



### **Idea Plan Beehives and Honey Equipment**

**No. IP 790-32**

This Idea Plan is intended to provide educational information and ideas concerning the various needs of the beekeeper and honey producer. The following attached drawings are based on historical plans and may not meet design and construction standards for your area:

Beehives and Honey Equipment (USDA 84-1)  
Solar Beewax Extractor (1969) (PSU 301)  
Low Cost Beehive (USDA 6324)  
Honeycomb Uncapping Tank and Super Dumping Board (USDA 6325)  
5 & 6 Deep Brood Hive (USDA 6327)  
Honey Extractor (USDA 6330)

The Department of Agricultural and Biological Engineering at Penn State has a variety of educational material available related to agricultural and biological engineering. This material is intended to help Pennsylvania farmers and others develop buildings and facilities for modern, environmentally-compatible farm facilities. The material can be used in conjunction with county extension staff, builders, suppliers, consulting engineers, the Natural Resources Conservation Service, financial management advisors, farm lenders, veterinarians, and others to assemble a facilities plan suitable for local conditions.

Publications are available in the areas of agricultural safety and health, animal housing systems, building and farmstead planning, crops and greenhouses, machinery systems and tractors, residential housing, soil and water resources, and solid waste management. Contact your county Penn State Extension Office for more information on these subjects. You can also obtain an index of publications concerning the above areas by calling, writing, faxing or e-mailing:

Department of Agricultural and Biological Engineering  
246 Agricultural Engineering Building  
University Park, PA, 16802-1909  
Telephone: 814-865-7685  
Fax: 814-863-1031  
E-mail: [agbioeng@psupen.psu.edu](mailto:agbioeng@psupen.psu.edu).

---

This publication is available in alternative media on request.

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. The Pennsylvania State University does not discriminate against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, or veteran status. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 201 Willard Building, University Park, PA 16802-2801; tel. (814) 863-0471; TDD (814) 865-3175.

# BEEHIVES AND HONEY EQUIPMENT

COOPERATIVE  
FARM BUILDING  
PLAN EXCHANGE

PLAN  
LEAFLET  
NUMBER 84-1

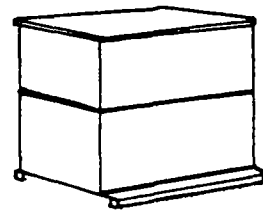
Beekeeping is interesting and can be profitable. It is well suited for small farm operations. The productivity of several crops can be enhanced greatly through pollination by bees kept near the field.

The five plans that are described in this leaflet can help small unit operators keep expenses low by constructing their own equipment.

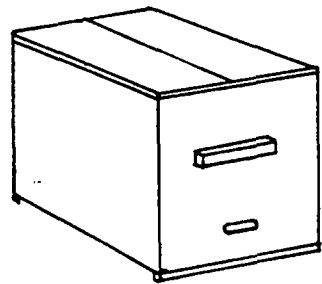
Plan 6324 is a simple, low-cost hive that can be easily crafted on the farm. One hive can be cut from one 1 x 12 piece of lumber and one 1 x 8 piece of lumber, each 10 feet long. The plan shows one brood hive, a super, a base and a cap. Plan 6327 is a taller brood hive than 6324. It has two options, a five-frame-deep unit or a unit with a double row of three frames each.

Although comb honey is marketable, many customers will prefer to have the honey separated from the wax. In Plan 6325, a honeycomb uncapping unit and a dumping board are handy adjuncts for accomplishing this task. Details are given for cutting the 30-gallon dumping tank from a sheet of galvanized iron. If you wish to speed up the separation process, you can uncap the combs and then spin the honey from them using a handcrank operated honey extractor. Plan 6330 shows the detail for a stand and comb holder that holds four combs at a time. The honey passes through an expanded metal screen and into a commercially available pail that is large enough to contain the unit.

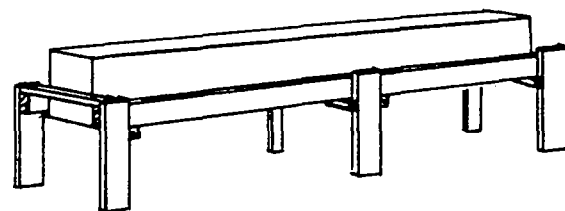
If you wish to let the sun speed up the extraction, use Plan 6265. The sun warms the honey so it flows faster and more completely from the combs.



