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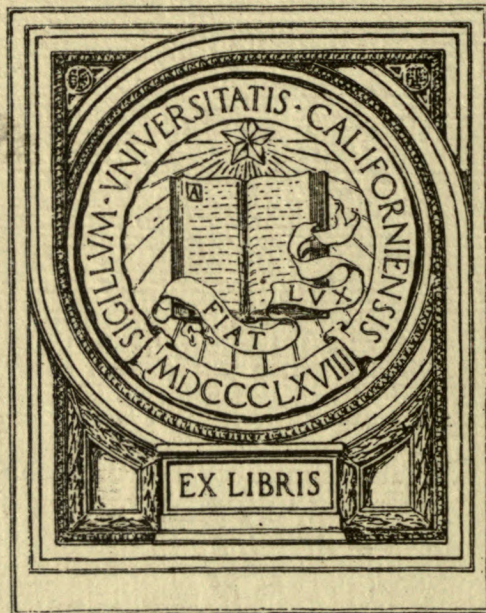
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MANUAL TRAINING IN THE GRADES

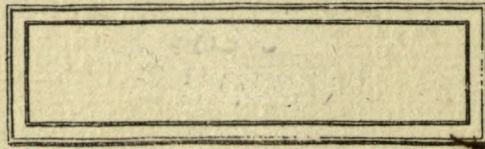
FRANK HALSTEAD



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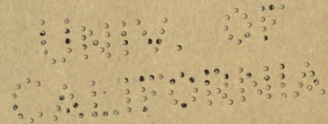


MANUAL TRAINING IN THE GRADES

BY

FRANK HALSTEAD

Supervisor of Manual Training and Mechanical Drawing
in the Schools of East Orange, N. J.



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TO THE
AMERICAN

INTRODUCTORY NOTE

The following courses in Manual Training for the 5th, 6th, 7th and 8th grades were prepared after eight years of careful study, during which time the author visited over 250 cities and towns in the New England States, New York and New Jersey.

The courses are arranged progressively and presented in as clear and simple a way as possible, — the drawings themselves being self-explanatory.

For the many teachers who are obliged to follow a required course, but who are allowed to introduce supplementary or optional models, as well as for those instructors who have more liberty and who are able to make such changes as they

see fit, these courses will be found readily adaptable to any schedule already in use.

The instructor's outlines have been included, as the author has found it most advantageous to give his assistants an outline to work by.

The author has provided four different models for each progressive step in the courses — that is, four models which illustrate the different tools under each principle, thus giving the pupil a wider choice where desirable, and the instructor who has to teach the same grade of pupils during an entire year most practical assistance.

FRANK HALSTEAD.
East Orange, N. J., September, 1913.

MANUAL TRAINING IN THE GRADES

GENERAL OUTLINE OF WORK

FIFTH GRADE

FIRST WEEK — MODEL NO. I.

THEORY (*ten minutes*).

1. Object of hand work in wood.
2. Tools used in making first exercise.
3. Measuring, the use of the rule, knife, and pencil.
4. Use of the try-square.

PRACTICE.

Sawing out stock.

NOTE: Draw outline on both surfaces.

SECOND WEEK — MODEL NO. I, (*continued*).

THEORY (*ten minutes*).

1. Tools.
 - (a) Smoothing plane.
 - (b) Block plane.
 - (c) Marking gauge.
 - (d) Backsaw.
 - (e) Bit and bit brace.
2. Use of compass and dividers.

PRACTICE.

1. Planing a square edge of wood.
2. Use of carpenters' marks.
3. Drawing, gauging, and planing stock to dimensions.

THIRD WEEK — MODEL NO. I, (*continued*).

THEORY (*ten minutes*).

Use of coping saw.

PRACTICE.

1. Draw outline, using compass.
2. Using coping saw, cut to line.

FOURTH WEEK — MODEL NO. I, (*continued*).

THEORY (*ten minutes*).

1. Discussion of grain of wood.
2. Cutting with and across grain.

PRACTICE.

1. Finish sawing wood.
2. Cut to line with knife.

FIFTH WEEK — MODEL NO. I, (*continued*).

THEORY (*ten minutes*).

1. Methods of securing and getting out lumber.
2. Sandpaper; its uses and abuses.

PRACTICE.

1. Sandpaper stock, with or without the use of a sandpaper block.
2. Finish model.
Glue on sandpaper.

SIXTH WEEK — MODEL NO. 2.

THEORY (*ten minutes*).

1. Discussion of wood.
Bass wood. Linden tree.
2. Discussion of the rip saw.

PRACTICE.

Saw stock, using carpenter's square.

SEVENTH WEEK — MODEL NO. 2, (*continued*).

THEORY (*ten minutes*).

Discussion of wood.
White wood, tulip tree.

PRACTICE.

Plane model square and true to dimensions.

EIGHTH WEEK — MODEL NO. 2, (*continued*).

THEORY (*ten minutes*).

Discussion of saws.
Crosscut saw.

PRACTICE.

1. Draw outline of model
2. Saw with back- and rip saw to gauge and knife line.

NINTH WEEK — MODEL NO. 2, (*continued*).

THEORY (*ten minutes*).

Short discussion of stains and shellacs.

PRACTICE.

1. Finish model.
2. Sandpaper and shellac.

TENTH WEEK — MODEL NO. 3.

THEORY (*ten minutes*).

Discussion of woods.
Pines, white, etc.

PRACTICE.

Saw out stock.

ELEVENTH WEEK — MODEL NO. 3, (*continued*).

THEORY (*ten minutes*).

1. Discussion of planes, smoothing and jack.
2. Woods. White oak.

PRACTICE.

Square stock to dimensions.

TWELFTH WEEK — MODEL NO. 3, (*continued*).

THEORY (*ten minutes*).

Discussion of drills and countersinks.

PRACTICE.

1. Lay out and mark center lines for holes.
2. Drill holes and countersink.
3. Draw lines for chamfer, using finger-gauge.

THIRTEENTH WEEK — MODEL NO. 3, (*continued*).

THEORY (*ten minutes*).

Discussion of planes.
Block.

PRACTICE.

1. Chamfer edges.
2. Plane and sandpaper model.

FOURTEENTH WEEK — MODEL NO. 4.

THEORY (*ten minutes*).

Discussion of woods.
Hard and soft.

PRACTICE.

1. Saw out stock.
2. Plane to dimensions.

FIFTEENTH WEEK — MODEL NO. 4, (*continued*).

THEORY (*ten minutes*).

Discussion of woods.
Mahogany.

PRACTICE.

1. Draw design, using compass.
2. Cut to line with knife.
3. Whittle edges of blade.

SIXTEENTH WEEK — MODEL NO. 4, (*continued*).

THEORY (*ten minutes*).

Structure of wood.
Products.

PRACTICE.

1. Sandpaper model.
2. Stain and finish.

SEVENTEENTH WEEK — MODEL NO. 5.

THEORY (*ten minutes*).

Structure of wood.

PRACTICE.

Saw out stock.

EIGHTEENTH WEEK — MODEL NO. 5, (*continued*).

THEORY (*ten minutes*).

Structure of wood.
Pith.

PRACTICE.

Plane model square and true to dimensions.

NINETEENTH WEEK — MODEL NO. 5, (*continued*).

THEORY (*ten minutes*).

1. Structure of wood.
Layer of wood.
2. Use of miter box.

PRACTICE.

1. Draw outline of model.
2. Cut edges.

TWENTIETH WEEK — MODEL NO. 5, (*continued*).

THEORY (*ten minutes*).

1. Structure of wood.
Bark.
2. Use of auger bit.

PRACTICE.

File curved corners.

TWENTY-FIRST WEEK — MODEL NO. 5, (*continued*).

THEORY (*ten minutes*).

Structure of wood.
Annual rings.

PRACTICE.

1. Lay out center lines.
2. Bore holes.

TWENTY-SECOND WEEK — MODEL NO. 5, (*continued*).

THEORY (*ten minutes*).

Structure of wood.
Sap wood.

PRACTICE.

Sandpaper and finish model.

TWENTY-THIRD WEEK — MODEL NO. 6.

THEORY (*ten minutes*).

Structure of wood.
Heart wood.

PRACTICE.

1. Plane stock square and true to dimensions.
2. Sandpaper same.

TWENTY-FOURTH WEEK — MODEL NO. 6, (*continued*).

THEORY (*ten minutes*).

1. Structure of wood.
Medullary rays.
2. Use of gouge.

PRACTICE.

1. Chamfer edges of wood.
2. Gouge out hole for wax.

TWENTY-FIFTH WEEK — MODEL NO. 6, (*continued*).

THEORY (*ten minutes*).

Food for trees.

PRACTICE.

1. Sandpaper model.
2. Shellac model.
3. Glue on asbestos and emery cloth.

TWENTY-SIXTH WEEK — MODEL NO. 7.

THEORY (*ten minutes*).

Density of wood.

PRACTICE.

Plane stock square and true to dimensions,
using jack plane and spokeshave.

TWENTY-SEVENTH WEEK — MODEL NO. 7, (*continued*).

THEORY (*ten minutes*).

Growth of wood.

PRACTICE.

1. Draw ellipse on both surfaces.
2. Using turning saw, saw outside of line.

TWENTY-EIGHTH WEEK — MODEL NO. 7, (*continued*).

THEORY (*ten minutes*).

1. Cutting of wood.
2. Use of spokeshave.

PRACTICE.

1. Cut to line with spokeshave.
2. Nail stock together.
3. Round edges with spokeshave.

TWENTY-NINTH WEEK — MODEL NO. 7, (*continued*).

THEORY (*ten minutes*).

1. Moisture in wood.
2. Air drying.
3. Kiln drying.

PRACTICE.

Sandpaper and finish model.

THIRTIETH WEEK — MODEL NO. 8.

THEORY (*ten minutes*).

Shrinkage in wood.

PRACTICE.

Plane stock square and true to dimensions.

THIRTY-FIRST WEEK — MODEL NO. 8, (*continued*).

THEORY

Use of brads.

PRACTICE.

1. Finish planing slats.
2. Draw outline of two legs, using knife and marking gauge.
3. Saw and cut to line with chisel.

THIRTY-SECOND WEEK — MODEL NO. 8, (*continued*).

THEORY.

Sizes of brads.

PRACTICE.

1. Sandpaper wood.
2. Nail slats and legs together.
3. Stain and finish.

THIRTY-THIRD WEEK — MODEL NO. 9.

PRACTICE.

Saw out stock.

THIRTY-FOURTH WEEK — MODEL NO. 9, (*continued*).

PRACTICE.

Plane pieces to dimensions.

THIRTY-FIFTH WEEK — MODEL NO. 9, (*continued*).

PRACTICE.

1. Saw bevel on back, round edge and smooth, using plane and spokeshave.
2. Cut bevel on sides.
3. Bevel front, and nail pieces together.

SIXTH GRADE

FIRST WEEK — MODEL NO. 1

THEORY (*ten minutes*).

Uses of bench hook.

Why glued together.

PRACTICE.

Saw out stock for model.

SECOND WEEK — MODEL NO. 1, (*continued*).

THEORY (*ten minutes*).

Discussion of woods.

Birches; sweet birch.

PRACTICE.

1. Square stock, plane two large pieces to dimensions.
2. Bore holes for use of screws.
In base piece and rest (upper and lower).

THIRD WEEK — MODEL NO. 1, (*continued*).

THEORY (*ten minutes*).

Discussion of woods.
Birches; red birch.

PRACTICE.

1. Finish planing larger pieces for base.
2. Glue together, using hand clamps.

FOURTH WEEK — MODEL NO. 1, (*continued*).

THEORY (*ten minutes*).

Discussion of woods.
Birches; white birch.

PRACTICE.

1. Plane and square two small pieces to dimensions.
2. Lay out center lines for screws.

FIFTH WEEK — MODEL NO. 1, (*continued*).

THEORY (*ten minutes*).

Discussion of woods.
Pine; white.

PRACTICE.

1. Drill holes for screws.
2. Countersink same.
3. Screw on upper and lower arms.

SIXTH WEEK — MODEL NO. 1, (*continued*).

THEORY (*ten minutes*).

Discussion of woods.
Pine; red.

PRACTICE.

1. Bore hole for hanging purposes.
2. Chamfer outside ends.
3. Sandpaper model.

SEVENTH WEEK — MODEL NO. 1, (*continued*).

THEORY (*ten minutes*).

Discussion of woods.
Pines.

PRACTICE

1. Finish sandpapering model.
2. Shellac model.

EIGHTH WEEK — MODEL NO. 2.

THEORY (*ten minutes*).

Discussion of woods.
Gum; sweet.

PRACTICE.

1. Saw out stock and plane square to dimensions.
2. Draw outline of plan view.

NINTH WEEK — MODEL NO. 2, (*continued*).

THEORY (*ten minutes*).

Discussion of woods.
Gum; sour.

PRACTICE.

Saw outside at line using turning saw.

TENTH WEEK — MODEL NO. 2, (*continued*).

THEORY (*ten minutes*).

Discussion of woods.
Sycamore.

PRACTICE.

1. Cut with spokeshave to line.
2. Draw outline at front elevation.

ELEVENTH WEEK — MODEL NO. 2, (*continued*).

PRACTICE.

1. Saw outside of line, using turning saw.
2. Cut to line, using spokeshave.

TWELFTH WEEK — MODEL NO. 2, (*continued*).

PRACTICE.

1. Round edges, using spokeshave.
2. Sandpaper model.
3. Screw in hook.
4. Shellac.

THIRTEENTH WEEK — MODEL NO. 3.

PRACTICE.

1. Plane stock square and true to dimensions.

FOURTEENTH WEEK — MODEL NO. 3, (*continued*).

PRACTICE.

1. Draw outline, using knife and gauge lines for corners.
2. Saw out corners, using backsaw.
3. Cut with chisel.
4. File to lines.

FIFTEENTH WEEK — MODEL NO. 3, (*continued*).

PRACTICE.

1. Bore hole with expansion bit.
2. Smooth model, using plane, file, and sandpaper.

SIXTEENTH WEEK — MODEL NO. 4.

PRACTICE.

1. Saw out stock.
2. Plane stock for sides square and true to dimensions.

SEVENTEENTH WEEK — MODEL NO. 4, (*continued*).

PRACTICE.

1. Plane stock for ends square and true to dimensions.
2. Draw outline of handle.

EIGHTEENTH WEEK — MODEL NO. 4, (*continued*).

THEORY (*ten minutes*).

Rotten stone.
How obtained, used, etc.

PRACTICE.

1. Cut handle to dimensions.
2. Sandpaper sides, ends, and handle.
3. Nail together.

NINETEENTH WEEK — MODEL NO. 4, (*continued*).

PRACTICE.

1. Fit bottom to box.
2. Nail on sides. Shellac and polish same.
3. Set nails with nail set.

TWENTIETH WEEK — MODEL No. 4, (*continued*).

PRACTICE.

1. Sandpaper model.
2. Stain, shellac and polish.

TWENTY-FIRST WEEK — MODEL No. 5.

PRACTICE.

1. Saw out stock for model.
2. Plane stock square and true to dimensions.

TWENTY-SECOND WEEK — MODEL No. 5, (*continued*).

THEORY (*ten minutes*).

Dowel joints.

PRACTICE.

1. Joint stock.
2. Fit together, using dowels.

TWENTY-THIRD WEEK — MODEL No. 5, (*continued*).

PRACTICE.

1. Finish jointing stock.
2. Glue together, using iron clamps.

TWENTY-FOURTH WEEK — MODEL No. 5, (*continued*).

PRACTICE.

1. Draw curves cut to outside of line.
2. Cut to line using spokeshave.
3. Round edges.
4. Sandpaper.

TWENTY-FIFTH WEEK — MODEL No. 6.

PRACTICE.

Saw out stock for model.

TWENTY-SIXTH WEEK — MODEL No. 6, (*continued*).

PRACTICE.

Plane stock square and true to dimensions.

TWENTY-SEVENTH WEEK — MODEL No. 6, (*continued*).

PRACTICE.

1. Plane stock for roller.
 - (a) Plane stock square.
 - (b) Plane stock octagonal.
 - (c) Plane off edges.
2. Scrape and sandpaper.

TWENTY-EIGHTH WEEK — MODEL No. 6, (*continued*).

PRACTICE.

1. Draw outline for ends.
2. Cut outside of lines.
3. Cut slit in arms.

TWENTY-NINTH WEEK — MODEL No. 6, (*continued*).

PRACTICE.

1. Cut ends in roller to fit slit in arms.
2. Drill all holes.

THIRTIETH WEEK — MODEL No. 6, (*continued*).

PRACTICE.

1. Screw together.
2. Sandpaper.
3. Stain.
4. Varnish.

The remainder of the time may be used for unfinished work, or for any extra work that the student may wish to do.

SEVENTH GRADE

FIRST WEEK — MODEL NO. 1.

PRACTICE.

1. Plane stock square.
2. Gauge width and thickness.

SECOND WEEK — MODEL NO. 1, (*continued*).

PRACTICE.

1. Using knife line and dividers, draw outline of model.
2. Scrape and finish same. Gouge tray.

THIRD WEEK — MODEL NO. 1, (*continued*).

PRACTICE.

Finish gouging model.

FOURTH WEEK — MODEL NO. 1, (*continued*).

PRACTICE.

1. Scrape and sandpaper pen-tray.
2. Finish pen-tray.

Students at this time must decide on the model which they wish to make for the coming year, and as far as possible the student must make sketch of same.

FIFTH WEEK — MODEL NO. 2.

PRACTICE.

1. Saw out stock.
2. Plane working surface and edge on wood.

SIXTH WEEK — MODEL NO. 2, (*continued*).

PRACTICE.

1. Square and true all stock to dimensions.

2. Nail three vertical uprights of holder together.
3. Draw outline of model on same.
4. Cut, using turning saw.
5. Cut sides by same method.

SEVENTH WEEK — MODEL NO. 2, (*continued*).

PRACTICE.

1. Finish outline.
2. Chamfer edges. Cut same, using back and turning saws.

EIGHTH WEEK — MODEL NO. 2, (*continued*).

PRACTICE.

1. Chamfer edges, using
 - (a) Chisel.
 - (b) Spokeshave.
 - (c) File.
2. Make covers for same.

NINTH WEEK — MODEL NO. 2, (*continued*).

PRACTICE.

Gouge out pen-tray. Cut hole in brush-broom-holder.

TENTH WEEK — MODEL NO. 2, (*continued*).

PRACTICE.

1. Bore holes for thimble and spool-holder. Cut pegs for same, or
2. Cut outline of brush-broom-holder, using
 - (a) Saw.
 - (b) Chisel.
 - (c) File.

ELEVENTH WEEK — MODEL NO. 2, (*continued*).

PRACTICE.

1. Finish all parts.
2. Sandpaper same.

TWELFTH WEEK — MODEL NO. 2, (*continued*).

PRACTICE.

1. Glue together model.
2. Stain and shellac same.

THIRTEENTH WEEK — MODEL NO. 3.

PRACTICE.

Cut and square stock to dimensions.

FOURTEENTH WEEK — MODEL NO. 3, (*continued*).

THEORY.

Use of Plow. No. 46 Plane.

PRACTICE.

1. Cut and dado edges.
2. Miter corners, using miter box.

FIFTEENTH WEEK — MODEL NO. 3, (*continued*).

PRACTICE.

1. Glue and paste together, using
 - (a) Corrugated fasteners.
 - (b) Miter clamps.

SIXTEENTH WEEK — MODEL NO. 3, (*continued*).

PRACTICE.

Sandpaper and stain in mission.

The remainder of the year may be used in constructing special models; i. e., tie-racks, clothes-driers, stationery-holders, tabourets, book-racks, etc.

EIGHTH GRADE

FIRST WEEK — MODEL NO. 1.

THEORY (*ten minutes*).

Talks on practical furniture construction.
Design.

PRACTICE.

1. Saw out stock to approximate dimensions.
2. Begin squaring stock true to dimensions.

SECOND WEEK — MODEL NO. 1, (*continued*).

THEORY (*ten minutes*).

Talks on practical furniture construction.
Size for strength.

PRACTICE.

1. Finish planing stock square and true to dimensions.
2. Draw outline of ends. Lay out mortises.

THIRD WEEK — MODEL NO. 1, (*continued*).

THEORY (*ten minutes*).

Talks on practical furniture construction.

- (a) Wood used (best for staining).
- (b) Staining (application).

PRACTICE.

1. Cut mortises in ends.
2. Draw outline, lay out tenons for shelf, and cut.
3. Make keys.

FOURTH WEEK — MODEL NO. 1, (*continued*).

THEORY (*ten minutes*).

Talks on practical furniture construction.
Finishing, filling, wax, varnish.

PRACTICE.

1. Sandpaper stock.
2. Assemble the parts.
3. Stain, fill, varnish.

FIFTH WEEK — MODEL NO. 2.

THEORY (*ten minutes*).

Talks on practical furniture construction.
Special tools and machinery.

PRACTICE.

1. Saw the stock for model.
2. Begin planing stock square and true to dimensions.

SIXTH WEEK — MODEL NO. 2, (*continued*).

THEORY (*ten minutes*).

Talks on practical furniture construction.

Various methods of making glued joints.

- (a) Doweling.
- (b) Tongue and grooving.
- (c) Rubbed joints.
- (d) Thickness of layer of glue.

PRACTICE.

1. Finish planing stock square and true to dimensions.
2. Chamfer edges if necessary. Lay out and cut ends.
3. Lay out and bore mortises and tenons.

SEVENTH WEEK — MODEL NO. 2, (*continued*).

THEORY (*ten minutes*).

Making out a lumber order.
Terms used.

PRACTICE.

1. Finish cutting joints.
2. Sandpaper model.

EIGHTH WEEK — MODEL NO. 2, (*continued*).

THEORY (*ten minutes*).

Talk on cabinet design.

PRACTICE.

1. Stain model.
2. Fill “
3. Wax “

NINTH WEEK — MODEL NO. 3.

THEORY (*ten minutes*).

Talk on building construction.
Frame work.

PRACTICE.

1. Saw stock for model.
2. Begin planing stock square and true to dimensions.

TENTH WEEK — MODEL NO. 3, (*continued*).

