

### A CAGE FOR THE EXPERIMENTAL TRANSMISSION OF MOSQUITO-BORNE PATHOGENS

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Studies on the transmission of mosquito-borne viruses have led to the design of an improved cage for the feeding of individual or groups of infected mosquitoes on chicks of two weeks of age or less. Small animals other than chicks can be used with slight modifications. This cage offers several advantages over previously designed cages. The most important innovation is the arrangement for placement of the chick. All feeding takes place on the bird's leg which is inserted through a hole in the top of the cage. An earlier cage used by us employed an arrangement which required a surface of the chick to be clipped so as to expose an area of bare skin. The chick was strapped to the cage with its clipped surface in contact with a layer of screen or netting through which the mosquito was required to feed. We had little success in getting certain species of mosquitoes to feed under this arrangement and furthermore, the process of clipping is extremely time consuming, especially when large numbers of birds are involved. Since the adoption of the cage described here, the percentage of feeds has markedly increased. The cage has the further advantages of being inexpensive, easily fabricated, and easily cleaned. Since it is able to withstand repeated steam sterilization, it can be re-used indefinitely.

The cage consists of a one-pint wide-mouth Mason jar (Fig. 1, A) and a standard wide-mouth Mason screw-type ring into which has been spot soldered a 2 3/4 inch diameter disc of 18 gauge brass screen (Fig. 1, B). A 7/8 inch diameter hole is punched eccentrically into the screen disc and a 1-1/8 inch outside diameter, 5/8 inch inside diameter rubber grommet (obtainable from Herman H. Smith, Inc. 2326 Nostrand Ave., Brooklyn, N. Y. Cat. #2187) is fitted into the hole (Fig. 1, C). The pint-sized jar is of adequate size for up to 100 mosquitoes. A quart-sized jar may be substituted for larger numbers.

Mosquitoes to be fed are introduced into the cage by means of an aspirator inserted through the grommet hole. When the aspirator is removed, a size no. 0 rubber stopper is inserted into the grommet hole. We pour a layer of water about an inch deep into the jar through the screen. This serves to provide a medium for oviposition and also increases the humidity within the cage. To feed mosquitoes, a 5/8 inch long piece of 5/8 inch outside diameter, 3/16 inch inside diameter rubber tubing which has been split lengthwise on one side, is placed around the leg of a chick (Fig. 1, D). The rubber stopper is removed from the cage, and the encased chick leg inserted into the jar. The chick leg and the piece of rubber tubing snugly fill the grommet hole. We place a small piece of masking tape

across the grommet where the split in the rubber tubing occurs. This eliminates any possibility of the escape of the infected mosquito. Another piece of masking tape holds down the free leg and a longer piece holds the bird down on the jar.

In comparative transmission studies it is frequently necessary to infect two segregated groups of mosquitoes from a common donor host. This can be accomplished easily by placing two of these cages side by side and using both legs of the chick, one inserted into each cage.

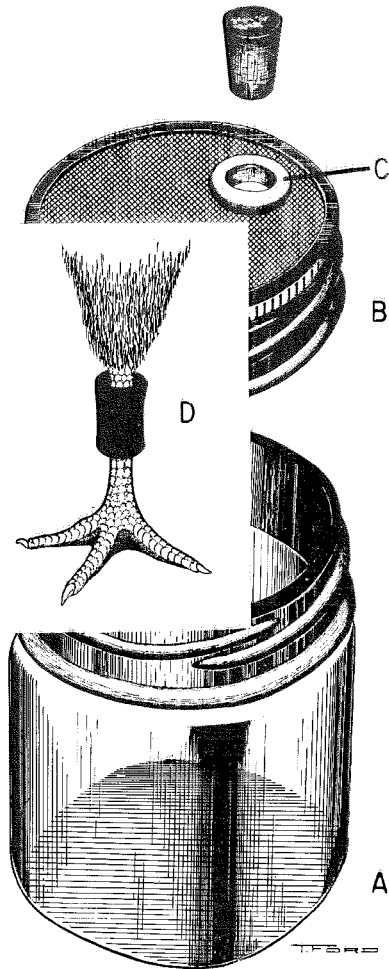


FIG. 1.—Exploded view of feeding cage. A, jar. B, top assembly. C, grommet. D, leg of chicken encased in rubber tubing.