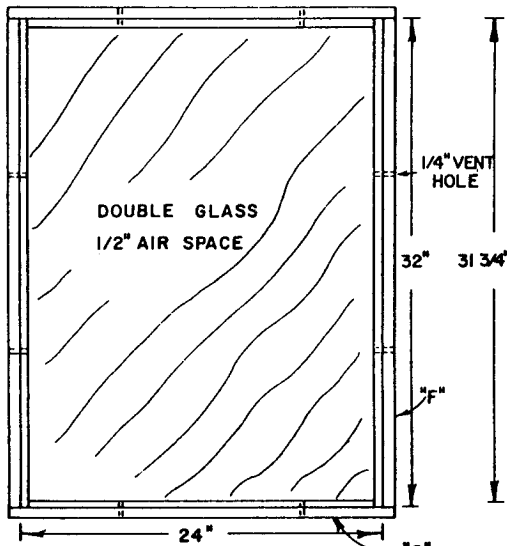
LOW-COST BEEHIVE  
PLAN NO. 6324



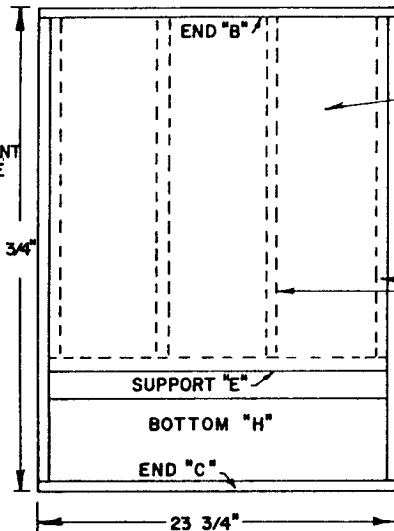
FIVE-FRAME-DEEP BROOD HIVE  
PLAN NO. 6327



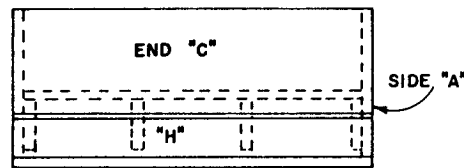
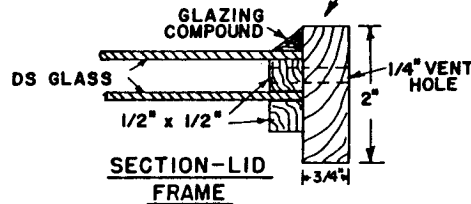
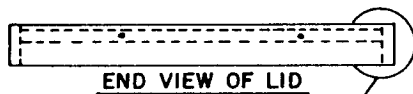
HONEYCOMB UNCAPPING TANK  
PLAN NO. 6325



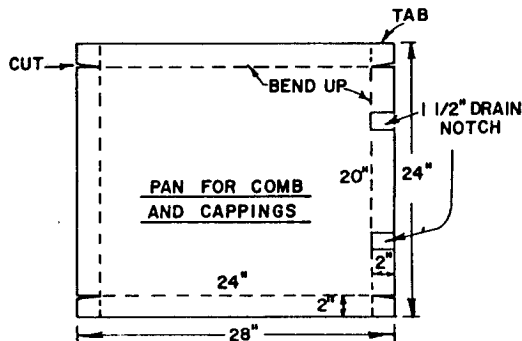
TOP VIEW OF LID



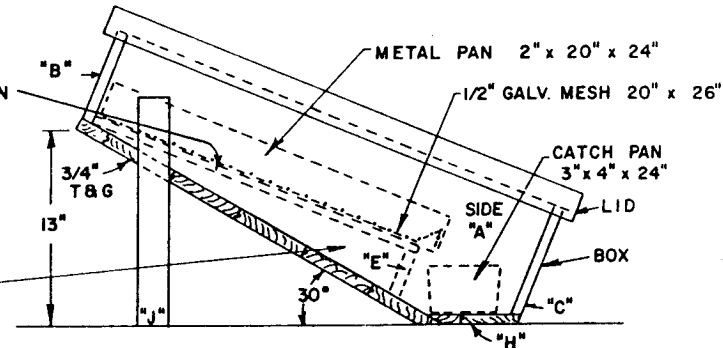
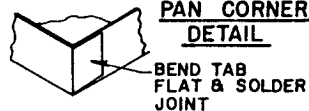
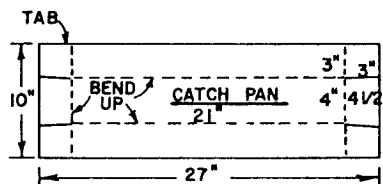
TOP VIEW OF BOX



