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CASUALTIES IN THE WORKSHOP.*

By CROMWELL GURNEY.

THERE are more casualties reported as occasioned by circular saws than from any other type of machinery, and, for this reason, too much prominence cannot be given to the danger of carelessness in handling them.

Sometimes it happens that no one is to blame when a fatality occurs, as when a circular saw breaks, as shingle saws and veneer saws are liable to do, being necessarily very thin and running at a very high rate of speed. All circular saws should be made of the best crucible or finest silver steel, and should be carefully and uniformly tempered throughout, requiring great skill and watchfulness on the part of the temperer. Great care is also required in hammering out these saws, as often the process forces the strain to one part, causing a slight bulge, which may crack when some unusual strain is put upon the saw. The crack relieves the strain caused by the bulge, and by boring a small hole at the terminus of the split it will go no farther, the saw being safer than before the fracture occurred. In using a rip saw a wedge should always be inserted behind the saw, in order to keep the cut open, that the wood may not bind the saw. A terrible example of this neglect came under the writer's observation. A clumsy hand was pushing a large piece of lumber upon a saw so fast that the machine almost stopped. At this moment the damp wood bound the saw, with the effect that the heavy lumber was shot, end on, into the man's chest, mutilating him horribly. Most of the accidents, however, are not due to imperfect saws, but to carelessness in the employee, who, as a rule, loses his fingers as a penalty.

Generally speaking, the circular saw is always dangerous when in motion, and care is needed on the part of the attendant when operating any style of saw machine; but there are adjustments or adaptations of saws much more dangerous than others. Those running through a slot in the table are perhaps the

most harmless as regards cutting accidents, while those overhanging their frames, and projecting out, are the most dangerous. Sometimes a hammer or wrench, left on the table, will be jarred until it comes into contact with the teeth of the running saw. As the teeth are unable to bite through the metal of the wrench or hammer, the saw itself breaks, sending its fragments with fearful veloc-

would be likely to cause stumbling, as to stumble against a running saw means horrible mutilation.

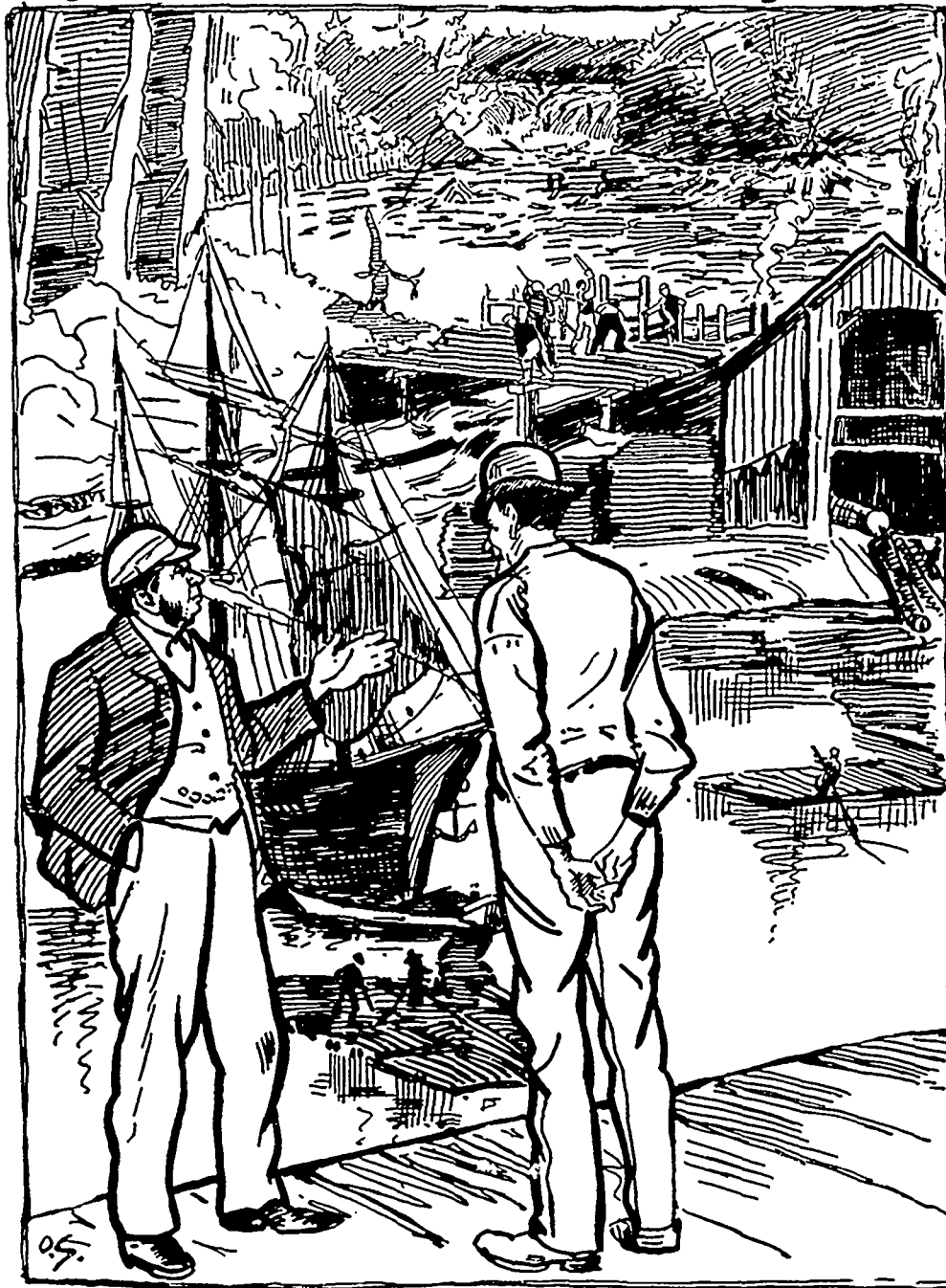
In using both emery wheels and saws, the operator should stand slightly out of the plane of the wheel, which puts him out of range, so to speak, if any accident should happen.