THEORY (*ten minutes*).

Talk on building construction.
Rafters and roof.

PRACTICE.

1. Finish planing stock square and true to dimensions.
2. Lay out and cut mortise and tenon joints.

ELEVENTH WEEK — MODEL NO. 3, (*continued*).

THEORY (*ten minutes*).

Talk on building construction.
(a) Boarding in.
(b) Floor, timbers, etc.

PRACTICE.

1. Finish cutting joints.
2. Lay out and cut curve. File same.

TWELFTH WEEK — MODEL NO. 3, (*continued*).

THEORY (*ten minutes*).

Talk on building construction.
Interior finish.

PRACTICE.

1. Sandpaper and scrape model.
2. Bore holes for screws.
3. Glue joints.

THIRTEENTH WEEK — MODEL NO. 3, (*continued*).

THEORY (*ten minutes*).

Talk on building construction.
Lath and plaster.

PRACTICE.

1. Stain.
2. Fill and varnish.

FOURTEENTH WEEK — MODEL NO. 4.

THEORY (*ten minutes*).

Staining.
(a) Kinds.
(b) Application.

PRACTICE.

1. Saw stock for model.
2. Plane stock square and true to dimensions.

FIFTEENTH WEEK — MODEL NO. 4, (*continued*).

THEORY (*ten minutes*).

Filler.
(a) Kinds.
(b) Application.

PRACTICE.

1. Lay out and cut curves on sides. File same.
2. Bore holes on sides for screws.

SIXTEENTH WEEK — MODEL NO. 4, (*continued*).

THEORY (*ten minutes*).

Shellac.
(a) White.
(b) Yellow.

PRACTICE.

1. Scrape and sandpaper stock.
2. Screw together.

SEVENTEENTH WEEK — MODEL NO. 4, (*continued*).

THEORY (*ten minutes*).

Varnish.

- (a) Kinds.
- (b) Uses.

PRACTICE.

1. Stain.
2. Fill.
3. Varnish.

EIGHTEENTH WEEK — MODEL NO. 4, (*continued*).

THEORY (*ten minutes*).

Pumice.

- (a) How obtained.
- (b) How used.

PRACTICE.

1. Saw stock for model.
2. Plane stock square and true to dimensions.

NINETEENTH WEEK — MODEL NO. 4, (*continued*).

THEORY (*ten minutes*).

Rotten stone.

- (a) How obtained.
- (b) How used.

PRACTICE.

1. Lay out and cut mortise and tenons, where necessary.
2. Bore holes for screws.

TWENTIETH WEEK — MODEL NO. 4, (*continued*).

THEORY (*ten minutes*).

Review of previous questions.

PRACTICE.

1. Finish boring holes.
2. Scrape and sandpaper stock.
3. Cut curves if necessary.

TWENTY-FIRST WEEK — MODEL NO. 4, (*continued*).

PRACTICE.

1. Stain model.
2. Fill “
3. Shellac “
4. Wax “

TWENTY-SECOND WEEK — MODEL NO. 5.

PRACTICE.

1. Saw stock for model.
2. Joint stock for doors and back.

TWENTY-THIRD WEEK — MODEL NO. 5, (*continued*).

PRACTICE.

1. Plane stock square and true to dimensions.
2. Curve edges where necessary.

TWENTY-FOURTH WEEK — MODEL NO. 5, (*continued*).

PRACTICE.

1. Bore holes for screws.
2. Scrape and sandpaper stock.

TWENTY-FIFTH WEEK — MODEL No. 5, (*continued*).

PRACTICE.

1. Screw model together.
2. Place hinges on door.

TWENTY-SIXTH WEEK — MODEL No. 5, (*continued*).

PRACTICE.

1. Stain model.
2. Fill “

TWENTY-SEVENTH WEEK — MODEL No. 6.

PRACTICE.

1. Saw lumber for model.
2. Plane, etc.

TWENTY-EIGHTH WEEK — MODEL No. 6, (*continued*).

PRACTICE.

1. Finish planing stock square and true to dimensions.
2. Lay out and cut joints.

TWENTY-NINTH WEEK — MODEL No. 6, (*continued*).

PRACTICE.

1. Finish cutting joints.
2. Lay out curves where necessary.
3. Scrape and sandpaper.

THIRTIETH WEEK — MODEL No. 6, (*continued*).

PRACTICE.

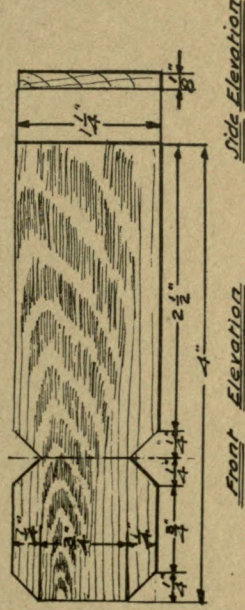
1. Stain model.
2. Fill “
3. Shellac “

Extra models to be used in course: Model No. 7, smoker's cabinet, two designs.

MANUAL TRAINING IN THE GRADES

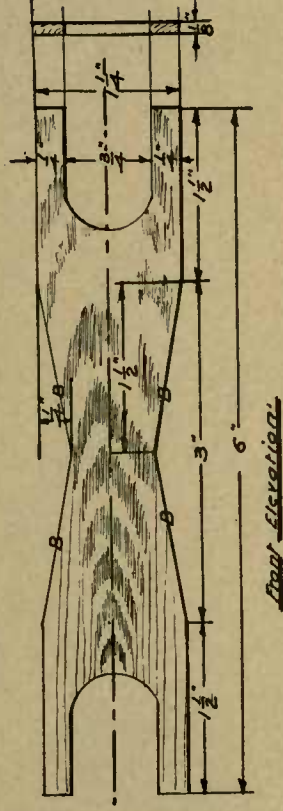
5th Grade Model #1

Key, Tag, No. 1-A



STEPS	TOOLS	ORDER OF EXERCISE
1. Straight whittling 2. Oblique whittling 3. Cross whittling	1. Pencil, rule, knife, and dividers 2. Coping saw 3. Compasses 4. Bit-brace 5. Sandpaper	1. Square and true stock. 2. Draw outline of model on both surfaces and cut 3. Sandpaper and shellac.

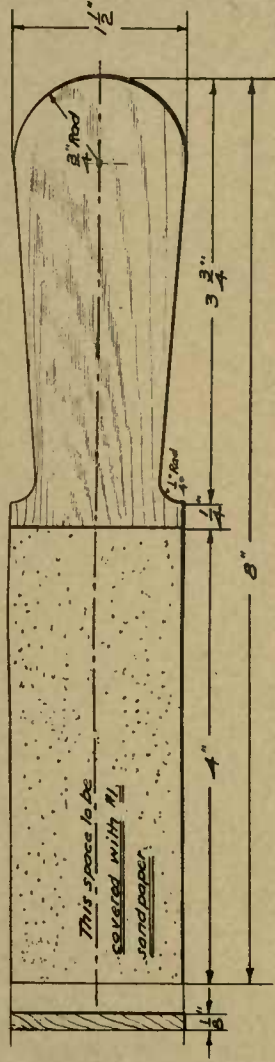
Fishline Winder # 1-B



STEPS	TOOLS	ORDER OF EXERCISE
1. Straight whittling	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Oblique whittling	2. 3-4 inch bit	2. Draw outline of model on both surfaces.
3. Cross whittling	3. Sandpaper	3. Cut ends A, using 3-4 inch bit.
4. Boring		4. Finish holes, using knife.
		5. Cut sides B, using knife.
		6. Sandpaper and polish.

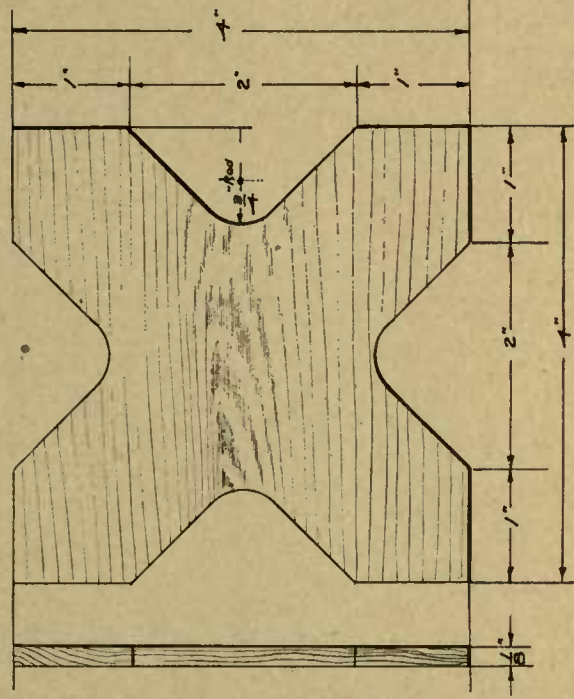
5th Grade Model #1

Sand paper block #1c



STEPS	TOOLS	ORDER OF EXERCISE
1. Straight whittling	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Oblique whittling	2. Sandpaper	2. Draw outline of model on both surfaces.
3. Cross whittling	3. Coping saw	3. Cut, using knife and coping saw.
4. Coping	4. Compasses	4. Sandpaper
		5. Glue on sandpaper and shellac.

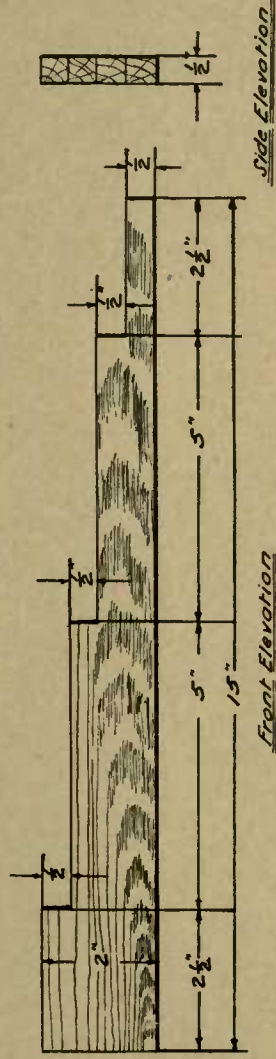
Fish Line Winder 1/2



STEPS	TOOLS	ORDER OF EXERCISE
1. Straight whittling	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Oblique whittling	2. Sandpaper	2. Draw outline of model on both surfaces.
3. Cross whittling	3. Coping saw	3. Cut, using coping saw and knife.
4. Coping		4. Sandpaper and shellac.

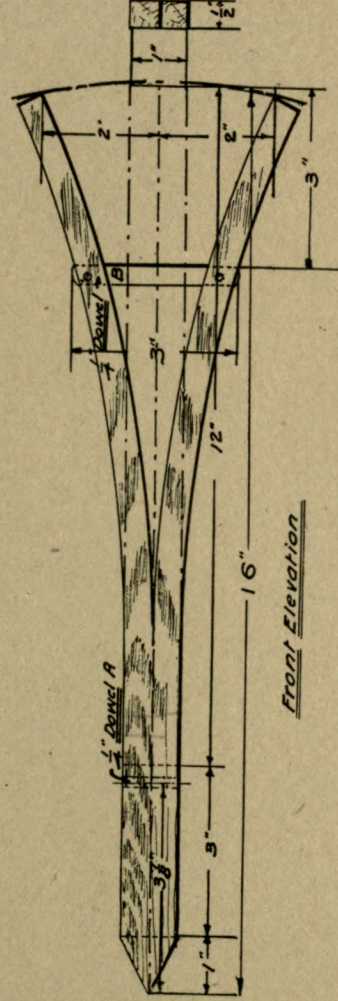
5th Grade Model #2

Blind-stitch #2A



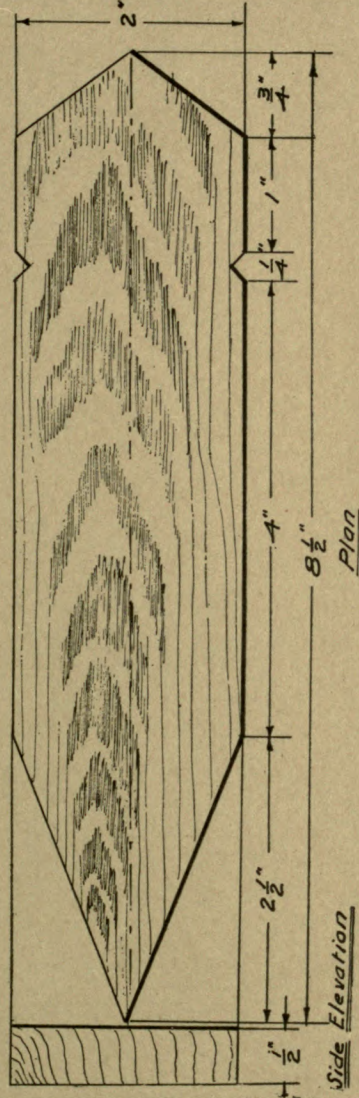
STEPS	TOOLS	ORDER OF EXERCISE
1. Rip and backsawing 2. Narrow surface planing 3. Squaring 4. Gauging	1. Pencil, rule, knife, and dividers 2. Rip and backsaw 3. Jack plane 4. Try-square 5. Marking gauge	1. Square and true stock. 2. Draw outline, using knife line. 3. Saw, using back and rip saw. 4. Finish, using No. 1 sandpaper on block.

Trellis # 2^d



STEPS	TOOLS	ORDER OF EXERCISE
<ol style="list-style-type: none"> 1. Rip and backsawing 2. Narrow surface planing 3. Squaring 4. Gauging 5. Boring 	<ol style="list-style-type: none"> 1. Pencil, rule, knife, and dividers 2. Rip and backsaw 3. Jack plane 4. Try-square 5. Marking gauge 6. 1-4 inch bit 7. Hammer 	<ol style="list-style-type: none"> 1. Square and true stock 2. Draw outline, using knife. 3. Bore, and glue in dowel A. 4. Bore holes for dowel B. 5. Saw, using back and rip saw. 6. Place dowel B in position and brad. 7. Sandpaper and shellac.

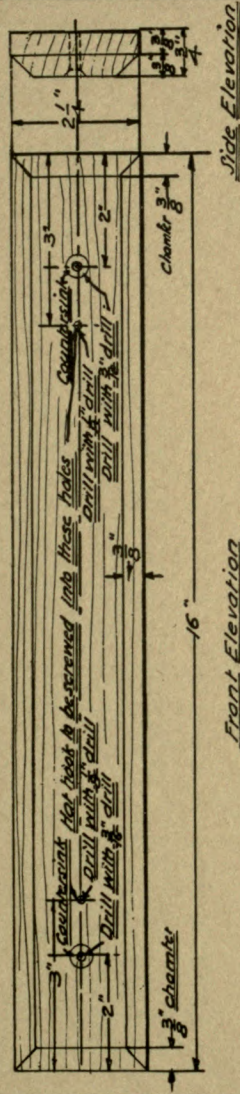
5TH Grade Model #2
Shrub label #2c



STEPS	TOOLS	ORDER OF EXERCISE
<ol style="list-style-type: none"> 1. Rip and backsawing 2. Narrow surface planing 3. Squaring 4. Gauging 	<ol style="list-style-type: none"> 1. Pencil, rule, knife, and dividers 2. Backsaw 3. Marking gauge 4. Try-square 5. Jack plane 	<ol style="list-style-type: none"> 1. Square and true stock. 2. Gauge outline, using knife. 3. Saw, using backsaw. 4. Sandpaper and finish.

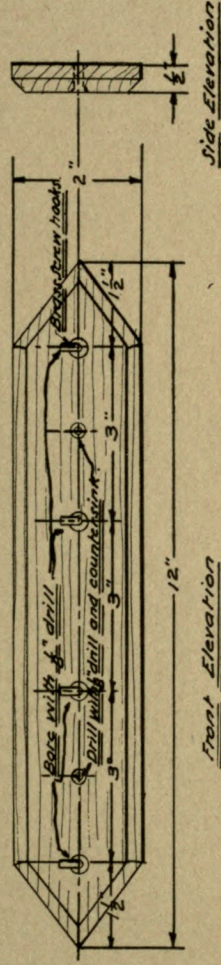
5th Grade Model #3

Hot Rock #3A



STEPS	TOOLS	ORDER OF EXERCISE
1. End planing		
2. Boring with drill bits	1. Pencil, rule, knife, and dividers	1. Square and true stock.
3. Countersinking	2. Block and Jack plane	2. Chamfer edges.
4. Chamfering	3. Bench hook	3. Bore holes and countersink.
	4. 1-8 inch and 3-16 inch drills and bit brace	4. Finish, stain, and polish.
	5. Rosecountersink	
	6. Marking gauge and try-square	

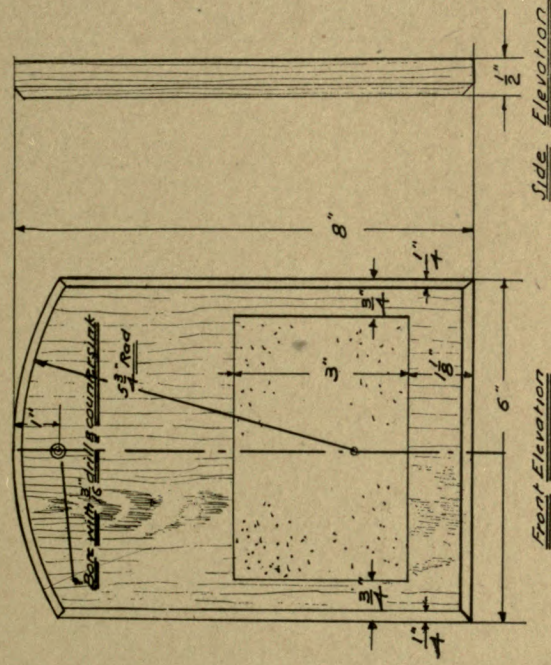
Key Board #3B



STEPS	TOOLS	ORDER OF EXERCISE
1. End planing	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Boring, with drill	2. Block and Jack plane	2. Cut ends and chamfer edges.
3. Countersinking	3. Bench hook	3. Bore holes and countersink.
4. Chamfering	4. 1-8 inch drill and bit brace	4. Finish, stain, and polish.
	5. Rosecountersink	
	6. Marking gauge and try-square	

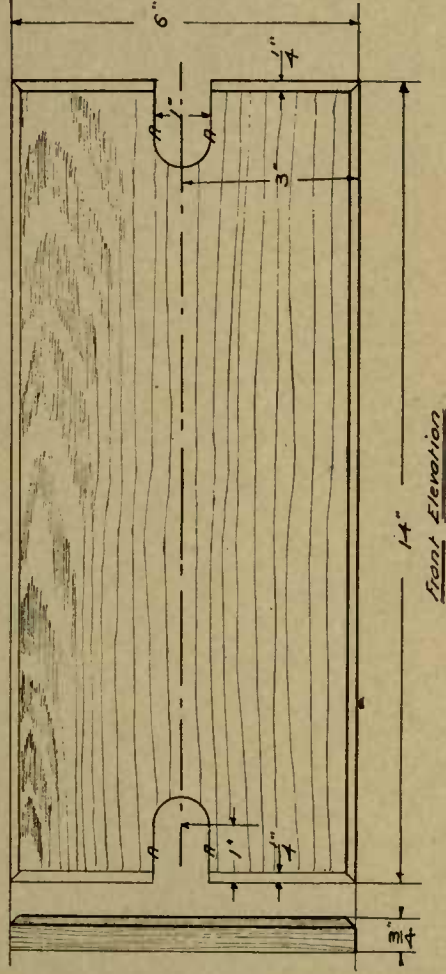


5th Grade Model #3
Calendar Mount #3c



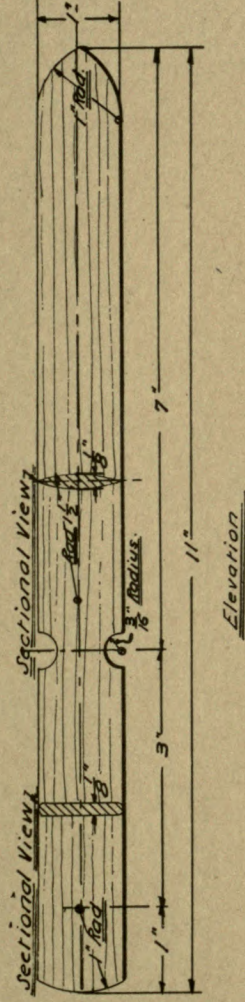
STEPS	TOOLS	ORDER OF EXERCISE
1. End planing	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Boring with drill bit	2. Block and Jack plane	2. Chamfer edges.
3. Countersinking	3. Bench hook	3. Bore hole.
4. Chamfering	4. Countersink	4. Finish, stain, and polish.
	5. 3-16 inch drill	

Swing Board #30



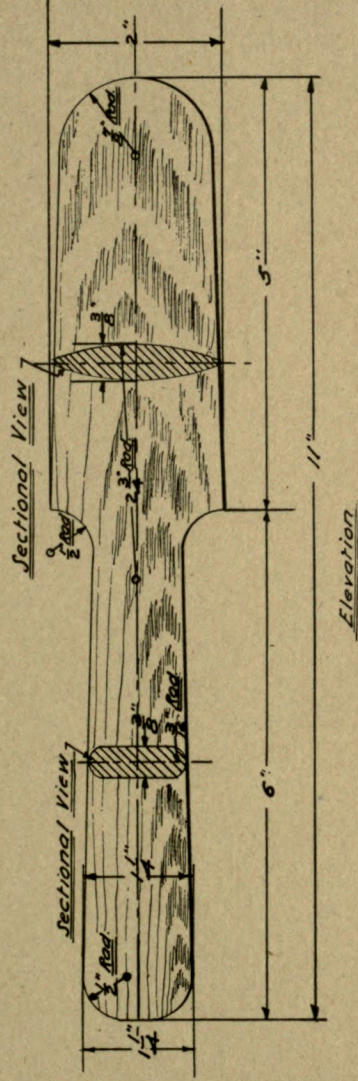
STEPS	TOOLS	ORDER OF EXERCISE
1. End planing 2. Chamfering 3. Boring with bit	1. Pencil, rule, knife, and dividers 2. Block and Jack plane 3. Bench hook 4. 1-inch bit and bit brace 5. Backsaw	1. Square and true stock. 2. Chamfer edges. 3. Bore hole and cut edges A. 4. Sandpaper, shellac, and polish.