END VIEW OF BOX



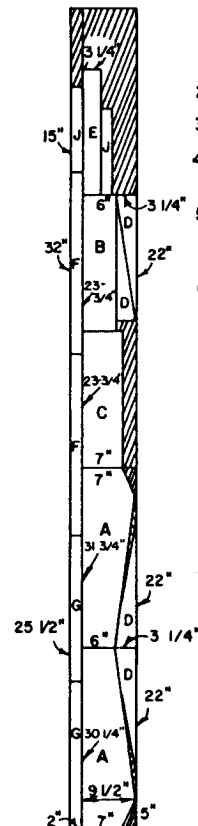
CUTTING DIAGRAMS FOR 24 GA. GALVANIZED STEEL PANS



SIDE VIEW, COMPLETE UNIT

NOTES

1. PAINT INSIDE WHITE.
2. PAINT OUTSIDE BLACK.
3. SEAL ALL CRACKS.
4. PLACE IN PROTECTED PLACE ON SOUTH SIDE OF A BUILDING.
5. REMOVE WAX AND HONEY WHEN MOST COMBS ARE MELTED. THE HONEY SHOULD BE DISCARDED.
6. SEE REVERSE SIDE FOR BILL OF MATERIALS.



CUTTING DIAGRAM

1" x 12" x 12" BOARD -  
(3/4" x 11 5/8" x 12")

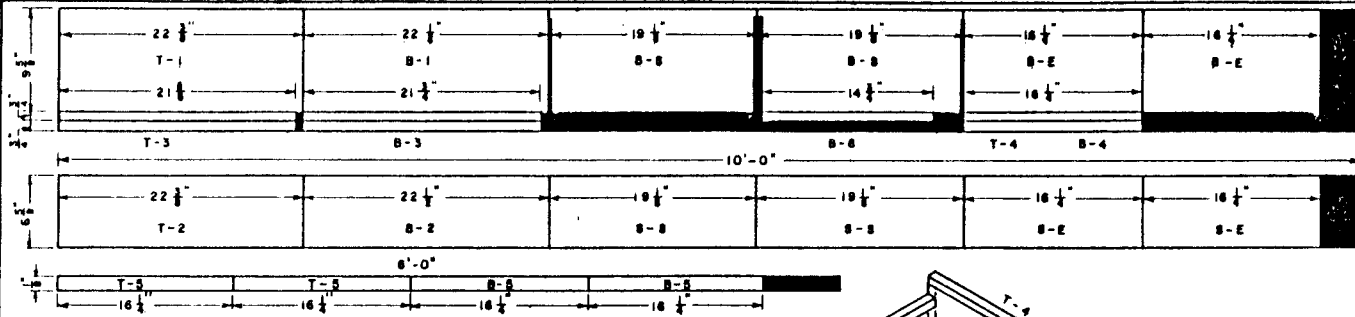
THE PENNSYLVANIA STATE UNIVERSITY  
AGRICULTURAL EXTENSION SERVICE

**SOLAR BEESWAX  
EXTRACTOR**

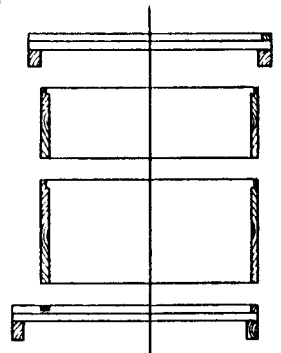
DRWN. BY: SLB  
DESIGN: ARG  
DATE: 9/1/69

ORDER NO.  
790-301

SHEET 1 OF 1

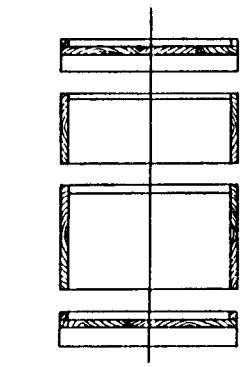


NOTE: DIAGRAM ABOVE SHOWS HOW ONE HIVE CAN BE CUT FROM A 1x12 AND A 1x8, BOTH 10' LONG, AND A 2x2 6' LONG. (1/8" FOR SAW CUT)



