

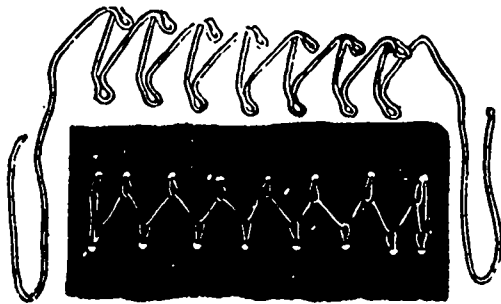
SAWDUST.

THE sawmill with its teeth of steel
 Bites through the log upon the tram
 And drops the dust like golden meal
 Into the stream below the dam.
 It floats in long procession down
 Puts golden fringe on the waters edge,
 Or rests in nooklets green and brown,
 And shines like sparks among the sedge.
 Now swims a particle away
 And minnows push it here and there
 As boys at football love to play
 On Summer days in Summer air.
 The water shouts in cheering tones
 As float the shining masses down
 Around the curves—among the stones
 And past the busy trade-blind town.
 And still the saw with teeth of steel
 Bites through the logs upon the tram
 And drops its food like golden meal
 Into the stream below the dam.

THEODORE W. TURNER.

BELT FASTENER OF WIRE.

THE fastening is made of wire, which for about half its length is bent into a series of zigzags, the angles of which are bent upward at right angles, forming loops, the number of which on each side are equal to the number of holes in each end of the belt. The holes are made at such a distance from the ends of the belt that when they



are brought together the holes will be at the same distance apart as the rows of loops in the wire. In using the fastening, the ends of the belt are brought together, and the ends of the wire are passed through the holes in such a direction as to bring the zigzags on the inner side of the belt. The ends of the wire are then passed through the loops successively, forming a second series of zigzags upon the outside of the belt, and are twisted together, as shown in the engraving. In use, the fastening beds itself in the belt so as to leave the surface smooth. The fastener is easily applied and reliable in use.

ARGENTINE PROSPERITY.

ADVICES received from the Argentine by the last steamer show that the value of agricultural and pastoral products in that country during the present year will exceed anything before known. The value of the agricultural crop in 1891 is estimated at \$85,000,000. The wheat product is estimated at 8,000,000 tons, valued at \$32,000,000; the corn crop at 1,000,000 tons, valued at \$15,000,000. The value of the wheat and corn surplus for export is estimated at \$27,500,000. It is believed that this enormous crop, together with the returns from wool, hides, etc., will restore prosperity to this country.

INTERESTING FACTS ABOUT WOODS.

MANY of us work on from year to year, handling thousands of feet of lumber of different kinds, without once giving a thought as to its relative strength as compared with other substances, or to where it comes from or to whither it goes. One cubic foot of ash weighs 52.81 pounds; bay wood 51.37; blue gum 64.8; cork 15; cedar 35; hickory 49; lignum vite 83.32; mahogany from 35 to 65; white oak (dry) 53.75; pine, white, 34.625; pine yellow, 33.85; spruce 31.25; walnut, black, dry, 31.25; willow 36.56.

The comparative weights of green and seasoned timber are about as follows: Pine, green, 44.75 pounds, dry, 34.62 pounds; ash, green 58.18 pounds, dry 52.81 pounds; beech, green, 60 pounds, dry, 53.37 pounds; cedar, green, 39 pounds, dry, 35 pounds. Thus it will be seen that the large majority of the lumber we handle is much heavier than we notice during our daily acquaintance with it.

Now as to tensile strength of the above named woods. The tensile strength of ash is 15,000 pounds which about equals cast lead, which is 18,000 pounds; hickory, 11,000 pounds, or same as tin, which is 11,000 pounds; mahogany, 21,000, or same as gold, which is 20,380 pounds; white oak, 16,500 pounds, or same as Clyde cast iron, which is 16,000 pounds; pine, 19,200 pounds, or same as gun metal, which is 18,000 pounds; walnut, black, 16,000 pounds, or same as walnut, English, which is 17,800 pounds; willow, 13,000 pounds, or same as sheet zinc, which is 16,000 pounds; cedar, Lebanon, 11,400 pounds, or same as beech, which is 11,500 pounds; ebony, 27,000 pounds, which is about the same strength as copper.

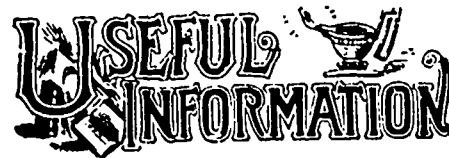
White oak at 16,500 pounds is tougher than many grades of cast iron, not only in tensile strength but in almost any other test to which it may be put.

It is known that wood as a combustible is divided into two classes—the hard, as oak, ash, elm, beech maple and hickory—and the soft, as pine, cotton, birch, sycamore and chestnut. Green wood subjected to a temperature ranging from 340 to 440 degrees, will lose from 30 to 45 per cent. of its weight. At a temperature of 300 degrees, oak, ash, elm, and walnut, in a comparatively seasoned state, lose from 16 to 18 per cent. Wood contains an average of 56 per cent of combustible matter. From an analysis by M. Violette, it appears that the composition of wood is about the same throughout the tree and that of the bark also, that wood and bark have about the same proportion of carbon (49 per cent.) but that bark has more ash than wood.

PUBLICATIONS.

