

## Methods of Bee Keeping

The ultimate aim of bee keeping is to get more and more honey in pure form. The old method commonly used by old apiculturists is very crude, cruel and of unplanned type. This old method is called as Indigenous method.

### Indigenous method

1. **Hive.** Two types of hives are used in indigenous method of bee keeping e.g. wall or fixed hive and movable hive.

(a) **Wall or fixed hive.** It is purely natural type of comb because the bees themselves prepare the hive at any space on the wall or trees. There is an opening on one side through which bees come out of the hive.

(b) **Movable hive.** It comprises of hollow wood logs, empty boxes and earthen pots etc. placed in varandas of houses. There exist two holes, one is for entrance and the other for exit of the bees. The swarmed bees usually come to the box on their own accord. Some bee keepers use to take the clusters of the swarms from a tree and keep them in the hive.

2. **Extraction of honey.** For honey extraction, burning fire is brought near the bee hive at the night as a result of which bees are either killed or they escape off. Further the hive full of honey is being removed, cut into pieces and squeezed to get honey. Sometimes smoking is done so that the bees may escape from their hives.

3. **Drawbacks of indigenous method.** The indigenous method of bee keeping suffers from a number of drawbacks due to which it is not recommended by present day panel. These drawbacks are :

- (i) Honey becomes impure because at the time of squeezing, the brood cells, pollen cells, honey cells and larvae are also extracted.
- (ii) The colony becomes weak due to killing of the eggs and the larvae at the time of squeezing.
- (iii) Formation of new hive by the escaped bees requires extra energy which effects the yield.
- (iv) The activities of the bees can be controlled.
- (v) The hivation of bees on the same place is only matter of chance.
- (vi) The honey robbers, like, rat, ant, wasp and monkeys may affect the hive easily.
- (vii) The race improvement programme may not be applied, so no possibility



for the selection of the best bee is there. (viii) The hazards created by climatic factors can not be controlled.

### Modern method of apiculture

To overcome the drawbacks of indigenous method an advanced method based on scientific facts has been developed. It has opened a new era for the cottage industry in India and has also given an opportunity for lakhs of unemployed persons to keep them busy in this business. From this cottage industry programme the routine agricultural work may not suffer. First of all care was taken to improve the texture of the hives and during this race hive patterns were introduced in India. The Newton model with 7 to 10 frames (21 × 14.5 cm) in the brood chamber with a shallow super (21 × 6.5 cm sized frames) has been most popular in south, east and central India. Longstroth hive containing 10 frames (44.8 × 23 cm) has been used as a standard hive in Himachal Pradesh, Jammu and Kashmir, and Punjab. In Uttar Pradesh another type of hive has been in use which was evolved at Jeolikote apiary and contained 8 frames (30 × 18 cm). After gaining experience from the above mentioned hives, Indian Standard Institute has standardized the hives of small and big sizes accommodating frames 21 × 14.5 cm and 31 × 20.4 cm respectively.

Now-a-days a typical type of movable hive is constructed which is capable of expansion or contraction according to the requirement of the place, season and climatic conditions.

### Appliances for Modern Method

- (1) Typical movable hive.
- (2) Queen excluder.
- (3) Honey extractor.
- (4) Uncapping knife.
- (5) Other equipments.

1. **Typical movable hive.** An artificial movable hive is constructed by wooden box based on bee space theory (Fig. 3). The size and number of frames are variable from hive to hive according to the need. A small space is enough to permit the entrance and exit of workers and drones but queen once placed in hive never comes outside the hive. The perforation size on zinc sheet is only of 0.375 cm but the thorax of the queen is 0.43 cm to 0.45 cm, so the queen can never pass through this pore. This typical hive consists of 6 parts as given below :

(a) **Stand.** It is the basal part of the hive on which the whole hive is constructed. The stands are adjusted to make slope for the hive. Due to this slope rain water comes down quickly.



