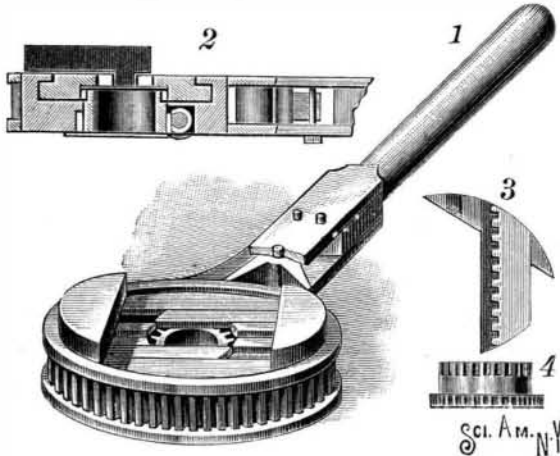


**AN IMPROVED WRENCH.**

The tool shown in the illustration has a wide range, for adjustment to various sizes of nuts, and is of such form that it may be conveniently used in places where it would be impossible to employ the common forms of wrenches. Fig. 1 is a view in perspective, partly broken away, Fig. 2 being a longitudinal section, while Fig. 3 shows one of the jaws and the sliding block to which it is fixed, and Fig. 4 represents the central gear for operating the parts. Two circular bands, with shanks attached to the handle, inclose the circular body of the wrench mounted in the head, and extending across the face of the body are undercut parallel recesses to receive the sliding blocks of the jaws, there being on the opposite face of the body a circular recess to receive the center gear, and a side recess in which the worm for



**McINTOSH'S WRENCH.**

operating the gear is mounted. The jaws protrude from one face of the wrench, and are made integral with the sliding blocks, the jaws also having depending tongues moving between parallel bars of the wrench body, which guide and strengthen the jaws, the bars being cut away in the center to permit the passage of a bolt through the wrench. The central gear has teeth on its inner end engaging with the teeth on the jaw blocks; and on its larger end are teeth engaging a worm, mounted in a recess at right angles to the gear, the worm having at its outer end a milled thumb-wheel, by turning which the gear will be actuated to force the jaws together or apart. Pivoted in the shank portion of the wrench is a two-armed pawl, either arm of the pawl being adapted to engage the teeth on the circumference of the body portion of the wrench mounted in the head, according to the way the wrench is to be turned. The desired adjustment of the pawl is effected by means of a spring plate, which projects from the rear portion of the body, in position to engage one of two pins in the rear portion of the wrench shank, by means of which the pawl may be held with either arm in engagement with the wrench body.

This improvement has been patented by Mr. C. A. McIntosh, of No. 709 Sixth Avenue, Vancouver, British Columbia, Canada.

**THE HORTICULTURAL BUILDING.**

The illustration given representing Horticultural Hall, of the World's Columbian Exposition, is from the approved designs, and will be of great interest. The building is situated immediately south of the entrance to Jackson Park from the Midway Plaisance, and faces the lagoon. In front is a flower terrace for outside exhibits, including tanks for nymphæas and the Victoria regia. The front of the terrace, with its low parapet between large vases, borders the water, and its center forms a boat landing.

The building is 1,000 feet long, with an extreme width of 286 feet. The plan is a central pavilion, with two end pavilions each connected to the center pavilion by front and rear curtains, forming two interior courts, each 88 by 270 feet. These courts are beautifully decorated in color and planted with ornamental shrubs and flowers. The center pavilion is roofed by a crystal dome 187 feet in diameter and 113 feet high, under which will be exhibited the tallest palms, bamboos, and tree ferns that can be procured. There is a gallery in each of the pavilions. The galleries of the end pavilions are designed for cafes, the situation and the surroundings being particularly well adapted to recreation and refreshment. These cafes are surrounded by an arcade on three sides, from which charming views of the ground can be obtained.

In this building will be exhibited all the varieties of flowers, plants, vines, seeds, horticultural implements, etc. Those exhibits requiring sunshine and light will be shown within the rear curtains, where the roof is entirely of glass and not too far removed from the plants. The front curtains and under the galleries are designed for exhibits that require only the ordinary amount of light. Provision is made to heat such parts as require it.

The exterior of the building is a staff or stucco, tinted a soft, warm buff, color being reserved for the interior and the courts. The appropriation for this building is \$400,000. It will probably be built for something less than this sum. The architect is Mr. C. O. Jones.

**AN IMPROVED VELOCIPEDE.**

The illustration represents a simple and effective mechanism for steering or guiding a velocipede, the construction being such that when two small forward wheels are employed both of them may be made to act as steering wheels. The guard for the rear drive wheel is also maintained at the same distance from the periphery of the wheel, whether the latter be raised by obstructions or travels upon smooth ground. The backbone of the machine is preferably tubular, and each member of the fork at its rear extremity is formed with two spaced horns, somewhat of the shape of the letter C, the rear or drive wheel being mounted on an axle turning in bearing blocks supported on the lower horns. Attached to the axle is a sprocket wheel, connected by belt in the usual way with a sprocket wheel on the pedal shaft, and the guard over the drive wheel is directly connected with the bearing blocks by means of central and side arms, the central