5th Grade Model #4
Letter Opener #41



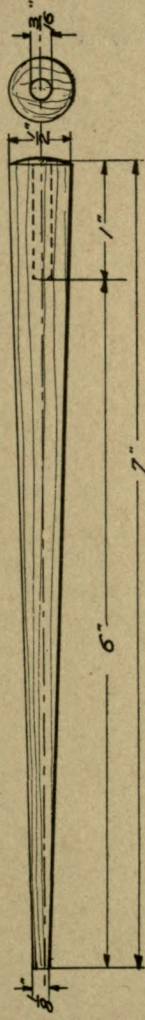
STEPS	TOOLS	ORDER OF EXERCISE
1. Whittling oval surface	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Boring	2. 3-8 inch centre bit	2. Draw outline on both surfaces.
3. Sandpapering	3. Block and Jack plane	3. Bore hole.
	4. Marking gauge	4. Whittle to templet.
	5. Try-square	5. Sandpaper without block.
		6. Shellac.

Cake Mixer, #48



STEPS	TOOLS	ORDER OF EXERCISE
1. Whittling oval surface	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Boring	2. 1-2 inch centre bit	2. Draw outline on both surfaces.
3. Sandpapering	3. Spokeshave	3. Bore 1-2 inch hole.
	4. Block and Jack plane	4. Cut down handle.
	5. Marking gauge	5. Whittle to templet.
	6. Try-square	6. Sandpaper without block.
		7. Shellac.

5th Grade Model #1
Penholder #1c

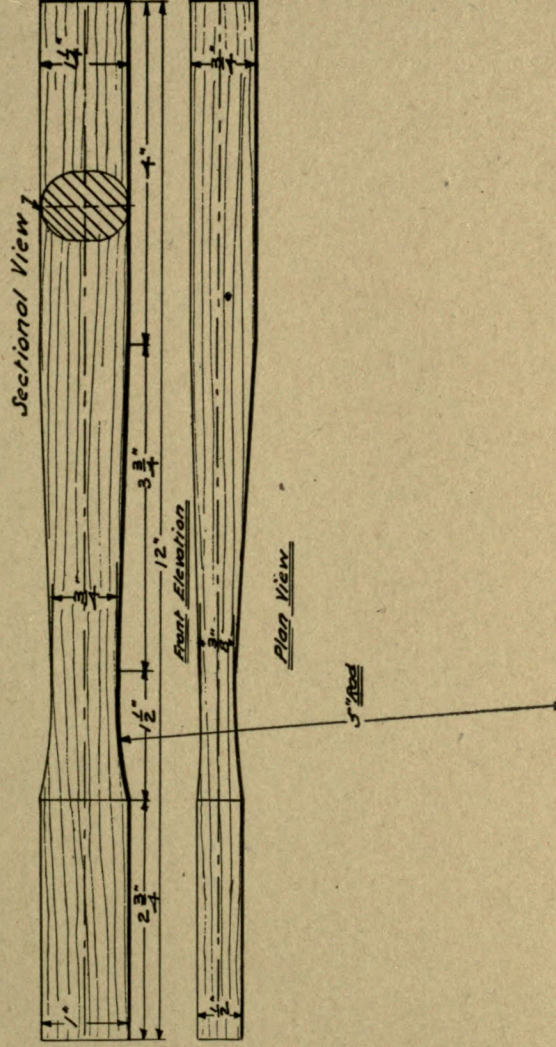


Front Elevation

Side Elevation

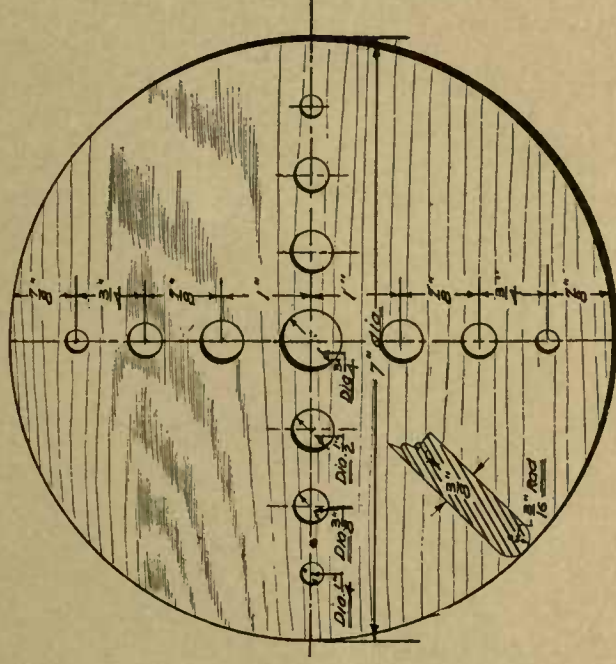
STEPS	TOOLS	ORDER OF EXERCISE
1. Whittling oval surface		
2. Fitting a Peg	1. Pencil, rule, knife, and dividers	1. Square and true stock.
3. Boring	2. Spokeshave	2. Bore hole for peg.
4. Sandpapering	3. 3-16 inch drill	3. Round surface.
	4. Block and Jack plane	4. Sandpaper, stain, and finish.
	5. Marking gauge	
	6. Try-square	

Monimer Handle #40



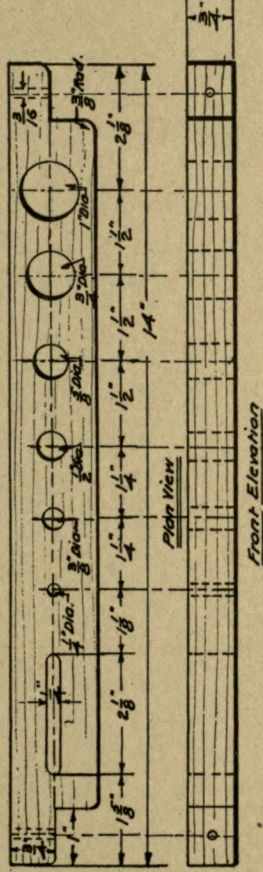
STEPS	TOOLS	ORDER OF EXERCISE
1. Whittling oval surface	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Oblique planing	2. Spokeshave	2. Lay out and cut plan-view outline.
3. Sandpapering	3. Block and Jack plane	3. Lay out and cut elevation outline.
	4. Marking gauge	4. Round handle.
	5. Try-square	5. Sandpaper, stain, and shellac.

5th Grade Model No.
Table No. 294



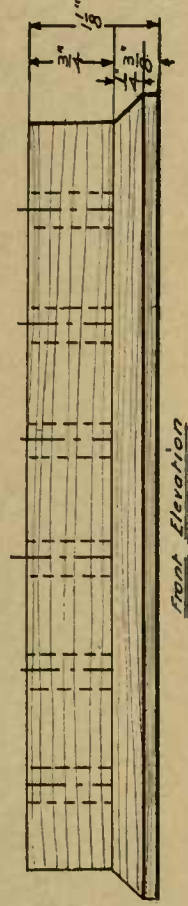
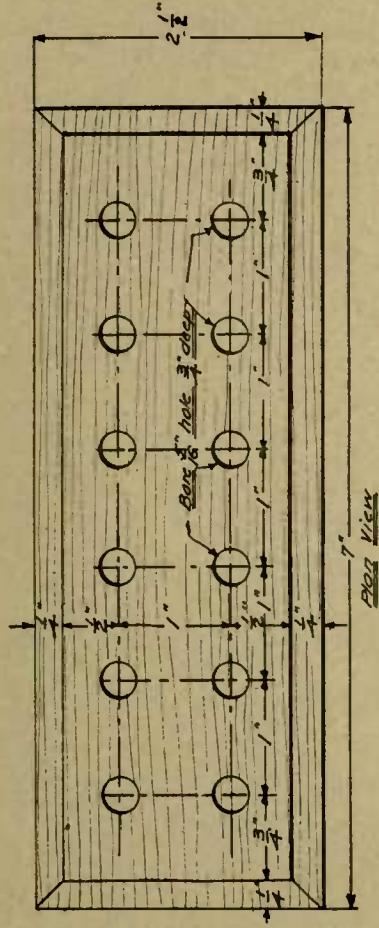
STEPS	TOOLS	ORDER OF EXERCISE
<ol style="list-style-type: none"> Using turning saw Boring to certain depth Use of bit gauge Filing round corners Sandpapering 	<ol style="list-style-type: none"> Pencil, rule, knife, and dividers 1-4, 3-8, 1-2, and 3-4 inch bits Bit gauge and bit stock Turning saw and try-square File and marking gauge Block and Jack plane Spokeshave 	<ol style="list-style-type: none"> Square and true stock. Draw outline with dividers. Using turning saw, saw outside of line. Smooth, using spokeshave. File and sandpaper. Bore holes, using bit gauge.

Tool Rock #50



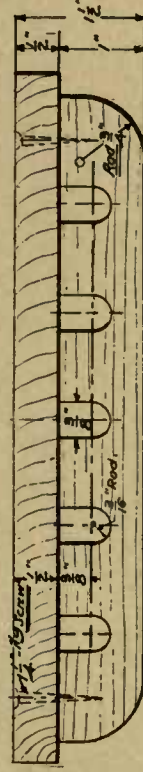
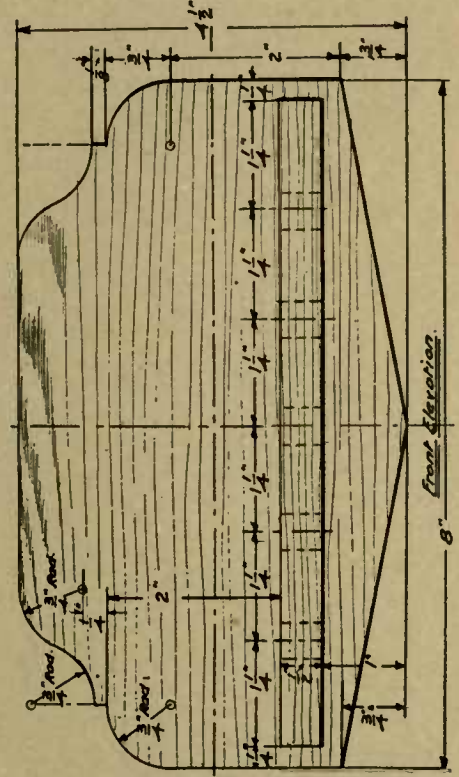
STEPS	TOOLS	ORDER OF EXERCISE
<ol style="list-style-type: none"> Boring to certain depth Use of bit gauge Filing round corners 	<ol style="list-style-type: none"> Pencil, rule, knife, and dividers 1-8, 3-8, 1-2, 5-8, 3-4 and 1 inch bits. Bit gauge, and bit stock Turning saw and file Try-square and marking gauge 3-16 inch drill Block and Jack plane 	<ol style="list-style-type: none"> Square and true stock. Draw outline, centre lines, etc. Cut corner, using backsaw. Bore holes indicated. Sandpaper and finish. Shellac.

5TH Grade Model # 5
Pencil Holder #5



STEPS	TOOLS	ORDER OF EXERCISE
1. Boring to certain depth 2. Use of bit gauge	1. Pencil, rule, knife, and dividers 2. 5-16 inch bit 3. Bit gauge and bit stock 4. Try-square and marking gauge 5. Block and Jack plane	1. Square and true stock. 2. Chamfer base. 3. Bore holes. 4. Glue together and sandpaper. 5. Shellac and finish.

Tooth Brush Holder #50

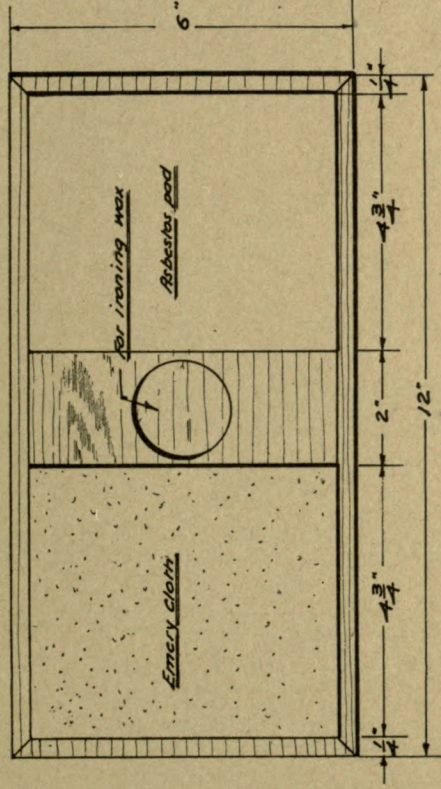


Plan View

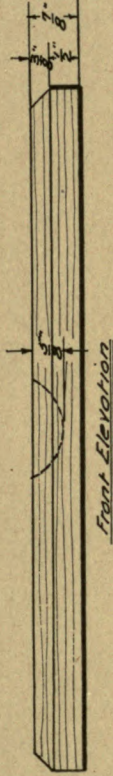
STEPS	TOOLS	ORDER OF EXERCISE
1. Boring 2. Use of bit gauge 3. Cutting irregular edge	1. Pencil, rule, knife, and dividers 2. 3-8 inch bit 3. Bit gauge and bit stock 4. Coping saw 5. Try-square and marking gauge 6. Block and Jack plane 7. Half-round file	1. Square and true stock 2. Draw outline of back and cut 3. Draw centre lines of brush holder and cut 4. Sandpaper and screw together. 5. Shellac, and polish.

5th Grade Model #6

Ironing stand #6-A



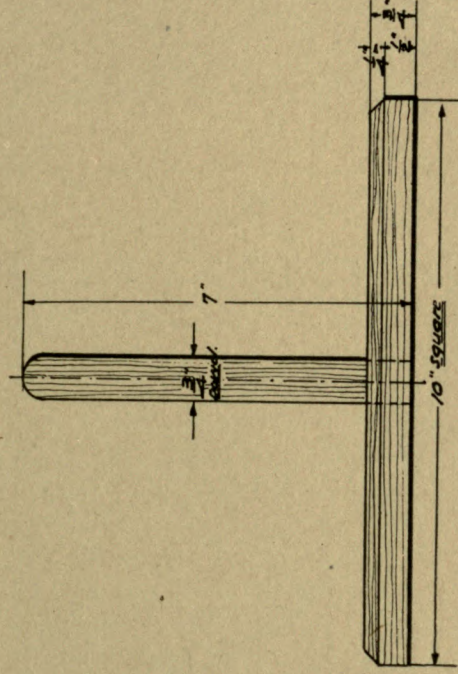
Plan View



Front Elevation

STEPS	TOOLS	ORDER OF EXERCISE
1. Crosscut sawing		1. Square and true stock.
2. Broad surface planing	1. Pencil, rule, knife, and dividers	2. Chamfer edges.
3. End planing	2. Crosscut saw	3. Gouge hole for ironing wax.
4. Gouging	3. 1 1/2 inch gouge	4. Glue on asbestos and emery cloth.
5. Beveling	4. Marking gauge and try-square	5. Sandpaper and shellac.
	5. Block and Jack plane	

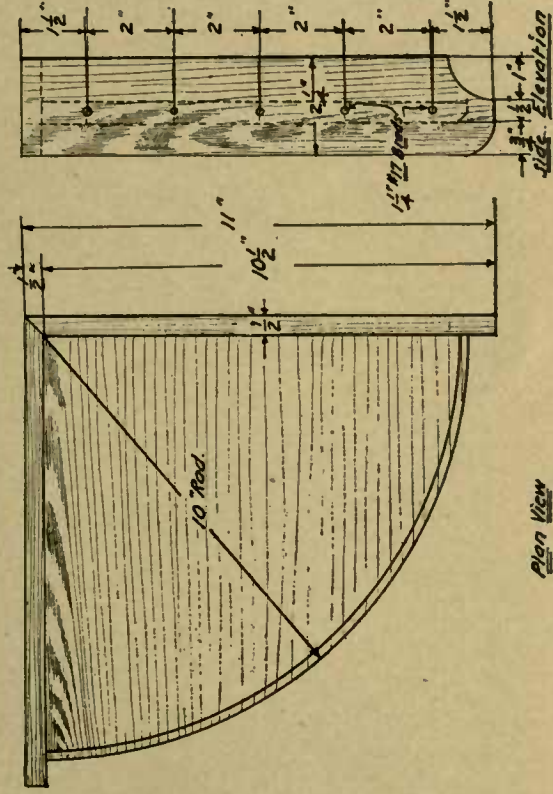
Ring Throw #59



Front Side Elevation

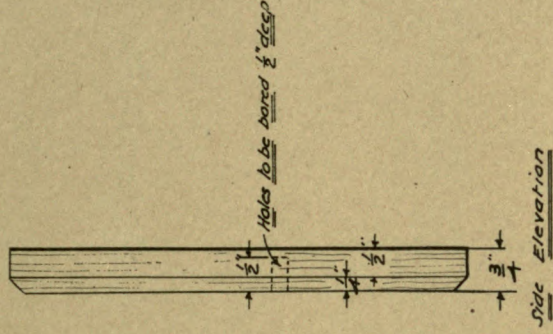
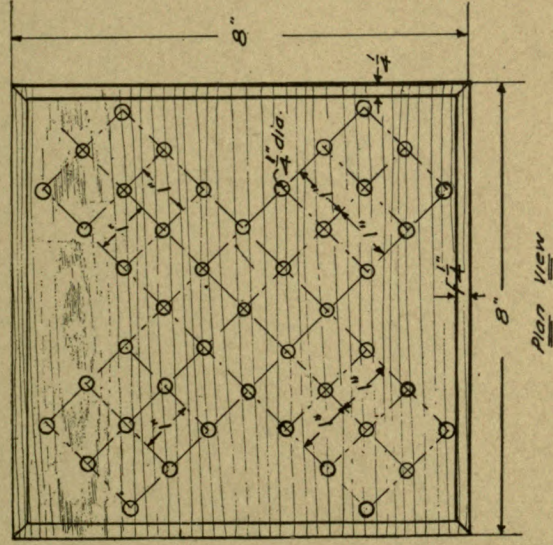
STEPS	TOOLS	ORDER OF EXERCISE
1. Crosscut sawing 2. Broad surface planing 3. End planing 4. Boring 5. Beveling	1. Crosscut saw 2. 3-8 inch bit 3. Marking gauge and try-square 4. Block and Jack plane 5. Dowel pointer	1. Square and true stock. 2. Chamfer edges 3. Bore hole and round ends of dowels. 4. Glue in dowels. 5. Sandpaper and shellac.

5TH Grade Model #6
Corner Shelf #8



STEPS	TOOLS	ORDER OF EXERCISE
1. Broad surface planing	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. End planing	2. Bevel	2. Cut and bevel shelf.
3. Miter joints	3. Coping saw	3. Finish corners and miter side joints.
4. Beveling	4. Marking gauge and try-square	4. Sandpaper and nail together.
5. Gauging	5. Block and Jack plane	5. Set nails, stain and polish.
	6. Hammer	

Game Board #50

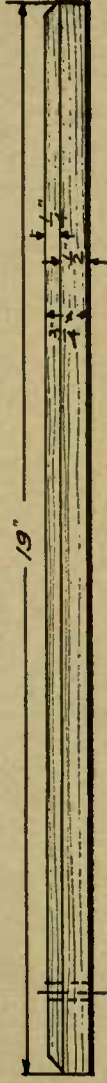


STEPS	TOOLS	ORDER OF EXERCISE
1. Crosscut sawing	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Broad surface planing	2. Crosscut saw	2. Chamfer edges.
3. Boring in parallel lines	3. 3-8 inch bit	3. Bore holes.
4. End planing	4. Marking gauge and try-square	4. Sandpaper, stain, polish.
5. Beveling	5. Block and Jack plane	
6. Gauging		

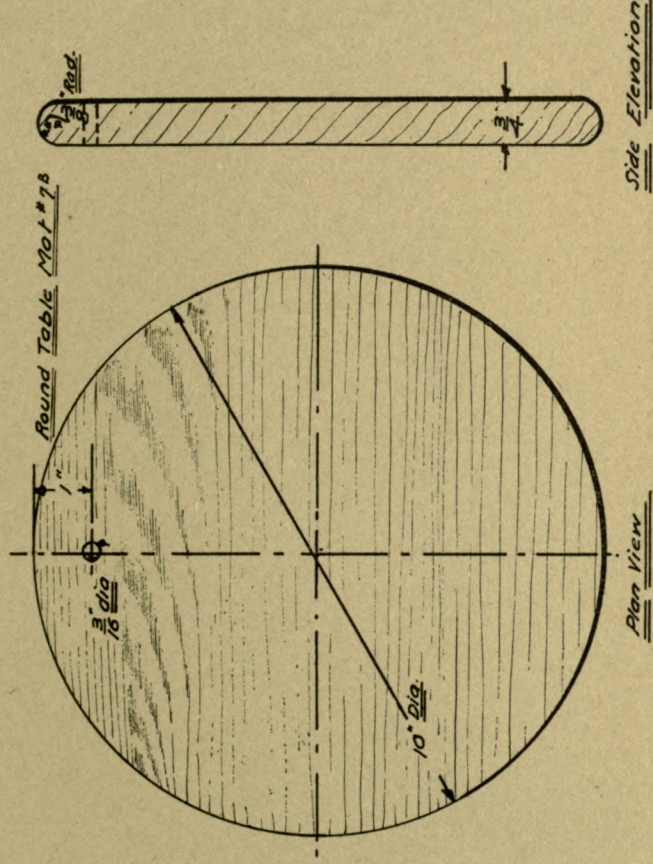
5TH GRADE Model #7
Stave Board - #7A



Plan View

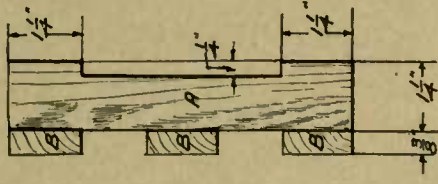
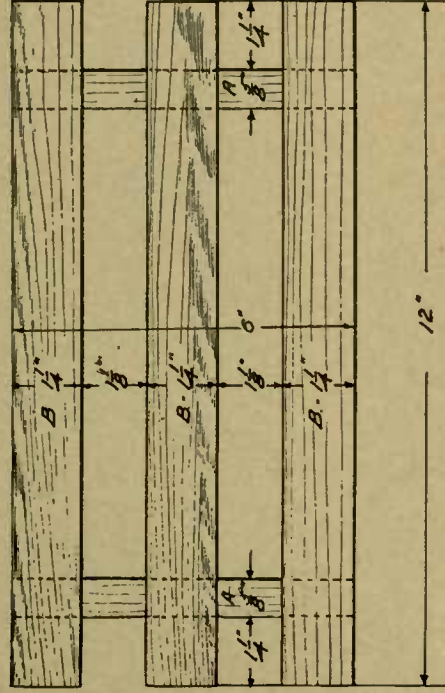


