The largest room in the world.

The *American Artisan* says the largest room in the world under a single roof, and unbroken by pillars or other obstructions, is at St. Petersburg, Russia. It is six hundred and fifty feet in length, and one hundred and fifty feet in breadth. By daylight it is used for military displays, and a battalion can conveniently manœuvre in it. In the evening it is often converted into a vast ball-room, when it is warmed by sixteen prodigious stoves, and twenty thousand wax tapers are required to light it properly. The roof of this great structure is a single arch of iron, the bars on which it rests weighing twelve million eight hundred and thirty thousand pounds.

Liquid Steam Fuel.

In pursuing his experiments with a view to substitute petroleum for coal in the generation of steam, Mr. C. J. Richardson has discovered an even cheaper compound that the least saleable mineral oils. He finds that coal-tar, creosote, naphthaline, and other similar products may all be burned in the same way as he proposed to burn the crude oils; a compound with which he has obtained excellent results being formed of coal-tar, two parts; creosote, three parts; and one or two parts of heavy shale oil. We are informed that Mr. Richardson will have his petroleum boiler at work again in Woolwich Dock in the course of a week or two, when all who are interested in the matter can inspect its practical working.—*Mechanics' Magazine.*

Crystallization of Glycerine.

The Chemical News says:—About five tons of glycerine were recently imported from Germany by an English firm, in casks containing about 8 cwt. each. When they left the factory, the contents of the casks were in their usual state of viscid fluidity; but on arriving in London they were found to have solidified to a mass of crystals, so hard that it required a hammer and chisel to break it up. A large block of this solid glycerine, weighing several hundred weight, suspended in a somewhat warm room took two or three days to liquefy. Some of the crystals were as large as a small pea. They were brilliant and highly refracting, and so hard as to grate between the teeth. The original glycerine was pale brown; the crystals nearly white; the liquid drained from among them dark brown, and the liquid obtained by fusing the crystals as pure as possible from the mother liquid, was clear and nearly colorless, slightly more viscid than usual, and deficient in none of the qualities of pure glycerin. With the temperature reduced to zero for several hours, this liquid remained unchanged, except in becoming slightly more viscid. The cause of the crystallization is conjectured to have been the vibration of the railway journey, accompanied by intense cold, and enabling the particles to arrange themselves in a regular form, in analogy with the crystallization of wrought iron under the influence of vibration, and that of platinum salts by the aid of a stirring rod. Experiments were to be tried upon glycerin at a low temperature with agitation to determine the truth of this theory.

A Model "Black Country."

A correspondent of *Punch* says of one of the great iron founderies in France:—"I will tell you what I saw in that great French factory. I saw a town of 25,000 inhabitants, wholly built and owned by miners and ironworkers themselves, who buy their land in fee simple from their employers as they require it for building. I saw 10,000 of these people, some few of them women, who do light out door work, go daily to their duties, and 4000 of their children go daily to their schools. I saw drawings and attended historical and scientific examinations in the higher classes of these schools which would have done credit to Rugby and Eton, and heard, with a longing wish that it were so in England, how none are allowed to leave the school for the workshop till they could read and write well and do some arithmetic; and I heard, with no little surprise, that several of the higher boys have passed up into the school of Government Engineers in France. I saw the château of the proprietors standing in the very midst of this town of workmen, and within it, assembled round the venerable founder of this great industry, a little society principally composed of the officials of the place, which in refinement and intellect would have done honour to any capital in Europe. I saw all this, Sir, but I did not see a policeman or a soldier. I believe there were in the place (of course not near the areas) three of the former, but none of the latter; and finally, during ten day's stay, I did not see a drunken man, though I once heard one. This is no community of hammermen in Utopia—no black country of Cloud-land—but an actual translation of Bilston, Tipton, or Dudley, out of the vernacular of our Black Country, into French. This happy valley is called Le Creusot, situated in the department of Saône-et-Loire. The proprietors are not angels, but plain men, trading under the designation of 'Schneider et Compagnie,' and the head of the firm is M. A. Schneider, Vice-President of the National Assembly. Will some great firm, or cluster of firms, in our Black Country go and do likewise?"

Test for Acids.

M. Schonbein has furnished a test for acid so sensitive that it shows the presence of carbonic acid in distilled water that has merely been breathed upon. It is obtained by treating cyanine blue with soda; dissolving one part of the product in 100 parts alcohol, and adding twice its volume of water to the solution. The cyanine blue is formed by acting on iodine of amyl with lepidine. The fluid used for acids is adapted to alkaline by merely reddening it with an acid.

Nitro-glycerine Explosion.

A brass lamp which had been filled with kerosene out of a can that previously contained nitro-glycerine exploded with the noise of a cannon on board the ship *Sycamore*, at San Francisco, last month, and killed one man and shattered the cabin into kindling wood.

Saluces estimated the temperature of fired gunpowder at about 4,300 degrees, Fahr.