acteristic of puddling with gas is, that the formation and reduction of the scoriæ goes on at the same time.

The produce of the gas puddling furnace, amounts weekly to about 125 metrical quintals. The operation in the gas reverberatory furnace, presents also, as in the two preceding cases, very remarkable advantages; yet this operation has not been attended with such important results as those obtained in the refining-furnace and puddling stove, for the waste occasioned by the scoriæ in this case is very considerable, since it amounts to from twelve to thirteen per cent., and sometimes to more. The action of the stove is good, and the temperature sufficiently elevated, so that when no accident occurs, as many as 150 metrical quintals can be submitted to the action of the reverberatory furnace weekly.

After what has been observed, it will be seen that the result of the gas stoves and furnaces of Wasseraufingen, may be considered very satisfactory. According to the preceding data, bar-iron of excellent quality can be made with a waste which scarcely exceeds from twelve to fifteen per cent., and without any expense in the consumption of combustible; or, to speak more correctly, by making the application of a combustible which had hitherto remained useless. It is difficult at present to estimate the full extent of the important advantages which would result from using the gases which escape from blast-furnaces, according to the plan adopted by M. Faber; but it appears certain that this plan unexpectedly opens a vast field of improvement to the iron trade, and that it ought to occupy the serious attention of all who are engaged in this manufacture. Let us hope that, if any prejudices still exist, they will be removed by the great progress that has been made; the numerous and well-authenticated proofs of which do not admit of the least uncertainty with respect to an operation, the advantages of which may have hitherto appeared doubtful, because not sanctioned by experience.

Mining Jour., September, 1841.

Method of Preventing Oxydation of Iron. By M. F. L. ALLAMAND.

This composition, of a metallic nature, preserves iron and steel from oxydation, by entering into the pores without in any degree affecting their external appearance, or leaving the least blemish, so that steel instruments (including razors,) fire-arms, &c., retain their polish, and are in some degree better fit for use, after having been subjected to the metallic application. Articles either plain or chased appear superior to platina, and retain, after the application, all the hieroglyphic characters, figures, letters, and other engravings, or cuttings, which were there previously.

Composition of the Material.

Pure Malacca Tin, - - - -	120
Silver filings, - - - -	4
Yellow tincal, - - - -	12
Purified Bismuth, - - - -	12

Purified Zinc,	-	-	-	-	12
Regulus of Antimony,	-	-	-	-	4
Nitre,	-	-	-	-	11
Salt of Persicaria,	-	-	-	-	1

Method of Purifying the Metals.—The tin ought to be melted separately eighteen times. Each melting should remain about twenty minutes exposed to the action of caloric, and the impurities which arise on the surface should be carefully removed; it is thrown afterwards into a ley formed of vine twigs and persicaria (herb) in equal proportions. The bismuth, the regulus of antimony, and the zinc are also melted separately, but they only require it twice, and they are carefully run into an ingot mould, so that all impurities may remain at the bottom of the crucible. The tincal does not require any purification.

Mixture of the different substances.—The tin is the first material that is melted; the silver is afterwards added to it in small quantities, and in a few minutes afterwards the tincal, then the bismuth and the zinc in succession. As soon as it is ascertained by the flame that the alloy is effected, the two kinds of salt are thrown in together, and are left to burn with vigour, and the alloy is stirred with an iron rod; after which it is carefully skimmed and poured into a vessel, to be made use of for the metallic application.

Method of applying the substance.—Before the piece of iron, or steel, is dipped in the recipient which contains the metallic mass already liquified, its surface must be rubbed well with a composition of sal-ammoniac and cream of tartar, in the proportion of five per cent. of tartar to the sal-ammoniac; the iron must then be dipped in the melted alloy, where it must remain only for a few seconds, and till it is perceived to be covered with a certain quantity of the metal. It is next placed in a wooden box of its own size, and in which there has been previously put a small quantity of sal-ammoniac and cream of tartar, in the proportions already indicated. It is again rubbed with a handful of tow, and a small quantity of the powder is put on the surface. In the course of this operation the steel loses its colour, and assumes that of silver. When this is done, it is again plunged into the metallic mass for a few seconds, and when it is taken out it is again lightly rubbed with the tow to remove any superfluous particles. The article being perfectly clean and shining, it is plunged into a basin of cold water, into which there has been poured a bottle of spirits of wine of forty degrees of strength, in the proportion of $\frac{1}{2}$ per cent. After having withdrawn it from the water, the article is rubbed carefully with a linen, then it is rubbed as carefully with some fine sand, that has been moistened, to remove the spots of smoke: it is at last rubbed a second time with dry sand, then with a linen, and finally with a leather. After all these operations, which require great celerity in the execution, the iron will remain impervious to oxygen, and by care it will preserve all its whiteness.—*Inventor's Advocate.*