

BELT MATERIAL.

The first idea of a belt for machine purposes is a leather band, but other materials have been used for many years; the writer remembers seeing a six-inch or an eight-inch belt that had run for more than a year in a woodworking establishment, which was made of cotton cloth—sail duck. The belt connected two pulleys of three and two feet diameter respectively, the shafts of which were on the same level. To compensate for the shortening and lengthening of the belt by change in the humidity of the atmosphere, a pivoted idler was used. This change of length appeared to be the only serious drawback to the employment of cotton as belt material, for the adhesiveness of the material to the face of the pulley was excellent. Rubber belting is simply cloth and rubber united by being pressed between heavy rollers; its strength depends upon the fibrous portion—the cloth. There has recently been another cloth belt put upon the market that depends for adhesiveness to the pulley face on cotton. This is a woven belt, the wool or warp of which is a series of continuous steel wires, the filling being coarse cotton yarn, or twine. No preparation is given the cotton either before or after the weaving, and the "shed" in weaving is so arranged that the steel wires, on which the strength of the belt depend, are entirely covered. One of these belts has been noticed by the writer for more than two years—a twelve-inch belt leading from the fly-wheel of an engine—and it shows no signs of destructive wear yet, and has absolutely no stretch. From these examples it would appear that under some circumstances (those of a dry atmosphere, equable temperature, and an unshippable belt,) cotton might prove to be an excellent substitute for leather for belting purposes. There appears to be only one kind of leather that is applicable to belt making that from the skin of the ox or Bos tribe. During a residence of several years in one of the British American provinces the writer was compelled by circumstances to make his own belts, of such material as could be obtained. Moose hide leather was tried, but it had a quality of indefinite stretch; to obtain a six-inch wide belt, strips not less than 10 inches wide were required, and these were wetted and stretched by powerful winches for several days before they were fit to cut to widths. The leather was very thin for the width of the belt, but it was wonderfully tenacious and adhesive. Rawhide (untanned skin) will do well as a belt if kept soft, by oil, but it lacks the hug of leather and has little elasticity. Ox leather belts stand at the head of those of all other materials for the satisfaction of all demands on belts. No other belt will stand the wear of the shipper; cotton belts are weakened when wet; rubber belts are rotted when oiled, but leather will stand wet and dryness, cold and heat, and last a long time even when oil saturated.—*Scientific American*.

DEFECTS IN THE INSPECTION SYSTEM.

Chicago, Boston and many other lumber markets have licensed lumber inspectors, holding certificates issued by the proper legal authorities. This system is supposed to be a guarantee of an impartial and uniform grading of lumber passing through their hands; but unfortunately the guarantee does not always hold good. Hardwood inspection particularly is so varied, and so much depends upon the probity and skill of the inspectors, that especial pains should be taken to insure the purity of the service.

In this city after making application for a certificate the candidate undergoes a practical examination by the hardwood inspection committee of the Lumberman's Exchange, which, proving satisfactory he receives his license. This is well enough as far as it goes, but is not thorough enough. Often one member of the committee may discover a man's unfitness for a certificate when others have passed him, but as the examiner is in the lumber business he does not wish the enmity of the inspector, and so concurs with the verdict of his fellows. Objection from one member of the committee should disbar the applicant, and the discussion of each should be privately returned to the proper authority. But after the inspector gets his

certificate he is safe for a year, unless he does something outrageous that complaint is made. He either goes into business for himself, hires out to a chief inspector or goes into the employment of a lumber yard. That word "business" is the explanation of all the trouble. Inspector should be a trade and not a business. When he goes into the "business," and hangs out his shingle as inspector, he enters into competition with every other inspector or firm of inspectors. He is anxious to get business, and as about all the business he gets comes from one class of lumbermen; namely, wholesale buyers—there is a constant temptation to favor that class.

The Chicago inspectors, as a body, cannot be accused of being guilty of any favoritism; but men in such a responsible position should not be subjected to such temptations. That they sometimes yield is well known. A \$5 bill, or carte blanche at a neighboring bar, has been known to effect the grade of a lot of lumber very materially. The impropriety of an official inspector being in the employ of a lumber dealer is manifest, and still greater is it for him to be in the lumber business for himself; but both conditions are found in Chicago. The inspector should be wholly divorced from any interest in the buying or selling of lumber. He should be an inspector merely. To avoid the chances of collusion between inspectors and those who employ them, it should be out of the power of any one to obtain any particular inspector. There should be one chief, to whom applications should be sent, and he should have no power to discriminate, but should send out men in regular rotation—the one who has been longest idle to receive the first assignment. Then, with strict examination and watchfulness as to qualifications, experience and personal character, a tolerable uniform and very reliable inspection could be maintained to the honor and benefit of the market so guarded.—*Northwestern Lumberman*.

A NEW YORK VIEW OF THE OUT-LOOK.

During the recent depression in business the wood-working industries have suffered to a far less extent than many other branches of trade. Since July, 1884, wages in saw mills have been reduced but little. In sash, door and blind factories the reduction has not been more than 8 to 10 per cent.; in furniture factories it has been from 10 to 15 per cent.

In drawing conclusions from wages statistics it is to be remembered that they do not tell the whole story. They do not take into account hands discharged through lack of work and in many instances men whose wages remain nominally as high or nearly as high as ever have not been working on full time. Yet it is still true that generally speaking mill men and wood-workers laboring for wages have suffered less than the journeymen in most other trades. The fact is that the decline in wages in the lumber and kindred industries has been much less in proportion than the fall in the prices of manufactured lumber.