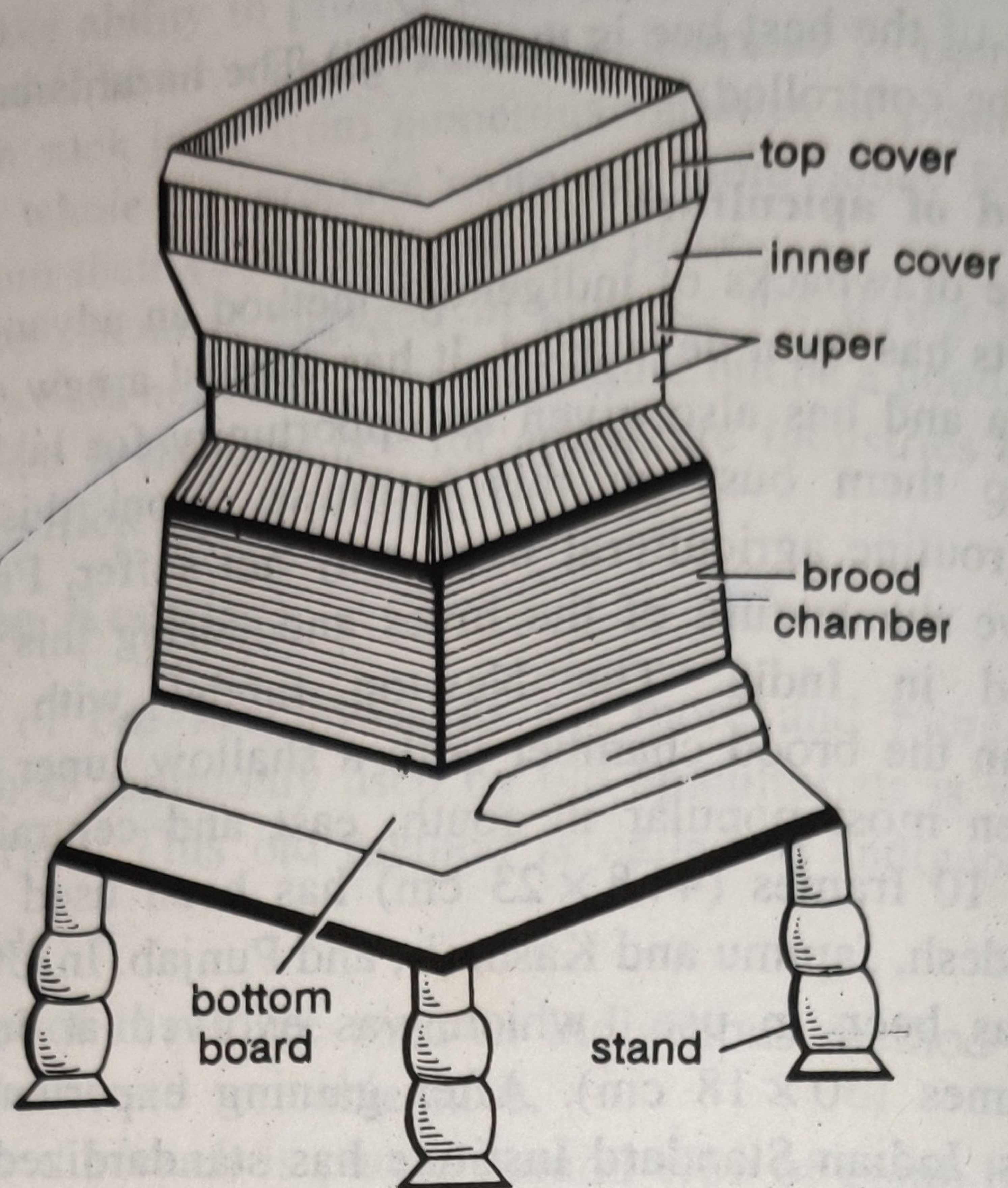


Fig. 3. Typical movable hive.

(b) **Bottom board.** It is situated above the stand and forms the proper base for the hive having two gates in the front position. One gate functions as an entrance while the other as exit.

(c) **Brood chamber.** The bottom board carries the brood chamber which is the most important part of the bee hive. It is large in size provided with 5 to 10 frames. In each frame a wax sheet bearing hexagonal frames is held up by a couple of wires in a vertical position. Along with the margin of every hexagonal mark, the bees start making wall and ultimately the cells. Here every sheet of the wax is known as COMB FOUNDATION which attracts the bees and provides the base for the comb preparation on both the sides. The frames are kept vertically in brood chamber which is covered over by other frames having a wire meshing through which the workers can easily pass. The comb foundation helps in obtaining a regular strong worker brood cell comb which can be used repeatedly. The Central Bee Research Station at Pune arranged the manufacture of a comb foundation mill which manufactures, different cell sizes required in several regions of the country. The brood chamber is covered by another chamber known as super.

(d) **Super.** It is also without cover and the base. Super is provided with many frames containing comb foundation to provide additional space for expansion of the hive.