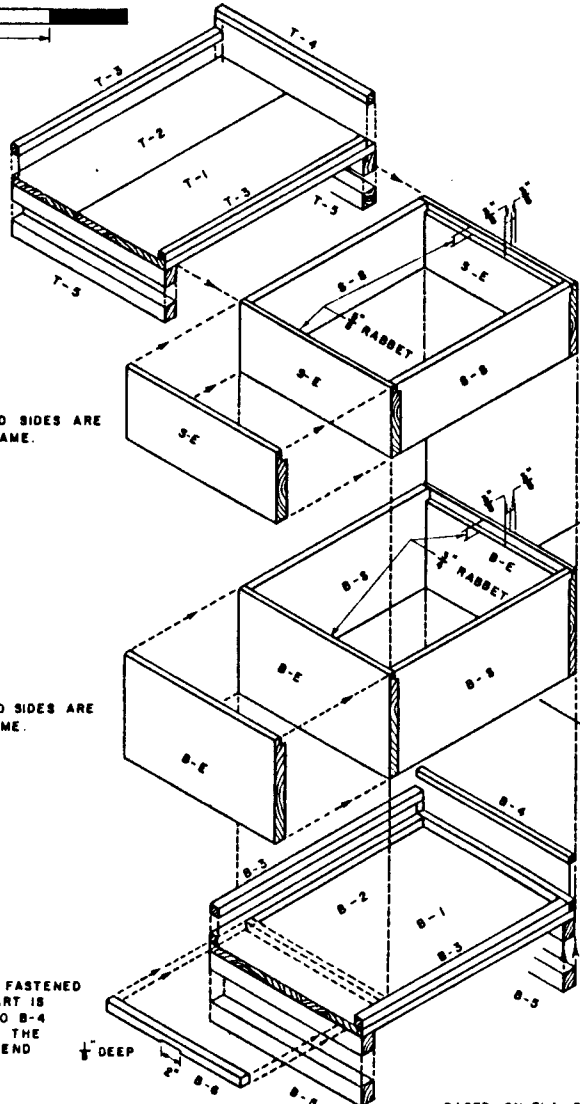
EXPLODED TOP: T-1, T-2, THE TWO T-3'S, T-4, AND THE TWO T-5 PIECES ARE ASSEMBLED TO FORM THE TOP.

SECTION A



SECTION B

EXPLODED BOTTOM: B-1 AND B-2 ARE FASTENED AT EACH END TO A B-5 PART. A B-3 PART IS ATTACHED TO EACH SIDE, BUTTING UP TO B-4 AT THE END. B-6 IS LOCATED BETWEEN THE B-3'S AND DIRECTLY BELOW BROOD BODY END AS SHOWN.



SHALLOW SUPER  
EXPLODED END VIEW: ENDS AND SIDES ARE ASSEMBLED INTO ONE SOLID FRAME.

BROOD BODY  
EXPLODED END VIEW: ENDS AND SIDES ARE ASSEMBLED INTO ONE SOLID FRAME.

