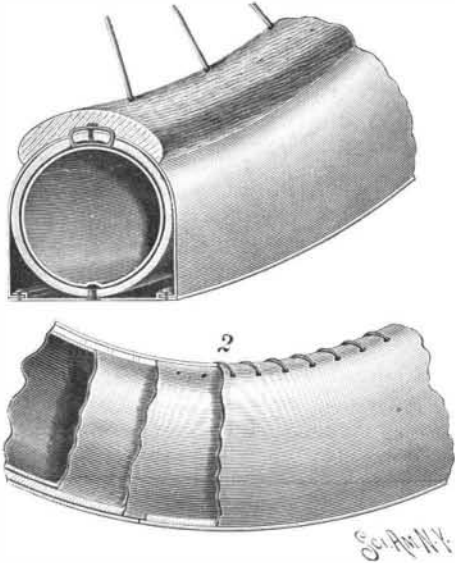


A METALLIC TREAD PNEUMATIC TIRE.

A tire having a metallic tread secured to the tubular inflated rim, obviating the liability to puncturing the tire or other injury when the wheel passes over sharp objects in the road, is represented in the accompanying illustration, and has been patented by Frank M. Growney, of No. 986 Washington Avenue, New York City. The tubular rim is secured in the usual manner to the felly, and the metallic tread, consisting preferably of a continuous strip of mild steel, is attached to the outer part of the rim by rivets, as shown in Fig. 1, the outer sides of the tread being engaged by the sides of bands fastened in place by clamping strips. The

**GROWNEY'S PNEUMATIC TIRE.**

bands extend around the sides of the rim, and are connected by the usual lacing with the inner ends of the rim, the lacing also attaching the inner ends of the rim to each other. Fig. 2 is a side sectional view of the improvement. The rim, as will be seen, is protected by the side bands, as well as by the continuous metallic strip forming the tread.

NAJORK'S FOOT MOTOR BOAT.

Just now, when so many are devoting their time and attention to the various means of transportation, trying to discover the quickest way of moving us mortals from one place to another over both the land and the sea; when steam, electricity, petroleum, benzine, etc., have entered the lists against the muscles of the horse, and even of human beings, we are sure that our readers will be interested in the motor shown in the accompanying engravings, for which we are indebted to the *Illustrirte Zeitung*. This boat is propelled by a screw driven by foot power, and is operated by three people, the one nearest the stern also steering. The wheel visible behind the last operator transmits motion to the shaft and through the latter to the propeller. By various arrangements of the three cranks dead centers can be avoided. For every 60 movements of the treadles the screw revolves 500 times. In this way even unskilled operators can travel about five miles an hour. A great advantage of this boat is that it can also be propelled by oars or sails, and the simple apparatus can be applied to any boat that is sufficiently broad. As the three operators sit quite high, a counter weight of lead should be placed in the keel. The Najork boat has created quite a sensation in boating circles.

The Chicago Police Telephone System.

Chicago has a complete telephone and signal system, consisting of 887 public and 370 private boxes, operating on 81 circuits, connected with the 37 precinct stations of this department, in which they are located. The system includes public sentry boxes placed at street intersections, equipped with a signal box to transmit the number of the station; a telephone for patrolmen to report and receive orders over; a chemical register at the station which records the calls, and the necessary switches for operating the telephone and testing for electrical disturbances.

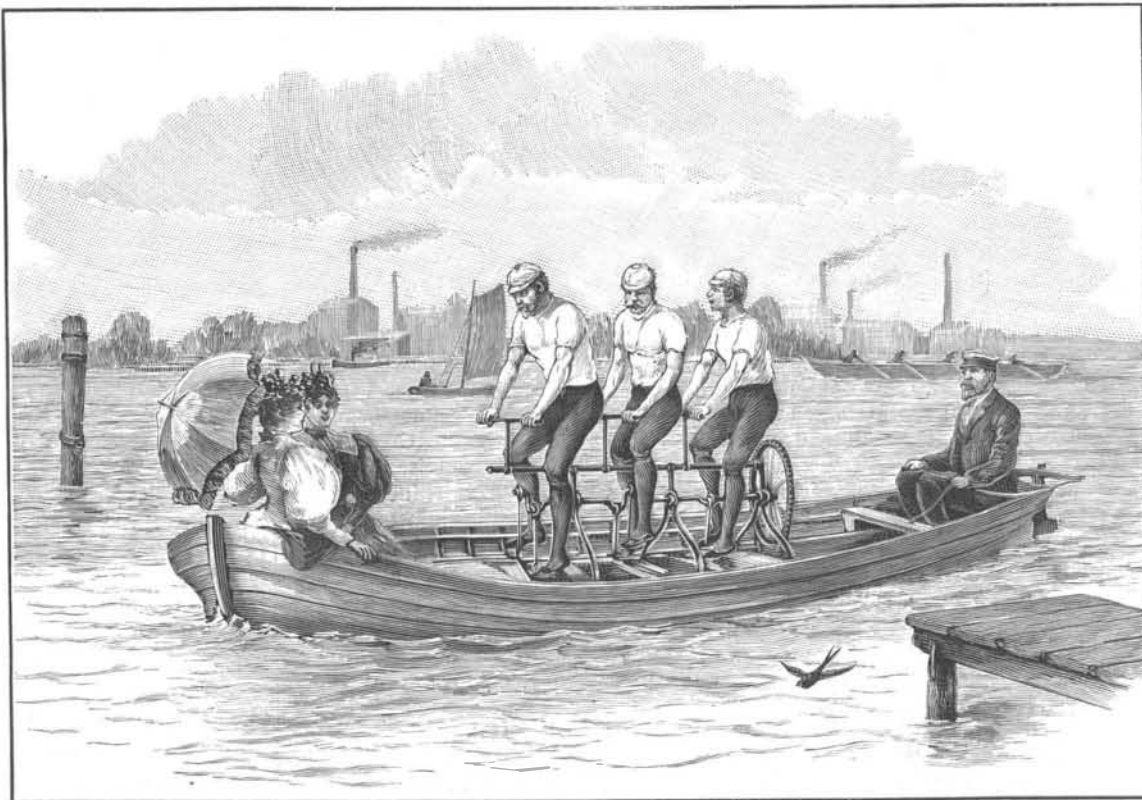
Silver from Silver Bromide.

