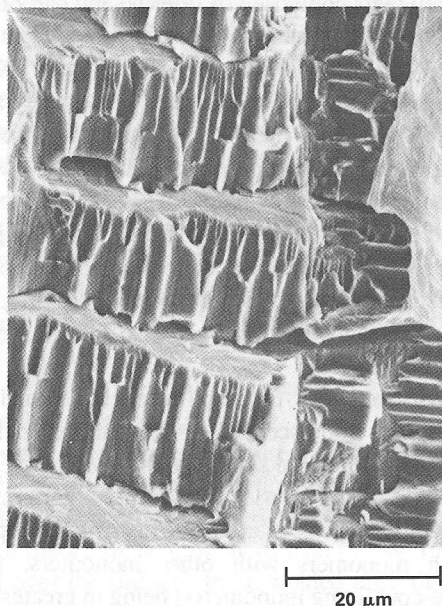


FIG. 192

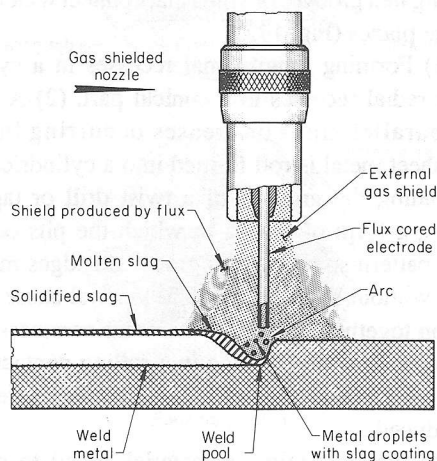


Flutes and cleavage planes in a titanium alloy that failed by stress-corrosion cracking

Fluxing of the melt facilitates the agglomeration and separation of such undesirable constituents from the melt. It is also used as a protective covering for certain molten metal baths. Lime or limestone is generally used to remove sand, as in iron smelting; sand, to remove iron oxide in copper refining. (2) In brazing, cutting, soldering, or welding, material used to prevent the formation of, or to dissolve and facilitate removal of, oxides and other undesirable substances.

flux cored arc welding (FCAW). An arc welding process that joins metal by heating them with an arc between a

FIG. 193



Schematic of the flux cored arc welding process

continuous tubular filler-metal electrode and the work (Fig. 193). Shielding is provided by a flux contained within the consumable tubular electrode. Additional shielding may or may not be obtained from an externally supplied gas or gas mixture. See also *electrogas welding*.

flux cored electrode. A composite filler metal electrode consisting of a metal tube or other hollow configuration containing ingredients to provide such functions as shielding atmosphere, deoxidation, arc stabilization, and slag formation. Alloying materials may be included in the core. External shielding may or may not be used.

flux cover. In metal bath dip brazing and dip soldering, a cover of *flux* over the molten filler metal bath.

flux density. In magnetism, the number of *flux lines* per unit area passing through a cross section at right angles. It is given by $B = \mu H$, where μ and H are permeability and magnetic-field intensity, respectively.

flux lines. Imaginary lines used as a means of explaining the behavior of magnetic and other fields. Their concept is based on the pattern of lines produced when magnetic particles are sprinkled over a permanent magnet. Sometimes called magnetic lines of force.

flux oxygen cutting. Oxygen cutting with the aid of a flux.

flux solder connection. A solder joint characterized by entrapped flux that often causes high electrical resistance in an electronic component.

fly ash. A finely divided siliceous material formed during the combustion of coal, coke, or other solid fuels.

fly cutting. Cutting with a single-tooth milling cutter.

flying shear. A machine for cutting continuous rolled products to length that does not require a halt in rolling, but rather moves along the runout table at the same speed as the product while performing the cutting, and then returns to the starting point in time to cut the next piece.

foamed plastics. Resins in sponge form, flexible or rigid, with cells closed or interconnected and density over a range from that of the solid parent resin to 0.030 g/cm^3 . Compressive strength of rigid foams is fair, making them useful as core materials for *sandwich constructions*. Also, chemical cellular plastics, the structures of which are produced by gases generated from the chemical interaction of their constituents. See also *expandable plastics*.

foaming. In tribology, the production and coalescence of gas bubbles on a liquid lubricant surface.

foaming agent. Chemicals added to plastics and rubbers that generate inert gases, such as nitrogen, upon heating, causing the resin to form a cellular structure.

foam inhibitor. A surface-active chemical compound used in minute quantities to prevent or reduce *foaming*. Silicone fluids are frequently used as foam inhibitors.

focal length. In an optical microscope, the distance from the second principal point to the point on the axis at which parallel rays entering the lens will converge or focus.