STEPS	TOOLS	ORDER OF EXERCISE
1. Curve sawing		1. Square and true stock.
2. Spokeshave smoothing	1. Pencil, rule, knife, and dividers	2. Draw outline on both surfaces.
3. Beveling	2. Spokeshave	3. Cut, using T saw and spokeshave.
	3. 3-16 inch drill	4. Chamfer edges and sandpaper.
	4. Marking gauge and try-square	5. Bore hole.
	5. Block and Jack plane	



STEPS	TOOLS	ORDER OF EXERCISE
1. Curve sawing	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Spokeshave smoothing	2. Spokeshave	2. Draw outline on both surfaces and cut.
3. Rounding edges	3. 3-16 inch drill	3. Round edges and sandpaper.
	4. Marking gauge and try-square	
	5. Block and Jack plane	

5th Grade Model #85
Flower Pot Stand #84

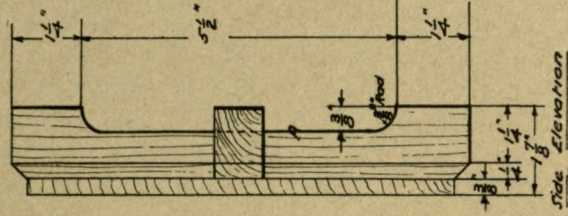
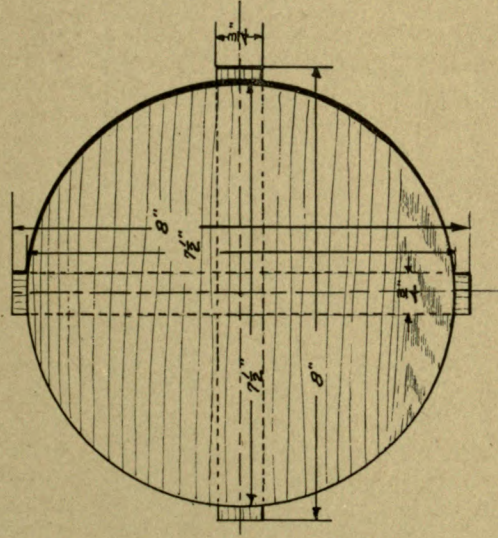


Plan View

Side Elevation

STEPS	TOOLS	ORDER OF EXERCISE
1. Chiselling	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Nailing	2. 3-4 inch chisel	2. Cut under part of legs A, using backsaw and chisel.
3. Nail setting	3. Hammer and backsaw.	3. Sandpaper with block.
	4. Nail set	4. Nail model together, using 1-inch No. 17 brads.
	5. Marking gauge and try-square	5. Set nails, stain, shellac, and polish.
	6. Block and Jack plane	

Round Flower Pot Stand "B"



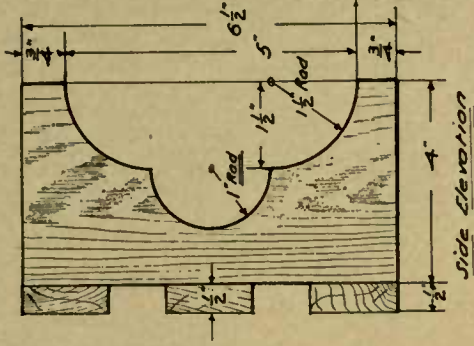
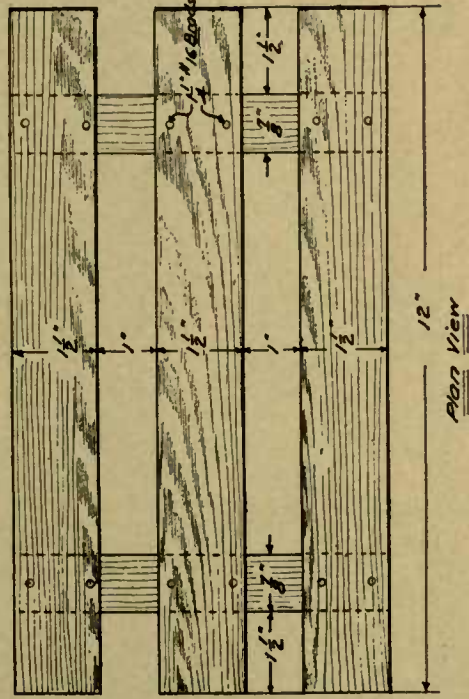
Plan View

Side Elevation

STEPS	TOOLS	ORDER OF EXERCISE
1. Chiseling	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Half-lap joint	2. 3-4 inch chisel	2. Lay out and cut under part A.
3. Nailing	3. Hammer	3. Lay out and cut half-lap joint.
4. Nail setting	4. Nail set	4. Sandpaper and glue together.
	5. Marking gauge and try-square	5. Nail on top, using 1-inch No. 17 brads.
	6. Block and Jack plane	6. Shellac and polish.

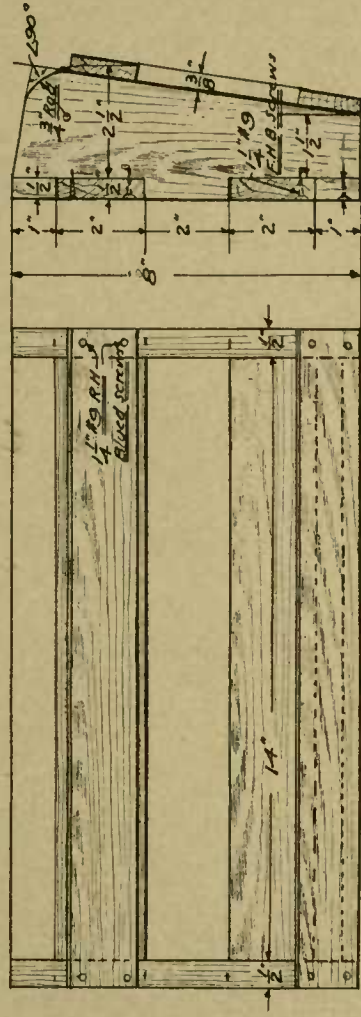
5th Grade Model #8

Foot stool #8c



STEPS	TOOLS	ORDER OF EXERCISE
<ol style="list-style-type: none"> 1. Nailing 2. Nail setting 3. Curve sawing 	<ol style="list-style-type: none"> 1. Pencil, rule, knife, and dividers 2. 1-inch bit 3. Hammer and turning saw. 4. Nail set 5. Marking gauge and try-square 6. Block and Jack plane 	<ol style="list-style-type: none"> 1. Square and true stock. 2. Draw outline of curve on side. 3. Cut, using bit and turning saw. 4. Sandpaper and brad together. 5. Stain and polish.

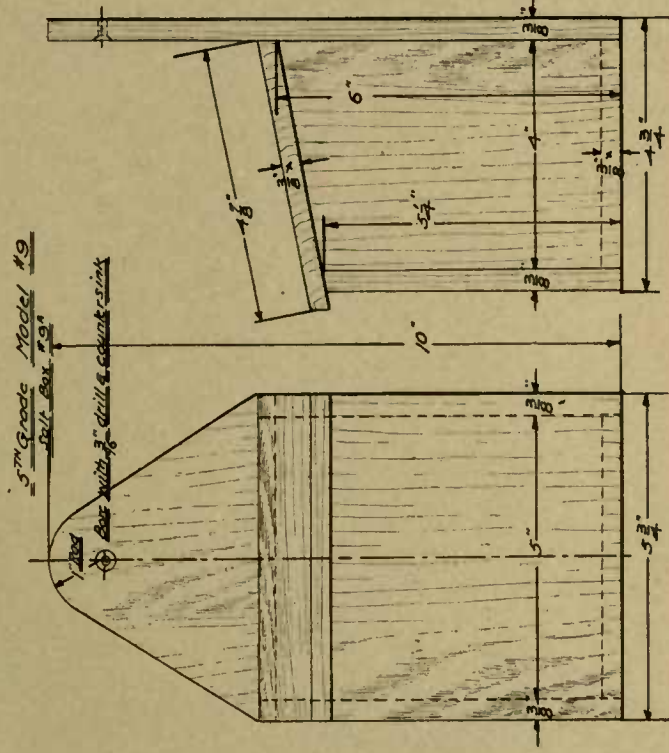
Magazine Rack 'B'



Front Elevation

Side Elevation

STEPS	TOOLS	ORDER OF EXERCISE
1. Chiseling	1. Pencil, rule, knife, and dividers 2. 3-4 inch chisel 3. Screw driver 4. Marking gauge and try-square 5. Block and Jack plane	1. Square and true stock.
2. Half-lap joint		2. Draw outline on sides and cut.
3. Curve sawing		3. Fit back slats and screw to sides.
		4. Fit front slats and screw to sides.
		5. Sandpaper, stain and polish.



STEPS

1. Fitting square joints
2. Nailing square joints
3. Fitting oblique cover
4. Curve sawing

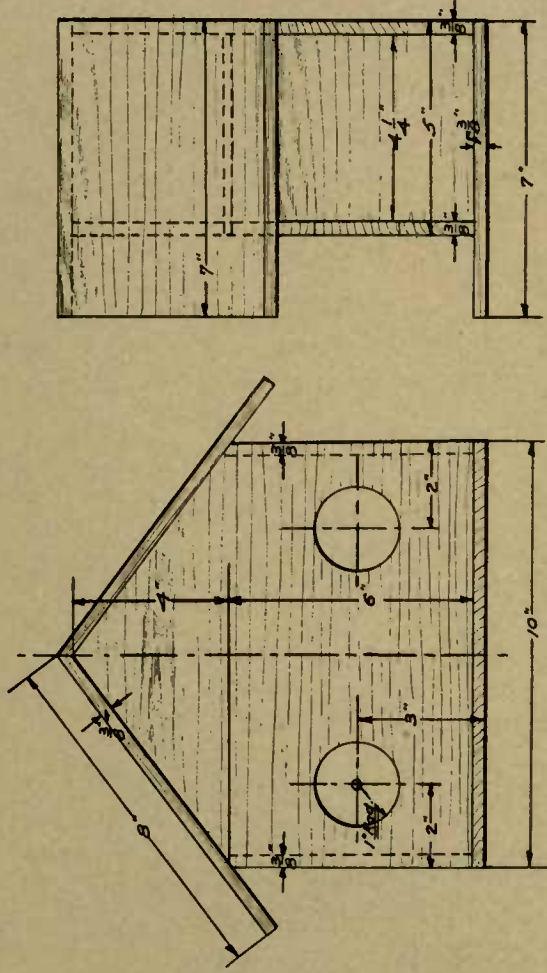
TOOLS

1. Pencil, rule, knife, and dividers
2. Bevel
3. Turning-saw
4. Spokeshave and file
5. Marking gauge and try-square
6. Block and Jack plane

ORDER OF EXERCISE

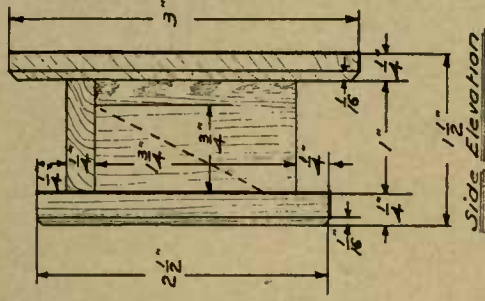
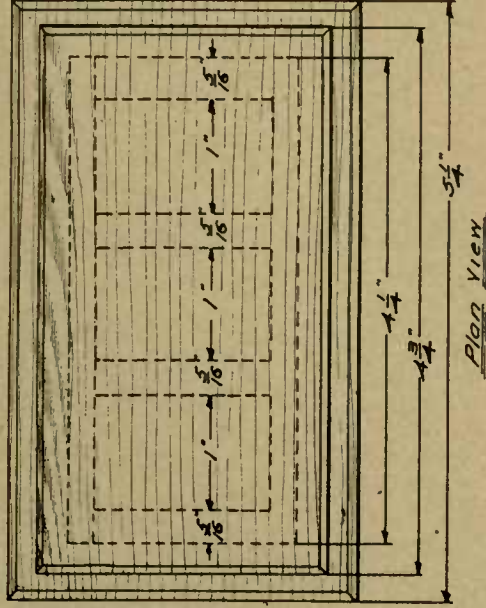
1. Square and true stock.
2. Saw bevel on sides, using backsaw.
3. Using bevel, fit front to cover.
4. Nail model together, using 1-inch No. 14 brads.
5. Fit cover and hinge.
6. Sandpaper, shellac outside, and polish.

Bird House #98



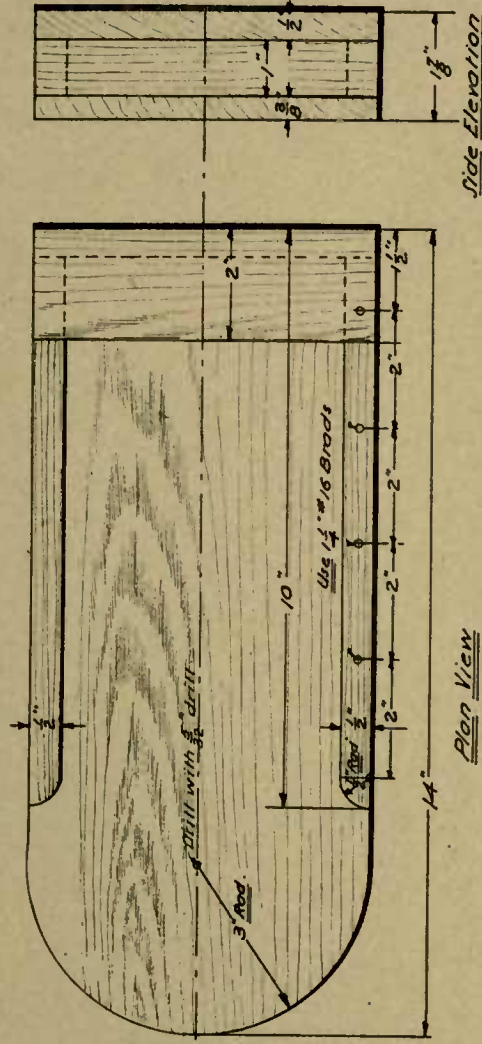
STEPS	TOOLS	ORDER OF EXERCISE
<ol style="list-style-type: none"> 1. Fitting square joints 2. Nailing square joints 3. Fitting oblique roof 	<ol style="list-style-type: none"> 1. Pencil, rule, knife, and dividers 2. Bevel 3. Expansion bit 4. Bit stock 5. Block and Jack plane 6. Marking gauge and try-square 	<ol style="list-style-type: none"> 1. Square and true stock. 2. Saw out front and back, using backsaw. 3. Bore holes in front. 4. Using bevel, fit sides to roof. 5. Nail together, using 1-4 inch No. 14 brads. 6. Sandpaper, stain and varnish.

5th Grade Model #9
Stamp Box #95



STEPS	TOOLS	ORDER OF EXERCISE
1. Filing square joints	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Nailing and gluing square joints	2. 1-inch chisel	2. Cut stamp-holders, using back-saw and chisel.
3. Fitting cover	3. Backsaw	3. Fit front to holder and glue.
	4. Block and Jack plane	4. Bevel base and glue to holder.
	5. Marking gauge and try-square	5. Fit cover and hinge.
		6. Sandpaper, stain and polish.

Scouring Board 190



STEPS

1. Fitting square joints
2. Nailing square joints
3. Curve sawing

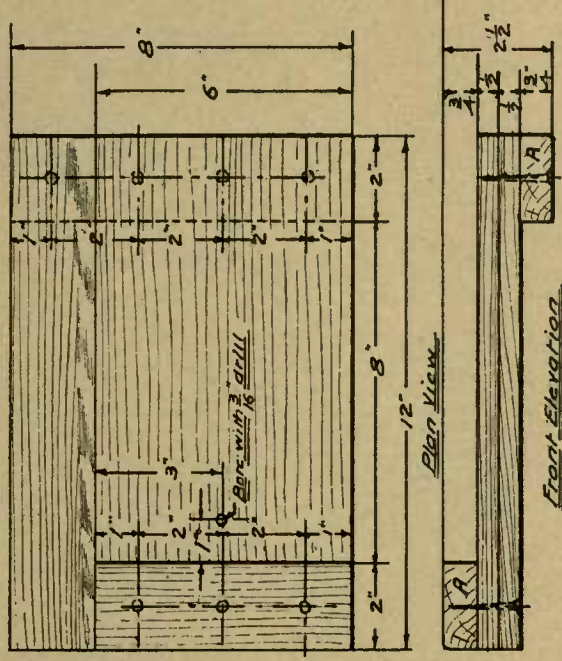
TOOLS

1. Pencil, rule, knife, and dividers
2. Nail set and hammer
3. Turning-saw
4. Spokeshave and file
5. Block and Jack plane
6. Marking gauge and try-square.

ORDER OF EXERCISE

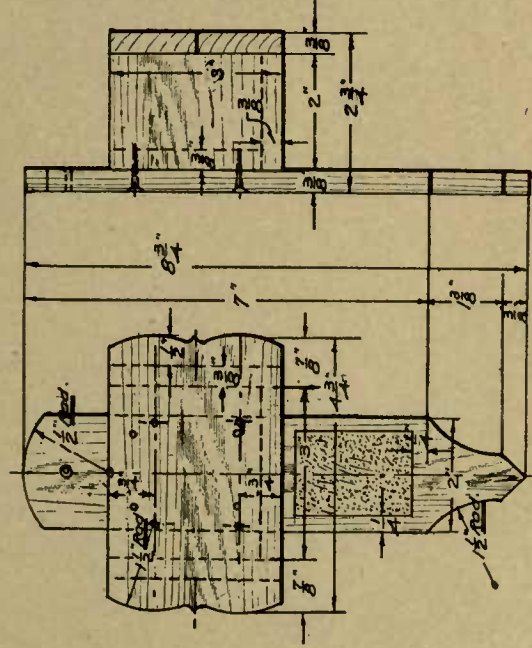
1. Square and true stock.
2. Cut sides and brad to base.
3. Fit end and brad to sides and base.
4. Fit cover and brad to sides and end.
5. Sandpaper, stain and shellac.

5TH Grade Model #1
Penet Hook No.



STEPS	TOOLS	ORDER OF EXERCISE
1. Screwing	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Gluing	2. Countersink and bit stock	2. Glue base pieces together, using handclamp.
3. Clamping	3. Screw driver and 3-16 inch drill	3. Clamp and screw carefully to base rests A.
	4. Hand clamp	4. Bore hole and round outside edges.
	5. 1/4 inch No. 10 screws	5. Finish and shellac.
	6. 1-inch No. 10 screws	
	7. Marking gauge and try-square	
	8. Block and Jack plane	

Match Box #1 B

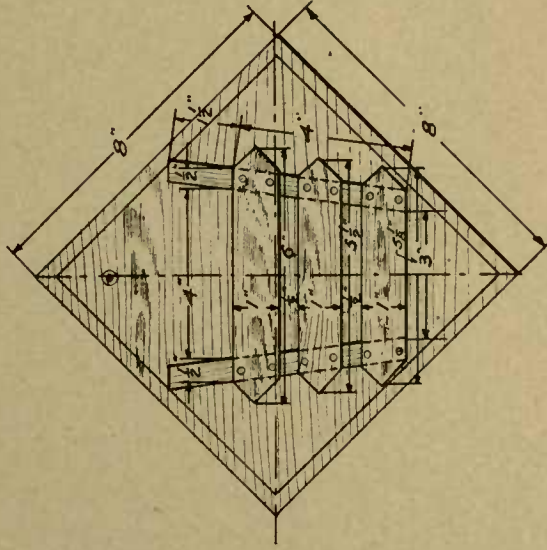


Front Elevation

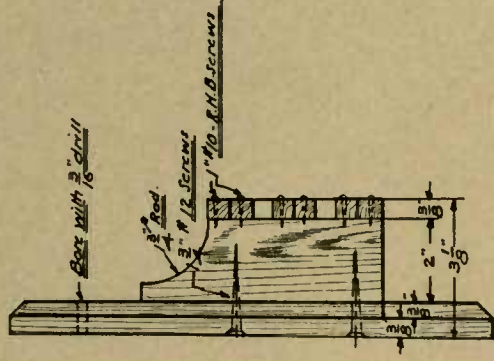
Side Elevation

STEPS	TOOLS	ORDER OF EXERCISE
1. Clamping 2. Screwing 3. Gluing	1. Pencil, rule, knife, and dividers 2. Countersink and bit stock 3. Screw-driver and hand-clamp 4. 1-8 inch drill 5. 5-8 inch No. 8 screws. 6. Marking gauge and try-square 7. Block and Jack plane	1. Square and true stock. 2. Draw outline and cut back. 3. Cut front and glue to sides, base and back. 4. Screw match-holder to back and sandpaper smooth. 5. Glue on, sandpaper, and shellac.

