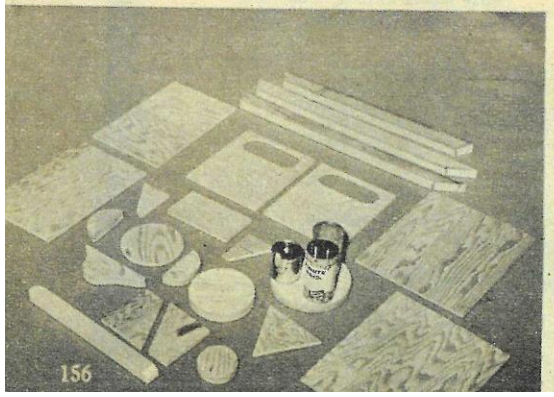
Junior TV Camera

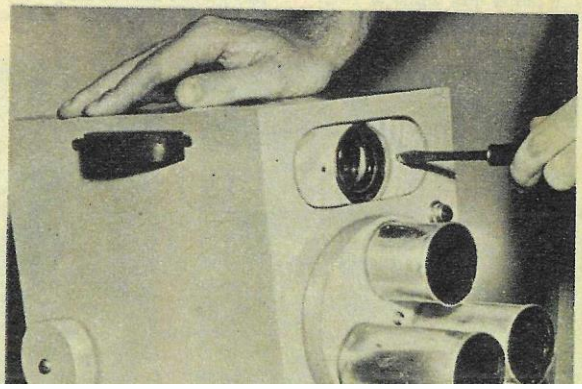
Upside-down images on a ground glass plate provide the action for this dummy studio toy.

By John J. Borzner

All the plywood needed for constructing the make-believe TV camera parts, as shown here, can be obtained for about four dollars. Note tin can "lens."



To avoid image distortion, mount the real lens in front viewing window above lens turret. Original design had lens mounted inside a tin can.



MORE than a toy, this dummy TV camera will help bring out the creative ability in your child. Getting a program "on the air" takes the combined efforts of the neighborhood gang or family. Just the thing for those rainy or cold days, the camera can be built cheaply from plywood scraps, or for less than four dollars even if you buy new material.

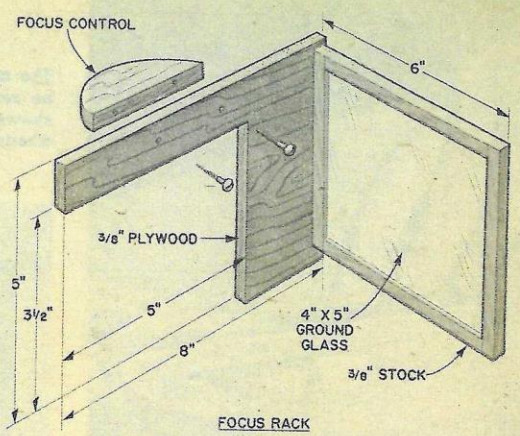
Study the plans and photos until construction is understood, then begin by laying out all parts on plywood. Cut out all parts and sand the edges smooth. Drill the ¼-in. holes where necessary. Also jig saw an opening for the viewing window on the rear face piece.

Now take the sides, top, front and back pieces. These are glued and nailed to form the box-like camera body. Do not attach the bottom until later. The camera support pan-head block is glued and nailed to the bottom piece.

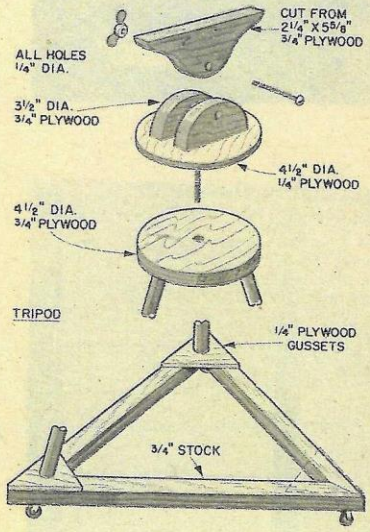
The base support blocks of ¾-in. plywood are glued and nailed to the revolving base, which is cut from ¼-in. plywood. Be sure to leave ¾-in. clearance required between the supports and the camera body pan-head support. Assemble the revolving base, tripod base and camera bottom, using a ¼x2½-in. stove bolt, and check alignment and freedom of action.

