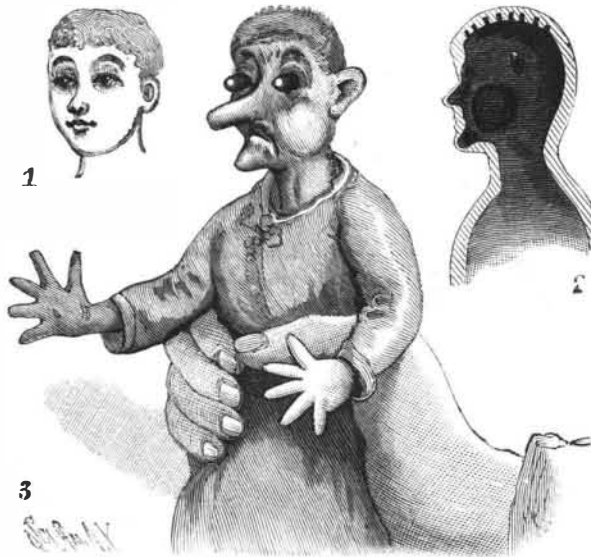


IMPROVED RUBBER TOYS.

Rubber toys, on account of their durability and harmlessness, have long been a staple article, and are to-day found in the shops in much the same form as they were a dozen years ago. An improvement in this line, designed to give a new impetus to these goods, has lately been patented by Mr. Orville Carpenter, of Pawtucket, R. I., and by means of which such toys, when intended to represent images of human beings

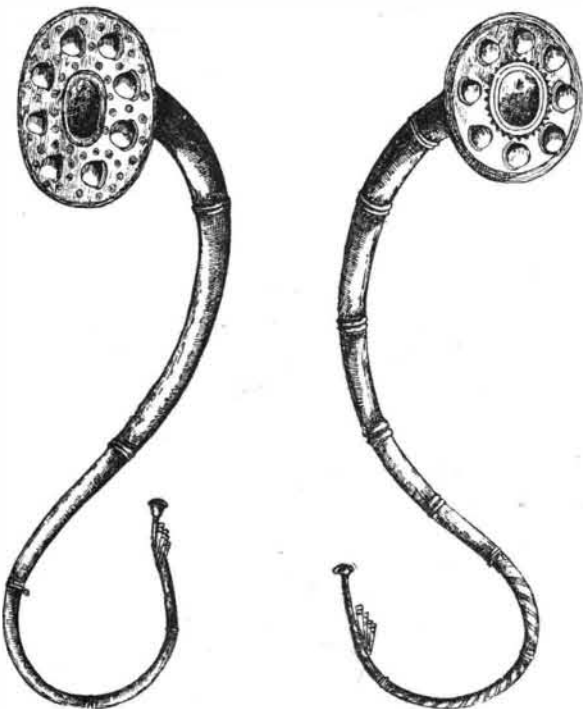


CARPENTER'S RUBBER TOY IMPROVEMENT.

and animals, can be made to illustrate the most marvelous peculiarities without adding to the cost of production. This improvement consists in making these hollow images of varying thicknesses of rubber, so that when squeezed by the hand the thinner parts expand out of all proportion to the rest of the image, producing an endless variety of grotesque and ludicrous variations of the same image, according to the amount of compression given by the hand. The accompanying illustration represents one of these toys, Fig. 1 showing it in its normal state and Fig. 3 as the parts are distended when the toy is slightly squeezed by the hand. The thinness of the rubber at the eyes, nose, and chin is indicated in the diagram view, Fig. 2. It will be seen that this invention offers a wide range for the skillful designer in this line of goods, as by simply varying the thickness of the rubber in different parts of a toy startling results are made to appear by a simple squeeze of the hand.

THE OLDEST MUSICAL INSTRUMENTS.

The National Museum in Copenhagen, which is so well known and renowned for its excellent and admirably arranged collections of northern antiquities, contains a number (19) of a kind of musical instrument called the "lurs" (the *u* pronounced like *oo* in poor), which date back to the bronze age, and which have all been found in bogs, as have also so many others of the old treasures contained in that interesting museum. A few instruments of the same kind (8) have



BRONZE "LURS" IN THE NATIONAL MUSEUM IN COPENHAGEN.

been found in provinces in Sweden formerly belonging to Denmark, and five have been found on the Baltic coast of Germany nearest to Denmark. There is nothing like this instrument elsewhere in the world. An instrument used in parts of the East Indies at the present day is the nearest approach, in some respects, but it varies very materially from the "lurs."