STM Grade Model #1
White Enam Veldt #1/C



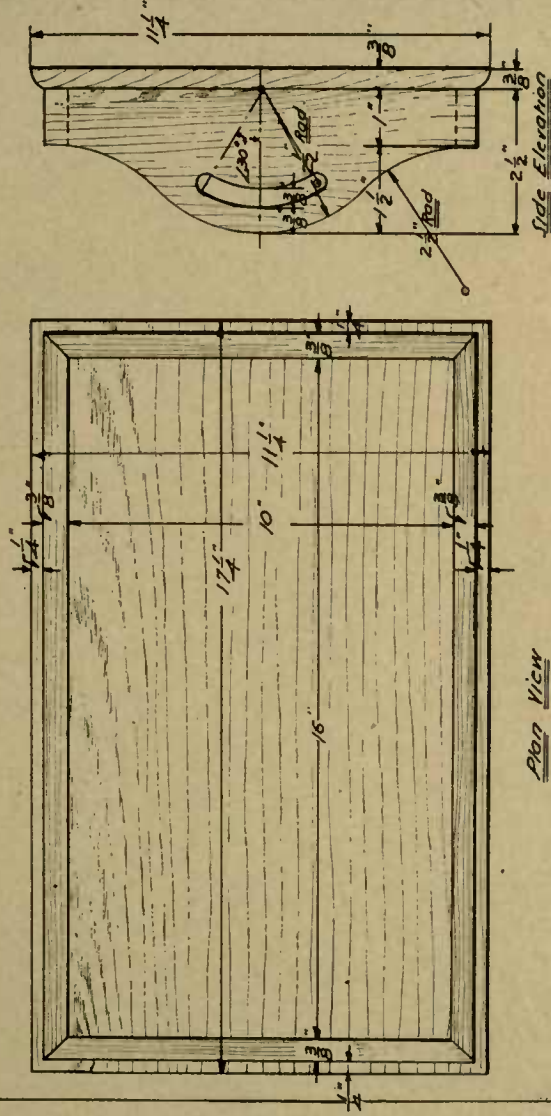
Front Elevation



Side Elevation

STEPS	TOOLS	ORDER OF EXERCISE
Countersinking		
1. Countersinking	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Screwing	2. Countersink and 1-16 inch drill	2. Chamfer back and bevel front slats.
3. Gluing	3. Screw driver and bit stock	3. Sandpaper stock, glue, and screw on slats to sides.
4. Beveling	4. Hand clamp	4. Glue on holder to base, sandpaper and shellac.
5. Clamping	5. 1 1/2 inch No. 12 screws	
	6. 1-inch No. 10 R. H. B. screws	
	7. Marking gauge and try-square	
	8. Block and Jack plane	

Fig. # 10

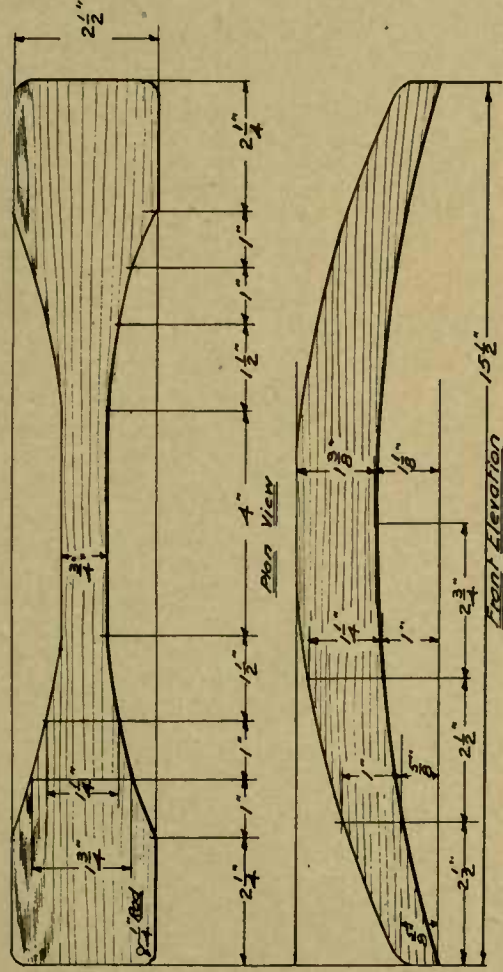


Plan View

STEPS	TOOLS	ORDER OF EXERCISE
1. Rounding edges 2. Miter jointing 3. Gluing 4. Clamping 5. Nailing	1. Pencil, rule, knife, and dividers 2. Backsaw and miter clamps 3. Hand clamps and bit stock 4. 3-8 inch bit 5. Rat tail file and hammer 6. 1-inch No. 14 brads 7. Marking gauge and try-square 8. Block and Jack plane	1. Square and true stock. 2. Round ends of base. 3. Cut ends and miter joints. 4. Sandpaper and glue together. 5. Nail on base, using 1-inch No. 14 brads.

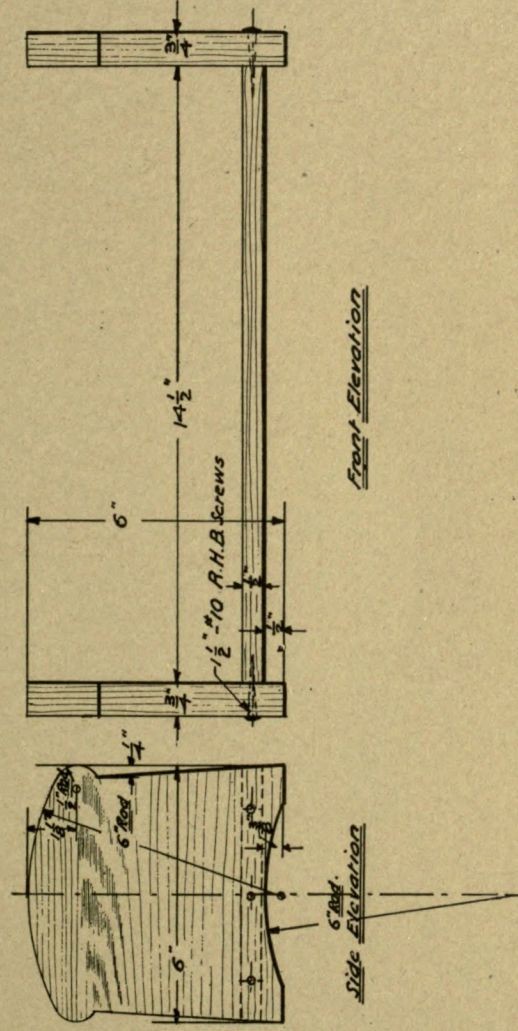
5TH Grade Model #2

Car. Height - 12"



STEPS	TOOLS	ORDER OF EXERCISE
1. Curve sawing	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Oblique planing	2. Smoothing plane	2. Draw outline from plan view.
3. Beveling with spokeshave	3. Half-round file	3. Using turning saw, spokeshave and cut to line.
	4. Turning saw	4. Draw outline of front elevation.
	5. Block and Jack plane	5. Finish same as plan view.
	6. Marking gauge and try-square	

Book Rack #2 B



STEPS

1. Beveling with spokeshave

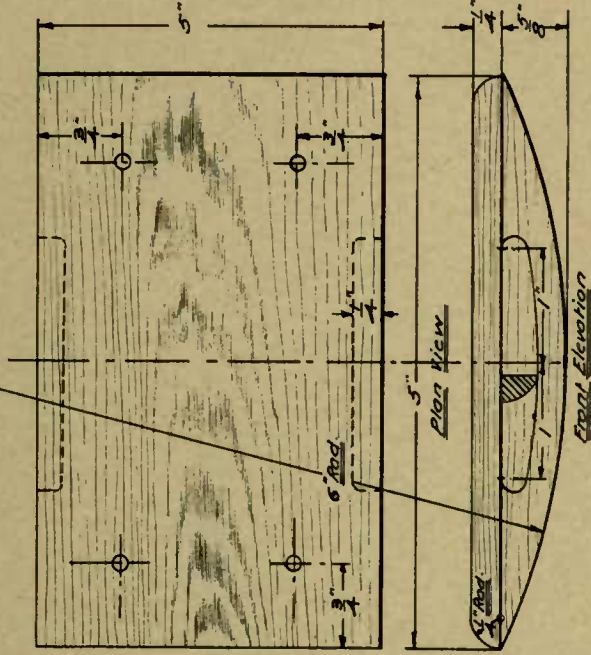
TOOLS

1. Pencil, rule, knife, and dividers
2. Smoothing plane
3. Half-round file
4. Turning saw and spokeshave
5. Cabinet file
6. Marking gauge and try-square
7. Block and Jack plane
8. 1 1/2 inch No. 10 R. H. B. screws

ORDER OF EXERCISE

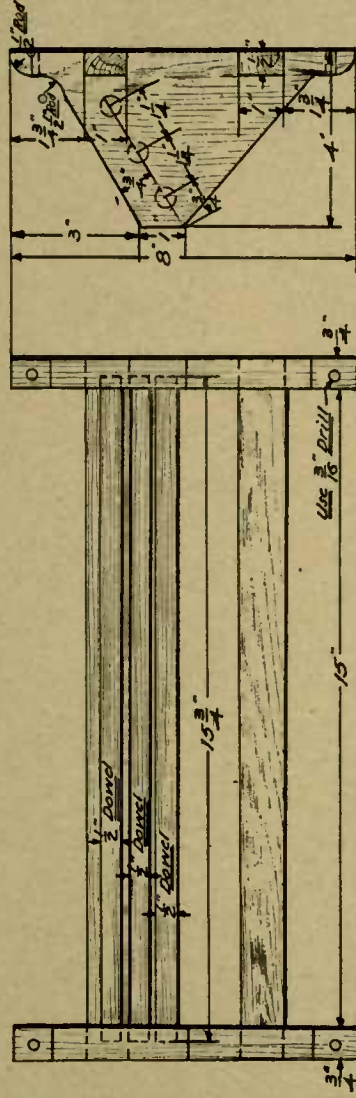
1. Square and true stock.
2. Mark out and cut ends.
3. Bore and screw ends to shell.
4. Sandpaper, stain and shellac.

6TH Grade Model #2
Blowing Rod #2c



STEPS	TOOLS	ORDER OF EXERCISE
1. Gouging to templet	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Curve sawing	2. 1-4 inch gouge and file	2. Lay out pad cut and smooth.
3. Rounding edges.	3. 1-8 inch drill and bit stock	3. Make top to fit and round edges.
	4. Turning saw and spoke-shave	4. Bore hole and screw together.
	5. Marking gauge and try-square	5. Sandpaper, stain and polish.
	6. Block and Jack plane	

Red Towel Rack #20

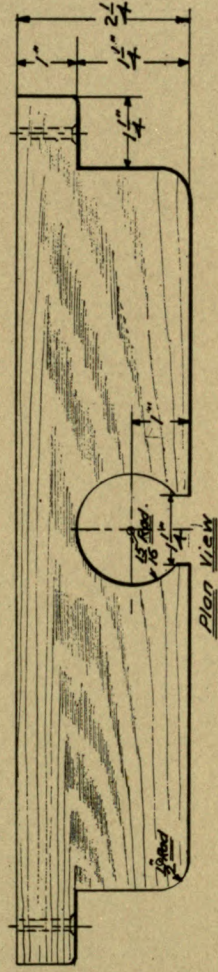
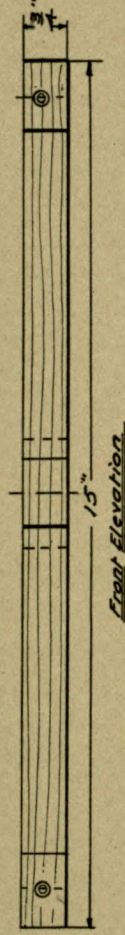


Front Elevation

Side Elevation

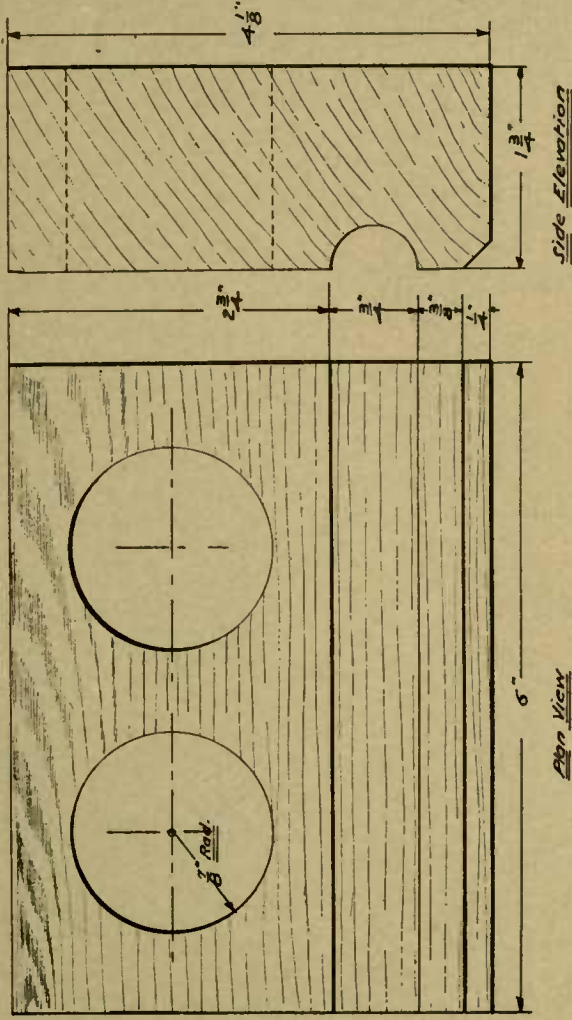
STEPS	TOOLS	ORDER OF EXERCISE
1. Irregular sawing	1. Pencil, rule, knife, and dividers	1. Square and true stock
2. Half-lap jointing	2. 1-2 inch bit	2. Lay out and cut ends.
3. Boring	3. 3-16 inch drill	3. Bore holes and cut joint.
	4. Bit stock and file	4. Fit dowels and glue in back slats
	5. Try-square and marking gauge	5. Sandpaper and varnish.
	6. Block and Jack plane	

0.74" Grade Model #3
Broom Holder #3A



STEPS	TOOLS	ORDER OF EXERCISE
1. Cutting square corner	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Vertical boring	2. 3-16 inch drill	2. Draw outlines and cut corners.
	3. Extension bit	3. Bore holes in ends and counter-sink.
	4. Turning saw and file	4. Bore centre hole and cut corners.
	5. Try-square and marking gauge	5. Sandpaper and stain model.
	6. Block and Jack plane	

Round Ink Well Holder #30



STEPS

1. Vertical boring
2. Gouging
3. Chamfering

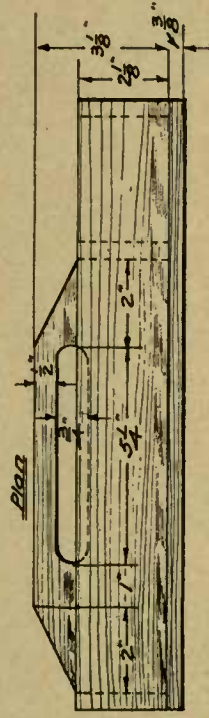
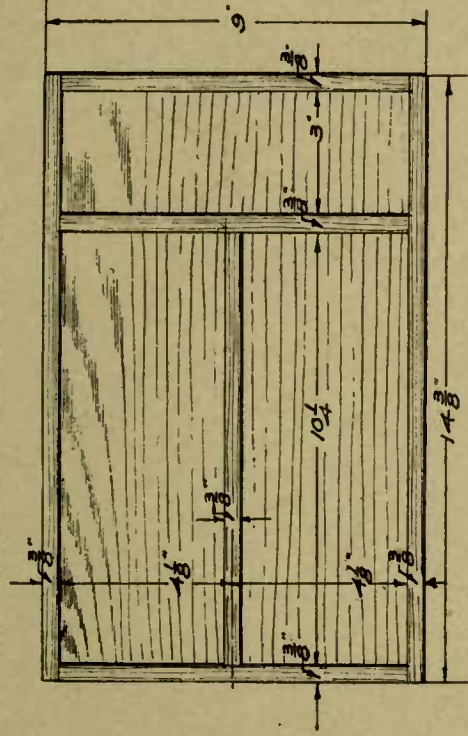
TOOLS

1. Penell, rule, knife, and dividers
2. 3-4 inch gouge
3. Extension bit and bit stock
4. Half-round cabinet scraper
5. Try-square and marking gauge
6. Block and Jack plane

ORDER OF EXERCISE

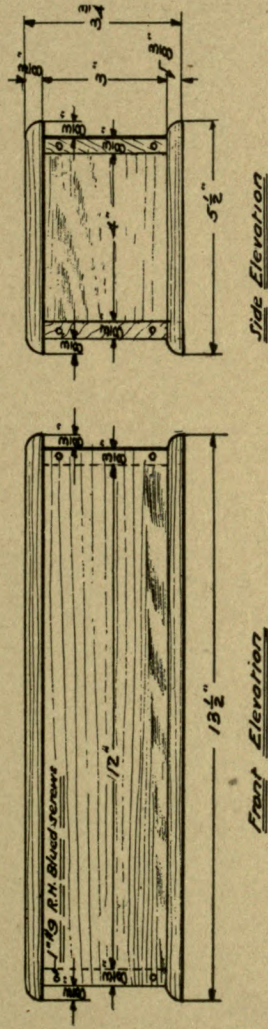
1. Plane stock square and true.
2. Gouge pen-tray.
3. Chamfer edge.
4. Bore holes.
5. Sandpaper, stain, and polish.

5th Grade Model #A
Knit Fork & Spoon Holder #1-A



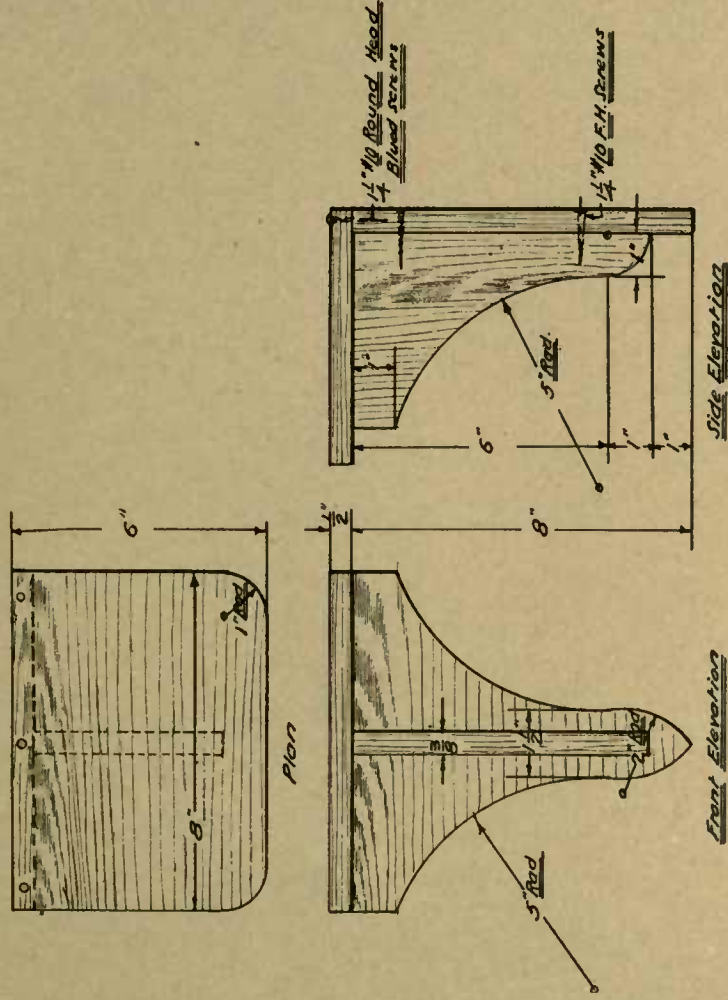
STEPS	TOOLS	ORDER OF EXERCISE
1. Compass sawing	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Fitting square joints	2. Compass saw	2. Brad slides to front and back.
3. Nailing and nail setting	3. Bradawl and hammer	3. Nail on bottom board.
4. Boring	4. 3-4 inch bit and bit stock	4. Place and nail centre boards.
	5. Try-square and marking gauge	5. Set all brads.
	6. Block and Jack plane	6. Finish with smoothing plane and scraper.
	7. 1 1/4 inch No. 14 brads	7. Sandpaper and shellac.

Glove Box #4 B



STEPS	TOOLS	ORDER OF EXERCISE
1. Fitting square joints	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Nailing and nailing	2. Bradawl and hammer	2. Round edges of top and bottom.
3. Cabinet scraping	3. Try-square and marking gauge	3. Glue and screw sides to front and back.
	4. Block and Jack plane	4. Brad on bottom.
		5. Place hinges on cover, scrape and sandpaper
		6. Stain and polish.

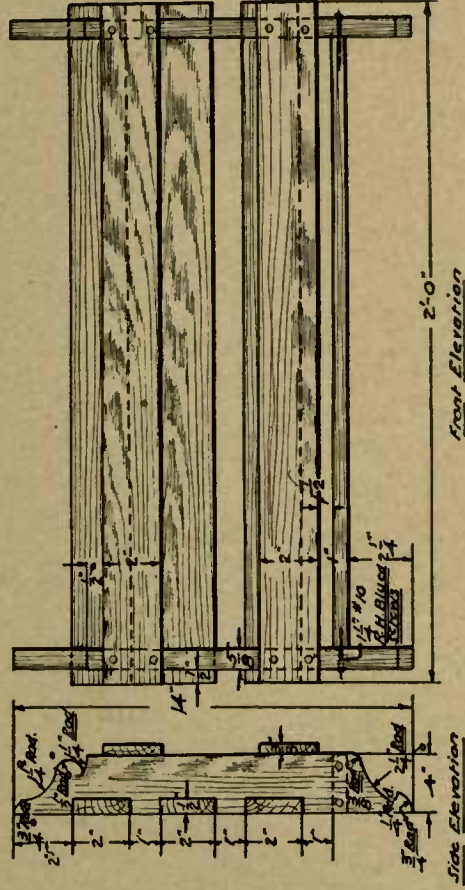
6TH Grade Model #4
Clock Shell #4c



STEPS	TOOLS	ORDER OF EXERCISE
1. Fitting square joints	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Curve sawing	2. 1-8 inch drill and bit stock	2. Mark out curves on each piece and cut.
3. Screwing	3. File and screw-driver	3. Screw and glue brace to back.
	4. Try-square and marking gauge	4. Screw and glue top to back.
	5. Block and Jack plane	5. Finish and polish.
	6. 1 1/2 inch No. 10 screws	
	7. 1 1/2 inch E. H. B. screws	

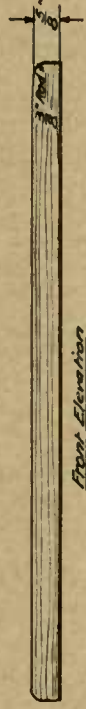


Magazine Rack # 40



STEPS	TOOLS	ORDER OF EXERCISE
1. Coping sawing 2. Half-cap joint	Fencil, rule, knife, and dividers Coping saw and screw-driver 3-4 inch chisel Half-round file Back saw and hammer Try-square and marking gauge Block and Jack plane	1. Square and true stock. 2. Lay out curves on sides and cut. 3. Fit shelf in place and screw to sides. 4. Fit back and front slats, screw and brad in place. 5. Sandpaper, stain, and polish.