Next assemble the stand base by gluing and nailing the three pine base pieces together to form a triangle. Glue and nail ¼-in. plywood gussets in each corner. The casters are screwed onto the bottom of the stand so that the gussets face upward. Drill ⅝-in. holes in each gusset for the tripod legs to be set in.

Now you come to an exacting part of the work—that of [*Continued on page* 182]

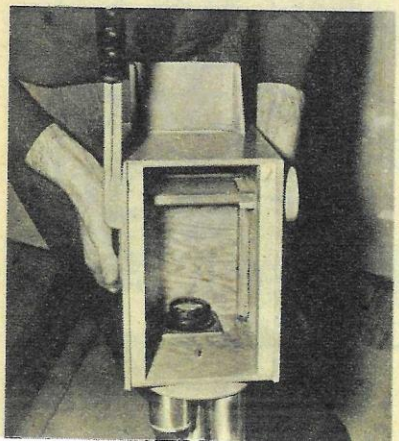


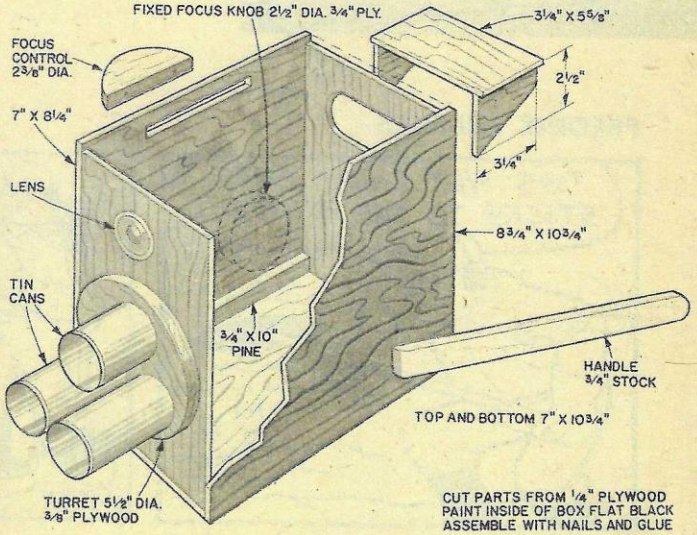
FOCUS RACK



TRIPOD

Inside view of camera box showing the lens mounting and ground glass plate set in grooved, movable frame.





CUT PARTS FROM ¼" PLYWOOD
PAINT INSIDE OF BOX FLAT BLACK
ASSEMBLE WITH NAILS AND GLUE

Junior TV Camera

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drilling three ½-in. holes on an angle in the ¾-in. plywood tripod top. First, determine the height of the camera from the ground before drilling. This will vary, depending on the size of the child. The original camera was 38½-in. high over-all. This meant a tripod leg length of 26 in. over-all. The legs have to reach from the holes in the stand base to the tripod top piece. After determining the length and angle required, drill the ½-in. holes in the tripod top base and glue in dowel legs.

Two ¾x¾x10-in. pine strips are nailed and glued on the inside of the camera body sides. To these the camera bottom is screwed. This will give access to the battery box and anything else you may want to install. Add the camera handle by gluing and screwing it to the left side. The focus knob is attached to the right side with a 1¼x¼-in. machine screw.

Next, the simulated lens turret. The three tin cans should be stripped of their labels and shined with polish. The insides are painted flat black, then secured to the lens turret piece by ¾-in. wood screws. They should be located equally around the board, and for the sake of neatness all the seams should face toward the turret board mounting screw. The turret piece is attached to the camera body with a 1¼-in. wood screw.

