# PLANT REQUIREMENTS TO SET UP AND OPERATE A DRY CLEANING PLANT

TECHNICAL AIDS BRANCH

INTERNATIONAL COOPERATION ADMINISTRATION

Washington, D. C.

# FOREWORD

This brochure is one of a series of reports resulting from overseas technical inquiries on factory or commercial establishments, operation, management, and engineering. The report is designed to provide only a general picture of the factors that must be considered in establishing and operating a factory of this type. In most cases, plans for actual installations will require expert engineering and financial advice in order to meet specific local conditions.

Mention of the name of any firm, product, or process in this report is not to be considered a recommendation or an endorsement by the International Cooperation Administration, but merely a citation that is typical in its field.

Industrial reports prepared for ICA under special contract are customarily reviewed and edited before publication. This report, however, like other technical inquiry replies, has not been reviewed; it is the sole responsibility of the firm that prepared the report.

This brochure was prepared in September 1957 by the George H. Andrews Engineering Associates, Inc., Washington, D. C.

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For further information and assistance, contact should be made with the local Productivity Center, Industrial Institute, Servicio, or United States Operations Mission.

Code Number
47

## ACKNOWLEDGMENTS

The author gratefully acknowledges the cooperation of the following companies in providing technical information for use in this brochure:

Congressional Cleaners
146 C Street, Southeast
Washington, D. C.

Joseph Guss and Sons, Incorporated
623 H Street, Northwest
Washington, D. C.

Star Cleaners
8004 Wisconsin Avenue
Bethesda, Maryland

Technical information as well as review of this brochure was provided by:

National Institute of Drycleaning Incorporated
Burlington Avenue
Silver Spring, Maryland

Prosperity Company, Incorporated
125 Marcellus Street
Syracuse, New York

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# A SMALL

# DRY CLEANING PLANT

## INTRODUCTION

The small dry cleaning plant described in this brochure is intended to clean and finish all types of clothing, bedding, draperies and many other kinds of household textile articles. Dry cleaning textile articles generally is done by washing them in petroleum solvent, such as benzine, or in synthetic solvent, such as perchlorethylene. The equipment for one of these processes cannot be used for the other process. The dry cleaning process carried out in a synthetic-solvent plant using perchlorethylene is described in this brochure.

## GENERAL ASSUMPTIONS

In order to make realistic estimates, certain assumptions must be made. These include:

1. All costs, such as those for building, equipment, materials, and supplies are based on prices in the United States.

2. The operating costs, including labor used, are taken from the actual operating experience of small dry cleaning plants in the United States.

3. Adequate power and water are available at the plant site.

4. All estimates are based on one 8-hour work shift per day, 6 days per week, or 48 hours per week.

5. At least one competent man, with training and experience, will be included among the personnel. The training and experience should be equivalent to that of a graduate from the course given by the National Institute of Drycleaning, Silver Spring, Maryland, U.S.A.

6. A market analysis has proved that an annual sales volume of at least $26,000 is possible.

7. The cost of the following items cannot be estimated realistically:

   A. Land value
   B. Freight
   C. Sales cost
   D. Taxes, interest, insurance and other burdens

While general assumptions will be made for each of these items, for the purpose of completing cost estimates, adjustments should be made in accordance with actual local costs.

In fact, all estimated costs contained in this brochure should be adjusted to conform to actual local conditions.

## PRODUCT SPECIFICATIONS

A small dry cleaning plant does not manufacture raw materials into finished products that conform to established specifications but it does supply cleaning, repairing and finishing services. The results of these services, thus supplied, must conform to high standards of quality. Practically all of the services are required to meet personal inspection by customers who recognize excellence of quality. It is a well established fact that the higher the standards required by the customer, the greater will be the volume of business he will provide.

## PRODUCTION OPERATIONS

Production operations in a small dry cleaning plant comprise many simple operations. For convenient reference, the most important of these have been grouped into 12 divisions. These divisions combine to cover the entire time, from receipt of the articles to be cleaned, to the time they are ready for return to the customer. These operations are listed below, numbered as though they occurred in sequence. In actual practice, however, some of the operations may be combined and some may take place in a different order.

| Usual sequence of occurrence | Production Operation |
|---|---|
| 1 | Invoicing |
| 2 | Marking |
| 3 | Classifying |
| 4 | Spot removal |
| 5 | Cleaning |
| 6 | Extraction |
| 7 | Drying |
| 8 | Repairing |
| 9 | Finishing |
| 10 | Inspection |
| 11 | Assembling |
| 12 | Packaging |

INVOICING

This is the first division of operations and comprises those steps required to transfer the articles from the customer to the custody of the plant. Carelessness in making this transfer and order record is often a source of later dissatisfaction on the part of the customer with loss of good will, and possibly more, by the plant.

