AN INEXPENSIVE, RETRACTING RAT LEVER¹

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We have recently described a method for automatically presenting a water bottle or food bin to animals (Crowder, Wilkes, and Huneycutt, 1964). The application of the same method to the automatic presentation and withdrawal of a lever is shown in Fig. 1. The lever is mounted on a Masonite panel (P), the top of which is hinged while the bottom is held away from the cage by a spring (S). A crank (C), attached to a motor shaft, is used to push the panel toward the cage, thus presenting the lever through a slot in the cage wall. The crank consists of a metal rod about 1¼ in. long, with a hole for the motor shaft near one end and, near the other end, a pin mounted parallel to the motor shaft. Two normally-closed leaf-type microswitches (M) serve as limit switches, actuated by one of the set screws fastening the crank to the motor shaft. If voltage were applied to the lower switch in Fig. 1, the crank would rotate 180 degrees and come to rest extending horizontally to the left, as the long set screw opened the lower switch. The lever would then be out of the cage. Should voltage later be applied to the upper switch, the crank would rotate another 180 degrees, returning the crank and the lever to the position shown.

REFERENCE

Crowder, W. F., Wilkes, W. P., and Huneycutt, B. D. Simple motor-driven devices for feeding and watering animals. *J. exp. Anal. Behav.*, 1964, 7, 313-314.

¹The development of this apparatus has been supported by a University of Mississippi Faculty Research Grant and by Grant No. MH 04988 from the National Institutes of Health.

Fig. 1. Motor-driven retracting lever, C. Crank, attached to motor shaft (motor not shown). M. Leaf-type microswitches, used as limit switches. P. Hinged panel, on which lever assembly is mounted. L and R. Lever assembly, consisting of a sheet metal lever (L), bolted to the armature of a relay (R).