



## HOW TO MAKE AN

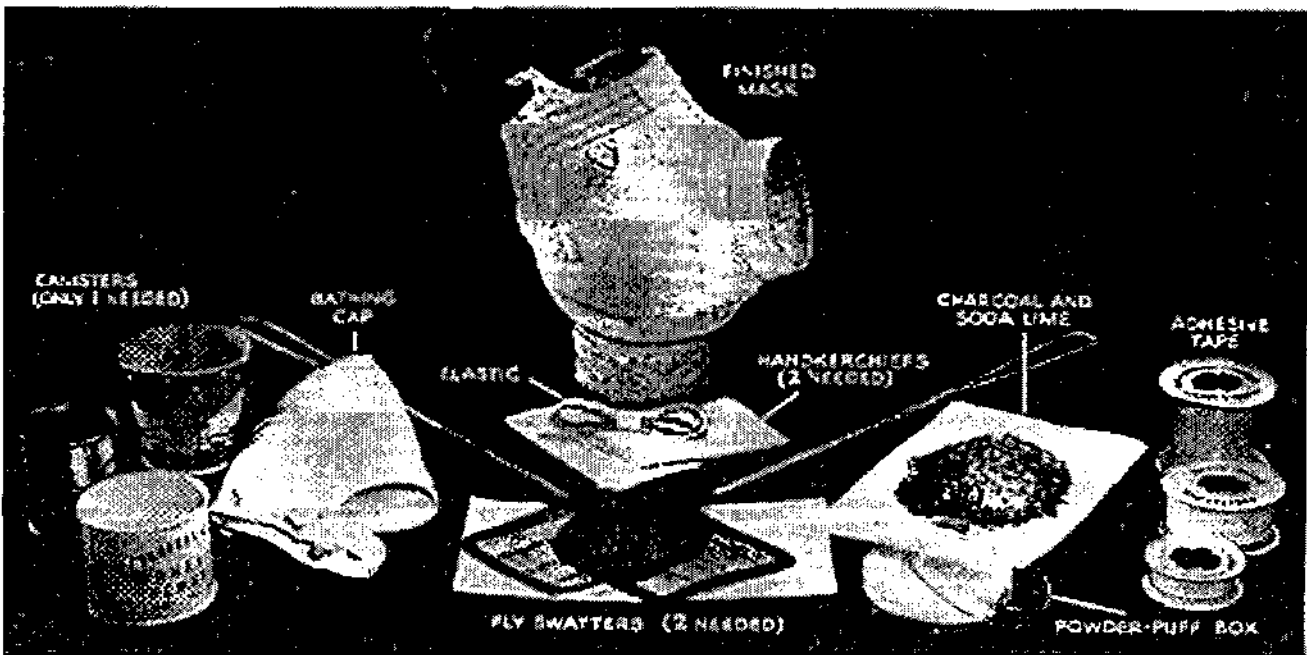
# Emergency Gas Mask

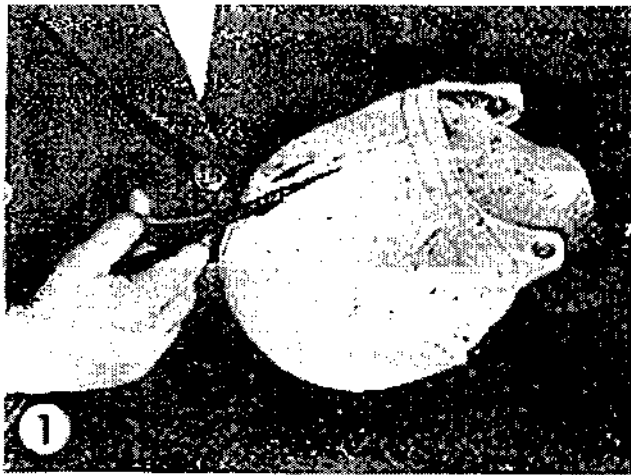
(from Popular Science - December 1942)

**T**HERE still aren't enough gas masks available to outfit all of our civilian population, and with military demands at a peak no early production on a basis of a mask for every civilian can be hoped for. Rather than go without any protection at all, the alert citizen can make gas masks for himself and his family.