The invoice should be in triplicate. The original invoice is kept at the assembly point. One (pink) copy of the invoice is given to the customer as his receipt and claim check. The third copy (yellow) may be put with the article until the marking and classification steps have been completed. Each of these copies of the invoice should show the following information:

1. Total pieces
2. Date of receipt
3. Name and address of customer
4. Date the work is to be done
5. Quantity of each item and price
6. Serial number of invoice
7. Total

A sample invoice is shown in the illustration on page 4.

INVOICE

MARKING TICKET

CLEANING STUBS

# STAR CLEANERS

LAUNDRY REPLACING

8004 WISCONSIN AVE., BETHESDA, MD.
OL. 4-7070

| TOTAL PIECES | DATE |
|---|---|
| NAME | |
| ROUTE | ADDRESS |

S- 05300

| QUANTITY | ARTICLES | MON. | TUES. GREY | TUES. BLACK | WED. BROWN | THURS. GREEN | THURS. BLUE | THURS. TAN | FRI. RED | FRI. WHITE | SAT. PURPLE | SAT. YELLOW | SPECIAL PRICE | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Suits ☐ R ☐ L ☐ OL | | | | | | | | | | | | | |
| | Uniforms ☐ R ☐ L | | | | | | | | | | | | | |
| | Coats ☐ R ☐ L ☐ OL | | | | | | | | | | | | | |
| | Pants ☐ R ☐ L ☐ OL | | | | | | | | | | | | | |
| | Jacket ☐ R ☐ L ☐ OL | | | | | | | | | | | | | |
| | Shirts | | | | | | | | | | | | | |
| | Ties | | | | | | | | | | | | | |
| | Sweaters ☐ R ☐ L ☐ OL | | | | | | | | | | | | | |
| | Dresses ☐ 2 pc. ☐ Pleats ☐ OL | | | | | | | | | | | | | |
| | Blouses ☐ R ☐ L | | | | | | | | | | | | | |
| | Skirts ☐ pleats ☐ circle | | | | | | | | | | | | | |
| | Robe ☐ R ☐ L ☐ OL | | | | | | | | | | | | | |
| | Suit ☐ 2 pc. ☐ 3 pc. | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | TOTAL | | |

NOT RESPONSIBLE FOR GOODS LEFT OVER 30 DAYS, OR BUTTONS, BELTS, BUCKLES, OR CLASPS DUE TO BREAKAGE, OR DISINTEGRATION OF MATERIALS.

7 703

7 703

7 703

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Pre-Numbered Strip Tag Co., San Diego, Cal.
PRE-MARKED STRIP TAG
Pat. Appl. For © Printed in U.S.A.

## MARKING

The purpose of this division of operations is to provide each single item with an identification so that all the separate pieces of a single order may be sent separately through different processes and then be reassembled when all work to be done on them has been completed. It is a device provided to coordinate operations within the plant and is not directly the concern of the customer. Thus it is a step distinct from invoicing, although it may be done by the same person and practically at the time of writing the invoice. Marking is accomplished by the use of distinctly colored strips of tickets, each ticket being about one inch by two inches, and having a large easily read number. Each strip has five tickets, all are colored the same, and all tickets on a single strip have the same number. The tickets and printing are resistant to water and to cleaning solvent. The numbered tickets for a single order are marked with the serial number from the invoice for that marking. A number ticket is then pinned or stapled to each article of that order.

The number of tickets left unused on each series will show at once how many items must be finished and brought together before assembly is complete. A sample strip of tickets is shown in the illustration on page 4.

## CLASSIFYING

In this division of production operations in a dry cleaning plant, the articles are put into various groups each of which contains only those items which may be processed together, or which must have some special consideration and treatment. Information may be given by the customer at the time the invoice is made, which would disclose the need for special handling. For this or for other reasons, the person receiving the order and making the invoice may be the one who classifies some items. The marker may also classify. It is a separate function, however, and the distinction is in the nature of the work rather than the person who does it. A further description of some of the classifications is necessary.

1. Articles with accessories of plastic, such as buttons and buckles and anything set with glue, should be separated from articles without such accessories until a careful examination discloses they will not be damaged in process or until the accessories are removed and put in an identified container from which they can be taken and replaced when the article is finished and ready for assembly.

2. Fugitive dyestuffs may cause trouble. Articles with these dyes should be handled separately from all others at all stages. The problem of cleaning them without running, discoloration or fading is one which the cleaner must solve. Spot tests may be made to discover what cleaning process will be applicable to such articles.

3. Stains, not yet set, may not be difficult to remove before processing. The process is likely to set the stain and make it practically impossible to remove later. Generally, an initial classification is made of articles stained with blood, ink, fruit juices, fruit pulp, salad oil, or heavy grease. Articles thus stained should be identified for treatment and delivered by hand, as a special lot, to the spot removal counter for attention before they are put through the cleaning washer.

4. Linty materials should be classified. Wools should have at least three classifications -- light, dark and gray. Failure to do this frequently causes the customer to be dissatisfied.

5. Silks and light colored woolen and other fabrics may require a different cleaning formula. The cleaning fluid must be free from lint, stain and sediment.

