SEFUL INFORMATION

o boiler will give good results unless the circulation ee and rapid. To overcome the difficulty experienced h some kinds, where there is no circulation in some ts of them, ejectors have been used to take the water of the dead spaces and discharge it into other parts ere the water is always in motion so long as there is fire in the furnace.

oose crank pins, and how to make them tight, is an resting theme, and frequently comes up for discussion ong engineers. One of the best remedies that I have rd of is to bore holes partly in the pin and partly in boss of the crank, the holes being parallel to the axis the pin, then driving in iron bolts that are a perfect fit d riveting them solidly in place.

INSPECTING BELT LACING. A good practice is to draw extra pieces of lacing over the regular strips, and then re a board in close proximity to the belt as it runs. he result is that the outside pieces, which are not inded to hold any of the stress, catch all of the wear, and s soon as a piece is worn in two the centrifugal force due its motion causes it to strike the board and attract ttention. It is not at all necessary to shut down when is warning note is heard, for no one will know it to be t the outer part, but it should be attended to the next me that the engine is shut down. The adoption of this an will save delays in many places where they are now onsidered a necessary evil.

BOILER CLEANERS. A correspondent of the Scientific lachinist, on the advice of a brother engineer, took a ood sized stick of cordwood (oak), put it in the boiler nd screwed a jo the brace so that it could not get fast be ween the flue and the shell when the water was low. fter a week's run he found a great deal of scale had ome off the sides, and a lot more was loose that was asily knocked off. At the end of the third week the cale was loose on the flues and easily knocked off. By ontinuing to use oak wood and to clean out once a week, n a remarkably short time he had the boiler free from cale. The difference in firing alone was no small matter It is best, he says, to clean every week when using the ood, as it does not reduce the scale to a med. Blowing ff causes it to gather around the blow-off, which, if left o long, is apt to burn the shell, owing to its keeping the ater from the shell.

OLIVE OIL. There is no question but olive is the best il to be used for many purposes in both mill and shop; s advantages over other kinds are that it softens, and ven after a year or more does not become stiff and hard, nd the oil remains fresh and sweet in it. It is very diffiult to detect adulteration in oil, and as olive oil is mixed o a large extent with cotton seed oil, it behooves the urchaser to be very careful what he is doing, or some mart drummer will sell him a few barrels of cotton-eed oil with a little olive mixed in for the best pure ive oil. The following is a good test for oil: Take a ortion of the oil and stir it up with forty parts of a soluion of carbonate of soda of three degrees of Baume. If he oil forms a milky emulsion, without any oil drops on he surface, it is a guarantee for a good greasing of the ubject to which it is applied.

It would be a wise precaution for every mill owner to ssist to his foreman posting himself on the laws relating o accidents. There are some plain decisions that have been rendered by the courts which can readily be obtained. A little knowledge sometimes might save a man's life and a big expense bill. For instance, the supreme court of Louisiana recently held "that it is negligence for the foreman of a steam saw mill to call on one of the employees suddenly and on the spur of the moment to take a position in the mill that is dangerous without giving him any instructions or explanation whatever of the movements of the machinery or the risk and hazard of the employment, of which the employee had no previous knowledge." A careful foreman who knew this to be the law would see that the interests of his employer were cared for and the safety of the employee guarded by advice.

TO TELL WHEN TIMBER WAS CUT.—A current item says that timber cut in summer represents a lower value than that felled in winter, and it is of great importance to buyers to know when a trunk was hewed. Timber hewed during the resting period—i.e., between October and April—contains in its cells numerous starch particles which cannot be found in wood cut down in summer. This starch closes the pores, and the wood becomes coarse and impenetrable. This is the reason that winter-hewed timber is exclusively employed for staves. Made with staves from summer-hewed wood, the barrels leak and the contents may evaporate through the pores. A sure test is the use of iodine, which gives the starch in the winter wood a violet color. If the timber to be examined is coated with an iodine solution, and the surface of the felling side shows yellow, it may be taken as a certainty that the tree was cut down in summer. The light yellow lines are the moisture rays, while cells, tissue and wood fibres simply take on a yellow coloring. In winter-hewed timber the amylaceous rays form much darker, ink-colored, black stripes on the yellow ground.

