

Two Devices for Indoor Processing of Insect Collections

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Abstract—Two devices for indoor processing of insect collections are described. The first device markedly simplifies comparative studies of large series of insects. The second device allows the height of labels on pins to be adjusted so that a set of labels can be mounted simultaneously, which is important when a large amount of material is processed.

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Indoor processing of large insect collections is a labor-intensive and long process, and any improvements facilitating this work are of interest.

Lobanov and Kotyurgin (1975) invented a manipulator system for studying insects that reduces the time necessary for identification of an object under a binoc-

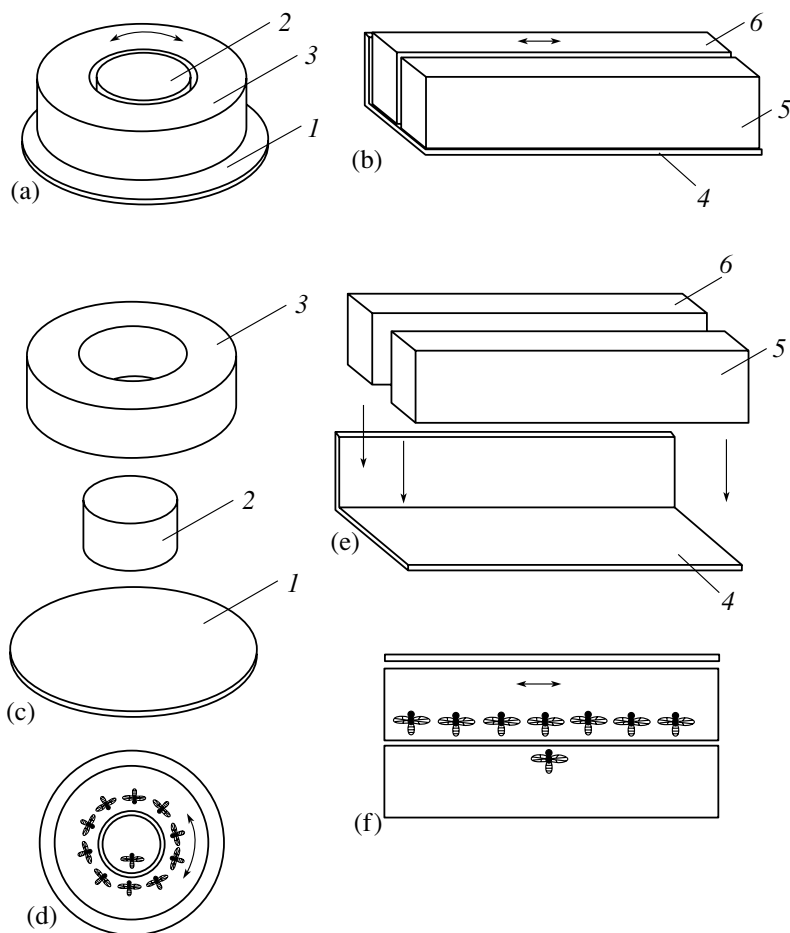


Fig. 1. Devices for comparative studies of insects: (a) ring device, general view; (b) bar device, general view; (c) components of ring device; (d) its view from above; (e) components of bar device; and (f) its view from above: (1) metal disk, (2) polyurethane foam cylinder, (3) polyurethane foam ring, (4) rectangular metal plate, and (5, 6) polyurethane foam bars.

ular microscope. However, problems in comparative studies of large series of insects have not yet been solved, and this stimulated me to design two devices described below.

To adjust the height of labels on pins while sorting the material, researchers use either pincers (Bogdanov-Kat'kov, 1947) or a stepped wood block with a hole in each step (Golub et al., 1980). An essential disadvantage of these devices is that it is impossible to pin several labels simultaneously. Moreover, when the block is used, it takes some time to aim the pin at the small hole. The device I propose has no such disadvantages, allows one to work with sets of labels, and is convenient for sorting abundant materials.

Device for Comparative Studies of Insects

Two modifications of the device for comparative studies of insects were produced and tested (Figs. 1a, 1b). The principle of operation is basically the same in both cases, but each modification, ring and bar, has its own advantages, and both are described below.

The ring device (Figs. 1a, 1c) consists of (1) a metal disk 100 mm in diameter and 3 mm thick, (2) a polyurethane foam cylinder 20 mm in height and 30 mm in diameter, and (3) a polyurethane foam ring with inner and outer diameters of 32 and 90 mm. The cylinder is glued in the center of the disk, and the ring is placed on the disk without gluing so that it can be rotated about the cylinder (Fig. 1a). To compare several insects mounted on entomological pins, one of them is placed on the edge of the cylinder, while other insects are placed along the inner edge of the ring (Fig. 1d). The device is installed on the specimen stage of a binocular microscope (MBS-2 type) so that both the reference insect on the cylinder and the nearest insect on the ring could be examined. Turning the ring, the researcher can consecutively compare all insects in the series.