MEANING OF SYMBOLS	
B	BOTTOM
T	TOP
-E	END
-S	SIDE
B-	BROOD BODY
S-	SHALLOW SUPER

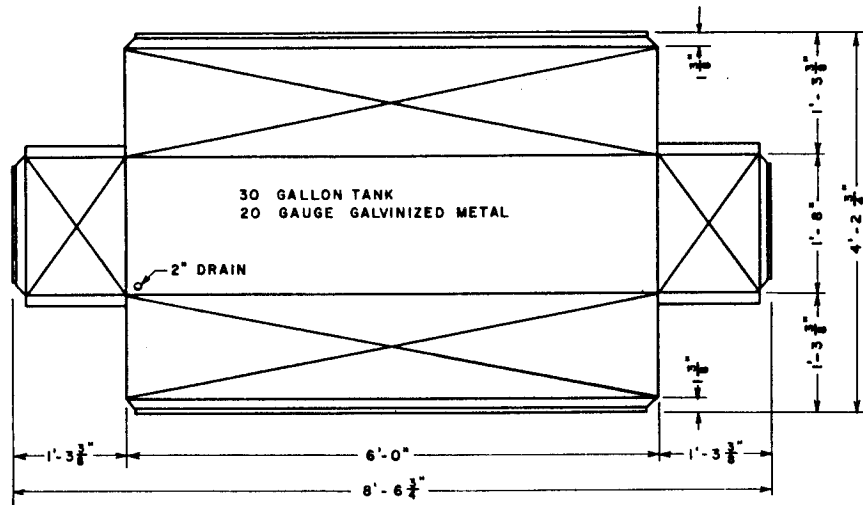
SCHEDULE OF PARTS		
SYMBOL	AMOUNT	DIMENSIONS (INCHES)
T-1	1	3/4 x 9 5/8 x 22 3/8
T-2	1	3/4 x 9 5/8 x 22 3/8
T-3	2	3/4 x 3/4 x 21 5/8
T-4	1	3/4 x 3/4 x 18 1/4
T-5	2	1 1/8 x 1 1/2 x 16 1/4
B-3	2	3/4 x 9 5/8 x 19 1/8
B-E	2	3/4 x 9 5/8 x 16 1/4
B-3	2	3/4 x 9 5/8 x 19 1/8
B-E	2	3/4 x 9 5/8 x 16 1/4
B-1	1	3/4 x 9 5/8 x 22 1/2
B-2	1	3/4 x 9 5/8 x 22 1/2
B-3	2	3/4 x 3/4 x 21 3/4
B-4	1	3/4 x 3/4 x 16 1/4
B-5	2	1 1/8 x 1 1/2 x 16 1/4
B-6	1	3/4 x 3/4 x 14 3/4

COOPERATIVE EXTENSION WORK IN  
AGRICULTURE AND HOME ECONOMICS  
THE PENNSYLVANIA STATE UNIVERSITY  
AND  
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

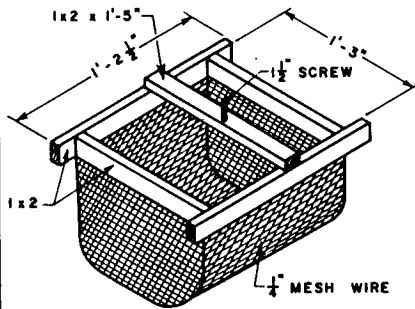
LOW COST BEEHIVE

USDA 180 EX. 6324 SHEET 1 OF 1

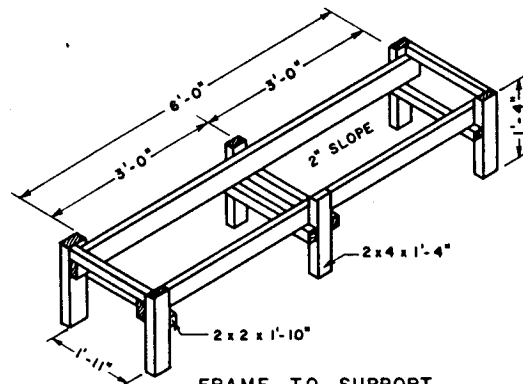
790-6324



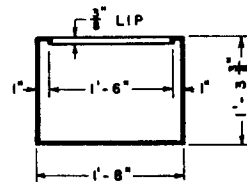
HONEY UNCAPPING TANK



BASKET TO COLLECT WAX CAPPINGS



FRAME TO SUPPORT  
UNCAPPING TANK



SECTION THRU  
CONSTRUCTED  
TANK

**NOTE:**

THE UNCAPPING TANK IS USED TO OPEN THE COMBS BEFORE HONEY EXTRACTING. TWO BASKETS MAY BE USED LEAVING APPROXIMATELY 42" TO HANG UNCAPPED COMBS.

