

COMMUNITY CANNING PLANTS

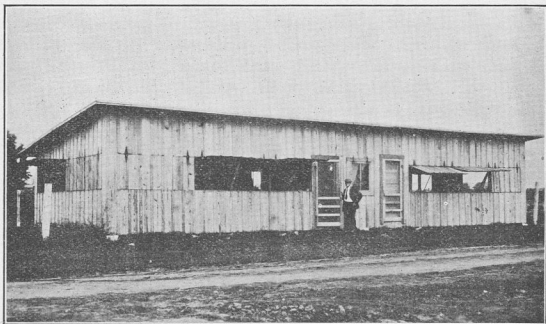


Fig. 1. Model Community Canning Plant on the Campus at the A. and M. College used for instructional purposes.

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COMMUNITY CANNING PLANTS.

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and Miss Cornelia Simpson, Specialists in Canning.

Enough fruit and vegetables are wasted on Texas farms annually to supply the food needs of all the people of the state. Expressed in terms of money this waste amounts to several million dollars. It is not practicable to establish commercial canneries in small rural communities at this time and farm families have neither the equipment nor the time to preserve these valuable food products in the home.

The community canner is designed: (1) to conserve the food supply, (2) to increase the supply of succulent food in rural homes, (3) to reduce living expenses of the farm family, and (4) to lighten the labor of the farm housewife.

The plant of a community canner consists of a small, inexpensive building and steam canning equipment, the latter costing from \$150.00 to \$300.00.

The processes and methods of operation are similar to those employed in commercial canneries and all kinds of fruits, vegetables and meat suitable for canning may be successfully and economically preserved in these plants.

To be successful, community canners must be cooperatively owned and operated. If operated as private enterprises for the benefit of owners they will fail.

HOW TO ORGANIZE.

Any rural community numbering fifteen or more families will find it profitable to have a community canner. The first step towards securing one is to call on the county farm demonstration agent or the county home demonstration agent, who are the local representatives of the U. S. Department of Agriculture and the Extension Service of the Texas Agricultural and Mechanical College. Either or both of these agents will give counsel and assistance in all matters relating to organization and operation of the enterprise.

The capital required should be raised by popular subscription. Usually a farmers' club is organized and a committee appointed to canvas the membership for subscriptions. If a club or farmers' organization is already in existence in the community it should install and operate the canning plant on a cooperative basis. For illustration, a cooperative fruit or

vegetable marketing association, or a cooperative cotton gin or potato warehouse association might well add a canning plant, and put its management in charge of the manager of the enterprise, and thus by giving employment for a longer period in the year contribute to the solution of the problem of securing a competent person for manager.

Incorporation of the club or association is desirable but not necessary. The subscribers to the fund to purchase the plant should meet and organize by electing the usual officers and an executive committee. This committee should be authorized to build or rent a suitable building, to purchase the equipment, to employ a manager and such other help as may be needed, to arrange for a supply of cans, and make rules for the operation of the enterprise. If the capital amounts to as much as \$500.00 a charter may be obtained from the State of Texas at a cost of \$10. Full directions for incorporating may be obtained by writing to the Director of Extension, College Station, Texas.

INSTRUCTION OF MANAGERS.

When a community has decided that it wants a canning plant and information in addition to that contained in this bulletin is desired, application may be made through the county farm demonstration agent or the home demonstration agent to

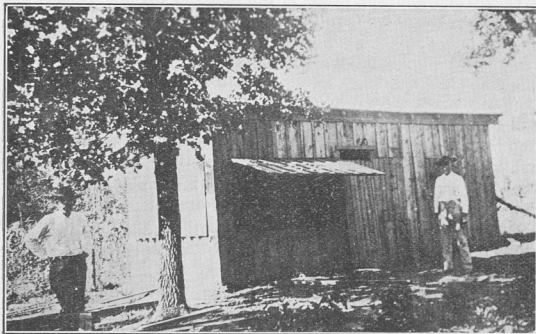


Fig. 2. The first community canning plant established in Texas, built at Red Springs, Smith County, Texas, after plans furnished by the Extension Service, A. and M. College.

the Extension Service of the A. and M. College of Texas and a member of the staff will, if possible, visit the community and give assistance in the organization and operation of the plant.

