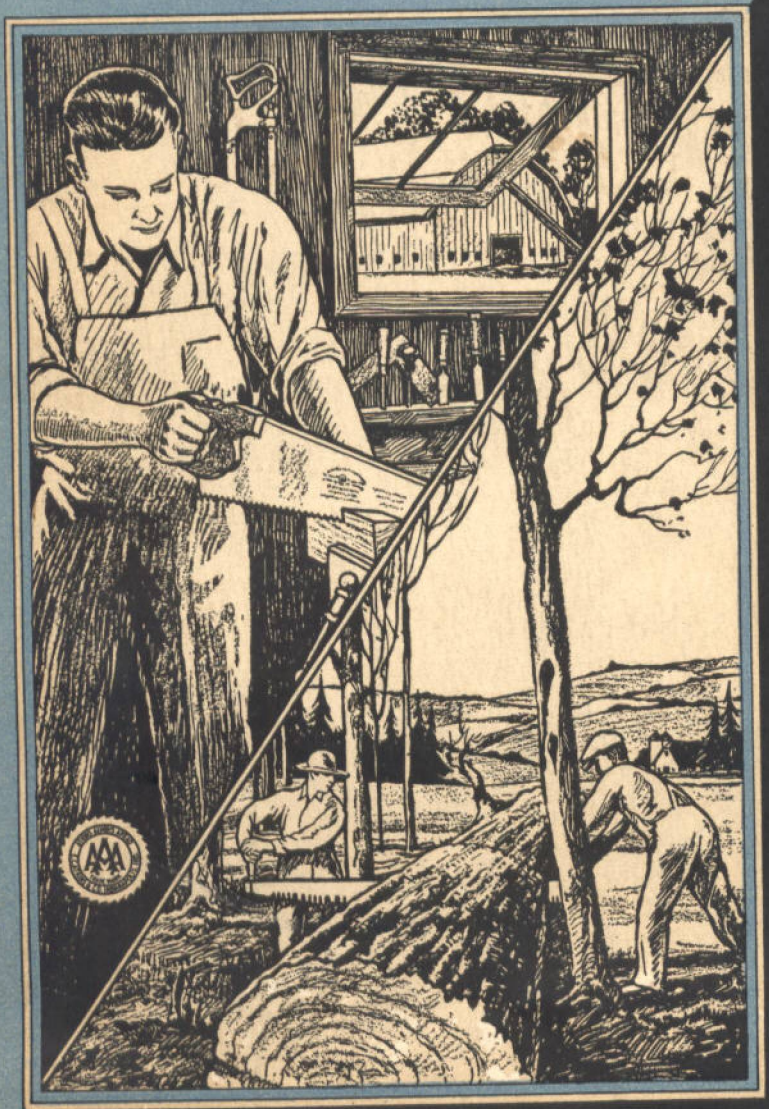
ATKINS SAW BOOK FOR

The FARM WORKSHOP and WOODLANDS



How to—

- Plan and Fit Up a Farm Workshop
- Build the Bench & Shop Fixtures
- Pick a Good Set of Saws and Tools
- Make 20 Types of Carpentry Joints
- Do Farm Building and Repair Jobs
- Cut & Work with Metals — Easier!
- Obtain Plans to Build 200 Things
- Cut Dollars from Farm Woodlands!

Issued by the Makers of "SILVER STEEL" Saws for the Farm

10c a copy

THIS BOOK has been written by men who know the farming use of saws and tools and is dedicated to the millions of men and boys on the farms who want to learn easier and better ways of making things for their home and farm, and at the same time improve their ability as users of good tools.

THE AUTHOR

Fig. 1—Typical farm shop, with wood-working bench, tools and power saw; also anvil for metal work.

Why a Farm Workshop PAYS!

TO KEEP his farm buildings in good repair, and his machinery in first-class condition, the modern farmer must be an all-around mechanic—and turn carpenter, painter, repairman, roofer, plumber, blacksmith, tinsmith or woodsman, as needs require. Buildings need repairs and additions, machines get broken, home equipment requires fixing, fences must be kept up, timber or cord wood has to be cut, tools need sharpening, the farm car, truck or tractor demands overhauling, painting must be done inside or out, carpentry work calls for attention, and hundreds of other special jobs arise on every farm in the course of a year. All of them can be done quicker, cheaper and better if the farmer has a well-equipped workshop, in which to use and keep his saws and tools.

The average farmer who owns a workshop saves at least $100 each year, by being able to do his own carpentry work, machinery repairs, and all the other jobs which would prove costly if done by outside help. This is a conservative estimate made by agricultural engineers.* Usually a farm shop pays for itself the first year, and after that it yields a nice annual profit.

Perhaps the most important use of the shop is for keeping the farm machinery in good condition, or for making emergency repairs in busy seasons. Many expensive breakdowns of equipment are avoided when machines are gone over thoroughly in the farm shop, on wet or wintry days, and then housed properly until needed for service. But when accidents do happen, a big saving is possible if the implements can be fixed quickly in the farm shop, without making a trip to town or paying for a new part.

Kan. Expt. Sta. Bul. 22, The Farm Shop.

The next important line of work for the shop is the construction of farm buildings and equipment. For large structures, such as houses or barns, it will pay to hire competent carpenters, but the farmer with a shop and tools can save a lot of money by doing most of the smaller work himself. He can construct brooders, corn cribs, dairy or milk houses, feed racks, fences, garage, granary, gates, hog houses, ice house, poultry houses, smoke houses, sheds, troughs, wagon racks and so on.

Then comes a wide range of repairs to house, farm and buildings, including patching roofs, floors and walls, repairing foundations, bracing buildings, fixing wagons, tongues, gear boxes and racks, making new hitches and eveners, fitting new handles in tools, building fences and gates, repairing bins, troughs, mangers, nests, ladders, steps, shelves, crates and hundreds of other items of farm and home equipment—all of which means profitable, off-season work for the farmer with a good shop.

The farmer will also be called upon to do metal work of many kinds, in this machine age. With inexpensive tools in his shop, the farmer can easily do simple jobs of metal cutting, sharpening, forging, bending, shaping, drilling, threading, pipe-cutting and fitting, sheet metal work, soldering, welding, tempering and grinding—and do satisfactory work at a fraction of the cost an expert would charge.

Another benefit of the farm shop is its value in helping the farm boy learn how to use and care for tools, and enjoy building useful things or making simple repairs. Such training in self-reliance, in accuracy of hand and eye, is of great value to the growing boy, especially when father and son work together in the shop, and learn to understand each other better.

NOTE—The dimensions of the farm shop plans in this book may be adapted to meet individual needs.

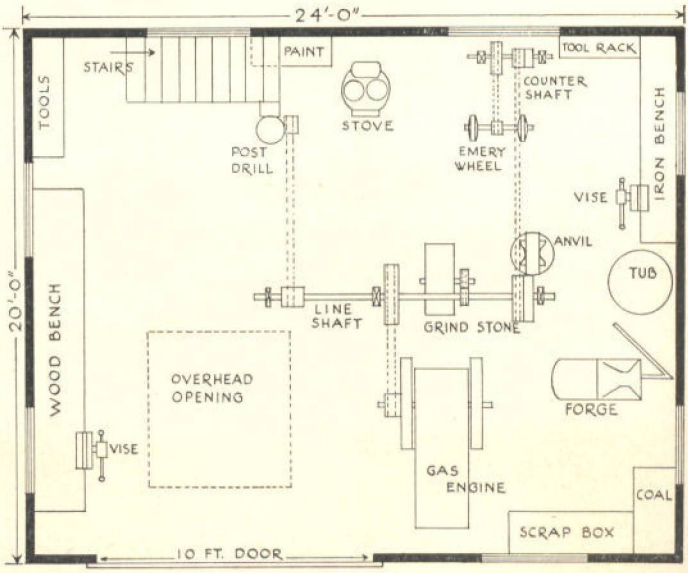


Fig. 2—Floor plan for farm shop in separate building. Machines are belted to overhead line-shaft driven by gas engine.

How to PLAN a Farm SHOP

THE SIZE of the farm shop, and the kind of tools it should contain, depend upon the size of the farm, upon the number of machines and buildings to be kept in repair, and upon the mechanical ability of the farmer himself.

For the small farm, a handy shop may be fitted up in any suitable space which is available in one of the farm buildings. There should be room for a sturdy work-bench, tool racks or cabinet, supply shelves, and proper space in which to work. The room must be weather-proof, have plenty of light and some means of heating during cold weather.

For the average farm, the work-shop should be large enough to house complete equipment for doing the ordinary jobs of farm wood-working and metal-cutting. The shop also should allow sufficient space for bringing in the farm car, truck, tractor, or other farm machinery, for emergency repairs or winter overhauling. Such a shop may be in a building by itself; it may be part of another building, or it may require an addition to one of the present structures.

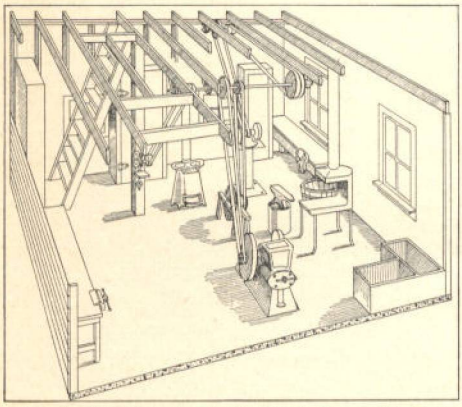


Fig. 3—Showing same farm shop in perspective.

Some farmers partition off one end of the implement shed. Others prefer to establish the shop in connection with the farm garage, so that the shop heater will take the chill off the garage, when desired. All agree that a basement farm shop is least desirable because of the difficulty in getting heavy work in and out; the lack of good light, and the danger that dampness will rust the tools and supplies.

Wherever the shop is located, it should have plenty of natural light; that from north and east windows being easier on the eyes. Where electric current is available, either from line service or a farm lighting plant, plenty of artificial light should be provided, with extension cords so light can be thrown directly on the work under a machine. Also, sockets should be available for connections to operate any shop machines. Without electricity, a good hanging lamp will give general illumination, with perhaps a wall lamp and adjustable reflector to light the work bench, and a good flashlight with a spring clamp for close work under machines. Artificial light is important, since emergency repairs often must be made at night. A shop which receives only a small amount of direct sunlight can be much improved by whitewashing, or painting the ceiling and walls a dead white, so as to reflect and diffuse the light.

The shop floor may be of wood, concrete, or packed earth. Wood is very satisfactory to work on, but will not support tractors and heavy machines. Packed earth is very good, but usually gets dusty and dirty and loses small objects easily.

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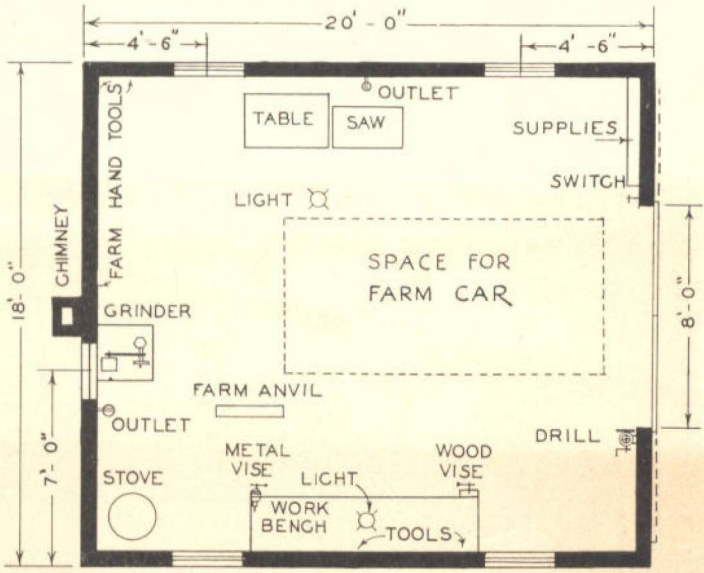


Fig. 4—Floor plan of workshop, with equipment arranged around the walls of the farm garage.

Farm Shop in the Garage

Concrete is recommended as being the most satisfactory farm shop floor, in the long run.

The arrangement of the shop equipment will depend on the work to be done, on the lighting, on whether the workman is right or left handed, and so on. The power saw, forge, anvil, grinder or post drill should never be placed in a corner, as this would interfere with work on binder and mower knives and on long rods or timbers. For a right handed man, the carpenter-bench should have plenty of room at the right hand end for planing long boards, wagon tongues, and so on; while for a left handed man the open space should be at the left end.

The farm shop should have electricity or a gas engine to run the various machines; or the shop should be laid out with the idea of adding power equipment later on. Fig. 2 shows a floor plan for a farm shop located in a separate building, and is a typical plan for the average farm. Fig. 3 shows this same shop in perspective.

Farm Shop in the Garage

ON FARMS where there is now a large garage, or a new one is soon to be built, the great value and convenience of having a combination farm shop and garage should be considered. If the present garage is large enough, the shop equipment and supplies may be arranged around the walls without interfering with the center storage space for the farm car or truck.

A practical floor plan of a shop that will serve both as a garage and workshop is shown in Fig. 4. It provides ample space for the car; for storing the farm hand tools such as cross-cut saws, rakes, shovels, chains, neck-yokes, whiffle-trees, scythes, mowing machine sickles, etc.; for housing the construction and repair tools such as carpentry saws, pruning saws, hammers, chisels, levels, and other small tools; and still allows plenty of room for a strong work-bench, a drill, a grinder, a power circular saw, and a stove to make the shop comfortable for winter work.

The plan shows two windows placed at each side and one at the rear end. This provides ample light for work at all points on the floor, which is especially desirable for working on farm machinery. A workbench not over two feet wide is suggested because it will meet all the needs and a wider one would use too much of the floor space. It is equipped with a metal vise and a woodworker's vise. The wall space between the windows over the workbench is large enough to keep the construction and repair tools. A piece of railroad rail 30 inches long on a stand serves very well as a farm hand anvil. (See Fig. 18.)

A motor-driven grinder is placed at the rear of the shop in front of the window so as to provide good light for farm grinding work. Ample space is allowed at both right and left of the grinder for grinding mowing machine sickles.

Two electric lights are suggested for the shop, where current is available. The ceiling light near the saw provides light for work at the machine and on the floor. It is controlled by a switch at the door. The light over the workbench is controlled by a pull chain. Three double sockets are provided; one near the saw, one at the rear for the grinder, and the other at the switch. Extension cords may thus be attached where desired.

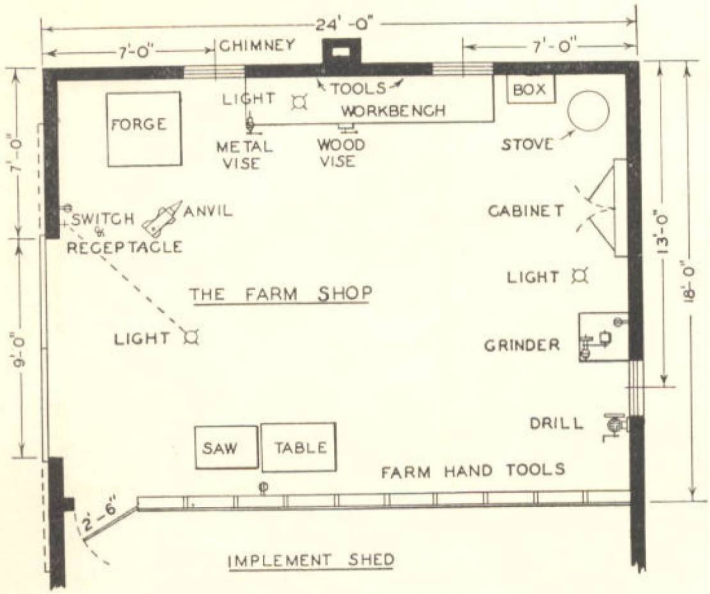


Fig. 5—Floor plan of shop fitted up in one end of implement shed. Ideal for farms with much machinery to repair.

Shop in End of Machine Shed

ON FARMS where considerable machinery has to be kept in good condition, the most satisfactory place for the repair shop is in one end of the implement shed. Such a shop is shown in the floor plan of Fig. 5.

This arrangement is often less expensive than using a separate structure for the farm shop. It is an especially desirable plan if the implement shed is easily accessible from a central court or yard. To make this type of shop, a wall is built between the shop and the shed, so that the shop may be heated by the use of a stove, and thus used during cold weather.

Much of the work on machines can as well or better be done in the implement shed, and so a door is placed in the wall between the shop and the shed. This arrangement is especially handy during cold or rainy weather.

The workbench, the power saw, the stove, the forge, the grinder, the drill press, and the other shop equipment are placed along the walls of the shop, leaving the floor space clear for construction and repair work.

The plan calls for a 9-foot, double-rolling outer door which is placed 7 feet from the end of the shop, so that machinery brought in for repairing, or larger construction work done in the shop, will be far enough from the workbench to prevent a crowded condition.

The maximum of satisfaction from the use of tools is promoted by having a place for each tool and keeping it there when not in use. Therefore, not only the shop tools but the farm-hand tools as well, should be kept on the walls of the shop. By boarding up the partition on the implement-shed side and thus leaving the studding exposed on the shop side, much additional room is provided on the wall spaces between the studs, for hanging tools.

A workbench 24 inches wide and 12 feet long is planned for this shop. The top may be made of three hardwood planks 2″x8″x12′—0″, securely bolted to a 2″x6″ frame. The frame is bolted or spiked to the studding of the building so that it will not shake under heavy work. The blacksmith's post vise is placed at the end nearest the forge.

The chimney is outside the building at the end. The smokepipes from the forge and stove lead to a T over the workbench, about one foot from the ceiling.

Five windows are planned in this shop. (Fig. 5.) The two at the end throw light on the workbench. The one at the rear gives light on the grinder, drill, and work on the floor or the saw. A four or six light sash is built into each of the two rolling doors, thus providing ample light for work at the saw and all parts of the shop.

Three electric lights are used. The ceiling light near the door provides light for the saw and the shop generally. It is controlled by a switch at the door. The light over the bench and the one near the grinder are controlled by pull chains. Three double sockets are provided; one near the switch at the door, one on the rear wall for the grinder, and the other on the partition wall for the saw. Thus three places are provided for attaching an extension cord.

A table 2 feet wide by 3 feet long is placed next to the saw as a service table for short pieces of wood. The circular saw is placed so as to leave the floor space clear for work. Most of the sawing can be done with the door closed, but if long pieces are to be ripped, the door may be opened and the lengths run through.

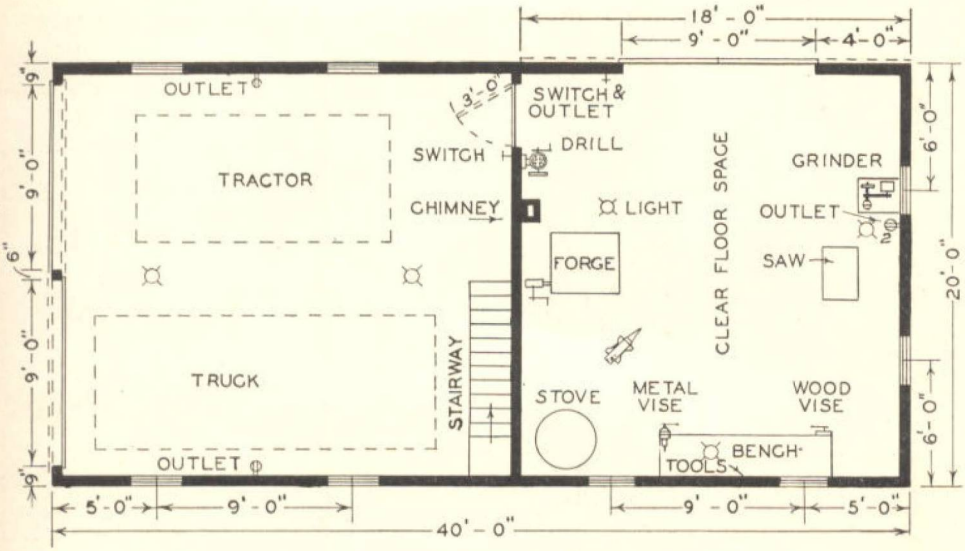


Fig. 6—Floor plan of shop in end of large garage, with space for car in shop, and truck and tractor in other room.