Silver is usually recovered from silver bromide wastes, incident to photographic processes, by mixing them with nine-tenths their weight of calcined sodium carbonate, and fusing in a crucible, whereby carbon dioxide and oxygen are given off. Metallic silver gathers at the bottom of the crucible, and a double salt of sodium carbonate and sodium bromide floats on top as a clear liquid. On cooling the crucible down to a red heat the silver solidifies, and the flux, still in a liquid state, may then be easily poured off. The silver thus obtained is of a fine white color. The flux usually has an intense yellow color and still contains about 10 per cent of silver. The latter may be obtained (Pharm. Centralh., xxxvi, p. 632) by mixing the flux with plenty of water and stirring occasionally to facilitate solution of the flux. The unchanged silver bromide is allowed to settle, washed by decantation, and preserved for a subsequent operation.

Sulphur Mining in Louisiana.

The Mineral Collector says: The Standard Oil Company has finally solved the great problem, on which hundreds of thousands of dollars have been spent in vain, of getting at the immense mass of sulphur which lies some hundreds of feet below the surface in Calcasieu Parish, Louisiana. For thirty-five years company after company has experimented with this deposit of sulphur, which is probably the largest in the country, and is valued at from \$30,000,000 to \$100,000,000. There was no doubt about the sulphur being there, but unfortunately between it and the surface lay an immense quicksand, which could not be removed, excavated or bored through. There was no way of man reaching the sulphur and getting it up. A small town, Sulphur City, has grown up in the neighborhood of the mines, at which lived the operatives engaged in trying to solve their problem. As the expenses of these employees had to be paid, and as not a pound of sulphur was obtained, the several companies organized to mine it went, one after another, into bankruptcy, until the property fell, a short time ago, into the hands of the great Standard Oil Company.

Long before the discovery of petroleum in Pennsylvania a party of hunters stumbled on a petroleum spring in Calcasieu. The Louisiana Petroleum Company was organized to mine for it, and while mining discovered that side by side with the oil was one of the most valuable deposits of nearly pure sulphur in the world. The sulphur was 400 feet below the surface and extended below 800 feet further. There was no doubt or question about this, but, unfortunately,

**NAJORK'S FOOT MOTOR BOAT.**

just above the sulphur was a quicksand 160 feet thick. One effort after the other to reach the sulphur failed. The drill struck an underground well, then a gas well. After several deaths the American Sulphur Company gave up the enterprise. Then a Belgian engineer undertook the work and endeavored to neutralize the quicksand by freezing it solid and boring it through, and erected valuable refrigerating machinery for that purpose, but the quicksand would not stay frozen and that system of mining had to be abandoned.

Within the last few weeks the Standard Oil Company has got control of the property. It set about mining in a fashion the very opposite to that of the Belgian engineer. Instead of using freezing as the means of getting at the sulphur, it is trying heat. Superheated water is forced through ten inch pipe on the

sulphur, melting it, and the liquid sulphur water is then pumped up. A little exposure to the air, so as to evaporate the water, leaves almost pure sulphur. The experiment has been a success beyond expectations.

AN IMPROVED BICYCLE BRAKE.

The illustration represents a very simple and inexpensive brake, which by a slight modification may be adapted for use as a foot brake, and which is designed not to cut or wear the material of which the tire is made. The improvement has been patented by William L. Stewart, of Wilmerding, Pa., and the illustration

**STEWART'S BICYCLE BRAKE.**

tion represents the device separately and as applied on a wheel. The brake frame is of metal, and carries two flanged rollers on which is tightly stretched a rubber band, the brake being attached to a stem which extends up the steering head. When the brake stem or rod is forced downward in the usual way, the band bears with corresponding pressure on the wheel tire. The inventor has also provided a construction by which one of the rollers carrying the band is adjustable, and may be moved outwardly, if desired, to increase the tension on the band.

Incubation of Diseases.

According to investigations made by the Clinical Society, London, the period of incubation for diphtheria

does not, as a rule, exceed four days, and is more often two, though it may also extend to five, six or seven; the infection may take place any time in the course of the disease, and mild cases may spread it. In the case of typhoid fever, this may vary within wide limits, twelve to fourteen days, but not infrequently less, and, as the disease is usually introduced into the system by food and drink, it is not carried from one person to another, but several may get it from the same source, contaminated water and milk being the usual causes. Epidemic influenza, or "grippe," has for its incubation period a few hours to three or four days, generally striking suddenly and without warning, and a patient may carry infection throughout the whole course of the disease. Mumps have an incubation period of from one to two weeks and the chances of infection diminish daily.

In the case of measles, the period is usually short, being counted from the date of the eruption, which decides the disease. German measles have a long incubation period, and the infectivity diminishes in a day or two after the disappearance of the rash.

A Substitute for Gold.

A French journal describes a new and promising substitute for gold. It is produced by alloying ninety-four parts of copper with six of antimony, the copper being first melted and the antimony afterward added; to this a quantity of magnesium carbonate is added to increase its specific gravity. The alloy is capable of being drawn out, wrought, and soldered just as gold is, and is said to take and retain as fine a polish as gold. Its cost is a shilling a pound.