


Creative glass blowing

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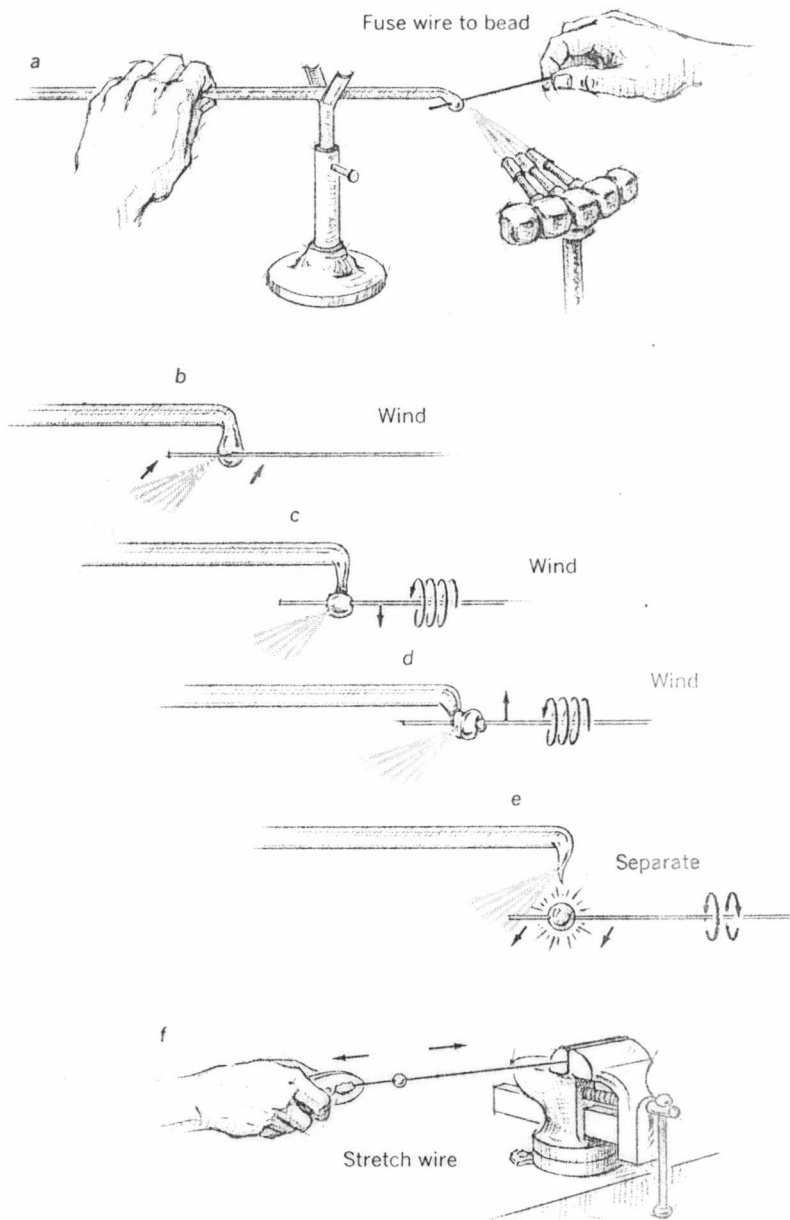


Figure 3-14.

Wire work

Many artisans specialize in so-called "wire work," the application of bits of molten glass to wire. Indeed, this operation was the first manufacturing enterprise to reach the new world from Europe when in the sixteenth century adventuring conquistadores founded a glass factory in California for making wampum. Costume jewelry of almost limitless variety can be made by this technique, even by the novice.

As an introductory exercise, make a bead of the kind used in a necklace. You will need a stock of soft glass rod, of approximately 8 millimeters in diameter, as well as a supply of *straight* wires about 10 inches long and 0.051 inch in diameter (No. 16, American Wire Gauge). Professional glass blowers prefer wire of the type known as "low" brass. (See "Sources of Tools and Materials," page 189). You will also require a pair of fixtures, or bucks, for supporting the rod in the fire (Section II, page 36). The tip of the glass rod is heated by rotating the rod. You can set up an appropriate fire by removing the rear burner of the crossfire, so the flame is directed horizontally toward the back of the bench.

Place the glass on the bucks so that one end can be slid into the fire (see Fig. 2-19). Preheat the end by sliding the rod into and out of the flame at the rate of about one pass per second. Then advance about $\frac{1}{4}$ inch of glass into the fire (Fig. 3-14, a). Let it soften and droop. When the glass has reached yellow heat, grasp a wire, much as you would manipulate a slender rod of glass, and preheat a zone near the outer end. About three passes through the flame will do.

Holding the wire horizontally, ro-

tate it between the thumb and first three fingers (so the top surface moves away from you) and touch the heated zone of the wire to the region of the drooped glass—about a quarter of the distance up from the bottom of the blob (3-14, *b*). The glass will stick to the wire and wind around it as the wire turns. Pull the wire down slightly as you turn it and then move it upward, winding continuously (3-14, *c*, *d*). The relatively solid, inner region of the sagged glass will act as a wiper during the up stroke that limits the radius of the glass which accumulates on the wire. If the glass at the point of contact with the wire is heated so that it is too thin, it will not accumulate. At the top of the upstroke pull the accumulated mass away from the molten blob *through the lower region of the flame* (3-14, *e*).

If all has gone well—and you have rotated the work continuously—an almost perfect sphere of glass will have formed on the wire. Continue the rotation, reversing direction of rotation at will, until the bead solidifies. When cooled, the bead may be removed from the wire by either of two methods. Clamp one end of the wire in a vise, grasp the free end by a pair of pliers, and stretch the metal. The wire shrinks enough when thus stretched to permit the bead to slide freely (3-14, *f*). Alternatively, cut off the wire close to the glass and drop the bead into a container of nitric acid. Within a few hours the acid will have eaten the metal away. *Caution:* Nitric acid is highly toxic and corrosive. Handle it accordingly.

You may encounter three difficulties. First, the glass may not stick to the wire. This indicates that the wire is not hot enough when touched to the

glass. Secondly, the glass may refuse to wind onto the wire as a smooth, nicely rounded mass. It tends to bunch up, as a misshapen blob. This means that you are lifting the wire away from the sagged mass too soon. As explained, the glass at the rear of the sagged portion is cooler and, hence, more rigid than the forward region that is in direct contact with the flame. If you lift the wire close to the sagged portion, the collected glass (which is quite runny) is smoothed to a spherical shape by the relatively solid mass. Finally, as the piece nears completion and is about to be withdrawn, the wire may melt. This can happen only if the wire is excessively exposed to the flame. Work on the region of the glass that has sagged out of the center of the flame, below the focal point of the fire.

Having made one good bead, continue. Conserve wire (after becoming proficient) by spacing several beads at $\frac{1}{2}$ -inch intervals. Beginners may experience difficulty when attempting to space beads closely on the wire because the heat tends to crack beads that have cooled. Speed comes with practice, however, and the trouble vanishes. As glass is consumed, advance the rod into fire with your free hand. When making beads for a necklace, do not strive for uniformity. Let chance determine the sizes. You can sort the beads later for stringing.

A bead can be made on the tip of the wire, of course. Until fashion changed, hatpins that terminated in a black bead were popular. Map tacks and similar stickpins are still so made, and by hand! It is easy to change the spherical bead at the end of a wire into a teardrop: after the sphere has formed just incline the