Shop-Garage for Large Farm

Fig. 6 shows the floor plan of a well-equipped work-shop that is ideal for large farms on which a tractor and truck are used, and where it is desired to keep them in the same building as the farm work-shop. The building is 20 feet wide and 40 feet long with a cross partition at 18 feet from the end. The shop has a 9-foot door at the side of the building for admission of the car, tractor, truck, machinery and large farm implements. The two 9-foot doors at the end of the building admit the tractor and truck. A 3-foot door in the partition provides passage, as well as admitting heat to the tractor room if desired. A height of a story and a half provides loft storage space for lumber, poultry equipment, ladders, crates, barrels, etc., and thus aids materially in keeping the shop and farmstead orderly in appearance. A stairway is placed in the garage next to the partition. A gable door at second floor level is also used. A concrete floor is placed in the shop and a gravel, hard dirt, or cinder floor in the tractor room.

The building has eight double-hung windows and a sash for each of the shop doors, thus providing ample light and a means of ventilation.

By use of a stove the shop is made comfortable for overhauling farm machinery and repairing harness in the winter; for using the saw and tools for construction work, and for storing the car.

On many farms a forge is a good investment for the upkeep of farm machinery. It is placed near the chimney at the center of the building next to the partition wall. Thus, long pieces may be heated. This position also keeps the center floor space clear.

It is good practice not to fasten the circular saw to the floor so it may be moved in front of the door for ripping out long boards. An extension cord makes this possible. The position of the saw indicated in the plan is suitable for most work from point of light and clear floor space.

The switch at the door controls the ceiling light near the forge. The one at the door of the partition is for the ceiling lights of the tractor room. The light at the saw and the one over the bench are controlled by pull chains. A double electric socket is placed at the wall for power connections to the grinder and saw. The socket at the main door, the one at the saw, and the two in the tractor room provide places for attaching an extension cord. The wiring for the grinder and saw must be heavy enough to carry a 220-volt current.

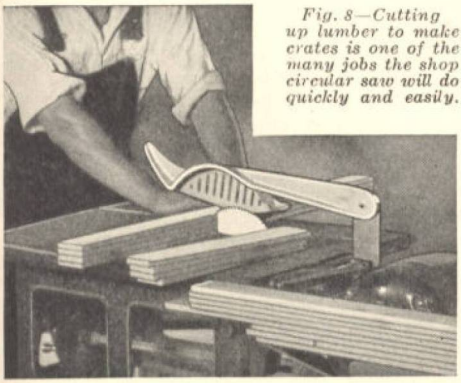


Fig. 8—Cutting up lumber to make crates is one of the many jobs the shop circular saw will do quickly and easily.

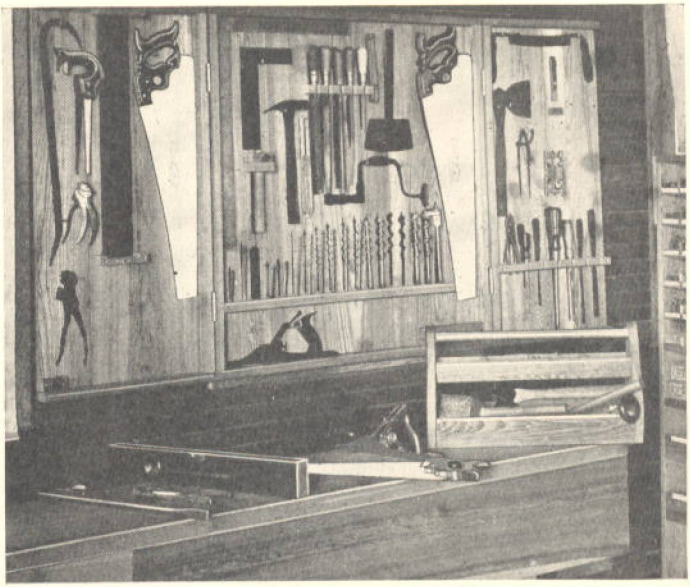


Fig. 7—Carpentry tools in the farm shop. A black silhouette of each tool kept on the wall, shows which tools are out of place.

How to Select SHOP TOOLS

THE FARMER who expects to do good work in his farm shop, must provide himself with the necessary tools, and keep them in first class condition. Cheap tools are always a disappointment, while quality ones always give long and satisfactory service.

If tool funds are limited, it is better to begin with a few really good tools of the types most needed on the farm, and learn to use and care for them correctly. As the farmer gains experience and skill with the simple tools, he will want to tackle more difficult work, and he will need a wider variety of tools, which he can buy as income permits. Many farmers acquire their shop tools by the simple plan of buying one new tool each week or month until the set is complete for their needs.

The farm mechanic will do well to follow the example of the expert carpenter who knows that the quality of his work depends upon the kind of tools he uses. He knows that to do first class work, he must have good tools. Especially must his saws be of good quality, in order to cut cleanly, easily and accurately. He invariably buys saws made of Atkins Silver Steel, because he knows they will take a keener tooth edge, cut faster, run easier, and give many years of excellent service, long after poor saws are discarded.

In deciding which tools to buy first, each farmer must judge for himself how much he can afford to invest, and then buy the tools most urgently needed, keeping in mind the kinds of construction and repair jobs he will have to do. It is a good plan for the farmer equipping a workshop, first to collect all the small tools he can find in different places on his farm: in garage, implement sheds, barn, woodshed or kitchen; also, all the tools which came with his various farm machines, automobile, truck or tractor. Inspect each tool carefully, discard any which are badly worn and of no further use, and make a complete list of all good tools remaining. By checking it with the tools recommended in these pages, he may find that he now has many of the wrenches, chisels, screw drivers, hammers, etc., needed for his new farm shop, and a few judicious purchases of quality saws and other tools will soon complete his set.

The following lists of farm and shop tools are given as a guide to the farmer, and may be varied as seems best to suit each case. The first list is of saws and wood-working tools which are needed for work in the farm shop and woodlot.

Tools to Cut and Work Wood

*1 Atkins Cross-Cut Saw, 5½'.
*1 Atkins One-man Cross-Cut Saw, 4'.
*1 Atkins Wood (buck) Saw, 30".
*1 Atkins No. 77 Butcher Saw, 24".
*1 Atkins No. 65 Hand Saw, 26", 8-point Regular Pattern.
*1 Atkins No. 65 Rip Saw, 26", 6-point Regular Pattern.
*1 Atkins No. 3 Nest of Saws with keyhole, compass, metal cutting blades.
*1 Atkins No. 2 Back Saw, 12".
*1 Atkins No. 50 Coping Saw.
*1 Doz. Atkins No. 50 Coping Saw Blades.
*1 Atkins No. 11 Pruning Saw, 22".
1 Claw Hammer—Bell face, 16-oz.
1 4½" Broad Hatchet.
1 Hand Axe, 5".
1 Single Bit Axe, 3 to 6 lb., 30" Handle.
1 4" Screw Driver.
1 10" Screw Driver.
1 12" Screw Driver.
1 9" Smoothing Plane.
1 22" Jointer Plane.
1 14" Iron Jack Plane.
1 24" Steel Square.
1 Combination Mitre and Try-Square, 12".
1 Folding Rule, 4'.
1 Chalk Line, 100'.

1 Metallic Tape, 100'.
1 Ratchet Brace, 10" sweep.
1 Set of nine Auger bits, ¼", 5/16", 3/8", 7/16", ½", 9/16", 5/8", ¾", 1".
1 Expansion Bit, ⅞" to 3".
1 Screw Driver Bit, ⅜".
1 Rose Countersink.
1 10" Steel Wing Dividers.
1 10" T Bevel.
2 nail sets, 3/32", ⅛".
1 ¼" Chisel.
1 ½" Chisel.
1 1" Chisel.
*1 6" Slim Taper File.
*1 8" Regular Taper File.
*1 10" Round Bastard File.
*1 10" Flat Mill File.
*1 10" Flat Bastard File.
*1 10" Half-round Bastard File.
*1 12" Half-round Wood Rasp.
*1 Auger Bit File.
1 Carborundum File.
*1 Interchangeable File Handle.
1 2x8 Combination Carborundum Oil-stone.
1 Wood Worker's Vise.
1 Marking Gauge.
1 26" Spirit Level.
1 10" Drawshave.
1 30x¾" Wrecking Bar.
2 Steel Screw Adjustable Hand Screws, 8" and 10"
1 Plumb Bob.
1 Putty Knife.
*1 Atkins No. 395 Hand Saw Set.
*1 Atkins Excelsior Cross-Cut Tool.
*1 6 or 8" Circular Cutoff Saw.
*1 Atkins 6 or 8" Circular Rip Saw.
*1 Atkins 6 or 8" Combination Rip or Cutoff Circular Saw.
*1 Set of Atkins Dado Heads for cutting Grooves, ⅛" to ⅝".
*1 Set of Atkins Planer Knives.
*1 Kitchen Grinder or Grindstone.
*1 Atkins No. 4 Cement Trowel, 11".
1 Pointing Trowel, 5".
1 Square point Shovel.
1 Concrete Mixing Box (home made).
2 Concrete Measuring Boxes, 1 and 2 cu. ft. (home made).
2 Screens for Concrete Work, ¼" and 1" mesh (home made).

Tools for Farm Metal Working

The up-to-date farmer often has to work with metal as well as with wood, and thus his shop equipment must include tools to cut and work BOTH materials. Here is a list of metal-working tools which should be part of the farm shop equipment, in order to do metal work successfully.

*1 Atkins No. 10 Extension Hack Saw Frame.
*1 Doz. Atkins SILVER STEEL Hack Saw Blades, 12", 14 teeth.
*1 Doz. Atkins SILVER STEEL Hack Saw Blades, 12", 24 teeth.
*1 Atkins No. 21 Metal Cutting Hand Saw, 20".
*1 Atkins Aerolite Grinding wheel, 6" or 8"x1".
*1 Atkins Ferrolite Grinding Wheel, 6" or 8"x1".
1 Blacksmith's Solid Vise, 4½" Jaw.
1 Blacksmith's Anvil, 100 lb.
1 Forge with Blower, portable or home made of concrete.
1 Post Drill.
1 Drill Chuck for square bit-stock drill.
1 Chain Drill.
1 Set of eight bit-stock drills, ¼", 5/16", 11/32", 3/8", 13/32", 7/16", ½", 5/8".
1 Hand Drill.
1 Set of nine Twist Drills, 1/16", 5/64", 3/32", 7/64", ⅛", 9/64", 5/32", 11/64", 3/16".
3 Cold Chisels, ½", 5/8" and ¾".
3 Hand punches, ¼", 3/8" and ½".
1 Straight Hardie, ⅞".
1 24-oz. Machinist's Hammer.
1 3½-lb. Blacksmith's hand hammer.
2 Monkey Wrenches, 8" and 18".
1 Adjustable S Wrench, 8".
2 Pipe Wrenches, 14" and 18".
1 6" Slip-joint pliers.
1 6" Carpenter's nippers.
1 Cutting Nipper, 14".
1 8" Combination Pliers.
1 Bolt Tong, 20".
1 Cold cutter, 2-lb., handled.
1 Hot Cutter, 1¼-lb., handled.
1 Babbitting ladle.
1 Oil Can and oil.
1 Whetstone.
1 Alcohol Blow torch, 1 qt.
1 Pound Acid core wire solder.
1 Tinner's Snips, 3".
1 12-oz. riveting hammer.
1 Center Punch.
1 Glass Cutter.
1 Motor-driven Power Grinder.
1 Set Pipe Stock and dies, ¼" to 1¼".
1 Pipe Cutter, ½" to 1½".
1 Set U. S. Standard taps and dies.
1 Circular Saw Table, capacity up to 12".
1 Grinder Stand.

Tools to Repair Harness

The Farm Shop is the ideal place to do harness work on wet or wintry days, and tools should be provided to clean and oil the harness, rivet or sew on new pieces in place of worn parts, and replace metal staples, ties, and fasteners.

The following equipment is suggested:

1 Harness Horse.
1 Four-tube spring punch.
1 Trimming Knife.
1 Awl Haft, and four assorted blades.
1 Finishing Wheel.
1 Rex riveting machine.
1 Pin punch set.
1 Ball No. 10 white linen thread.
1 Box assorted tubular rivets.
1 Box assorted copper rivets.
1 Package of sewing needles, assorted.
4 Balls harness-makers' wax.
1 Piece beeswax.
1 Draw Gauge.
1 Harness-maker's round knife.

*E. C. Atkins and Company manufacture only the tools marked with asterisk (*); we do not make the others. No prices are given as they fluctuate at different times, localities and even in neighboring stores. Each tool listed is of high quality, moderate price that will fit your pocket book. Go to your dealer first for Atkins products marked *; if he does not have them, then write us.

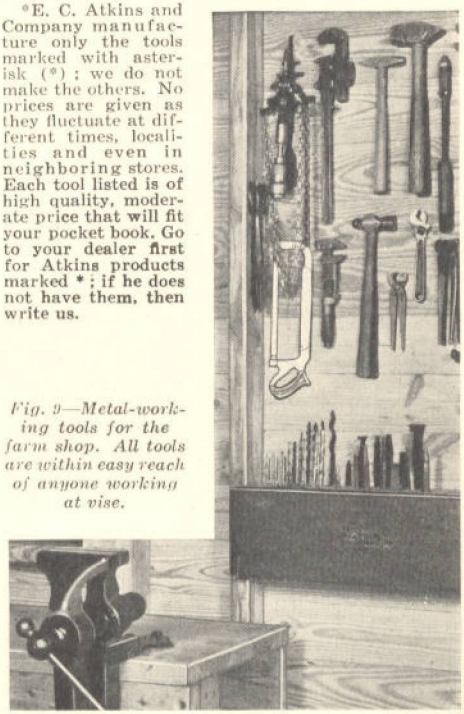


Fig. 9—Metal-working tools for the farm shop. All tools are within easy reach of anyone working at vise.

How to Care for Shop Tools

Not only is it necessary to select high grade tools, but it is most essential that they be given proper care. Each tool must be used only for the purpose for which it was meant, and a good workman will never mis-use his tools by using a chisel for a screw-driver, a wood saw to cut metal, or a nailing hammer to pound steel, and so on. The cutting edges of all tools should be protected, kept sharp, and put away in good condition for the next job. "A place for every tool, and every tool in its place" is an excellent motto for the farm shop. Tools left lying around where they were last used, are never in good shape and are often lost.

Rust is an enemy of good tools; hence the saws, squares, and other shop tools liable to rust, must be kept in a dry place. If they are the least bit damp after use, they must be dried with a soft rag or waste, and then oiled with a rag moistened with lubricating oil, or a mixture of equal parts turpentine and linseed oil. To remove rust from steel, cover it with sweet oil well rubbed in, and after forty-eight hours rub with fine unslaked lime, and then polish with pumice stone and water, wipe dry and oil.

A thoughtful arrangement of the shop tools will help keep them in place, thereby saving the workman's time and temper. The taps and dies, the expansion bits, the level, the smoothing plane, the wood chisels, the blow torch, and such other tools and supplies as are rather expensive and infrequently used may well be kept in a wall tool cabinet. The tools used frequently are much handier when fastened against the wall; the wood working tools over the carpenter's bench and the metal working tools within easy reach of the vise, forge and anvil.

Machines for the Shop

The more ambitious farm shop owner will not be content merely with hand tools when there are so many inexpensive machines available today for doing sawing, wood-working, and even metal-cutting, in the farm shop—and doing the work so much faster and easier than by hand methods.

When adding machine equipment to their shops, most farmers first install a circular saw table and a power grinder, and later add other machines such as a band or jig saw, power drill, wood lathe, emery wheel, electric soldering iron, and so on. However, different farm needs may change the order in which the machines are added.

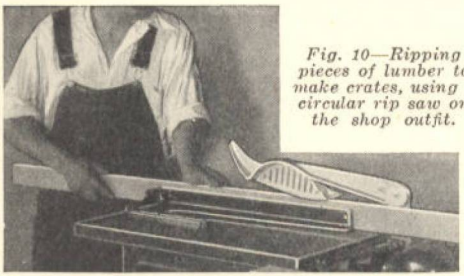


Fig. 10—Ripping pieces of lumber to make crates, using a circular rip saw on the shop outfit.

In selecting any of these machines which require saws, care should be taken to obtain first class sawing equipment, so that the best results will be secured at the lowest cost per year of service. Many suggestions of Atkins Silver Steel Saws and grinding equipment suitable for farm shop machines will be found on pages 6 and 7, also 31 to 35 of this booklet.

The various shop machines may be operated either by a gas engine or electric motor driving the machine direct, or by belt from a line-shaft. Many shop machines now have self-contained electric motors, and may be fastened on the workbench or mounted on separate bases; and connected to convenient power sockets.

Storage of Shop Supplies

The farm shop needs a wide variety of nails, screws, bolts and nuts, rivets, burrs or washers, cotter pins, springs, wire, bar and round iron, pipe, rods, tool steel, lumber, paint, varnish, and so on. In dismantling old equipment, most of the small parts are usable, and should be saved for future use.

Small wall boxes for storing screws and nails and other small objects are often used; but such parts are best kept in small closed cans, with a sample wired on outside of can. Fine finish nails and small screws can be kept in small screw-topped glass jars, set on shelves within easy reach. Screws, stove bolts, and other bright parts are sometimes oiled and dried to prevent rusting. Bolts may be kept in larger glass jars or in cigar boxes with a sample wired on the front. These can be stacked up on a shelf. Large pieces should be hung on nails on the walls, while rods and other long pieces can be laid on racks built against the wall.

Lumber for Farm Use

Lumber is an important factor in farm construction and repair work, and should be selected and used with care. Even small pieces often prove to be just the thing needed. Lumber thrown loosely into a pile warps and is hard to judge as to length. Boards of standard width can usually be placed on the joists overhead, with one end against a wall, so that one can tell at a glance the approximate length. Short pieces can be stored on triangular shelves in the corner of the shop with the shortest pieces in front and easily visible; or set on end between the studding.

Before buying lumber for any farm building, it is well to consult a local lumber dealer about the work one has in mind. He is an authority on farm building construction, and can help the farmer obtain plans, and select the kind or grades of lumber most suitable for the new structure.

BUILDING YOUR SHOP OUTFIT

Saw Horses, Work Benches, Tool Box, Cabinet, Etc.

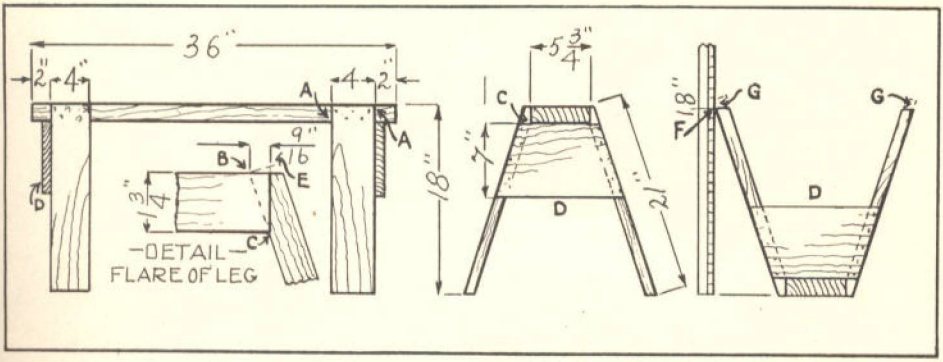


Fig. 11—Every farm shop needs two or more of these handy saw horses.