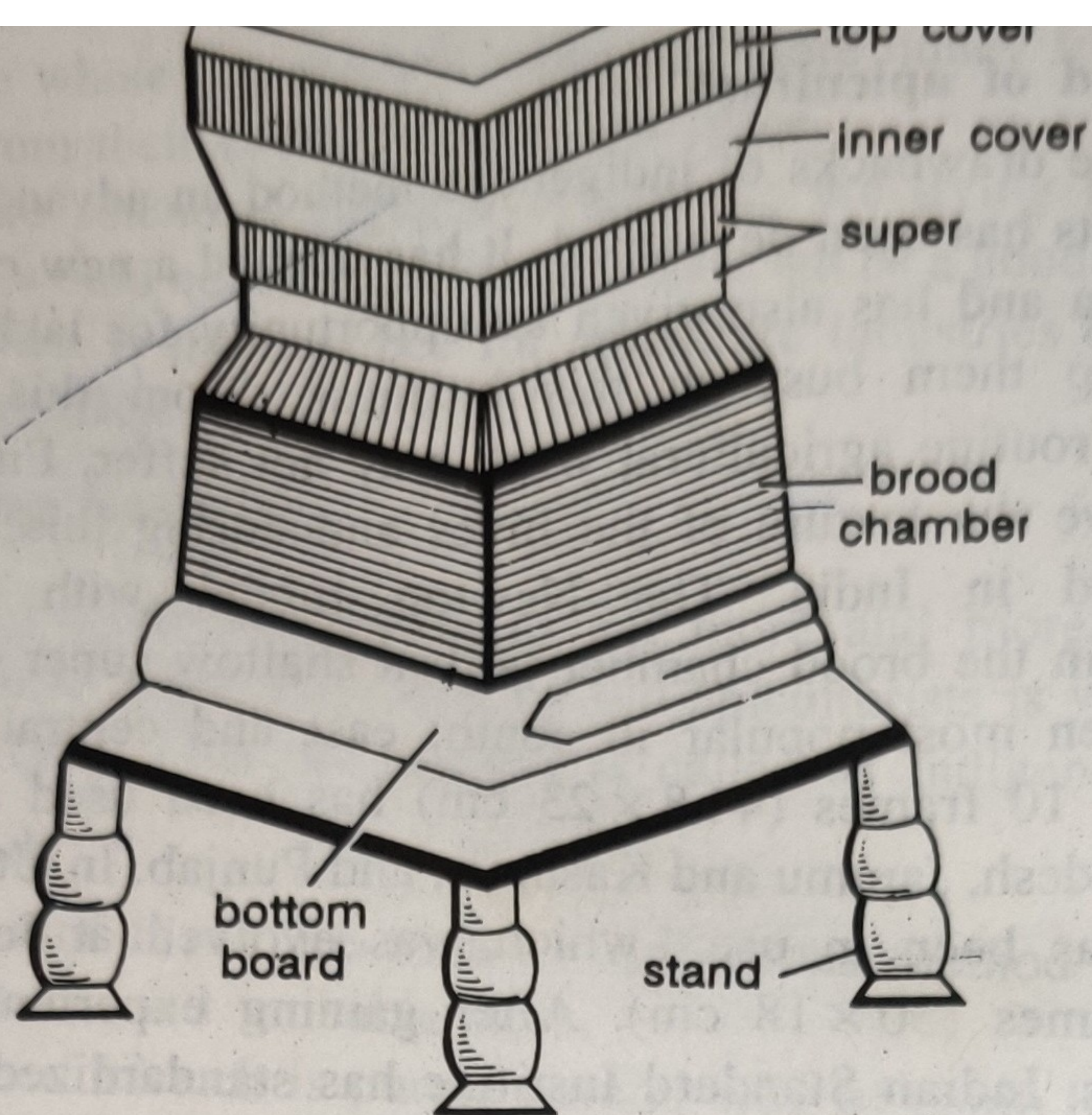


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(e) **Inner cover.** It is a wooden piece used for the covering of the super. It has many holes for proper ventilation.

(f) **Top cover.** It is meant for protecting the colony from rains. It is fitted with zinc sheet which is plain and sloping.

2. **Queen excluder.** It consists of a wire-gauze, extraneous guards and drone traps with individual wires placed 0.375 cm apart. It readily permits the workers to pass through it but keeps back the queen in the brood chamber.

3. **Honey extractor.** It is used for the extraction of the honey from the comb and functions on principle of centrifugal force. When combs are centrifuged by this device the pure honey is thrown out without any damage to the comb.

4. **Uncapping knife.** When all of the combs are filled with honey they are sealed by capping with the wax. So, before such capped combs are placed in the honey extractor, the wax sealing has to be removed with the help of an uncapping knife heated by steam before use.

5. **Other equipments.** Most of the useful equipments for the successful management of the bee are locally manufactured which are very cheap. As they are made locally, they may not be exactly similar to those made at other places. Thus, Indian Standard Institute has standardized some very common equipments for the production of uniform and interchangeable articles. Some materials like protective garments, gum cages, gloves, net veil, bee net, brush etc. are required for easy and well planned handling of the bees.

## Advances of Modern Method

In the modern method of bee keeping there are several advantages which encourage the well planned bee keeping.

- (1) A proper watch on the activities of the bees can be had.
- (2) A strong colony can be developed by providing sugar, syrup, pollen substances to honey bees.
- (3) Swarming of bees is checked by modern hive.
- (4) The same hive is used again and again so the workers pay their attention more for the honey and not for the hive formation.
- (5) Under adverse climatic conditions the hive can be transferred from one place to the other for the protection of the bees.
- (6) Comb can be protected from the enemies.
- (7) Pure honey in large quantity can be obtained.

**Precautions.** For the proper management of bee keeping programme following precautions should be taken :

- (1) The hive should not be kept more than half a mile away from the place from where the bees have to collect the nectar and the pollen.
- (2) People must know about the bee keeper for proper contact.
- (3) The boxes must be kept under shade at cool places.



- (4) Industry should be near the road for proper transport facilities.
- (5) Fresh water reservoir should be near the hive.
- (6) Good flora for the collection of pollen and nectar should be there.

**Products of Bee Keeping**