6. Fur articles and garments trimmed with fur should be classified to be cleaned separately, or in nets.

7. Articles requiring hand washing must be classified separately. These include sheer, fragile garments, tapestry, or fabric which might be damaged in the usual process of cleaning and drying.

## SPOT REMOVAL

The removal of spots, usually called spotting, is an important part of the dry cleaning process. A considerable part of the need for spot removal is discovered in the classifying before cleaning.

All articles must be examined by the cleaner for spots remaining after the dry cleaning operation. About 50 percent will require spot removal by hand, 50 percent will not require spot removal. Thus spots are most frequently discovered by the cleaner on removal from the cleaning machine and after the articles have been extracted and dried. Spots may be disclosed in pressing. Sometimes the inspection and assembly points may be the places where the need for spot removal work is first discovered.

Two methods of spot removal are in general use. The first is by the use of a steam gun or water spray and the second is by the use of chemicals. The steam jet method of spot removal is generally regarded as best for spots most often encountered. Some of the more obstinate spots will require patient work and possibly some testing with chemicals. Serious damage to the fabric can be done by careless use of any method. Impatience is to be avoided. The supplies dealers provide directions for the safe use of various chemicals they sell for this work.

## CLEANING

This division of production operations covers the usual process of removal of dirt from the garment or other article. It is done by some method of washing in water or other solvent. The plant described in this brochure is equipped for some wet washing, but the greater part of the cleansing is by synthetic-solvent process, using perchloroethylene.

Not more than 10 percent of the articles should go through the wet washing process. If an article has many spots caused by some water soluble substance, it will probably be classified for wet washing rather than for spot removal. Soap and water is used, either in a domestic type washer or by hand. For a few types of garments such as white and light colored summer suits or cotton drill, linen, cotton and rayon and some other kinds of fibres, an ordinary domestic washing machine may be used. Dresses which require wet cleaning can usually be handled safely only on the hand brushing table. Wet cleaning is one of the least profitable operations in the plant. Some sort of forced drying, as well as reshaping is usually necessary after wet cleaning.

Synthetic solvents include carbon tetrachloride, perchlorethylene and trichlorethylene.

The synthetic solvent cleaning process on which the estimates in this brochure are based requires the use of perchlorethylene, which is the synthetic solvent most suitable for foreign use because of the fact that it is not inflammable and is least toxic. Accordingly, it is chosen in preference to a petroleum solvent or any of the more toxic forms of synthetic solvents for the washing fluid. Comparisons between the two types of plant are of interest.

Synthetic solvents are not inflammable; petroleum solvents are highly inflammable. Synthetic-solvent plants offer greater freedom in location, lower insurance costs because there is less danger from fire. Machines in which synthetic solvents are used are more compact, thus requiring less floor space, less shipping space, and are more easily installed. In some places a separate, fire proof building must be provided for petroleum-solvent equipment. The synthetic solvent will probably cost more per pound of articles cleaned. Some of the synthetic-solvent vapors are more toxic to workers and the synthetic solvent may have a more corrosive effect on metal equipment, but these disadvantages may be reduced by the selection of less toxic solvent and also may be offset in the design of equipment.

Quicker drying, with less residual odor in the articles cleaned in synthetic solvent, than those cleaned in petroleum solvent, may be offset by wider range of classification of the articles permitted by the use of petroleum solvent. The apparent advantage afforded by simplicity of the synthetic solvent distillation is discounted by the improved design of modern recovery equipment. Although the advantage might rest with the petroleum-solvent process in some particular cases, the nontoxic synthetic-solvent process was selected as being satisfactory for the purposes of this brochure as it is particularly advantageous in foreign countries. The necessary changes in the estimates can be made to cover the petroleum-solvent process by those who, for some special reason, intend to install that type of cleaning equipment contrary to the general recommendation.

When a load of classified articles suitable for drycleaning has been made up, the articles are placed inside the cleaning machine, not to exceed the capacity indicated by the manufacturer. All loads should be weighed. With a full load, the machine should be filled with fluid approximately one-third the height of the inside cylinder. Lighter

loads require proportionately less solvent. The rules for determining whether the machine with a horizontal axis is correctly loaded are that the load shall not float in an oversupply of solvent with the cylinder revolving around it and that the cylinder shall not be so overloaded as to prevent the drop of garments as they are carried part of the way around the circle by the ribs on the inside of the washing wheel. A synthetic-solvent cleaning machine operating on a vertical axis should have the solvent level high enough to permit the maximum surge of liquid through the fabrics and yet allow a reasonable amount of agitation of the articles.

The quality of washing or cleaning is affected by the care with which the solvent level is proportioned to the load. Satisfactory general rules for all types of loads and machines are not offered here. They can soon be determined by a competent man for any specific installation.

