

4. Low drag if properly mounted and well worked out.
 5. View backward from the cockpit is possible.
- B. Disadvantages

1. Sensitivity to gasoline, benzol, acids, especially organic solutions, and scratches.
2. Limitations in regard to shape and form. Only soap-bubble shapes can be blown.
3. Poor communication with bubbles which are mounted side by side or in tandem. This can be overcome by the use of a speaking tube.

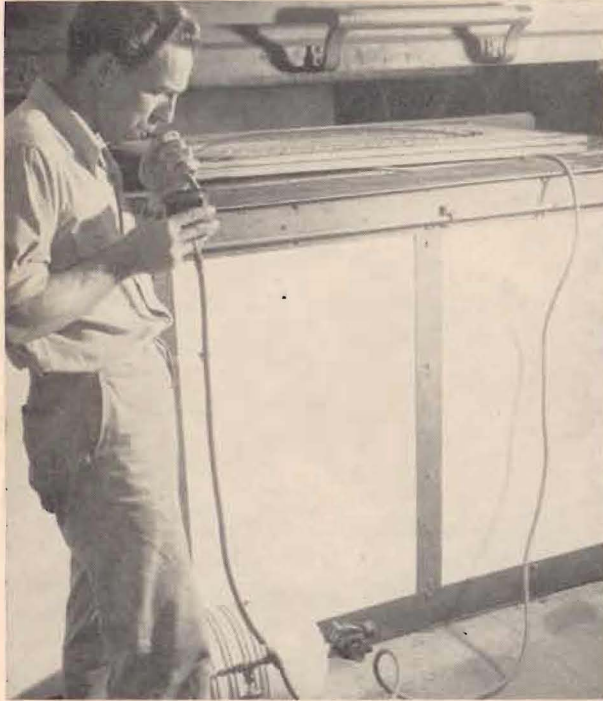


Fig. 3

The heating of the glass in the stove. The softness of the glass in the oven can be checked by blowing the bubble by mouth. Cleanliness of the plastic is an important point which should be checked. The bubble can be blown up by mouth to half of its intended height as soon as the plastic has been warmed to the necessary temperature.



Fig. 4

The blowing and cooling process should be done in a dust-free room. With a little practice it is possible to move the point of maximum height of the bubble to the most favorable point (about 1/3 of the bubble's length) by unequal cooling. The pressure during the cooling period is kept constant with the use of a manometer. The pressure hose on the device is easily seen.



Fig. 5

Front view of the finished bubble.



Fig. 6

Side view of the finished bubble.

Mounting Possibilities

Hitherto, most bubbles have been piled on the fuselage, so to speak. The drag of a fuselage with a bubble varies according to whether the contour of the bubble is a part of the fuselage contour itself (Fig. 7b) or is a super-body added to a smaller fuselage (Fig. 7a).

Sailplanes for very high altitude work should be equipped with two bubble canopies one inside the other. The space or air jacket between the two bubbles should contain a humidity absorbing substance in order to keep the air in this air jacket dry. William G. Ivans, Jr. successfully utilized a double glazing arrangement on his world record high altitude sailplane. On the inside of the canopy of his ship were four relatively small glass discs mounted two on the sides, one overhead and the other forward of the pilot. These "windows" in the bubble did not ice over at the very low temperatures experienced at