

THE CANADIAN MANUFACTURER

And Industrial World.

Vol. I.

TORONTO, ONT., MAY 26, 1882.

No. 11.

AMERICAN BICYCLES.

Yankee genius, as exhibited in the manufacture of bicycles, is quite remarkable as compared with the prosy doings of our English brothers, whose ease and wealth led them to first adopt the two-wheeled go-cart as a means of pleasure and healthy exercise. The manufacturers in America have far exceeded those across the water in style and workmanship, as well as having built up the business to much larger proportions. The Pope Manufacturing Company, of Boston, the largest manufacturers in America, have a larger capacity than all English makers together. Their latest product is the "Expert Columbia," which we illustrate herewith.

The Expert, Fig. 1, is made of the best quality steel throughout, with special attention given to the quality or degree of hardness of steel for different parts, attention being given to lateral and torsional strains, as well as for wearing and resistance to bending.

The cylindrical centre steering head is used, with the new hemispherical or ball-steering centre, as shown in Fig. 2.

The handle bar is made in two parts, each of which is firmly screwed and fastened into the lug on the head, with a double shoulder, in a new and improved manner, as shown in Fig. 3. The handle bars are from 22 to 25 inches in length, the handles being made of vulcanite rubber, which has been found the most elastic and more readily held in the hand. The neck and spindle is of solid steel, drop forged, strength and symmetry being observed in its shape.

The perch or back bone is of the best weldless steel tube $1\frac{3}{8}$ inches in diameter, tapered both ways, and of such shape

and thickness of shell as to be thoroughly rigid and strong. The tires are moulded of the best Para rubber, spliced before vulcanizing, thus rendering them the same in strength and effect as if made in endless mould. The wheels are made with care and of the best of materials. The axles are of high grade steel and being quite short are equal to any strain that may be imposed upon them. The hubs or flanges of forward wheel are of steel, drop forged, and threaded and pinned to

the axle. The cranks, which are closely fitted and keyed to the axle, as shown in Fig. 4, are of approved pattern as regards thickness and width. A new plan pedal has lately been introduced, which has parallel bearings in case-hardened bushings. They are light, narrow, and finely finished and neatly protected from access of dust.

To do away with friction and to make a serviceable and noiseless bearing, this company are now using a late patent of theirs in ball bearings. These bearings are shown in Figs. 5 and 7. It consists of a one-part box, a two-part sleeve, and a circular row of balls, by which both journal and pivot friction are effectively reduced to a minimum.

The back wheel, Fig. 6, that highly important factor in the proper behavior of the bicycle, is provided with the ball bearing, as shown in Fig. 7. The hubs are of steel, drop forged, and the single row of balls on each side is in a hardened box set in, and the whole is so constructed that the adjustment is effected by turning one cone with its annulus. In these ball bearings, the greatest accuracy in size and sphericity of the balls is attained by means of improved machinery, the balls being carefully tempered, tested, and polished.

The machine which has already made a reputation for this

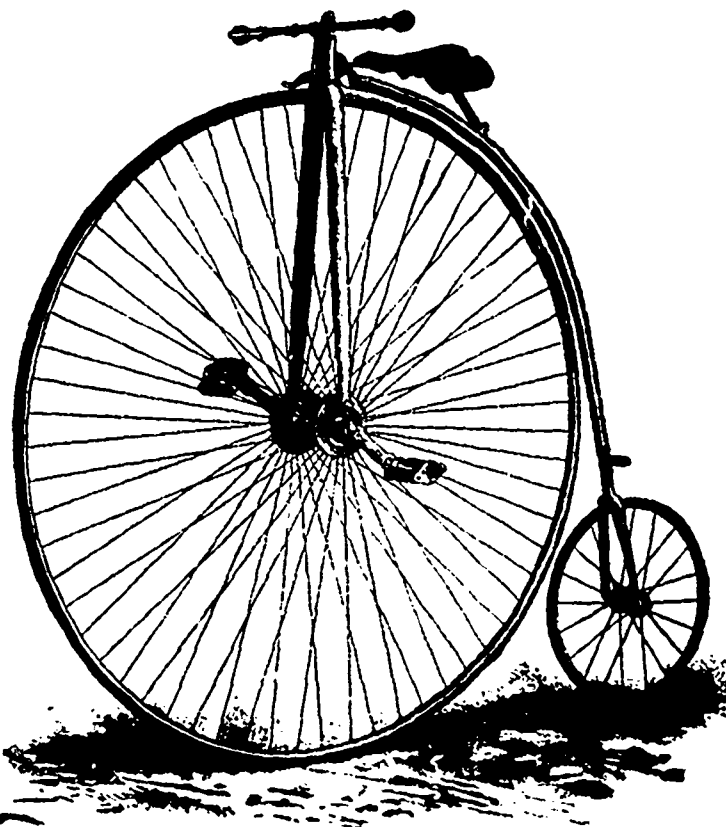


FIG. 1.