Filtration should be carried on during the washing operation if no soaps are used. The insoluble particles which the solvent picks up in the washer will be deposited on the filter screens rather than redeposited on the fabrics. Continuous filtration is particularly important in cleaning white or light colored fabrics. Soaps can be used with synthetic solvents.

## EXTRACTIONS

This part of the production process is that in which the solvent is removed from the articles after they have been cleaned. A centrifugal extractor is used for this purpose in a drycleaning plant. With synthetic-solvent machines, the same cylinder or basket in which the cleaning itself is done serves as this centrifugal extractor. The change from washing to extraction is accomplished by first draining off the solvent and then shifting the gears of the machine to a higher speed of revolution.

In the extracting process, there are several important parts of the operation to be watched carefully. One of these is the length of time the articles are left in the extractor. Long periods of extraction result in greater recovery of cleaning fluid and quicker drying of the garments. But it is possible to extract many fabrics too long and too hard. If this is done, the process may produce wrinkles which require twice as long to remove in the finishing process.

If the articles, or the solvent, have a high moisture content, special care must be observed in the duration of the extraction process at high speeds. Manuals of instructions, such as those available from machinery manufacturers, provide general information on the proper time and speeds, but there is much that the cleaner will have to learn by training and experience.

Dry cleaning cylinders are made both with and without partitions. In loading cylinders having partitions, it is important to balance the load in order to facilitate proper extraction and protect the equipment. Cylinders without partitions are designed to spread the weight of the load automatically.

## DRYING

The cleaning machine shown in this brochure will also do the drying. It removes any solvent left in the article, condenses the vapors, and thus permits recovery of the solvent, automatically. It is unnecessary, therefore, for the operator to handle the solvent-saturated fabrics.

Some synthetic machine manufacturers recommend the installation of a tumbler alongside their machine for drying purposes, if the production volume is greater than the capacity of the cleaning machine.

## REPAIRING

Minor repairs such as those for broken belt loops, loose cuffs, hems, and loose buttons, are an important part of the work of dry cleaning. The replacement of buttons, buckles, belts and other accessories, is included. Often other special work may account for more earnings than regular cleaning work, taking a much longer time. Such special work may include replacement of buttons with zippers, replacement of one zipper with another, making a waist line longer or smaller, shortening trousers or making them longer, and renewal of pockets. Such work should be done before the articles are finished.

## FINISHING

This part of the process includes ironing and pressing. Silk finishing, wool finishing and miscellaneous finishing require different finishing processes. Finishing is work that requires the ability of a well-trained experienced person. Some workers have a greater adaptability for the work than is had by others, but no matter how easily they learn, experience is required to insure consistent work of satisfactory quality.

Machine pressing is desirable for most dresses and general work. Skirts and long panels, finished on a steam press, have a better appearance than when hand ironed. Gathering, shirring, trimmings, and ruffles are finished more satisfactorily if they are passed over steam puff irons. Many garments, however, must be finished on a hand ironing board with a steam iron. Text books and trade journals contain valuable finishing information.

Breaks, wrinkles and unevenness on men's woolen garments should first be softened by blowing steam through them from the lower back of the pressing machine. Once they have been softened and smoothed out and pressed into the original shape, they are dried by vacuum, or otherwise, before they are removed from the press.

## INSPECTION

This is the final step to insure satisfactory work. It is important to have all garments and other fabrics carefully inspected by someone who is thoroughly experienced and who fully realizes the importance of good work. The owner, who is presumably the working manager, is the one who would be most likely to do this work of inspection as it should be done.

The finished article should be checked against any special instructions given by the customer when the order was brought in.

## ASSEMBLING

This includes getting together all parts of a garment, and all the articles belonging to one customer, which have been included on one invoice. It should be a more or less automatic operation.

The work of marking will influence the ease or difficulty of assembling. Once an order is completed, the assembler takes it to the packaging department, often known as the bagging department.

Special racks can usually be used to advantage for assembling.

PACKAGING

This part of the process includes putting articles on hangers and covering with paper bags. It also includes boxing and wrapping. By the skillful use of attractive packaging materials and by care in handling at this final step in the process, the drycleaning plant can gain distinction. Some drycleaning firms use transparent plastic bags and often these bags have a high re-use value which makes them greatly appreciated by the customer.

As a part of the operation of the packaging department, the original invoice is fastened to the bag. It is preferable to have this done by pinning rather than by any process which may make mutilation of the invoice likely when it is removed.

