HOME TRAINING IN CABINET WORK: PRACTICAL TALKS ON STRUCTURAL WOOD WORKING: SEVENTH OF THE SERIES.

OUR suggestion in the August CRAFTSMAN that requests be sent in for the models and explanations most needed by those interested in Home Training in Cabinet Work has met with prompt and practical response, with the result that in the present number all our space available for this topic will be devoted to explanations asked for by our correspondents, and the two models given are also in response to requests.

It will be remembered that in July we published in this series an article treating of the texture and qualities of our native woods. Of this, a correspondent interested in cabinet-making says: "This article was just what I have been in search of for some time, but it did not go far enough into detail for the uninitiated. The part about which I am ignorant is the treatment of woods in order to get these modern effects."

The subject of wood finishing in general is much too long to be adequately treated within the limits of the space available in a single number of THE CRAFTSMAN, but the division of woods into classes, each of which is susceptible to certain methods of finishing which apply with nearly equal advantage to all the woods in the class designated, makes it a simple matter to take up in detail these sections one by one, until methods and formulae have been given for the treatment of all woods in general use.

Among the easily obtained native woods used for cabinet making and interior house trim, white oak, chestnut, ash and elm come into one class as regards treatment. All of these woods have a strong, well-defined grain, and are so alike in nature that they are all affected in much the same way by the same process or method of finishing. This class of woods has been selected as the subject of the present article, and we will endeavor to make clear to our readers such of our methods of finishing them as may be of practical use to the inexperienced worker. It must be stated, however, that the formulae and instructions given here are not those which would be practicable in a large factory, where great quantities of furniture are to be turned out at low cost, but are addressed to those who take up cabinet making on a smaller scale, or who wish to learn how to obtain a desirable effect in the finish of interior trim. The best effects are to be obtained only by a comparatively expensive and laborious process, which necessarily demands a personal interest and energy on the part of the worker. And also it should be understood that our methods of finishing are for the purpose of getting the best possible results from the wood itself as well as the most pleasing effect in completing the color scheme of a room, and never for the purpose of imitating a more costly wood in the finish of a cheaper one. The beauty of each wood is peculiarly its own, and the sole aim of our finishing is to show that beauty to the best advantage.

That a clearer understanding may be given of the effects we try to obtain with the finishes to be described later, it seems best first to explain the method in ordi-

nary use in furniture and other woodworking establishments, where naturally the effort is made to get the most showy and commercially finished results from the least possible expenditure of time and material. In such cases the wood is first "filled" with a prepared wood filler made from a very finely ground silex. When this preparation is carefully rubbed into the pores, the surface of the wood becomes as smooth and even as glass. After the filler has become thoroughly dry, the wood is varnished and rubbed, and either polished to a mirror-like brilliancy or left "in the dull." This destroys the texture by covering it with an enamel that completely alters its character. Whether dull or polished, the woodiness of texture that is so interesting has given place to an artificial smoothness of surface that passes for fineness of finish and that makes all wood alike to the touch.

It is easy to finish wood in this way and yet leave it natural in color, if desired, for the filler made from silex is colorless. If a darker or different color is required, the pigment is usually mixed with the filler. This gives a finish in which the figure of the wood is made very prominent, for the reason that, when the color is carried on in that way, the pigment does not penetrate the glassy surface of the pith ray or figure, and is rubbed off by the same operation that rubs it into the softer parts of the wood. This effect is much sought after in showy furniture, where a highly emphasized figure is considered very desirable, but it is just what we seek most earnestly to avoid, as the figure in the woods mentioned above is already so strong that it needs to be subdued by an even tone rather than heightened by a marked contrast.

Of the woods in the class we are discussing now, oak and chestnut are the only ones affected by the fumes of ammonia. As was discovered some years ago by the use of oaken beams and panelling in the woodwork of fine stables, the effect of ammonia on this wood is to produce quickly the mellow darkness of hue that formerly was supposed to come from age alone. Careful experiment showed that this effect resulted from a certain affinity between the tannic acid in the wood and the ammonia with which the air was heavily charged, and that the same result could be artificially produced by subjecting to the fumes of strong ammonia any wood which contained a sufficient percentage of tannin. This process is the only one known that acts upon the glassy pith rays as well as the softer parts of the wood, coloring all together in an even tone so that the figure is marked only by its difference in texture. This result can not be accomplished by stains, and for this reason we always subject these woods to more or less fuming before applying a stain.

