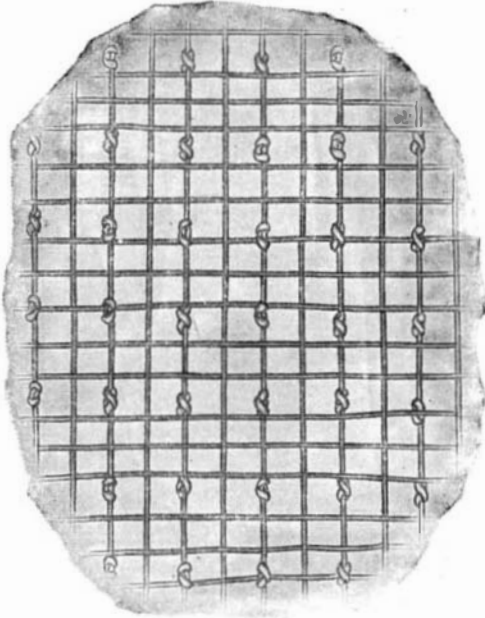


A NEW TENNIS RACKET.

A new racket for playing lawn tennis, court tennis, and rackets has been brought to our attention, the novel feature of which is to be found in its knotted strings. The efficiency of a rough surface has long been recognized. The principle is exemplified in the

**A TENNIS RACKET WITH KNOTTED STRINGS.**

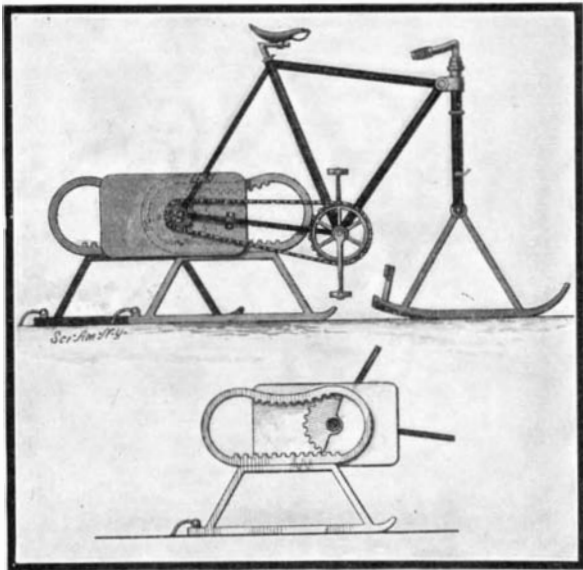
chalked tip of a billiard cue, and in the sandpaper surface of the ping-pong bat. But so far as we know, no one has hitherto succeeded in getting an equally effective instrument for players of tennis and analogous games.

The inventor of the new racket, Mr. J. E. Hindon Hyde, of 120 Broadway, New York city, has solved the problem by forming knots in the strings themselves, so that the strings can be independently stretched to the required tightness, and the knots can be placed at the desired points. This new racket seems to present possibilities. Among these are the advantages in delivering a twist service, and the security of grip on the ball, thus permitting accurate placing. The opponent's twist or "cut" also can be neutralized and even reversed by the user of this racket.

Mr. Wylie C. Grant won the Indoor National Tennis Championship of the United States last winter with one of these rackets.

RUNNER ATTACHMENT FOR BICYCLES.

An inventor in Montana has devised a very ingenious scheme for making his wheel serviceable in winter weather. This he does by substituting a single forward steering runner and a pair of rear propelling runners for the wheels of his bicycle, so that the vehicle may be propelled over snow and ice. The propelling runners are so constructed and operated by the usual pedal movement that they will be alternately lifted and advanced, one runner of a pair bearing the weight of the machine, while the other is being lifted and brought forward. Each propelling runner is attached, at its upper end, to a mangle rack, and these racks are engaged by gear sectors mounted and keyed to the rear axle of the bicycle. It will be observed that the bottom sections of the racks are straight, the upper sections are inwardly convexed, and that no