POWER CONSUMED BY WOOD-WORKING MACHINERY. Prof. O. G. Dodge, U.S.N., who was chief electrical inspector at the World's Fair, recently made some careful tests to determine the power required to drive wood-working machinery at the navy yard in Washington. With a circular rip saw 28 inches in diameter and running at 1,200 revolutions per minute (or 8,800 lineal feet per minute), and ripping seasoned hard oak 7/8 inches thick, with a feed of 10 feet a minute, 18.8 mechanical horse power was used. The motor and saw running idle absorbed 2.1 horse power. In other tests with rip saws of 24, 14 and 12 inches diameter, and at varying speeds of from 1,500 to 2,000 revolutions per minute, the mechanical horse power output ranged from 2.6 to 8.9 horse power. A band saw running at 160 revolutions per minute (or 3,017 lineal feet per minute) required 10.4 mechanical horse power when the motor was running idle. When ripping seasoned ash 10¼ inches thick, with a feed of 6 feet per minute, but 14.8 horse power was consumed. In ripping yellow pine 12 inches thick and running 20 feet per minute, 17.6 horse power was consumed. The above figures are in contrast with the work done by a band saw having a pulley 28 inches in diameter and running at 480 revolutions a minute. With a belt pulley 12 inches in diameter and 3½ inches face, and with the motor belted to the saw shaft, the motor consumed nine-tenths horse power when running idle, and but 1.3 horse power when ripping seasoned oak 3 inches thick, and with a speed in one case of 2½ feet per minute, and in the other cases of 4 feet per minute, the difference in speed apparently making no difference in the consumption of power.

THE AMERICAN BOARD RULE. The American board rule is founded upon the principle that a foot of lumber is one inch thick and 12 inches square, and that this is composed of 12 pieces one inch wide and 12 inches long. In a 12 foot board it takes a strip one inch wide the whole length of the piece to make a foot of lumber; in a 14 foot board it takes a strip the whole length of the board only 12/14 of an inch wide, and if 16 feet long only 12/16 of an inch wide, and by the same theory an inch in width in a 12 foot board, as has been stated, makes one foot of lumber; a strip an inch wide in a 14 foot board makes 14/12 feet or one foot and 1/12, or 1/6 of a foot over. But as the figures on the board rule represent the number of feet in a board whose width corresponds with those figures, it must be seen that in a 12 inch board, as has already been stated, it takes an inch in width to make one foot, hence the figures in the 12 foot run are all exactly one inch apart on the length of the rule, but in a 14 foot board it requires only 12/14 or 6/7 of an inch in width to make a foot of lumber, hence in the 14 foot run the figures on the rule are placed 6/7 of an inch apart. In a 16 foot board it requires only 12/16 or ¾ of an inch in width to make a foot, hence in the 16 foot run the figures are only ¾ of an inch apart. The same rule holds good in all lengths over 12 feet, but in lengths under 12 feet the rule is reversed, the spaces being wider between the figures. For instance, if the board is only 10 feet long it will require 12/10 or 1⅕ inches in width to make one board foot, hence in the 10 foot run the figures are 1⅕ inches apart. In the 11 foot run they must be 1 1/11 inches apart. O. S. Whitmore, in Dixie.

No matter in what part of the Dominion you are situated, an expression of your views on any subject relative to the lumber trade is solicited by the publishers of this journal.

The lumber journal of Sweden is called the "Svensk Travarutidning." It contains a great deal of valuable timbereskme and statististical lumbertolsons. It wants to be read out loud to be appreciated, quotes a contemporary.

A TWISTED BAND SAW.

THE engraving herewith is from a kodak picture of a band resaw six inches wide by 32 feet long, 18-gauge thick. This saw was doing first-class work and had no cracks in it, writes A. J. Burton, in the Wood-Worker. The sawyer was called away one day very suddenly, and the manager was obliged to put on a man of less experience in his place.

Things went along nicely till they were obliged to change saws; then the trouble commenced. The first saw the new man put on was not placed on both wheels alike. It was about one inch off the top wheel and about two inches on the lower wheel, so that when he first started up, the saw oscillated so much that the teeth hit the husk or bed iron, and knocked all the points off the teeth half way round the saw, which had to be taken off and refitted.

The next saw he run about 20 minutes. Up he came to the filing room and asked me to come down and look at the saw, which was "notching" the boards, as he called it. And no doubt it was, for by the time I got to it the saw was nearly red hot and would hardly stay on the wheels, to say nothing of sawing lumber with it. I did not stay long, for I saw it was all day with that saw. I told him to take it off.

A TWISTED BAND SAW.

As soon as released from the wheels, it twisted and coiled up as shown in the engraving, but not before it presented the men handling it with several cuts and wounds, so much so that one of the men was obliged to go to the doctor to get his wounds dressed.

The whole trouble was that a sliver got in between the guide and the saw and caused it to heat, and the sawyer, not knowing what was the trouble, kept on sawing. Soon as the saw got so hot that it could no longer stand up and cut, it dished or turned over and run clear out of a three-inch plank, and this caused the saw to twist as you see.

One trouble after another continued for a week, till the regular sawyer returned. By this time the new man had moved nearly every part of the machine, so the whole thing had to be re-adjusted. After the regular sawyer got the mill properly adjusted, everything run perfectly and the saws did not "notch" the boards, as the new man termed it. My advice to mill men is to always try to secure a good, experienced man to operate these machines, for "the best are the cheapest."

Messrs. Herman, Voss & Sons, York, Pa., in remitting their subscription to THE LUMBERMAN, write "We look for THE LUMBERMAN weekly and profit thereby. Wishing you success."