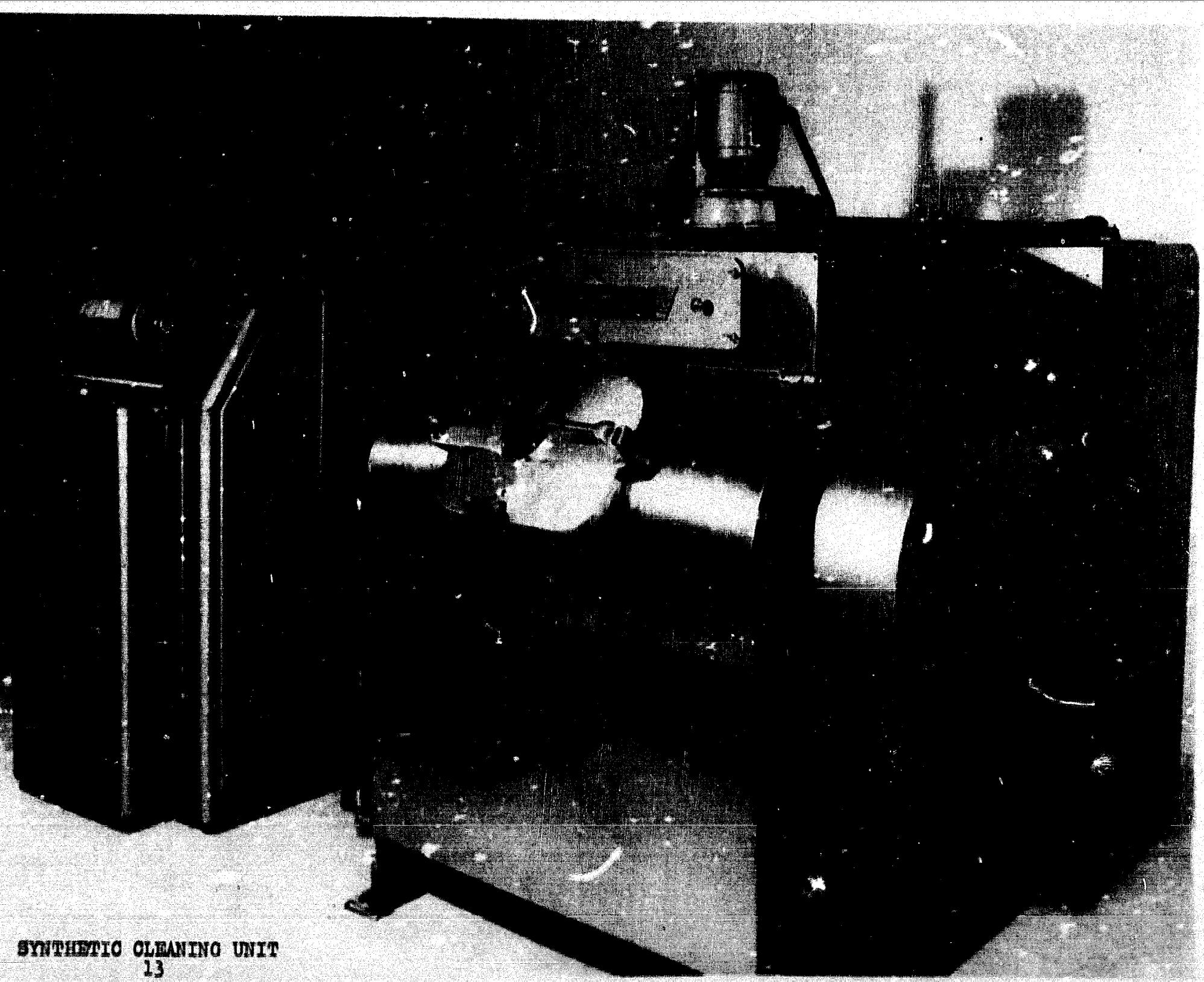
## PRODUCTION CAPACITY

The drycleaning plant described in this brochure, operating six 8-hour shifts per week, with three workers, will produce a volume of business amounting to $26,000 per year, based on current prices for drycleaning in the United States as of September 1957.