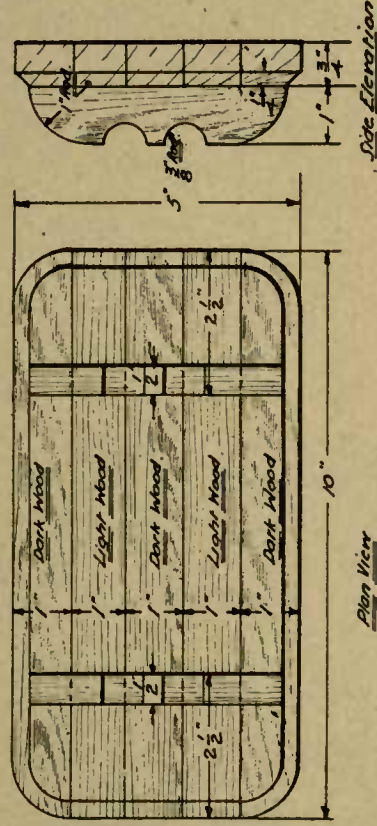
6TH Grade Model No. 5
Bread Board



STEPS	TOOLS	ORDER OF EXERCISE
1. Joining	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Clamping with and across grain	2. Jointer plane	2. Joint edges and dowel.
3. Gluing	3. Cabinet and hand clamp	3. Clamp together.
4. Doweling	4. Smoothing plane	4. Wash off surplus glue.
5. Cabinet scraping	5. 3-8 inch bit and bit stock	5. Take off clamp (after 24 hours).
	6. Try-square and marking gauge	6. Finish with smoothing plane and cabinet scraper.
	7. Block and Jack plane	



Pen Tray # 5-B

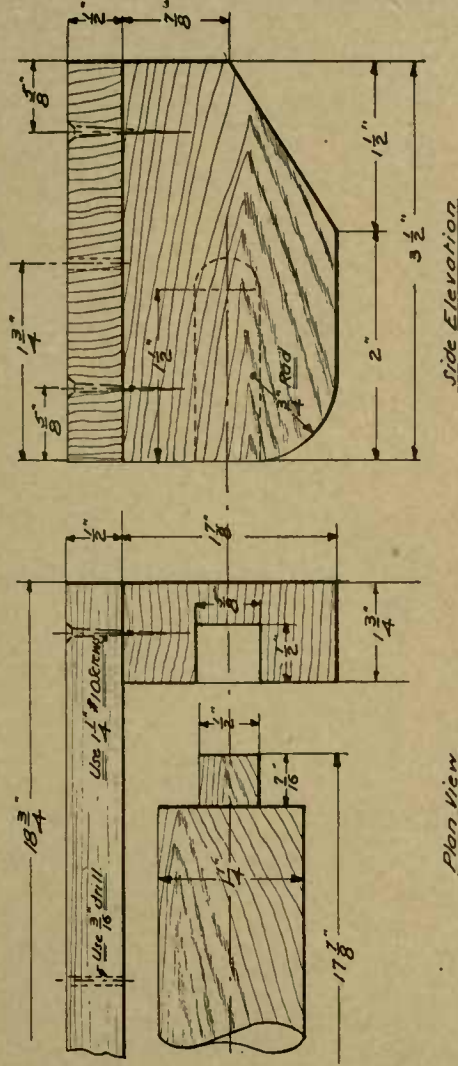


Plan View

Side Elevation

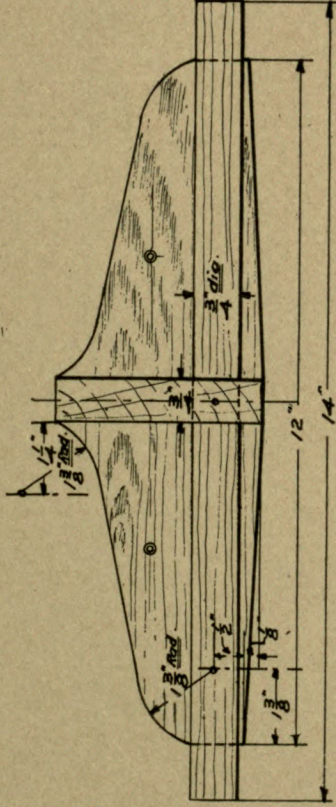
STEPS	TOOLS	ORDER OF EXERCISE
1. Joining	Pencil, rule, knife, and dividers	1. Square and true stock.
2. Clamping with and across grain	2. Jointer plane	2. Joint edges and bevel.
3. Gluing	3. Cabinet and hand clamps	3. Clamp together, wash of surplus glue.
4. Doweling	4. Smoothing plane	4. After 24 hours remove clamps.
	5. 3-8 inch bit and bit stock	5. Finish surface with smoothing plane and glue on penholder.
	6. Try square and marking gauge	6. Finish and polish.
	7. Block and Jack plane	

6TH Grade Model #6
Towel Roller #6

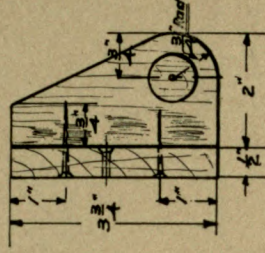


STEPS	TOOLS	ORDER OF EXERCISE
<ol style="list-style-type: none"> 1. Planing a cylinder 2. Fitting an axle 3. Boring 4. Countersinking 	<ol style="list-style-type: none"> 1. Pencil, rule, knife, and dividers 2. 5-8 inch bit and bit gauge 3. Bit stock and 1-8 and 3-16 inch drills 4. 1 1/2 inch No. 10 screws 5. Backsaw and turning saw 6. Try-square and marking gauge 7. Block and Jack plane 	<ol style="list-style-type: none"> 1. Square and true stock. 2. Plane stock round for roller. 3. Using bit gauge, bore slot in arm. 4. Bevel ends of arms. 5. Bore all necessary holes. 6. Screw together, sandpaper and shellac.

Tie Holder #68



Front Elevation

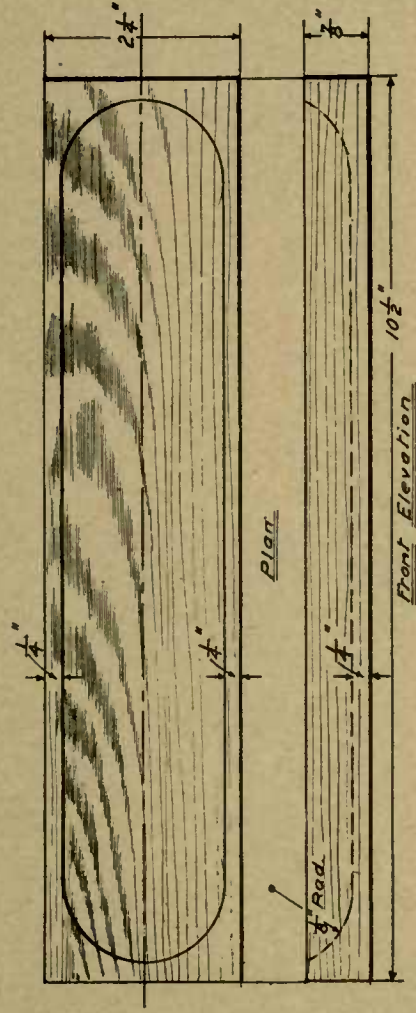


Side Elevation

STEPS	TOOLS	ORDER OF EXERCISE
1. Planing a cylinder	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Fitting an axle	2. 3-4 inch bit and bit stock	2. Plane stock round for holder.
3. Boring	3. 1-8 and 3-16 inch drills	3. Lay out and cut back and arm.
4. Countersinking	4. Backsaw and turning saw	4. Fit and screw together.
	5. File and screw-driver	5. Sandpaper, stain, and polish.
	6. Try-square and marking gauge	
	7. Block and Jack plane	

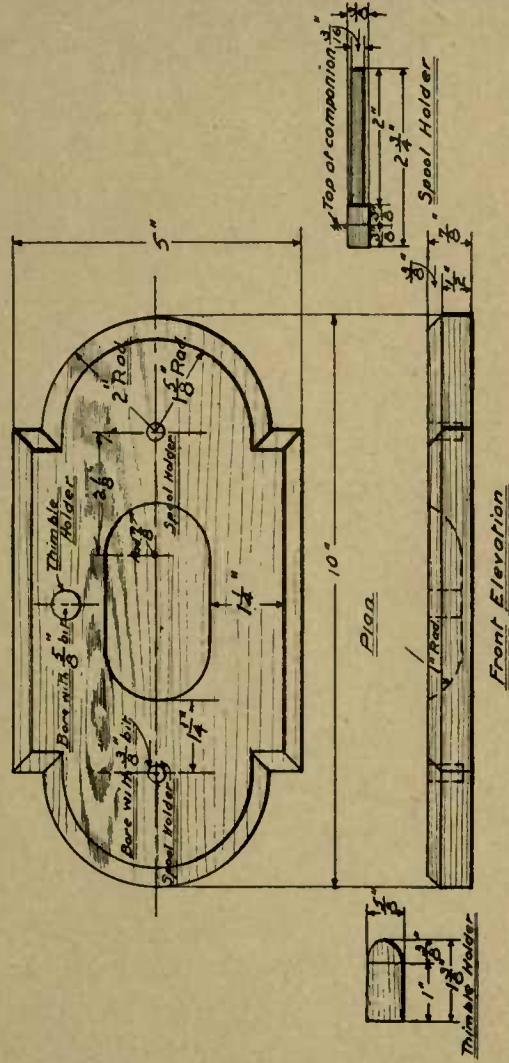
7th Grade Model #1

Pen Tray #1^A



STEPS	TOOLS	ORDER OF EXERCISE
1. Grooving with gouge	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Cabinet scraping	2. 1-inch gouge	2. Draw outline.
	3. Round cabinet scraper	3. Knife down edges 1-8 inch.
	4. Marking gauge and try-square	4. Gouge tray.
	5. Block and Jack plane	5. Smooth with cabinet scraper.
		6. Sandpaper and polish.

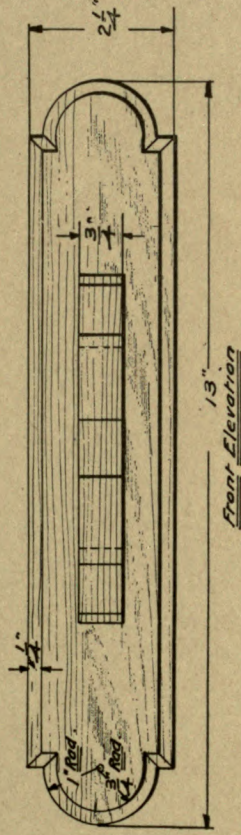
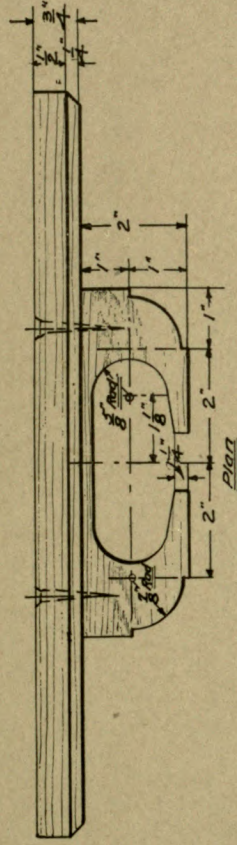
Sewing Companion No. 19



113 FEB 1917

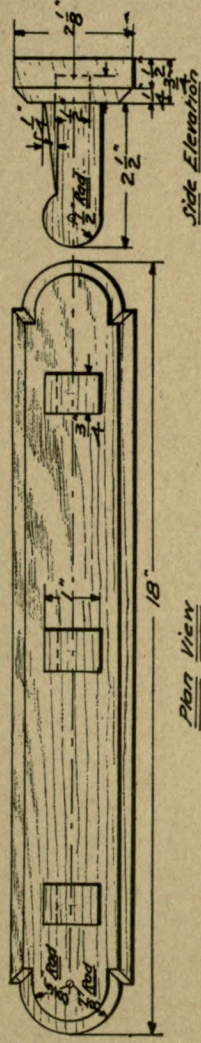
STEPS	TOOLS	ORDER OF EXERCISE
1. Grooving with gouge		1. Square and true stock.
2. Cabinet scraping		2. Draw outline.
3. Beveling round edges		3. Bore thimble and spool holes.
		4. Chamfer edges and gouge pin-tray.
		5. Make spool and thimble holder.
		6. Sandpaper and finish.

7th Grade Model #1
Brush Broom Holder #1c



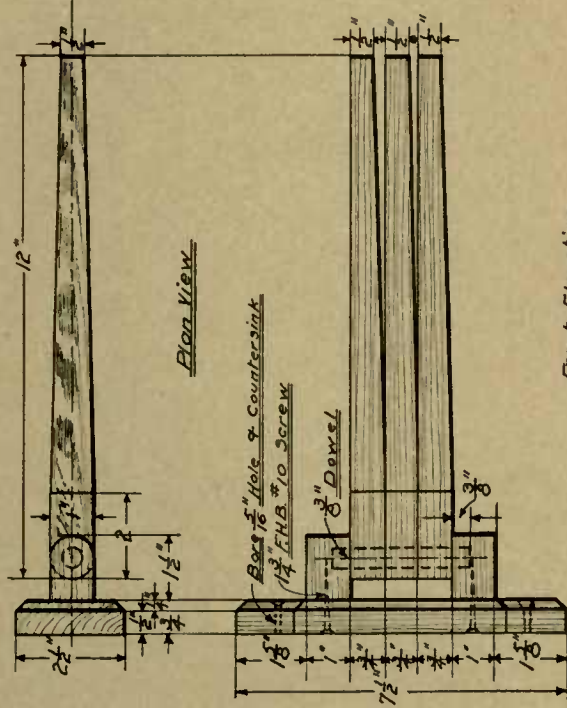
STEPS	TOOLS	ORDER OF EXERCISE
1. Beveling round edges		
2. Boring		
		1. Square and true stock.
		2. Draw outline of base and holder and cut.
		3. Bit stock and bit gauge
		4. Turning saw and 1-2 inch chisel
		3. Bevel edges of base.
		4. Screw on holder.
		5. Sandpaper, stain, and polish.

Hel Rack #10



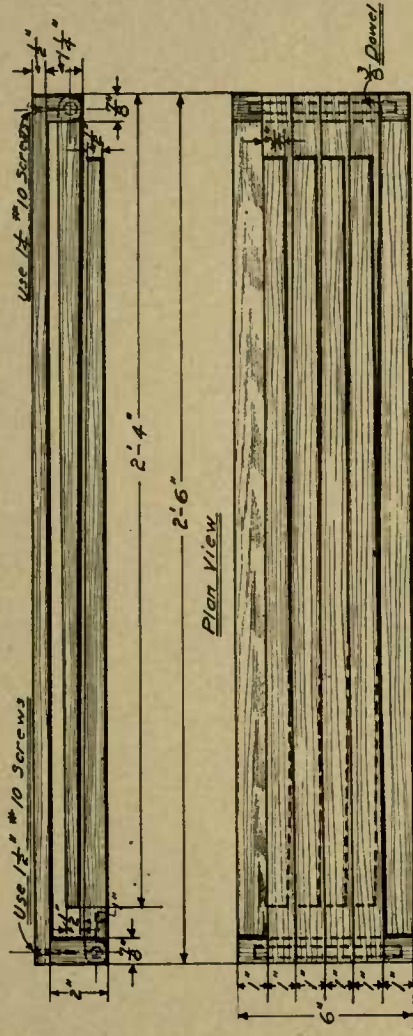
STEPS.	TOOLS	ORDER OF EXERCISE
1. Beveling round edges	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Paring with chisel	2. 1-2 inch bit and stock	2. Draw outline of base and cut.
	3. Turning saw and 1-2 inch chisel	3. Chamfer edges of base.
	4. Bit gauge	4. Make joints for holders and glue in.
	5. Marking gauge and try-square	5. Sandpaper, stain, and polish.
	6. Block and Jack plane	

7th Grade Model #2
Towel Rack #24



STEPS	TOOLS	ORDER OF EXERCISE
1. Cutting miter corners	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Beveling	2. 1-8 and 5-16 inch drills	2. Miter corners and bevel edges of base.
3. Fitting swinging arms	3. 3-8 inch bit and bit stock	3. Shape bracket and bore holes.
4. Boring	4. Bit gauge and 1-2 inch chisel	4. Shape arms to required dimensions.
	5. Back saw and screw-driver	5. Sandpaper, fit together, and glue.
	6. 1 1/2 inch No. 10 R. H. B. screws	6. Stain and varnish.
	7. Marking gauge and try-square	
	8. Block and Jack plane	

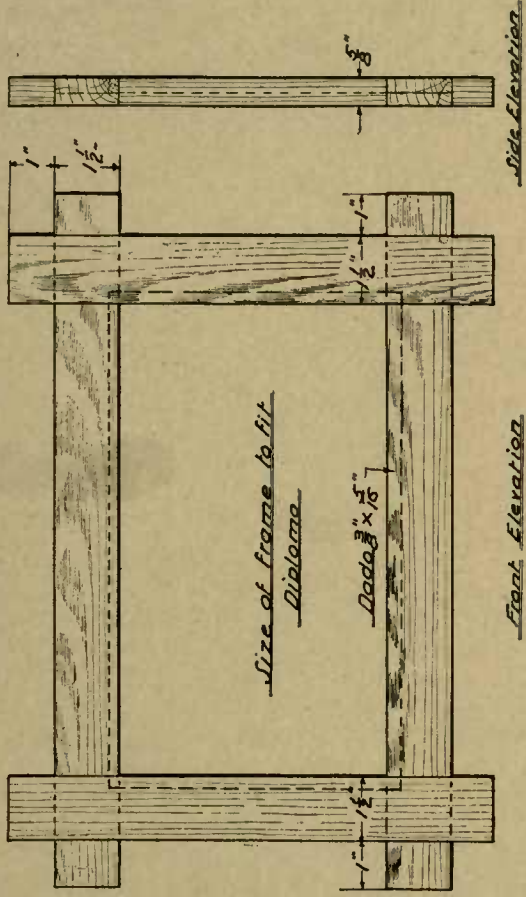
Clothes dryer #28



STEPS	TOOLS	ORDER OF EXERCISE
1. Fitting swinging arms	1. Pencil, rule, knife, and dividers	1. Square and true stock
2. Boring	2. 1/8 and 5-16 inch drills and 3-8 inch bit	2. Shade brackets and bore holes.
	3. Bit gauge and bit stock	3. Shade arms to required dimensions.
	4. Block sa and 1-2 inch chisel	4. Sandpaper, fit together and glue.
	5. 1/2 inch No. 10 F. H. B. screws	5. Stain and varnish.
	6. Marking gauge and try-square	
	7. Block and Jack plane	

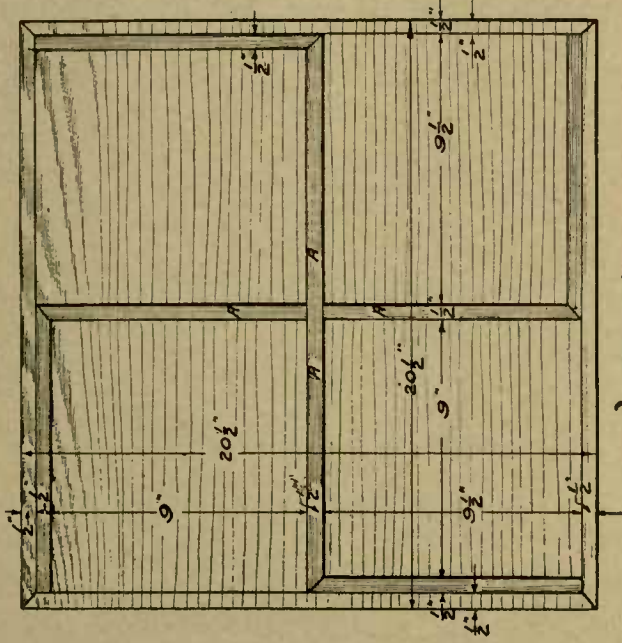
7th Grade Model #3

Picture Frame #31

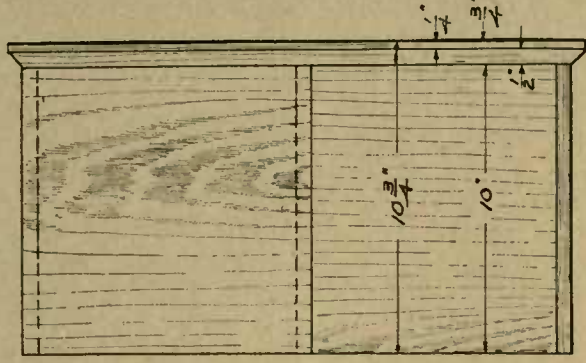


STEPS	TOOLS	ORDER OF EXERCISE
1. Half-lap joint		1. Square and true stock.
2. Gluing and clamping		2. Rabbet plane and 3-4 inch chisel
3. Dadoing		2. Dado edges.
		3. Hand clamp and back saw
		3. Cut joints and glue together.
		4. Marking gauge and try-square
		4. Sandpaper and stain.
		5. Block and Jack plane