In fuming woods the best results are obtained by shutting the piece into an airtight box or closet, on the floor of which has been placed a shallow dish containing liquor ammonia (26 per cent). The length of time required to fume to a good color depends largely upon the tightness of the compartment, but as a rule forty-eight hours is enough. Where fuming is not practicable, as in the case of a piece too large for any available compartment, or of the trim of a room, a satisfactory result can be obtained by applying liquor am-

monia (26 per cent) direct to the wood with a sponge or brush. In either case, the wood must be in its natural condition when treated, as any previous application of oil or stain would prevent the ammonia from taking effect.

After the wood is thoroughly dry from the first application, sandpaper it carefully with fine sandpaper, then apply another coat of ammonia and sandpaper as before.

Some pieces fume much darker than others, according to the amount of tannin left free to attract the ammonia after the wood has been kiln-dried. Where any sapwood has been left on, that part will be found unaffected by the fumes. To meet these conditions, it is necessary to make a "touch-up" to even up the color. This is done by mixing Vandyke brown, ground in japan, with German lacquer, commonly known as "banana liquid," and adding a very little lampblack, also ground in japan. The mixture may be thinned with wood alcohol to the right consistency for use, and the color of the piece to be touched up will decide the proportion of black to be added to the brown. In touching up the lighter portions of the wood, the stain may be smoothly blended with the dark tint of the perfectly fumed parts by rubbing along the line where they join with a piece of soft, dry cheesecloth, closely following the brush. If the stain should dry too fast and the color is left uneven, dampen the cloth slightly with alcohol.

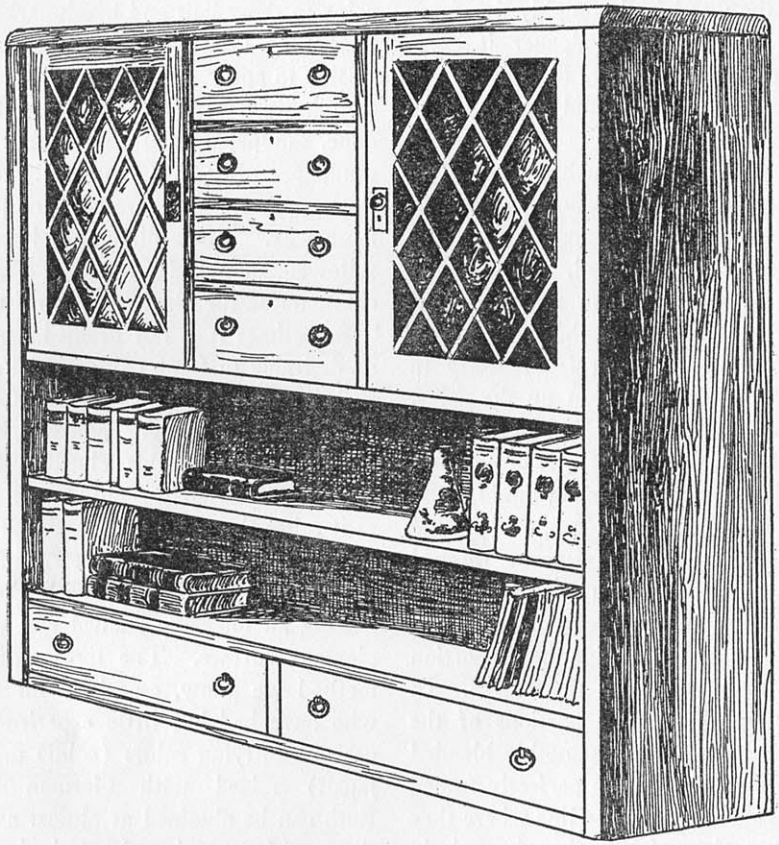
After fuming, sandpapering and touching up a piece of furniture, apply a coat of lacquer made of one-third white shellac and two-thirds German lacquer. If the fuming process has resulted in a shade dark enough to be satisfactory, this lacquer may be applied clear, if not, it may be darkened by the addition of a small quantity of the stain used in touching up. Care must be taken, however, not to add enough color to show laps and brushmarks. The danger of this makes it often more advisable to apply two coats of lacquer, each containing a very little color. If this is done, sandpaper each coat with very fine sandpaper after it is thoroughly dry, and then apply one or more coats of prepared floor wax. These directions, if carefully followed, should give the same effects that characterize the Craftsman furniture.