It is highly desirable that the person selected as manager should visit College Station and take at least a three days free course of instruction in a model plant which is located on the College Campus. If the manager cannot take this course of instruction a member of the Extension Staff will, upon invitation, visit the community and instruct the manager in the operation of the plant. In order to obtain the benefit of this instruction by a representative from the College it will be necessary for the equipment to be installed and made ready for operation before the canning season begins.

In small plants, the manager should be the only paid employe. All other labor should be performed by the owners of the products canned. In the rush season it may be necessary to employ a boy or girl to assist the manager for a limited period.

The canner should be operated on a true cooperative basis. Each patron should take his or her products to the canner and assist in the work of canning them.

Expenses of operation are paid from the proceeds of the sale of toll or from cash fees charged for canning.

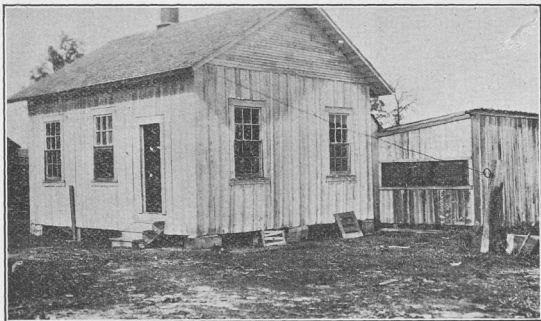


Fig. 3. Canning plant and storage room at Call, Texas. This plant is one of six built and operated by the Kirby Lumber Co., for the benefit of their employes.

PURCHASE OF CANS.

In order to keep the cost of canning low, a supply of cans for all patrons should be purchased before the canning season opens. The manager or the executive committee of the club or association should canvass the community to determine about how many cans of food each family will need. If toll in canned goods is to be taken, instead of a cash toll, the cans purchased should be about twice the number needed for home use.

In many places local banks will carry joint notes of the executive committee, who are in turn protected by personal notes. Cans ordered early in car lots and divided between several communities insure cheaper cans for patrons. Cans come in bulk, in crates of 500 each and in paper cartons. The latter are packed, 100 No. 3 cans or 125 No. 2 cans to the carton.

RATE OF TOLL.

The rate of toll or fees charged for canning must be fixed by the executive committee of each plant. After one or two days' operation the manager or the executive committee will be able to fix a satisfactory rate. The charge for canning meat, which should not be undertaken during the fruit and vegetable season, should be the subject of special arrangement, depending largely upon the amount of help furnished by

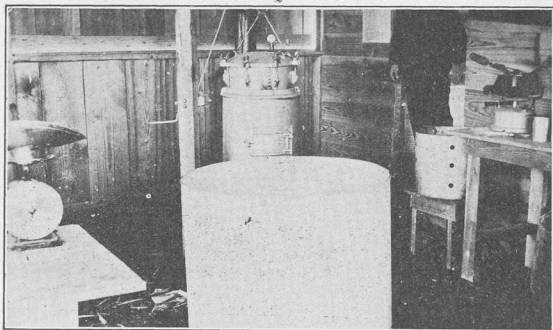


Fig. 4. Interior of furnace plant showing retort with furnace, crane, sealing table, cooling vat, scales, and end of work table.

the owner of the meat. The cost of operation varies in different communities according to the prevailing scale of wages, the price of fuel, rent of building, cost of cans, and other items of expense. Where plants are operated on a true cooperative basis, and without the expense of rent, lights, etc., and the wage of the manager is moderate, it has been found that the club can furnish the cans and do the canning for one-half the finished products—the patron assisting in the work of canning. If the patrons furnish the cans a small cash charge should be made for canning, the amount being sufficient to pay all expenses of operation and a small sum for incidentals.

TYPES OF PLANTS.

Two distinct types of community canning plants have been evolved. The steam for processing in one type of plant is generated by a furnace under the retort (Fig. 4) and in the other by a small boiler (Figs. 5 and 6). Either one or the other is recommended according to the number of people to be served, and the amount of money the community has to invest. Other differences will appear as the two types of plants are described in detail.