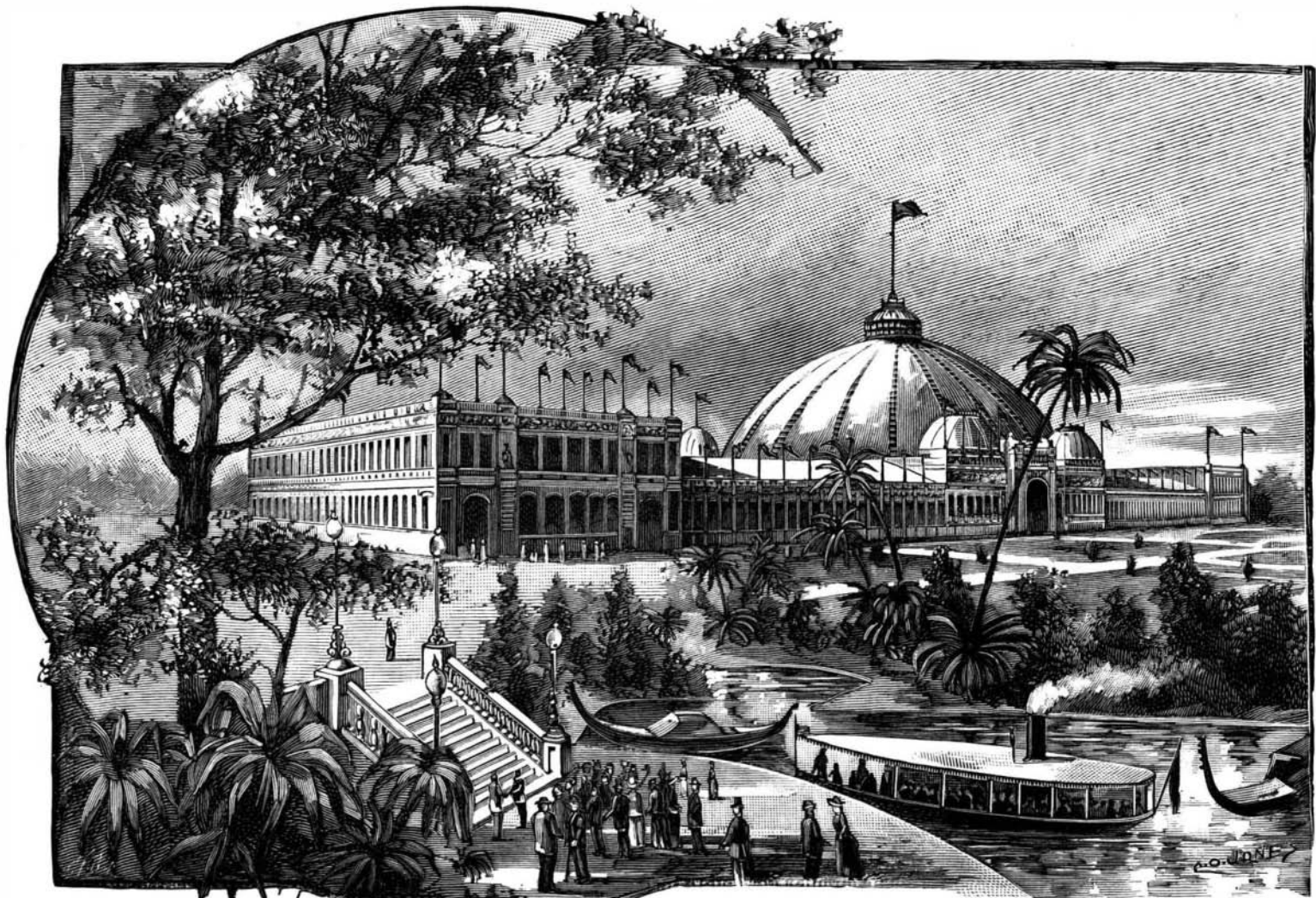
arms being carried downward through apertures in the upper horns of the fork. The central arms are slightly curved between the upper arms of the fork and the bearing block, and around this portion are coiled springs. Rods or bars also pass downward from the seat-supporting member, and are secured to the upper and lower horns on each side, these rods passing through apertures in the bearing blocks and springs being coiled around them to rest upon the bearing blocks and bear also against the upper horns of the fork. The guard is thus always held at the same distance above the wheel, but the bearing blocks as they rise compress both sets of springs,



**LESSELLS' VELOCIPEDE.**

which force the blocks downward as soon as the obstruction is passed. At the center of the forward axle is a block having a circular opening through which passes a short shaft, parallel with a forwardly and upwardly extending portion of the backbone, the shaft being held to turn in hangers or brackets from this member. This shaft has a longitudinal groove in which a rib of the block centers, and between the upper and the intermediate hanger is a second block, which may serve as a bearing for the axle should it be desirable to use forward wheels of a larger size. Springs are coiled around the shaft between the blocks and hangers, and at the upper end of the shaft is a bevel gear meshing with a gear on the lower end of the steering shaft. On this shaft is a regulator, consisting of a semicircular rod, fitted over the upper forward member of the backbone, and carrying coiled springs arranged in such a way that the turning of the steering wheels will compress one of the springs, the wheels being returned to straight position by the springs when the steering shaft is released by the rider.

This invention has been patented by Mr. Allan H. Lessells, of No. 18 Balmoral Road, New Brighton, Cheshire, England.



**THE WORLD'S COLUMBIAN EXPOSITION—THE HORTICULTURAL BUILDING.**