

WOODWORKING MACHINERY

STRAIGHTENING Restoring the blade to a straight plane surface

TENSIONING Giving every part of the saw the proper tension for the type of work it has to do

FILE AND GRINDING Sharpening the edges of the teeth and restoring them to the correct pitch (angle with relation to the center of the saw) and shape

CUMMING Deepening and rounding the gullets between the teeth. As the teeth wear shorter, the gullets need to be deepened

SWAGING AND SETTING Thickening or bending the teeth so that the saw kerf will be thicker than the blade

Proper operation A saw in good condition and running at correct speed should cut easily. The operator should not crowd the saw, that is, force the stock faster than it can be easily cut. If the saw does not cut as fast as it should, or if it does not saw a clean, straight line, it is probable that something is wrong with the saw or the running speed. These conditions, potential sources of accidents, should be checked and remedied.

Circular saws are normally designed to operate at rim speed of 10,000 fpm. Some saws, however, are tensioned to run at higher speeds, which are marked on the saw by the manufacturer. Following is the formula for determining the peripheral or rim speed of a saw when revolutions per minute are known:

$$S = 0.28 Dr$$

where S = rim speed in fpm

D = diam of blade, in

r = revolutions per min

The saw should properly fit the mandrel. The arbor or mandrel on which the saw is hung must be true and must fit the bearing boxes without chattering, end play, or heating. The stem of the mandrel must be true if the saw is to slip easily up to and against the fixed collar.

Only the outer edge of the collar should come in contact with the saw when it is tightly clamped in position. If the inside of the collar has not been machined out properly, it will force the rim of the saw out of line. When the saw blade comes in contact with the stock being cut, a buckling effect on the saw is produced. After the loose

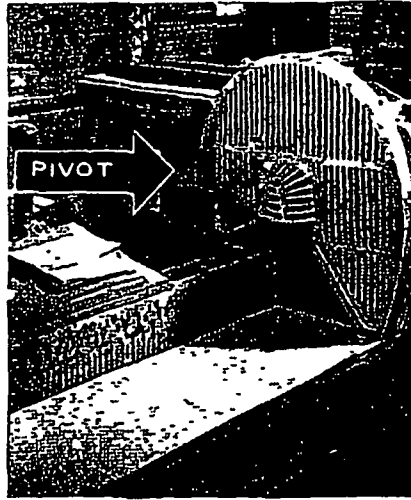


Fig 25-6 A cutoff saw guarded with a hinged (floating) hood guard

Courtesy Western Electric Company

collar is fastened securely in place, it is well to test the saw with a straightedge. This test is of considerable importance on head rig circular saws as well as on edgers and trimmers.

A pin or stop should be provided to prevent men from placing on the mandrel a saw larger than allowable for the speed of the mandrel.

Overhead swing saws and straight line pull cutoff saws

Overhead swing saws and cutoff saws cause hand injuries because of several characteristics of the saw. Hands are cut with the saw in idling position when the operator reaches to remove a sawed section of board or a piece of scrap or when he measures a board or places it in position for the cut.

The operator's hands may likewise be struck by the saw as it bounces forward from the idle position, or swings or drifts forward when the spring or counterweight fails. The operator may pull the saw against his hands or may suffer body cuts from a saw that swings beyond its safe limits.

Guards Cutoff saws should be guarded