Sometimes it is not deemed practicable or desirable to fume oak or chestnut. In such a case a finish may be used for which directions will be given, and which applies to all woods in this class. For these woods a water stain should never be used, as it raises the grain to such an extent that in sandpapering to make it smooth again the color is sanded off with the grain, leaving an unevenly stained and very unpleasant surface. The most satisfactory method we know, especially for workers who have had but little experience, is to use quick-drying colors (colors ground in japan) mixed with German lacquer. Both can be obtained at almost any paint shop. After getting the desired shade of the color chosen, apply as quickly as possible, as it dries very rapidly. It is best to cover a small portion of the surface at a time, and then go over it with a soft, dry cloth, to "even it up" before it dries. When it is ready for the final finish, apply a coat of white shellac, sandpaper carefully and apply one or more coats of wax.

HOME TRAINING IN CABINET WORK

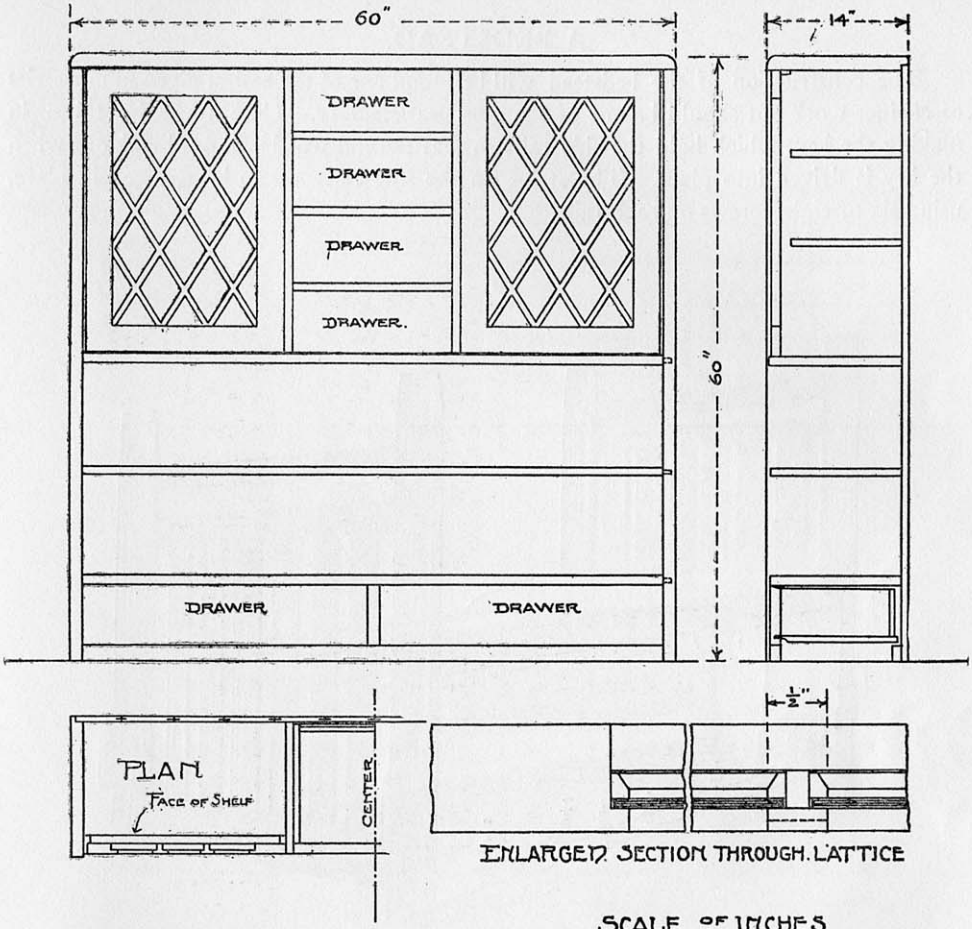
A BOOKCASE

THIS piece is designed to hold things as well as books. The top is fastned in place by half inch dowells placed not farther than three inches apart. The shelves are tenoned and the sides rabbited to within one and one-half inches of the front to receive them. The construction of the lattice as shown on the plans is as follows: The 3-16 inch stock for the face is halved at the intersecting points and on the backs are glued the 3-16 inch x 5-16 inch strips.



