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A NEW STEEL BAND MILL.

INTEREST in the band mill grows with lumbermen. The engraving on this page of their "New No. 2 steel Band Mill," manufactured by the Waterous Engine Works Co., of Brantford, Ont., illustrates a mill modelled on radically different lines to the ordinary band saw mill; one certainly foreign from the previously conceived ideas of what a band saw mill ought to be.

Many of the standard mills have but one post supporting the upper wheel, others have two and an outer arm passing between the wheel and reaching to the upper shaft, making a third bearing under the shaft. In the Waterous mill the necessary rigidity is obtained by the six steel columns connecting the very heavy lower and upper cast plates. These make a much more rigid frame and give a much greater bearing to stand the strain than the single or double post mills.

In addition to this, doing away with the outer arm, they can bring the wheels fully eighteen inches nearer together. This permits the sawing to be done much closer to the upper wheel. This is a most important point. Any one knows from experience that a belt running from one pulley to another can be shoved on or off the receiving pulley while in motion quite readily, while at the driving pulley hardly any pressure that can be put upon it will disturb it. The effect is the same in the band saw, and the aim of all band saw builders is to have the cutting done as near the upper wheel as possible.

Another important point is the triangular frame supporting the upper shaft and wheel. This upper wheel has to be moved up and down as the tension is applied to the saw; with narrow bearings it is apt to bind with the strain that the saw puts upon the outer end of the shaft, and in this way rises up unevenly, or when the tension is being taken up by the weight the binding may prevent a proper operation of the weight. With the triangular frame they have what is equal to a four foot bearing on the front centre post, making it impossible for any binding to take place, in adjusting the tension of the saw either by screw or weight.

The two boxes of the upper shaft are connected by a very heavy casting, making it impossible to get them out of line, and this casting is hinged to the triangular frame, and so arranged that the effect of the tension weight is applied directly to it and adjusts the tension without having to affect the triangular frame. This is a great improvement on the usual method of applying the tension. As will be seen from the illustration, the guide is very stiff and has very convenient adjustments. Its weight is counter-balanced and it is raised and lowered by friction, readily applied by the sawyer. The bearings for the shafts are eighteen inches long, and of ample diameter; the lower bearings are adjustable and the upper bearings are also adjustable by wheel and screw.

The effect secured by the outer arm and third bearing in ordinary mills is secured in this mill by running the bearing to the centre of the wheel, coring out the hub so as to overlap the bearing, thus bringing the centre strain of the saw on the bearing instead of on the unsupported shaft. The lower wheel is of ample weight and the

upper wheel is of very strong and light design. Another important advantage is gained by this mode of supporting the wheels. With an outer bearing, these eight and nine foot wheels have to be fitted to the shaft so that they will slip on and are then keyed. The slightest variation caused by the key is magnified many hundred times at the rim, making the saws run badly. The wheels in the Waterous mill are fitted to a slight taper and ground to a perfect fit and further held to place by a nut; no key is used; hence their wheels run true. Since the present illustration was made the style of upper wheel has been changed to relieve the run of casting strain of hub, making arms adjustable, the proportion being arranged to a nicety to prevent any possibility

saw and the lower wheel. The wheels of this (the No. 2 mill) are eight feet in diameter, and are made to take ten and twelve inch blades, the saws being much shorter than usual for that sized wheel, namely, forty-three feet.

So much importance is to be attached to the character of the machinery used in manufacturing that we are of the opinion that the manufacturer is always ready to welcome any suggestion pointing towards improvement and greater efficiency in his particular line of work. Lumbermen, by their enterprise in the past, have shown that they are quite alive to this view of the matter; and as the season is approaching when they will find it necessary to place their mill properties in shape for practical operation, it is hardly likely that the Waterous band mill will escape thoughtful consideration at their hands. All the difference in a season's profits may be in the character of the machinery in use.