Book Rack #3 B



Plan View

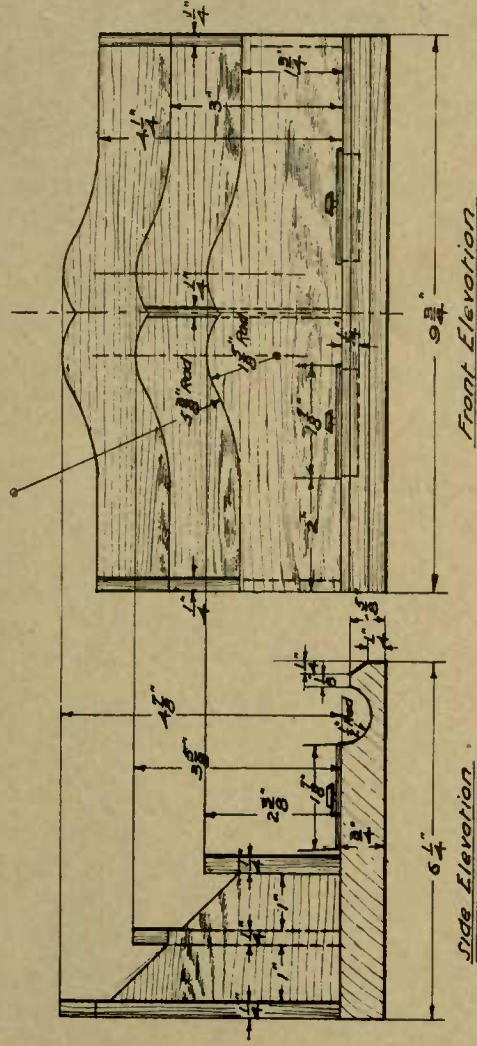


Side Elevation

STEPS	TOOLS	ORDER OF EXERCISE
1. Miter joints	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Gluing and clamping	2. Miter box	2. Miter corners where necessary.
	3. Marking gauge and try-square	3. Glue and clamp bookrack together.
	4. Bit stock and 1-8 inch drill	4. Screw rack to base.
	5. 1 1/4 inch No. 10 screws	5. Sandpaper, stain and varnish.
	6. Screw-driver	
	7. Block and Jack plane	

7th Grade Model #4

Pen Ink Envelope & Paper Holder
Model #4.1



STEPS

1. Mortising
2. Gouging
3. Curve sawing

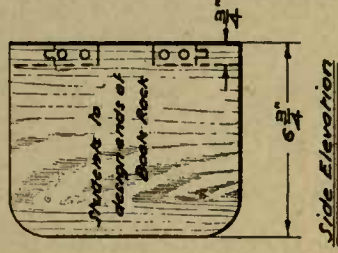
TOOLS

1. Pencil, rule, knife, and dividers
2. 1-inch chisel and 1-inch gouge
3. No. 8 bit, bit stock, and gauge
4. Turning saw and file
5. Marking gauge and try-square
6. Block and Jack plane

ORDER OF EXERCISE

1. Square and true stock.
2. Nail holder together.
3. Gouge pen-tray.
4. Mortise ink-well holder.
5. Bevel and cut edges.
6. Nail together and finish.

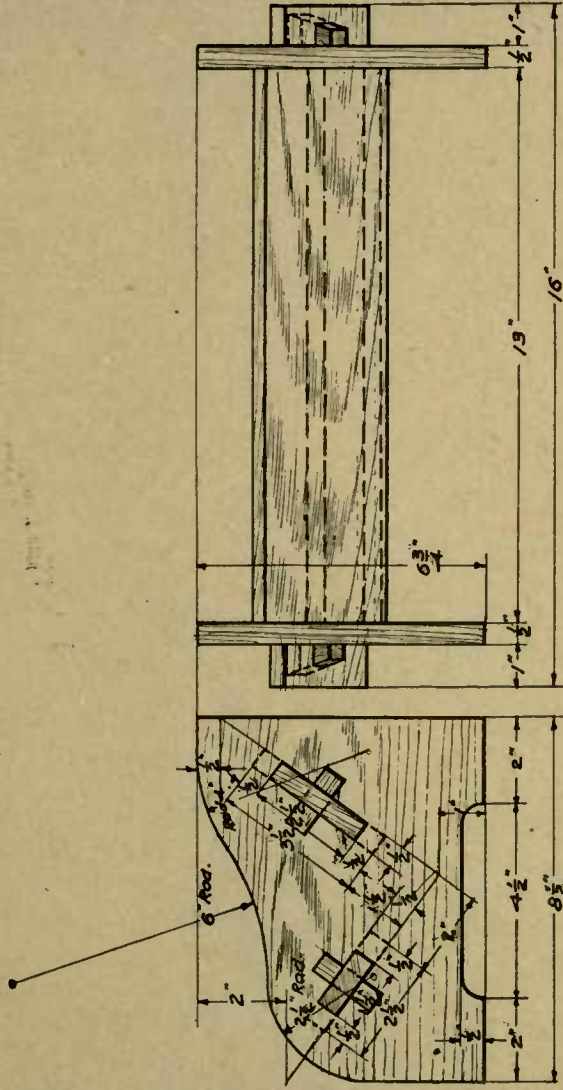
Model #48
Adjustable Book Rack



STEPS	TOOLS	ORDER OF EXERCISE
1. Tongue and grooving plane	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Curve sawing	2. Matching plane	2. Tongue and groove the runs.
	3. Turning saw and file	3. Screw runs on sides.
	4. 1-8 and 3-16 inch drill	4. Screw on slats.
	5. Bit stock and marking gauge	5. Sandpaper, stain, and shellac.
	6. Try-square and screw-driver	
	7. Block and Jack plane	

8TH Grade Model #1

Boat Rock Model #1/A

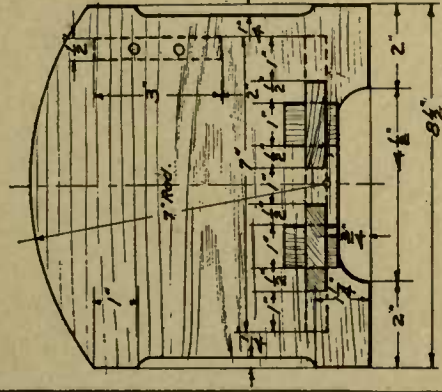


Side Elevation

Front Elevation

STEPS	TOOLS	ORDER OF EXERCISE
1. Key, mortise, and tenon joints	Pencil, rule, knife, and dividers	1. Square and true stock.
2. Shelves at right angles	1-2 inch bit and bit stock	2. Draw outline of ends, lay out and cut mortises.
3. Curve sawing	Turning saw and half-round file	3. Draw outline and lay out tenons of shelves.
	Marking gauge and try-square	4. Make keys.
	Block plane and jack plane	5. Sandpaper carefully.
		6. Stain, fill, and varnish.

Boat Rock Model #10



Side Elevation

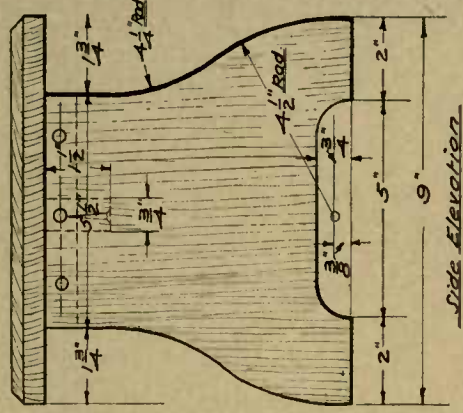
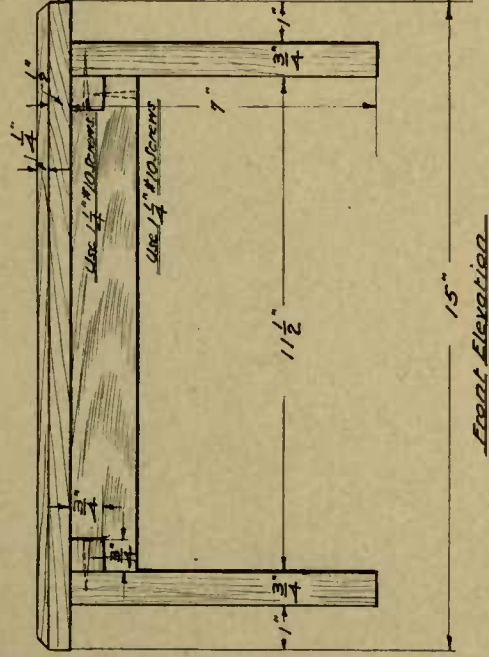


Front Elevation

STEPS	TOOLS	ORDER OF EXERCISE
1. Key, mortise, and tenon joints	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Curve sawing	2. 5-8 inch bit and bit stock	2. Draw outline of ends, lay out and cut mortise.
	3. Bit gauge and file	3. Draw outline and lay out tenons of shelf.
	4. Turning saw and marking gauge	4. Make keys.
	5. Marking saw and try-square	5. Assemble parts and sandpaper.
	6. Block and Jack plane	6. Stain, fill, and varnish.

8TH Grade Model #2

First School Model #20



STEPS

1. Fitting centre brace
2. Curve sawing
3. Beveling

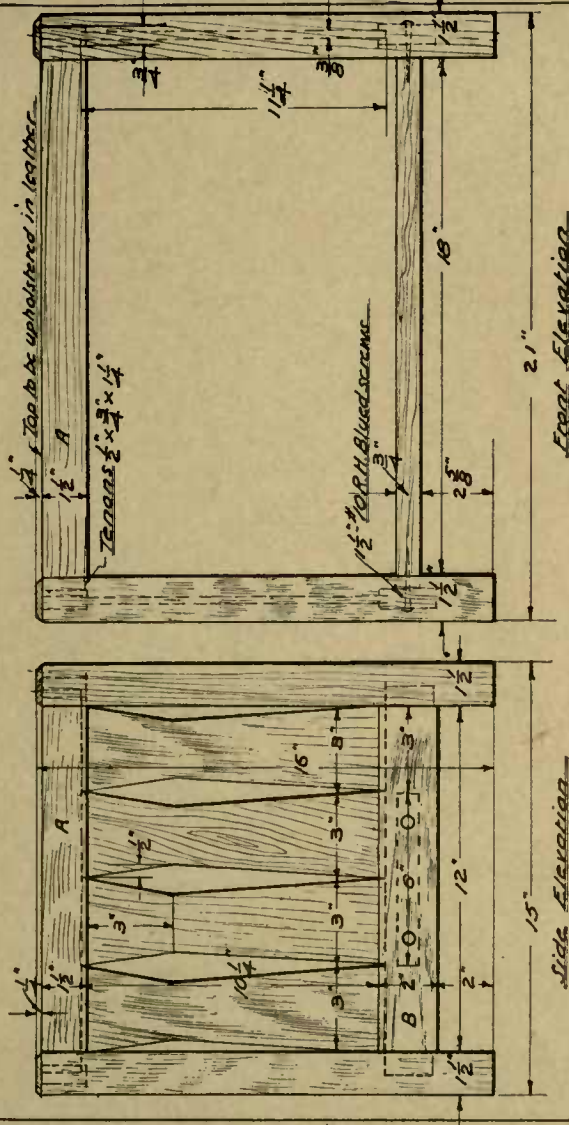
TOOLS

1. Pencil, rule, knife, and dividers
2. Turning saw and half-round file
3. 3-16 inch drill and bit stock
4. Marking gauge and try-square
5. Cabinet scraper
6. Block and Jack plane

ORDER OF EXERCISE

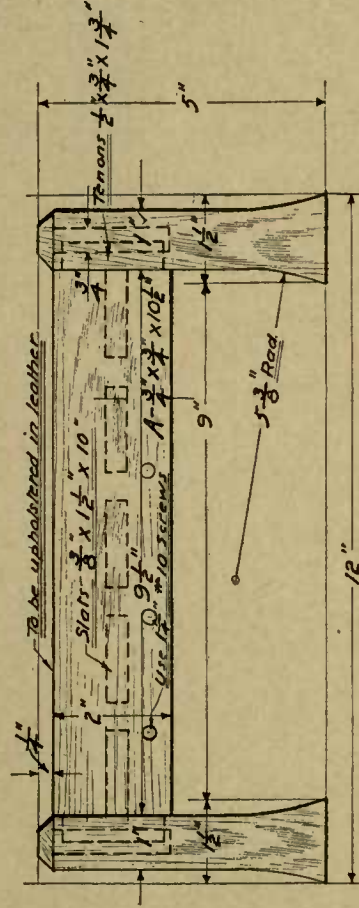
1. Square and true stock.
2. Chamfer edges of top.
3. Lay out and cut outline of sides.
4. Screw on side and top braces.
5. Screw on top.
6. Sandpaper, stain, and polish.

Foot Stool Model # 2 B



STEPS	TOOLS	ORDER OF EXERCISE
1. Mortise and tenon joints	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Grooving	2. 1-2 inch bit and bit stock	2. Cut tenons on braces A and B.
3. Fitting shelf	3. 3-16 inch drill and bit gauge	3. Cut mortises for tenons in legs.
4. Upholstering	4. Stanley Plow No. 45	4. Plow out groove for side slats.
	5. Cabinet scraper and marking gauge	5. Fit together, glue, and screw in shell.
	6. Try-square, block and Jack plane	6. Sandpaper, stain, and shellac.
		7. Upholster.

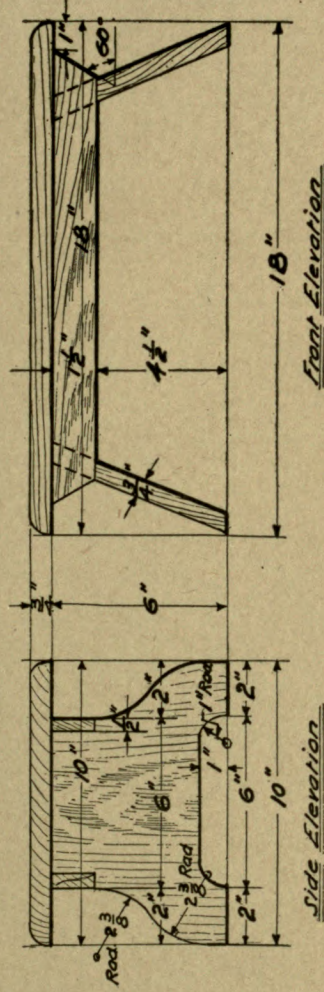
8th Grade Model #2
Foot Stool Model #2-s



Foot & Side Elevations

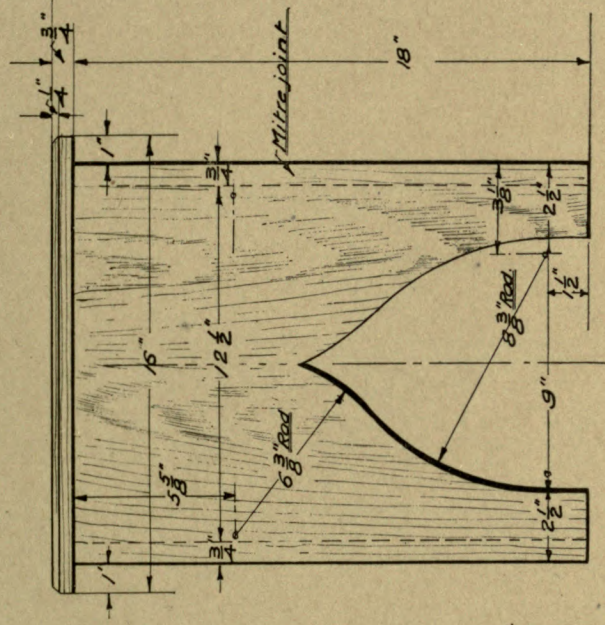
STEPS	TOOLS	ORDER OF EXERCISE
1. Mortise and tenon joints	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Upholstering	2. 1-2 inch bit, bit stock and gauge	2. Shape legs and cut mortises.
	3. Turning saw and cabinet scraper	3. Cut tenons on braces to fit mortises.
	4. Marking gauge and try-square	4. Screw on slat brace
	5. Block and Jack plane	5. Glue and clamp together.
		6. Scrape and sandpaper.
		7. Brad in slats, stain, varnish, and upholster.

Foot Stool #2 B



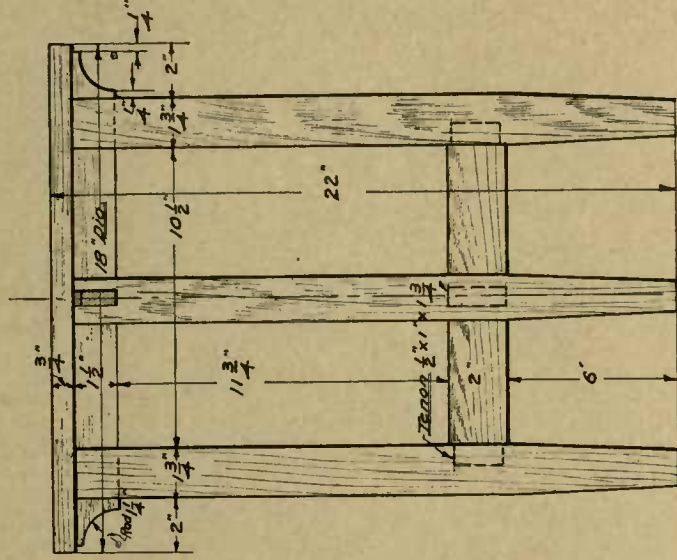
STEPS	TOOLS	ORDER OF EXERCISE
1. Half-lap joints	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Curve sawing	2. Turning saw and screw-driver	2. Round edges of top.
3. Rounding edges	3. Round cabinet scraper	3. Shape and cut sides.
	4. Half-round file and 1-2 inch chisel	4. Fit braces to sides.
	5. Marking gauge and try-square	5. Screw on top.
	6. Block and jack plane	6. Scrape, sandpaper, and polish.

8TH Grade Model #3
Tabouret Model #3ⁿ



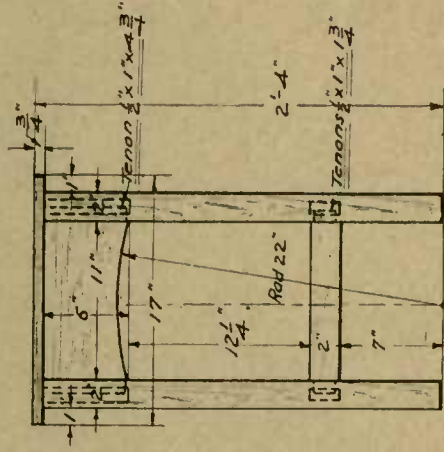
STEPS	TOOLS	ORDER OF EXERCISE
1. Chamfering	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Miter jointing	2. Turning saw and bevel	2. Chamfer edges of top.
3. Curve sawing	3. Half-round file	3. Miter edges of sides, lay out and cut curve.
	4. Marking gauge and try-square	4. Sandpaper and glue.
	5. Block and Jack plane	5. Stain and finish.

Tobacuci Model # 38



STEPS	TOOLS	ORDER OF EXERCISE
1. Through mortise and tenon joint	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Chamfering legs	2. 1-2 inch bit and bit stock	2. Shape legs and cut mortises.
	3. Bit gauge	3. Fit tenons on braces and mortises in legs.
	4. Half-round file	4. Scrape, sandpaper, glue and finish.
	5. Marking gauge and try-square	
	6. Block and Jack plane	

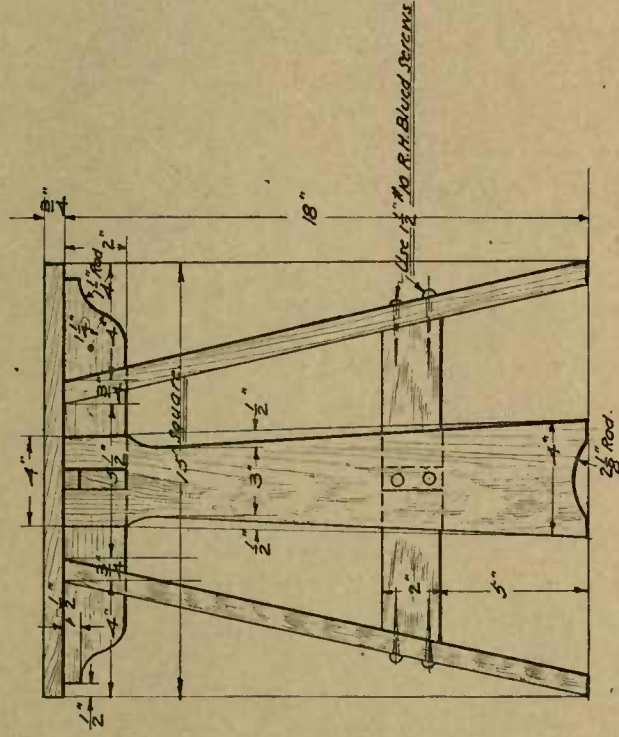
8TH Grade Model 3
Tobouret Model # 3c



Side & Front Elevation

STEPS	TOOLS	ORDER OF EXERCISE
1. Mortise and tenon joints		1. Square and true stock.
2. Curve sawing		2. Lay out and cut mortises in legs,
3. Sandpapering		3. Lay out and cut tenons in braces,
		4. Cut curve on upper brace.
		5. Sandpaper and fit together.
		6. Glue, stain, and finish.

