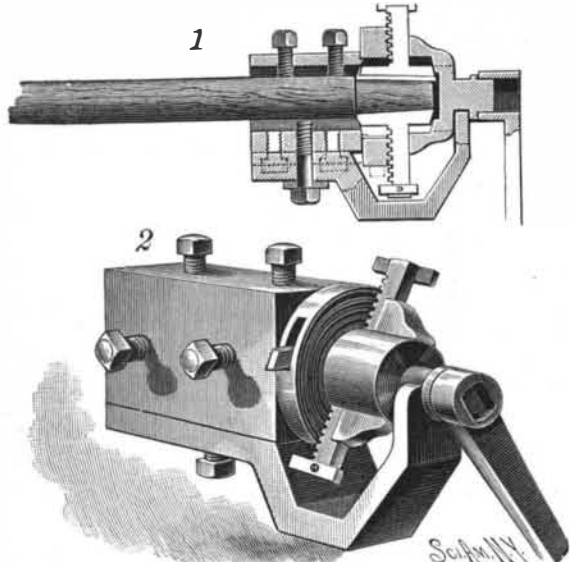


AN IMPROVED MACHINE FOR TURNING TENONS.

The accompanying illustration represents a machine especially adapted for use in connection with vehicle spokes, and with which a tenon may be turned of any desired depth, the cutters then being automatically released. The invention forms the subject of a patent issued to Mr. Wilson Rogers, of Barboursville, West Va. Fig. 1 represents a longitudinal vertical section of the machine, and Fig. 2 a view in perspective. In the

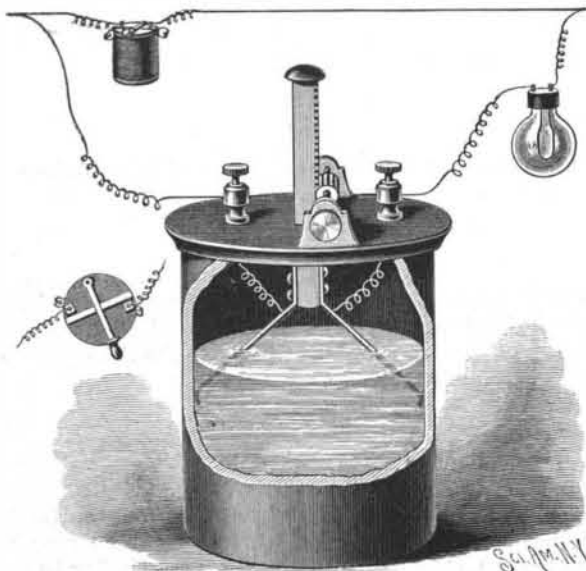


ROGERS' MACHINE FOR TURNING TENONS.

sides and top of a stationary casing are threaded apertures, each adapted to receive a set screw to engage the sides of the spoke and hold it in fixed position, while the base supporting the casing has a central slot through which three set screws are passed, the longer one retaining the casing in firm contact with the base, a longitudinal rib upon the bottom of the casing being adapted to enter a groove in the base. At the inner end of the casing the base is stepped downward to form a yoke portion, in which is held a rotary cylinder, abutting against the casing, and having longitudinal slots adapted for the reception of cutters located within the cylinder. The inner end of the fixed casing has a circular reduced section, upon which is snugly fitted a ring having a screw thread on its outer face, the ring having a recess in its periphery in which is pivoted a pawl adapted to enter a recess in the reduced portion of the casing. The cutters have a straight shank projected from the outer surface of their blades, and upon this shank are transverse teeth adapted to mesh with the thread upon the outer face of the ring fitting upon the reduced section of the fixed casing. The extremity of the trunnion of the rotary cylinder, projecting beyond the yoke bearing, is squared to receive the socket of a crank arm. To introduce the spoke, the central bottom set screw is loosened and the base plate slid to one side, when the cutters are raised and the rotary cylinder introduced into the casing. A trip block is then secured upon the shank of the cutters to regulate the depth of the tenon, and as the crank arm is revolved, the cutters are fed down by the contact of their shanks with the ring fitting upon the reduced portion of the fixed casing, the cylinder and the ring being locked together by the engagement of the threaded surface of the ring with the teeth of the cutter shanks.

AN IMPROVED ELECTRIC CURRENT REGULATOR.

A cheap instrument for regulating electric lights, so that they can be turned up or down, as with gas or



CROUCH'S RHEOSTAT.