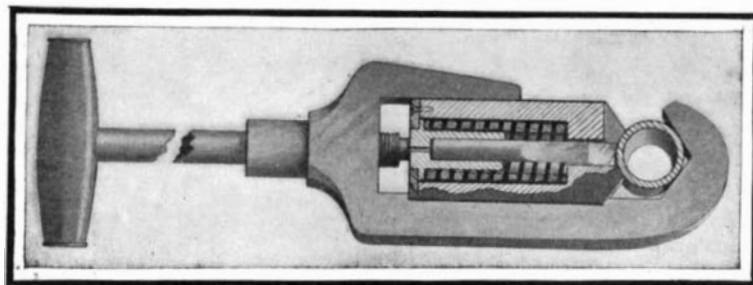
**RUNNER ATTACHMENT FOR BICYCLES.**

teeth are formed on the end sections of the rack. The gear sectors face in opposite directions, and are rotated by the usual chain-and-sprocket connection with the pedal cranks. During the first half of each rotation, one of the sectors will engage the straight section of one of the racks, moving the wheel forward thereon, while the other sector will lift and advance the other

rack by engaging its convex portion; then during the second half of the rotation, the former rack will be advanced, while the latter will remain stationary. Stop arms are hinged to the rear end of each runner, to hold it stationary while it carries the weight of the wheel. The forward or steering runner is formed with a knife edge at the rear, which may be pressed into the ice or snow by a twist of the handle bars to retard the progress of the vehicle, thus acting as a brake. A patent for this improved runner attachment has been granted to Mr. John H. Youngken, of Virginia City, Mont.

PIPE OR BAR CUTTER.

In the accompanying illustration we show a simple and inexpensive tool for cutting pipes, tubes, and bars of metal, which has been patented by Mr. William T. Snell, of Octave, Ariz. The tool may be adjusted to fit and securely hold any size of bar or pipe while the cutting operation is being performed, and the arrangement is such that the depth of cut made by the tool will be regulated by the pressure exerted on the handle by the operator. As clearly shown in our engraving, the main body of the pipe cutter is formed with two arms, one of which is longer than the other, and terminates in a hook or jaw. Mounted to slide between these arms is a rectangular jaw block formed with a central chamber, into which a tubular stud extends. This stud has a slightly tapered bore, which receives the shank of the cutting tool. A heavy coiled spring in the chamber bears against a collar formed on the outer end of the tubular stud, which is retained in the jaw block by a plate bearing against the opposite side of this collar. The handle of the pipe cutter is formed with a rod, which is threaded through the main body of the device, and bears against the end of the tubular stud. In practice the bar or tube to be cut is placed between the inclined walls of the jaw of the main frame, and the jaw block is moved forward to hold the pipe in position by means of the handle rod, which is threaded forward. The cutting operation then proceeds as usual, that is, the device is rotated about the

**TOOL FOR CUTTING PIPES OR BARS.**

pipe, and the tool is fed forward as desired by screwing the handle rod forward. The pipe or bar will then be cut without any bulging, as is apt to occur with other tools now commonly in use.

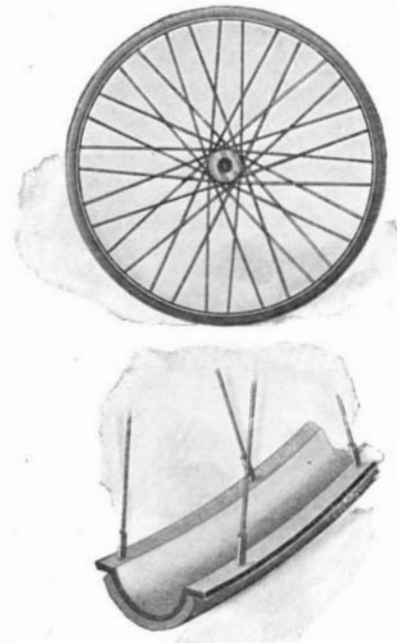
A Huge Dam.

The construction of a tremendous barrage, rivaling even the recently completed huge Aswan dam on the Nile, is shortly to be commenced upon the Tunga Barda River near Hospet, in the extreme western corner of the Madras Presidency, British India. The sources of the Tunga Barda are in the western Ghats, and the course of the river is eastward across India, flowing 400 miles to the sea. The scope of this project is to construct a dam nearly a mile long by about 150 feet in height, thereby forming a huge reservoir approximately 40 miles in length and covering an area of 150 square miles. By means of this Titanic project some 200,000,000,000 cubic feet of water—about five times the capacity of the Aswan reservoir and equal in area to about three times that on the Nile—will be available for the irrigation of the surrounding country. The cost of this gigantic project is estimated at three and a half crores of rupees; but owing to the extent of country it will be able to irrigate, it is anticipated that the scheme will be a most paying one.