The outward appearance of the "lur" is represented in the adjoining cuts. It is generally six or seven feet

long, twisted in two planes perpendicular on one another, and furnished with an ornamental collar at the butt or farther end. It is cast from a kind of bronze, only one to one and a half millimeters thick. (Could we do this at our present day?) To increase the difficulty of construction, it is perfectly conical from end to end, cast in pieces, and joined together as indicated in the adjoining illustrations, and, as already stated, of a twisted shape.

All the instruments of this kind found outside of Denmark are more or less fragmentary. Of the specimens in the Danish collection ten are whole, and of these again six have just been slightly restored under the auspices of the author and musical critic, Angul Hammerich, who has caused some artist musicians from the royal chapel to experiment with and practice on the restored specimens, with the very interesting result that these can now be played upon and emit tones as pure, strong and soft as when they were first touched with human lips, between 2,000 and 3,000 years ago. Well may we wonder at the constructive skill, the perfect knowledge of acoustics and the state of civilization in those remote times evinced by these old instruments. It is, of course, the preserving power of the bog water which we may thank for the perfect preservation of these unique instruments.

The bogs in which the "lurs," and so many other interesting objects from northern antiquity, have been found have, of course, at the time of deposit of the objects, been lakes or ponds. How the objects came to be placed here may be subject to varying surmises; the most probable is that they have been sunk down in such places to protect them from some invading enemy. Some authorities on this kind of subjects hold to the opinion that the objects have been brought as sacrifice to friendly or unfriendly gods, which supposition also seems quite likely.

The instruments are always found in pairs and twisted in opposite directions, indicating that they have been blown two and two together. This is so much more certain as the specimens of each pair harmonize with one another, while each pair varies more or less from every other pair in quality of tone, etc. It was formerly believed that the "lurs," when played upon, were resting over the player's neck and shoulders. They have occasionally been thus represented by artists. This Mr. Hammerich has proved to be a mistake. They were carried or held free in front of the players, with the ornamental butt collars facing one another, when the players were blowing them, standing or marching side by side, in which position the instruments balance easily and make a very odd and striking appearance, as of two gigantic and fantastically twisted horns of some fancied animal.

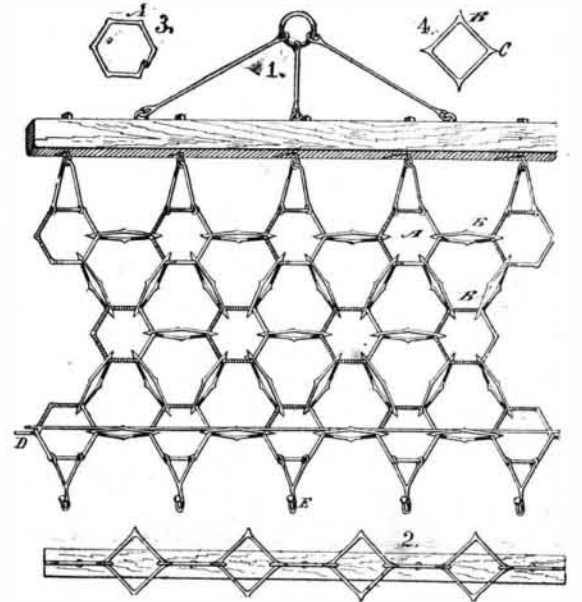
A few days ago the writer of this communication had the good luck and great pleasure to attend a fascinating lecture on the "lurs," by Doctor Hammerich, accompanied by experiments of two artist musicians, at the grand old style knights' hall of the National Museum in Copenhagen. Not only were military signals blown with great effect, but entire small compositions were performed. It was indescribably interesting to listen to the performance of an air from one of our most popular romantic plays. The intelligent reader with a measure of imagination may to some extent realize the impression it must convey to hear fanciful music performed on instruments which some 3,000 years ago were used at strange temple services, or on triumphal war marches, or as accompaniment of the songs and recitals of the heathen bards or scalds at the courts of kings and chiefs, or at great national feasts.

What an attraction it would be for the visitors of the Columbian Exposition at Chicago if their ears could be feasted with actual music or musical tests from instruments 2,000 or 3,000 years old! But this will hardly come to pass. Doubtless an attempt will be made to secure the bait, but our Danish authorities will hardly give their permission, and who can wonder! Our "Flatø Book" will be fetched and returned with appropriate ceremonies in a U. S. man-of-war. A house will be built for the book telling of the first discovery of America, *via* Greenland, a thousand years ago, and watch will be kept over it night and day. All very well! As to the "lurs," we shall see. J. PEDERSEN-BJERGAARD. Copenhagen, Denmark, January 10, 1893.

