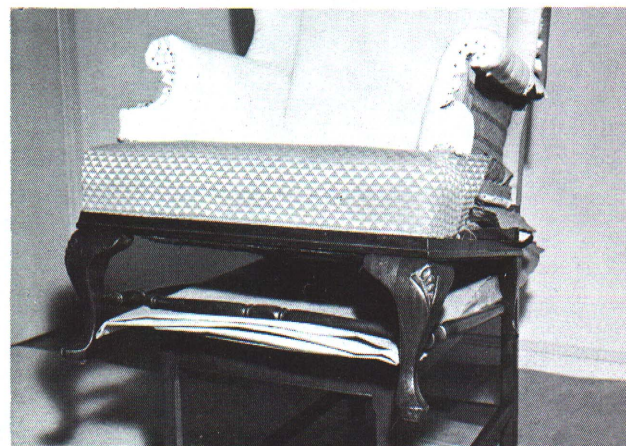




Fig. 45—Blind tack lower outside arm to frame.

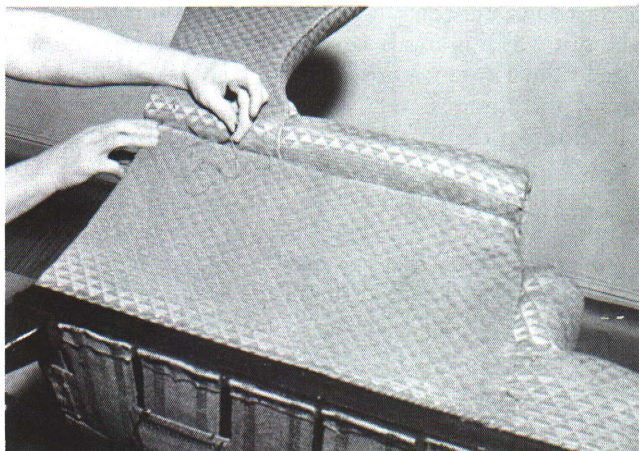


Fig. 46—Sew top of outside arm in place.

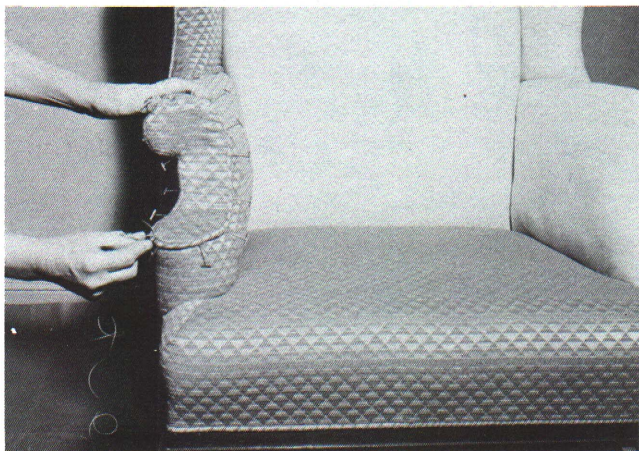


Fig. 47—Sew shaped panel on front of arm.

Inside Back, Arms and Wings—Put on the same way as you did the muslin undercover.

Outside Wing—Tack cording around the outer edge of the wings. Place cardboard in the lip of the cord to hold it in place. Bend cardboard and cording around gentle curves but snip them to lie flat around sharp corners. Locate outside wing cover and baste tack at two or three places to hold it temporarily. Trim and turn under $\frac{1}{2}$ " at the front edge where it joins the cord. Slip stitch this at the front edge where it joins the cord. Slip stitch this edge to the cord using a small curved needle and heavy duty sewing thread. Tack the back edge of the wing on the outside back of the chair and on the bottom edge where it will be covered by the outside arm. Repeat on the other wing. (Fig. 45)

Outside Arm—Test the fit of the outside arm pieces and mark the turn-under allowance at the bottom with pins. Blind tack the bottom with a cardboard strip as you did seat front (Fig. 45). Pin top and front edges in place. Sew with the small curved needle and heavy duty sewing thread (Fig. 46). Slash and cut away excess material to fit around curves. Tack back edge on the back of the frame.

Outside Back—Put on like the outside arm. You can attach the back with gimp tacks instead of sewing it.