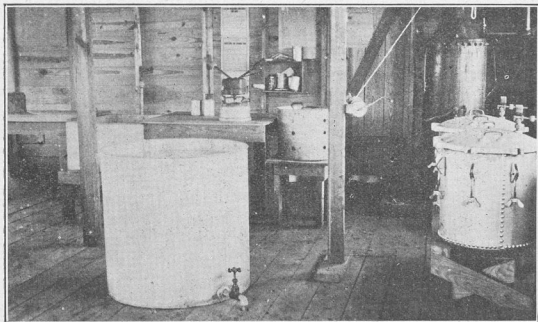


Fig. 5. Interior view of steam plant at College Station from end of plant. Sealing table at left in rear. Steam heated vat in center of table. Note pipe connection to vat, sealing irons on end of table, can crate rest and can crate at end of table, steam connection at boiler. Can crate, retort and cooling vat are in crane radius.

THE FURNACE PLANT.

The furnace plant (See floor plan Fig. 7), is designed to meet the needs of small communities. It has a capacity of from 250 to 700 cans per day. This plant will care for the surplus vegetables from not more than 15 one-half acre family gardens.

FURNACE PLANT EQUIPMENT.

The equipment to be purchased from the factory is as follows:

- 1—18"x18' retort complete with thumb nut wrench.
30 lb. steam guage, safety valve and pet cock.
- 1—Furnace for heating retort.

In addition to the foregoing a brick furnace (See Fig. 8) should be installed, and equipped with a vat and sheet steel cover. This vat provides hot water for blanching and scalding, or it may be used for processing fruits and tomatoes. One or more lard cans fitted with a small faucet, may be used for brine or syrup tanks, thus providing a convenient method of filling cans. When canning meats the vat may be removed, the steel plate substituted permitting the furnace to be used much as one would use a stove. (See Fig. 9).

The cooling tank shown in the floor plan (Fig. 7) is made of galvanized iron 30"x30" and is fitted with a drain on the bottom from which the waste water is piped to the out-

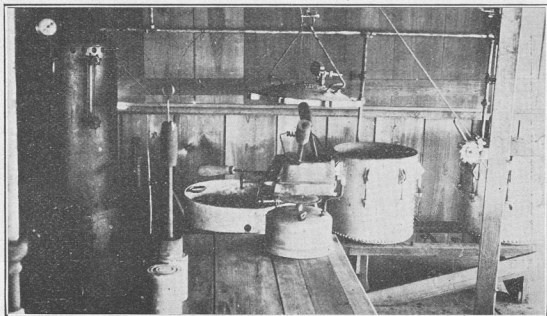


Fig. 6. Interior view of steam plant at College from end of sealing table, showing steam connection and drain.

side of the building. Running water should be provided by means of a tank or barrel placed outside the building as shown in Fig. 13.

THE BOILER PLANT.

The boiler plant (See floor plan, Fig. 7) is designed to meet the requirements of large communities. Steam is provided by a 1 1-2 or 3-horse power boiler from which it is piped to two or more 18x18 inch retorts, to the hot water vat (See Figs. 5 and 6) and to the brine or syrup tank (See Fig. 10, and Fig. 7). Its capacity is from 500 to 2,000 cans per day. This plant will care for the surplus from 40 to 50 one-fourth to one-half acre family gardens if plantings are made so as to distribute the harvest over a reasonable period of time.

BOILER PLANT EQUIPMENT.

The equipment to be purchased from the factory is as follows:

- 1—1 1-2 or 3-horse power upright boiler with furnace.
- 2—18"x18" retorts, equipped with thumb nut wrench, 30 lb. steam guage, safety valve, pet cock and 2 crates.

In addition to the foregoing a steam heated vat (See Fig. 11) with coils, a brine vat (See Fig. 10) with coils, and a cooling tank with drain are usually purchased of the local tinner or plumber. The valves and 1-2 inch pipe used in fitting up the plant may also be purchased locally. A list of the pipe and fittings appear below.

PLUMBING FOR BOILER PLANT.

The following plumbing equipment will be needed if the plant is built according to plans and illustrations in this bulletin:

- 80' 1-2 inch pipe.
- 9 1-2 inch glove valves.
- 2 3-4 inch glove valves.
- 20' 3-4 inch pipe (drains for E. and L).
- 22 1-2 inch elbows.
- 6 1-2 inch T's.
- 2 1-2 inch Caps.
- 5 1-2 inch Unions.
- 6 1-2 inch close nipples.