HYDROFLUORIC acid is manufactured by heating a mixture of 1 part of fluorspar in powder with 2 parts of sulphuric acid. The reaction is conducted in a leaden still, to which a head and a receiver of the same metal are attached. In the receiver is placed a gutta-percha dish containing water which absorbs the fumes.

AN IMPROVED HARROW.

The simple and inexpensive harrow shown in the picture, and which has been patented by Messrs. Samuel Riley and William Evans, of Huron, Kansas, may be easily carried to and from the field, and may be stored in small space when not in use. It is essentially a chain harrow, the teeth and their supports partaking of the character of links. In eyes or hooks in the rear of the draught beam are held pivoted yokes,

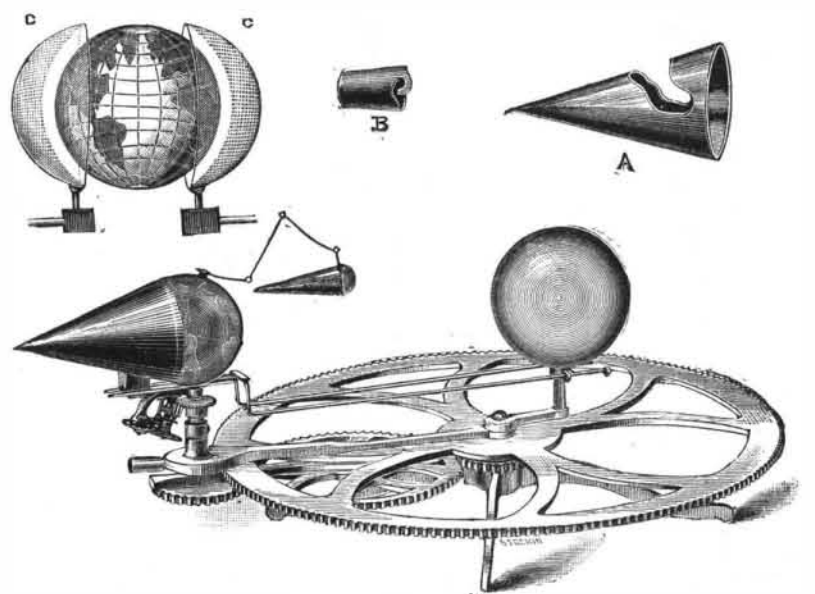


RILEY & EVANS' HARROW.

which engage the tooth supports, A, the latter engaging the harrow teeth, B, to hold them in a horizontal or in a diagonal position, as shown in Fig. 1. Each of the teeth-supporting links, A, Fig. 3, has its ends recessed to be fitted together and welded when desired, and each of the teeth, B, Fig. 4, has four spurs, C, adapted to enter the ground, so that if any one of the prongs should become worn another may be turned down. Fig. 2 is an end view of one row of teeth. A tension bar, D, extending transversely across the last row of tooth supports, holds the chain-like body of the harrow in extended position ready for work, and this last row of supports terminates in hooks, E, adapted to connect a second harrow section to the first if desired. The harrow being made in detachable sections, it can be handled with great facility, sections being added as desired, and, as the teeth are set alternately parallel and diagonal to the draught beam, the ground is very efficiently stirred and pulverized, and the surface left smooth.

A TELLURIAN FOR THE HOME AND SCHOOL.

The illustration shows a mechanical representation of the sun, earth, and moon, so arranged that, by taking hold of the handle below and near the earth, the latter can be moved to imitate its yearly motion around the sun, at the same time turning on its axis as in its diurnal motion, and the moon simultaneously revolving around the earth and rising one hour later each night. The sun is placed eccentrically within the earth's orbit, and the earth's poles are inclined to the plane of the orbit, thus illustrating the seasons and the long and



DUNHAM'S TELLURIAN.

short days. The small figures, A and B, represent removable cones by means of which shadows may be imitated to illustrate eclipses of the sun and moon. By removing the shadow cone from the earth and putting in its place the tide disk C C', as shown in one of the figures, the phenomena of the tides are made easy of comprehension. These disks are made of glass in hemispheres, and are thick in the middle to illustrate high tide and thin at the edges to show low tide—the earth revolving six hours into deep water and then six hours out again, the ebb and flow of the tide being