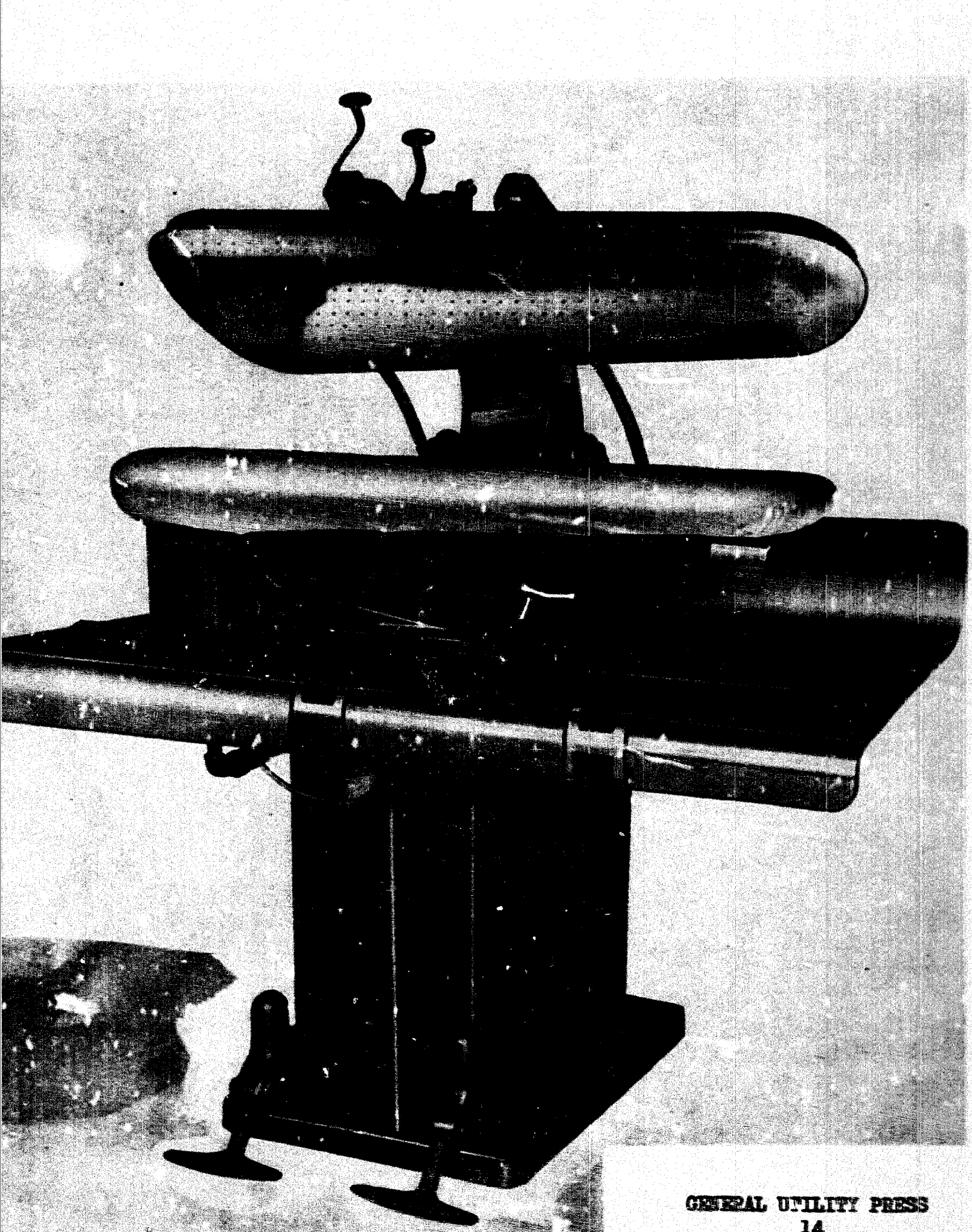
Although the equipment is adequate for a volume of $39,000 per year, by using four workers instead of three, all estimates in this brochure are based on the lower volume of $26,000 per year to indicate that satisfactory profits can be made with that amount of sales.

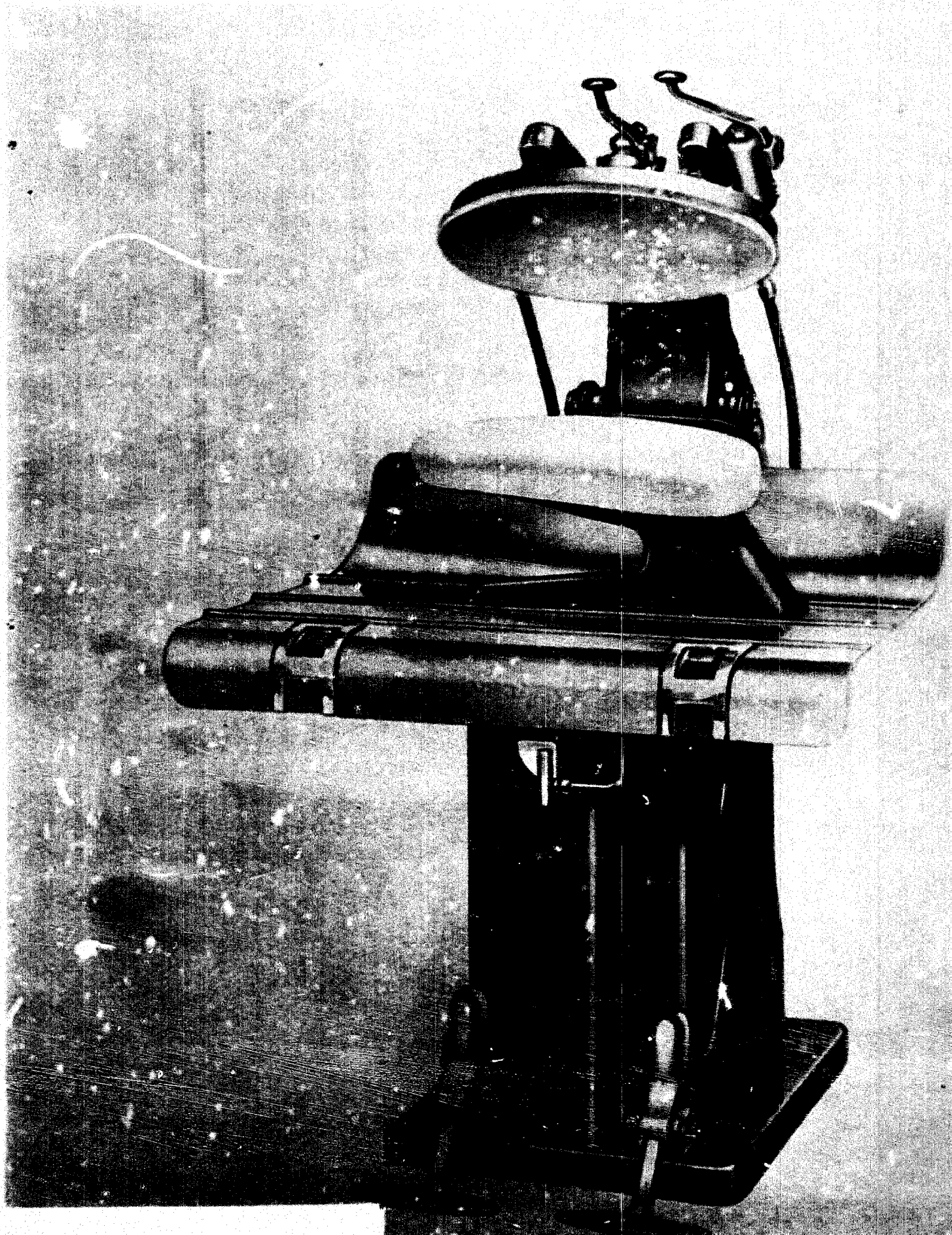
If a greater volume of production than $39,000 per year is required, an investment of about $2,300 in additional equipment and the use of five workers will increase the volume to $60,000. Increasing the volume to $100,000 per year would require an investment of about $5,000 in additional equipment and the use of eight workers.