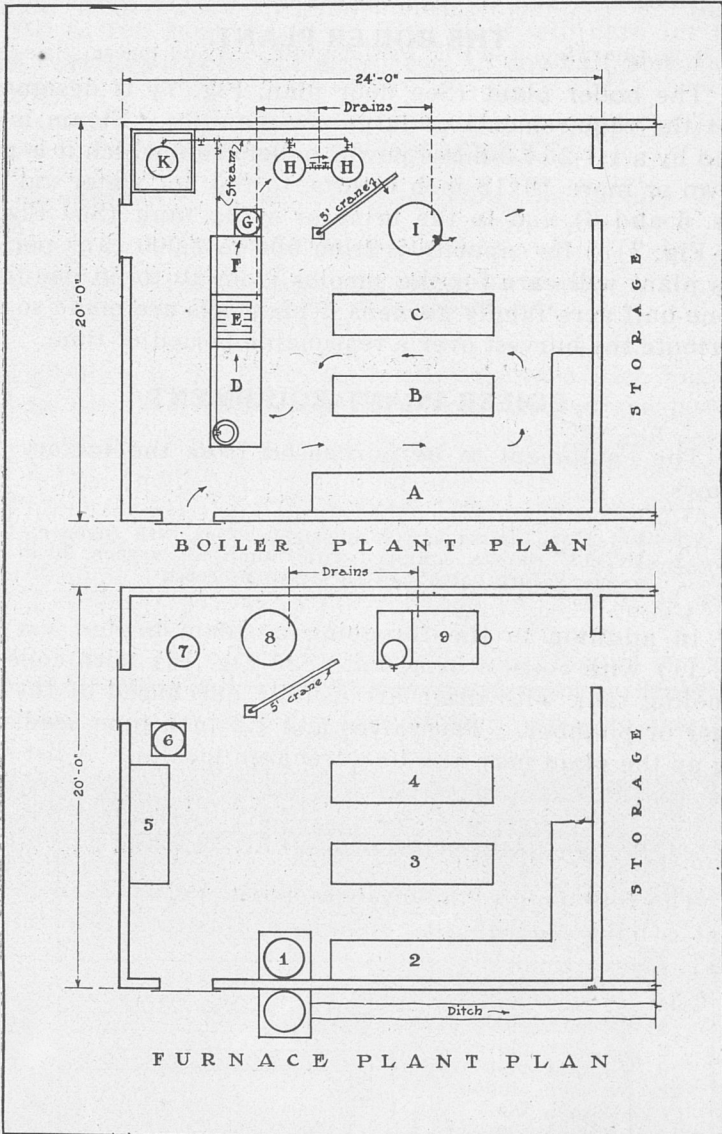


Fig. 7. Boiler Plant Plan:—A, B, C, work tables; D, Capping tables with brine tank; E, Blanching vat; F, Tipping table; G, Can crate; H-H, Retorts; I, Cooling vat; K, Boiler.
 Furnace Plant Plan:—1, Water supply; 2, 3, 4, work tables; 5, Sealing table; 6, Can crate; 7, Retort; 8, Cooling vat; 9, Furnace with brine tank and hot water vat.

ACCESSORIES.

The following equipment should be purchased to supplement the equipment recommended for each type of plant:

- 1 Quart liquid flux or 1 pt. muratic acid and several zinc stripes.
- 1 Lump Sal Ammoniac.
- Kitchen scales.
- Clock.
- Fiber pails, 3 to 6.
- Scalding basket.
- Broom, wash rag, wash powder, etc.
- 1 or 2 extra can crates.
- 2 Tipping coppers.
- 2 2 1-2 inch capping steels with core.
- Paring knives, 6 to 10.
- 2 Can tongs.
- 1 Pound wire solder.
- 2 Flux brushes.
- 1 Set crane irons.

STEAM HEATED VATS.

In Fig 11 return bends may be used in place of elbows and short nipples. The plumbing equipment needed should be altered accordingly. If desired a satisfactory coil can be made by bending a piece of iron pipe into a flat "Archimedes Spiral." It is then perforated, capped, and connected with the steam line in such a way as to rest on the bottom of the vat.