MILL BILL FOR BOOKCASE

Pieces	No.	Rough Long	Rough Wide	Rough Thick	Finish Wide	Finish Thick
Sides	2	62 in.	$14\frac{1}{2}$ in.	$1\frac{1}{4}$ in.	14 in.	$1\frac{1}{8}$ in.
Top	1	62 in.	$14\frac{1}{2}$ in.	$1\frac{1}{4}$ in.	14 in.	$1\frac{1}{8}$ in.
Back	12	62 in.	$5\frac{1}{2}$ in.	1 in.	5 in.	$\frac{3}{4}$ in.
Shelves	3	62 in.	$13\frac{1}{2}$ in.	1 in.	13 in.	$\frac{3}{4}$ in.
Shelves	4	22 in.	12 in.	1 in.	11 in.	$\frac{3}{4}$ in.
Drawer rails	3	18 in.	14 in.	1 in.	13 in.	$\frac{3}{4}$ in.
Base strip	2	62 in.	2 in.	1 in.	$1\frac{3}{4}$ in.	$\frac{7}{8}$ in.
Partitions	2	30 in.	14 in.	1 in.	$13\frac{1}{2}$ in.	$\frac{3}{4}$ in.
Door stiles	4	30 in.	3 in.	1 in.	$2\frac{1}{2}$ in.	$\frac{7}{8}$ in.



DESIGN FOR A BOOKCASE.