**MATERIALS:**

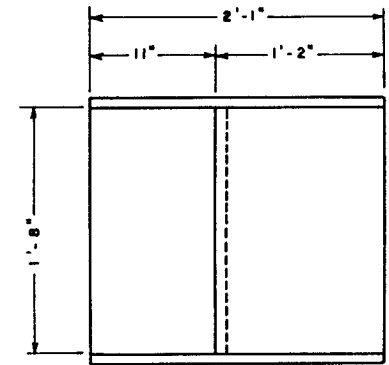
- FRAME** 2x2 x 6'-0" PINE  
2x4 x 26'-0" PINE  
1 LB. 10s NAILS
- BASKET** 1x2 x 8'-0" PINE  
16 1/2" x 5'-0" x 1/4" MESH HDW. CLOTH
- TANK** 4'-2 3/4" 8'-6 3/4"  
26 GA. GALVINIZED

HONEYCOMB UNCAPPING TANK

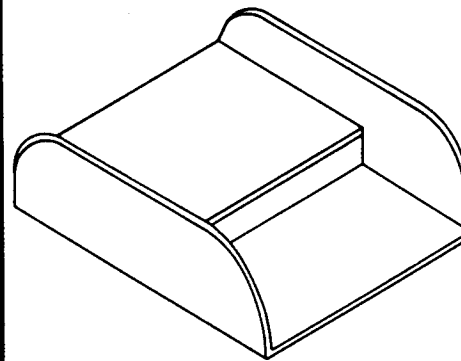
SCALE: NONE



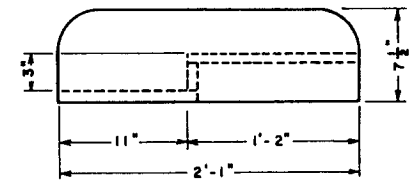
END VIEW



TOP VIEW



ISOMETRIC VIEW



SIDE VIEW

**NOTE:**

FINISHED UNIT SHOULD BE PAINTED WITH PAINT APPROVED FOR USE IN CONTACT WITH FOOD.

SUPER DUMPING BOARD

SCALE: NONE

COOPERATIVE EXTENSION WORK IN  
AGRICULTURE AND HOME ECONOMICS  
The Pa. State Univ.