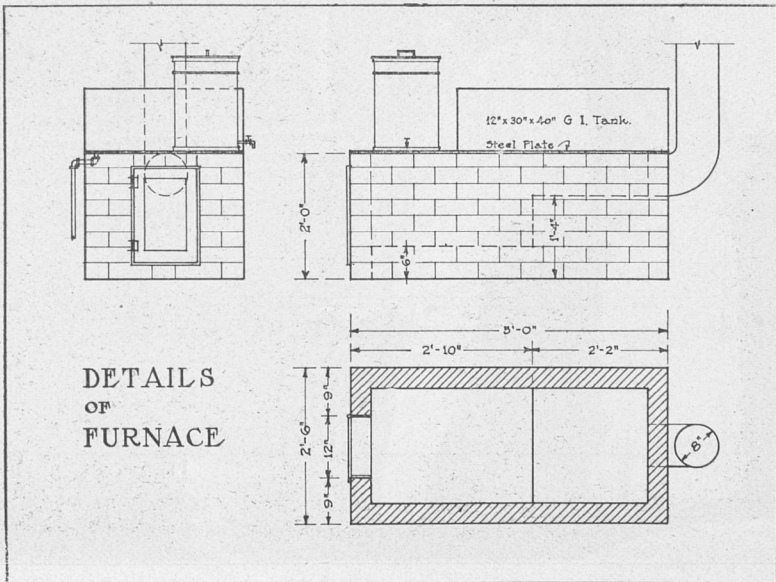


Fig. 8. Details of furnace for providing hot water in furnace type of plant.

The water in the vats is heated by the condensation of steam or by radiation. The first method is the most economical, and is very satisfactory where clean steam is available. Some kinds of water and the use of some boiler compounds taint the steam and render it unfit for use by this method. This trouble is usually encountered where the steam is piped from a large boiler in the vicinity of the canner. In such cases the second method of heating should be used. The small horizontal perforations are omitted, and an exhaust pipe with valve takes the place of the cap. The exhaust may be through the ceiling or floor.

TESTING PURITY OF STEAM.

A test should always be made of steam to be used in canning plants if the water is to be heated by condensation. This may be accomplished by directing a jet of the steam to be used into a bucket of clean pure water until it boils. Allow the water to cool and note results. If the water is badly discolored, bitter or oily the steam should not be used. Care must be used to see that the hose or pipe conveying the steam is clean, otherwise the test might be inaccurate.

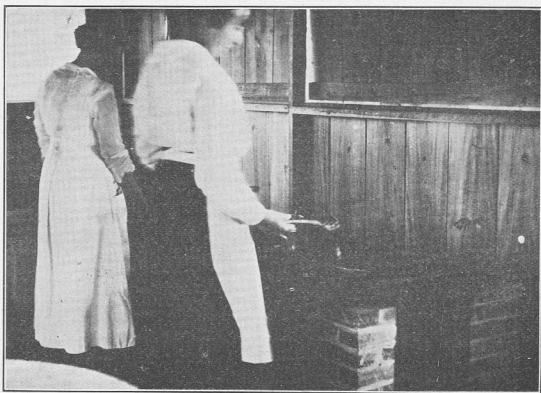


Fig. 9. Furnace with vat removed for use in canning meat.

COST OF EQUIPMENT.

Furnace Plant—

Steam Pressure Canner and Furnace	\$ 55.00
Vats	40.00
Accessories	45.00
Freight	10.00
Total	<u>\$150.00</u>

Boiler Plant—

Steam Pressure Canner and Boiler	\$157.00
Vats with plumbing	75.00
Accessories	50.00
Freight and dray	18.00
Total	<u>\$300.00</u>

The above estimates will vary with the price of material and the locality but should prove approximately correct.

ADVANTAGES OF BOILER PLANT.

The boiler plant has the following advantages over the furnace plant:

1. It consumes less fuel per hour.
2. The outfit is larger in proportion to original cost.
3. The labor expense is less per can.
4. It is better adapted to community needs. It will care for a small amount of food as cheaply as the furnace plant. When necessary the capacity is two or three times as great. The capacity may be increased by adding a third retort.

LOCATION OF PLANT.

The community canning plant should be located as near the center of the community as essential conditions will permit. An abundant water supply, drainage and a constant source of steam are determining factors which might vary this rule. Where the management can be united in one person it is always advisable to locate the community canner near or adjoining the community gin, the syrup mill, the store, the laundry, the sweet potato drier, or the meat curing plant.

BUILDING.