Handy Saw Horses for the Farm Shop

WITH a good shop space provided and the essential tools purchased and assembled, the farm mechanic is ready to build the working equipment for his shop. The first equipment needed is a pair of saw horses, which usually are made of pine, spruce, or some other light and tough wood. The saw horse shown in Fig. 11 is simple and easily made and yet will give excellent service. It will require the following material:

2 Tops—3"x5¾"x1¾" (2"x6" material).
8 Legs—21"x4"x⅞" (Full Size) (1"x 4" material).
4 Braces—13"x7"x⅞".

As this is the first construction project in the new shop, the workman should do the work as follows:

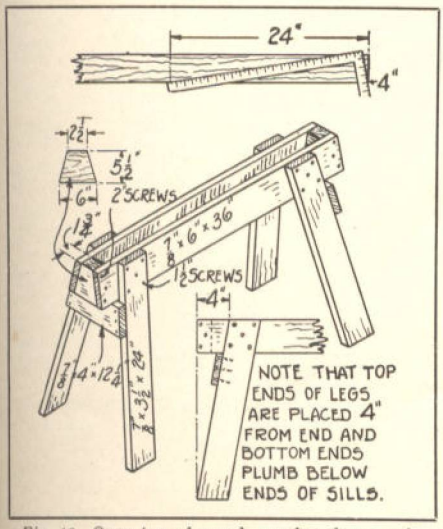


Fig. 12—Open-top of saw horse for shop work.

Step 1—Saw the two tops and eight legs to given length.

Step 2—With try-square mark pencil lines A (Fig. 11) to fit the legs and square across the top and each edge.

Step 3—Gauge line B between these lines $\frac{9}{16}$" from the edge.

Step 4—Make a triangular saw cut between and beside lines A from B to C.

Step 5—With chisel cut the bottom of the groove from B to C.

Step 6—Nail legs in place, using 8d common nails.

Step 7—Place braces D, pencil mark the flare of each leg on the brace and saw to the marks.

Step 8—Nail braces with 8d common nails.

Step 9—Plane ends of braces flush with legs.

Step 10—Plane the top of the legs as at E flush with the top.

Step 11—Turn the saw horse upside down on the floor. With a rule, make a pencil mark 18" from the floor as at F, on each leg.

Step 12—Place a straight-edge to these lines and draw a pencil line from one to the other across edges and sides of the legs.

Step 13—Saw carefully to these lines, cutting off pieces to G.

Step 14—Turn the horse right side up and it should rest firmly on the floor.

Many workmen prefer saw horses a trifle higher, and with the legs flared towards the ends as well as outward, to give more stability. Fig. 12 shows an open top saw horse of this type which is quite popular. With the experience gained in constructing the one shown in Fig. 11, the farmer should have no difficulty in building this one. At least two saw horses are required in the shop and an extra pair comes in very handy when working on a hay rack or other large piece of farm equipment.

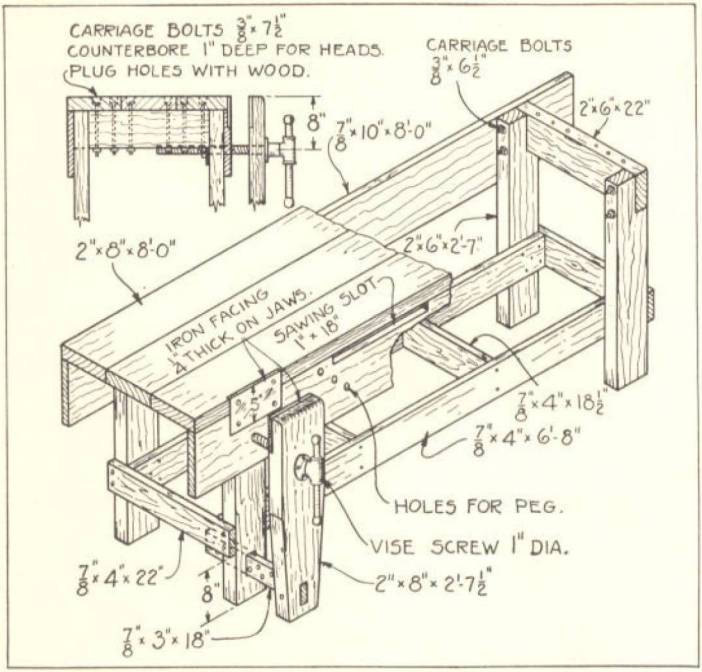


Fig. 13—A substantial carpentry bench is the most important piece of equipment in the farm shop.

How to Build a Wood-Working Bench

THE most important piece of equipment in the average farm shop is the wood-working bench, and it should be made solid and rigid, to withstand pounding and pushing, and give a life-time of heavy service. The length should be from 8 to 10 feet and the width from 24 to 30 inches. This is long enough to handle long boards or timbers and wide enough to lay out small work.

Fig. 13 shows a good serviceable bench 8 feet long and 24 inches wide which the farmer can easily build with lumber purchased from his local dealer. The general framing and details of construction are clearly shown, and the farm mechanic should have no trouble in cutting and fitting the parts. The three top boards total 24" in width when fitted closely; but if they make an inch or two more in width, it will be all the better and the lengths of the sills and braces can easily be adjusted to fit the changed width. The front top board and the vise pieces should be of hard maple, although oak or birch will do very well. The other top boards are often pine or fir, although hard wood is better. After completing the bench frame, putting on the aprons, and attaching the vise as shown, the front top board should be planed smooth and the edges trued up, then bolted to the frame with two $\frac{3}{8}$"x7$\frac{1}{2}$" carriage bolts through the sill at each end. Bore $\frac{7}{8}$-inch holes 1" deep in the top board, then finish with a $\frac{3}{8}$" bit through the rest of the top board and down through the sills. Drive in the bolts and draw down the nuts until the board is tight and snug. Next joint the second board in the same way and bolt it on next to the front board. In putting the holes through the sills, draw-bore them about $\frac{1}{16}$" closer to the first board than the holes in the top board, so that when the bolts are drawn down the second board will be drawn up tightly against the first one. Draw-bore holes for the third top board in the same way so it will be drawn up tightly against the second one. When top boards are on and drawn down tightly, plug and glue the holes in the top boards and smooth them off carefully.

The iron vise screw and hardwood vise with leg hinged at the bottom as shown in Fig. 13 is the type generally used in farm wood-work benches. The vise jaws may be faced with iron or steel plates one-fourth-inch thick and fastened on by wood

(Continued on page 11)

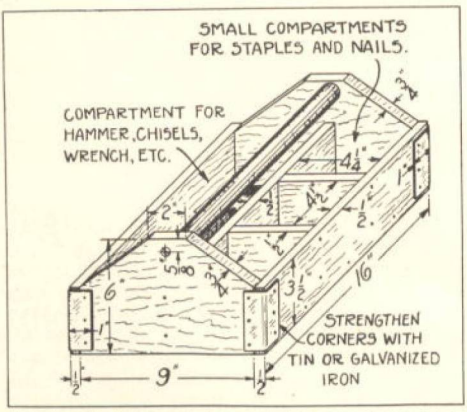
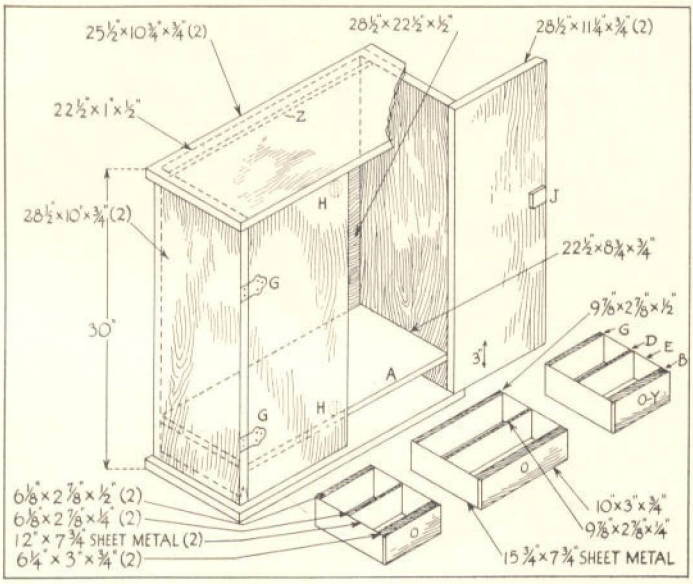


Fig. 14—This tool, nail and staple box is handy in the shop, and for jobs out on the farm.

Fig. 15—A roomy wall cabinet is one of the best places to keep many of the shop wood-working tools.



A Wall Cabinet for Shop TOOLS

A TOOL CABINET, fastened to the wall above the work-bench so that all tools in it are easy of access, is a great convenience in the farm shop, and well worth the making. A suitable wall cabinet is shown in Fig. 15, and it can be made in just a few hours, using ordinary tools. It is simply a shallow box, with hinged double doors, and a divided drawer at bottom for keeping small tools, or nails, screws, bolts, nuts, etc.

The wall cabinet may be built of pine, white wood or cypress, and be quite as efficient as a more elaborate cabinet. Among the tools used in making the saw horses and bench will be found all that are necessary to build this cabinet. The following list of material will be needed; ¾" boards are mentioned, but if boards are ⅞", allowance must be made in cutting to sizes.

2 Top and Bottom, 25½"x10¾"x¾".
2 Sides, 28½"x10"x¾".
1 Back, 28½"x22½"x½", board or ply wood.
1 Furring Z, 22½"x1"x½".
1 Shelf A, 22½"x8¾"x¾".
2 Doors, 28½"x11¼"x¾". Quarter sawed boards to resist tendency to warp.
1 Drawer Front B, 10"x3"x¾". Rabbeted 1/16"x½" on each end and bottom to receive zinc, tin or copper as at F.

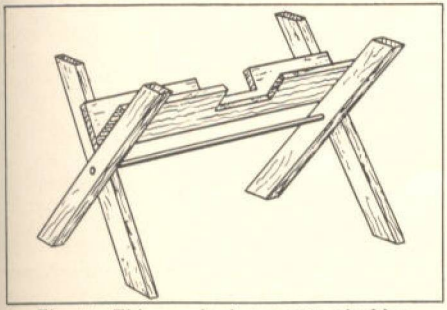


Fig. 16—This saw buck prevents pinching of the saw.

1 Drawer Back C, 9⅞"x2⅞"x½".
1 Drawer Partition D, 9¼"x2⅞"x¼".
2 Drawer Fronts, 6¼"x3"x¾".
2 Drawer Backs, 6⅛"x2⅞"x½".
2 Drawer Partitions, 6⅛"x2⅞"x¼".
1 Drawer Bottom and Sides E, 15¾"x7¾", sheet metal.
2 Drawer Bottom and Sides E, 12"x7¾", sheet metal.
2 Pairs of Surface Butts G.
2 Spring Door Catches H.
1 Cupboard Lock J.

To assemble:

Step 1—Fasten top and bottom and sides with 6d finish nails or 2" No. 10 round head screws. Be sure the distance between the sides equals the length of shelf A.

Step 2—Fasten shelf A with nails or screws; be sure it is placed just the width of the drawer fronts from the bottom.

Step 3—Nail furring Z in place and fit and nail the back to Z and to shelf A.

Step 4—Fit and hang the doors with surface butts as suggested. The door may be glued of narrow pieces to resist warping, if quarter sawed boards are not available, or they may be cleated on the inside. Panelled doors may be made if desired.

Step 5—Bend the sheet metal drawer bottom and sides accurately. Fasten with 1" No. 16 wire nails and fit the drawer fronts.

Step 6—Place tools in the cabinet as desired; fit blocks, racks or screws to support them.

Step 7—Stain, shellac, varnish or paint the cabinet inside and out as preferred.

Step 8—Fit spring door catches H to the inside of the door as shown and place a small knob Y in the center of each drawer front.

Step 9—Hang the cabinet on the wall by driving screws through the back into the wall studs, or put up cleats to support cabinet. On masonry walls, drill holes and drive in wood plugs for screws.

Building a Wood-Working Bench

(Continued from page 10)

screws with heads countersunk. These plates permit the holding of bolts, nuts, and so on, without bruising the vise jaws.

A drawer may be placed under the bench if desired. A **sawing slot** about 1" wide and 18" long in the front apron just below the bench top is a very convenient place for sawing short pieces of board which are not easy to hold on a saw horse.

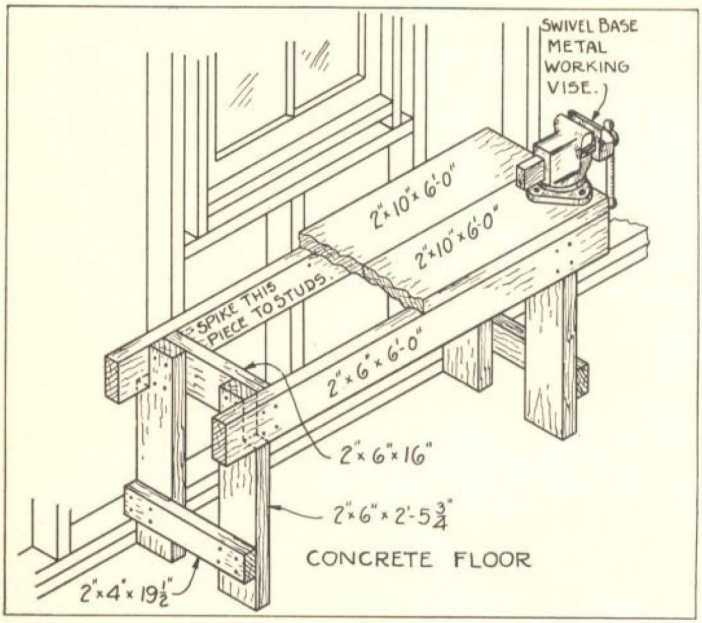


Fig. 17—This strong, rigid bench is needed in the shop for doing all kinds of heavy metal work.

Bench for Shop Metal Work

ON FARMS where some blacksmith work or considerable overhauling of machinery has to be done in the farm shop, a special bench and anvil and a set of metal-working tools will prove a very profitable investment. On smaller farms where little such work has to be done, a machinist's vise at the right end of the carpenter's bench will take care of occasional metal jobs.

Fig. 17 shows how the farmer can easily make a simple metalworking bench, with 2"x6" frame-work, and 2"x10"x6' boards screwed or nailed on top. This strong, rigid bench costs very little to build, and makes it possible to keep the wood-working bench free of the grease, rust and dirt which seem to be part of so many metal-working jobs in the farm shop.

Home-Made Farm Anvil

Fig. 18 shows a home-made farm anvil which is very handy for doing a number of metal jobs in the farm shop, and may even be used for light welding. Of course, if any forging or shaping is to be done, a blacksmith's anvil is necessary. The farm anvil is easy to make from a short piece of railroad rail which may be had at almost any junk yard; the wooden stand can be built in the farm shop, by following the dimensions given in this diagram.

Tool, Nail and Staple Box

Fig. 14 shows a very handy portable box for carrying hammers, wrenches, pliers, nails, and staples for repairing fences, field work on machines, and so on. The diagram shows clearly the construction, and this will be found a great convenience and time saver. The handle can be made from a broom stick. A hole ¼" deep should be bored in each end of box to receive the handle, and a 1½" screw used to fasten each end, as shown.

Non-Pinching Sawbuck

Fig. 16 shows a sawbuck which will not pinch the bucksaw blade in cutting cordwood. The stick rests in a trough which is notched so as not to interfere with the saw. If always used from the same side, one notch should be omitted and the other cut a little deeper.

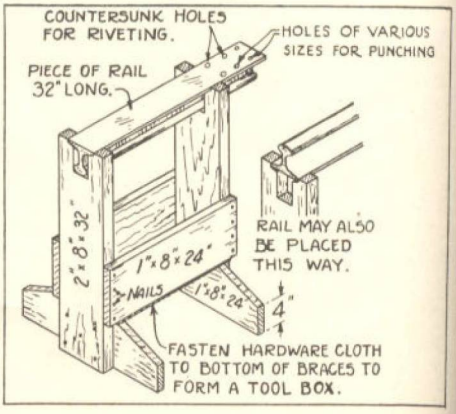


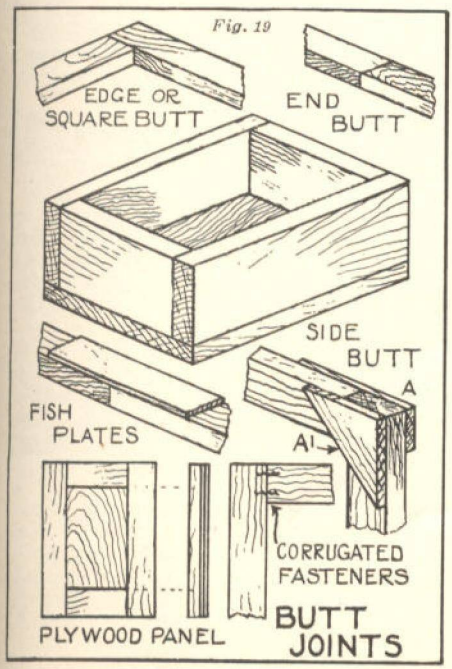
Fig. 18—For light blacksmith work, this home-made anvil is widely used.

HOW TO MAKE WOOD JOINTS

AS MOST farm buildings are constructed of wood, it will pay every farmer to study the various types of wood joints, and learn how to make the ones he will use when doing various jobs of farm carpentry. Nearly all farm construction work—whether it is a new building or a simple repair job—consists of joining pieces of wood together, and it is important that every joint be made strong and rigid. This is especially true in roof framing, as many roof failures can be traced directly to poorly-cut rafter joints, or to insufficient nailing.

Most of the farmer's construction and repair work is done with rough or semi-finished lumber, which does not require extremely close fitting or joining. With more skill in the use of tools, however, the farmer will find frequent opportunities where careful jointing and finish should be used. This accuracy will be needed when one lays hardwood flooring, does stair work or inside finishing, repairs cabinets or other furniture, or builds articles to be used on the farm or in the home. The more common joints met with are the following types: butt joints, lap joints of several kinds, half-lap joints, rabbetted joints, grooved and dado joints, mitre joints, mortise and tenon joints of several types, matched or splined joints and coped joints.

On the following pages these joints are shown in detail with enough description to enable the farm mechanic to make them properly whenever the need arises.