Front Arm Panel—Tack cording around the edge of the front arm panel. Baste tack shaped piece of covering temporarily on arm panel. Turn under $\frac{1}{2}$ inch all around. Trim, slash and cut out to fit smoothly around curves. (Fig. 47) Blind stitch to cording with the curved needle.

Bottom of Chair—Tack a piece of dark cambric or denim over the bottom of the chair. Turn under the raw edges. Begin in the center of each side and work toward the corners. Keep the fold and tacks back at least $\frac{1}{4}$ inch from the outside edge.

Covering Separate Cushions

Directions for rebuilding the inner unit in a separate cushion are given in another Missouri bulletin. If you are to make only a new outer covering for the cushion use the old cover as a pattern. If the inside has been changed, the size of the outer covering may have to be changed also. Unless material ravel badly, use a $\frac{1}{2}$ inch seam allowance. Measure around the four sides of the cushion to find the length of the boxing you need. Cut boxing the depth of the cushion plus a $\frac{1}{2}$ inch seam allowance on both sides.

Cut the cushion on the straight of the material and center any design in the fabric. Mark the seam lines with chalk. Mark the center of each side of both the cushion top and bottom.

Baste the cording to both the cushion top and bottom, exactly on the marked seam line. Start at the mid-

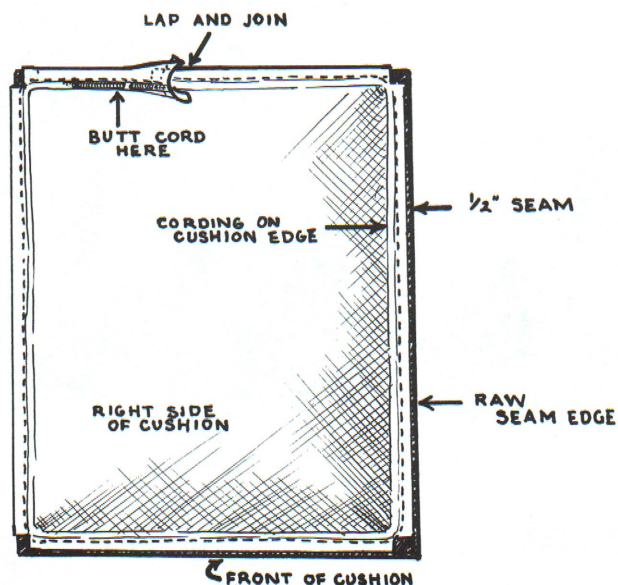


Fig. 48—Sew cord to cushion top and bottom.

dle of the back. Place the finished edge of the cording toward the inside of the cushion piece (Fig. 48). Clip cording to fit around sharp corners. To join ends of cording, rip open about 2 inches at each end. Cut off ends of inner cord so they butt where they meet. Pull one strip of cover over the joining. Fold other end back about $\frac{1}{2}$ inch and sew the two ends together (Fig. 48). Machine sew cording to cushion top and bottom.

Seam boxing strips together and press seams open. Check length of boxing by laying it around the cushion. Mark on the boxing the center point of each side of the cushion.

Have both cover and boxing wrong side out as you join them. (Fig. 49). Match the four center points of the boxing to the top of the cushion on the cording seam

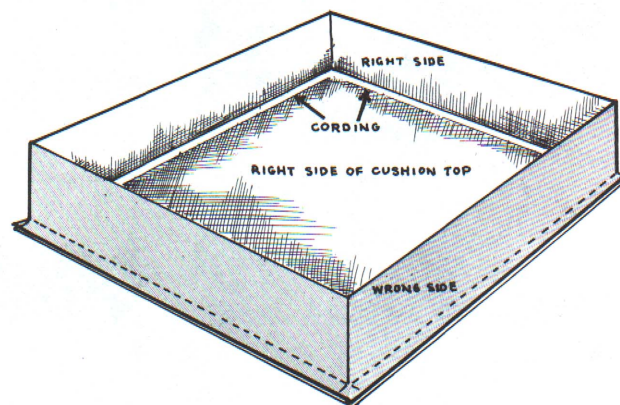


Fig. 49—Join boxing to cushion top.

line. Pin and baste boxing to the cover, working from the center to the corners. Ease in extra fullness at each corner. Machine stitch the boxing very close to the cording.

In the same way pin, baste and stitch the boxing to the bottom cover along the front and about $\frac{1}{3}$ of the way down each side. Leave the rest of the side and back open to insert the cushion unit. Turn the cover right side out, shaping corners from the inside. Press.