AND  
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

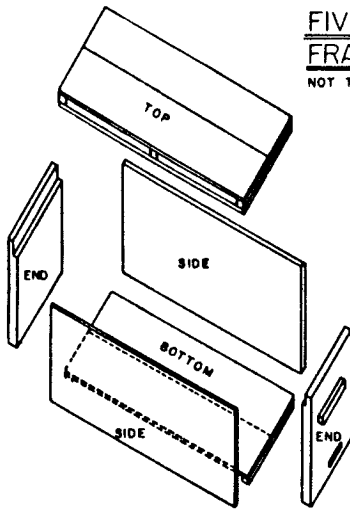
HONEYCOMB UNCAPPING TANK AND  
SUPER DUMPING BOARD

USDA '80 EX. 6325 SHEET 1 OF 1

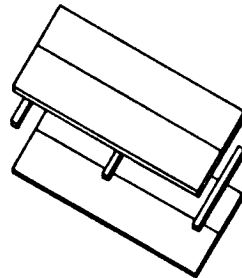
700-6325

**FIVE DEEP BROOD  
FRAME HIVE**

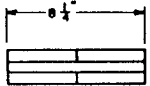
NOT TO SCALE



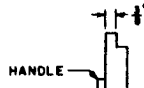
**EXPLODED ISOMETRIC VIEW**  
NOT TO SCALE



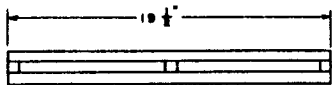
**EXPLODED VIEW OF TOP**  
NOT TO SCALE



SIDE



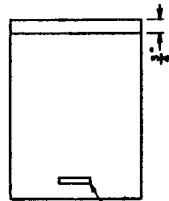
HANDLE



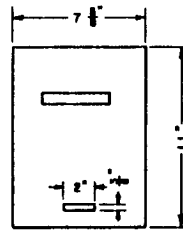
END



SIDE



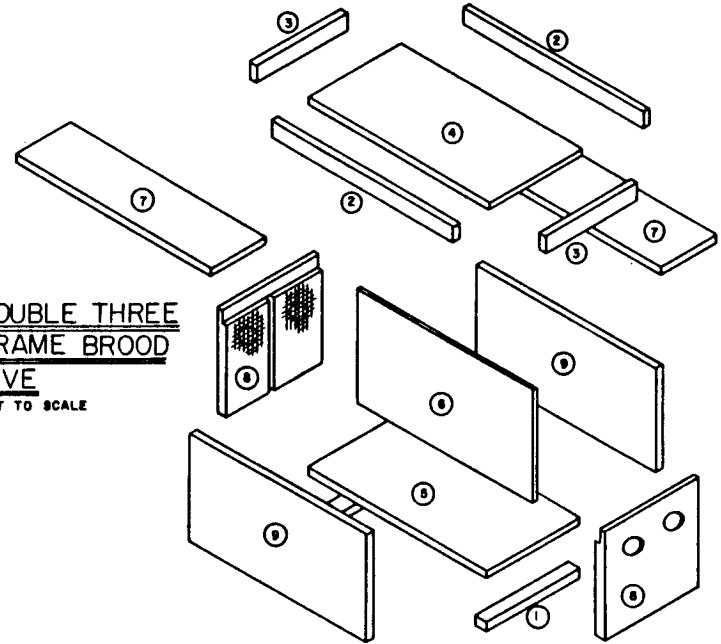
ENTRANCE  
INSIDE



OUTSIDE

**VIEW OF TOP**

**VIEW OF END**

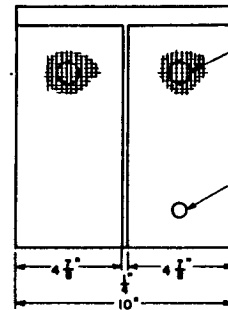
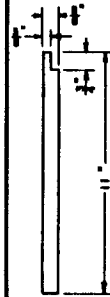


**DOUBLE THREE  
FRAME BROOD  
HIVE**

NOT TO SCALE

**EXPLODED ISOMETRIC VIEW**

NOT TO SCALE



1" DIA. VENT  
SCREENED

1/2" DIA. ENTRY

**PART NO. 8 - END**

PART NO.	LOCATION	SIZE
1	BOTTOM SUPPORT	1 1/2" x 10" x 1/2"
2	TOP RAIL	1 1/2" x 19 1/2" x 1/2"
3	TOP RAIL	1 1/2" x 12" x 1/2"
4	TOP	11 1/2" x 19 1/2" x 1/2"
5	BOTTOM	10" x 18 1/2" x 1/2"
6	DIVIDER	10" x 18 1/2" x 1/2"
7	INTER-TOP	4 1/2" x 18 1/2" x 1/2"
8	SIDE	11" x 19 1/2" x 1/2"

**NOTE:**

- PART NO. 6 AND NO. 7 TO BE REMOVABLE, DO NOT GLUE OR NAIL.
- PARTS NO. 1, 2 AND 3 MADE FROM 1 x 2 PINE OR CYPRESS.
- PART NO. 8 MADE FROM 1/2" EXT. A-A PLYWOOD.
- ALL OTHER PARTS OF 1/2" EXT. A-A PLYWOOD.
- TREAT ALL PARTS WITH PENTA SOLUTION.

NOTE: BASED ON UNIV. OF FLA. PLAN NOS. 907 AND 924-R

COOPERATIVE EXTENSION WORK IN  
AGRICULTURE AND HOME ECONOMICS  
THE PENNSYLVANIA STATE UNIVERSITY  
AND  
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