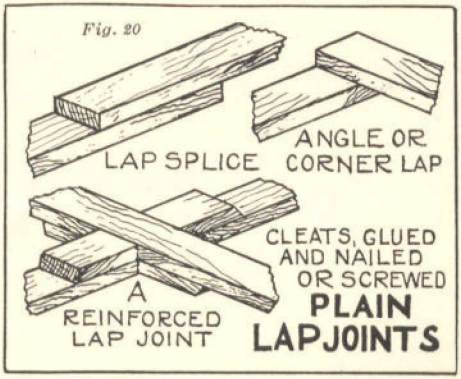


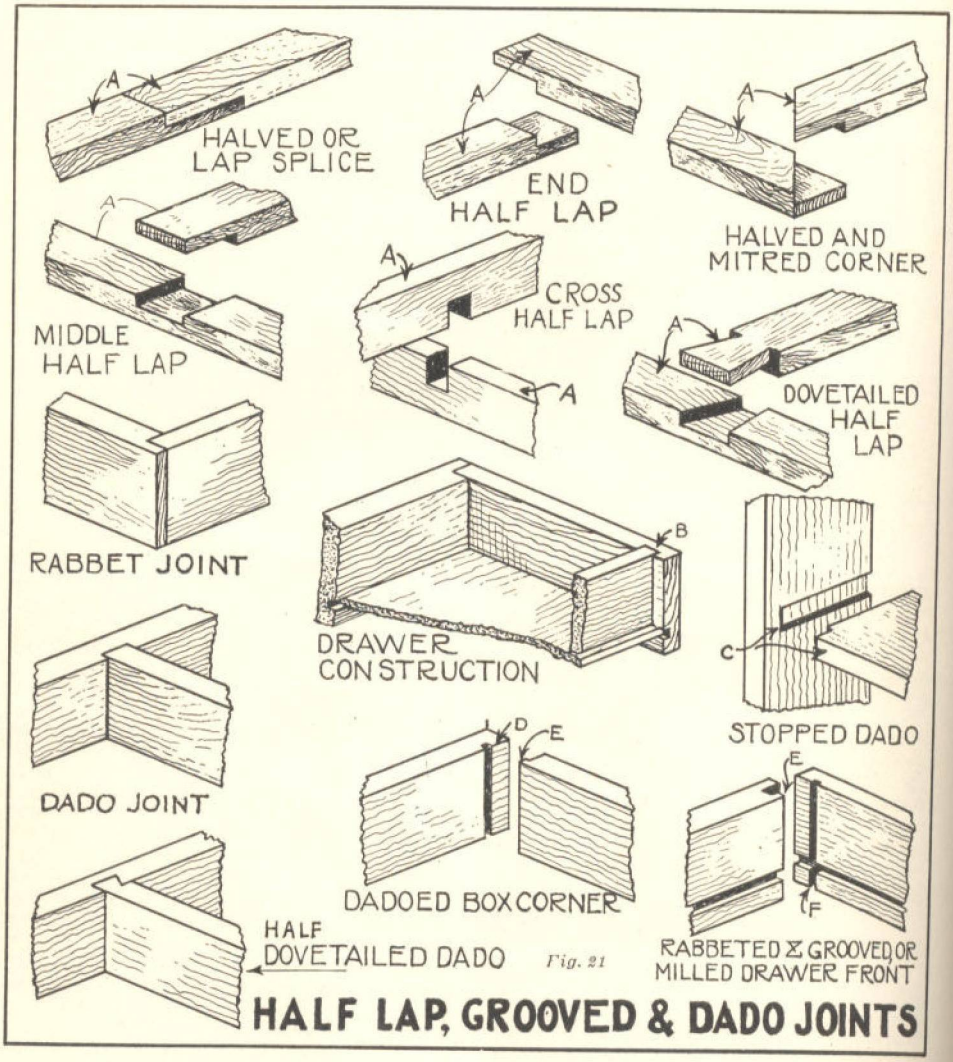
There are, of course, several other joints of more complicated types used in cabinet-making, furniture construction and repair, but which are seldom required in farm carpentry. Such types are the dovetailed, dowel and glued joints, which are explained fully in the Atkins Saw Book for Home Craftsmen, price 10c.

Successful joint work depends largely on; first, careful planning and marking; second, sawing exactly to the desired line; and third, chiseling or planing the pieces exactly to the right depth. Accurate sawing is of great importance, in making joints. The Improved Perfection Handle used on many of the Atkins Hand Saws permits every ounce of power to be exerted directly on the cutting edge of the saw, and thus eliminates wrist strain and makes the work easier.

Butt Joint—(Fig. 19).—The **butt joint** is the most common type in farm carpentry, being used very largely in rough work, as when the boards of a box or trough are simply butted on to each other and the joint fastened with nails or screws. The toe-nailed butt-joint is the type used when studding are set on a sill or rough floor and fastened with slanting nails, or toe-nailed. The plates will be fastened to the top of the studding also with a butt-joint, but in this case it will be spiked through the plate. Any type of butt-joint is comparatively weak and should not be used where much force will be thrown upon it. Its strength can be much increased by reinforcing it by "fish plates," by plywood panels, by corner braces as at A and A1, or by corrugated fasteners. All these methods are shown in Fig. 19.

Lap Joints—(Fig. 20).—This type and the butt joint are of the simplest construction and form the basic methods of putting pieces of wood together. In a lap splice, the pieces run the same way, while in a lap joint they come together at an angle. Often a lap joint is reinforced by fastening cleats, as suggested below, resulting in a lock joint.





Halved, Half-Lap Grooved and Dado Joints—(Fig. 21).—In laying out the cuts make all gauge marks and measurements from the face side A. Use the Atkins Silver Steel Back Saw No. 2, with 12" blade in cutting the shoulder (Fig. 22) and the same, or Atkins Silver Steel Rip Saw in making the depth cuts (Fig. 23). In the lock joints, the depth cuts must be finished with a chisel.

The Halved, Spliced and Corner Joints (Fig. 21) are used in lengthening boards, and in screens and other frames that may be fastened with glue, clinch nails or screws. In laying out these joints, be sure and work from the face side A at all times. Often the rabbeted or shouldered joint is used in making drawers as suggested. Instead of the dado joint being made at B, a butt joint may be used.

The Stopped Dado Joint is used where shelves or other members are fitted into grooves which would show as blemishes were they cut through (Fig. 24-c). The grooves should be laid out with a knife mark.

Place straight edge outside to coincide with knife mark on either side; hold it with brads as shown at D, in (Fig. 24) or with hand-screws if preferred. The saw cuts must be made from the back edge and finished at the front with a chisel. A router plane will make the groove of uniform depth. In making a box with dadoed corners (Fig. 21), the piece D is the weakest place in the joint, hence the tongue E may be less than ⅛" thick. In making the milled drawer front, E (Fig. 21) should fit the groove F with a "push" fit.

The advanced homeworker with machine equipment can machine these joints. The dovetailed dado joint (Fig. 21), is very strong; often adaptations of it are found in 18th century chests of drawers.

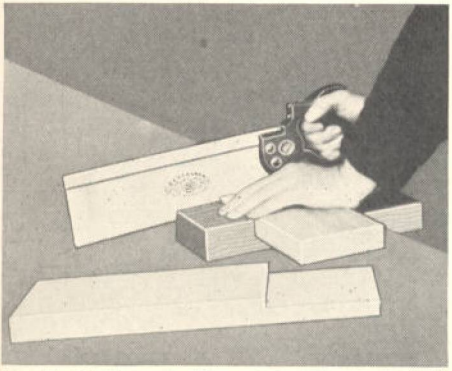


Fig. 22—Cutting shoulders of half lap joint with Atkins SILVER STEEL Back Saw No. 2, in bench hook.

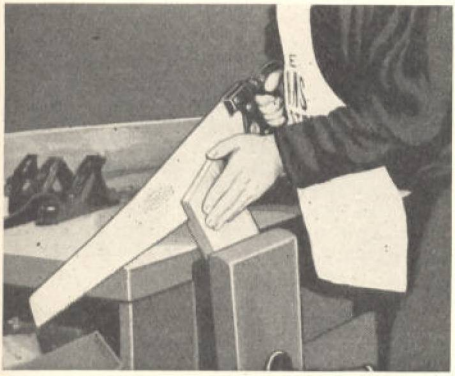


Fig. 23—Making depth cut of half lap joint with Atkins SILVER STEEL Hand Rip Saw No. 53.

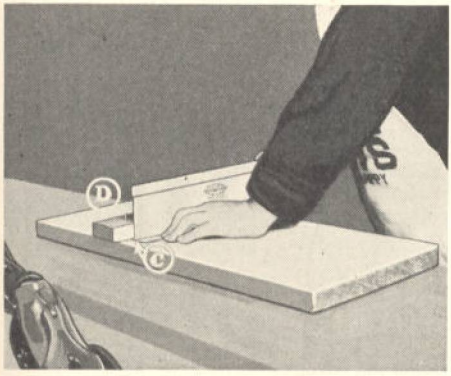
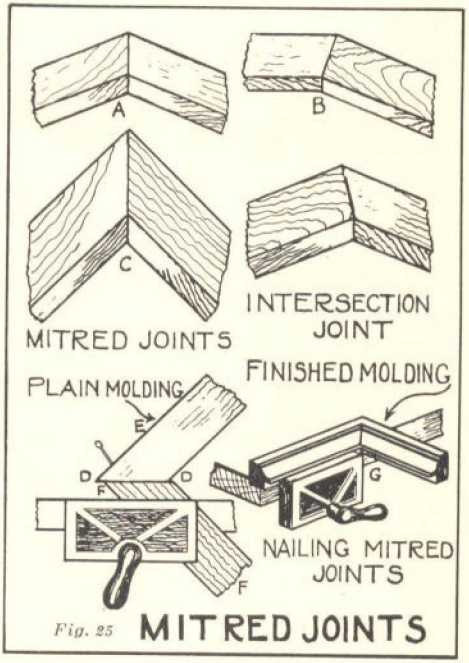
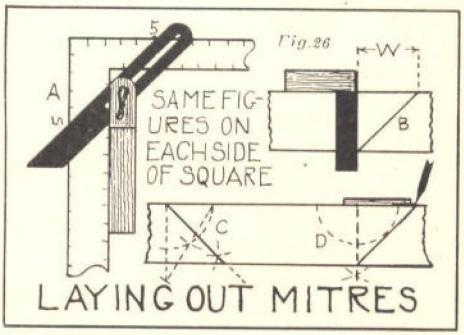


Fig. 24—Making cut in stopped dado joint with Atkins SILVER STEEL Back Saw No. 2.

Mitred Joints—(Fig. 25).—The mitre joint is commonly used in making picture frames and in the casings of doors and windows. The intersection joint is made of two pieces of different widths hence the angles are not equal. The usual mitre angle of 45 degrees may be laid out by setting a bevel to coincide with the same figures on each side of a steel square as at A (Fig. 26) or by drawing square lines across the piece as at B, C, and D. An accurate mitre may be sawed with an Atkins Silver Steel Panel Saw (Fig. 27)



though usually they are cut in a mitre box (Fig. 28). Note the angle at which the nail is entered in nailing a mitre at E (Fig. 25). Make a hole with an awl or small drill to insure that the nail is pointed right. Push the joint edge of E by the



joint edge of F as at D to allow the nail to draw E to its place as it is driven home. A finished moulding may be held in the vise as suggested at G of Fig. 25 without being marred.

Mitred joints may be fastened by glued dowels as in Fig. 29, with blocks rub glued as at A, clamp strips placed as at C; or with corrugated fasteners. Or with a circular saw table and an Atkins Silver

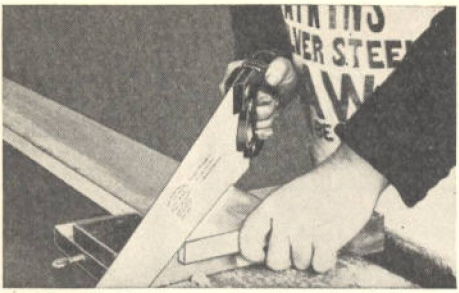


Fig. 27—Cutting a mitre joint with Atkins SILVER STEEL Panel Saw No. 53.

Steel Groover, each member may be grooved, and a spline or key, push fitted as suggested. Note that the grain of the

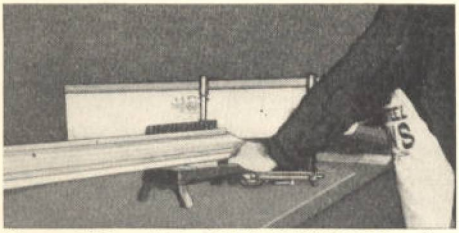
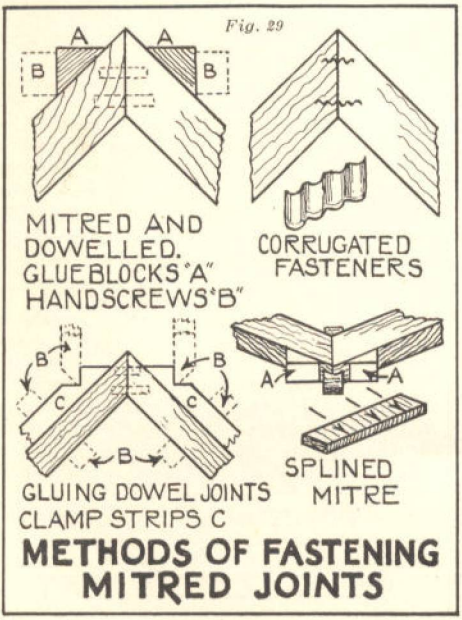


Fig. 28—Using Atkins SILVER STEEL Mitre Saw No. 1 to cut moulding in a mitre box.

spline runs the short way as indicated by the arrow points. This joint may be glued, pushed together, the frame squared and the glue allowed to set. Blocks A and hand screws, or nails may be used if desired.

Mortise and Tenon Joints—(Fig. 32).—Joints of this type are used wherever the best constructive results are desired. Generally wedged forms of this joint are used



only upon the best work. In making mortise joints follow the sequence indicated by the numerals of the sketch. In every case work from the face side G in squaring and in gauging. Locate the mortise accurately and square across the face and both edges as in step No. 1, marking with a pencil. Using a mortise gauge from the face side G, make the gauge lines of step No. 2 which give the width of the mortise. Do this on each edge for a through tenon, but on only one edge for a blind tenon (Fig. 30). Bore a hole about the width of the mortise near the middle of its length. Beat out the mortise as in step 4 cutting

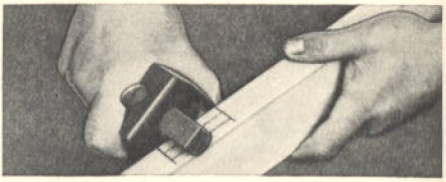


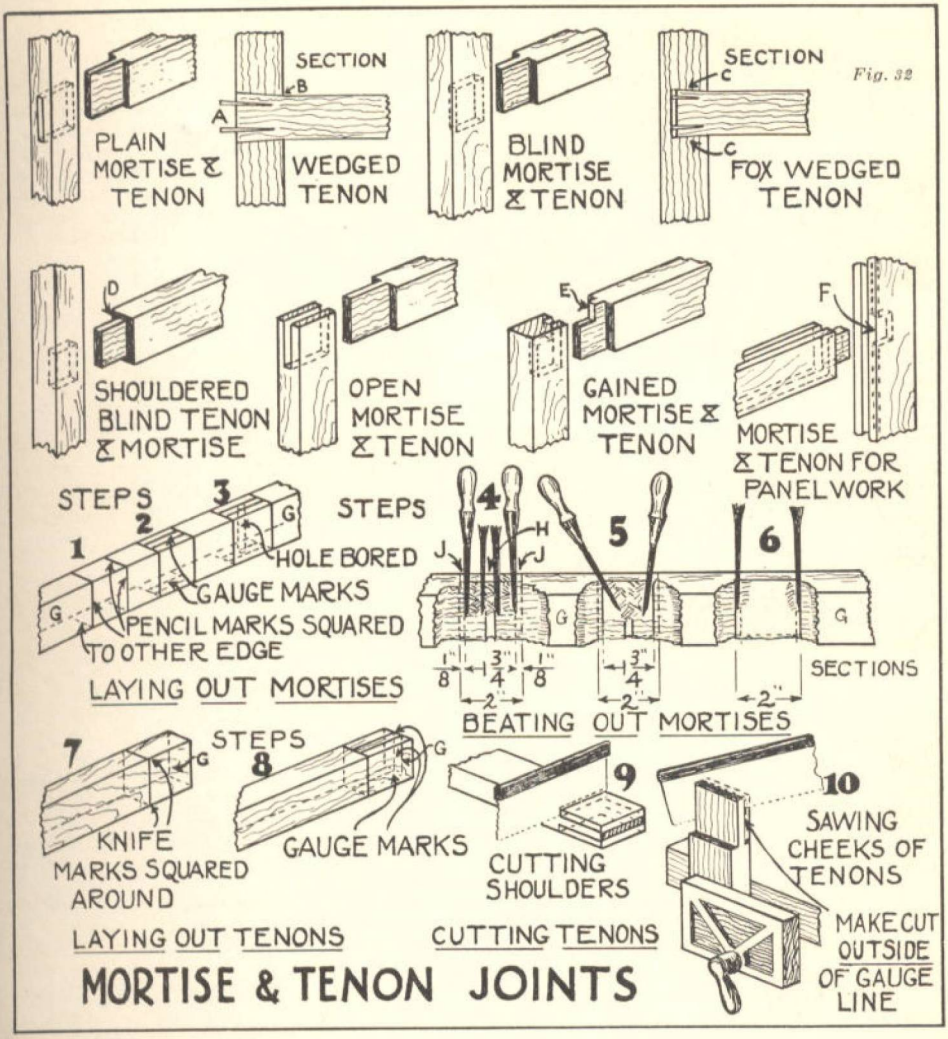
Fig. 30—Marking lines for a mortise and tenon joint with mortise gauge.

from the hole each way, (Fig. 31), to about ⅛" from each end of the mortise as at J. Clean out the shavings and make the last cut as shown in step 6 exactly to the line thus making the mortise the correct length. In step 7 the tenon shoulder should be marked across the face with a knife point. Gauge mark both edges and end as in step 8, working from the face side G. In step 9 saw the shoulder closely beside the knife mark on each side down to the tenon gauge marks. Make cheek cuts by sawing exactly beside and outside of gauge lines as in step 10.

There are many varieties of mortise and tenon joints beside those shown in Fig. 32, such as the pinned or drawpinned, the keyed and the double mortise and tenon, but the shop worker who masters the plain mortise and tenon will have little difficulty with the less common types.

Matched Joint — (Fig. 33). — Plain matching (tongue and groove) is commonly used in floorings, board partitions

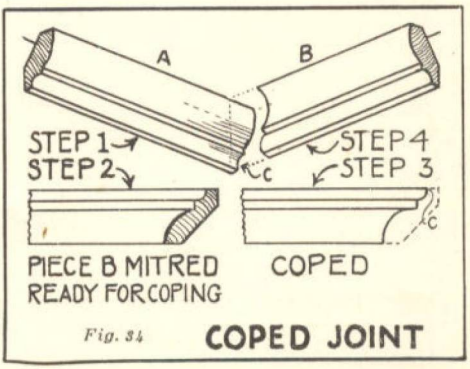
Fig. 31—Beating out mortise. Spalls A sawed from cheeks of tenon B, as shown in Fig. 23.



and doors. Matched flooring of oak, maple, birch, white wood or pine may be glued together for table tops.

Splined Joint—As a substitute for matched boards a splined joint gives good satisfaction.

Coped Joint—(Fig. 34) is used in fitting picture, cornice or other moulding. To make this joint, moulding A of step 1 is cut to length with square ends and nailed in place. Moulding B in step 2 is then mitre sawed as in Fig. 28. Cope this mitre as in step 3, using an Atkins Coping Saw. When nailed in place the joint will show as a mitre, and driving nails will not force it open.



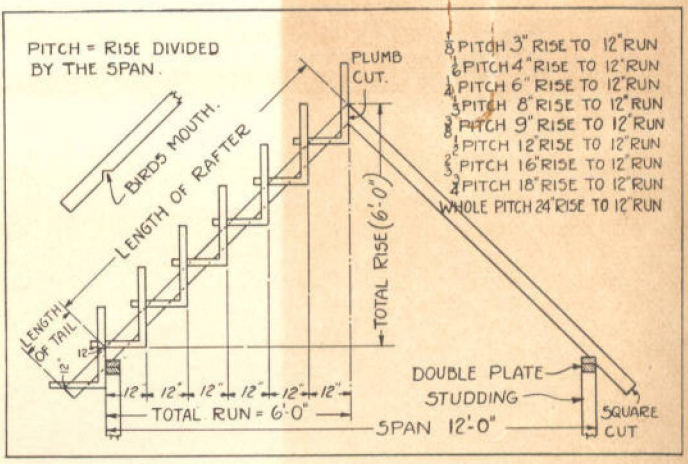


Fig. 35—Showing how the use of a steel square simplifies framing of common rafters for farm buildings.

Farm Carpentry and Repair Problems

Framing Common Rafters

THE steel square is a convenient tool for laying out rafters for different pitches of common gable roofs. The width of the building from outside to outside of plate is the **span**, while the vertical distance from the plate to the ridge is the **rise**. The slope of the roof is **pitch** and is expressed as a fraction, the **rise** being used as the numerator and the **span** as the denominator. Thus a gable roof with 24 feet span and 6 feet rise would be one-fourth pitch, with 8 feet rise would be one-third pitch, and so on. **Run** is the horizontal distance and is equal to one-half the span. Fig. 35 shows the relation of these and also how the square is used for laying out a gable rafter for a given span and pitch. The experienced carpenter measures from the top edge of rafter, using 12 inches on the tongue for the run and the proper number of inches on the blade for the rise. Occasionally a carpenter will be found who frames from the center line of the rafter, and it might be well for the beginner to check his work in this way and also by the table of rafter lengths for gable roofs (Fig. 36). Since only one pair of rafters usually is laid out in this way and cut and tried to see if they fit perfectly and then these two used as patterns for cutting all the others, it pays to make careful measurements and be sure the patterns are correct.