Adding the lens. Select the spot you want for your lens, either in the turret or in the panel above the turret. Then measure from the center of where the lens will be, to a point two inches from the camera back piece. This is the focal length you will need in your lens. Next obtain a simple double-convex lens of this focal length, plus or minus not more than one-half inch. Or you can use an old camera lens, magnifying glass, or enlarging lens of the approximate focal length. Diameter of the lens should be between one and one and one-half inches. Lenses can be bought very reasonably from the Edmund Scientific Co., Glouster Pike, Barrington, N. J. When you obtain your lens, mount it in place securely.

Now make the sliding rack for the ground glass. You will need a 4x5-in. ground glass plate, obtainable at all photo stores for about 15 cents. Construct a frame and mount the glass in it. Saw slots in the frame to hold the glass in place. This frame is then glued to the sliding side piece. Two wood screws go through the rack and into the half-round focus knob, with the five-inch slot in the camera side sandwiched between. (See drawing.)

As you will see in the photos, the lens was added to the front viewing window of the original design. This seems to be the best place to add the lens because it requires less alterations of the original, yet still allows free turning of the turret without interference of the picture. Also, a lens mounted through the turret receives image distortion traveling through the tin can dummy lens, and this distortion is not present when the lens is used above the turret.

One big problem was encountered in adding this lens and ground glass—that of focusing. Fixed focus, it was found, caused the picture to be out of focus all the time, so a simple sliding ground glass rack was put in the box to compensate for focus (see drawing). This, by the way, adds a lot to the fun in using the camera. The set illustrated focuses from three feet to infinity, yet moves only about two inches. It slides easily, guided by two screws in a slot on the side of the camera body. Focusing is done by moving the half round handle back and forth.

Now that all the parts are assembled, sand them thoroughly. Then separate them into their component sections and apply a coat of shellac. This helps to take the grain out of the fir plywood. Paint to suit. The original was colored light blue for the camera body, black for the pan-head, and iron gray for the tripod and caster base. The entire inside of the camera is painted flat black. After the paint is dry, apply the decals to duplicate your favorite TV station and re-assemble. Tighten the lens turret so that it doesn't spin too freely, but so it will turn with hand pressure.

A word now for the optionals. A bicycle grip is effective on the handle. A headphone jack (or just a hole will do) should be mounted in the back panel if headphones are to be used. All TV cameramen wear headphones over which they receive instructions from the director.

A pilot light is used on real cameras to tell the person being televised which camera is operating, so if this effect is desired, you can easily add a pilot light to the front panel. A wire leads to the battery, then to a doorbell button located on the camera handle for the operator to press. This flashes the light for as long as the scene is being shot. Celluloid adds realism to the appearance of the viewing window.

The caster base has been made removable from the tripod so that it might be employed with grown-up's movie camera tripods. Very interesting scenes can be shot with a moving,

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pan-head movie camera, especially using the camera with a 3-D attachment.

Hints on operating the camera. When viewing the scene, the object being photographed should be well lighted in order to get a good image on the ground glass. Also, light shouldn't glare on the viewing window of the camera. When panning a scene (moving in and out and around the scene in general) the operator should be constantly aware of focus. This is one of the main jobs of real TV camera operators. When moving the camera on the dolly, be careful of going over rugs, moldings, etc., which would cause displeasing motion if the scene were to be received on a real TV set. Always try to compose scenes well and avoid bumping into actors and props.

