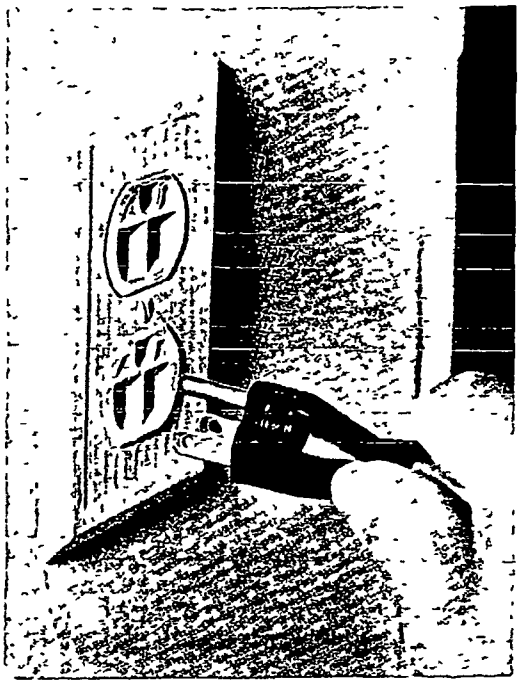


FIG 33-5 —Standard receptacle and plug recommended by the National Electrical Manufacturers Association The receptacle is designed to receive a plug having three blades—a U-shaped or round grounding blade with two standard parallel polarized blades This type of fixture also permits use of the nonpolarized standard plug

receptacles The workman neglected to attach the ground wire of his adapter and, when the tool case became charged, he was electrocuted

Since an early lack of standardization in the design of plugs and receptacles and in their application led to confusion, ASI Standard C73, *Dimensions of Caps, Plugs, and Receptacles,* was set up This standard specifies that a receptacle similar in size and shape to the ordinary two-hole type be designed to receive a plug having three blades, a U-shaped or round grounding blade and two standard parallel polarizing blades (Fig 33-5)

A receptacle of this type will permit use of the polarized or nonpolarized standard plug for such tools as soldering irons, timers, testing equipment, and others that do not require grounding

The receiver slots are arranged to prevent reversal of polarity if the grounding plug is moved from one side of the duplex receptacle to the other Each opening is different in size or shape to prevent accidental misalignment of either the polarized or standard blades Misalignment could energize the grounding equipment so that the current would enter the frame of the tool

For complete continuity of the ground circuit, three-conductor extension cables with properly attached polarized plugs and receptacles should be available These extensions can then be used to continue the ground path when tool cables are too short to reach the grounding receptacle

Maintenance of grounds. Only qualified persons should install or repair receptacles and plugs They should make sure that the green-covered ground wire is attached to the hexagonal green binding screw so that the frame will not be energized by improper wiring

Good maintenance will ensure a complete electrical ground path from the portable equipment through the line cord, plug, receptacle, grounding system, and ground clamp, terminating in a good earth ground conductor

Portable ground-testing instruments, such as a megger ground tester (not the same as the megger insulation tester), ground ohmer, groundometer, or a low-range ohmmeter, provide the most convenient and satisfactory means for measuring the resistances of ground They are self-contained and easy to operate, and resistance is indicated directly on the instrument's dial

When a program of ground testing is planned, use of one or more of these instruments is recommended, since the whole operation can be handled by one man A test lamp is not recommended for checking resistances of grounds because it may not light when the ground resistances are higher than those specified in the codes

Driven ground rods should be given special tests because of variance in resistance resulting from soil conditions They should be checked for corrosion, damage, and separation of the ground wire from the clamp

Continuity of the circuit can be checked with a simple low-voltage test unit having an indicating light bulb (Fig 33-6) This