

WATER-BICYCLES.

BY EMMETT P. BUNYEA.

A REVOLUTION in the method of aquatic propulsion is a thing of the near future.

Not alone in the matter of foot-propelled water contrivances for sportsmen has the modern inventor who devotes himself to this class of experiments been working. He has apparently pictured to himself the possibility of devising a leg-propelled boat for quiet waters that would prove profitable from a commercial standpoint in the lighter water-carried trade. Numerous patents of seeming practicability have been issued for small leg-operated freighters of this description.

One of the most ingenious inventions to date of this type is the combined land, water and ice bicycle. When, and if this invention comes into general use, it will be quite feasible for the man who lives, for instance, in Jersey City, to make use of the same machine in paddling himself across the Hudson River to New York, riding over the cobbles from his landing point to Central Park, and skating over the ice of the lake when he gets there.

Something over a hundred patents have been issued in the United States for various forms of cycle boats. About thirty years ago this field of investigation seemed to appeal to the imaginations of the inventors of that day as strongly as the aerial navigation problem appeals to the scientists of the present day. But the cycle-boat enthusiasm of a generation ago died out; and it is only since the universal popularization of the bicycle that the infinitely better-equipped inventors of the present day have devoted their attention, with such remarkable results, to the development of the marine cycle.

These boats usually consist of two hollow, air-tight tubes or floats, tapering at their ends to a sharp point, so as

to offer as little resistance to the water as possible. A light paddle-wheel is ordinarily mounted between the tubes, and operated by cranks and pedals to propel the craft.

The land, water and ice bicycle, illustrations of which are given here, is the invention of a Louisiana patentee.

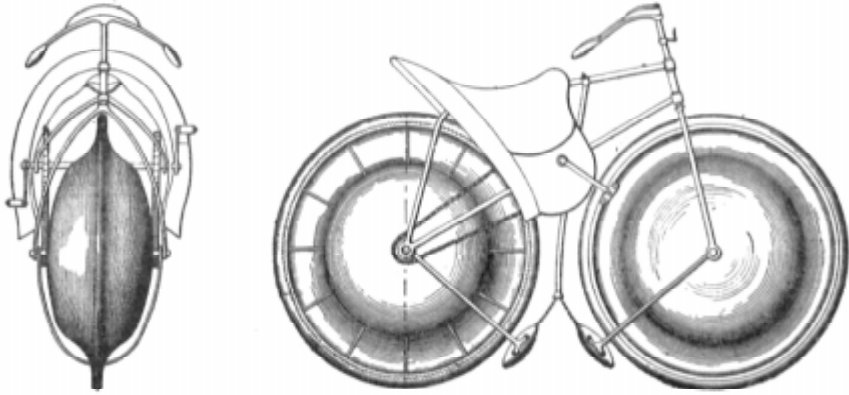
The wheels of this bicycle are made of thin sheet copper or other non-corrosive metal, of hollow and air-tight construction, as shown in the front view. The rear wheel has a number of paddles or buckets extending outward from the sides, near the tire, which serve to propel the machine through the water. The wheels, being filled with air, are sufficiently buoyant to sustain the weight, of the bicycle and rider. Counterbalance weights, suspended from a central rod between the wheels, assist in keeping the device upright in the water. The saddle is large, and extends far over the rear wheel, to protect the rider from being splashed. Ordinary rubber tires are used on the wheels, and the machine may be operated in the ordinary way for land service. When it is desired to use the contrivance on ice, the rear tire is removed. The rim of this wheel is provided with a roughened or corrugated surface, having little points, which contact with the ice and propel the wheel. The machine has operated perfectly at several exacting trials of all three of its functions, and a good many of them will probably be seen in the larger cities during the coming season.*

A pedal-operated boat, designed for rapid riding and even racing, was recently patented. At one of the Southern coast resorts a millionaire with a penchant for testing new inventions, frequently attained a speed of over fourteen knots an hour with this machine. The boat is illustrated in side view.

*The reply of an expert to whom we submitted the foregoing article was as follows: Figure 1 possesses one glaring mechanical absurdity. Throw the crank around until it points upward, and the pedal will be about on a level with the top of the seat, for which reason the riding of it would be an acrobatic feat out of the ordinary possibilities of contemporary humanity. Nor does it appear by what method of construction the distance between the saddle and pedals could be sufficiently lengthened. The adaptability of one mechanism to land, water and ice, as claimed, by mere structural changes in the wheels, presents difficulties of which, carriage of parts

at times in use and at times removed, excessive weight, clumsiness, etc., would form a part. The "tread," shown on the front view of Figure 2, is wider than the extreme range of the handle-bars, and about equal to the diameter of the front wheel—say 28 or 30 inches. The reader will be effectively convinced of the absurdity of this construction if he will spread his feet even 20 inches apart, and imagine the delight of self-propulsion under these conditions. And there would seem to be no way of narrowing this tread while the wheels must be large and wide enough to hold sufficient air for the floating of machine and rider.

THE PROWLER.



COMBINED LAND, WATER AND ICE BICYCLE.

