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## SAW MILL OF MR. HUGH BLACK.

THE mill which is shown in the accompanying illustration was erected at Fergus, Ont., in the year 1886 by Mr. H. Black, just one year after he commenced business in that town. It is located on the Grand river, which affords splendid facilities for floating logs. The mill is fitted with the usual saw mill machinery and improved shingle machines, a special feature being the arrangement of the machinery to facilitate work with a minimum amount of handling of material. All sawdust and shavings are conveyed direct to boiler room by chutes. Power is provided by a 65 h. p. engine and boiler.

There are commodious yards and sheds in connection with the mill which are well stocked with lumber.

Mr. Black states that this season's drive of logs has been very satisfactory both in quantity and quality.

He gives a keen personal supervision to all details of the work, and this has greatly assisted in building up his business.

## CARE AND ERECTION OF SHAFTING.

A FEW simple rules for the erection and maintenance of line shafting may be interesting to manufacturers who are looking for strict economy and the best results obtainable in this department. In erecting new shafting, says G. P. Clapp in the Canadian Engineer, adjustable hangers should be selected strong enough to do the work required without springing. The width of bearings should be three times the diameter of the shafting. Where a number of pulleys and belts are used bearings should ordinarily be ten, eleven and twelve feet between centres, for 2, 2½ or 3 inch shafting.

When large driving belts, from six to twelve inches wide, are to be used, a strong bearing should be placed on each side of the pulley. A neglect to provide for this important item will result in springing the shaft and causing it to heat in the bearings, besides the liability of breaking from the constant vibration and eccentric motion, which always occurs when shafting is sprung out of line by stress of tight and heavy belting. Shafting should not be fully lined up until all machinery on upper floors is in position. When hangers are attached to floor timbers or ceiling, and the floors are then loaded down with machinery or material, the shafting will always be found badly out of line from the effects of springs floor and timbers. By all means

avoid making a storehouse of buildings where line shafting is extensively used.

When convenient, shafting should be hung on posts having a good foundation in the ground cellar and running directly through the various floors; by this plan the floors may be sprung by varying loads and still the shafting will not be affected. Tallow or grease of any kind should never be used on bearings unless it comes in direct contact with the shafting. Piling grease on the box of a vertical shaft, stuffing it in the oil holes, or in the recess around the oil holes, in the caps of horizontal shafting, is a delusion and a snare. Only the grease that comes in direct contact with the shaft will melt and bearings become so hot that damage is done. The person whose duty it is to look after the shafting will usually depend upon the grease doing the work that he should do with his oil can. Where the writer is employed no one is allowed to use grease as cited above, without risking his posi-

metals, heating is the result. If any good lubricant could be kept between the metals, heating would be almost an impossibility, but when the pressure becomes so great that the lubricant is excluded by an oil-tight joint then the trouble begins. The best and most economical results are obtained by running the main or driving shaft, at as high a rate of speed as is consistent with safety. Experience teaches the fact that the source of power, such as engines and water-wheels, should be driven at the highest convenient speed. The following memo. for the proper size of shafting to transmit a given h.p. at varying speeds may be interesting to some of your numerous readers. Size of shaft 1 ft. in.:

Speed of shafting...	100	125	150	175	200	225	250
H. P. developed...	10½	13	16	19	21	24	26

## ONTARIO FORESTRY COMMISSION.

MEMBERS of the Forestry Commission have recently returned from their initial trip, having visited the townships of Harvey, Burleigh and Galway, in the rear of the County of Peterboro'. The party consisted of Mr. M. J. Butler, representing Mr. E. W. Rathbun; Mr. Thos. Southworth, Clerk of Forestry; Mr. John Bertram, Toronto, and Mr. J. B. McWilliams, of Peterboro'.

Mr. Southworth reports that they found far better prospects for a second crop of pine than they expected. In one block of about 10,000 acres, which is quite unsuitable for cultivation,

they found at least 250 pine trees to the acre. This land was originally free grant land and was burned over 23 years ago. Following the fire came a thick growth of poplar, and in the course of a year or so more the young pine began to appear. The poplars served as a shade for the pines until the pines outgrew them; now they are from 30 to 40 feet high and will average not less than eight inches in diameter. In addition to the pines there are now quite a number of fine young hardwood trees to the acre, and providing this block can be preserved from fire for another 25 years it will be a very valuable timber berth.

The next visit of inspection will be made to the Georgian Bay district.

W. Richardson & Co. Elora, state that their cut this season will be ahead of the two previous years.

An American company has bought out a match factory in Japan, introducing modern machinery, and has begun operations on a large scale. It employs child labor at 12 cents a day. The company claims to be able to drive out all competition.



SAW MILL OF MR. HUGH BLACK, FERGUS, ONT.

tion. More damage has been done to shafting and bearings by this practice than by any other known.

The size of shafting in its relation to its liability of heating and springing is one of great importance. Shafting too small for the work required leads to bad results, not simply from the width of bearings and size of shaft. Insufficient bearings, with a heavy tension on belting, causes the shaft to spring, and this brings the greater part of the strain on the edge of the bearings nearest the tight belt, consequently heating and cutting is the result. Writers on this subject often overlook the fact that there are other causes for hot bearings besides narrow boxes and small shafting. The fact is, bearings are not likely to heat providing oil can be kept between the two metals composing the shafting and bearings. With small shafting and tight belts, so much strain in proportion to the size of the shaft is brought to bear upon the bearings that the pressure makes an oil-tight joint, and the oil failing to penetrate between the two