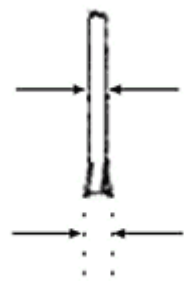


Timber cutting hand saws

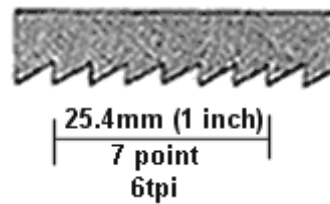
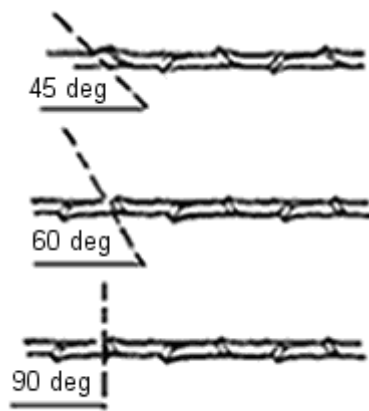
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Although power saws are now widely available, there is still a place for a range of handsaws in the tool kit of the do it yourself handyman, the model-maker and professional carpenter. Sometimes the work site does not have electricity or a small job does not justify running an extension lead for the connection. At other times, the often better control of a handsaw makes its choice over a machine justified. The following describes some of the more common handsaws available to the diy person.



General Saw

Measuring by a number points along including referred to as greater than rip saws are seven points. The larger tenon saws, say 30 to 40cm (12 in to 16 in), usually have teeth of 12 to 14 points. Smaller saws for general bench work also may have 14 points, but the smaller saws intended purely for dovetailing may have teeth as fine as 22 or 24 points. Saws with fine teeth should be used only for fine work.

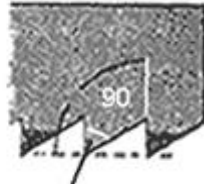
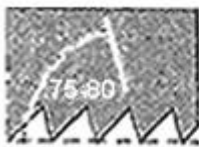


terminology

teeth: The teeth on saws are classified which represents the number of teeth 25.4mm (1 inch) of the cutting edge, those at each end. The number is so many points, the point size is one the teeth per inch (tpi). The teeth of relatively large, usually between four to

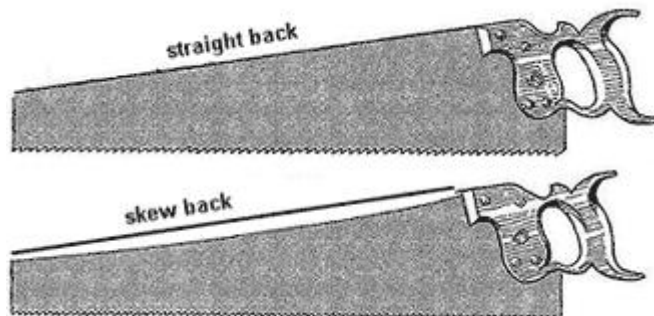
The set of the teeth: Most saws have their teeth "set"; that is, the teeth are bent outwards slightly in alternate directions so that they make a cut slightly wider than the saw blade thickness, this gives a clearance so that the main part of the blade is clear of the sides of the cut. The set should not be excessive, as it will only mean that wood is being removed unnecessarily, resulting in increased resistance in cutting and more sweat. To reduce the necessity for the amount of set, some handsaw blades are taper ground, (that is the blade is ground thinner behind the teeth), thus providing additional clearance with only a small degree of set required. Saws used for green wood (i.e. freshly cut timber) have increased set as the sawdust from green timber is inclined to cling to the blade.