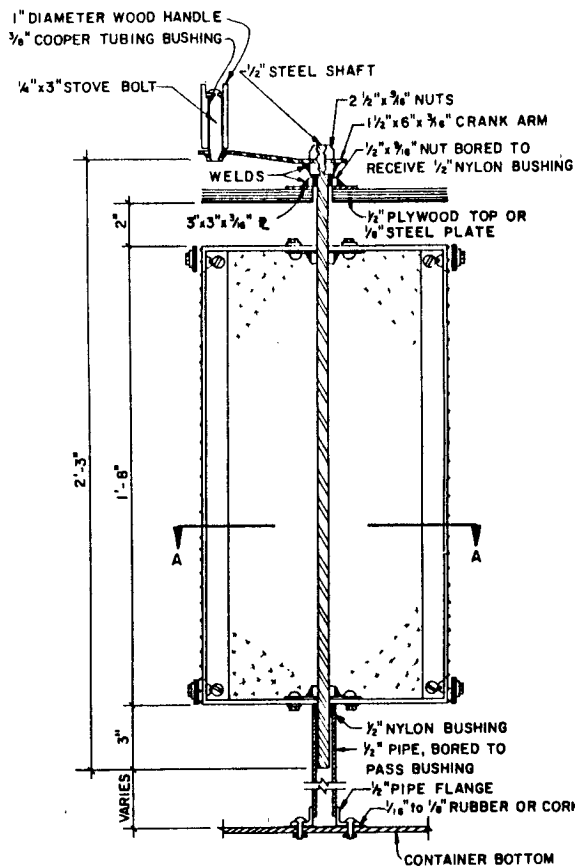
5 & 6 DEEP BROOD HIVE

EX. 6327

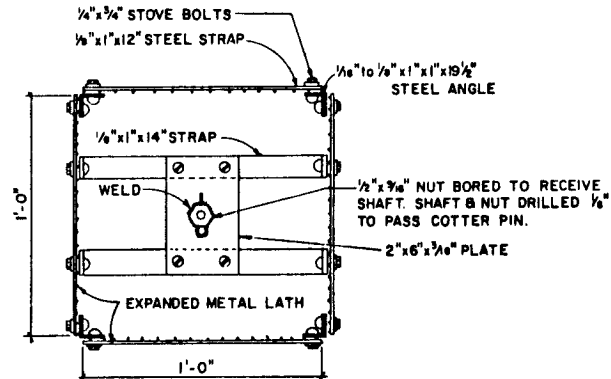
SHEET 1 OF 1

790-6327

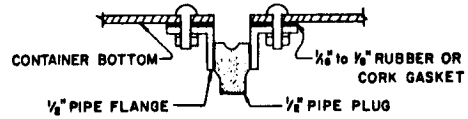
**NOTE:** THE HONEY EXTRACTOR IS USED TO SPIN THE HONEY OUT OF THE COMBS AFTER THEY HAVE BEEN UNCAPPED. THIS UNIT WILL HANDLE FOUR COMBS AT ONCE. CAUTION SHOULD BE USED WHEN EXTRACTING FROM NEW OR VERY OLD COMBS AS THEY ARE SUBJECT TO BREAKAGE. THESE COMBS SHOULD BE PARTIALLY EMPTIED ON ONE SIDE THEN TURNED AND PARTIALLY EMPTIED ON THE OTHER SIDE, REPEATING THIS PROCEDURE UNTIL ALL HONEY IS REMOVED.



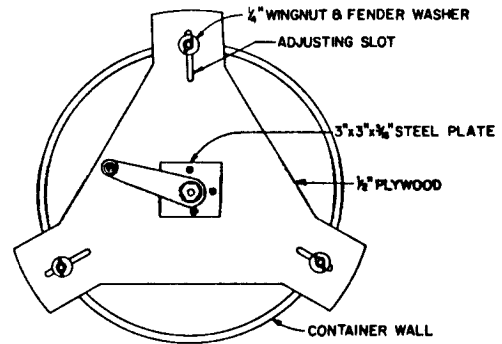
**DETAIL 2 - EXTRACTOR PARTIAL SECTION**



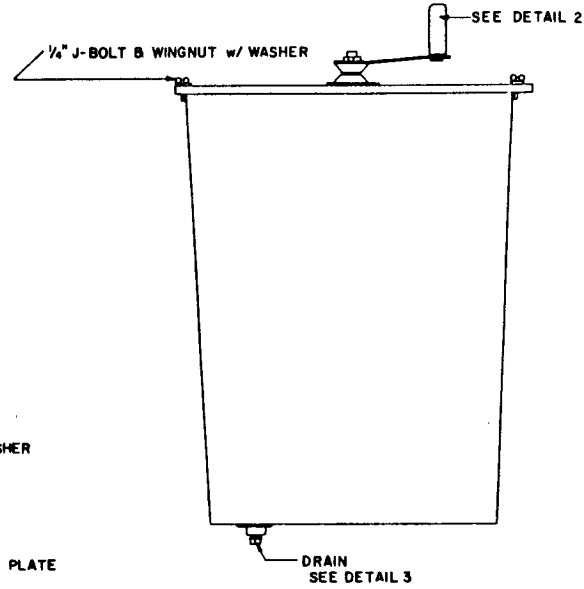
**SECTION AA**



**DETAIL 3 - DRAIN FITTING**  
NOT TO SCALE



**TOP VIEW**



**SIDE VIEW**

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS		
THE PENNSYLVANIA STATE UNIVERSITY		
AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING		
<b>HONEY EXTRACTOR</b>		
USDA '79	EX 6330	SHEET 1 OF 1
<b>790-6330</b>		