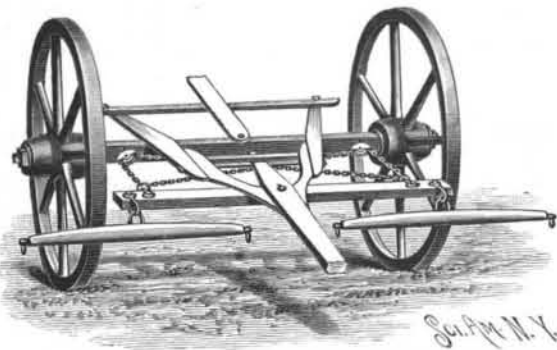
lamps, and whereby the dynamo will thus be relieved by the short-circuiting of the current, has been patented by Mr. Frank J. Crouch, and is illustrated herewith. A vessel is employed containing a saline or other chemical solution, such vessel being of any desired shape or

size, but preferably of the style shown, and in connection therewith are diverging conducting arms connected in circuit with the main line and insulated, a central arm being adapted to be lowered into the solution to any desired depth, the brilliancy of the light being decreased or increased as the central rod is raised or lowered. Binding posts are secured to the cover of the vessel and insulated therefrom, and a transverse shaft, with a central pinion and a thumbscrew at one end, is journaled to extend across the top of the cover, the pinion operating a rack bar on the vertically moving central rod. On opposite sides of this rod are secured the upper ends of a pair of downwardly diverging spring conducting rods, preferably made of copper, whose lower ends bear against the sides of the vessel. Coiled conducting wires connect the binding posts to the conducting arms, and enable the plunger rod to be moved up or down. The conducting wire of the electric light system is connected to the binding posts, completing the circuit through the spring conducting arms and the solution in which they are immersed. A shunt circuit connects the wires of the system, this circuit having a resistance coil made to balance the lamps used on the circuit, and the coil having a switch, shown in the small figure, to cut off communication between the coil and the shunt circuit. It is said that an instrument containing only three gallons of the liquid will readily regulate eighty lamps of thirty candle power each, and it is stated that such instruments have been used for more than a year past, with great satisfaction, in theaters and elsewhere.

For further particulars with reference to this invention, address the Crouch Patents Manufacturing Company, Eugene City, Oregon.

AN IMPROVED DRAUGHT EQUALIZER.

An equalizer to be applied to the doubletree and front axle of a wagon, mower, or other vehicle has been patented by Mr. John Bevens, of Marine Mills, Minn., and is represented in the accompanying illustration. The equalizer consists of two crossed chains, cords, or ropes, each attached by a clevis and ring or other connection to both ends of the doubletree, and each passing through one pulley attached to the vehicle. The chain



BEVENS' DRAUGHT EQUALIZER.

on one side passes from the end of the doubletree, around the pulley on the end of the front axle immediately behind it, and thence crosses to its connection with the opposite end of the doubletree, the opposite chain also crossing in a similar manner. The doubletree is slotted in the center, so that the draught will not come on the bolt, and the doubletree is preferably placed beneath the tongue to relieve the team somewhat of its weight. The chains so crossed in the center are designed to take the whole draught or strain of the load, each acting on both ends of the doubletree.

Planting Trees.

Digging big holes for trees should be unnecessary. Dr. Warder said that the hole for a tree should be as large as the orchard. This is the best of advice. It means that the ground should all be well prepared before a tree is put into it. Then one needs to dig only far enough to allow the roots to fall in easily. But the hole must be big enough for the roots. Do not twist or crowd them; and here is where the ordinary tree planter will shirk. Before you know it, he will stick in a tree with the ends of the roots all but peeping through the ground. "Don't be stingy with your holes," is advice which I have to give almost every day in planting time. Get the fine earth firmly in and about the roots. This usually requires the work of the fingers, but it can be done without fussing.

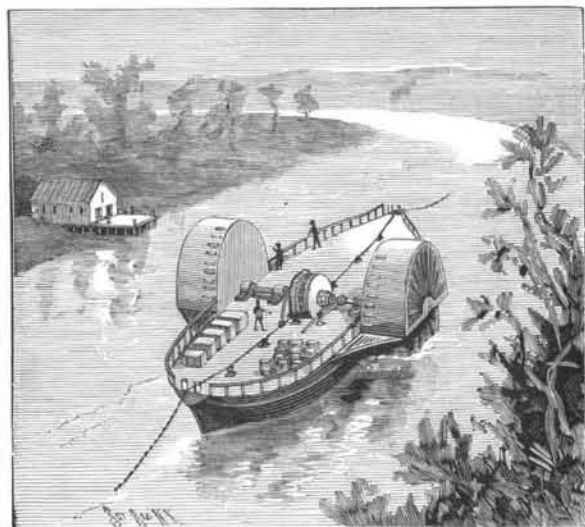
Athletes and Athletics.