Pitch and Rafter Lengths on Steel Square

If for any given pitch of common rafter we measure off 12 inches of run on the tongue of the steel square and the corresponding inches of rise on the blade, the diagonal distance between these marks gives the rafter length in inches for each foot of run, as shown in Fig. 37. Thus for a half pitch roof, the rise is 12 inches to each 12 inches of run, and the diagonal distance of 17 inches is the rafter length for each foot of run. Then for a building with a span of 20 feet and a run of 10 feet, the rafter length is 10 times 17 inches= 170 inches or 14 feet, 2 inches.

Laying Out Braces

These are necessary in farm building to insure rigidity and resistance to wind pressure, and usually have equal rise and run. The steel square has a brace measure which gives the lengths of braces commonly used. The table is arranged with the numbers representing the rise and run printed one over the other and with the length of the brace at their right; 30/30

RISE INCHES PER FOOT	WIDTH OF BUILDING IN FEET									
	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'
4"	5'-3 1/4"	6'-3 7/8"	7'-4 1/2"	8'-5 2/12"	9'-5 10/12"	10'-6 1/2"	11'-7 1/8"	12'-7 3/4"	13'-8 5/12"	14'-9 1/12"
6"	5'-7 1/12"	6'-8 1/2"	7'-9 11/12"	8'-11 4/12"	10'-4 3/4"	11'-2 2/12"	12'-3 7/12"	13'-5"	14'-6 2/12"	15'-7 10/12"
8"	6'-1/8"	7'-2 1/2"	8'-4 11/12"	9'-7 3/8"	10'-9 10/12"	12'-1/4"	13'-2 5/8"	14'-5 1/12"	15'-7 1/2"	16'-9 11/12"
10"	6'-6 1/8"	7'-9 3/4"	9'-1 4/12"	10'-4 11/12"	11'-8 7/12"	13'-1/4"	14'-3 10/12"	15'-7 5/12"	16'-11 1/2"	18'-2 8/12"
12"	7'-7/8"	8'-5 10/12"	9'-10 3/4"	11'-3 3/4"	12'-8 3/4"	14'-1 8/12"	15'-6 8/12"	16'-11 5/8"	18'-4 5/8"	19'-9 7/12"

Fig. 36—Handy table of rafter lengths for a gable roof. NOTE—*Add tail or overhang to above lengths.*

NATIONALLY ADVERTISED SAWS

Made by Atkins—Trade Marked

Atkins Hollow Back Tuttle Tooth, No. 379—For the farmer who wants a narrow, hollow back, two cutter and raker tooth cross-cut saw of medium price, this saw can not be beat. Made of exceptionally fine grade of Special Steel, carefully tempered and nicely finished. This saw comes filed and set, ready for use, and stays sharp a long time. Tough and not brittle; 14 gauge, 3¼" wide, in all lengths.

Made from 4 to 8 feet. For additional description, see page 31, this book.

Atkins "Thin Back Tuttle Tooth," No. 331—Here is a fine two cutter and raker tooth cross-cut saw that will cut lots of trees and logs with one filing. Comes ready for use right from the factory. Try your thumb on the points. Special Steel, thoroughly heat treated, rendering it tough. Cuts fast, free and easy; 14x18 gauge. The original Tuttle Tooth. You get your money's worth in this saw. For same saw, 14x19 gauge, specify No. 332.

Made 4 to 8 feet. For additional description, see page 31, this book.

Atkins Favorite, "The Victor" No. 225.—Here is a truly fine and remarkable two-man cross-cut saw, one that any man would enjoy owning. A real labor saver because it cuts fast, free and easy. Thoroughly hardened and tempered and holds sharp teeth. Comes filed and set ready for use. A favorite with those who know good saws; 14x18 gauge. Can be used for either falling or bucking. Medium priced, high quality.

Made from 4 to 8 feet. For additional description see page 31, this book.

Atkins Pacific Coast Pattern No. 251.—Full width, heavy blade, toothed to the end. Many Pacific Coast farmers use nothing but the Atkins No. 251. Special Steel, specially heat treated. Extra long teeth and rakers, large gullet space helps remove the saw dust from the cut; 13x17 gauge, for fast easy sawing. Highly recommended for bucking. (No. 252 same except narrower, fine for falling.) Made 5 to 10 feet. For additional description see page 31, this book.

Atkins Lance Tooth No. 361.—For the Pacific Coast farmer desiring high quality at low price this is the saw to buy. Special steel, thoroughly treated, tough and not brittle and will stand the bending test. Large, roomy gullets, has strong teeth and raker without perforation. Easy to file and stays sharp longer than ordinary saws. Toothed to the end; 14x17 gauge.

Made 4 to 8 feet. For additional description see page 31, this book.

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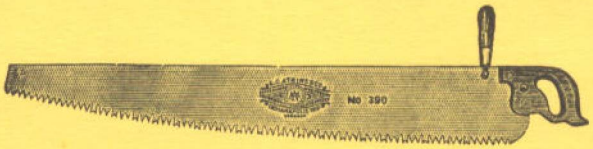

Atkins Tuttle Tooth One-Man No. 390.—A remarkable one-man cross-cut saw of Atkins genuine SILVER STEEL, the finest saw steel known. Takes fine, even heat treatment, rendering it tough; not brittle, yet easy to file. Comes to you ready for use. Go to your dealer and test the cutting edge with your thumb. Note how sharp it is, and it stays that way a long time. Taper ground 15x19x17 gauge; requires very little set. Will not bind. Famous Tuttle Tooth. Selected air-dried harwood handle with plenty of hand room. Made in all lengths from 2½ to 6 foot. For additional description see page 31, this book.

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Atkins Silver Steel Solid Tooth Circular Saws

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Every Atkins Saw is made with the greatest possible care and attention to detail. Nothing is left undone that would improve the quality and cutting efficiency.

The pitch and shape of the teeth and special grinding are scientifically designed and proven successful by rigid tests before being offered for sale. Atkins saws are time tested.

The materials used are the most expensive and the finest high grade steel. In saws it is known as SILVER STEEL, Atkins exclusive formula, the finest saw steel made. Stays sharp longer than ordinary saws because it is tough, yet easy to file.

Modern machinery and the latest methods are used throughout the great Atkins factories. The workmanship is as perfect as it is possible to obtain through the use of up-to-date mechanical appliances and the employment of the most skilled workmen.

They are in use exclusively in the largest commercial lumber operations throughout the world and are giving universal satisfaction; therefore, they will be just as satisfactory for you.

Made in all sizes from 6" to 60" in diameter with all the standard size mandrel holes.

No matter what you intend to pay for a saw it will save you many dollars and long hours of time if you use Atkins SILVER STEEL Saws.

For additional description see page 33, this book.

Atkins Silver Steel Inserted Tooth Saws

Time Tested Saws

We use, and are willing to prove it by actual test, finer material in Atkins Inserted Tooth Saw Plates than found in any ordinary saws of similar pattern.

We consider this essential, because Atkins SILVER STEEL Inserted Tooth Saws are thus able to hold their tension under conditions that would render cheap saws absolutely useless. The same high grade SILVER STEEL is used in Atkins Inserted Tooth Plates as found in Atkins Solid Tooth Saws.

The shoulders are perfectly milled to assure a snug fit of the teeth and holders, and perfect alignment; thus each tooth does its equal amount of cutting, eliminating vibration and at the same time produces smooth cuts.

Atkins Teeth and Holders cover the widest possible range of patterns to suit all conditions and types of timber. They are made of a special steel scientifically heat treated and particularly adaptable for this use. They are keen cutting, yet tough, enabling them to hold their edge a remarkably long time and eliminating breakage.

Made in all the standard sizes—10 to 60 inches. Choice of several patterns of teeth.

Be sure to investigate Atkins SILVER STEEL Inserted Tooth Saws before you buy any at all. We ask you to do this for your own interest and protection as it will save you money in the long run.

For additional description see page 33, this book.

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- One Man
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- One Man Handles
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42.43 means that with a rise and run of 30 inches each the length of the brace is 42.43 inches. Where the rise and run are

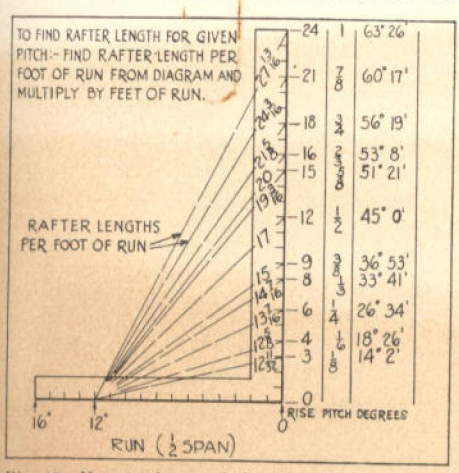


Fig. 37—How to figure pitch and rafter lengths on steel square.

unequal, the brace is laid out exactly the same as for a rafter of the same pitch.

Laying Out a Square Foundation

The farm workman will have no trouble in laying out a square foundation if he follows the plan shown in Fig. 38. It is hardly safe to rely on squaring the corners with a steel square, since an error too small to detect on the steel square may be magnified to several inches in a long foundation.

How to Level a Foundation

One can easily level a foundation by setting an ordinary carpenter's level perfectly horizontal, on a stake driven near the center of the foundation, then sighting along the top, while a helper marks the proper level on one foundation wall. Next turn the level on the stake towards another wall, level it carefully again, and again mark the level seen along the top, and so on all around. By measuring up from these marks, the wall can be leveled quite accurately.

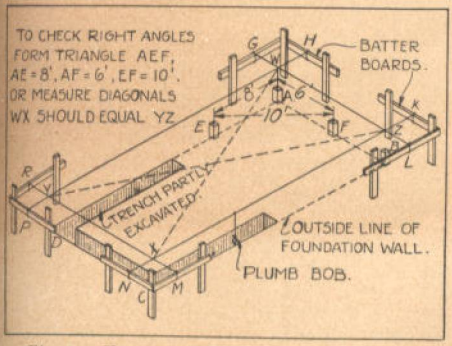


Fig. 38—How to lay out a square foundation.

Removing Stubborn Nuts and Bolts

Removing a bolt where the nut has rusted fast, or where a round-headed bolt turns in the hole is a very common and often troublesome occurrence in farm repair work. A liberal use of kerosene or some rust-cutting preparation helps greatly. Using a very little kerosene and then twisting on the nut with a pair of hot tongs is quite effective. Once loosened, the nut should be worked back and forth

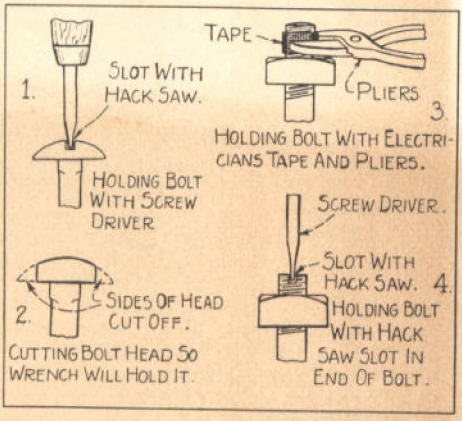


Fig. 39—Ways to remove stubborn bolts and nuts.

a little at a time with more kerosene and oil worked in. Fig. 39 shows four ways of attacking this problem. If these are not effective, the nut will have to be split off with a cold chisel, or the bolt cut off with an Atkins Silver Steel Hack Saw or an Atkins Silver Steel Nail Cutting Saw.

Removing Rusted or Broken Screws

It is often difficult to remove a rusted or broken screw without marring the surface. If the screw is in metal or where oil stains do not matter, the screw should first be soaked with kerosene and allowed to stand for several hours. Fig. 40 shows a practical way of meeting this problem.

Fig. 40

Pipe Connection to Tank

The proper way of connecting a supply pipe to a wood water tank is often a problem. For a wood tank where the wood is fairly thick and the pipe not subject to jarring, the best method is to use a long nipple. Cut the hole in the wood so the nipple will screw in tightly, then screw pipe flanges up tightly both inside and out.

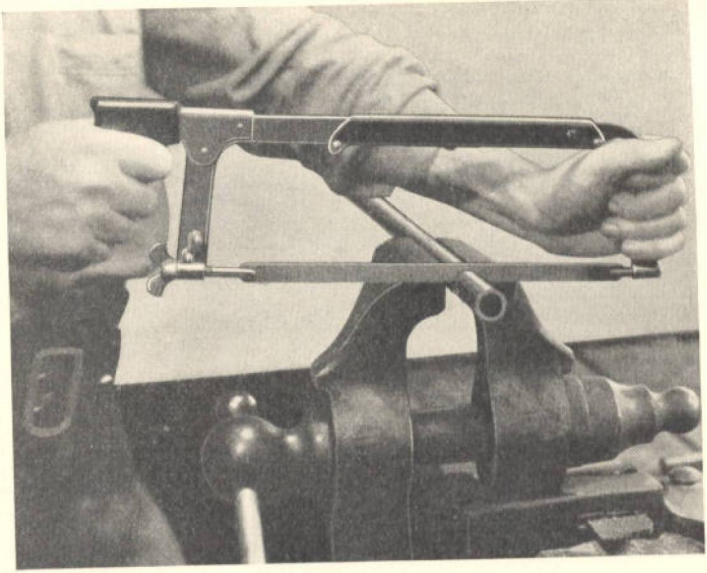


Fig. 41—A good hack saw is the best tool for cutting pipe, rods, bars, bolts, nuts, or other metal parts.

Metal Work on the Farm

METAL has replaced wood to such an extent now in roofing, siding, fencing, farm machinery, grain handling and storage, livestock equipment, and so on, that many farm construction or repair jobs now call for some sort of metal-working tools, and many farmers find this part of the shop equipment just as important as that for carpenter work. The larger farm or ranch will likely have need for a complete blacksmith shop and for a mechanic who does all the repair and upkeep work on buildings and machinery; but even the small farmer will find it profitable to have a few first-class metal-working and general repair tools in his shop, to take care of simple jobs, and avoid delays when farm equipment needs repairing.

Use and Care of the Hack Saw

The hack saw is one of the most convenient and useful tools around the farm shop, and every up-to-date farmer should have a good one. The Atkins Adjustable Hack Saw Frame is adjustable to different lengths of blade, and the "Easy Grip" Non-Breakable Handle puts the entire force of the stroke on a line with the cutting edge of the blade. This increases the cutting power, gives the operator better control, and prevents injury should the blade break. Such a frame fitted with Atkins Silver Steel Hack Saw Blades is ready for efficient service on iron, mild steel, brass, copper, lead, hard rubber, pyralin, wood, and so on. Even concrete can be cut by using old blades and lots of time and patience.

In cutting bolts, pipes, machine parts, concrete reinforcing rods, I-beams, wire rope and in fact almost any hard job of cutting, the hacksaw is the first tool to consider. It cannot be used for highly tempered steel, such as files, car springs, the steel wires in old tires, and so on, but even on these the temper can often be drawn by the blow torch enough so the hacksaw teeth will take hold.

The teeth on a hacksaw blade are given a forward rake or slant and the cutting should take place entirely on the forward stroke. Hence a moderate pressure should be used on the forward stroke and the pressure entirely relieved on the return stroke. Too much pressure dulls the blade unnecessarily and also causes it to catch and break. A sharp blade will cut faster than a dull one and the blade travel is more important than the pressure. Hence for farm use a 12-inch blade is better than a shorter one, as it permits a longer stroke. It is not advisable to use a new blade in a cut where a worn blade has been broken, as the new blade has a little more set and is likely to stick and break; it is better to turn the piece and start a new cut. Generally hack saw blades should not be oiled for hand use.

Fine teeth (24 or more to the inch) should be used for cutting brass, copper, piping, and so on; and a very light pressure should be used. Very thin brass pipe can be cut much more easily if a round stick can be inserted and then the pipe turned occasionally. Coarse teeth work better on cast iron and heavy steel, and also on thin sheet metal. About 40 to 50 strokes per minute, or about the same stroke as for a file, will give better results than a faster speed.

Save worn and broken hacksaw blades, as they will come in handy around the shop. The teeth at the ends are not worn, and by fastening them in a home-made handle, the ends can be ground off square or with a slight bevel and be used for cut-

ting keyways in a shaft or pulley, cutting off bolts that turn in their holes, undercutting the mica on generators and motors, and cutting jobs inaccessible with regular blades. The teeth can be ground off worn blades and a fairly good knife made. They are handy for working asphalt into concrete cracks, for raking and cleaning mortar joints, and so on. They can be ground to size and used to replace broken springs in door locks, barn door latches, and so on.

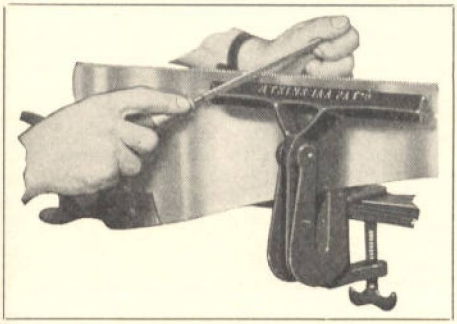


Fig. 42—Sharpening saws is only one of many jobs for a set of good files in the farm shop.

How to Do Filing

Good files are valuable farm repair tools, and a complete assortment is necessary in any well-equipped farm shop, for a wide variety of purposes. An important use is for sharpening saws, plow shares, rolling coulters, hoes, shovels and other cutting tools. Hoes and shovels should be filed or beveled on the upper or loose-earth edge. Other file uses are, smoothing surfaces after soldering or welding, finishing and rounding metal edges, sizing stock, filing keyways, enlarging holes or slots, cutting curves, filing wood, trimming hoofs, adjusting magneto and breaker points, etc.

Silver Steel is ideal for use in files—as in saws—because it takes the special hardening process better than any other file steel. Files made of this steel cut faster and smoother, with less effort, and last longer, because the teeth are unusually tough and wear down slowly and uniformly. You will find an Atkins Silver Steel File or Rasp suitable for every home or repair shop need.

Not only must **good** files be selected, but they must be properly used and cared for. The file is a **cutting** tool, with the teeth given a forward rake to do all the cutting on the stroke away from the operator. Hence, he should grasp the outer end firmly with the left hand and make the stroke a straight and level one. The pressure is always applied on the forward stroke, with none on the return stroke but without lifting the file from the work. When an accurate or finely finished surface is desired, such as fitting a key in a keyway, the best results can be obtained by **draw filing**, where the file is grasped at each end and drawn back and forth at right angles to its length.

Each file tooth is simply a chisel and will do good work only when sharp, and files no more than chisels should be thrown loosely into a box with other tools. Each file should have a hole or notch in the file rack where it can be stuck when not in use, and files carried to the field should be protected by a sheath or box. A stiff wire brush or **file card** should be provided for cleaning out the loose material from between the file teeth, which interferes with the proper cutting of the teeth and may even cause the work to be scratched. Grease on the work prevents a file from cutting properly, while rust is especially destructive to the sharp edges of the teeth.

Farm Soldering Jobs

A good soldering outfit, and a little skill in using it, will repay the cost several times over every year, in repairing milk cans, tinware, gutters, spouts, and soldering electric wiring, etc. The work is really quite simple if the following precautions are observed:

1. The soldering copper must be kept hot, clean, and have the point well tinned.
2. The metals to be soldered must be scraped thoroughly, so as to secure clean, bright surfaces to unite.
3. The proper flux must be used to keep the surfaces clean and to make the solder flow easily.
4. The surfaces to be united must be heated above the melting point of the solder, usually by holding the soldering copper against them.
5. The work must be so held that the solder will run into the joint to be united.