Great care should be exercised in putting a belt on a running pulley, as this operation causes many accidents. Every year there are the usual number of broken and dislocated arms reported from this cause. The reason of this is apparent at once to anyone who has felt the tremendous and sudden wrench when a fast-running belt starts unexpectedly while it is being put on. The most significant fact in all belt accidents is that the victims are not, as a rule, green hands, but old and skilled mechanics and engineers, whose familiarity with machinery has made them careless. A belt should never be held upon a pulley with the foot, as there is great danger of the boot getting caught in the joint of the belt. Neither should one be held on by a piece of wood held loosely in the hand, as the stick wrenched from the hand might strike the face or head of the holder.

WOOD-PULP TILES.

A NEW phase of the wood-pulp industry is developed in the manufacture of paper tiles for roofing purposes, which are known to the trade as Norway tiles. They are pronounced superior in quality, appearance and price, and the insurance companies appear favorably disposed and stamp the tiles as a very desirable and safe roofing material. Some of the qualities presented by this new factor in the line of building are its light weight, exceeding hardness, a non-conducting of heat and sound, and sufficient elasticity to meet all the requirements. It is urged that the difficulty of procuring perfectly square stone blocks except at high rates is thus overcome, for the pulp blocks, being cast in a square mold, are necessarily uniform, differing from the stone and brick which absorb so much heat in the summer. It is claimed that the new material prevents dampness, which is usually experienced in the case of stone.

AN ANXIOUS HOUR.



CAPTAIN MARINER:—A mighty good deal depends upon the success of that log drive.
MR. MILLMAN:—My fortune depends on it, that's all. To all appearance that drive isn't in a fair way of getting down, consequently I'm in a fair way of going up.

ity, as may be judged by one case, where a large piece of saw was buried completely out of sight in a neighboring post.

As to covering or guarding all saws, it is impracticable, without very much interfering with the quantity of work turned out. The floor about the neighborhood of a naked saw should be kept altogether free from obstructions which

* Abstract of a paper read before the Engineering Society of the School of Practical Science.