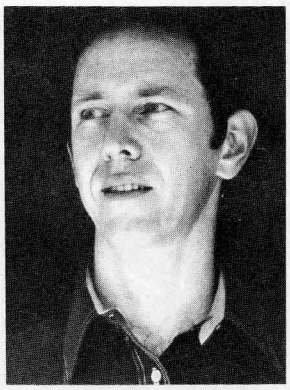
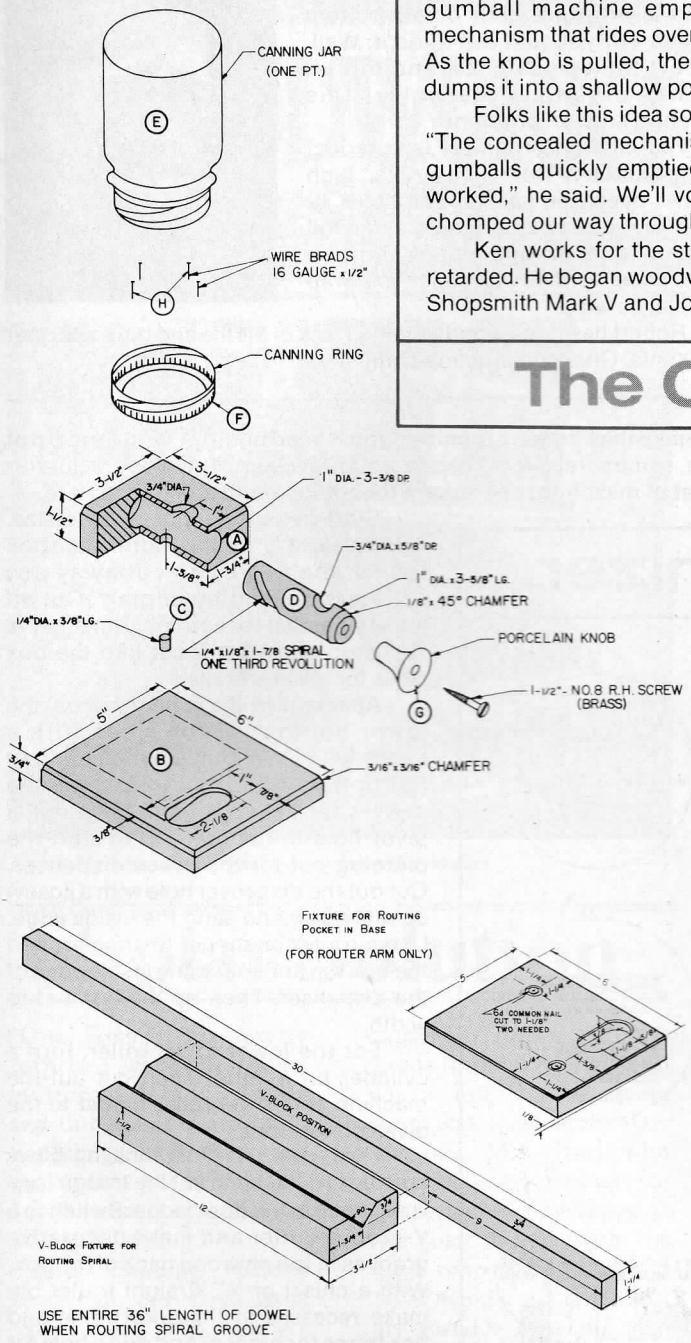
Dr. Kenneth Yearwood put a new twist in gumball machines. Rather than a simple pull-out and drop delivery mechanism, his gumball machine employs a concealed spiral grooved mechanism that rides over a pin in the bottom of the center block. As the knob is pulled, the mechanism catches one gumball and dumps it into a shallow pocket to be picked up.

Folks like this idea so well that he sold twenty last Christmas. "The concealed mechanism caused so much curiosity, that the gumballs quickly emptied as people tried to figure out how it worked," he said. We'll vouch for that — At HANDS ON!, we've chomped our way through an avalanche of gumballs.

Ken works for the state of Tennessee helping the mentally retarded. He began woodworking only recently after purchasing a Shopsmith Mark V and Jointer 1½ years ago.



The Gumball Machine



USE ENTIRE 36" LENGTH OF DOWEL WHEN ROUTING SPIRAL GROOVE.

To make the gumball machine, you'll need a one pint canning jar and ring, 1" diameter dowel rod, some scrap wood and a small section of sink cutout.

Build a fixture to aid in routing the spiral groove in the delivery shaft (See Fig. 1). If using a router arm, make a second fixture to rout out the recess in the base.

Cut all pieces to size except the delivery shaft. Mark and drill the holes in the center block as indicated in the diagrams.

Next use the center block to mark the layout of the delivery hole and the spiral groove in the delivery shaft. To do this, insert the 1" dowel rod completely into the center block and trace the delivery hole and guide pin hole onto the dowel rod. Pull the dowel rod out until the delivery hole clears the edge of the center block. Turn the dowel rod one third of a revolution (into the dumping position) and trace the guide pin hole again. The two guide pin holes indicate the beginning and end of the spiral groove. (Masking tape should be used to mark the groove path.) Use the V-block fixture and a ¼" straight router bit to cut the ⅛" deep spiral groove (See Fig. 1).

Reinsert the dowel rod into the center and push the guide pin into the spiral groove. With the dowel rod completely in, drill the delivery hole into the delivery shaft.

Remove the delivery shaft and cut to length. Chamfer the outside end and drill a hole for the knob screw. Set the delivery shaft and center block aside for finishing and final assembly.

Tilt the table of your Mark V at 85° and cut the recess in the base with a ½" straight bit. On a router arm, attach the base to the base fixture, and rout the recess with a ½" core box bit and ½" table pin. Chamfer the edges.

Finish all pieces before assembly. Wax the delivery shaft and insert the shaft and guide pin in the center block. Glue the base and center block together.

Fasten the canning ring to the center block with brads. Then screw the delivery shaft knob and canning jar with gumballs into place.

BILL OF MATERIALS

NO. PCS.		DESCRIPTION	SIZE
1	A	CENTER BLOCK	1-1/2" x 3-1/2" x 3-1/2"
1	B	BASE	3/4" x 5" x 6"
1	C	GUIDE PIN	1/4" DIA. x 3/8"
1	D	DELIVERY SHAFT	1" DIA. x 3-5/8"
1	E	CANNING JAR	ONE PINT
1	F	CANNING RING	ONE PINT
1	G	KNOB W/ SCREW	1" DIA.
4	H	WIRE BRADS	16 GAUGE x 1/2"

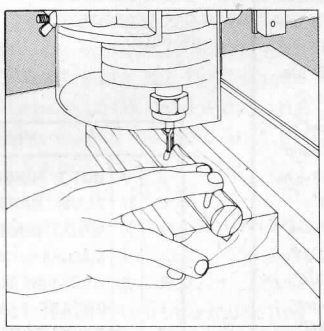


Fig. 1. Routing spiral groove in delivery shaft. Use entire 36" dowel rod for safety.

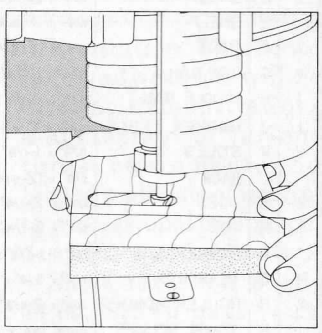


Fig. 2. Routing pocket in base using fixture.