But it is certain that lumber values must now advance. During the last two years the decrease in the call for lumber from the farmers has been the worst trouble with which the trade has had to contend, and this decrease was, of course, chiefly due to the fall in the prices for farm products.

This decline has now ceased, and henceforth the values of all products, whether for the farm or factory, must advance. If there is to be a European war the rise will be rapid, and even if hostilities do not break out at present, the advance in values must occur. It will be in the one event a sudden jump, and in the other a gradual, steady tendency upward.

Quite apart from the condition of affairs in Europe, there are circumstances in the business situation in our own country which all tend toward an enhancement in prices and a revival of general business, and when to these factors there is added, as now, the probability of a war between England and Russia, and perhaps further complications in European affairs, the effect on this country cannot fail to be very great, and of such advantages as might accrue therefrom, whether they be permanent or merely transient, the lumber and wood working trades may surely count upon a liberal share.—*Saw Mill Gazette*.

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HOW TO BURN COAL DUST.

Economy is the order of the day, and anything that promises a reduction of expenditure in manufacturing should be put in force, says the *Mechanical Engineer*. Coal dust is a fuel of the best quality if it can be burned easily; and that it can, in an ordinary furnace, a young engineer of New York, B. Smith, has demonstrated. Mr. Smith had taken a contract to run the steam power department of a factory, and in seeking to reduce expenses he naturally sought the greatest item—the fuel. How to burn the dust, or culm, which can be had for a dollar a ton, or less (in some places for the carting away), was the question he wished to solve, and by experimenting he found a plan which succeeded perfectly, and he presents it through the *Mechanical Engineer* to the steam using public. Mr. Smith riddled the culm through a sieve, the mesh of which he did not mention. From this he obtained a small proportion of good coal.

On leaving off work at night he made up a good fire of coal, and on top of this he put ten or twelve inches of culm, or dust, wet down just so it would slide of the shovel easily. This was practically banking the whole fire with a blanket of culm, and in this condition it remained until morning. Before starting, Mr. Smith made holes clean through the culm, to the grate bars, and then put on the draft. The fire thus treated would run five hours, or until noon, with plenty of steam all the time. At twelve o'clock the same method was repeated. The results, Mr. Smith states, were a very great saving in fuel, and he seems to have been in a position to judge, for the saving was his profit, or portion of it, on the contract he made. The only change made was in the grate bars, which were much heavier than the old ones, and with narrower air spaces; half an inch we believe Mr. Smith said.

This plan was new to our informant, and is to us; we consider it of sufficient value to our connection to make it public. It must be remembered, however, that this was anthracite culm; just how it would work with bituminous, or semi-bituminous coal slack, we do not undertake to say. The plan needs good natural or forced blast to make it successful, as engineers will easily see.

Every Woman Knows Them.

The human body is much like a good clock or watch in its movements; if one goes too slow or too fast, so follow all the others, and bad time results; if one organ or a set of organs works imperfectly, perversion of functional effort of all the organs is sure to follow. Hence it is that the numerous ailments which make woman's life miserable are the direct issue of the abnormal action of the uterine system. For all that numerous class of symptoms—and every woman knows them—there is one unfailing remedy, Dr. Pierce's "Favorite Prescription," the favorite of the sex.

LUMBER BUSINESS IN THE NORTH-WEST.

The lumber trade opened in very good shape this spring, and the prospects were that an unusually brisk demand would continue all through the season. With the idea of ascertaining how business in this line was going, and whether the Northwest troubles would seriously affect Port Arthur dealers, a *Sentinel* reporter called on the firm of G. A. Priest & Co., South Water street, and found every evidence of a rushing business. There are twenty-seven men employed in the mill at the present time, mostly of a superior class of workmen. The trade of this firm is pretty evenly spread over Southern Manitoba and the Northwest territories. They have done a large business in Morden, Manitou and all through the Turtle Mountain district, as well as along through Regina, Medicine Hat and Calgary. For the last two weeks the firm has shipped orders at the rate of fifty thousand feet per day, and plenty of orders to fill. They have secured this large trade by carefully grading all lumber. Formerly dealers were supplied with anything and everything in the shape of boards, the result of which was to load the country with culm, and compel buyers to seek supplies from Minneapolis and Chicago. But by always enforcing the grading rule Priest & Co. have earned the most favorable reputation all over the vast northwestern country, and now control a very large trade, and no small portion of which formerly drifted across the border. Regarding the effect of the rebellion upon business, Mr. Priest thinks that it cannot fail to retard the growth of the country and greatly check building operations, especially so if not immediately settled. Already there must be from 1,500 to 2,000 teams employed in shipment of troops and stores, which will result in little or no seeding being done. That will necessarily demoralize all present arrangements for building, and thereby affect many of the lumber dealers and manufacturers. This firm has secured the contract for all supplies for the breakwater and the corporation, and when the war is over will undoubtedly secure a large share of the revival of business throughout the northwest.—*Port Arthur Sentinel*.

Science in Driving a Nail.

There is a science, after all, in so simple a matter as driving a nail. A correspondent in an exchange writes that he recently witnessed the experiment of driving nails into timber that had been hard seasoned and was well dried. The first nail, after passing through an ordinary board, went into the timber about an inch, and then doubled up under the hammer. The tips of the rest of the nails were dipped into lard, and the driving was accomplished without any difficulty. The remedy is not a new one, but it is simple enough to be recommended for trial.