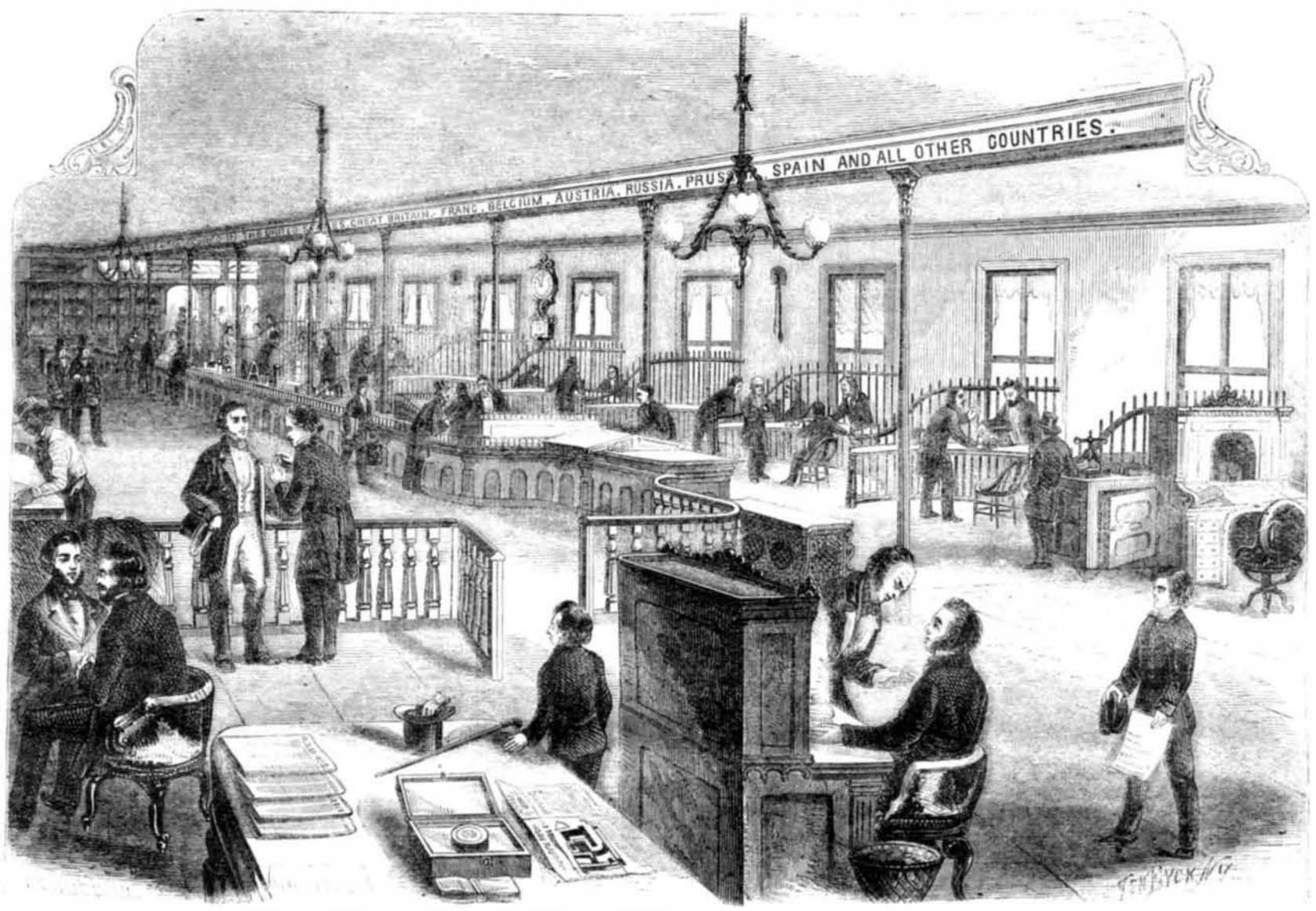
Extracting the Metal Aluminum.