Irving Ross, M.D. (*Jour. Am. Med. Assoc.*), holds that the popular opinion as to the danger to health and life connected with great muscular exertions is in the main fallacious. He has never found a case of hernia caused by over-exertion, though he has known many hundreds of athletes. He maintains that they are not more subject to aneurism and heart disease than other people; that instead of having their lives shortened they are, as a rule, a rather long-lived class, citing a number of noted examples in proof; that where disease or death does come early it can generally be shown to be due to free indulgence of gross appetites

and indulgences; in short, that "all the manly sports should be encouraged and fostered with a view to promote qualities that intimately concern not only the happiness and usefulness of individual life, but also the good of society and the future of the human race."

AN AUTOMATIC CABLE PROPELLER FOR VESSELS.

A simple construction by which the force of the current of a river may be utilized to propel the vessel



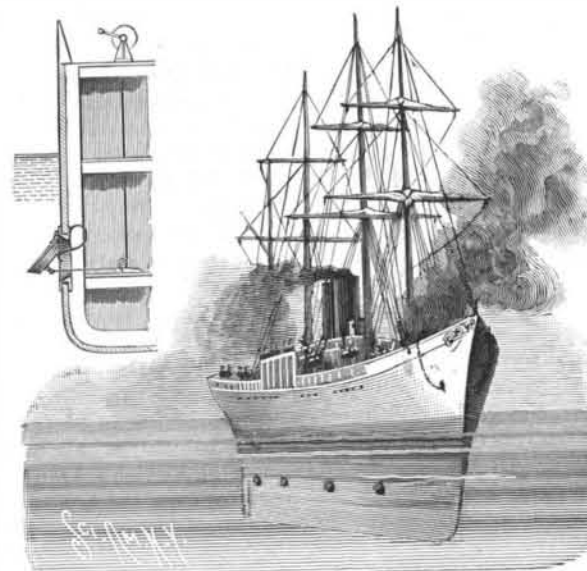
LOTZE'S CURRENT PROPELLER FOR VESSELS.

against the current is illustrated herewith, and forms the subject of a patent issued to Mr. Ernst Lotze, of Spokane Falls, Washington Territory. A chain is placed on the bottom of the river for the full length of the space intended to be thus navigated, the upper end of the chain being firmly anchored, while its lower end is buoyed, so that it may be conveniently raised and placed over the boat under a central wheel clutched to a main shaft, carrying side wheels on its outer ends.

This central wheel is adapted to engage and move up or climb the chain as the wheel is revolved, and may be fixed on the shaft, but is preferably clutched thereto by means of a sleeve and clutch blocks, so that it may be thrown out of engagement when desired, while on the shaft is a disk with ratchet teeth engaged by a pawl, forming a brake to prevent the vessel from floating down stream when the clutch block is thrown out by engagement with the shaft. Guide rolls from the chain are arranged on the bow and stern of the boat, while horizontal rolls on the boat direct the chain into proper contact with the central wheel, under which it passes. It is said that a model of this construction, 5 ft. long and 10 in. wide, easily carries a load of fifty pounds, and works well.

A DEVICE FOR EXTINGUISHING FIRES ON SHIPS.

The illustration herewith represents a means of flooding the interior of a ship, for extinguishing fire, which forms the subject of a patent issued to Mr. B. D. T. Travis, of Burlington, N. J. The invention provides for a valve, or series of valves, seated in the wall of the ship, below the water line, opposite the different compartments. These valves open outward, and are hinged on their upper side, as shown in the small view, a spring being made to press against the inner face of the valve to force it outward into open position when the valve is released. This is effected preferably by a small cable, fastened by one end to the inner face of the valve, while its other end is carried



TRAVIS' FIRE EXTINGUISHER FOR SHIPS.

up between the decks and made fast to a windlass. By unwinding the cable on the windlass, the spring causes the valve to swing outward, whereby the water can pass into the vessel, to flood one or more of the compartments, as desired.