A visit to your local TV station will acquaint the youngster with telecasting procedure. Any station will be glad to show you around, many even permitting live audiences for actual productions. •

BILL OF MATERIALS

Camera sides:	¼"x8¾"x10¾" plywood	2 req'd
Camera front-back:	¼"x7"x8¼" plywood	2 req'd
Camera top-bottom:	¼"x7"x10¾" plywood	2 req'd
Camera hood top:	¼"x3¼"x5¾" plywood	1 req'd
Camera hood sides:	¼"x(see detail) plywood	2 req'd
Base gussets:	¼" plywood cut in 4½" triangles	3 req'd
Revolving base:	¼" plywood cut in 2¼" radius circle	1 req'd
Ground glass:	4"x5"	1 req'd
Convex lens:	8" focal length	1 req'd
Lens turret:	¾"x2¾" radius circle plywood	1 req'd
Camera base:	¾"x (see detail) plywood	1 req'd
Support blocks:	¾"x1¾" radius circle cut in two plywood	1 req'd
Tripod base:	¾"x2¼" radius circle plywood	1 req'd
Focus knob:	¾"x1¼" radius circle plywood	1 req'd
Bottom securing piece:	¾"x¾"x10¼" pine	2 req'd
Camera handle:	¾"x1"x11" pine	1 req'd
Base:	¾"x11¼"x22" pine	3 req'd
Dowels for tripod legs: ½" diameter		3 req'd
Celluloid for viewing windows: 2¾"x6"		*2 req'd
Pilot light assembly (radio supply stores)		*1 req'd
Battery box		*
Doorbell button		*
Casters		3 req'd
Tin cans, assorted lengths		3 req'd

Miscellaneous: Nails, screws, glue, paint, shellac*, wire*, stove bolts, decals*, rubber bike grip*.

ATOM-BOMB SHELTER

Combine practicality and security by engaging in this two-in-one project which includes a double garage and a sturdy concrete shelter built into one corner. Shelter may be used for storage or as tool room. For your copy of the complete plans which include diagrams and full instructions, remit $1.00 to *Mechanix Illustrated* Plans Service, Fawcett Building, Greenwich, Conn. Plan No. HJ-18.

Christmas Toys

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The cow-catcher is formed from a piece of Presdwood with slots cut in it. This is held to the front of the chassis at a 45° angle by two wood blocks. The headlight is a small bottle cap screwed in place.

The Ring Toss game is simply an easel-type frame consisting of two legs, a head piece, crosspiece, and framing members to which is nailed a Peg-Board face. See drawing and photo for details.

The Peg-Board is decorated with suitable decals or painted figures. L-shaped hooks are used to hold the rings, with the scoring value of each hook indicated. Rings are cut from $\frac{3}{16}$ in. Masonite Tempered Presdwood. They should have a three-inch outer diameter and a two-inch inner diameter.

The headboard serves as a scoring area, the score being kept by golf tees which fit into marked holes of the Peg-Board representing 100, 10 and five points.

The doll bed and storage drawer is started by cutting two end pieces and legs from ¾ in. Presdply. These are attached to a bottom frame, made of 1x2 in. lumber, with nails or screws. Build a back frame from the same stock and attach it to the sides. Make an inset in the back frame to accommodate a Tempered Presdwood back, as shown.

Build a top frame and attach it in place parallel to the bottom frame. Nail Tempered Presdwood faces to the back frame and the top frame. Then drill ⅜ in. holes in the top frame and top rails to receive the bedside dowels. Assemble the bed sides.

Construct the drawer to fit the frames, using plywood ends and Tempered Presdwood for the back, bottom and front. Reinforce the corners with quarter-round strip. •

Modern Desk

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slide the Formica in place and align it carefully with the surface. Raise the front of the sheet carefully and pull out the wrapping paper two or three inches. Make certain that the plastic is in place and press it down carefully at the back where the paper has been withdrawn. Then remove the balance of the paper and carefully roll down the Formica to the top. The final trimming can be done by means of light cuts with a plane and a fine file followed by sandpaper.

The base which measures 3x12x22 in. is a fir plywood frame covered with black linoleum in order to contrast with the frost walnut Formica used to cover the desk. •

Courtesy of Dave Blewette