

GOOD AND BAD BELT FASTENINGS.

A MAN had occasion, says a writer in the Tradesman, to pass under a twelve-inch rubber belt which drove a certain part of the mill. This belt was fastened by means of small links, similar to those used in an endless chain. The links were put through holes cut one inch from the ends of the belt, and in putting the belt together the ends are placed together so that the holes are opposite to each other. Then the links are forced through and a piece of iron wire put through the holes in the links so as to bear on the outside surface of the belt. This device forms a joint which stands straight up from the pulley about $1\frac{1}{4}$ to $1\frac{1}{2}$ inches when the belt is running. The man who was hurt was just passing under the belt when the joint came along and struck him on the top of the head. It took off a piece of the scalp about as big as a dollar, cutting it clean in three sides and leaving it hanging by the fourth. It knocked him senseless and it was several days before he was again fit for duty.

Such belt fastenings as these are an abomination that are as dangerous as a powder mill. All belts should be boxed up, but a belt with one of these things travelling around it should be cut in pieces and thrown into the boiler furnace. The link fastening is cheap, is quickly put into a belt and as quickly taken out when necessary to take a piece out of the belt. Boxing up will protect the operatives from the belting, but it will not protect the millwright or the repair man whose business it is to monkey around belts and shafting when it is running.

The instance mentioned above was a bit of personal experience of the writer, the man who was hurt being one of his workmen at the time of the accident. The owner was entreated to provide different fastenings, and after a great deal of grumbling some brass belt studs were provided, also a ring for making cement joints, which is the best possible way of splicing a belt. The belt studs are little brass concerns having a T-shaped head on either end, being made about $\frac{1}{2}$ inch wide and of a length sufficient to pass through two thicknesses of the belt to be fastened. Brass belt studs can be procured in the market of various lengths from $\frac{3}{4}$ to nearly two inches long. They can be quickly put into a belt and just as quickly taken out, and when properly put in and adjusted will hold equal to the best sewed lacing that can be put in. The heads of these belt studs do the work done by the wires when the iron links are used as described above, but the studs do not cause the belts to stand up and make a scalping machine which is liable to maim or kill. To give an example of how well this stud does its work, it may be mentioned that a belt can be put together with these studs, and, after running a few days, and perhaps even hours, the stud holes may be cut completely out through the ends of the belt, but the studs will still hold perfectly, owing to the grip obtained by their heads on the outside surface of the belt.

After these studs were procured, they were put into all the belts around the mill, which were liable to need frequent taking up, i. e., one joint was made with the studs and all the rest of the belt (for there were several pieces forming some, were permanently cemented together, making practically an endless belt. The cementing outfit consisted of an ordinary glue pot with water jacket and lamp underneath. This could be used when necessary, but it was usual to place the glue pot on a steam pipe a few minutes before desired for use. In the glue pot was placed two parts of best common glue to be obtained and one part of fish glue. This forms a mixture which will hold leather so well that when torn in two after having dried thoroughly, it will split in a new place even more frequently than it will in the splice. A piece of smooth pine board, two feet square, a smoothing plane and a chisel, a hammer, a few tacks, together with a strong knife and a square, completed the cementing outfit. There must, however, be added to this list a pegging awl and a supply of pegs of different lengths.

The operation of cementing a belt is very simple. First, the belt is squared and cut perfectly true upon the end; then a mark is made back from the square end a distance equal to the width of the belt, then the belt is tacked upon the board so that the end comes just even with the edge of the board. By means of the plane the belt may be easily chamfered down from full thickness

to anything wanted. Both ends of the belt are served in this manner, taking care to carve each end on the right side, also making sure that there is no twist in the belt when it is brought together ready for cementing. Secure one end of the belt to the board by means of a couple of tacks a distance above the butt end of the splice, then warm the leather by some means, either by holding over a lamp or by means of a hot iron. When as warm as will bear the hand comfortably, proceed to spread on a coat of the glue, which should be moderately thick, a little thicker than is used for gluing wood. Give both surfaces a coat as soon as possible, then put them together and hammer lightly with a broad-faced hammer. When spreading the glue, it must be made sure that the entire surface of the leather is coated, and coated evenly at that. Any little corner left without glue will be a defect in the work and a source of continuous trouble.

Having made sure that the surfaces are thoroughly covered with glue, place together as above described and hammer lightly until all parts of the surfaces have been pounded together. With the pegging awl, mark a row of holes about three-quarters of an inch apart all around the splice. Drive pegs into these holes as fast as they are made, and use a length of peg which will just go through the leather and leave the pointed part projecting. Allow to dry a few minutes, then trim off the pegs with a sharp knife and the belt is ready for use. It would be better to allow it to stand over night if possible, but many times it is not and the belt is doing good work within half an hour after completing the splice.

ON RUNNING A CIRCULAR SAW.

A CORRESPONDENT, of the Saw Mill Gazette, who has, apparently, a practical grasp of the subject, gives the following points on running a circular saw.

