gas, the two will combine and form hydrocholoric acid, which combination does not solve gold and is in every way most injurious to the process. The inventor does not claim or patent any new law, but an apparatus by means of which the laws observed are complied with. The apparatus consists o. two cylinders, one within the other. The inner cylinder, made of a porus material, serves four functions, viz., 1st, as a filter, 2nd, as the negative pole or cathode; 3rd, it acts as a burrette to allow the precipitated gold to escape along with the caustic soda, and lastly it allows the former hydrogen gas to escape at the top. The outer cylinder, which is air tight (except at the places where it is required periodically to discharge) serves three purposes; firstly it forms the positive pole or anode of the battery, next it acts as a chlorine gas generator and store, and lastly as the chlorinating vessel.

The process performed in the apparatus is described by our contemporary as follows:—The ore to be treated (free of sulphur, arsenic, lead, zinc, or bismuth) is mixed in certain proportions with common salt. It is then fed into the outer chamber, where the anode is, and the electric currents enter. Water is then added, which dissolves the salt in the ore, and this combined with the saline liquor forms the electrolyte. An electric current from a dynamo is then led into it by the anode, and passing through the solution into the inner chamber or cathode, is discharged back to the dynamo. The chemical actions produced by the passage of the electricity is to decompose the electrolyte into its elements. Hydrogen and oxygen are the products of water, chlorine and sodium those of the salt. Hydrogen being a positive substance, deposits on the negative pole; oxygen, on the other hand, being negative, deposits on the positive pole. Chlorine and sodium deposit respectively on the positive and negative poles. In order to prevent the accumulation of oxygen and hydrogen, contrivances are provided which continually wash the surfaces of the anodes to prevent polarisation, which would stop the whole process. With regard to chlorine, it has been established by Beguerel that chlorine in its nascent state is more active than afterwards, so that if in the ore under treatment any gold is present, it would now be most readily attacked by the chlorine and form itself into chloride of gold (salt of gold) which again is soluble in water.

The gold now being in solution is readily acted upon by the electric current. The molecules, as established by Grotthus, 1805, are under the same condition as any other molecules, which in their transit to the negative zone become split up into their elements, the chlorine parting and returning to the positive zone, whilst the gold is deposited on the negative pole in a fine metallic condition in the inner chamber. From this it is washed and drawn off in the contracted part of the inner chamber in conjunction with the caustic soda and passed through a filter. The powder is then calcined and the gold remains.

The gold having been extracted from the ore, the latter is drawn off at the bottom of the outer cell and an equal amount entering simultaneously at the top from a hopper, in which it has been mixed with the salt, makes the action continuous. In a working plant every ton of ore will be virtually from 20 to 24 hours under the chlorinating and electrical influence, and travel about 20 feet, which will give sufficient time for effective treatment.

As to the cost, adds the *Mining Standard*, it is estimated to be about one-ninth of the present cost of chlorination, or that 3s. 5d. per ton should cover the cost, supervision and sinking fund for capital. The inventor estimates the outlay for a complete plant to be £250, exclusive of an engine to drive the dynamo.—*The Financial and Mining Record.*

The 'Explosives' Commission experimented on Friday in the Tom pit with Roburite, and on Saturday with Roburite and flameless powder. All the experiments gave general satisfaction except one, where the charge was too light—this was of Flameless powder. The first experiment was a fast shot of the latter composition. A 7 oz. cartridge was inserted and fired. Part only of the stemming was blown out, and no flame was visible. Then a cartridge of Roburite with similar results. The Flameless powder was put to an exceptionally severe test. A seven oz. cartridge was inserted in a hole without any stemming and fired. There was no flame except from the detonator. A 'fall' fast shot was next charged with 7 oz. of the powder, but while no flame was visible, the charge failed to blow the coal. A bench shot was then fired with 11 ozs. This was an excellent shot, dislodging the coal without breaking it. A five foot bench hole was after that charged with 18 ounces—flameless powder, and did splendid work. In fact every test with either composition was most satisfactory. In proof that the powder is flameless, a cap was set off alone and gave fully as much flame as did the exposed cartridge when fired. Mr. Dunbar escorted the party round the pit on both occasions, and won for himself golden opinions, on account of the pains he took to make the visit as comfortable as possible. Thanks are due Mr. Poole also for placing the pit at the disposal—so to speak—of the Commission.

The Foord pit old workings were pierced through last week. The borings exhibit no traces of fire.

A committee of the explosives committee went to Cape Breton on the 9th Sept. accompanied by representatives of the Canada Explosives Co. and the Acadia Powder Co'y. The committee and representatives are in the safe keeping of the Gd. Chaplain Neil H. Nicholson of the P. W. A., which is a guarantee of their good behavior.—*The Stellarton Journal and News.*

Luck in Mining.—The element of chance plays an important part in mining, though perhaps no more so than in other branches of business, and many of the greatest ore deposits that the world has known have owed their discovery to what may be called pure luck. The uncovering of the famous bonanza at Mount Morgan, in Queensland, Australia, was an instance of this, as appears from a recent report of the manager of the Mount Morgan Gold Mining Company, limited, who says, in describing the work done on the property during the past half year: "We have developed one curious fact in the history of Mount Morgan. Hundreds of people have wondered, 'how could Mount Morgan, only 26 miles from Rockhampton, remain undiscovered so many years, especially as Linda Gully, at its foot, was worked for gold many years ago?' Our recent working on Lady Musgrave face has taken in the original prospecting trench sunk by the Morgan Brothers, and, strange but true—call it judgment, fate, or luck—had this trench been put in 10 ft. north or south, they would not have found any gold without sinking 20 ft. The trench is just in the center of the only payable stone that comes to the surface in this part of the mountain. Ten feet north or south would have proved a duffer, and Mount Morgan, out of which the company has taken 844,374 ounces of gold, would possibly still be undiscovered and still known as the Iron Mountain."

Similar cases can be cited in this country without number. The discovery of the Little Pittsburg mine in Leadville, Colo., was made indeed under circumstances almost identical with those at Mount Morgan. Ore had been found on Iron Hill, but with the knowledge of the geology of the place possessed by prospectors at that time there was no reason to look for the vein on Fryer Hill, more than a mile distant from the original discovery, where there was no float, outcrop, or other surface indications. A party of prospectors, however, working on a "grub-stake," set out to sink a shaft on this hill. Half way up the hill they stopped, as the story goes, to refresh themselves from the jug of whisky which they had with them. Seduced by the charms of this fluid they remained on the spot until the supply was exhausted, when one of the number suggested that they might as well sink a shaft at the spot where they were as anywhere else on the hill. This proposition was acted upon, with the result that ore was struck after sinking a few feet. Curiously, this was the place where the vein underlying Fryer Hill came nearest to the surface.

A more recent instance of luck of this kind was reported only a few weeks ago. The famous ore body in the Poorman mine, Owyhee County, Idaho, from which many millions were taken, was followed downward by the discovery shaft until it could no longer be commanded by the latter. A new shaft was then sunk, but the workings from this failed to cut the ore chute and it was supposed that it did not extend downward. After many years the continuation of the chute has been discovered, and it turns out, according to report, that the second chute was stopped within 4 ft. of it. We are not, however, convinced of the accuracy of this statement, and would need much more abundant and precise details to make it fit our recollections of the costly and extensive explorations made in the Poorman mine before its abandonment.—*Engineering and Mining Journal.*