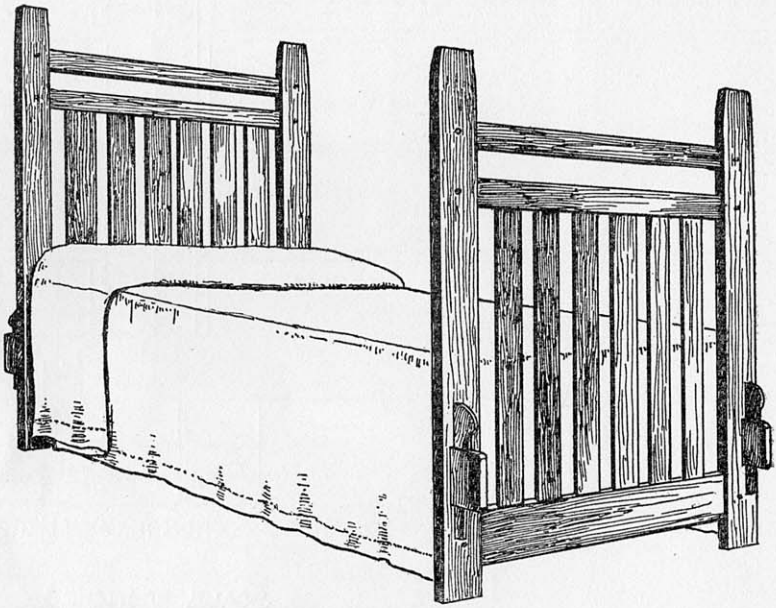
SCALE OF INCHES
0 3 6 9 12 18 24 30

Door rails	4	22 in.	3 in.	1 in.	$2\frac{1}{2}$ in.	$\frac{7}{8}$ in.
Lattice	4	29 in.	$\frac{3}{4}$ in,	$\frac{1}{4}$ in.	$\frac{1}{2}$ in.	$\frac{3}{16}$ in.
Lattice	8	22 in.	$\frac{3}{4}$ in.	$\frac{1}{4}$ in.	$\frac{1}{2}$ in.	$\frac{3}{16}$ in.
Lattice	8	12 in.	$\frac{3}{4}$ in.	$\frac{1}{4}$ in.	$\frac{1}{2}$ in.	$\frac{3}{16}$ in.
Drawer fronts	4	18 in.	$6\frac{1}{2}$ in.	1 in.	6 in.	$\frac{3}{4}$ in.
Drawer fronts	2	30 in.	$6\frac{1}{2}$ in.	1 in.	6 in.	$\frac{3}{4}$ in.
Drawer backs	4	18 in.	$5\frac{1}{2}$ in.	$\frac{3}{4}$ in.	5 in.	$\frac{1}{2}$ in.
Drawer backs	2	30 in.	$5\frac{1}{2}$ in.	$\frac{3}{4}$ in.	5 in.	$\frac{1}{2}$ in.
Drawer bottoms	4	18 in.	13 in.	$\frac{3}{4}$ in,	$12\frac{1}{2}$ in.	$\frac{1}{2}$ in.
Drawer bottoms	2	30 in.	13 in.	$\frac{3}{4}$ in.	$12\frac{1}{2}$ in.	$\frac{1}{2}$ in.
Drawer partitions	1	14 in.	$6\frac{1}{2}$ in.	$1\frac{1}{4}$ in.	6 in.	$1\frac{1}{8}$ in.
Door stops	2	22 in.	1 in.	$\frac{1}{2}$ in.	$\frac{7}{8}$ in.	$\frac{1}{4}$ in.
Glass stops	4	24 in.	$\frac{3}{8}$ in.	$\frac{1}{4}$ in.	$\frac{3}{16}$ in.	$\frac{1}{8}$ in.
Glass stops	4	16 in.	$\frac{3}{8}$ in.	$\frac{1}{4}$ in.	$\frac{3}{16}$ in.	$\frac{1}{8}$ in.
Drawer guides	14	14 in.	2 in.	1 in.	$1\frac{1}{2}$ in.	$\frac{3}{4}$ in.

HOME TRAINING IN CABINET WORK

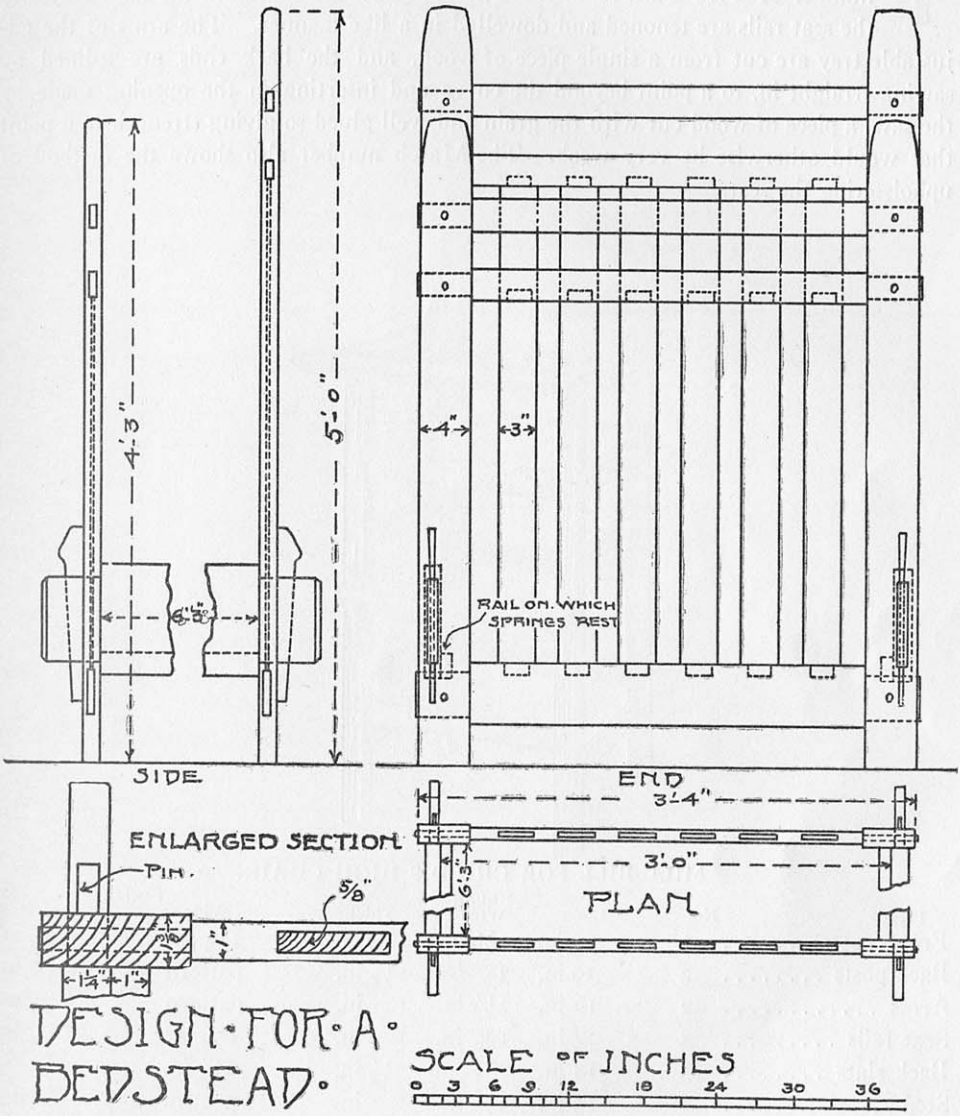
A BEDSTEAD.