The number of teeth should be proportioned to the power, minus that spent in extra speed. A thin saw will not bear as many teeth as a thick one, therefore, the more power the thicker the saw should be, yet not in proportion to the power, for a good part of the power can well be expended in making greater speed.

A tooth of an eight-inch saw ought to cut one-tenth of an inch in common pine sawing, while the eleven-gauge tooth cuts one-sixteenth of an inch.

The sizes of saws between forty and sixty inches do not necessitate any change in the number of teeth. An eight-gauge saw should have about thirty teeth, and an eleven-gauge should have about twenty teeth.

The speed of a saw does not necessitate any change in the number of teeth or amount of feed, but the speed should be proportioned to the power.

The saw should not tremble in cutting. Trembling is caused by uneven teeth, or the heating of the saw in the guides, or in the centre, and sometimes a frozen log, if it touches the centre of the saw, will, by suddenly cooling it, cause it to act as if it were hot at the guides.

A thin saw requires the same projection of set as a thick one, and one difficulty in running a very thin one is that there is not enough thickness to swage out a good set, without moving the steel so much as to weaken it, and so causing the corners to crumble off from the teeth.

A saw that always runs best when the arbor is warm, is not hammered right. It is too tight in the centre, and too loose in the rim.

The sun should not shine on the saw when it is in motion, unless you can make the sun shine in the right place.

A saw not going quite right may often be made to do better by changing the lead, and also the guides.

The track and carriage must be straight and level, and the saw arbor must be level.

The saw must run true, and a saw that is fairly straight may be made to go true by pieces and rings of paper properly placed at the centre, on either one side or the other.

Other things being right, the saw need not lead or line into the log more than one-eighth of an inch in twenty feet.

One gauge thicker in the centre is about right for a common saw.

Every tooth of the saw should cut, and no one tooth should do more than its proper share. In the case of a broken tooth, shorten the next behind it as much as one

tooth cuts, and shorten two or three behind that slightly. In this way a saw with several broken teeth may be made to do good work. The points of the teeth should be kept a little thinner than the swage, and the more hooking they are, the less power it takes to drive the saw. But do not let the backs of the teeth be higher than the points.

Generally speaking, more than 200 horse-power should not be used for an eleven-gauge saw, unless it is hammered to run quite swiftly.

Swage just enough to avoid the binding or heating of the saw in the cut. The cutting edges of the teeth should be straight and square with the plate, and the swage should be held square and straight. When struck it should not jump or move, and will not if held and struck right.

The saw is inclined to run to the side on which is the highest or longest corner of a tooth.

In sawing an extremely bad log, put on less feed and less power, so that the saw may not be heated.

When the bark of white pine pulls in and bothers, incline the saw into the log, and have the tail sawyer pull upon line board as it is sawed.

In a clear sawing, if twenty teeth go easily at one and one-half inch feed, by increasing the power one-eighth the twenty teeth will just as easily go at two and one-half inches feed.

A SONG OF THE SAW.

BY A. B. GOULD.

OF all the men of a saw mill crew,
But one with a female each day has to do.
This "she" the circular saw is by name,
And the saw and the girl are in temper the same.

The filer's supposed to be an expert,
But he often has found her a terrible flirt.
He calls her his darling and source of his joys,
But she, woman-like, flirts with all the mill boys.

The sawyer may try to keep her all straight,
But she's likely to lead him to a terrible fate;
But she'll hum and sing the summer day long,
To an experienced ear a beautiful song.

Her song brings to mind twenty years of my life,
And with her, I own, I've had many a strife,
But now she is conquered, I think so, at last,
Though all the boys claim she is awfully fast.

I have dosed her with emery and also the file,
And with hammer and anvil I've freed her from bile;
For, as I said before, twenty years of my life
Have with her been spent in continual strife.

First she will halt and then dance and prance,
Like a colt that is balky and loth to advance.
No coaxing will move her, no cursing will serve;
The hammer and anvil alone give her nerve.

But in spite of her antics she always will be
The queen of all saws you ever will see.
Her cut is on record, and day after day
In hundreds of thousands 'tis measured, they say.

'Tis a capable female, this circular saw,
It takes thousands of logs to fill her great maw.
Though for mill dogs and bolts she has a dislike,
She's my darling when, well, I know she's all right.

They say that she's old, that the band is the belle,
But for what she has done her praises I'll tell;
And if in the future I see her lie still,
Respect I'll still have for her work in the mill.

Now, the band saw, I own, is a different kind,
It takes clear stuff and uppers to cut to her mind,
Her temper is ticklish, she's full of her tricks,
And it's hard to persuade her to put in her besticks.

For five years I had her and trained her down fine,
Till she cut like a beauty in the big, soft, cork pine.
She, too, is a darling, when rigged out in trim,
And a saving in timber with saw kerf so thin.

A THREE CENT STAMP DOES IT.

ON receipt of a three cent stamp we will mail free to any address a copy of our little hand-book entitled "Rules and Regulations for the inspection of pine and hardwood lumber," as adopted by the lumber section and sanctioned by the Council of the Board of Trade, of Toronto, June 16, 1890. Address, CANADA LUMBERMAN, Toronto, Ont.