

guiding the stock to the punch when duplicate pieces are wanted. A stripper, as shown, is fastened to the sides of the column. The equipment includes a set of three wrenches and a choice of three punches of standard sizes ranging from $\frac{1}{8}$ to $\frac{3}{4}$ inch. The full capacity of the machine is for holes up to $\frac{3}{4}$ inch in diameter, through $\frac{1}{2}$ inch brass or soft iron. The distance from the center of the slide to the back of the throat is $5\frac{3}{4}$ inches; from the bed to the bottom of the slide when up, $4\frac{1}{2}$ inches. The fly-wheel, which is 19 inches in diameter, weighs 105 pounds and should run from 175 to 200 revolutions per minute. The weight of the machine is 500 pounds.

Enormous Rope Drive Pulleys

The second of a pair of rope drive pulleys, the largest ever built in Canada, and second largest in America, was recently completed by the Laurie Engine & Machine Co., Montreal, and set up in the new plant of the Canada Tin Plate & Sheet Steel Co., Morrisburg.

In the accompanying illustrations is shown the pulley in the lathe at the Laurie Engine Works. It measures 30 feet pitch diameter, 30 feet 3 inches over all. The face is 4 feet $8\frac{1}{2}$ inches wide, and is grooved for twenty-two $1\frac{3}{4}$ inch ropes.

Each pulley is built of 12 rim segments, 12 arms, 2 hubs, and shaft. About 200 bolts are used. Finished weight of each pulley with shaft is 180,000 pounds.

The rims, arms and hubs were cast in the foundries of the Laurie Engine Co. The hubs were pressed on to the shaft under hydraulic pressure of from 250 to 500 tons and keyed on. The shaft was then put in the

to tinplate, were put in place with pins and temporary bolts. Then the bolt holes were reamed out slightly taper, and turn bolts fitted, driven home and screwed up tight. Each bolt being taper and fitted tight, acts as a clowel, preventing any movement between parts and making the whole absolutely rigid, practically one piece.

Up to this point the shaft had remained

The largest single belt fly wheel in Canada was built by the Laurie Engine Co., a few years ago for the Ogilvie Flour Mills, at Winnipeg. It was 22 feet in diameter, and has a 6 foot 3 inch face. Another large wheel built by the same firm was a balanced fly wheel for the Dominion Iron & Steel Co. This wheel was 24 feet in diameter, and weighed 236,000 pounds.

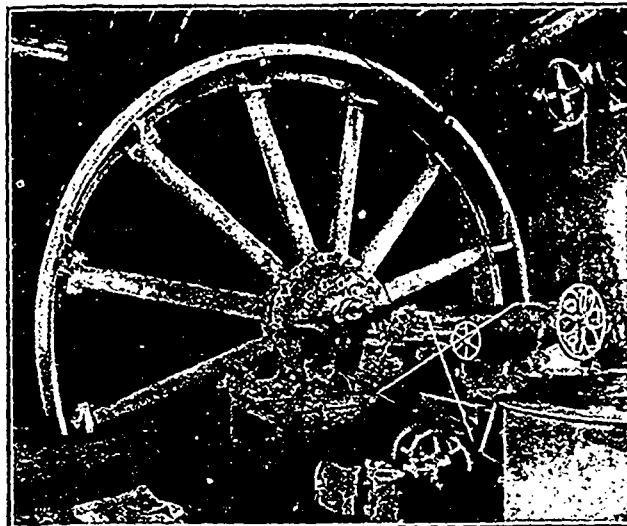


FIG. 2—LAURIE ENGINE & MACHINE CO'S THIRTY FOOT ROPE PULLEY IN LATHE.

in position, so that the faces of the wheel were absolutely concentric with the axis of the shaft—important features for steady power and easy running. The wheel now stood complete in the lathe. The rim was then machined, each groove being carefully

Colors Fast to Perspiration

By C. M. WHITAKER in Dyer and Calico Printer.

With every advance that is made by coal-tar color manufacturers in the way of introducing dye-stuffs superior in point of fastness to those previously in use, a corresponding advance is recorded in the demands made by the merchants in the severity of the tests which the goods ordered by them must withstand. One of the points upon which great stress is laid nowadays is that the dyeings must be fast to perspiration. Fastness to perspiration is naturally of more importance in some classes of goods than others; for instance; it is of first importance in blouse stuffs, shirtings, hosiery, sport flannels, etc. Unfortunately, there is no really satisfactory test for perspiration, and it is therefore a cause of trouble to all concerned in the color trade, both makers and consumers. Unlike ordinary demands, such as fastness to washing, which can easily be determined, fastness to perspiration cannot be so determined, but depends too much on the personal equation for one ever to be certain about it. It is a well known fact that the action of perspiration on colors varies largely with different individuals owing to their different physical conditions, or even with the same individual at different times—that is, whether in good or indifferent health. This factor, it will readily be understood, makes it practically impossible to have a perfect test for perspiration; but it is much to be desired that some one test should be adopted and accepted as a standard, so that a color could be guaranteed fast to the standard test for perspiration.

One point that must not be lost sight of is

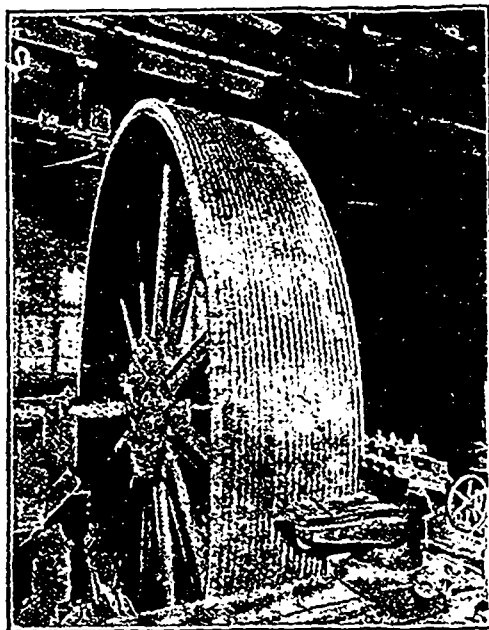


FIG. 1—ENORMOUS ROPE PULLEY SHOWING GROOVES. MADE BY LAURIE ENGINE & MACHINE CO., MONTREAL.

lathe between centres, and bearings for the support of the shaft were adjusted to preserve the alignment. The hubs were then forced off on the inside to gauge, and the arms placed in. When all twelve arms were in position, the rim segments, which had been machined

turned to gauge of correct form for rope drive, and the wheel was finished. It was then taken down and the pieces shipped separately to Morrisburg, where the wheel was re-erected, and is now assisting in the manufacture of Canadian tin plate.