



AN IMPROVEMENT IN CIRCULAR SAWS.

Our lumbermen and wood-workers will be interested in the improvement in circular saws shown in the engraving on this page. The improvement is a simple one, and yet those who have tried it assure us that its working is most gratifying and effective. It is styled the ventilated or perforated saw, and is one of the many useful inventions of R. H. Hoe & Co. Its style of manufacture has an influence both upon the quality of the saw itself and upon its working, as may be learned from the following review of the results obtained by perforating the blade in the manner shown in the engraving:

The manufacturers of circular saws tell us that all large circular saw plates warp badly in the process of hardening, varying from one to four or five inches from true. The tendency is to dish, because the periphery of the plate cools fastest, and has the same result as shrinking a tire on a wagon wheel. To obviate this difficulty the body of the plate is thickly perforated with circular holes. These allow of the contact of the cold oil and the escape of the gas generated by it and the hot steel, as freely throughout the body of the plate as at the periphery. The whole plate will therefore shrink equally, and remain straight through the entire process of manufacture. Plates frequently break while hardening, and many are broken while being drawn under the hammer, to counteract the buckle produced by hardening. A good working saw cannot be made from a plate that has been badly cast in hardening. The unequal strain of the metal caused by hammering for the purpose of trueing a badly warped plate, is the principal cause of a saw's breaking while in use, or making a bad cut. The small circular holes, instead of weakening the plate (as unprofessionals would suppose), add materially to its strength, and lessen its liability to break while working.

In the working of the saw it is found that all the chip that escapes from the throats of the teeth and is driven between the saw and timber, will fall into the holes and be carried out of the cut, thus relieving the plate from all friction and consequent heating. Furthermore, each beveled hole will act as a fan, causing a rapid current of air to flow through the body of the saw—air in motion absorbs heat rapidly—and will thus prevent the saw from heating. This method of ventilating large circulars is applicable to solid as well as chisel bit saws, and we shall be able to run much thinner saws than those not so perforated.

It will be remembered that the chisel tooth circular saws are also the invention of R. H. Hoe & Co. They have given wide satisfaction according to all accounts that we have seen. These were introduced on this coast by Tatum & Bowen, No. 3 Fremont street, S. F., and the same firm is now introducing the perforated saw which we have described. The perforated saw has been used in the Puget Sound lumber district and the report is that its operation is most satisfactory.

KENT GATE, QUEBEC.

The ceremony of laying the foundation stone of Kent Gate took place at noon in presence of the Mayor and Corporation and many leading citizens. The Vice-Regal party comprised His Excellency and Her Royal Highness, Major De Winton, Hon. Mr. Moreton and Miss Moreton, and Hon. Capt. Harbord, A.D.C. His Excellency wore the star of the Order of St. Michael and St. George. The Princess was attired in a plain black dress and silk jacket, trimmed with crape. The proceedings commenced by the city engineer reading the inscription plate and enumerating the documents and articles deposited in a leaden box which was placed in the stone. Her Royal Highness contributed some English shillings, having finely-cut profiles of Her Majesty, to the collection of coins. The Princess was then presented with an ebony-handled silver trowel, with the following engraved thereon, beneath a representation of the gate:—

Foundation Stone, Kent Gate, Quebec,
Laid by Her Royal Highness Princess Louise,
11th June, 1879.
R. Chambers, Esq., Mayor.
C. Baillargé, Chevalier, City Engineer.

On the reverse side were the letters "L. L." and an embossed likeness of the Princess Louise, intertwined in a wreath of maple leaves, the whole of exquisite workmanship. Her Royal Highness then proceeded to perform the ceremony, and covered the stone with mortar in excellent style, concluding that operation by saying in very audible and distinct words, "I declare this stone well and truly laid, and henceforth it will be called the Kent Gate, and the upper gate is to retain its old name, St. Louis Gate," a little speech which seemed to delight the multitude of on-lookers, who spontaneously rent the air with three cheers for "Her Royal Highness." His Workshop the Mayor then thanked Her Royal Highness for having performed a ceremony of such interest to the loyal citizens of the Ancient Capital, and so interwoven with pleasant historical recollections of her illustrious ancestor, the Duke of Kent, whose memory was revered by the people of this country. His Excellency concluded the ceremony by congratulating the citizens of Quebec upon the laying of the first stone of the Kent Gate, one of a series of gates which would give worthy entrances to their ancient and beautiful city.

HIGH SPEEDS AT SEA.

The extraordinary speeds attained by those remarkable examples of the skill of the 19th century shipbuilder which the last two or three years have brought into prominent notice, cannot fail to exercise some effect upon the construction of our merchant steamers. The builders of our modern Atlantic liners have succeeded in astonishing their fathers, but we do not depreciate their skill and the results they have obtained when we say that the travelling and commercial world will not remain satisfied with even 16 knots an hour in fine and fair weather, and 18 knots throughout the passage in spite of wind and storm. To those who know or can apprehend what the fury of an Atlantic storm really means, we need scarcely say that the construction of a vessel which shall safely traverse 3,000 miles in all weathers with a punctuality that puts to shame some of our railway lines, is no mean achievement; and if we hint that still better results may be and ought to be attained, it must be understood that we merely think that where so much has been done more can be accomplished. Trial after trial of the new style of torpedo launch has been made within recent years, and each time a higher speed has been attained, and recently the highest rate of travelling through the water yet known was shown in the trial of Messrs. Yarrow & Co.'s new torpedo-boat. Three pairs of runs were made in Long Reach, with and against tide, and in the last pair—the best, because the engines had been put on their best behaviour—the mean speed was very nearly 22½ knots per hour. That rate, by the Admiralty scale, represents the extraordinary speed of more than 25½ miles per hour. Such a speed is, we need scarcely say, the highest yet attained by anything afloat, but it is noticeable also from the fact that although, when running at rates varying from 17 to 19 knots, the vibration was so considerable as to be unpleasant, the shaking disappeared entirely when 20 knots was attained. At the highest speeds, in fact, the vibration was so completely reduced that it was possible to write legibly on a portion of the vessel immediately over the propeller. We do not pretend to offer any explanation of this phenomenon; it is sufficient that it is a fact, the elucidation of which may probably lead to a revolution in our methods of ship-