

Messrs. G. M. Cossitt & Bro., and the J. W. Mann Manufacturing Co., Brockville, Ont.; the Wilkinson Plow Co., Aurora, Ont.; Messrs. John Elliott & Sons, London, Ont.; Mr. Peter Hamilton, Peterborough, Ont.; Mr. L. McLaughlin, Messrs. Coulthard, Scott & Co., the Masson Manufacturing Co. and Mr. John Livingstone, trustee of the Joseph Hall Machine Co., Oshawa, Ont.; Messrs. Frost & Wood and Mr. Jas. H. Gould, Smith's Falls, Ont.; Messrs. T. Pepper & Co., Guelph, Ont.; Messrs. Warnock & Co. and Linton, Lake & Co., Galt, Ont.

#### JOHN DOTY ENGINE COMPANY.

The exhibit of the John Doty Engine Company, shown in Machinery Hall, attracts a great deal of interest, steam engines, dynamos and electric appliances, and other machinery manufactured by them being displayed in great variety, and much of it in active operation.

This company manufacture the new "Otto" silent gas engine, and they justly claim for it that among its points of excellence are that it is safe, convenient and economical. It requires no boiler, coal, steam, gauges, fires nor pumps; there is no ashes, no unpleasant heat, and no danger from explosions; it requires no engineer, and involves no extra fire insurance; can be started instantly with a match; is always ready to give out its full power at once, and the expense of operating it ceases entirely when the engine is stopped. Wherever power is required at intervals and connection can be made with the gas mains, its convenience and economy are apparent. The quantity of gas required in the "Otto" engine, averages for the different sizes, eighteen cubic feet of gas per indicated horse power per hour, which, at the varying cost of gas from \$1 to \$2 per 1,000 cubic feet, a cost of from two to four cents per hour. Their constant readiness for work and perfect safety render gas engines remarkably cheap and convenient in stores and warehouses, and they have been widely adopted in school houses, hospitals, hotels and public buildings for pumping and ventilating purposes, and they are specially adapted for blowing organs, driving coffee and spice mills, sewing machines, boot and shoe making, etc. Messrs. Bingham & Webber, Toronto, who operated one of these "Otto" engines of four horse power, state that for a space covering fourteen months they worked an average of 9½ hours per day, and that, paying \$1.25 per thousand feet for gas, the average cost for gas for the time indicated was \$10.93 per month. These engines are made in sizes indicating one, two, four, seven and ten horse power, and over 25,000 of them are in use in Canada, England and the United States.

Another specialty of the John Doty Engine Company is the manufacture of the Armington & Sims automatic cut-off engine. An automatic engine is one in which the steam is admitted to the cylinder at full boiler pressure and allowed to follow as far as may be necessary for the work required, and then cut off by a mechanical action embodied in the engine itself, the steam being allowed to follow at full boiler pressure for a portion of the stroke, and working expansively for the balance. The regulation of the speed of the engine for varying loads is obtained by varying the point at which the steam is cut off. Certain economical limits of cut-off are established, and the governor controls the admission valve in such a manner as to cut off the steam according to the load, thus maintaining regular speed. These engines are specially adapted to work where great regularity of motion is essential, and they have been selected by a great many users of electricity for driving dynamos. Regarding its use for electrical purposes Mr. Thomas A. Edison states that after having tried various types of engines he had found the Armington & Sims the best, for simplicity of construction, excellence of workmanship, durability and economy; and that he could not see any possible fault to be found with it, or what improvement in its mechanism could be suggested.

This company also manufacture variable cut off, plain slide valve, vertical, hoisting and other engines, boilers of all descriptions, saw mill machinery, iron and brass castings, etc.

A fine display of machinery, engines, etc., manufactured by this company is to be seen at the Permanent Exhibition of Manufactures of Messrs. Nicholls & Howland, Front street west, Toronto.