The construction of the bedstead will be found one of the easiest given in our series of cabinet work but should be one of the most satisfactory. Care must be taken in making the keys which hold the side rails so that the end wood will not break out when the key is driven into place. The strips on the side rails are to be screwed in place, using six or eight screws on each rail.



MILL BILL FOR BEDSTEAD

Piecec	No.	Long	Rough Wide	Rough Thick	Finish Wide	Finish Thick
Posts	2	62 in.	$4\frac{1}{2}$ in.	$1\frac{1}{2}$ in.	4 in.	$1\frac{3}{8}$ in.
Posts	2	53 in.	$4\frac{1}{4}$ in.	$1\frac{1}{2}$ in.	4 in.	$1\frac{3}{8}$ in.
Side rails	2	87 in.	$9\frac{1}{2}$ in.	$1\frac{1}{2}$ in.	9 in.	$1\frac{1}{4}$ in.
Side rail strips	2	77 in.	$2\frac{1}{2}$ in.	$1\frac{1}{4}$ in.	3 in.	1 in.
Top rails	4	42 in.	3 in.	$1\frac{1}{4}$ in.	$2\frac{1}{2}$ in.	1 in.
Lower rails	2	42 in.	$5\frac{1}{2}$ in.	$1\frac{1}{4}$ in.	5 in.	1 in.
Foot ballusters	6	32 in.	$3\frac{1}{2}$ in.	$\frac{3}{4}$ in.	3 in.	$\frac{5}{8}$ in.
Head ballusters	6	42 in.	$3\frac{1}{2}$ in.	$\frac{3}{4}$ in.	3 in.	$\frac{5}{8}$ in.