The first of these, that of keeping the soldering copper properly heated is a stumbling block for many beginners. The blow torch is the most convenient for farm use, since it is steady and easily controlled, is portable and can be carried to the job, and can be used for pre-heating large pieces. The torch can also be used for thawing frozen pipes, burning off old paint, and other uses about the farm.

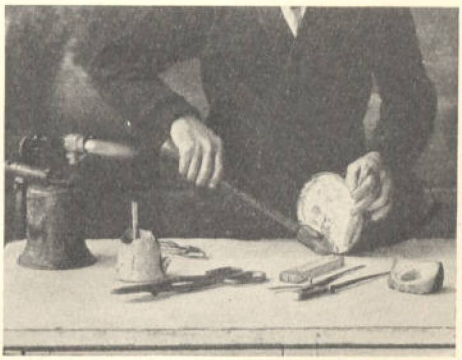


Fig. 43-A—Soldering new bottom in empty gasoline can.

Good results can be secured on a gas or gasoline burner by setting two bricks a short distance apart on the burner with another on top and putting the soldering copper in the enclosed space. If heated in a coal or wood stove, it is well to use about an 8" length of 1½" or 2" pipe and heat the soldering copper in this. The body of the soldering copper should receive the most heat, so as to keep the point clean and prevent burning off the coating of solder.

The **flux** most commonly used in farm soldering to prevent oxidation and help

Fig. 43-B—Repairing leaks in milk cans is a typical job for the farm shop soldering iron.

the melted solder to flow freely is **zinc chloride.** This flux can be secured from any tinner, and can be used with old tin, copper, brass, steel, and for most general work. When working on galvanized iron, a little of the raw hydrochloric (muriatic) acid should be used, as this acts on the zinc in the galvanizing. When zinc chloride or hydrochloric acid is used as a flux, the finished work should be washed thoroughly to prevent corrosion around the joint.

Powdered Rosin is used on new tin or copper. A thin varnish of rosin and denatured alcohol is convenient on such materials. A paste of rosin and tallow is used in soldering electrical wiring, as zinc chloride is likely to cause troublesome corrosion. Good commercial soldering pastes are available and very convenient.

When the soldering copper is properly heated, it is **tinned** by rubbing the point on a piece of sal ammoniac, then holding it against the solder until a bit is melted, then rubbing again on the sal ammoniac. A very convenient way of tinning is to cut a small hollow in a soft brick and put small pieces of rosin and sal ammoniac and solder in this hollow and the hot soldering copper rubbed in this until the point is bright. One must learn by experience the proper heat, but it is just hot enough to make the sal ammoniac smoke freely when rubbed, or to melt the solder quickly when touched.

To solder a joint in new tin, brush the joint with the rosin-alcohol mixture; get the soldering copper to the right heat, clean it in the soft brick or on the sal ammoniac, and see that the point is properly tinned; then hold the work so that the melted solder can run into the joint; touch the soldering copper to the solder until it picks up a small drop, hold the soldering copper against the work with the sharp corner up against the joint until the tin gets hot enough that the solder starts to flow like water; then move the soldering copper slowly down the joint until the whole joint is filled, letting any excess solder run off.

To solder a patch over a large hole, or two pieces of old tin together, it will be necessary to clean thoroughly both the surfaces that are to be joined, then flux these surfaces and tin or coat each one separately with the solder. When both surfaces are tinned, they are laid together and the hot soldering copper held against them until the solder flows, then the joint held together with a wooden stick and the soldering copper withdrawn and the joint held stationary until the solder hardens.

Failure to pick up solder means a dirty soldering copper or is not hot enough. Failure of the solder to run freely usually means too cold a tool or not enough time for the work to get hot. Rough uneven solder means too cold a soldering copper. Failure of the liquid solder to adhere to the surface means grease or dirt or the use of the wrong flux. Finally don't try to solder aluminum until you get to be an expert. It requires special solder and extremely careful handling and usually doesn't pay for the trouble.

The gasoline blow torch not only makes a good method of heating the soldering copper, but is useful for many other purposes about the farm. Where electric power is available, the electric soldering outfit is very convenient indeed, especially for lighter work such as radio or electrical jobs.

Simple Forging Operations

The average farmer has neither the time nor the training to become a skilled blacksmith, but such simple operations as bending and shaping, welding, hardening and tempering, are easily learned and will save many expensive delays in a busy season. He should secure one or two good books on forging and general repair work, study these carefully and observe the methods of experienced blacksmiths, and he will soon find himself equal to almost any ordinary repair job.

A good **forge** properly fired is necessary for satisfactory results. The light portable forge with hand blower gives very satisfactory results and is not expensive. A concrete forge is satisfactory, but will

probably cost as much complete as the portable type.

The fuel used in a forge is coke, made in the forge from a good grade of smithing coal, which should be bought from local dealers, and a bushel of which will last the farm shop a long time. Fig. 44

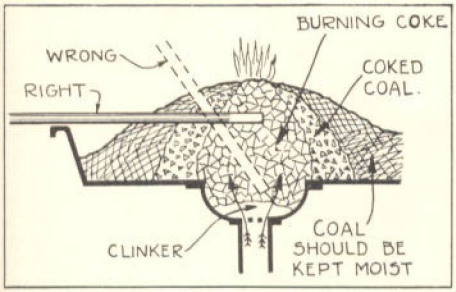


Fig. 44—Cross section of a good forge fire, and proper position of metal for heating.

shows how a good forge fire should look and the proper position of the work in it. Clean out the ashes and clinkers, set a small block of wood on end over the tuyere, pack moist coal around it, take out the block, light some shavings or oily rags and drop into the hole, and turn the fan slowly at the same time pulling a few small pieces of the dry coke from the previous fire. When the coke lights, increase the blast a little and pull in more coke, and build the fire up into a little

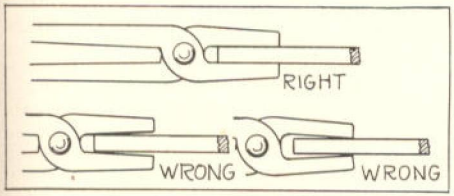


Fig. 45—Shaping tongs to fit various jobs.

mound before adding any more green coal around the fire. The coked material around the fire should be worked into it and then more green coal banked around it.

Tongs—Usually a pair of bolt tongs for holding round stock and a pair of flat-

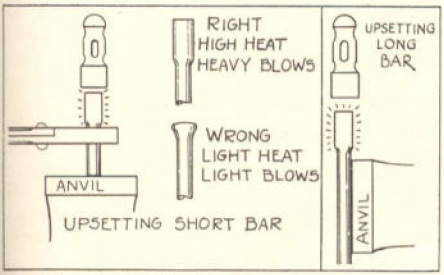


Fig. 46—LEFT: Upsetting a short bar. RIGHT: Upsetting a long bar.

jawed tongs for flat and square work can be bought very reasonably and will hold most of the farm repair jobs, although these tongs will have to be heated and shaped to the work occasionally, as shown in Fig. 45. Other shapes can be bought or made up as the workman gains in skill and knows better what he wants.

Upsetting, Drawing, Punching or Bending

Upsetting, or making the piece shorter and thicker, is necessary to gain additional stock in welding, or at the end of a brace where a hole or eye is to be made. As shown in Fig. 46, one should give the iron a high heat and strike a heavy blow directly against the end, or jam the heated end against the side of the anvil. Light blows should not be used and the piece should be heated as far back as the upsetting is desired. Keep in mind that it is difficult to add to the size if one gets it too small, but a little extra stock can be removed with the file or the emery wheel.

Drawing out or making an iron longer and thinner is best done across the horn of the anvil as shown in Fig. 47.

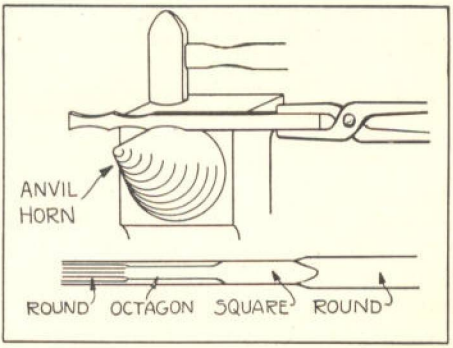


Fig. 47—How to draw out heated stock.

In **punching a hole** the iron is brought to a white heat, the punch driven about half way through on the face of the anvil. It is then removed, the piece turned over and the punch started through from the other side, the raised blackened spot locating the hole. As the punch is felt to give, it is pushed over the pritchel hole in the anvil and the piece punched out.

Bending is a very important part of forge work. Light iron can be bent cold, but heavier stock should be heated red hot. Rounded bends are made over the horn of the anvil, but square bends and shoulders are made on the side or corners.

Simple Welding Jobs

Welding wrought iron and mild steel is not difficult, but tool and other high carbon steels require more skill. The lap weld is most important in farm repair work. The butt-weld, jump weld or split weld, or welding tool steel should not be attempted without a good book on forge work, and considerable practice in simple welding.

First be sure the fire is in proper condi-

tion with cinders and ashes shaken out and the burning coke well down on the tuyere and a narrow deep fire surrounded by plenty of coke and banked all around with dampened wet coal. Good results will not be secured if the fire is shallow or too large or if ashes and cinders are at the bottom, or if there is any green coal in the flame. Next heat the ends to be welded to a white heat, upset each back for a distance of two to three inches, as shown in A (Fig. 48). Then scarf the ends or bring them down to a point as shown in B-C-D (Fig. 48). The scarf should be crowned or bellied, so that when placed together, the center parts will touch first since the weld must start at the middle and work

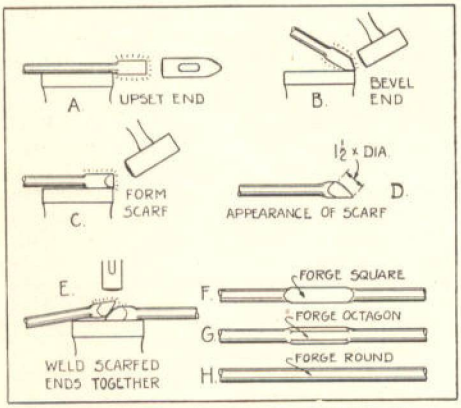


Fig. 48—Steps in lap welding of round stock.

out in order to work out the impurities and make a strong joint.

The two parts should now be placed in the fire with the scarfed sides up and covered well with coke (not green coal). Heat slowly and steadily, using a light blast. Watch the work closely and move the **points** out of the main heat or remove and dip in water if they show signs of burning. When a bright red heat has been reached, a flux should be applied to prevent the formation of scale and to make the weld unite more readily. The beginner will do well to use a patent flux, which can be bought through any local dealer. Many welders use equal parts clean white sand and borax which has been heated and then powdered. When the heated parts are white and wet-looking and sticky when touched together, the welding heat has been reached. Explosive white sparks show that the iron has just started to burn. Just before the welding heat is reached, turn the scarfed sides down for a second or two to get the meeting surfaces at the highest heat. Remove the irons from the fire, rap them sharply on the forge to remove the slag, lay one piece on the anvil with the scarfed side up (E—Fig. 48), lay the second piece on it with the rounded points touching, and then strike with the hammer to stick the two pieces. After the first blow, the points should be welded down, as they are small and will be the first to fall below the welding heat. If the weld cannot be completed at one heat, put it back and reheat. Most beginners do not have the work hot enough. The weld is usually worked down square, then octagonal, then rounded, as shown in F-G-H (Fig. 48).

Hardening and Tempering

Steel heated to a dull red and then plunged into water is too hard and brittle for ordinary purposes, and will give better results if all except the cutting or service part is made a little softer. This is what is known as **tempering.** To temper a cold chisel, heat the end of the tool to a cherry red and plunge about an inch of the cutting end into water, moving it back and forth to avoid warping and just a little up and down to avoid the danger of a water crack. When the part in the water is cold, remove it and quickly polish the hardened part with emery cloth or smooth file. The heat will move from the uncooled part towards the hardened end very quickly and a band straw-colored on one side and blending into blue on the other will move down towards the cutting end. Each color in the band represents a different degree of hardness, and when the color showing the proper temper reaches the end, the tool is plunged until cold. For ordinary cold chisels, cool when the purple reaches the end. Breaking or chipping means that the tool is too hard, and bending or battering shows it is too soft. In either case, reheat and temper to the next color in the table of colors. Observers do not see the colors alike and each workman must rely on his own judgment.

Guide for Hardening and Tempering Tool Steel

APPLICATIONS	COLOR OF OXIDE	ACTION OF FILE
Engraving tools, lathe tools and tools for cutting hard metals at slow speed.	Very pale yellow	File will hardly mark
Lathe and planer tools for heavy work, milling cutters, taps, reamers, thread-cutting tools, punches, dies, etc.	Straw yellow	File will mark
Various punches and dies, wood-working tools, twist drills, sledges, blacksmith's hand-hammers, stone drills, etc.	Deep straw (or brown-yellow)	File will mark a little deeper
Shear knives, rivet snaps, punches, boilermaker's tools, and cold chisels for light work.	Light purple	
Cold chisels for ordinary work, gears, surgical instruments, etc.	Blue tinged with red	Files but with difficulty
Springs, picks, screwdrivers.	Blue	

300 Useful Things You Can Build

Where to Get Plans and Bulletins

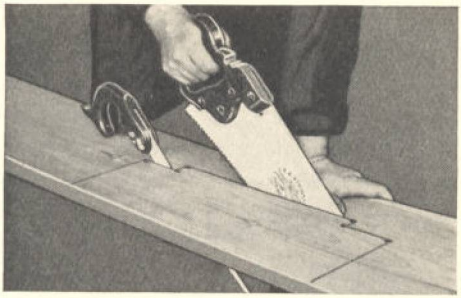


Fig. 49—Making things for the farm and home is easy when you have good plans and good saws and tools to aid you.

SO FAR, this booklet has dealt with helping the farmer to plan and equip his own farm workshop, and giving him the practical information he needs in order to build things and make repairs. Now, comes a wide variety of suggestions for making profitable use of his workshop and tools, and the skill he has acquired with them. Below, are listed several hundred suggestions for constructing farm buildings and improvements, and making handy devices and equipment for use in the home or on the farm. Also, the farmer is told where he can obtain a plan or bulletin to build each item listed.

Each figure which follows an article in the list below, represents a firm which will furnish a complete plan or working description, to help the farmer build this particular project. For example, "Cattle Sheds, 1, 5," means that either National Lumber Mfrs. Assn., or Long-Bell Lumber Sales Corp., can supply a plan to help the farmer build this shed. To obtain information and prices of **any** plan in these pages, write direct to one of the firms whose numbers are given in the list. Do NOT write to E. C. Atkins and Company, as we have no plans for sale, and publish this reference list simply as a convenience to farm readers of this book.

Key	Publisher of Plans	Address
1.	National Lumber Manufacturers Association	702 Transportation Bldg., Washington, D. C.
1a.	California Redwood Association	24 California St., San Francisco, Cal.
2.	Southern Pine Association	New Orleans, La.
3.	West Coast Lumber Trade Extension Bureau	562 Stuart Bldg., Seattle, Wash.
4.	Western Pine Association	600 Call Bldg., San Francisco, Cal.
*5.	Long-Bell Lumber Sales Corporation, Dept. A	926-8 Grand Ave., Kansas City, Mo.
	*Long-Bell plans will be delivered through your local lumber dealer.	
6.	Weyerhaeuser Forest Products	Merchants National Bank Bldg., St. Paul, Minn.
7.	Better Homes and Gardens	17th and Locust Sts., Des Moines, Iowa
8.	Capper's Farmer	Topeka, Kansas
9.	Country Home	250 Park Avenue, New York City, N. Y.
10.	Farm Journal	Washington Square, Philadelphia, Pa.
11.	Farm Mechanics	407 S. Dearborn St., Chicago, Ills.
12.	Popular Homecraft	737 N. Michigan Ave., Chicago, Ills.
13.	Popular Mechanics	200 East Ontario St., Chicago, Ills.
14.	Popular Science	381 Fourth Ave., New York City, N. Y.
15.	West Coast Lumbermans Association	364 Stuart Bldg., Seattle, Wash.

FARM BUILDINGS

Barns, Cattle, Dairy, General, or Horse, 1, 2, 3, 4, 5, 8, 11
Barn, Gable Roof, 2, 4, 11
Barn Gambrel Roof, 1, 2, 4, 11, 15
Barn Gothic Roof, 1, 3, 4, 5, 15
Brooder House, 1, 3, 4, 5, 6, 8, 15
Brooder House, Portable, 1, 5, 11
Brooder House, Purdue, 8
Brooder Sun Porch, 1, 10
Bungalows, Farm, 1, 10, 11
Cabins and Cottages, 1a
Cabin, Log, 9, 12, 14
Cattle Sheds, 1, 5
Combine Shed, 5, 8
Community House, 1
Corn Cribs, 1, 2, 3, 4, 5, 8, 11
Corn Crib-Granary, 1, 8
Corn Crib, Single, 8
Corn Drying House, 11
Cottage, Farm, 8, 11
Dairy Barns, 1, 2, 3, 4, 5, 8
Dairy Houses, 1, 2, 3, 4, 6
Farm Houses, 1, 1a, 2, 3, 4, 6, 8, 10, 11
Filling Station, 1
Fuel and Oil House, 8
Fruit Sheds, 3
Garages, 1, 2, 3, 4, 11, 13, 14
Garage and Shop, 1, 2, 11
Garage and House, 2
Granaries, 1, 2, 3, 4, 5
Granary-Corn Crib, 1, 8
Granary, Portable, 1
Greenhouse, 2, 10
Hay Sheds, 2, 5, 8
Hog Houses, 1, 2, 3, 4, 5, 6, 8, 10, 11, 15
Hog House, Gable Roof, 1, 11, 15
Hog House, Gambrel Roof, 3, 11
Hog House, Half-Monitor, 1, 3, 5, 6, 11, 15
Hog House, North-South, 6
Hog House, Purdue, 8
Hog House, Farrowing, 1, 2, 5, 6, 8, 11
Hog House, Portable A-type, 1, 2, 3, 8, 11, 15
Horse Barns (see Barns)
Hot-beds and Frames, 3, 10
Houses, Farm, 1, 1a, 2, 3, 4, 6, 8, 10, 11
Implement Sheds, 1, 2, 3, 4, 5, 6, 8, 11
Incubator Houses, 3
Laying Houses, 1a, 2, 3, 4, 5, 8, 15
Log Cabins, 9, 12, 14
Machine Sheds, 1, 2, 3, 4, 5, 6, 8, 11
Market Stands, 1, 9
Milk Houses, 1, 2, 6
Poultry Houses, 1, 1a, 2, 3, 4, 5, 6, 8, 10, 11
  All-purpose, 1a
  Open Front, 2
  Gable Roof, 11, 15
  Half-Monitor, 8
  Straw-loft, 1, 2, 8, 11, 15
  Shed Type, 1, 2, 6, 11
  Washington, 8
Pump House, 4
Range Shelters, 2, 10, 11
Roadside Markets, 1, 9
Safety Bull Pen, 10
Seed Corn House, 8, 11
Septic Tank, 1a, 8, 10
Shed, Cattle, 1, 5
Shed, Hay, 3, 5, 8
Shed, Implement, 1, 2, 3, 4, 5, 6, 8, 11
Shed and Workshop, 1
Silo, Pit, 10
Silo, Trench, 10
Silo, Wooden, 1, 2, 3, 15

FARM EQUIPMENT

FARM HOMES AND EQUIPMENT

GARDEN EQUIPMENT

POULTRY EQUIPMENT

FOR BOYS TO BUILD

Free U. S. Dept. of Agriculture Farm Bulletins

Much valuable information for farmers is contained in bulletins issued by the U. S. Department of Agriculture. Below are listed government bulletins on farm building, carpentry, repairs, woodlands, etc. A copy of each bulletin may be obtained free, if you write to your Senator or Congressman, or to the Office of Information, Department of Agriculture, Washington, D. C. Requests direct to the Department must not exceed 10 bulletins.