The front angle of the teeth: The front of the teeth on some saws are straight across at right angles to the blade, so they present the wood with a series of chisel-like edges, this tends to give a rough finish. Other saws have teeth bevel-filled at an angle instead of being at 90 deg., the idea being that the series of sharp corners severs the grain at each side, the waste wood between crumbling away as sawdust.



point angle

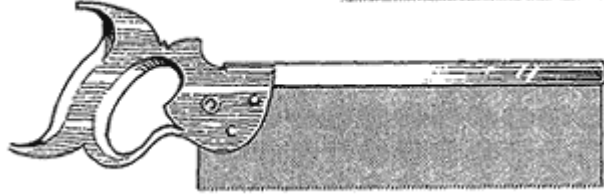
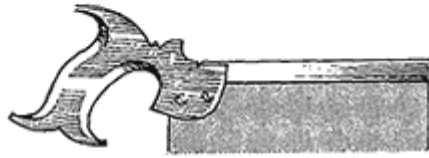
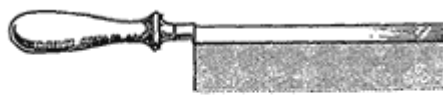
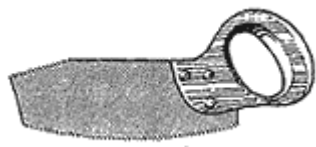
The angle at which the teeth are bevelled vary from about 45 (for softwood) to 60 deg (for hardwood).



The pitch angle of the teeth: The pitch angle of the teeth to the nominal root line of the teeth, associated with this is the point angle - the combination of these two angles determine the slope of the back of the teeth. A large number of modern handsaws have hardened teeth to prolong their useful life; these saws are, to an extent, 'throwaway' tools as they cannot be easily sharpened when they become blunt.

Handsaws. This general term includes several types, such as the rip, crosscut, and the panel saw. They all look basically the same and their purpose is the cutting of timber from boards, and sometimes making larger joints.

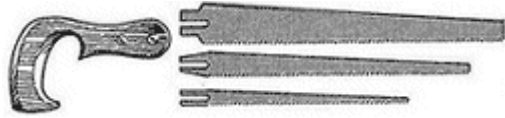
Ripsaw: The ripsaw is intended to cut along the grain. The front of the teeth are generally at right angles to the blade and pitched at between 85 and 90 degrees to the blade. Some



teeth;

(lower
handle.
larger
the
Today
the

ripsaw have incremental
this is where the teeth
gradually becoming larger
point numbers) towards the
The theory being that the
teeth come into operation at
strongest part of the stroke.
the DIY person seldom uses
manual ripsaw as timber is



available commercially in the widths required, or power circular saws are available. For the odd occasions when it is required to rip out timber, a cross-cut saw which, although not quite so satisfactory, is quite adequate.

Lengths are taken along the run of the teeth from one end to the other, and are generally from 60 to 70cm (24 to 28 in).

Crosscut saws: These differ from ripsaws in that the teeth are bevel-filed at an angle instead of being at 90 deg. Another way in which the crosscut saw teeth differ is that they are pitched so that the front of the tooth makes an angle of 75 to 80 deg. with the line of the teeth. Whatever the pitch, all teeth are pointed at 60 deg. The size of teeth varies from 6 to 12 points, and lengths of saw from 55 to 70cm (22-28 in).

Panel saw: This is simply a small version of the crosscut saw, from 45 to 60cm (18 to 24 in), and with smaller teeth of 10-12 points. It is used for cutting thin wood and for the larger joints. Its teeth are pitched and bevelled as in the crosscut saw.

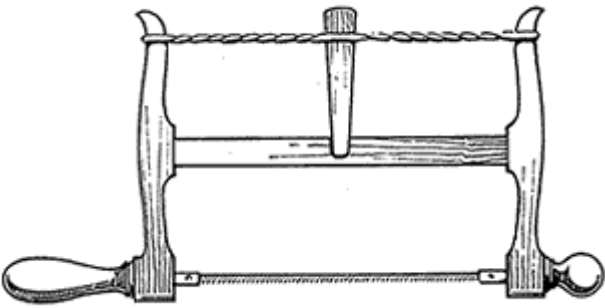
A feature common to all handsaws is tension. Without it the saw blade would be a flabby thing with no natural stiffness. A tensioned saw remains stiff when waved sideways. Handsaws are available with either straight-back or skewback. The straight back tend to have rather stiffer blades, but there is little difference in their use.