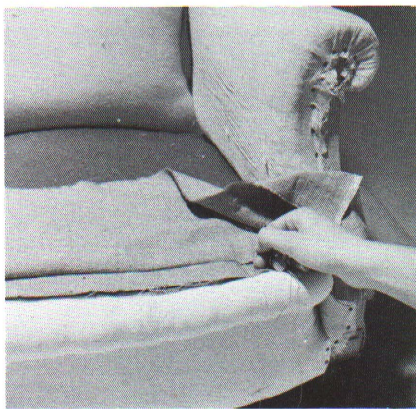
Place the cushion unit in the new cover. Turn down the seam allowance along the open section of boxing. Pin boxing to the seam line on cushion top with upholsterers' pins spaced about 1 inch apart. Ease in fullness at the corners. Blind stitch opening with heavy duty thread.

OTHER TYPES OF CHAIRS

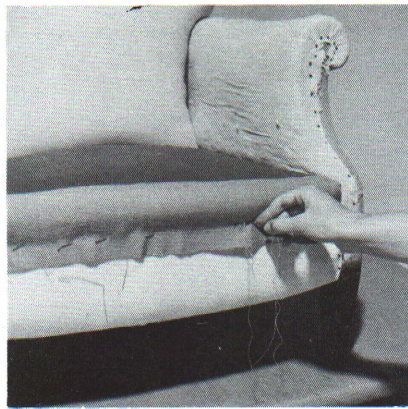
A Club or Easy Chair

The springs and padding for a club or easy chair are put on like those of the wing chair just described. Use the original method as a guide for putting on the outer cover. When there is *no* exposed wood around the bottom of the chair you attach covering on the outside of the chair at the *top* first. Fig. 50 shows how to put on front seat panel. Put on *inside* arm and back like the wing

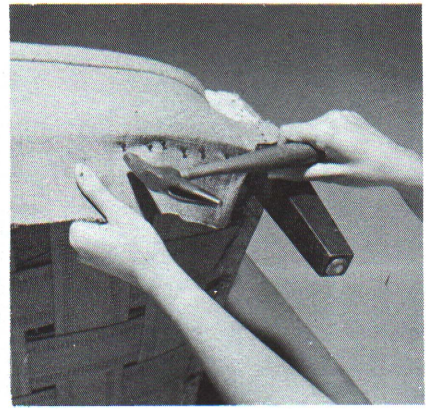
chair. Put on *outside* arm and back as follows: (1) tack trimming cord where needed on edges (Fig. 51), (2) blind tack sections of cover at top (Fig. 52 and 53), (3) turn down and stitch to cording on each side (Fig. 54), (4) tack under bottom of chair, (5) cover and attach front arm panel as in Fig. 47. Fig. 55 shows the completed chair.



A



B



C

Fig. 50—Putting front seat panel on club chair.

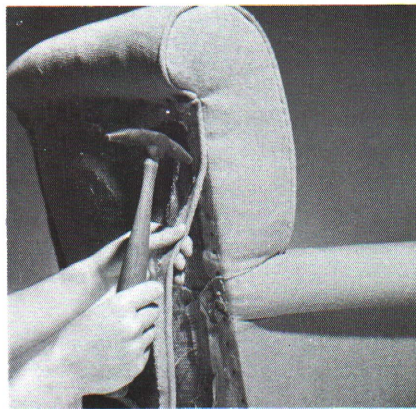


Fig. 51—Tacking cording on the back edge.

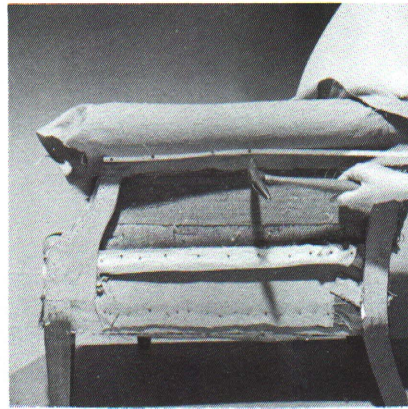


Fig. 52—Blind tacking outside arm.



Fig. 53—Blind tacking outside back at top.