Sir Edwin Arnold, who has been enjoying an interesting trip through the United States, has made a careful study of the conditions which govern the family in Japan and embodies his ideas in a paper called "Love and Marriage in Japan" in the February number of The Cosmopolitan. The article is illustrated by the quaintest possible Japanese sketches running down the sides and across the bottom of each page. An excellent photograph of W. D. Howells serves as a frontispiece, and his work as a writer of fiction is reviewed in the same number by H. H. Boyesen.

FOR HEMLOCK, DIMENSION LUMBER, HARDWOOD flooring, cedar shingles, piles, sawdust, etc., write J. E. MURPHY, lumberman, Hepworth station, Ont.



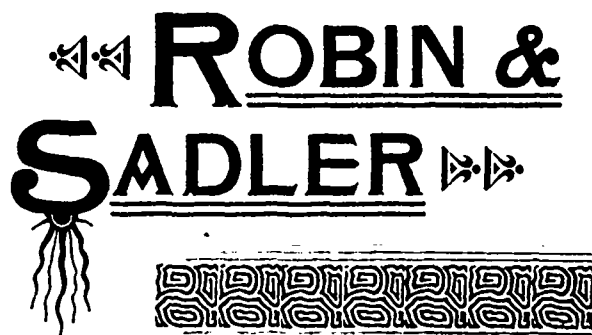
When the tubes of injectors become scaled, do not undertake to clean them with a file or scraper, as a very small enlargement of the area of the jet will interfere with the working of the instrument, but remove the tubes and place them in a solution of one part of muriatic acid to 10 or 12 parts of water. This will soften the scale, and the tube may then be washed.

The fact that steam piping methods have not kept pace with the demands of higher pressures and modern practice is evidenced by the increasing number of accidents from the failure of pipes and fittings. There has not been for the rapid increase of pressure used a proportionate increase in strength of flanges, number and size of bolts used, and more generous provision for expansion and contraction. When small bolts are used in flanges they are often put under an almost destructive initial tension by "the man with the monkey-wrench," and are in no condition to withstand the excessively high pressures to which piping is now subjected. Valves and fittings also require greater attention in their design, construction and manipulation.

The ability of a lubricator to feed heavy oil depends on the difference between the height of the water column and the connection from the lubricator into the steam pipe. A friend has one in which the water column extends for more than two feet above the body of the cup, but as the delivery is connected into the steam pipe nearly as high up as the top of the water column, the cup does not work in a satisfactory manner. The delivery connection should be lowered, and it is well to remember that if the pipe which is intended to supply the column with water is carried in a horizontal direction, while it may add to the capacity of the cup, or in other words enable it to feed out more oil in an hour, still it does not help it about feeding heavy oil, as the vertical height alone can do this.

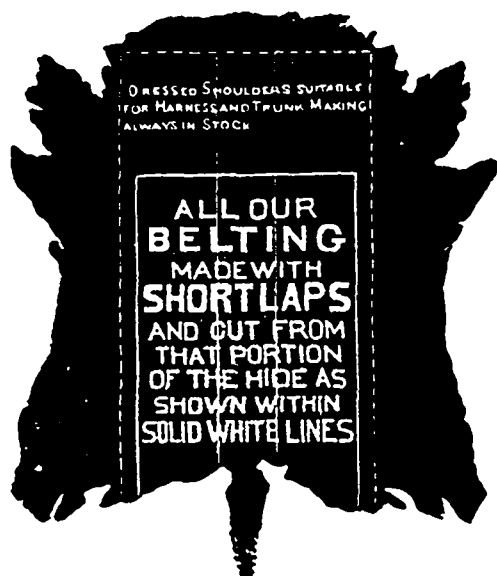
To lag pulleys with paper a workman writes:—Scratch the face of the pulley with a rough file thoroughly, so that there are no bright or smooth places. Then swab the surface with a solution of nitric acid one part, water four parts, for fifteen minutes; then wash with boiling hot water. Having prepared a pot of the best tough glue that you can get, stir into the glue a half ounce of a strong solution of tannic acid, oak bark, or gall nuts, as convenient to obtain, to a quart of thick glue; stir quickly while hot and apply to the paper or pulley as convenient, and draw the paper as tightly as possible to the pulley, overlapping as many folds as may be required. By a little management and moistening of the paper it will bind very hard on the pulley when dry, and will not come off or get loose until it is worn out. Use strong hardware wrapping paper.

"What do you do with all the files?" This is the question which the "old man" usually asks when he receives an invitation to hand out a new file. More files are spoiled by laying them down where last used than by any other method. A new file is used once and then perhaps thrown down in the dirt, grease or water, and the dirt, dust and grease thus gathered convert a new file into an old one upon the spot. Keep a file clean at all times and begin when it is new. Before using a new file rub chalk into the teeth, then clean with a brush or wire card; rub in another dose of chalk and the tool is ready for use. The chalk slightly fills the cavities between the teeth and prevents metal filings and dust from collecting therein. Such filing renders the file more easily cleaned and to a certain extent neutralizes any acid that may find its way on to the file.



MANUFACTURERS
OF...

Leather Belting



DEALERS IN

«LACE LEATHER»
Cotton and Gandy Belting

2,518, 2,520 and 2,522 Notre Dame St.
MONTREAL

129 Bay Street ::::

... TORONTO