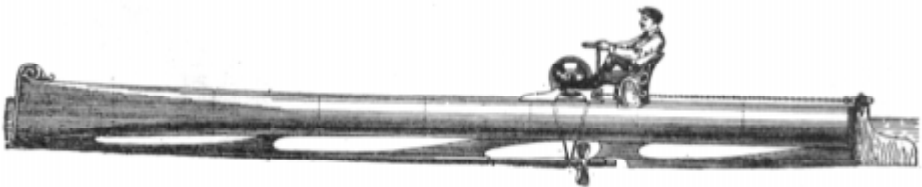
The hull or body of the boat is a thin, non-corroding sheet-metal tube, which, to render it buoyant, is filled with air. The bow end of the tube is flattened to serve as a prow, and a heavy metal keel is secured to the bottom to give stability to the craft. Just aft amidships the operator sits in a chair rising from the hull, and uses the foot-pedals, which revolve a propeller-shaft carrying a screw-wheel set in a recess in the keel. The rudder is operated by a hand-wheel within reach of the navigator. The great speed of this comparatively simple contrivance is due to its very slight displacement, its remarkable buoyancy, and its powerful propelling medium. Facing the bow the rider has full control of the speed and direction of the craft; and men who have operated the machine say that it does not involve nearly as much fatigue as a ride on an ordinary bicycle over a country road.

The pleasure boat of this class which has already attained the greatest popularity is the hydrocycle, of which illustrations (No. 4) are here presented. It is a craft capable of seating as many persons as the ordinary launch or rowboat, and the difficulty of operating it is not great. Marine velocipedes of this general type have been in progress of per-

fection for several years, but it was only recently that the hydrocycle became a commercial possibility. The one here pictured embodies so many features of improved construction that it may be safely regarded as a generic invention.

The two bobbin-shaped tubes or floats are set at a sufficient distance apart to give great stability to the craft, and to make it absolutely safe, even in extremely rough water. Upon a small deck supported between the floats are seats for the two persons who operate the boat. Foot-pedals for operating the paddle-wheel are to be used by one person, and hand-levers may be used by the other. The rudders—one at the stern end of each float—are connected by sprocket chains to a handle-bar similar to those in use on bicycles. The craft responds instantly to the action of these rudders. The paddle-wheel is housed in, so that in the roughest weather there is no danger of the operators getting wet.

The sensation of riding a hydrocycle is exhilarating. Seated at an excellent altitude above the level of the water, and with a splendid range of vision; skimming along at a good speed, noiselessly, and without the jarring, and often nauseating, motion of a rowboat, there is a kind of enjoyment in this mode of



THE TUBULAR RACING MACHINE.

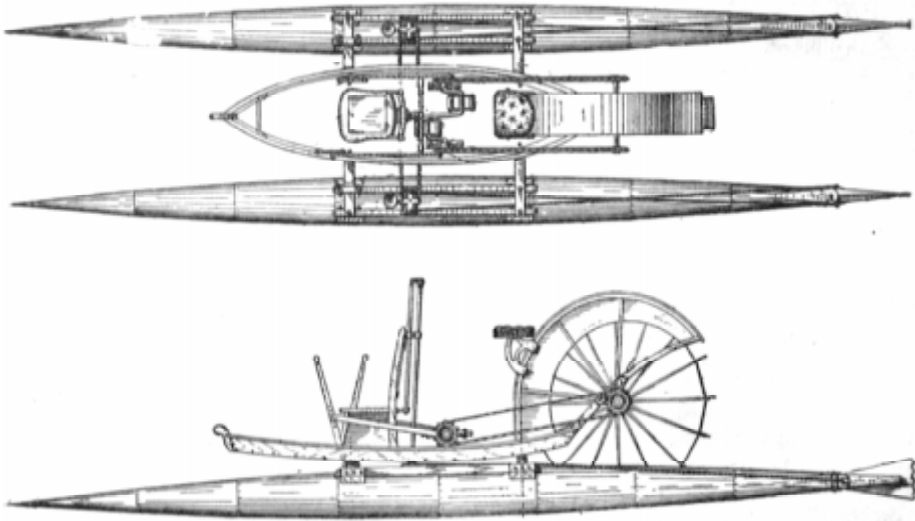
water-locomotion that the boatmen who are now wearing out their arms will be quick to appreciate when the hydrocycle begins to become a common sight. The craft is so easily controlled that it may

be completely turned about within its length. It can be propelled backward or forward with equal facility. The speed is both constant and accelerated at the pleasure of the rider.*

*The hydrocycle in some form or other, possibly approximated by the illustrations shown below, is plainly inevitable, both for purposes of sport and for service. In a successful type the rider must be kept entirely out of the water, as well as the main part of the propelling mechanism. The position of the rider must be different from that shown, for the power of the leg cannot be

economically or speedily exerted when the pedals are on a level with the seat. No great difficulty will arise, however, in the mere matter of adjustment of position. Several inventors are working along these lines, and without doubt, practicable hydrocycles will be frequent sights on our inland lakes and rivers within a very few years.

THE PROWLER.



THE HYDROCYCLE.

WHOM THE GODS LOVE.

BY GEORGIA CUSTIS.

“WHOM the gods love, die young.” Ah, yes! The words have deeper meaning than we guess.

Whom the gods love! the brave, the pure,
The chivalrous, the patient to endure—

These the gods love, to these impart
The magic secrets of great Nature's heart;
Such grow not old, can never be
But young, come death however tardily.