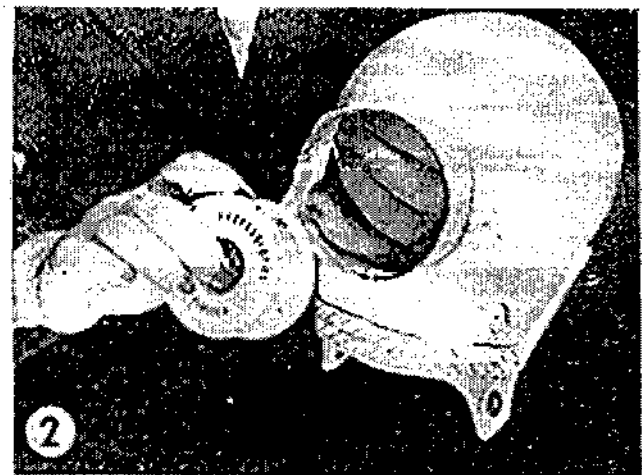
Such homemade masks must be looked upon as nothing more than temporary emergency equipment. They cannot take the place of approved masks, but they should, if carefully made, afford more protection than towels, blankets, or similar

**Air-Raid Protection from Common Materials**

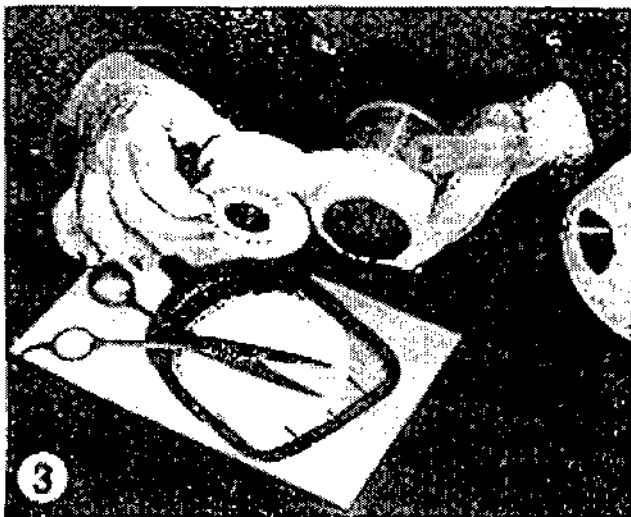




1  
First step in making the mask is to cut a round hole on the center line of the cap, about 4" from the back edge. This hole should be about 1/5" smaller in diameter than the celluloid powder-puff box



2  
Insert the celluloid box (without its lid) in the hole, stretching the rubber over the turned-up edge and halfway across its width. Tape it fast all around. Bottom of box faces outward from the mask



3  
Both ends of the canister must be open. Cut a disk about 1" larger in diameter from a piece of screening or a fly swatter. Hold this over one end of the canister, bend down the edge, and tape it fast



4  
Place two handkerchiefs together and push the cloth into the canister against the screen. Pack tightly with two parts charcoal to one part soda lime and fold over the cloth. Leave wide margin all around

makeshift filters in case of a gas attack.

The Air Raid Precautions Department of the American Women's Voluntary Services, under National Director May Singhi Breen, is teaching civilians how to make gas masks from rubber bathing caps. This type of mask, designed by Dr. Simon L. Ruskin of New York City, is intended to protect the wearer only against the common, known gases used in chemical warfare. It is useless against smoke, illuminating gas, and carbon monoxide (automobile exhaust).

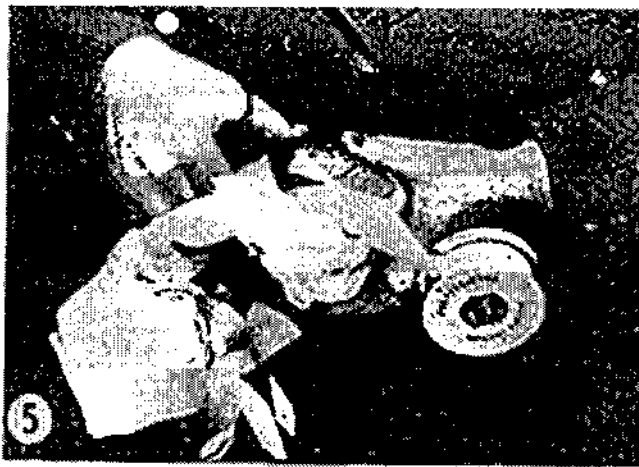
How such a mask is made is shown in the accompanying photographs. Use a heavy bathing cap, not a thin one. Make joints airtight so that the wearer can breathe only through the canister.

