

Our Industries.

No. XI.—R. Bell & Co., Limited, Wellington.

In 1894 the first match factory in Australasia opened its doors in Wellington, fully enough equipped to invite and withstand the hardest criticism from the few who scoffed at the attempt to establish such an industry in this colony of ours. Speaking at the opening ceremony, the Premier, the late Mr. Seddon, said: "It behoves the Government to foster an industry established in the colony which would not only keep the money in the colony, but which would also provide work for the sons and daughters of New Zealand, and I see no reason why Wellington should not be capable of supplying not only New Zealand with wax vestas, but also the whole of the South Pacific group."

The venture, it is well to know, has by this fully justified its inception, and is at once a credit to New Zealand and a satisfactory sequence to the efforts of those who were responsible for the introduction of the private capital essential to the ultimate success of such a concern.

In reviewing the present-day operations of this important industry it cannot be overlooked that Messrs. Bell & Co. have done much to keep the importation of foreign-made matches down to the very lowest returns, and thus we come to realise that their establishment is fraught with potentialities of great moment to the colony. In addition, it should be noticed that the factory gives employment of a light nature to hundreds of girls, and at wages far in excess of those ruling in other occupations to which female labour is best suited; and Mr. Walter M'Lay, manager of the factory, is of opinion that if a full complement of hands were only procurable it would be possible to double the present output, which reaches in busy times as high a figure as 2000 gross of boxes *per diem*. The girls at work evince the smartness and energy which seem to be the inseparable accompaniments of the piece-work system. Their interests are protected by a registered union and the rates of wages are fixed by the Arbitration Court. The representative of PROGRESS examined the pay sheets of the Company for the last four weeks, from which twelve girls' names appearing consecutively were taken, and the wages earned and hours worked by those girls were as follows:—

Wage.	Hours.	Wage.	Hours.	Wage.	Hours.	Wage.	Hours.
s. d.		s. d.		s. d.		s. d.	
26 6	45	26 3	45	25 5	45	25 6	45
25 1	44½	21 6	40	23 9	45	23 6	43
21 0	44½	20 6	41¾	19 2	45	20 3	44
28 2	45	20 11	35	25 1	45	27 0	45
20 0	45	16 6	38	19 10	45	21 8	45
15 0	45	13 6	44	11 2	40	13 4	37
15 3	42¾	13 8	41	15 3	45	20 0	41
35 3	45	35 10	45	24 0	34	27 3	36¾
11 9	32½	15 6	45	8 0	28½	15 6	43
10 0	25	18 9	44	13 7	32½	20 0	45
30 11	42½	36 0	45	31 9	45	35 9	45
24 0	41	25 6	45	21 6	45	26 5	45

Messrs. Bell's factory at Newtown is divided off into two main sections—the matchmaking and the boxmaking. The raw materials which form the basis of manufacture are: phosphorus, wax, cotton, glue,

a great reel, and from this drum they are wound off on to the other drum, and are now sufficiently advanced to be called "taper." The process goes on until, at the end of the sixth round, the taper is of the necessary roundness, smoothness, and consistency. Three or four hands are at the work; one feeds the cotton from the hanks, paying it out quickly and regulating the motion by keeping a good brake grip on

the bulk of moving taper; another attends to the machinery, others to the guiding. Every now and then the taper becomes obstreperous, sticks where it ought not to, has to be seized, straightened, humoured, while the machinery is stopped and got ready for another spin. When the taper is complete it is wound off on to smaller reels, and from the reels it is transferred to what are known as frame filling machines. These frame filling machines are each capable of cutting to the required length 320,000 tapers an hour, and they are semi-automatic in action. Taper is fed

into it in lengths about 50 or 60 abreast. The operator stands with her foot on a treadle which works a knife. Her hands are busy with the frame. The frame is filled with laths covered on each side with felt. She drops the lowest lath, leaving a vacant space. The taper, 60 abreast, is fed into the space, the treadle moves, down comes the knife, and 60 matches are cut off from the taper lying on the lath. The hands deftly drop the next lath, in goes the taper again, down comes the knife, and we have 60 more matches; and so on until the frame is filled with matches in rows, separated from each other by a felt-covered lath. When full the frame is screwed down, and it is ready to be carried away. It looks like a newspaper "forme," with matches standing on end instead of type. Trollies are ready to



THE DIPPING PROCESS THE LAYER OF PHOSPHOROUS IS SEEN ON THE SLAB IMMEDIATELY IN FRONT OF THE OPERATOR, WHO PLACES HIS FRAME, FILLED WITH TAPERS, ON THE LAYER, AND THE MATCH IS THEREUPON "HEADED."

chlorate of potash, and straw-board. We shall see to what uses these ingredients are subjected as we proceed.

There are two large drums, one at each side of the factory, with a little wax tank half way or so between, and a small vertical engine forming the motive power. The cotton threads are passed in suitable thicknesses through a perforated plate, the engine is set in motion, the drums revolve, the cotton threads are gripped, and dragged first through the tank aforesaid, in which is a solution of stearine and gum—yclept wax. The mixture is kept hot by steam, and the threads are, in fact, dipped in it, being forced down by an ingenious iron clamping arrangement. They pass out of the tank through almost numberless guides, and are led to the first drum, which winds them up into



THE TAPERS BEING FED FROM REELS INTO THE FRAME FILLING MACHINE.