

may be made of wood, glass, and other substances, it would seem that a few patiently-conducted experiments must inevitably result in the discovery of a means of reinforcing or doubling the volume of the sounds reproduced by the electric pulsations in the telephone. Considering the minuteness of the electrical impulses and their high electro-motive force, Dr. Siemens considers it probable that they will be found capable of transmission to very great distances through conductors of comparatively small dimensions, if such conductors can be protected from disturbing influences. That consideration leads naturally to the question of underground line wires. The ordinary suspended wires are open to many grave objections, even when employed with the simplest instruments, for they are seriously affected by atmospheric electricity, by mutual induction and leakage where lines run parallel and are supported by the same posts, and the circuits are liable to be broken by the action of high winds and other agencies which not unfrequently cause the wires to snap, and sometimes throw down the posts. With the introduction of the duplex and quadruplex systems, as well as the telephone, it has become more than ever necessary to provide a better and more secure conductor, and from the experience gained by the Germans we know an underground wire can be worked over long circuits with ease by the most delicate instruments. Hence Dr. Siemens ventures to predict the gradual substitution of underground for suspended line wires. The construction of submarine cables occupied a considerable portion of the address, but the most important, perhaps, of the author's remarks were those in which he spoke of the deadening influence of the Government control of the telegraphs. Steady progress had been made in this country, but it is notorious that the more startling and more important innovations have come from the United States—the only civilised country in which internal telegraph communication is still in the hands of private companies. Dr. Siemens does not call in question the wisdom of the policy which dictated the purchase on public grounds of the telegraphs by the Government; but remembering, possibly, how Mr. Herring and others have been treated, he is clearly of opinion that open competition would be best, so far as the progress of telegraphic invention is concerned. The Acts regulating the work of the department allow the purchase of letters patent, whereby an interest is created in favour of particular instruments, to the prejudice of others of, perhaps, equal (some say superior) merit, and such a course is not calculated to stimulate invention. Dr. Siemens considers that the erection of lines for local and private purposes should have remained entirely outside the scope of a public department, in order that competition might have an opportunity of developing new applications, as in the case of the United States, where private and circular telegraphy is in advance of other countries. The question is one of vast importance, for there is great danger that, if the whole telegraphic work of the country is to become a Government department like the Post Office, however beneficial it may be for the general business of the kingdom, it will stifle invention, or drive inventors to other countries.—*English Mechanic*.

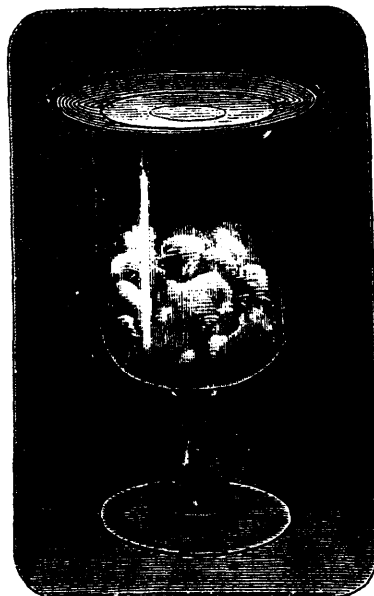
#### A Fortune in Toothpicks.

It seems that it was not the invention of the wooden toothpick, *per se*, that netted the inventor \$50,000, but the idea of making the toothpicks out of soft, brittle wood. It is said that, when first brought out, the toothpicks were made of hard, fibrous wood; but the inventor soon found that this would not pay, as the picks lasted too long, and he went to pine. It now takes four sound picks to get the broken end of one out from between the teeth; and it is the latter discovery that is said to have realized the inventor his fortune.

**REMOVING SUBSTANCES FROM THE EAR.**—Take a horse-hair, about six inches long, and double it so as to make a loop at one end. Introduce this loop as deeply as possible into the auditory canal, and twist it gently around. After one or two turns, according to the originator of the plan, the foreign body is drawn out with the loop. The method is ingenious, and at all events causes little pain, and can do no harm.—*Medical Record*.

#### CHEMICAL MAGIC.

A subscriber to *La Nature* communicates to that journal a simple trick, which is as deceptive as many of those per-



formed by professional "magicians." It is proposed to place the fumes of a cigarette, smoked by the operator at some distance, in a closed goblet, as shown in our engraving. The goblet is to all appearance empty, and the phenomenon of the white smoke wreaths inexplicable. But the vapors are formed by the admixture of muriatic acid and aqua ammonia, two or three drops of the former being put in the goblet, and the covering saucer being wet underneath with the latter. The quantity of the liquids is so small as to pass unperceived; but as soon as the saucer is placed on the goblet, white vapors of muriate of ammonia are formed, which closely resemble tobacco smoke.

**Solid Sulphuric Acid.**—The difficulty of safely transporting sulphuric acid has induced a large manufactory in Bohemia, where the Nordhausen acid was formerly produced, to ship the article in the state of the solid anhydride. The product is put up in soldered boxes of tinned iron, the solid acid having at ordinary temperatures but little action upon this metal. Besides the ease of transportation thus afforded, the high degree of concentration of the acid in this condition renders its use much more valuable than the ordinary material in certain chemical operations.—*Prof. Houston in American Manufacturer*.

**How to Stain Wood.**—M. Leo gives the following recipes in the *Pharm. Centralhalle*:

**Yellow.**—Paint with a hot concentrated solution of picric acid; dry and polish. Observe that picric acid is poisonous.

**Imitation Ebony.**—Paint several times with logwood extract; then treat with solution of ferric acetate (14° B.) until a proper shade is obtained.

**Walnut.**—Apply several times a solution of 1 part of potassium permanganate in 30 parts water. Wash, dry, oil, and polish.

**Dark Walnut.**—Same as the preceding, but after the final application of permanganate, treat with ferric acetate, which brings out black veins.

**Mahogany.**—Make a tincture of 15 grains alkanet root and 90 grains dragon's blood with 500 grams alcohol (95 per cent) by maceration. Filter after three or four days. Paint the wood first with nitric acid, and after drying apply the tincture once or oftener, until the desired tint is obtained. To imitate the natural grain of the wood, ferric acetate may also be applied as may be found necessary.

THE Amazon river drains 2,500,000 square miles of land and is navigable for 2,200 miles from its mouth.