Pruning, 181
Sheep Raising Equipment, 810
Construction of Weirs, 813
Farm Reservoirs, 828
Potato Storage Houses, 847
Homemade Silos, 855
Farm Home Conveniences, 927
Woodlands Pay in South, 1071
Beautifying Farmstead, 1087
Forestry and Farm Income, 1117
Planning the Farmstead, 1132
Community Building Plans, 1173
Improvement of Farmwoods, 1177
Measuring Market Timber, 1210
Farm Dairy Houses, 1214
Floors and Coverings, 1219
Sewerage of Homes, 1227
Greenhouse Construction, 1318
Pruning Citrus Trees, 1333
Dairy Barn Construction, 1342
Beef Cattle Barns, 1350
Black Walnut Timber, 1392
Dairy Barn Ventilation, 1393
Windbreak a Farm Asset, 1405
Dairy Bull Management, 1412
Farm Plumbing, 1426
Water Power Plants, 1430
Farm Water Supply, 1448
Painting on the Farm, 1452
Simple Plumbing Repairs, 1460
Practical Hog Houses, 1487
Hog Lot Equipment, 1490
Convenient Farm Kitchens, 1513
Farm Poultry Raising, 1524
Haying Equipment, 1525
Clearing Land, 1526
Farm Horse-Shoeing, 1535
Poultry Houses and Fixtures, 1554
Making Cellars Dry, 1572
Containers Used in Shipping Fruits and Vegetables, 1579
Feed Lot Equipment, 1584
Fire Protective Construction, 1590
Transplanting Trees and Shrubs, 1591
Rural Business and Social Buildings, 1622
Farm Storage of Small Grains, 1636
Rat-proofing Buildings, 1638
Farm Fire Safeguards, 1643
Chimneys and Fireplaces, 1649

Other Sources of Farm Building Plans and Bulletins

It is best to make or obtain a good plan for every farm building or improvement you construct, no matter how small the job. It pays to see your building on paper first, and make any changes then—BEFORE you begin to build. Changes on paper cost nothing, but are expensive in a half-finished building.

Before you begin the construction of any new farm buildings, it is suggested that you write to your County Agent, or state agricultural college. In your letter, state exactly what type of farm building or repair work you are planning, and ask what blue-prints or plans are available to meet your needs. Your local agricultural college knows the best types of farm buildings to suit the climatic and farming conditions of your particular state, and may have plans available for the very building you have in mind. Many lumber dealers also offer the farmer a wide variety of plans for new farm buildings and improvements, and can quote attractive prices on all the lumber needed to erect the building.

Free Bulletins from State Colleges

Most of the state agricultural colleges also issue a number of very useful bulletins dealing with farm buildings, improvements, machinery, and forestry subjects. The bulletins are written to suit the local conditions and usually are sent free upon request to farmers in the home state. When in need of such information, the farmer will do well to write to his county agent or state agricultural college, and ask for bulletins on the subject he has in mind.

Helpful Government Booklets

The following Government Booklets may be obtained by writing to Superintendent of Documents, Government Printing Office, Washington, D. C., and enclosing the price of each booklet. Stamps not accepted.

How to Judge a House.....10c
Care and Repair of a House.....20c
You Can Make It.....10c
Make It for Camp and Cottage.....10c
You Can Make It for Profit.....10c

Fig. 50—For fast, easy cutting of trees and logs, woodsmen prefer an Atkins SILVER STEEL Cross-Cut Saw.

Money Making on a Farm Woodlot

THE farm woodlot makes an important contribution to the prosperity of a large percentage of American farms. It furnishes pasture and shade for livestock in summer and helps to shelter them in winter; it provides logs for farm lumber, posts for farm fences, fuel for farm homes, and often yields an annual crop of saw logs or cord-wood which mean many extra dollars for the owner.

In some areas, the farm woodlot is disappearing, due to neglect or too heavy cutting. But, it will pay every farmer who now owns a woodlot, to crop his trees carefully, plant new ones regularly, and in other ways promote the growth of this valuable asset on his farm. And the farmer with surplus acres or land unsuited to other crops, may well consider starting a new woodlot which will soon add much to the value of his farm.

The United States Forestry Service estimates that one-third of all farms in the country yield as much as $200 worth of timber products per farm, per year, making a national farm forest crop valued at nearly $400,000,000 annually. A timber tract farm or woodlot not only pays its owner his share of this enormous annual profit, but it is like a bank account which he can draw upon for extra income in years when other farm crops or profits are lean.

Cropping the Farm Woodlot

The farmer is the largest single consumer of lumber, but high freight on long hauls often makes his lumber cost three times that at the mills. The available supply is decreasing and moving farther away, and the cost is likely to increase rather than decrease.

The farmer is also the largest owner of timber land, much of it in small woodlots and shelter belts; and he should be able to supply a great part of his lumber and other timber products. Better still, these farm woodlots can be made to pay a higher net cash return per year over a period of twenty-five to fifty years than if planted to any other crop. To do so, however, they must be planted with varieties of trees suited to the climate and soil conditions; must be cared for and protected from fire and from livestock; and the crop must be harvested on the basis of continued production and disposed of so as to secure the maximum returns. Too often the farmer has not the patience and foresight to crop his timber properly, but insists on slashing it all off at once, thus sacrificing continued income for a comparatively small immediate profit.

As a rule high grade farm lands should not be planted in timber, but only waste land which cannot be farmed profitably, such as banks of streams, rocky or rough land that washes badly, swampy and overflowed lands, pointed or odd-shaped acres where tractors and machines cannot be used to advantage, shelter belts for the farmstead, etc. Some varieties of trees will thrive in wet lands, while others will not grow there at all, but will do well on steep hillsides. The U. S. Department of Agriculture and practically every state agricultural college have excellent bulletins on farm forestry, and every farmer will do well to consult with his county agent and with his state college as to the planning and care of his woodlot, or the harvesting and disposal of a timber crop.

Cutting the Fuel Crop

Fuel wood is the most valuable product from the farm woodlot and the one on which we must depend most for immediate and steady returns. In a recent year, the farmers of the United States cut over 36,520,000 cords of firewood from 2,656,000 farms, an average of nearly 14 cords per farm. As this is worth from $5.00 to $10.00 per cord delivered, it is an item of considerable importance in the farm in-

come. By planting quick-growing trees between those more valuable for timber, the farmer can secure some returns for fuel wood in a few years. Fence posts, poles for farm buildings, mine props, lath and excelsior timber are other possible products while the lumber trees are developing. There is also a steady and profitable market for walnuts, pecans, hickory nuts, beech nuts.

The farmer with a well-planned shelter belt or a small woodlot will find an Atkins Silver Steel two-man cross-cut saw a great labor saver in getting out his winter's fuel. For the farmer who must do his fuel-cutting alone, there are several popular Atkins Cross-Cut Saws for one-man operation. Fig. 51 shows a light hoist designed to keep small logs from pinching the saw, and to save loss of time and possible injury from prying up and blocking. These devices can easily be made in the shop.

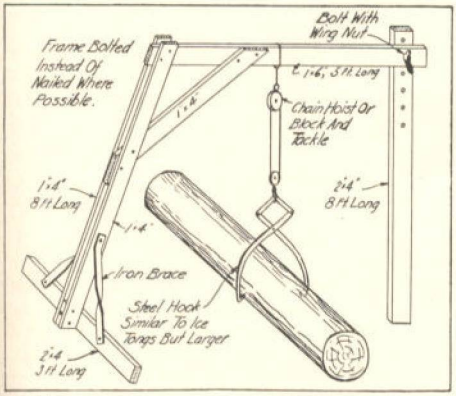


Fig. 51—A home-made hoist to keep a log from pinching the saw.

A portable drag saw machine equipped with an Atkins Silver Steel Drag Saw Blade and powered with a small gas engine will be found a great labor-saver where the farmer has a good many logs to cut up. The saw outfit can be moved from cut to cut by one man, or carried any place

Fig. 52—An effective cord-wood saw outfit.

by two men. The operator can split one block while the saw cuts off the next one; and he will not only cut a vast quantity of wood in a day but at a surprisingly low cost as compared with other methods.

An Atkins Circular Saw Mandrel equipped with a 28" to 32" Atkins Silver Steel Solid Tooth Circular Saw is even a greater labor saver, especially where the wood is largely poles or limbs from large trees. These circular saws may be operated by belt from a small farm tractor, an electric motor or gas engine of about 5 h. p., or by an automobile engine which has been fitted with a governor and belt pulley. Fig. 52 shows an effective cord-wood saw outfit with which two or three neighbors can cut up a winter's supply of fuel, in a very short time. Fig. 54 gives some suggestions as to the proper speeds of circular saws used on cord-wood saw tables, or in small sawmills.

Where the farm shop has an electric motor of good size to run the shop machines, the farmer can often use this motor to operate a cord-wood saw rig out in front of the shop. From the shop motor a belt is run through the doorway, or a wall slot, out to the saw pulley. Another way is to run the saw belt from a pulley fastened temporarily on the end of a line-shaft which comes out through the shop

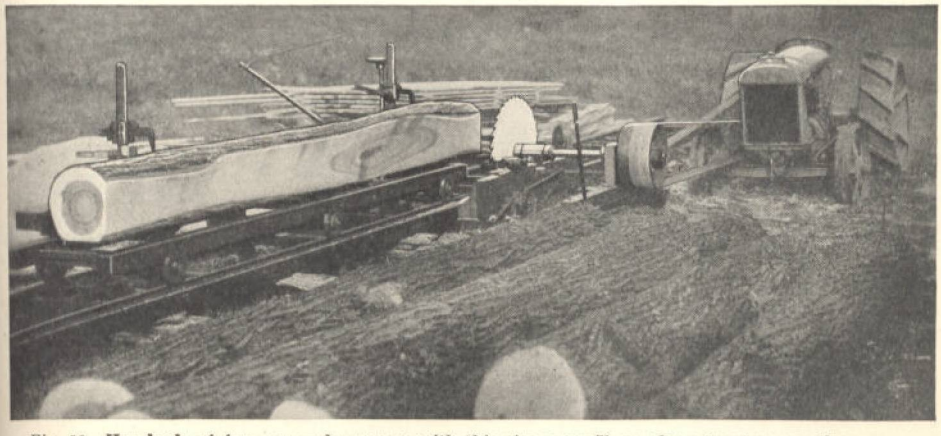


Fig. 53—Hundreds of farmers make money with this size sawmill run by a tractor, or other power.

wall. This method means losing some of the motor's power, and where possible a belt should be run direct from motor to the saw mandrel, in order to avoid waste of power.

A Small Sawmill Pays Farmers

Farm owners in a well-wooded section will find a good small sawmill a paying investment. The mill may be owned by one man, or jointly by several farmers so as to reduce each one's investment, since the sawing can be done at any convenient time. Such an outfit is usually operated by about a 10-20 h. p. farm tractor; but often a large gas or steam engine, or electric motor, or a large engine from a discarded truck or heavy automobile is used to run the mill. Atkins Silver Steel Inserted Tooth Circular Saws should be used in a mill of this size, and the carriage equipment should be of first class quality, as fast, clean and accurate sawing cannot be done with poor equipment. The Department of Agriculture, Washington, D. C., has some excellent free bulletins on the operation and management of small co-operative sawmills, and there are several helpful Atkins booklets such as "Care and Filing of Circular Saws," which will gladly be sent upon requests from owners or operators of small sawmills. The friendly and efficient operation of any jointly-owned outfit will depend very much on the members getting together at the start and drawing up a set of operating rules, setting forth how members may withdraw or new ones enter, the proper charge for the use of a tractor or engine, a fair price for sawing so as to take care of overhead and replacement costs, and so on.

In choosing new saw equipment for farm sawmills, Atkins Silver Steel Saws should not be confused with the ordinary circular saw. They will cut more and better lumber with less re-fitting than any other saws made. With proper care and use, they require re-fitting so infrequently that the operator of a small farm-power sawmill does not have to be an experienced filer. With a little practice, he can soon do good filing and give his saws the simple care necessary to keep them sharp; thus he avoids the cost and delay of sending his saws away frequently for re-fitting and re-hammering.

Fig. 54

Proper Speeds of Circular Saws

For a 24" diameter saw	1500 R. P. M.
For a 26" diameter saw	1384 R. P. M.
For a 28" diameter saw	1285 R. P. M.
For a 30" diameter saw	1200 R. P. M.
For a 32" diameter saw	1120 R. P. M.
For a 36" diameter saw	1000 R. P. M.
For a 40" diameter saw	900 R. P. M.
For a 44" diameter saw	810 R. P. M.
For a 48" diameter saw	750 R. P. M.

These speeds are based on a rim speed of 9,000 feet per minute. Lower speeds decrease efficiency; higher speeds may be dangerous.

Free Booklets for Farmers

Copies of these helpful, practical booklets will be sent gladly to farmers, upon requests sent to E. C. Atkins and Company, Indianapolis, Ind. Some of these booklets may be obtained at local hardware stores, and it is suggested that the reader first inquire at his dealers for any booklets he desires. **Only three free booklets to each reader.**

SAW SENSE—A 48-page booklet, full of practical information for the farmer, carpenter, mechanic. Tells about many Atkins products, and gives other helpful information. Illustrated instructions for filing Hand, Rip and Panel Saws.

MILL (CIRCULAR) SAWS—Shows a wide range of small and narrow band saws for use on shop machines, mandrels; also many small tools for use with these saws for farm shop. Tells about tooth patterns; best types and sizes to use.

DADO HEADS—Deals with power types of circular groovers to cut any width of groove from ⅛" to 4", with or across the grain, or diagonally. Shows sizes of sets.

CARE OF SMALL BAND AND CIRCULAR SAWS—Gives the most complete, yet simple instructions to follow on how to joint, file and set these saws; also how to braze band saws. Illustrated.

SAWS ON THE FARM—Shows the most complete line of saws for the farm, of any book ever issued. Thirty-two pages of practical information on wood or metal-cutting saws, and farm carpentry. Illustrated crosscut saw and hand saw filing and setting instructions.

SAWS IN THE SHOP—A 44-page book telling all about metal-cutting. Shows improved types of hack saw frames, metal cutting machines. A valuable book to every man who cuts metal.

PRUNING SAWS—A reliable guide to success in all kinds of pruning. Shows complete line of saws for pruning. Valuable to every man who grows fruit.

FILES—Gives information on Atkins Silver Steel Files for a great variety of uses in farm shops.

HACK SAW BLADES—Shows how the new Silver Steel Blades have revolutionized hack saw practice—why they cut more metal than any ordinary so-called Tungsten Alloy blade or ordinary so-called high-speed blades.

CROSS-CUT SAWS—Tells all about these saws for farms and woods; shows various tooth designs, and gives illustrated instructions for filing cross-cuts.

GRINDING WHEELS—Shows sizes, shapes, prices of Atkins Grinding Wheels and power Grinders.

ATKINS SAWS AND SAW TOOLS FOR FARMS

Atkins No. 379 Hollow Back Cross-Cut Saw is made of special high grade steel. Accurately hardened and tempered, flat ground, 14 gauge, highly polished. Blade is 3¼" wide and has tuttle teeth. Two cutting teeth and a raker. Filed, set, and sharp, ready for use. An excellent saw for farm use.
Made in lengths, feet.....4, 4½, 5, 5½, 6, 6½, 7, 7½, 8

Atkins No. 331 Cross-Cut Saw is made from the best grade of special steel obtainable. Uniformly tempered, stiff and tough but not brittle. Atkins Special Grinding process enables the saw to run fast, free and easy. 14x18x16 gauge, highly polished. Takes extra sharp edge and holds it an exceedingly long time. Tuttle Tooth pattern, two cutting teeth and raker. Deep, roomy raker and tooth gullets. Blade is 3⅞" wide at end, and 7" wide at center on 6 foot length. Other lengths in proportion. Filed, set, and sharp, ready for use. Highly recommended for general use about the farm.
Made in lengths, feet.....4, 4½, 5, 5½, 6, 6½, 7, 7½, 8

Atkins No. 225 Cross-Cut Saw is made of high grade special steel accurately hardened and tempered, tough but not brittle. Highly polished. Four cutting teeth and raker to a section. Extra deep tooth and raker gullets, eliminating clogging in the cut. Special Ground by Atkins exclusive process enables the saw to run fast, free and easy with very little set.. 14x18x16 gauge. Teeth are wide and perforated, having ample strength for hard work. Six cutting teeth on each end. Blade is 3¾" wide at end and 7" at center on 6 foot length. Other lengths have widths in proportion. Filed, set, and sharp, ready for use. An ideal saw for general farm use.
Made in lengths, feet.....5½, 6

Atkins No. 251 Pacific Coast Pattern Cross-Cut Saw is similar to the No. 361 except longer teeth and rakers and slightly curved back. High grade special steel uniformly hardened and tempered. Teeth take extra sharp, keen cutting edge and hold it an exceptionally long time. Highly polished. Special Grinding enables the saw to cut fast, free and easy. 13x17x15 gauge. Tooth and raker gullets are extra large to prevent clogging of the saw dust in the cut. Wide, strong teeth, eliminating danger of breaking. Blade is 4¼" wide at end and 7" wide at center on 6 foot length. Other lengths have widths in proportion. Eight cutting teeth on each end. Filed, set and sharp, ready for use.
Made in lengths, feet.....5, 5½, 6, 6½, 7, 7½, 8

Atkins No. 361 Pacific Coast Pattern Cross-Cut Saw. This Pacific Coast Pattern Cross-Cut Saw is made of high grade special steel, accurately hardened and tempered throughout. Uniformly hard, stiff and tough, yet not brittle. Takes a keen cutting edge and holds it a remarkably long time. Atkins SPECIAL Grinding Process enables the saw to run fast, free and easy. Has ample clearance with very little set. 14x17x15 gauge. Four cutting teeth and raker with extra large deep tooth and raker gullets. Toothed to the end with five end teeth on each end. Blade is 3⅞" wide at end, 7" wide at center on 6 foot length. Other lengths in proportion. This easy running saw is highly recommended and a necessity in farm shop outfits. Filed, set and sharp, ready for use.
Made in lengths, feet.....5, 5½, 6, 6½, 7, 7½, 8

Atkins Silver Steel One-Man Cross-Cut Saw No. 390

Made of genuine SILVER STEEL, finely polished, taper ground, 15x19x17 gauge, to run free and easy. Tuttle Tooth. Fitted with hardwood handle. Polished on edges. Large roomy grip; permits user to wear heavy gloves. Filed, set and sharp, ready for use.
Lengths, feet.....2, 2½, 3, 3½, 4, 4½, 5, 5½, 6

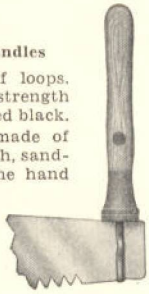
Atkins No. 2 Saw Tool

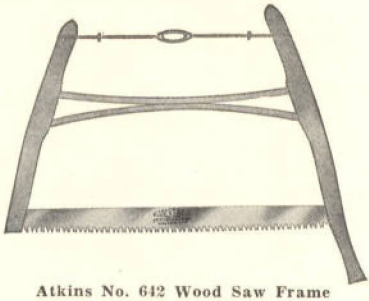
Atkins No. 2 Saw Tool can be used as jointer, raker gauge an side file. An Atkins Set Block is included. All parts of the finest material to stand considerable use. Light, can be easily carried in your pocket. Instructions accompany each set. Cross-Cut Saw users should have this set.
Packed—one set in a box.

ATKINS SILVER STEEL SAWS AND SAW TOOLS

Atkins No. 8 Cross-Cut Saw Handles

Ten inches long irrespective of loops. Loop of extra strong high tensile strength steel. Spot electric welded. Japanned black. Malleable nuts. The handle is made of thoroughly seasoned, air-dried beech, sanded and waxed. Designed to fit the hand comfortably.





Atkins No. 612 Wood Saw Frame

Carefully selected seasoned hardwood. Strong and rigid. Double brace, single rivet. Clipper pattern rod. Smooth, red enameled finish. High quality steel blade accurately tempered and ground. Tuttle tooth, straight, two inches wide.