Common clay is an oxyd of the metal alumiuum, mixed with silica, and a little lime and iron. Until within a very few years, aluminum was only known to the chemist as a curious and rare metal obtained by very complicated and expensive processes. Recent improvements in chemical manipulations, however, have so much decreased the expense of obtaining it, that it is not one-tithe of the price at which it was sold five years ago. Still it is by no means a common or cheap metal yet, but from the recent discoveries of M. Corbelli, a French chemist, it is anticipated, that it will become quite common at no distant day, and that it may yet be employed as a substitute for tin in domestic utensils. M. Corbelli takes common clay and washes it first to extract all foreign matters such as stones, pieces of wood &c. It is then dried, and submitted to the action of concentrated sulphuric acid to remove the sulphate of iron; the residue is allowed to settle, is dried, then heated to about 600° Fah. Every three ounces of it is now mixed with six ounces of pulverized yellow prussiate of potash and five ounces of common salt, and placed in a crucible, which is raised to a glowing white heat in a furnace. After this it is taken out and the aluminum is found at the bottom of the crucible, in the form of a beautiful white button.

The Manchester *Guardian* states that a new cotton-gin, far superior to the American one, has lately been exhibited in that city, but it does not describe how it is constructed.



INTERIOR VIEW OF THE "SCIENTIFIC AMERICAN" AND PATENT AGENCY OFFICE, NEW YORK.

Glazed Waterproof Cloth.

A patent has lately been taken out in England for making waterproof glazed cloth to imitate leather, by the following process. About three ounces each of litharge, brown umber and hydro-protoxyd of manganese are subjected slowly to a boiling action in one gallon of linseed oil, for about three hours. It is now spread over the surface of twilled cotton cloth laid on a table, with a sponge, and then hung up in a warm room to dry. After this, it it subjected to a second coat of the same oil varnish, rendered black with lampblack. A small scraper is employed to put on the second coat as it is a little thicker than the first. If the varnish is desired to dry quick, it is thinned with turpentine. When the second coat is dry, the cloth is polished with pumice stone and water to render its surface smooth and close. Several coats of this varnish are put on in a similar manner, each being dried before the other is applied. The finishing or top varnish is made of linseed oil boiled with umber, litharge and Prussian blue, thinned with turpentine. The finishing operation is running the cloth between two engraved metal rollers. The patentee is B. E. G. De Brun, of France. The processes are nearly like those practised in America for making such cloth.

Franklinite Iron Ores and Sulphur.

The injurious effects of sulphur upon iron were pointed out by us, on page 230 of the present volume of the SCIENTIFIC AMERICAN, and a method for improving the coke employed in its manufacture was described. Since the publication of that article, we have received a communication from John Gardner, of this city, in which it is stated that a certain portion of Franklinite mixed with any common inferior iron, removes its sulphur and greatly improves its quality. Extensive veins of Franklinite ore are found in Sussex county, New Jersey, and are the only formation of the kind yet discovered in America or Europe.

THE MODEL-ROOM.

This ore is composed of a mixture of oxyds and sesqui-oxyds, in dark octahedral and dodecahedral crystals streaked dark reddish brown. There are 66 per cent peroxyd of iron, 16 sesqui-oxyd of manganese and 17 oxyd of zinc in the ore. It is free from sulphur and phosphates—impurities which render iron *cold* and *hot short*. At the Zinc Works near Newark, N. J., this ore is first smelted to obtain the volatile zinc; then the residue iron is smelted at a higher heat, and converted into a very hard pig-iron, which is excellent for rendering other brands hard to make spur wheels, shafts, and street pavements.

A series of experiments have lately been made at the works of the New Jersey Iron Company at Boontown, by mixing Franklinite ore in various proportions with different kinds of pig metal in the ordinary puddling furnace. The result of these was very favorble; the very worst *red* and *cold short* iron were rendered tough, fibrous and perfectly workable while hot. About 15 per cent of the Franklinite converted the most inferior iron into grade No. 1. The oxyd of zinc in this ore, it is stated, combines with the sulphur in the coal, or in other ore, at a high heat, and carries it off.

These valuable results obtained from mixing this ore with others, and with inferior pig metal, do not detract from the utility and usefulness of the improvement described on page 230, of the present volume of the SCIENTIFIC AMERICAN, for desulphurizing coke in the oven by the use of steam, because this process can be as easily carried out as the old system.

KEEP YOUR CONTRACTS.—Ruggles, Nourse & Co., of Boston, made a contract with Sargent & Foster, to manufacture apple-paring machines, and afterwards refused to comply with its terms. The case came to trial at Greenfield, Mass., the week before last, and the contracting parties paid $2,500 to compromise the matter.