#### THE TORONTO RUBBER COMPANY OF CANADA.

Messrs. T. McIlroy, Jr. & Co. 28 King street west, Toronto, representing the Toronto Rubber Company of Canada, make a very comprehensive exhibit in the Main Building of the Exhibition of many of the lines of rubber goods manufactured by them. This includes belting, steam and piston packing, gum valves, gaskets, tubing, fire, steam, garden, oil, brewers' suction and other hose; large suction hose for wrecking, mining and similar purposes; carriage

cloths, wagon and car springs; foot and table mats; matting; printers' and lithographers' blankets; wringer rolls and rubber covered rollers; rubber clothing of all descriptions, both lustre and dull finished; aprons, pouches, sportsmen's outfits, ladies' waterproof garments, gloves and mittens; druggists articles—syringes, atomizers, breast pumps, shields and nipples, nursery goods, surgeon's bandages, and bottle stoppers; air beds and pillows; bath tubs; carriage and hospital cushions; round and oval bed pans; invalid chair cushions, water bottles and bags; life preservers, gas bags, hardware, saddlery and stable goods; spittoons, elastic foreo cups for instantly cleaning the discharge pipes of wash bowls, bath tubs, etc.; piano and billiard table covers; window cleaners, combs and other fancy goods of all descriptions; dress shields, stationers' goods—bands, rings, erasers, rulers, etc.; balls, dolls in endless variety and sizes, etc. They also furnish submarine outfits for divers, including 3-cylinder air pumps, helmets, diving dresses, hose, etc.

A special feature of the business of Messrs. McIlroy & Co.'s is the manufacture of cotton and linen hose of every description, for fire department service and similar purposes; couplings, pipes, connections, etc., being furnished therewith when requested. This hose includes the celebrated brands "Eureka," a triple or three ply; "Paragon," a double, or two ply; and "Red Cross," a single ply; also "Eureka Mill Hose," a single cotton hose, rubber lined; "Eureka Garden Hose," single, rubber lined; "Seamless Linen Hose," rubber lined and also plain, and sewed mining and tank hose.

An assortment of specimens of the products of this company are displayed at Messrs. Nicholls & Howland's Permanent Exhibition of Manufactures, on Front street, Toronto.

#### HEINTZMAN & CO.

Messrs. HEINTZMAN & Co., 117 King street west, Toronto, have a magnificent display of pianos, manufactured by them, near the eastern entrance of the Main Building of the Exhibition, which attracts the attention of all visitors. Their space is adorned and fitted up with elegant taste, and presents the appearance of a lady's boudoir with a plethora of pianos. The instruments which they show are Concert Grand, Parlor Grand, Upright Grand, Square Grand and smaller uprights. The cases of these instruments are particularly noticeable for their richness and elegance, and the value of the woods of which they are made—rosewood, mahogany, burl walnut, blister walnut, ebony, etc., some of them being very effectively trimmed with bird-eye maple and other similar valuable woods. These cases are built up of several thicknesses of wood, the grain of which runs transversely to each other, all securely glued together, which gives great strength and rigidity, and makes any checking, warping or splitting of the veneering impossible. The iron frames of these pianos, which sustain the enormous strain incident to the tightening of the strings, are not only sufficiently heavy and strong for the purpose for which they are intended, but display a great deal of artistic taste in their moulded ornamentation as well as in their painting and gilding. A special feature introduced exclusively into these pianos is the Heintzman patent duplex bridge, which is used in all this firm's grand and square instruments, and which secures to them that very clear and distinctly singing quality which musicians deem so desirable. The improvements here alluded to, and other peculiar arrangements embodied in the Heintzman pianos, have elicited the admiration and approval of the very best musical critics, as will be seen by reports from the recent Colonial and Indian Exhibition in London, at which a commemorative bronze medal was awarded to Messrs. Heintzman & Co. Regarding the duplex bridge here alluded to, it is described as having a down pressure-bar between the two bearings of the strings on the bridge, so that when the pressure-bar screws are tightened down the strings bear hard upon the bearings. The bridge is let into the wrest-plank about a quarter of an inch, which adds much to its solidity and strength, and effecting the peculiar sparkling tone spoken of. Other special features embodied in the Heintzman pianos include a patent ring bridge applied to the sounding board, which causes the production of a very full, clear, rich bass; an improved action in the upright instruments which renders them less complicated and less liable to derangement; a new metallic flange for the hammer butt to work in—a decided improvement over the old style wooden butt, and a new and novel arrangement of the music rack for uprights, by which the music is brought lower and more conveniently within the range of vision of the player—a feature that all musicians will appreciate.

The display of Messrs. Heintzman is crowded at all times with delighted auditors, irresistibly attracted by the harmonious tones of their instruments—a tribute to their excellence which manufacturers appreciate, and which leads to many sales.