

and the process by which it is metamorphosed from a block of wood into good, serviceable paper is most interesting. The bark and all knots having been removed from the small logs and blocks of wood, they are placed in a large cast-iron hopper and forced by hydraulic pressure against a grindstone which reduces the wood to a pulpy mass. This is washed in clean water, and goes through several processes of preparation with chemicals. Later on it is placed in large circular vats where it is kept in motion and kneaded together by a sort of paddle-wheel arrangement. It is in this stage that the coloring matter is added for colored paper. The mass as it appears in the vats resembles curds or dough in the process of fermentation, and the most palpable odor from it is that of chloride of lime. The fibres of the wood are interlaced so firmly that it is with difficulty a lump of the pulp can be pulled to pieces.

The making of the paper follows, and a brief account of how the Herald roll was treated will serve for all. The machine on which it is manufactured is 155½ feet in length. It is 10½ feet longer than the height of a large smoke-stack just outside, but it is hard to realize that fact. The pulp is fed on to a fine endless wire sheet in a thin film, and the amount of oscillation given to this screen determines the quality of the paper. Just before leaving the screen and passing to an endless blanket which aids the yet fragile paper until it is strong enough to bear its own weight, the over surplus of water is expelled from it by a powerful air blast. After leaving the blanket the paper passes under and over and around a dozen or more huge cylinders kept hot by steam. It finally passes between heavy steel rollers bearing upon each other, and is reeled off ready for shipment. The time which elapses between the film of pulp at one end and the roll of newspaper at the other is somewhere about five minutes. The rolls as they stand ready wrapped up for shipment to Montreal contain

44 miles of paper in a continuous sheet 40 inches wide and weigh 700 lbs. each.

In other departments wrapping papers, card board and mill board are being made, the process being exactly the same. The yellow paper used in the C.P.R. folders and telegram blanks is super-calendered on the calendering presses. One of the machines was at work on a new "chamois" paper, which is practically untearable.

The manufacture of paper bags has recently been commenced by the firm, the bulk of the work being done by machinery in a closed room. The machines have not been patented and will not be. When this department is working at its fullest capacity it will be able to turn out one and a quarter million bags a day.

Flexible Joints.

Mr. W. H. Law, general manager of the Central Bridge and Engineering Company, whose extensive works are at Peterborough, Ont., is the inventor of the flexible joint for steel pipes to which the following alludes:—

The problems that meet the mechanical engineer who undertakes the direction of or to provide appliances for the construction of public or private works are yearly becoming more difficult. Operations that a score of years ago were deemed impracticable are now undertaken with confidence. It seems that no matter what difficulties arise or exigencies are to be met the skill of the engineer must grapple with and overcome. It is not that anyone in the profession has become possessed of a fertility of resource, but that all over the continent the work of men's brains and intelligence is being devel-

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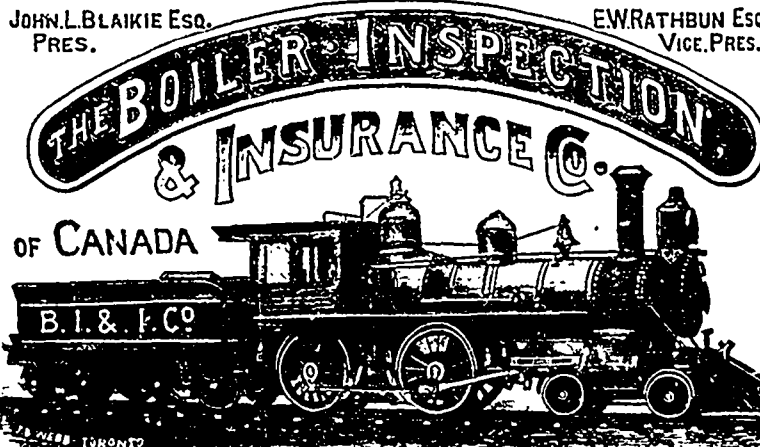
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