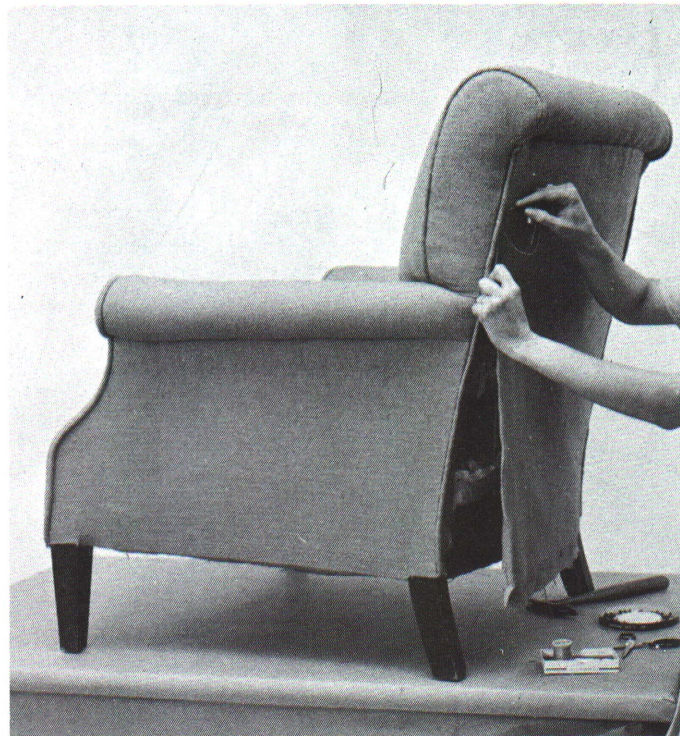


Fig. 54—Slip stitch outside back to cording.



Fig. 55—The finished club chair.



Fig. 56—The fireside chair. Webbing and springs in place, covered with burlap and hard edge roll put on.



Fig. 57—Moss padding sewed in place. Seat ready for cotton padding. Back webbing covered with burlap.



Fig. 58—Finished fireside chair.

Occasional Chairs

When you upholster occasional, Victorian or platform chairs use the basic processes described for putting on webbing and springs, tying and covering springs, making rolled edges or using moss, hair or foam padding. In general follow the original method used as you reupholster a chair. You may wish to add springs to chairs which did not have them. Or you may want to use foam padding on chairs that previously had spring cushions.

The fireside chair in Figs. 56, 57, 58 has a seat with springs on webbing. Springs are tied for a round top as in Fig. 20. The back is padded with a thick layer of moss

covered with upholsterers' cotton.

The Victorian chair (Figs. 59, 60, 61) has springs tied with return ties for a flat seat as in Figure 17. A hard edge roll is made on the seat. A gimp finishing braid will be used to cover the raw edge on the outside of the cover where it is tacked to the seat rail. When the outer cover is heavy and firm it is not necessary to turn the outer edge under when the gimp is used. Begin seat gimp at one back corner post. Begin gimp on the chair back at the center bottom. Begin gimp for the arm at the inside center of arm pads. You can tack gimp on with



Fig. 59—Burlap is slip tacked over the padding before stitching the hard roll around seat edge.



Fig. 60—Hard roll stitched on all four sides. Seat is flat.



Fig. 61—Cotton padding over burlap is covered with muslin. Seat is ready for outside covering.



Fig. 62—The platform rocker with webbing in place and springs completely tied for a flat seat.

Fig. 63—The finished platform rocker, showing gimp trim with brass upholstery nails.



evenly spaced gimp tacks. Gluing gimp on makes a smoother joining. Use gimp tacks at the start and at sharp corners. You can use a few baste tacks to hold gimp in place until the glue sets. Keep glue back from the edges of the gimp so it won't show from the top when it spreads.

Remove the platform from a *platform rocker* while you put on webbing. The rocker in Figs. 62 and 63 has a hard stitched edge roll on the seat. The original edge padding was saved and reused. Moss and cotton padding are used on the arms and back. Edges are finished with hammered brass upholstery nails. When you use decorative nails, baste tack the edge of the covering. Mark the spacing of the nails on a piece of cardboard. Hold the cardboard on the edge of the cover to find if any baste tacks must be moved so as not to interfere with the placing of the decorative nails. Use this same cardboard marker as a guide when you drive the decorative nails.

OUTER COVERING

Fabrics

In selecting an upholstery fabric consider where and how the chair will be used. The amateur must also decide whether he has the skill and equipment to use the kind of material desired.