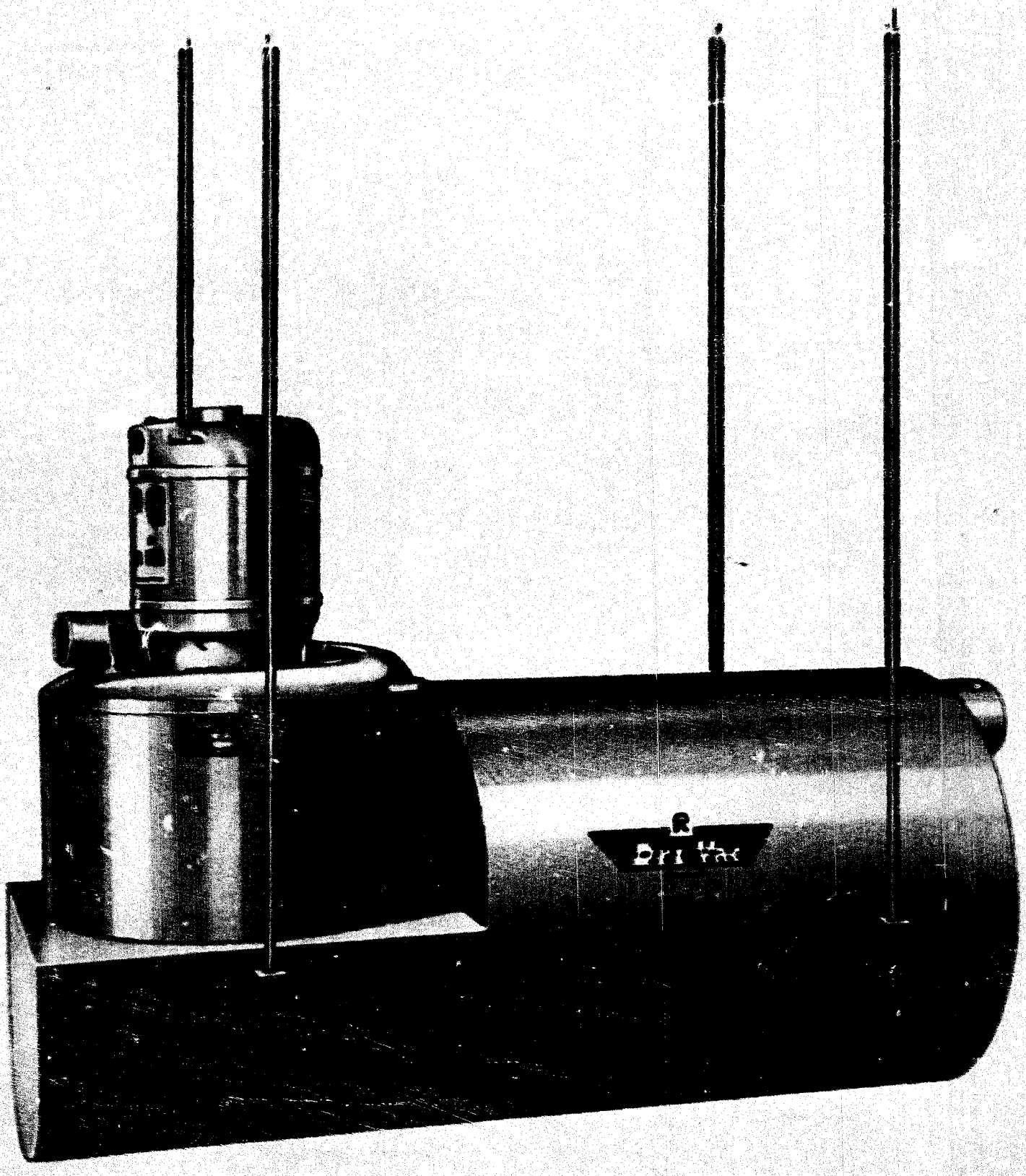
Of course production can also be increased by working more hours per shift or working more shifts per day. This would not require additional capital investment.



