A New and Economical Furnace.

The principle of M. Beaufumè's furnace is, the production of inflammable gases by the distillation of the combustible, in a separate apparatus, and the conduction of these gases to be burned in the furnace in place of the fuel itself. The apparatus is said to have been already employed for plaster and porcelain furnaces, and to have produced an economy of 30 and in some cases of 60 per cent.; and in other experiments to have evaporated 10·544 k. (23½ lbs.) of water under a mean pressure of 4 atmospheres, with a consumption of 1·5 k. (3½ lbs.) of coal per hour; whilst with the same charge of fuel, the ordinary furnaces vaporize on an average not more than 6 k. (13½ lbs.) The furnaces are also much less liable to be burned than with ordinary fuel.

Cosmos.

Improvements in the Treatment or Preparation of Moulds for Casting Metals. Patented by ANDREW and THOMAS WALKER. January 19, 1858, in London.*

Our said invention relates to the treatment or preparation of the surfaces of sand moulds for casting metals by means of anthracite, "blind," or "stone" coal dust. The coal or mineral preferred for this purpose is anthracite, but any coal of an anti-bituminous kind will answer for carrying out the improvements. The coal or anthracite mineral is used in its natural condition, as dug from the earth, being merely reduced by mechanical means to the proper condition of powder or dust. The powder or dust is placed in permeable bags, and dusted upon the mould surfaces with which the metal will come in contact when the casting operation takes place. The same material may also be used as a wash for moulds; it may also be employed mixed with sand, as in the case of common coal-dust. This system of preparing mould surfaces secures economy in the materials used, whilst it also enables the founder to produce extremely sharp and fine castings.

*Improvements in Submarine Conductors of Electric Telegraphs.** Patented by JOHN CORNISH HARCOURT SIEVIER. February 13, 1858.

My invention consists in coating copper wire to be employed as a submarine conductor of electricity with bismuth, tin, iron, lead, brass, antimony, zinc, nickel (by preference containing arsenic), or German silver, or with any combination or alloy of two or more of these metals, prior to the treatment of such copper wire with any means of insulating, either by gutta percha, shellac, tar, bituminous or resinous substances, fibrous materials, or other substances, and likewise prior to the application of the wire cable. Copper being a powerful conductor of electricity, my object is to coat copper wire with a metal or alloy or combination of metals having a much less degree of conductivity than

* From the London Repertory of Patent Inventions, No. 778.