Chairs which will have hard wear should be covered with material that is very durable and will resist soil or be easily cleaned. Wool, mohair and some of the man-made fibers such as nylon and the acrylics are very durable. Blends of these fibers with cotton may give satisfactory service at a reasonable price. Cotton wears well but needs a soil resistant finish if it is to be most serviceable. Rayon, acetate and silk are usually rather fragile. Plastic and leather, when properly put on, can be very durable and easily cleaned. They are hard for the inexperienced person to use if seams or cording must be sewed. Plastic must be properly cut and fit to prevent tearing.

Fabrics with a silicone or other water repellent finish resist water soluble soil. A patented finish put on by the manufacturer also resists oily soil. Soil resistant finishes are most effective when applied by the manufacturer. Some kinds can be put on by the dry cleaner, the upholsterer or at home.

The weave of the material affects its durability. Firm, closely woven materials made from tightly twisted yarns wear well. Loose weaves with long threads on the surface are easily pulled and soil more readily. Very heavy fabrics with special backing may be too heavy to sew with home sewing machines. Popular material for gener-

al use are tapestry, rib weaves, tweed, flat textures, novelty weaves, frieze and matelasse. More formal fabrics include brocades, satin weaves, damask and brocatelle.

Color fast materials are always to be preferred.

Color, design and type of weave should be in character with the size and type of chair, kind and color of wood and use and decoration of the room. Choose sturdy or formal fabrics to blend with the chair or place it is used. Consider the amount of pattern already in the room in deciding between a plain or patterned fabric. Patterned material shows soil less than plain. Tweeds and textures also resist soil without adding pattern which may be undesirable in a room.

FABRIC YARDAGE TABLE

Chair Style	No. of Loose Cushions	36" Fabric	50" to 54" Fabric
Wing	1	9 yards	5 yards
Wing	0	7 yards	4 yards
Club	1	8 yards	5 yards
Club	0	6 yards	4 yards
Wooden Arm	0	2 yards	1½ to 2 yards
Occasional (seat only)	0	7/8 yards	7/8 yards
Boudoir	1	5½ yards	3 yards
Boudoir	0	4 yards	2½ yards

Amounts of material given can be only approximate as types of chairs vary in size. You need a good cutting plan to avoid waste.

Plastic

Plastic upholstery materials are durable and easy to keep clean. Plastic may tear under strain, however, unless it is properly cut and applied. Home sewing machines often will not sew heavy plastic. Therefore, the home worker may be limited to using plastic for furniture covers which can be tacked on. If you are inexperienced

in handling plastic you should begin with a piece of furniture which has simple lines and few fitting problems.

You can get upholstery plastics with or without a fabric backing and in different weights. Those with a fabric backing are less likely to tear or puncture than those without. Backing may be either woven or knit fabric. Those with the knit backing are often called "elastic" plastic. This type stretches in both directions and is easier to tailor than the kind with a woven backing. Another kind is porous so that air can pass through it. The texture of this kind is similar to fabric.

Upholstery plastics come in many attractive colors and interesting textures, in heavy, medium and light weights. Heavy weights are usually used for public seating. Medium weights can be used over springs or deep cushioned padding. Light weights should be used only for flat work where high tear strength is not needed.

Steps in Using Plastic

Preparing the Foundation—Pad or round all sharp corners or edges of the furniture frame. This is necessary on leg or arm posts or back and seat corners. Padded surfaces should be fairly flat. It is hard to fit plastic on a high rounded crown without wrinkling. If you put a muslin cover over the padding it is easier to fit the outside plastic cover.

Cutting—Block out a paper pattern for each piece, adding a 1-inch seam or tacking allowance. Don't skimp the size. Mark around pattern pieces on the back of the plastic with a soft pencil or tailor's chalk. Instead of basting or pinning plastic, anchor it with adhesive or cellophane tape.

When cutting around an inner curve or recess always make a smooth curved cut. A pointed or angular cut will tear easily when stretched.

Always punch a hole at the end of a cut into plastic. The hole must be round and clean-cut and as large in diameter as practical (about 3/16 to 1/4 inch).