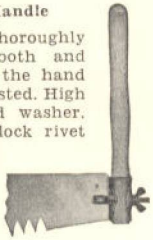
No. 617—Same frame—plain tooth, breasted 2¼" wide, bright

No. 623—Same frame—Tuttle tooth, breasted, 2¼" wide, bright

No. 618—Same frame—plain tooth, breasted, 1¾" wide, blued

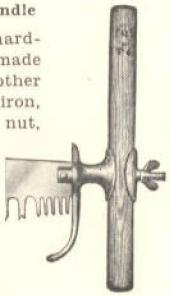
Atkins No. 11 Cross-Cut Saw Handle

Fourteen inches long, made of thoroughly seasoned hardwood, sanded smooth and waxed. Very hard surface. Fits the hand comfortably. Strong and easily adjusted. High quality malleable face plate and washer. High grade malleable bolt with lock rivet feature, preventing rivet from becoming detached. Favored for its simple construction and high quality.



Atkins No. 4 Cross-Cut Saw Handle

Made of thoroughly seasoned hardwood, 14 inches long. Machine made steel bolt deeply threaded. All other metal parts are of malleable iron, japanned red. Extra heavy wing nut, and deep threading aid in quickly attaching or removing. Used in either felled or standing timber on the Pacific Coast.



Atkins Silver Steel Files

Atkins make all the standard files in all standard sizes, such as horse rasp, wood rasp, round, half round, cross-cut, square, leadfloat, planer knife and hand saw files. See your hardware dealer for any not described below, or write us.

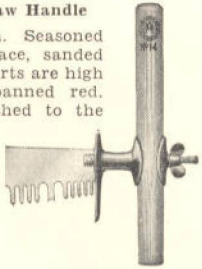
Mill Bastard File

Atkins SILVER STEEL Mill Bastard Files are the most generally used of any file for a greater variety of work in many machine and farm workshops.

Lengths, inches.....3, 4, 5, 6, 7, 8, 9, 10

Atkins No. 14 Cross-Cut Saw Handle

Fourteen inches in length. Seasoned air-dried beech. Hard surface, sanded smooth and waxed. Metal parts are high quality malleable iron, japanned red. The handle is firmly attached to the blade by case hardened rivet with a machine made steel bolt heavily threaded. Used extensively on the Pacific Coast.



Half-Round Bastard File

Atkins SILVER STEEL Half-Round Bastard and Half-Round Smooth Files are made for general farm shop work. The quality of work and length of service obtained is superior to any other make of Half-Round files.

Lengths, inches.....4, 5, 6, 7, 8

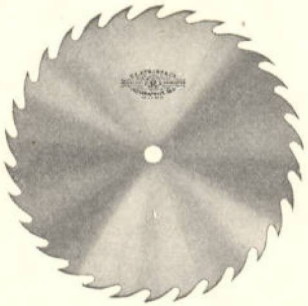
Atkins No. 202 Supplementary One-Man Saw Handle

Made of seasoned, air-dried hardwood. Socket and washer of high-grade ferrule steel. New style steel bolt with rivet locking feature, preventing rivet from becoming detached. Used for converting one-man saw into a two-man cross-cut saw. An ideal accessory for the farm saw.

Slim Taper File

Atkins SILVER STEEL Slim Taper Files for saw filing are as accurate as brains and skill can produce. Atkins SILVER STEEL Files will out-last files the same size of other brands.

Lengths, inches.....3, 4, 5, 6, 7, 8



Save Your Money—Best Farm Saw Value

SILVER STEEL—the finest grade of saw steel known, is used in the manufacture of Atkins Saws—our exclusive formula. You will find that Atkins Saws cut faster, truer, and last longer than any others, regardless of price. They are in a class by themselves.

Atkins SILVER STEEL Saws are scientifically designed by engineers who know how to make saws—plus unexcelled workmanship by craftsmen who have made saw-making their life study.

Day after day—month after month—under both ordinary and trying conditions, Atkins SILVER STEEL Saws give uniformly perfect service. Note the large round gullets, the ample room for clearance of sawdust. Every tooth of every saw is accurately filed, set or swaged, ready for use. Every saw is uniformly gauged to proper thickness—no binding or buckling. Atkins Saws may be obtained in all standard sizes from 6 to 60 inches in diameter.

Our saw engineers are constantly at your service. Before ordering, allow them to advise you, absolutely free, the exact saw to suit your requirements, to get the most for your money. In writing, give the following information—right or left hand, gauge, diameter, number of teeth, style of tooth, rip or cut-off, diameter of mandrel and pin holes, R.P.M. and type of power.

Let Atkins help you select the proper saw. See yellow insert for FREE Mailing Card.

Tractor Saws That Save Money

Atkins SILVER STEEL Inserted Tooth Circular Saws are designed for those who demand the best. (Do not confuse them with ordinary "cheap" saws made to low standards.) This type of saw is used exclusively in many of the largest mills. They are used in every place where nothing but the highest quality will give satisfactory service. The SILVER STEEL plates are laboratory analyzed and tested. Every saw is correctly tempered, smithed, blocked, hammered, filed, ready for use. Every Atkins Saw is of the same high quality we have offered for 75 years. Every Atkins Saw is uniform.

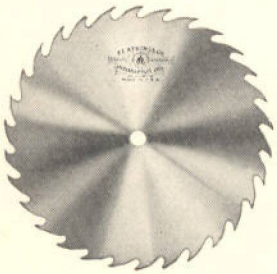
The high-grade special alloy steel teeth and holders have no superior. They are drop-forged, hardened and tempered, combining durability, strength, edge-holding quality, and long service. Good care will insure a minimum of stoppage for replacements. Snugly fit in smoothly milled shoulders, and perfect alignment produces clean, smooth cutting.

Ask Atkins engineers to recommend the proper saw for your use—no obligation.

Atkins Inserted Tooth Circular Saws are furnished in all standard sizes from 10 to 60 inches in diameter. When writing give the following—right or left hand, gauge, diameter, number and style of teeth, diameter of mandrel and pin holes, R.P.M. and kind of power.

Send us your specifications on the FREE Mailing Card on the yellow insert.

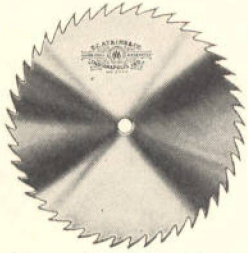
ATKINS SILVER STEEL SAWS AND SAW TOOLS



Atkins No. 2—Solid Tooth Circular Rip Saw

This saw is especially designed for ripping; flat ground; 18 gauge; made in standard sizes for all portable and bench machines; furnished filed and set. Atkins SILVER STEEL Circular Saws are recommended for your workshop.

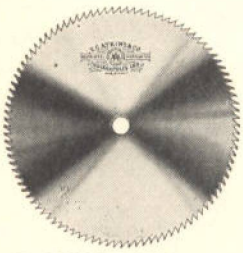
Diameter, inches	6″	8″
Gauge	18	18
Hole	¾″	⅞″



Atkins No. 7—Solid Tooth Combination Circular Saw

This Atkins SILVER STEEL Saw when properly fitted, both cross-cuts and rips; flat ground, 18 gauge; furnished filed and set. You need this combination Saw for your outfit.

Diameter, inches	6″	8″
Gauge	18	18
Hole	¾″	⅞″



Atkins No. 8—Solid Tooth Circular Cutoff Saw

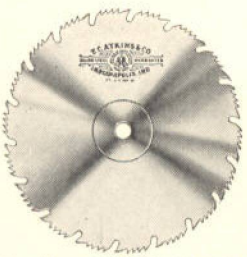
This pattern is SILVER STEEL designed for cutting across the grain. We carry a stock in all standard sizes for portable and bench machines. Furnished filed and set. A home workshop necessity.

Diameter, inches	6″	8″
Gauge	18	18
Hole	¾″	⅞″

Atkins "Jig" and Scroll Saws

Atkins Felloe Webs and Fay's Patent Scroll Saw Blades are unexcelled for fast, fine cutting on Jig Saw Machine. Made of SILVER STEEL, in widths ranging from 1/16″ to ½″.

Length, inches	6″	8″



Atkins No. 37—"Dual Ground" Mitre Saw "Smooth Cut"

Efficient where a smooth cut is desired. The first cleaner tooth on this circular mitre saw is bevel filed alternately in each section. Mitre Saws are special Dual Ground to run without set, for smooth cutting for fine cabinet work. Highly recommended for the home workshop. Made in standard sizes and carried in stock for all portable and bench machines.

Diameter, inches	6″	8″
Hole	¾″	⅞″

Atkins Dado Heads or Groovers

Made from genuine SILVER STEEL with a capacity for cutting any width groove from ⅛-inch to 4 inches, and can be made to cut wider grooves if necessary. Made in six different sets, each set consisting of two outside saws, each of which is a groover in itself. Furnished with as many inside cutters as the width of desired maximum groove requires. Inside cutters are made from 1/32-inch to ¼-inch thick; outside cutters are ⅛-inch thick. Will cut a perfect groove exceedingly smooth, either with or across the grain. All standard sizes carried in stock, fitted ready for use.

No. 2 set to cut to ⅝″ wide.

Diameter, inches	6″	8″

Atkins Narrow Band Saws

The quality work produced by Atkins Silver Steel Band Saws in thousands of home workshops and by large industrial users demonstrates their superiority over ordinary saws. Made in any length. Specify length and width in ordering.

Points per inch, any width.....3, 4, 5, 6, 7

Width—

⅛″ 3/16″ ¼″ ⅜″ ½″ ⅝″ ¾″ 1″

MACHINE KNIVES

Atkins "Blue Star" High Speed Steel Planer Knives

Atkins Knives are made from genuine High Speed Steel. A scientific heat treating process results in steel having toughness combined with maximum edge-holding qualities. Atkins "BLUE STAR" High Speed Steel PLANER KNIVES do fast, clean, smooth cutting. Absolutely dependable for the home workshop mechanic. These knives can be had in standard sizes to fit any machine. Template paper will be furnished on request. Data and prices on Knives for all machines on request.

ATKINS SILVER STEEL SAWS AND SAW TOOLS

Atkins No. 53 Skew Back, Ship Pattern

Appeals to all for farm carpentry and general use. Genuine SILVER STEEL, taper ground blade with the ATKINS exclusive Damaskeen Finish. Fitted with Atkins Improved Perfection handle of applewood, embossed and polished, which prevents wrist strain. Made in regular and ship point patterns.

Lengths, inches.....18, 20, 22, 24, 26
Hand Saw—5 to 11 Points per Inch
Rip Saw—5 to 7 Points per Inch

Atkins No. 65 Straight Back, Ship Pattern

This is another popular saw for the farm shop, the companion saw to No. 53, except straight back. SILVER STEEL, Damaskeen finish, embossed and polished applewood handle. Improved Perfection Pattern prevents wrist strain. Made in regular and ship patterns.

Lengths, inches.....18, 20, 22, 24, 26
Hand Saw—5 to 11 Points per Inch
Rip Saw—5 to 7 Points per Inch

Atkins No. 51 Skew Back, Ship Pattern

Similar to No. 53 in general specifications except it is fitted with a straight across pattern handle of applewood, highly polished; has four nickeled screws and medallions. Recommended for the farm shop. Made in regular and ship patterns.

Lengths, inches.....18, 20, 22, 24, 26
Hand Saw—5 to 11 Points per Inch
Rip Saw—4½ to 7 Points per Inch

Atkins No. 59—Skew Back, Narrow Point Pattern

Special Steel, Taper Ground and highly polished. Skew Back in Regular and Narrow Point patterns. Fitted with old style block pattern, lacquered and highly polished beech handle. Dark finish, not carved. Fastened to blade with three nickeled screws and one medallion. A medium priced high quality saw for farm workshop.

Lengths, inches.....18, 20, 22, 24, 26
Hand Saw—5 to 11 Points per Inch
Rip Saw—4½ to 7 Points per Inch

Atkins No. 9—"The Home Builder"

A high grade special steel hand saw for the man about the farm who makes things. Nicely polished blade and evenly tempered throughout. Skew back. Seasoned beech handle, not carved.

Length, inches.....24
Hand Saw Only.....8 Points per Inch

Atkins Grinding Wheels

Atkins ACROLITE Grinding Wheels are made of Crystalline Alumina, almost as hard as the diamond for cutting hardest steel. Quicker and better than ordinary wheels for grinding tools, knives, saws, etc.

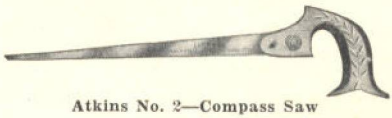
Atkins FERROLITE Wheels for grinding cast iron, copper, bronze, etc.

All sizes and shapes.

Atkins No. 2—Back Saw

ATKINS No. 2 Back Saw is made of genuine SILVER STEEL and fitted with an applewood handle, handsomely lacquered. The handle is fastened to the blade with two brass screws, and medallion. The back is made of first quality blued steel, pressed on back of blade, making it stiff and rigid. This saw is used for fine work where a larger saw is not practical.

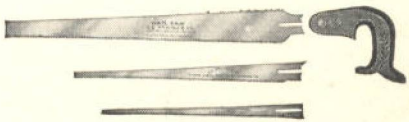
Points per inch, any length.....14
Lengths, inches.....8, 10, 12, 14, 16



Atkins No. 2—Compass Saw

The blade is made of SILVER STEEL specially tempered, filed and set. The handle is of carved and polished applewood, attached with one screw and medallion. The saw is of extra fine quality.

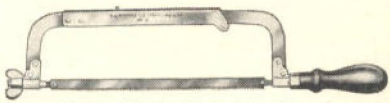
Lengths, inches.....10, 12, 14, 16
Points per inch.....8



Atkins No. 3—Nest of Saws

ATKINS No. 3 Nest of Saws contains a SILVER STEEL keyhole and compass blade; also an 18-inch special nail-cutting blade. When nails or other metals are encountered, you may easily cut through the metal with the nail-cutting blade and proceed with your regular hand saw. Roomy adjustable pattern handle.

Length, inches, Keyhole Blade.....10
Length, inches, Compass Blade.....14
Length, inches, Nail Cutting Blade.....18



Atkins No. 9—Hack Saw Frame

Atkins No. 9 Extension Hack Saw is made of the highest grade steel obtainable, heavily nickeled and highly polished. Has enameled wood handle. Will accommodate blades from 8 to 12 inches, inclusive. Can be adjusted to cut at four different angles. This is a high quality inexpensive hacksaw frame and a necessity in a farm workshop kit.

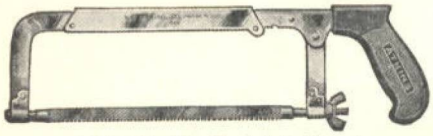
Packed in individual box with blade.

ATKINS SILVER STEEL SAWS AND SAW TOOLS

Atkins No. 10—Hack Saw Frame

Hard Rubber Non-Breakable Handle. "Easy Grip" pattern; hung low, directing entire force of stroke on the cutting edge of blade. Frame of cold rolled steel 5/16-inch thick and ¾-inch wide. Nickeled and highly polished; adjustable for 8 to 12-inch blades. Packed one in a box with blade.

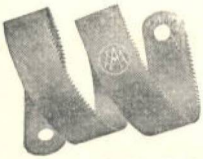
Adjustable lengths, inches.....8, 9, 10, 12



Atkins No. 11—Hack Saw Frame

Hard rubber, non-breakable, open grip handle. This handle gives the operator complete control of the saw at all times. Frame is made of extra high grade steel, ¾-inch wide and 5/32-inch thick. Very strong and stiff but light. Adjustable from 8 to 12 inches. Nickeled and highly polished. Depth under back to cutting edge, 4 inches. Packed one in a box with blade.

Adjustable lengths, inches.....8, 9, 10, 12



Atkins Non-Breakable Hack Saw Blades

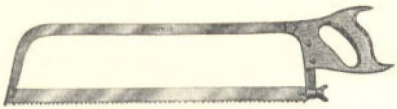
Atkins Non-Breakable Hack Saw Blades are made with a hard edge and soft back. The edge is tempered to insure a cutting capacity equal to all-hard blades. Cuts fully as fast and holds its cutting edge as long as the all-hard blade, yet the liability to break or snap off is practically eliminated.

Length, inches—	8"	10"	12"
Teeth per inch—	18-24-32	14-18-24-32	14-18-24-32

Atkins Silver Steel Hack Saw Blades

Made of Atkins high quality SILVER STEEL—Atkins exclusive formula. Atkins SILVER STEEL "Blue End" Hand Hack Saw Blades, if used in a first-class frame, are guaranteed to cut more metal than any ordinary alloy steel blade or so-called high speed steel blades of the same dimensions. They will save you money.

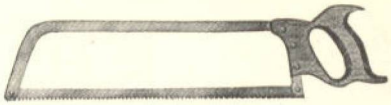
Length, inches	10"	12"
Teeth per inch	18-24-32	14-18-24-32



Atkins No. 77—Butcher Saw

Flat back frame, square edge, made of fine spring steel; ¾-inch wide, ¼-inch thick. The blade is Atkins Special Steel, finished either bright or blue, as specified, ¾-inch wide. Beech handle with sanded sides, varnished edges. Fastened to frame by three nickeled screws.

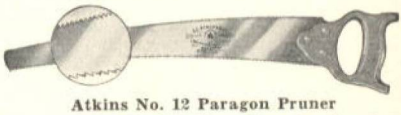
Lengths, inches.....18, 20, 22, 24, 26, 28, 30



Atkins No. 8—Kitchen Saw

Flat back, 5/8"x3/16". Special Steel blade, bright 5/8" wide. Beech handle, three blued wood screws. Handy for cutting ham bone, etc.

Lengths, inches.....12, 14, 16, 18



Atkins No. 12 Paragon Pruner

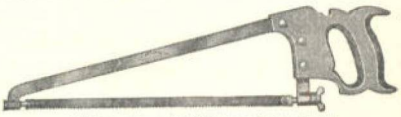
Genuine SILVER STEEL, with extra fine temper giving maximum edge holding qualities. The concave edge is toothed for fine cutting, and the opposite edge for coarse work. Blade is 2½" wide at handle and 1" at point. New style handle, plenty of hand room. Made of selected beech, highly lacquered. Fastened to the blade with 3 nickel screws.

Lengths, inches.....12, 14, 16, 18, 20, 22

Atkins No. 13 Curved Pruner

Blade is made of Atkins SILVER STEEL, uniform temper, noted for edge holding qualities. Peg Tooth blade 8 points per inch. The blade is ¾" wide at point and 2 1/16" wide at butt. Handle made of high quality beech, full lacquered. Fastened to the blade with 3 nickel screws.

Lengths, inches.....12, 14

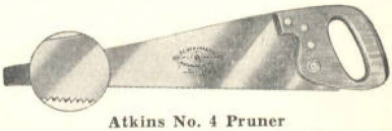


Atkins No. 11 Tapered Pruner

Frame is made of high grade crucible steel, ¾" wide, 3/16" thick. Blade can be adjusted to any angle. Eight points per inch. Handle is of air dried beech, full lacquer finish and fastened to the frame by 3 nickeled screws.

Lengths, inches.....18, 20

Length of Blade.....16¼", 18¼"



Atkins No. 4 Pruner

Made of high grade special steel with extra fine temper, that gives maximum edge holding qualities. Fitted with new style Davey handle with extra large grip reinforced with dowel pin, making it rigid. Fastened to blade with 3 brass screws and medallion. Full lacquered and polished.

Length, inches.....20

Atkins No. 40 Tuttle Tooth Pruner

Made of high grade special steel, tuttle tooth pattern. Has extra sharp teeth that hold their edge longer due to the extra fine temper. Handle of air dried beech, Davey pattern. Extra large and roomy grip reinforced with dowel pin making it rigid. Fastened to the blade with 3 brass screws and one medallion.

Lengths, inches.....20, 24

E. C. ATKINS AND COMPANY

Established 1857

"The Silver Steel Saw People"

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