

## Miscellaneous.

### ON THE MANAGEMENT OF CIRCULAR SAWS.

The subject of circular saws is one of particular interest to almost every portion of our country.—Reciprocating saws were at one time almost exclusively used in preparing the lumber, but the obvious disadvantages arising from their intermittent motion, notwithstanding many improvements made on them, as led to their partial abandonment, and the substitution of circular saws in their place. The day cannot be far distant when (except for scroll work,) straight saws will be numbered among the things that were, for circular saws possess many advantages over them, especially as it regards the greater speed at which it can be driven, and the greater quantity of work they can turn out in a given time—as much time is lost with the straight saws in getting ready to work.

The greatest difficulty experienced in managing circular saws lies in their tendency to heat. Wherever there is much friction experienced in one, it will get hot and expand, and in that condition will not make good lumber, and sometimes, indeed, it will buckle, and thus become materially injured.—If the heating of the saw be uniform throughout, no further harm will be done than its becoming “limber,” and unable to sustain itself under a strong feed, but whenever it is reduced in temperature, it assumes its original form. It is very seldom, however that the expansion of a circular saw, when heated is uniform, as the friction is always greatest on the side nearest the log, owing to the plank yielding. Friction is caused by a two small kref being cut in the log, and by the springing of the timber. In the latter case, when a line is cut, each portion of the log has a tendency to assume the form of an arch with the bark turned inwards; this presses that portion of the log between the head blocks against the saw, while at the same time the opposite side of the saw is entirely relieved, thus causing unequal friction and expansion.

In adjusting a circular saw to timber, the blade is not placed parallel to the log, but has what is termed “rake,” that is, the cutting edge of the saw comes nearer the log than the opposite edge. This is done for the purpose of allowing the saw teeth to ascend without scratching the face of the log, and also to relieve the center of the saw where the tendency to heat is the greatest. If, however, too much rake be given the saw, it will cause undue friction, and the inner part of the saw will heat and expand.

The arbor of the saw should be well lubricated, and not allowed to get hot, as it transfers the heat to the center of the saw. Whenever the center of a circular saw becomes heated, it has a tendency to cup. The side of the saw which expands most by heat becomes convex, and if run too long, it will not return to its former shape when cooled, but will require hammering on the edge to straighten it. This is a job which requires the utmost skill, and besides, few who use such saws have suitable anvils to straighten them upon. To such the following

would be useful information:—Prepare a suitable number of annular papers with their inside diameter about one inch less than that of the hub, and place them on the shaft adjoining the concave of the saw. Prepare a lot of similar papers with their inside diameter equal to that of the hole in the center of the saw, and their outside diameter about one inch greater, and place these on the saw shaft adjoining the convex side of the saw. A sufficient number of these being so placed in they are tightened in the hub, and the saw brought up true in the lace. Care must be exercised to put in no more papers than will straighten the saw. It is not, however, *absolutely* necessary to take the *cup* out of a saw until it becomes of a considerable size, for a saw will do good work even when cupped a quarter of an inch; the increased difficulty, however, of managing it in this condition, renders it advisable not to work it in such a state. In working cupped saws, the teeth should be made to fill a wider gauge on the convex than on the concave side; and if the tendency to heat on the center continues, it should have more rake, if cupped towards it. The teeth of a cupped saw in ascending, in all likelihood, will scratch either the face of the log or the plank. This is another and a sufficient reason to straighten it at once.

The edge of the saw is guided by a pair of rollers or wooden pins placed just below the log and near the front edge. Pins are preferable to rollers, for they do not pack a ring of sawdust on the saw when it passes between them, as rollers do. The proper position of these guides relative to the saw, varies under different circumstances, but in no one case should both press against the saw at the same time, as they would be sure to heat it. When a saw heats on the edge, it is far more difficult to manage than if heated in the center, for a “cupped” saw still presents a straight line on the edge, while a buckled saw, (one stretched on the edge,) does not.

The edge of a saw may become heated on account of the teeth not being in proper shape. If any part of a tooth, except the edge, rubs on the log, the friction at that part will heat it. If sufficient depth of tooth is not preserved, there will not be sufficient room to free itself from saw-dust, which will crowd in the kref, causing undue friction on the sides of the teeth. If a saw cuts out of a straight line, it will press hard against one of the guides, and also cause undue friction. It should never be forgotten that the heating of a circular saw causing cupping or buckling, is always the result of undue friction; to avoid this, therefore, every effort should be exercised. A saw sometimes gets buckled from other causes than heating. Its roller guides are sometimes placed to bear too *hard* against it, and when this is the case the sawdust is pressed between them with a force sufficient to thrust the rollers out of place. Or if the rollers be so rigidly fixed as not to be moved by such pressure, they tend to stretch the saw at the point where it passes between them. Gumming machines also tend to stretch the edge of the saw.

It is not necessary at all times to straighten a buckled saw on an anvil, especially if only a narrow ring near the edge of the saw is stretched, as it may