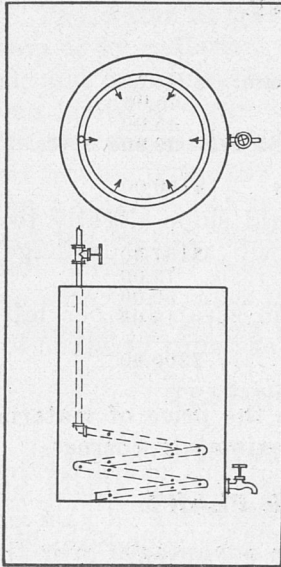


Fig. 10. Brine or syrup tank heated with steam coil.

Any building suitably located and having sufficient floor space, may be used for a community canning plant. The plans shown in Fig. 12 are for the guidance of those who find the construction of a building necessary. Both plans have been found serviceable. Experience leads us to give the gable roof building with ventilator the preference, as it has been found much cooler. The storage room is usually the same size as the canning room, making the entire building 20' x 48' on the ground. The bill of lumber apperaing below is for a building of the above dimensions with a gable roof.

LUMBER BILL.

160 pieces	1"x12"x12'	Boxing	1920 feet
6 pieces	2"x 4"x20'	Framing	80 feet
24 pieces	" x12'	Framing	192 feet
48 pieces	" x16'	Framing	510 feet
50 pieces	" x14'	Rafters	467 feet
12 pieces	" x11'	Casing	96 feet
6 pieces	4"x 4"x16'	Plate	128 feet
2 pieces	4"x 6"x20'	Sills	80 feet
6 pieces	4"x 6"x16'	Sills	192 feet
10 pieces	1"x 4"x16'		54 feet
Sheeting	1"x 8"—1"x10"—1"x12"		1500 feet
O. G. Bats			1400 linear feet
Composition roofing			15 squares

HARDWARE AND MILL WORK.

- 10 pr. 8" strap hinges.
- 3 outside doors with hinges.
- 100 pounds 8" nails common.
- 20 pounds 16" nails common.
- 10 pounds 4" nails common.
- 2 screen doors.
- 170 sq. feet 30" screen wire.
- 2 oz. tacks.
- 4 window shades for store room.

FLOOR.

Tamp clay 4" thick.

Spread 3" concrete of the following mixture:

1 part cement.

4 parts bank run gravel.

A floor 20 ft. x 48 ft. will require 32 sacks cement, and 8 yds. bank run gravel.

The floor in the canning plant should slope slightly toward the back of the building. This will afford drainage and assist in keeping the floor clean.

The work tables may be made from scrap lumber left from the construction of the building. Care must be taken to have the sealing table top flat and level.

CANNING.

It will be impossible in a bulletin of this character to discuss why food spoils or to go into details of methods of canning. Farmers' Bulletin No. 853, Home Canning of Fruits and Vegetables, covers these subjects. This bulletin may be had by writing to the Extension Service, A. and M. College, College Station, Texas.

Where foods are to be canned in large quantities as they are in the community canner the operations are more like

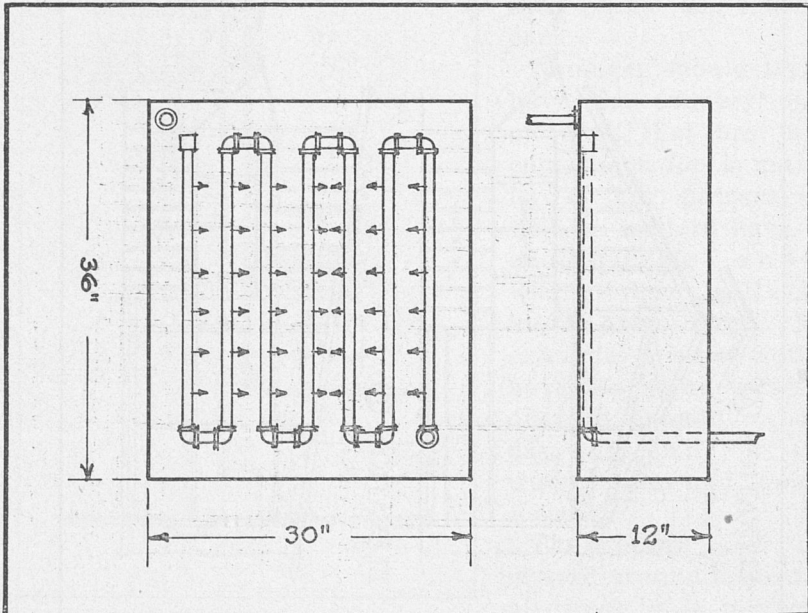


Fig. 11. Steam heated vat for furnishing supply of hot water for blanching and exhausting cans.

those employed in small factories than processes used by housewives who have only a few cans at a time. The fundamental principles of canning are, of course, the same.