The bar device (Figs. 1b, 1e) consists of (4) a rectangular metal plate (150 × 90 × 2 mm), which should be bent lengthwise on one side to obtain a flange approximately 30 mm in height, and (5, 6) two polyurethane foam bars (150 × 30 × 30 mm). One bar (5) is glued onto the plate so that the other bar (6) could be placed between it and the flange, with a small gap (Fig. 1b). The insect of interest is placed at the edge of the fixed bar, and other insects are placed along the near edge of the movable bar (Fig. 1f). The subsequent procedure is the same as above, except that serial comparisons are made by displacing the movable bar instead of turning the ring.

Device for Mounting Labels on Entomological Pins

The device (Figs. 2a, 2b) consists of (1) a base plate, (2, 3) side planks with stepped edges, (4, 5) two wood bars, (6) a polyhedron with stepped upper surface, (7) a rectangular piece of wire mesh bent stepwise, and (8) nails. The base plate, 210 × 80 mm in size, is made of

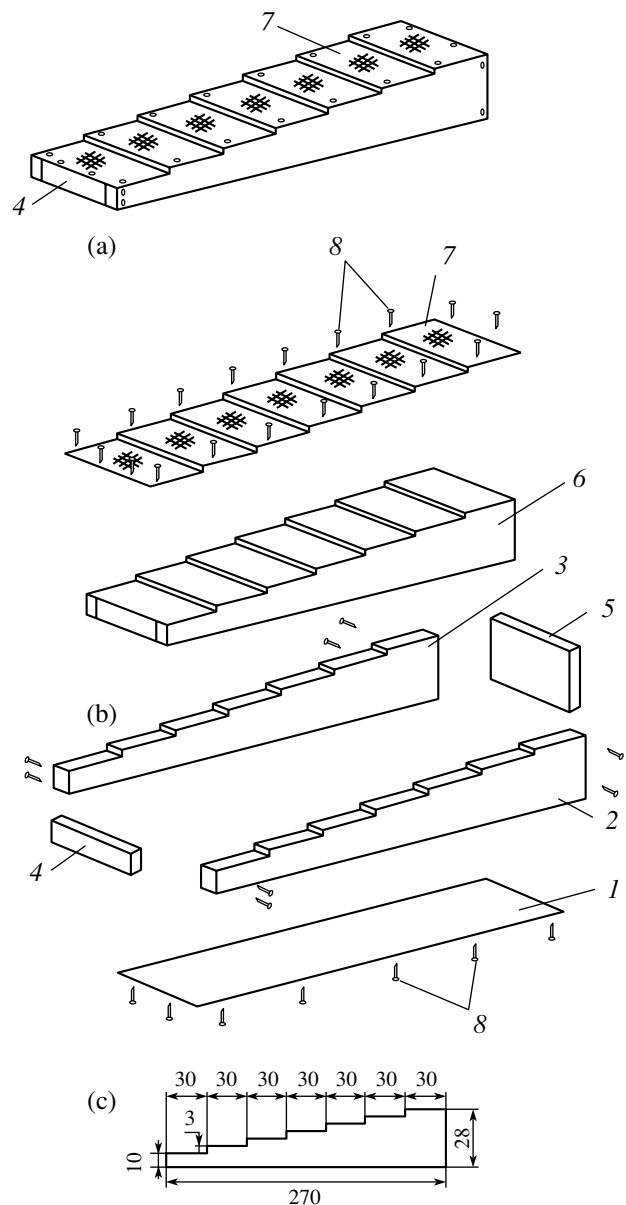


Fig. 2. Device for mounting labels on entomological pins: (a) general view, (b) components, and (c) longitudinal section with sizes (mm): (1) base plate, (2, 3) side planks, (4, 5) wood bars, (6) polyurethane foam polyhedron, (7) wire mesh, and (8) nails.

sheet metal. The planks are 210 mm long and 10 mm thick; their shape and size (side view) are shown in Fig. 2c. One wood bar (4) is 60 × 10 × 10 mm in size, while the other bar (5) is 60 × 28 × 10 mm. The planks are fastened to the bars with nails, and the resulting construct is attached to the base plate. Thereafter, a rectangular piece of polyurethane foam (190 × 60 × 28 mm) is inserted into it and cut so as to make steps coinciding with those on the side planks (Fig. 2b). The resulting "staircase" is covered with wire mesh of appropriate size, which should be bent to fit the steps. The edges of

the mesh are fastened to the upper sides of the planks and bars with nails (Fig. 2b).

Using this device, it is possible to adjust labels on entomological pins at a certain height and to pin a set of labels simultaneously, which is important for processing large collections. To do this, the labels (geographic, ecological, etc.) are placed on the corresponding steps of the device and pierced with a pin down to the base plate.

REFERENCES

1. N. N. Bogdanov-Kat'kov, *Guidelines for Practical Course in General Entomology* (Sel'khozgiz, Moscow, 1947) [in Russian].
2. V. B. Golub, D. A. Kolesova, Yu. B. Shurovenko, et al., *Entomological and Phytopathological Collections: Making and Keeping* (Voronezh, 1980) [in Russian].
3. A. L. Lobanov and V. A. Kotyurgin, "A Manipulator System for Examining Insects under Binocular Microscope," *Entomol. Obozr.* **54** (4), 923–925 (1975).

SPELL: manipulator