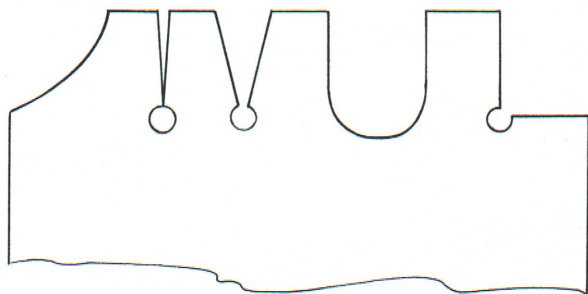
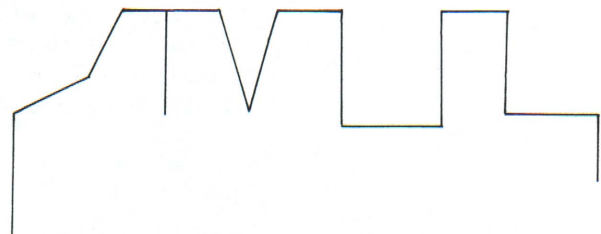


Fig. 64—Cut plastic like this . . .



Not like this . . .

Use a paper punch or an upholsterer's punch. Stop the cut back from the end. Punch the hole where the cut will end. Put the point of the scissors into the hole and cut out toward the first cut, don't try to cut into the hole as you may nick the opposite edge. Such a nick can start a tear. With unbacked plastic, reinforce points of unusual stress with fabric tape on back.

Fitting—Apply plastic upholstery in a warm room (65 to 80 degrees). Fit just tightly enough to remove wrinkles. Don't overstretch. Plastic with a woven fabric back stretches from selvage to selvage. Elastic plastic or the kind without a backing stretches both ways.

Tacking—Use tacks with round shanks and large flat heads. Drive tacks straight down. Don't let one edge of the head cut into the cover. Place tacks $\frac{3}{8}$ inch or more from the cut edge and keep in a straight row. On a straight edge keep tacks about 1 inch or more apart. To ease material into place on corners, space tacks $\frac{1}{4}$ to $\frac{1}{2}$ inch or more apart.

On plastic without a fabric back it is best to tack through a double thickness by folding material over at the edges. If you baste-tack (temporary tacking) be sure tacks are driven into a part that will be hidden.

Sewing—Do not sew by hand. Adjust sewing machine to 6 to 8 stitches per inch. Use a fine needle. Loosen tension and lighten pressure on the foot. Use mercerized or heavy duty cotton thread. Sew at least $\frac{3}{8}$ inch from the edge. Never backstitch or sew one row on the top of another. Stitch slowly. If plastic doesn't slide easily in the machine, dust with talcum powder.

Loose Cushion—Since most plastic is air tight you need to allow for intake and escape of air in cushions. The best way is to use fabric on two thirds of the bottom of the cushion. If you want a reversible cushion, use fabric for the boxing across the back of the cushion.

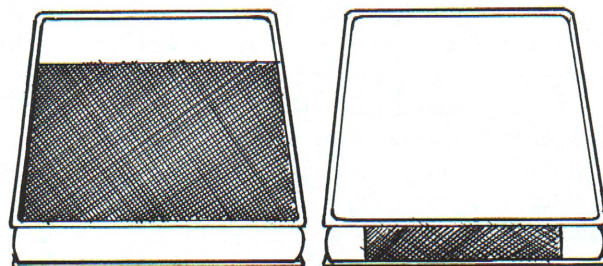


Fig. 65—Air intake for plastic covered cushions.

Plastic and Varnish

Some varnish and lacquer soften plastic. You can test the finish on your chair by tying your upholstery plastic on an inconspicuous place and leaving it for several days. If the plastic becomes sticky you should cover the wood with shellac at any point where it will touch the plastic.

Plastic With Rubber

Rubber discolors plastic and makes it brittle. If plastic covering does not have a fabric back, use cloth between it and foam rubber padding.

• • •

Illustrations reproduced by permission of:
Pennsylvania State University—Fig. 2, 4, 7 to 12, 17
to 20, 23, 25, 26, 28, 30 to 34, 43 to 47, 56 to 61.
Woman's Day Magazine—Figs. 50 to 55.
United States Rubber Co.—Fig. 37, 38.
Dunlop Tire and Rubber Corp.—Fig. 36, 40, 41.

Issued in furtherance of cooperative extension work, acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. G. S. McIntyre, Director, Cooperative Extension Service, Michigan State University, East Lansing, Mich., 48823.