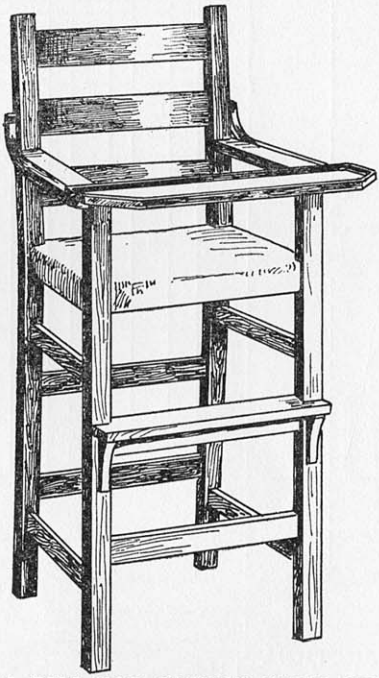


DESIGN FOR A BEDSTEAD

HOME TRAINING IN CABINET WORK

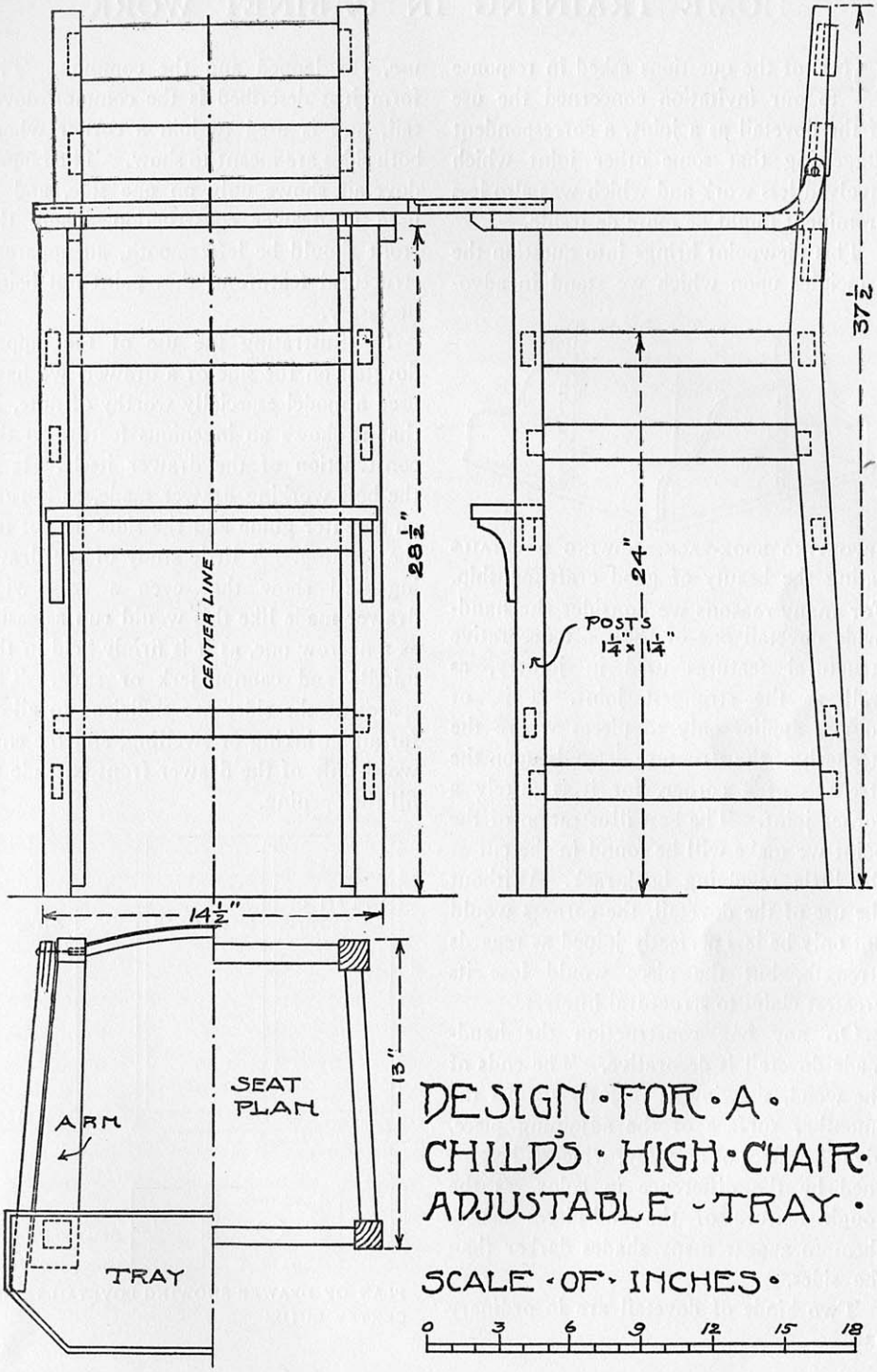
CHILD'S HIGH CHAIR

THE construction of this chair is very similar to the arm chair given in the March number of THE CRAFTSMAN. The back slats are curved in the same way and the seat rails are tenoned and dowelled in a like manner. The arms of the adjustable tray are cut from a single piece of wood, and the back ends are splined by sawing straight in, to a point beyond the curve and inserting in the opening made by the saw, a piece of wood cut with the grain and well glued so giving strength to a point that would otherwise be very weak. The March number also shows the method of upholstering the seat.



MILL BILL FOR CHILD'S HIGH CHAIR.