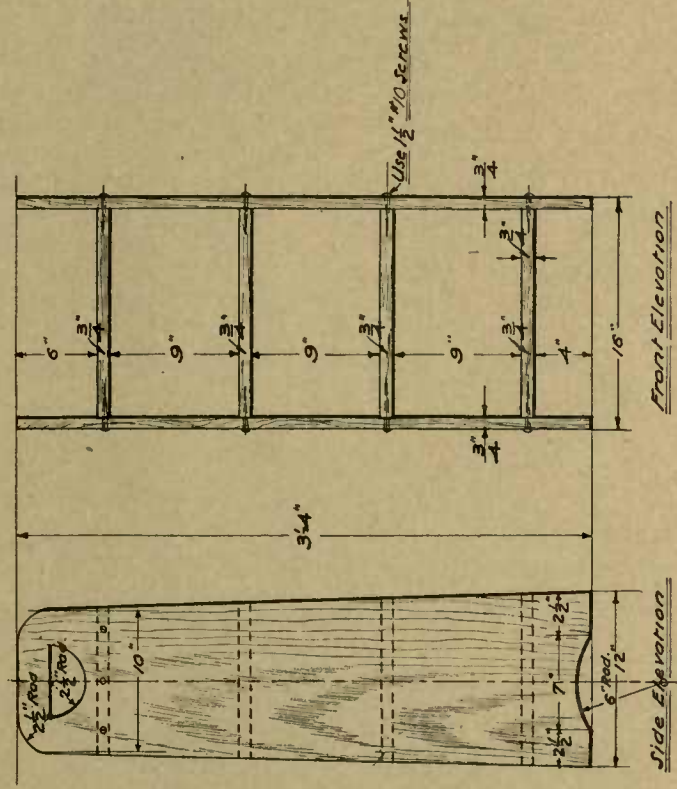
Tabouret Model # 30



Side & Front Elevation

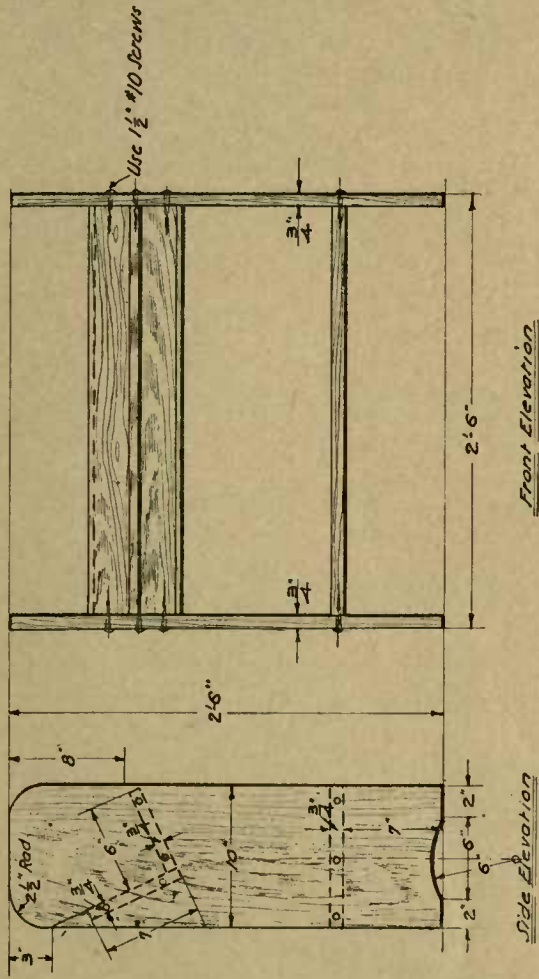
STEPS	TOOLS	ORDER OF EXERCISE
1. Through mortise and tenon joint 2. Curve sawing 3. Sandpapering	1. Pencil, rule, knife, and dividers 2. 1-2 inch bit and stock 3. Turning saw and bit gauge 4. Half-round file 5. Cabinet scraper 6. Marking gauge and try-square 7. Block and Jack plane	1. Square and true stock. 2. Lay out curve and tenons in legs. 3. Fit braces to legs. 4. Sandpaper and fit together. 5. Glue, stain, and finish.

8TH Grade Model #4
Magazine Rack Model #40



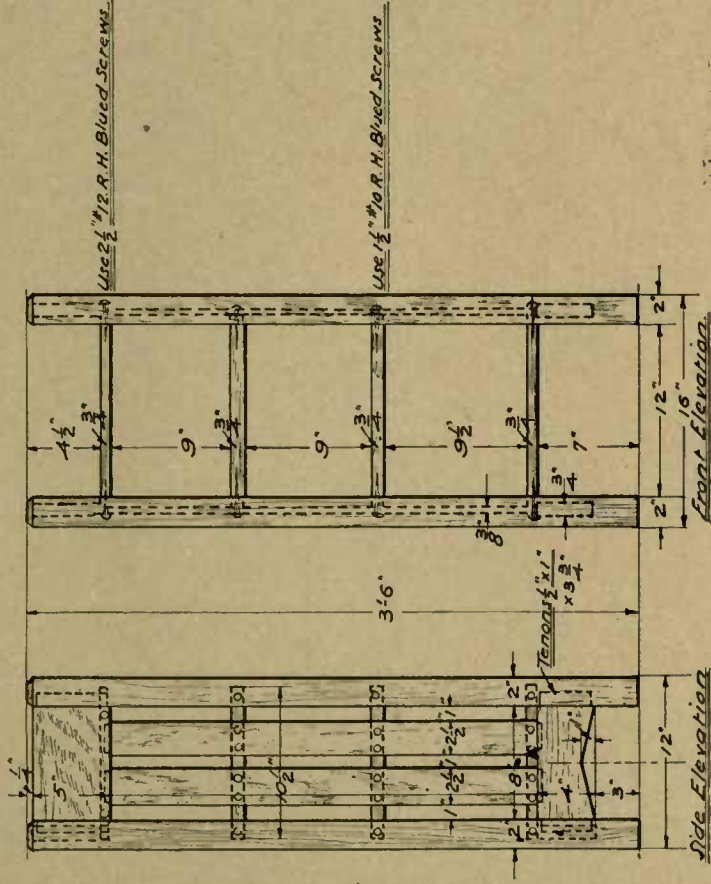
STEPS	TOOLS	ORDER OF EXERCISE
1. Butt joint	1. Pencil, rule, knife, and dividers 2. 3-16 inch drill and bit stock 3. Turning saw and half-round file 4. Cabinet scraper and screw-driver 5. Marking gauge and try-square 6. Block and Jack plane	1. Square and true stock. 2. Shape sides. 3. Screw together and scrape. 4. Sandpaper, stain, fill, and varnish.

Magazine & Book Rack
Model # 4.0



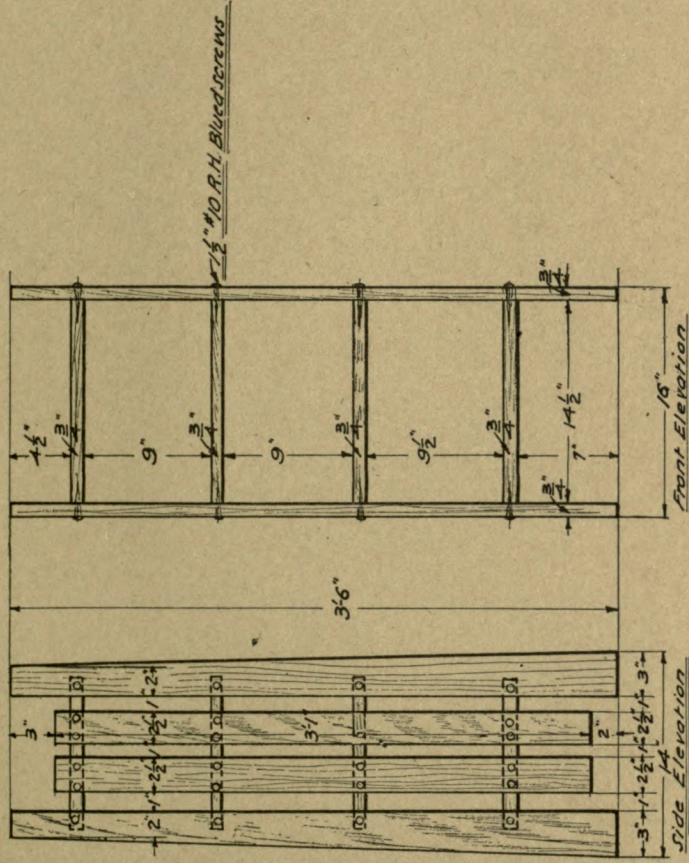
STEPS	TOOLS	ORDER OF EXERCISE
1. Butt joint	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Shelves at right angles	2. 24-inch steel square and screw-driver	2. Shape side.
	3. Turning saw and file	3. Screw in shelves, scrape, and sandpaper.
	4. Cabinet scraper	4. Stain, varnish, and wax.
	5. 3-16 inch drill and bit stock	
	6. Marking gauge and try-square	
	7. Block and Jack plane	

8th Grade Model #4
Magazine Rack Model #4^c



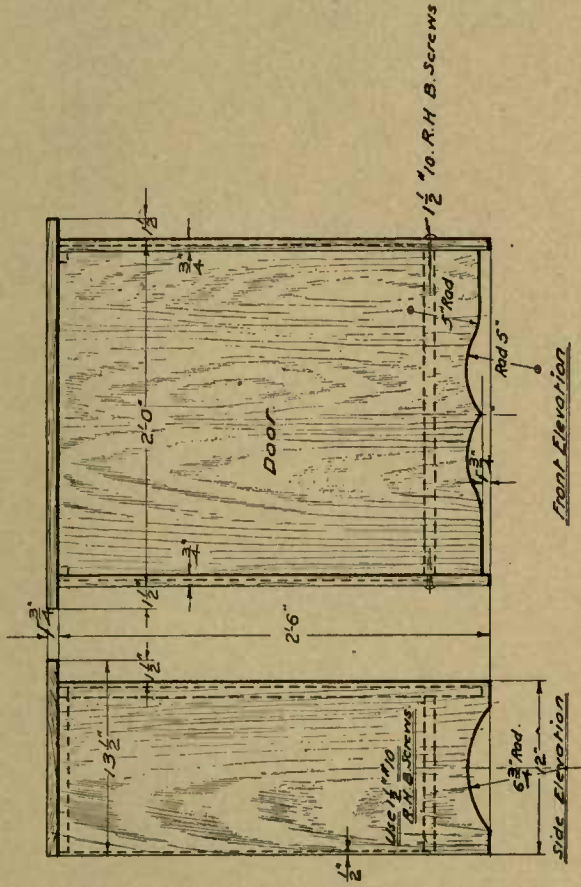
STEPS	TOOLS	ORDER OF EXERCISE
1. Mortise and tenon joints	1. Pencil, rule, knife, and dividers 2. 1-2 inch bit and stock 3. Bit gauge and 5-16 inch drill 4. Marking gauge and try-square 5. Block and Jack plane	1. Square and true stock. 2. Cut mortises in legs. 3. Cut mortises in braces and fit tenons. 4. Clamp together and fit shelves. 5. Sandpaper, and finish.

Magazine Rack Model #4-D



STEPS	TOOLS	ORDER OF EXERCISE
1. Butt joint	1. Pencil, rule, knife, and dividers 2. 5-32 inch drill and bit stock 3. Cabinet scraper 4. Marking gauge and try-square 5. Block and Jack plane	1. Square and true stock. 2. Shape side pieces. 3. Screw together and scrape. 4. Sandpaper, stain, fill, and varnish.

8TH Grade Model #5
Medicine Cabinet #5A



STEPS

1. Dadoing for back
2. Butt joint
3. Fitting door

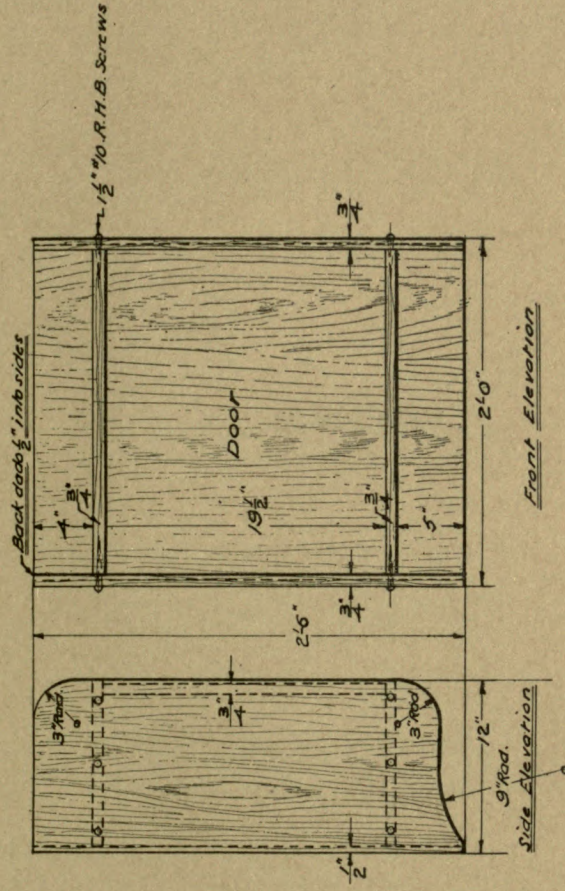
TOOLS

1. Pencil, rule, knife, and dividers
2. 3-16 inch drill and bit stock
3. Turning saw and cabinet scraper
3. Brad in back.
4. Half-round file and screw-driver
4. Shape and fit door.
5. Marking gauge and try-square
5. Sandpaper, stain, and varnish.
6. Block and jack plane

ORDER OF EXERCISE

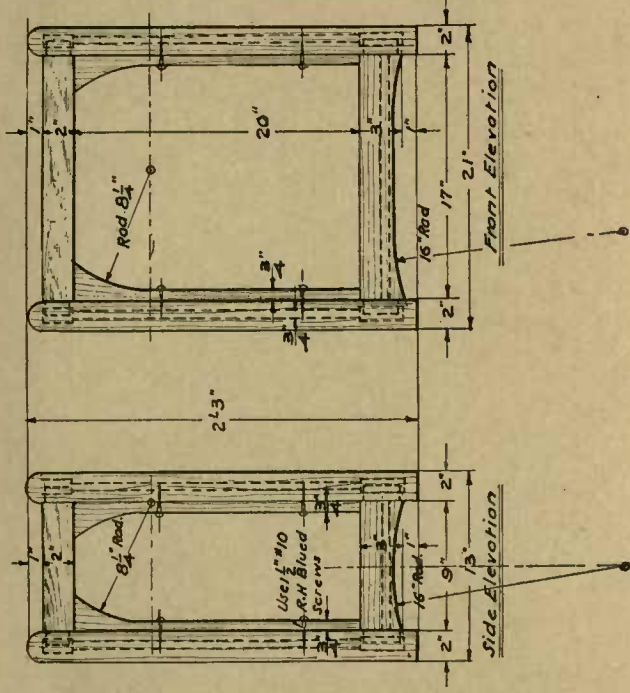
1. Square and true stock.
2. Screw sides to shelf and top.
3. Brad in back.
4. Shape and fit door.
5. Sandpaper, stain, and varnish.
6. Block and jack plane

Medicine Cabinet Model # 5 B



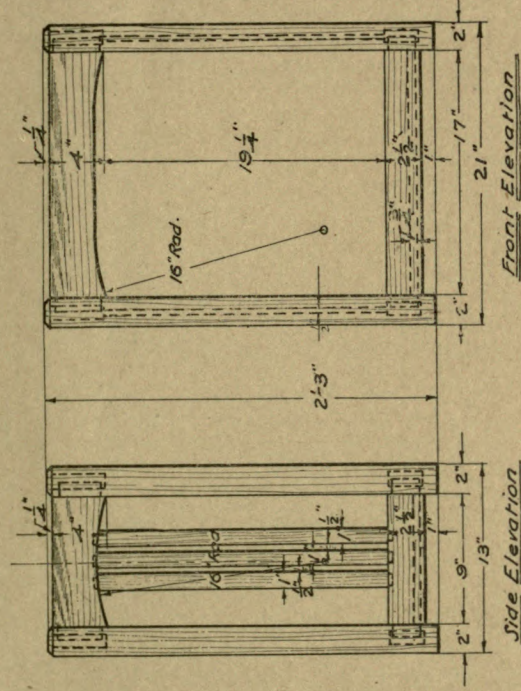
STEPS	TOOLS	ORDER OF EXERCISE
1. Dadoing for back	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Butt joint	2. 3-16 inch drill and bit stock	2. Shape sides.
	3. Half-round file	3. Screw sides to shelves.
	4. Turning saw and hammer	4. Brad in back, scrape and sand-paper.
	5. Marking gauge and try-square	5. Stain, fill, and varnish.
	6. Block and Jack plane	

*8TH Grade Model #6
Umbrella Stand #6, 7*



STEPS	TOOLS	ORDER OF EXERCISE
1. Mortise and tenon joint	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Butt braces	2. 1-2 inch bit and stock	2. Lay out and cut all mortise and tenon joints.
	3. Turning saw and bit gauge	3. Cut out side slats.
	4. Half-round file and spokeshave.	4. Curve bottom edge of brace.
	5. Marking gauge and try-square	5. Glue model together and sand-paper.
	6. Block and Jack plane	6. Scrape, stain, fill, and varnish.

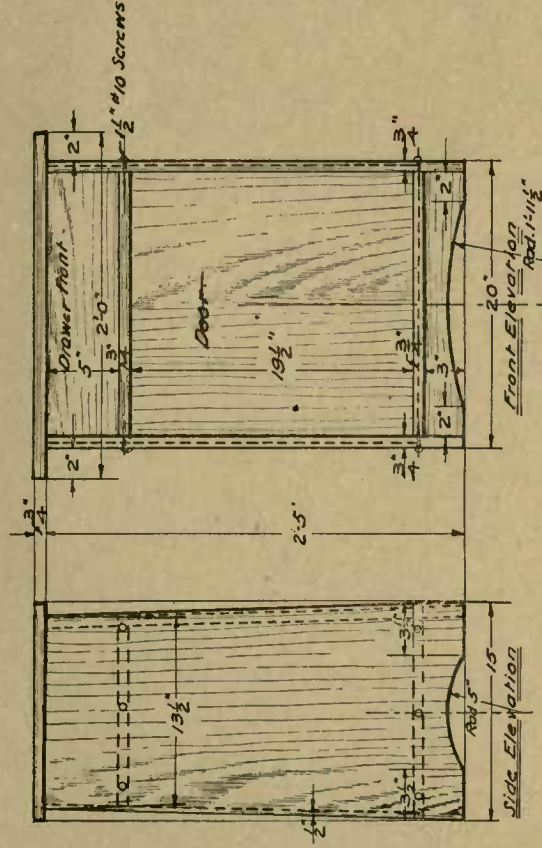
Umbrella Stand Model 63



STEPS	TOOLS	ORDER OF EXERCISE
1. Mortise and tenon joint	1. Pencil, rule, knife, and dividers	1. Square and true stock.
2. Tenon braces.	2. 1-2 inch bit	2. Lay out and cut all mortises and tenons.
	3. Bit stock and gauge	3. Cut out curve on upper brace.
	4. Turning saw and spokeshave	4. Glue together, sandpaper and scrape.
	5. Half-round file and cabinet scraper	5. Stain, fill, and varnish.
	6. Marking gauge and try-square	
	7. Block and Jack plane	

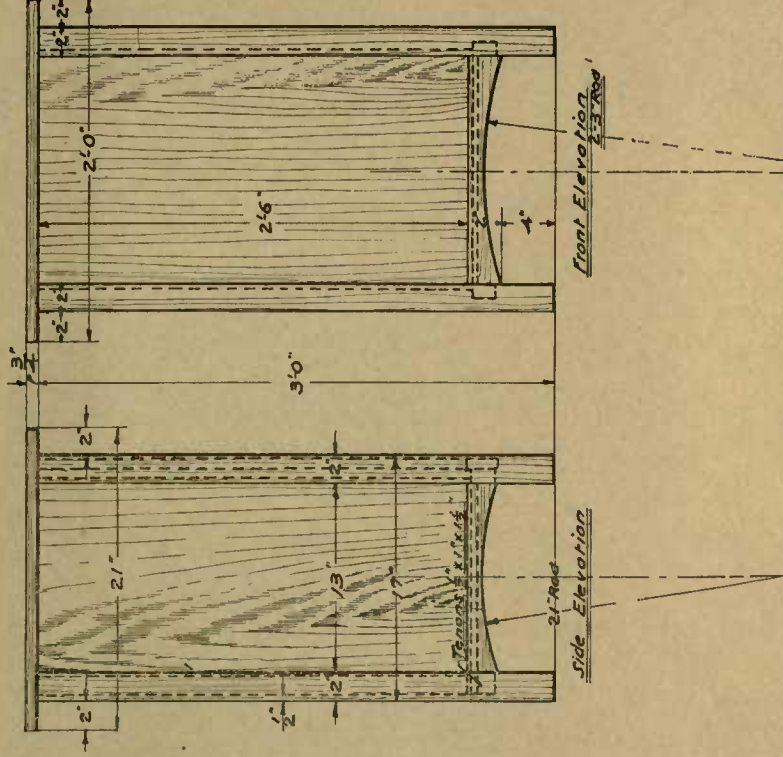


8TH Grade Model No. 7
Drawer Cabinet Model No. 7A



STEPS	TOOLS	ORDER OF EXERCISE
<ol style="list-style-type: none"> 1. Curve sawing 2. Butt joints 3. Fitting door 		
<ol style="list-style-type: none"> 1. Pencil, rule, knife, and dividers 2. 3-16 inch drill and bit stock 3. Turning saw and screw-driver 4. Half-round file 5. Hammer 6. Marking gauge and try-square 7. Block and Jack plane 		<ol style="list-style-type: none"> 1. Square and true stock. 2. Screw shelves to sides. 3. Brad in back. 4. Make drawer and place in door. 5. Sandpaper and finish.

Smoker's Cabinet # 7B



STEPS	TOOLS	ORDER OF EXERCISE
1. Curve sawing 2. Mortise and tenon joints 3. Fitting door	1. Pencil, rule, knife, and dividers 2. Turning saw 3. 1-2 inch bit 4. Bit gauge and stock 5. Half-round file 6. Marking gauge and try-square 7. Block and Jack plane	1. Square and true stock. 2. Lay out and cut all mortises and tenons. 3. Dado legs for side panel. 4. Assemble parts, sandpaper, stain, and varnish.

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