The limited area from which the community plant draws its raw material insures a fresh product.

The fact that about one-half of the finished cans are returned to the grower for home use encourages him to grow

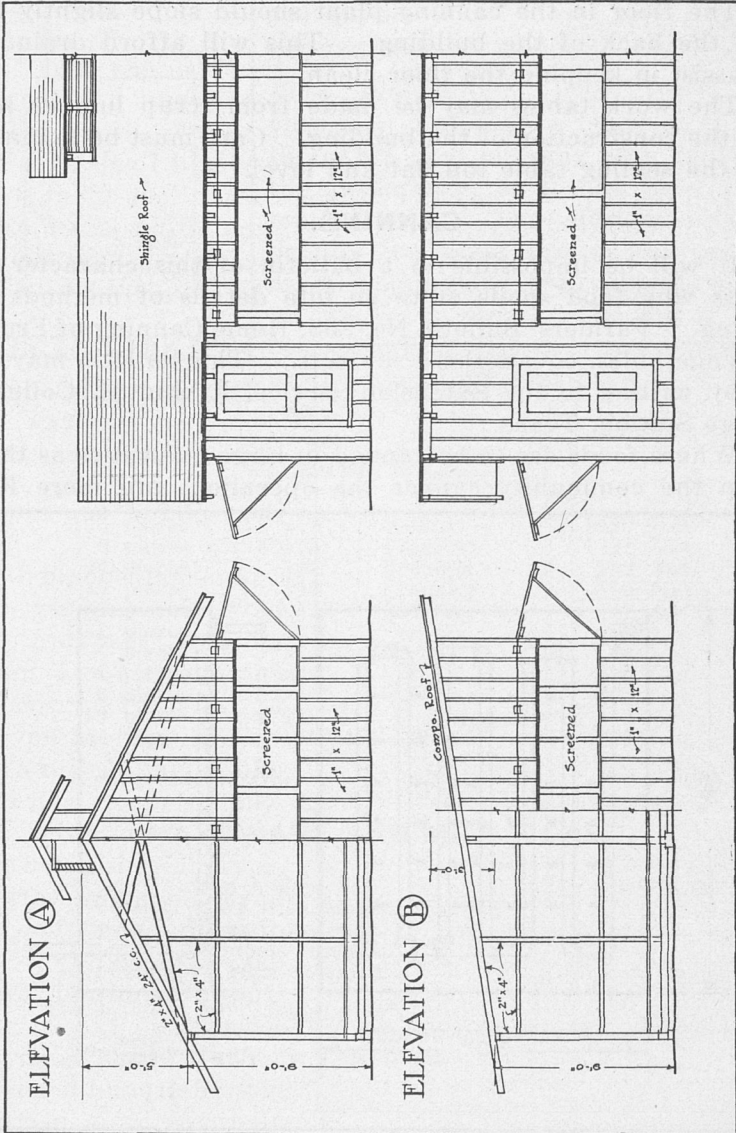


Fig. 12. End and side elevation of two types of buildings suitable for Community Canning Plants.

suitable varieties, to gather them at the correct stage of maturity and to deliver them in sound condition.

Cooperation of local women in packing foods under the supervision of the plant manager makes for uniformity.

Canning of like varieties, which are carefully and quickly worked up, results in a high grade pack which will meet requirements of weight or numerical count demanded of commercial canners.

For practical purposes No. 2 (two pound) and No. 3 (three pound) cans are used for the foods canned in the community plants. No. 10 (gallon) cans may be used for fruits and tomatoes. Berries, beets and very acid foods should be packed in lacquered or enamel-lined cans. Each plant should buy a few of these cans when the original order is made. The cost is little more than that of the plain tin cans and the products mentioned do not change color in lacquered cans.

