

**LOOSE PULLEYS.**

Loose pulleys are among the most troublesome things in a saw mill to keep in order. In the first place they are not always properly designed for the work they have to perform, the same pattern being used for all kinds of duty. When the speeds are high and the belts heavy, the pulleys should be bored and reamed perfectly true; if an ordinary loose pulley be used, the boss should be extended so as to project, say an inch beyond the rim of the pulley; the inside of the boss should be recessed and an oilyway cut. The pulley should fit the shaft easily but not loosely, so as to admit of a thin film of oil penetrating between the pulley and the shaft, the object being for the pulley to ride on the oil and not on the shaft. For use in saw benches the loose pulley can with advantage be made of less diameter than the fast, so that the driving belt is relieved from strain when not at work and has time to recover its elasticity; it is usual in this case to make the loose pulley with an inclined flange leading up to the fast pulley to facilitate the shifting of the belt. The oil-hole should in all cases be of ample size, and either a lubricator or a pipe fitted. The lubrication should be carefully attended to, especially when the pulley is new; should it once be allowed to seize it will require re-reaming, or it will be constantly giving trouble. If properly fitted and lubricated cast iron makes an excellent wearing surface; a little fine plumbago introduced into the oil will keep it longer in the bearing, and by filling up the little pores in the iron produces a fine smooth surface. Should the loose pulley be made of less diameter than the tight, the difference should not be great, say not more than 1 in., or in shifting the belt from the loose on to the tight it will become unevenly stretched on the one side and be apt to run out of truth. In many cases it will be found an excellent plan to arrange the loose pulley to run on a sleeve of cast iron. A patent in this direction has been taken out (Davis's patent), of which we hear satisfactory results. In this plan the boss of the loose pulley is somewhat enlarged, and made to revolve on a "sleeve" instead of on the shaft itself. The pulley boss is recessed to form an oil chamber, and the oil is supplied in the usual way through a pipe, and is prevented leaving the bearing by means of a flange fitted to the end of the boss, and by the centrifugal force engendered when the pulley is set in motion, which causes the oil to fly immediately to the largest diameter, which is the working or rubbing face of the sleeve. Tight belts—often too narrow for the work—are a fruitful cause of loose pulleys grinding on the shaft, and getting out of order.—*Timber Trades Journal.*

**FILING A CROSS-CUT SAW.**

Among the free-hand trades of the wood-workers, is to be noticed that of filing a cross-cut saw. It requires considerable practice to handle a three-square file so as to cut down the worn out teeth and bring an even bevel and to leave all of them with the same pitch on the cutting side of the teeth, with sharp triangular pyramidal points that have their extremities in line with a cutting edge of the saw. It may be important to hold the file exactly in some delicate position as to bring a bevel on the back or front of the tooth so that it will not vary the smallest fraction of a degree; but when we come to notice that these surfaces cannot be very large, especially when three or four teeth are found to the inch, and a depth of cut not far from as many inches in the same number of feet along the cutting edge of the saw, we shall find that a half of one degree is not of so much importance of the smallest fraction of an inch on the length of the tooth. We have noticed after a saw has been jointed and filed along the edges of each tooth till these two beveled surfaces meet at a beveled edge, with the front bevel left the sharpest, when the saw is to cut the most in one direction, and taken to leave the roots of the teeth at equal distance from each other, and the pitch of the teeth similar in every respect, that by laying a straight-edge along on the teeth for a small portion of the saw, there is quite a variation in their length, varying much greater than would be found in the depth of cut when the whole depth is divided equally among each of the saw teeth. It may be a good

practice to remove the pressure on the file on the return stroke to preserve the cut of the file, but it would be much better to remove the file entirely as soon as the teeth have been gashed out, and to notice the effect of each cut of the file on the saw tooth, and stop at the instant the filing has brought the tooth to a point. And after the best of care has been taken, there remains the third side of the three-sided point to finish up by removing the burr that has been formed on the edges running strictly from the cutting-point. A test with a smooth-faced oil-stone will show at once if the set of the saw is in one straight line. And it would be discouraging if any workman, after he has his filing so nearly completed, should slide a piece of hardened steel, ground on one side to a smooth flat surface, along over the tooth of the saw held squarely with the blade, but it is a good practice, however, as it settles the most prominent teeth, and shows plainly those which should have a little more taken off on the backs to show the cutting edge of each tooth that runs from one side to the highest point on the other, so that each will have an equal part of the cut to perform. Many of the difficulties and troubles of the saw are found in the set of a number of the teeth, a few of them having all the clearance to perform, or those at one end of the saw blade clearing more on one side than on the other, while those on the opposite part of the blade may be reversed and evenly set; and an equal length of tooth traced down to the last atom, has more to do with the cutting of a saw than the back bevel or pitches, except directly at the point, or the spaces at the roots of the saw teeth.—*Boston Journal of Commerce.*

**Timber Churches.**

The common tradition, says the *Builder*, that the timber of old churches was frequently of chestnut, seems to be exploded by the researches of the French chemist, M. Payen, who procured a large number of pieces for examination, and pronounced that they were not chestnut, added to which, chestnut trees, whatever their abundance in olden times, are now extremely rare. We are told that if letters were drawn upon oak and chestnut planks, by means of pure sulphate of iron dissolved in distilled water, the characters appear at once in black upon the oak and deep violet upon the chestnut, while ammonia produces a short-lived red upon the chestnut, which is much paler and less distinct upon the oak. Another mode of examination is by making sections of the wood, which cannot well be mistaken, as chestnut timber possesses only eccentric layers, while all French and American varieties of oak show the medullary rays crossing the woody fiber from the center across the circumference.

**Encounter with a Bull.**

Particulars have reached Dublin of a shocking occurrence near Mullingar, by which two lives were lost. A farmer named Mulvihil was attacked and killed by a young bull, and literally hacked to pieces, his body lying in a pool of blood. During the struggle word was conveyed to the farm of what was taking place, and the servant woman, Mary Moran, about thirty years of age, at once started with a shovel in her hand, and, reaching the field, got between the bull and her master's body, which was still being gored by the infuriated animal. The bull then turned on the brave woman, who used the shovel with all her might. The conflict, however, was of short duration, and a violent blow from the bull's horns threw her violently to the ground. The bull then commenced going the unfortunate woman's body, until a number of men arrived, when a desperate struggle ensued between them and the beast. Eventually the woman was got away, but she died a few hours afterward from her injuries.

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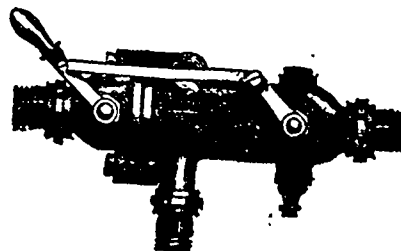
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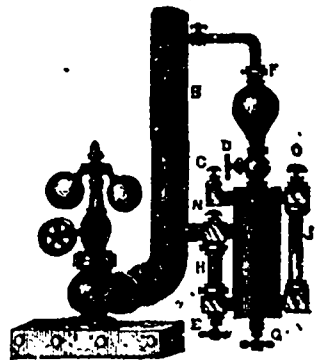
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