The physical filtering agent in the canister is activated granular charcoal, which can be obtained at drug stores and wholesale drug houses. To test it for activity (the

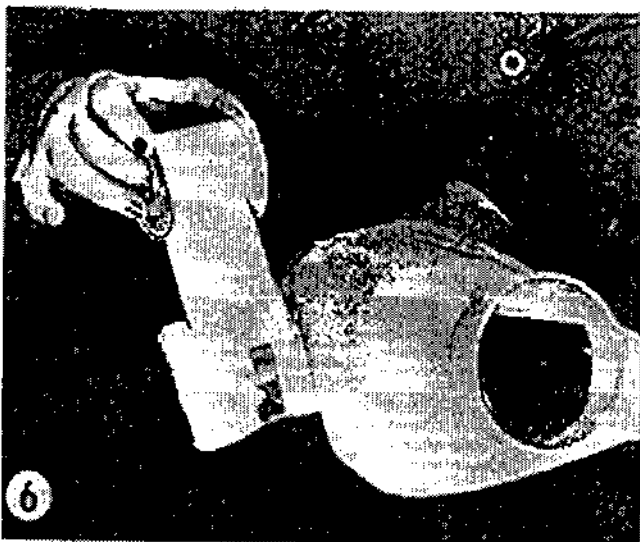
ability to take up and hold gases), place a small amount, such as a tenth of a gram, in the palm of the hand and pour on it five drops of carbon tetrachloride. The charcoal should become warm. If not, it's unsafe.

Either one half 10/20 mesh and one half 4/10 mesh, or the coarser charcoal alone, may be employed. With it mix one half as much coarse-mesh soda lime (sodium calcium hydrate), also available at drug stores. Pack the canister solidly. No air must enter without passing through the charcoal.

Do not forget to seal both ends of the canister with tape or heavy waxed paper. If left unsealed, the charcoal will absorb moisture from the air until it is saturated, and the mask will be useless. Unseal the canister only when the mask is to be put on for protection against gas. Once the mask has been used, the canister must be refilled with fresh charcoal and soda lime.



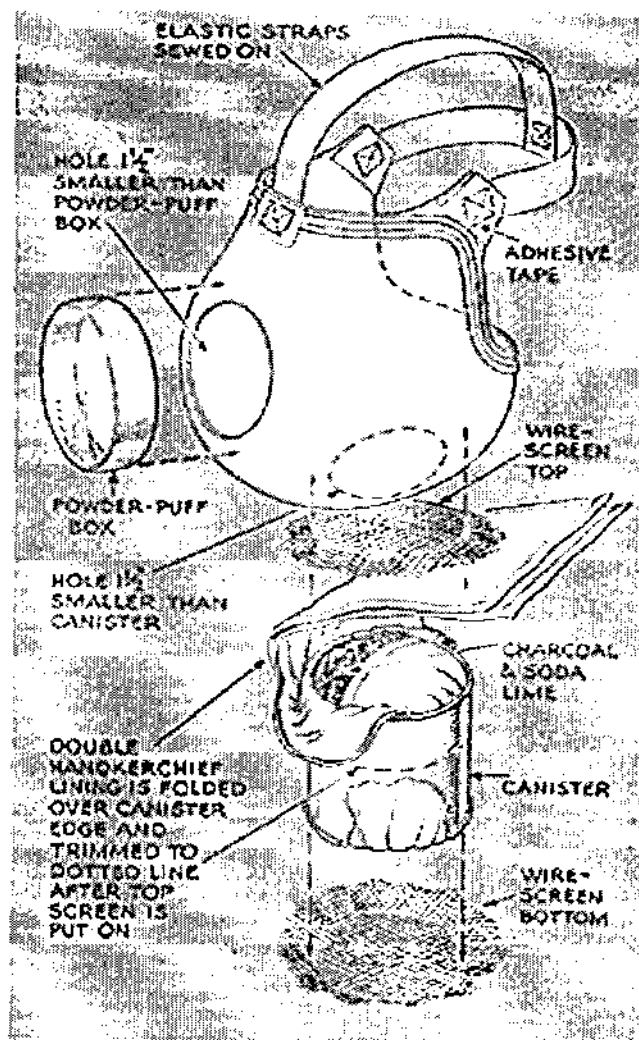
Cut a second disk of screening and band it down all around over the cloth. Hold it with a turn of tape while cutting away surplus cloth. Afterward, apply more tape to hold the screening firmly on canister



Cut another hole, about  $1\frac{1}{2}$ " smaller than the canister, in the lower part of the cap. Insert the canister and tape as with the powder box. Cover screened ends with tape to keep charcoal active



Make a head harness of  $\frac{3}{4}$ "-wide elastic and attach it as shown in the drawing. Try the mask on to make the straps the right length. Put a thickness of tape over the elastic, another under the rubber before sewing, to make the thread hold securely



PARTS OF FINISHED MASK, and how they are assembled. The canister is kept sealed until the mask is needed. Otherwise, charcoal loses activity



Put on the mask by hooking the edge nearest the canister under the chin. It should make an airtight seal all around the face. To test the seal, cover the canister with the hand and draw a deep breath. If all the joints are tight, the mask will collapse