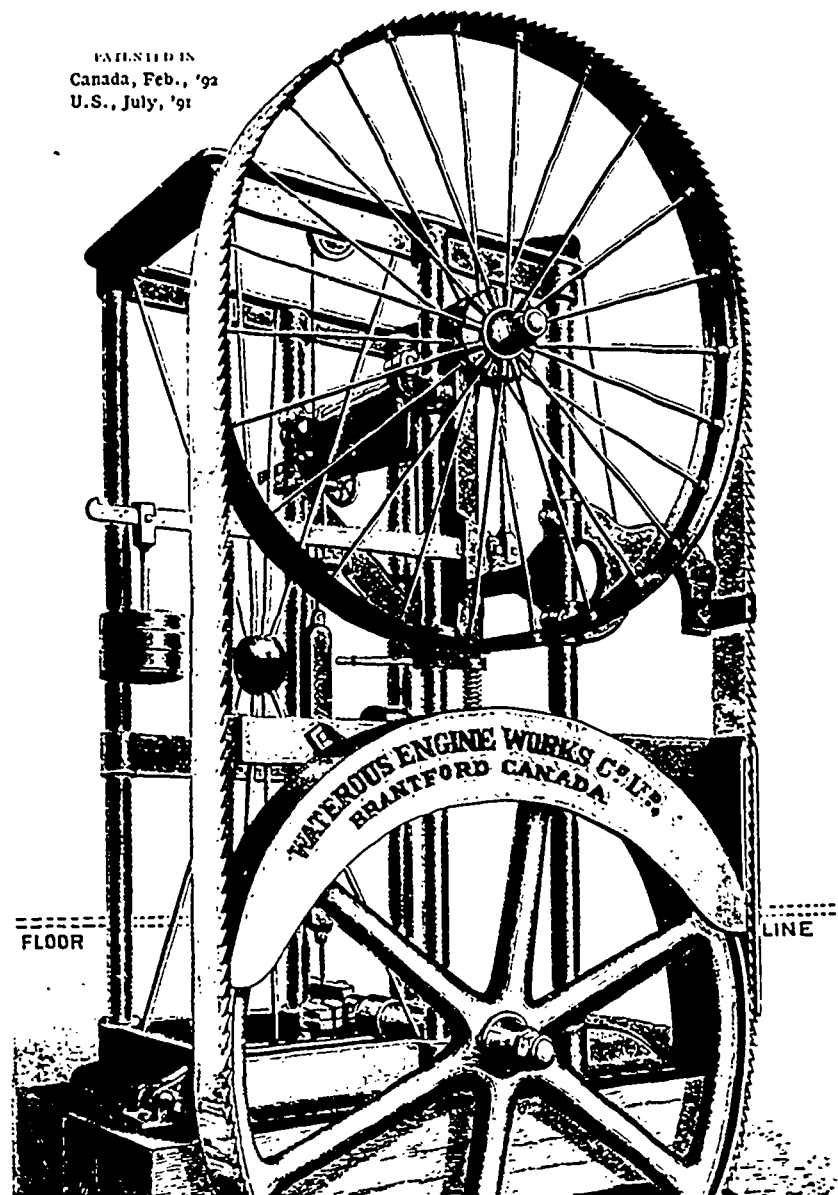
The Company report large sales of their No. 2 mill during December for next season's cut. Anticipating this, they enlarged their works, and put in some heavy special machinery to still further improve in the manufacture of their band mills, and to enable them to meet the increased demand.

We are illustrating in this issue a very important patent decision relating to band mills, which the owners of the patent say will affect nearly every manufacturer of band mills in the States and Canada, viz., all mills using an outer bearing. The Waterous Co., by not using an outer bearing, are not affected by this decision, and claim to have a much better arrangement as described above. Lumbermen buying their mill are in no danger of a claim for infringement of patent being presented.

QUEBEC TIMBER SALE.

CONTRASTED with the recent sale of Ontario timber limits, the Quebec Government sale last month can hardly be pronounced a success. The Crown Lands Department had, it is said, expected that it would receive over \$500,000, whereas the whole amount realized was only \$85,000. Such a thing as spirited bidding, which made the proceedings in the old Parliament buildings here, under the guardianship of auctioneer Ryan, of lively interest to both purchasers and on-lookers, was unknown at the sale in the sister province. One report says that after a short time the upset price and other limitations set by the government were dropped, and the different limits were sold at anything they would bring.

An idea of how prices ran will be gleaned from the fact that lots on the River Batisan, in the St. Maurice agency, were sold to Mr. Power at \$16 per mile; to Messrs. Tremblay, B. A. Scott and Price Bros. & Co., in the Lake St. John agency, at \$22, \$26 and \$7.50 per mile respectively. Other lots were sold at \$4, \$4.50 and \$5 per mile. The highest figure obtained was \$60 per square mile for twelve square miles in the Bonaventure agency. The spruce limits that were disposed of brought rather better prices than the pine. Mr. M. Boyd, of Bobcaygeon, bought nearly one thousand square miles in the Rimouski, Bonaventure and Saguenay agencies at prices running from \$4 to \$7 per square mile.



THE WATEROUS STEEL BAND MILL.

of the carrying over of the upper wheel. The shaft and bearings of the lower wheel are above the sole plate in plain sight and of easy access, unlike the majority of mills where the shaft is hung under the sole plate and difficult of access.

In addition to the six steel columns the mill is further strongly braced as shown in illustration. The lower wheel is protected with a cast iron covering, with a shute for discharging any accumulated dust or bark, while the saw runs through a cast iron lower guide, extending down past the carriage line, protected thoroughly with rawhide guides, which steady the saw and prevent the saw-dust passing down and thus getting between the