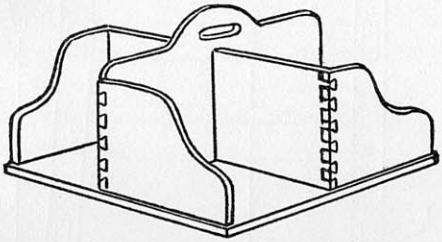
Pieces	No.	Rough Long	Rough Wide	Rough Thick	Finish Wide	Finish Thick
Front posts	2	30 in.	1½ in.	1½ in.	1¼ in.	1¼ in.
Back posts	2	39 in.	3 in.	1½ in.	pattern	1¼ in.
Arms	2	16 in.	2½ in.	1 in.	pattern	¾ in.
Seat rails	4	14 in.	1¾ in.	1 in.	1½ in.	¾ in.
Back slats	3	14 in.	2½ in.	½ in.	2¼ in.	⅜ in.
Step	1	15 in.	3½ in.	1 in.	3 in.	¾ in.
Side stretchers	4	15 in.	1½ in.	¾ in.	1½ in.	½ in.
F. and B. stretchers	4	15 in.	1½ in.	¾ in.	1¼ in.	½ in.
Brackets	2	5 in.	2½ in.	1 in.	pattern	¾ in.
Tray	1	20 in.	6½ in.	½ in.	6 in.	⅜ in.
Tray strips	4	20 in.	½ in.	⅜ in.	⅜ in.	¼ in.
Tray Arms	2	16 in.	4 in.	¾ in.	pattern	⅝ in.


CENTER LINE
28½"
14½"
24"
POSTS
1¼" × 1¼"
37½"
SEAT PLAN
ARM
TRAY
13"
DESIGN · FOR · A ·
CHILD'S · HIGH · CHAIR ·
ADJUSTABLE · TRAY ·
SCALE · OF · INCHES ·
0 3 6 9 12 15 18

HOME TRAINING IN CABINET WORK

ONE of the questions asked in response to our invitation concerned the use of the dovetail as a joint, a correspondent suggesting that some other joint which involved less work and which was also less prominent might be more desirable.

This viewpoint brings into question the principles upon which we stand in advocating the beauty of good craftsmanship. For many reasons we consider the hand-made dovetail one of the most decorative structural features used in joinery, as well as the strongest joint. This, of course, applies only to pieces where the strength of the structure depends upon the strength of a corner, for it is purely a corner joint. The best illustration of the point we make will be found in the cut of the little revolving book-rack. Without the use of the dovetail, the corners would not only be less perfectly joined as regards strength, but the piece would lose its greatest claim to structural interest.

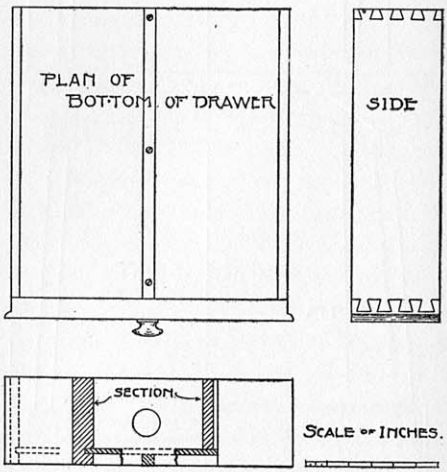


REVOLVING BOOK-RACK SHOWING DOVETAILS

On any box construction the hand-made dovetail is decorative. The ends of the wood, showing as they do against the smoother surface of the adjoining piece, give the effect of an inlay, which is heightened by the difference in color, as the rough texture of the end-pieces causes them to appear many shades darker than the sides.

Two kinds of dovetail are in ordinary use, the lapped and the common. The form just described is the common dovetail, and is used to join a corner where both sides are meant to show. The lapped dovetail shows only on one side, and is used in drawer construction, where the front should be left smooth, an apparent structural feature at that point not being necessary.

In illustrating the use of the lapped dovetail on the side of a drawer, we have used a model especially worthy of note, in that it shows an ingenious feature in the construction of the drawer itself. It is the best working drawer made, as it runs on a center guide and the sides do not fill the opening. A little study of the drawing will show that even a very wide drawer made like this would run as easily as a narrow one, as it is firmly held in the middle and cannot jerk or stick. The spaces at the sides are sufficient to allow for all shrinking or swelling, and the end-wood only of the drawer front is made to fill the opening.



PLAN OF DRAWER SHOWING DOVETAILS AND CENTER GUIDE