VEHICLE WHEEL.

A patent has been granted to Mr. Carl Rondell, of 925 Fourteenth Avenue, South, Minneapolis, Minn., on a new type of vehicle wheel which provides a cushion-tread surface of very great strength. The wheel rim, as illustrated herewith, is formed with a central outwardly offset section; in other words, it has the form of a trough with side flanges along each edge. The spokes are secured at one end to these flanges and at their opposite ends to the hub. The rim is preferably made of aluminium, although any suitable material may be used, and the tire is a cushion tire, being preferably made of solid rubber, although an inflated tire may be employed. The tire is endless and is perfectly fitted to the outer convex surface of the central member of the rim. Although the tire will remain on this offset member without being secured thereto, it is

preferably attached to the rim by a cement or other well-known means, so as to prevent it from creeping. A wheel constructed in this manner is adapted for use in connection with any form of wheeled vehicle, and is

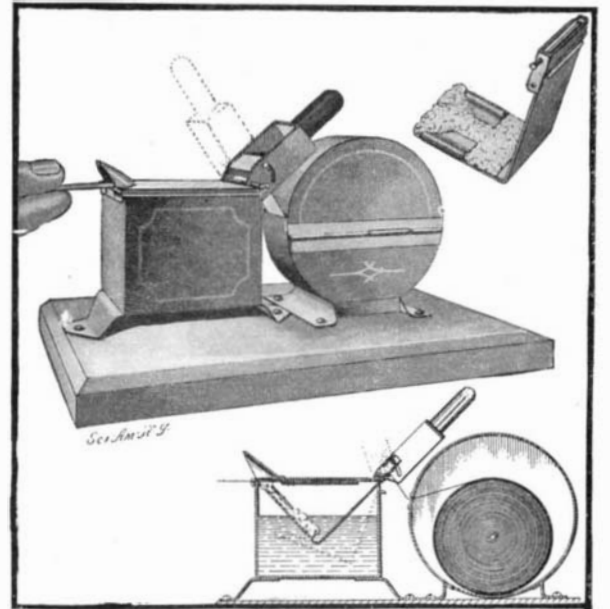
**VEHICLE WHEEL.**

exceedingly strong and durable, and well adapted for use on roads of any description.

MACHINE FOR MOISTENING GUMMED PAPER STRIPS.

A patent has recently been granted to Mr. J. E. Colvin, Box 354, Junction City, Kan., for a machine adapted to moisten gummed paper strips, such as are used to close and seal paper bags or other packages in lieu of trying them with twine. The paper strip or tape, wound up into a roll, is carried in a sheet metal drum or holder, mounted on the baseboard of the machine. Access to the holder is had through a door in a side face of the drum. Upon the baseboard near the holder, and in alignment therewith, a rectangular sheet metal chamber or water reservoir is mounted, and the paper tape which passes out through a slot in the holder is led into this chamber, through guides under its lid, and then out at the opposite side. Pivoted at one end within the reservoir is a plate bent to a right angle at its center and carrying at its free end a sponge which bears against the gummed paper at the point where it emerges from the reservoir. The lower end of the sponge dips into the water of the reservoir.

Just above the hinges, the plate is formed with a head provided with outwardly extending pivot bolts which project through curved slots in the side walls of a bracket frame hinged to the water reservoir. This bracket frame is formed with a heavy handle, whose weight, when the bracket frame is thrown to the position illustrated, serves to hold the sponge against the gummed paper. When, however, the handle is thrown forward, the bent plate rocks downward, immersing the sponge in the water. This provides a

**MACHINE FOR MOISTENING GUMMED PAPER STRIPS.**

means for moistening the sponge in case the capillary attraction is not sufficient to keep its upper end moist.

In use it is merely necessary to draw forward the desired length of gummed paper, which will be moistened as it is drawn forward, and then to cut it off by bending it backward against the V-shaped cutter formed on the lid of the reservoir.