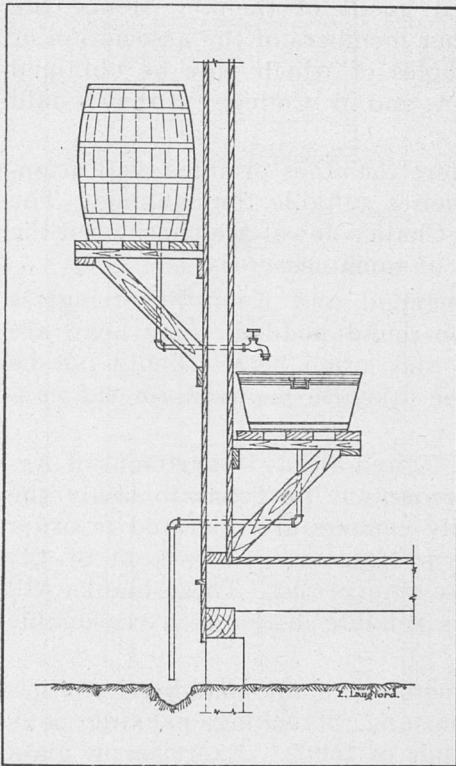


Fig. 13. A simple and easily constructed water supply system.

MANAGEMENT.

The plants are so planned that the raw products follow a certain course until they leave the plant as finished cans.

Manager should try to have the cannery open on days that are most convenient for a majority of the patrons. It will be well to have an understanding about what products will come in on given days. For example, it is not well to have too many varieties of food canned on one day, especially is this true in bean and tomato seasons.

The plant and the ground around it **must** at all times be in perfectly sanitary condition.

If everything in the plant is in readiness for canning when the first patrons arrive with products to be canned there will be no confusion or loss of time. Managers are responsible to the association for the quality of canned goods turned out. Systematic methods of handling the foods through the various processes will avoid delays in a day's work and result in a finished product of which every member of the association will be proud.

Managers should adopt some system of marking cans so that canned products will not be mixed until labels can be put on cans. A graphite or lead pencil mark on the side of a can will not come off during cooking. To scratch the tin is a mistake because rust begins and may cause a hole in the can before it can be used. The proper time to mark a can is before it is sealed.

Managers can not take inferior products like over-mature beans, bruised or spoiled tomatoes or corn which is too old and make first class canned goods of them. Hence the patrons of the canner, whether members of the association or not, must observe rules, (copies of which may be obtained from the Extension Service, A. and M. College) if they would have well canned products.

In sections of Texas where tomatoes produce well attention should be given to varieties suitable for canning. The Stone, Spark's Earliana, and Chalk's Jewel are considered the three best canning varieties of tomatoes.

Burpee's Stringless Greenpod and Keeney's Stringless Green Refugee or any other round podded, juicy bean are best for canning. Yellow and green beans should not be mixed in a can if toll is to be taken in payment for the canning.

The Bureau of Markets, United States Department of Agriculture, sent an expert accountant to Texas to study the plan on which the community canners are operated in order that he might suggest a form of records to be kept by the managers of these community enterprises. These blanks will be printed and sold by some reliable dealer at a reasonable price.

The free course given canning plant managers, consists of instruction in grading, washing, blanching, packing, sealing and processing of all kinds of foods. Exercises in plant management designed to save time, energy and material are given, and the why and how of sanitation explained.

MARKETING.

Community canners are designed primarily to serve the needs of their patrons and are not intended to be small factories. They should only can for sale such products as can be readily sold in the locality.

Canned goods for sale come from two sources:

1. Toll taken by the organization to cover cost of cans and operating expenses.

2. From a member of the association who has goods beyond his own needs.

Surplus products may be disposed of to the best advantage by observing the following suggestions:

1. Contract in January, February or March with local merchants for such products as are produced in the locality.

2. The market demands, clean, tender, uniform, attractive products. Community canners can turn out products of this character if managers will carefully follow instructions which may be obtained from the Extension Service.

3. Raise only standard varieties of vegetables for the market.

WALL PLACARDS FOR COMMUNITY CANNERS.

No. 1. Canning Time Card
(revised).

No. 2. Directions for Managers.

No. 3. Tomatoes.

No. 4. Corn.

No. 5. Soup Mixture.

No. 6. Squash and Figs.

No. 7. Sweet Potatoes.

No. 8. Beans.

No. 9. Okra.

No. 10. Peas (Field).

No. 11. Kraut.

No. 12. Rules for Patrons.