Flooring saw. These tend not to be found in the tool kit of most DIY people as it is somewhat of a specialist saw being used only to cut across floorboards so that they can be lifted. The edge is curved, enabling a cut to be made across a board at the centre of a joist. When the blade has penetrated, the straight part comes into use, the end of the saw being narrow enough to enable it to enter a short cut.

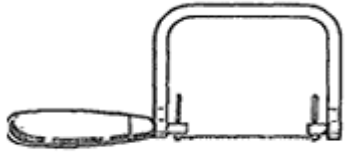
Tenon saw. The technical name for saws that are stiffened along the back of the blade, is Back Saws although they are generally referred to as Tenon Saws. The length of blade can range from 20cm (8 in) up to 40cm (16 in), or even longer for special work. Teeth of Tenon Saws are usually pitched at 75 deg., and small ones are bevel sharpened at about 60 deg. because they have to cut across the grain as well as with it. When, however, a tenon saw is to be used solely for cutting tenons the teeth may be straight across at right angles because it always cuts along the grain and is therefore similar to a ripsaw. As most people cannot keep a saw specifically for cutting tenons, the teeth are generally bevel-sharpen. For fine work it is called a dovetail saw and may have very fine teeth-22 to 24 points.

Larger Tenon Saws invariably have closed handles, smaller ones (dovetail saw) usually have a 'fist grip' handle - middle size saws tend to have 'pistol grip' handles.

Many blades - one handle. These have a number of interchangeable blades of which the largest is usually a pruning blade, and the others a compass blade, and a keyhole blade. The purpose of the last is obvious by its name, and the compass saw is used to cut curves on flat



again obvious by its name.



sheet, the purpose of the



pruning blade is



Padsaw. Also known as a keyhole saw. Although intended primarily for cutting the straight sides of a keyhole, it can be used for any internal cut, straight or curved. The blade is adjustable in its projection from the handle, the idea being to enable it to be given as little projection as is consistent with the required stroke. The saw necessarily relies upon the stiffness of the blade to prevent it from buckling, but buckling can easily happen because of the narrowness of the blade. The projection of the blade should always be kept to a minimum.

Bow saw. The Bow Saw is considered by many to be the most satisfactory saw for cutting shapes since the narrow blade negotiates curves easily, and is held in tension. Both the handle and knob (at the other end of the blade) can be turned so that a cut can be made more or less parallel to the required cut. Obviously the blade must be free of twist when in use. It is available with blade lengths of 25 to 40 cm (10 to 16 in). Generally both hands grips the one handle, hence the bulbous shape with narrow neck, but when thick wood has to be sawn it is helpful to have a person at each side, both sides of the wood having been marked. In this way it is much easier to keep the cut square to the sides of the timber. The rivets holding the blade to the handle can be withdrawn so that the saw can be used for an internal cut, the blade being threaded through a hole drilled through the timber.

Coping saw. The Coping Saw is used for thinner wood and for fairly tight curves or shapes. By turning the handle the tension of the blade can be slackened or increased. The blade can be revolved through any angle convenient for sawing. Normally it cuts on the pull stroke, but there are occasions when it is better to reverse the blade so that it cuts on the push.

Log saw. The Log Saw is intended only for crosscutting logs, etc., and has a metal frame. The blade often has the lightning form of tooth shown and is fast cutting but leaves a ragged finish. This is unimportant for the purpose for which the saw is intended.

Two-man crosscut. This saw is intended for sawing through large logs, and various pattern teeth are used. Each tooth pattern is claimed to have its own particular advantages, however this is often up to personal preference. Holes in the ends of the blade enable the handles to be fitted. Lengths can be from about 120 to 240 cm (4 ft up to 8 ft). Smaller versions of the saw used for the same purpose can be used by one person, but even these usually have rivet holes at the toe end of the blade so that a second handle can be fitted if necessary. These smaller saws tend to range from 90 to 110 cm (3 ft. to 4 ft. 6 in) long.