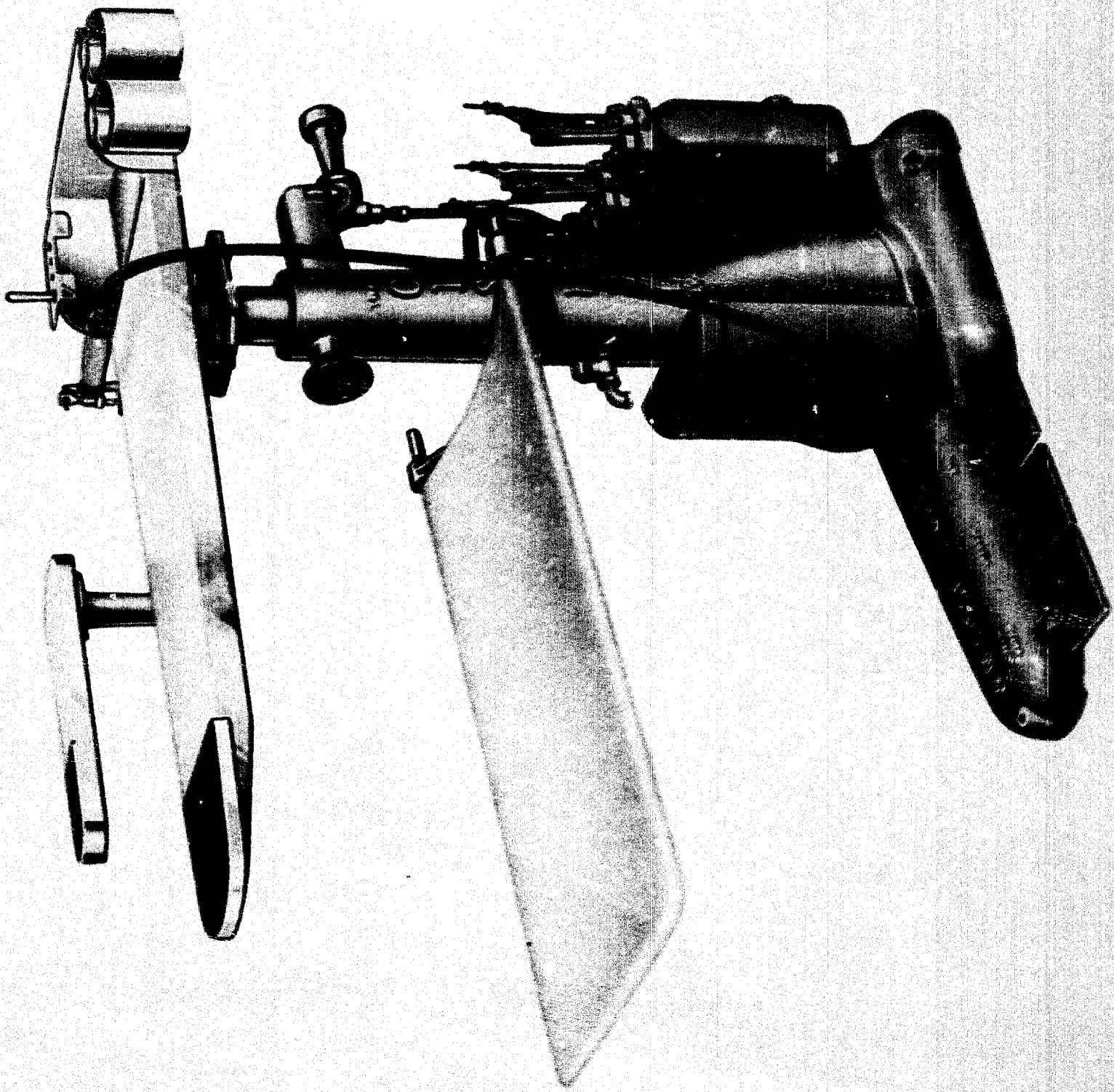
SYNTHETIC CLEANING UNIT



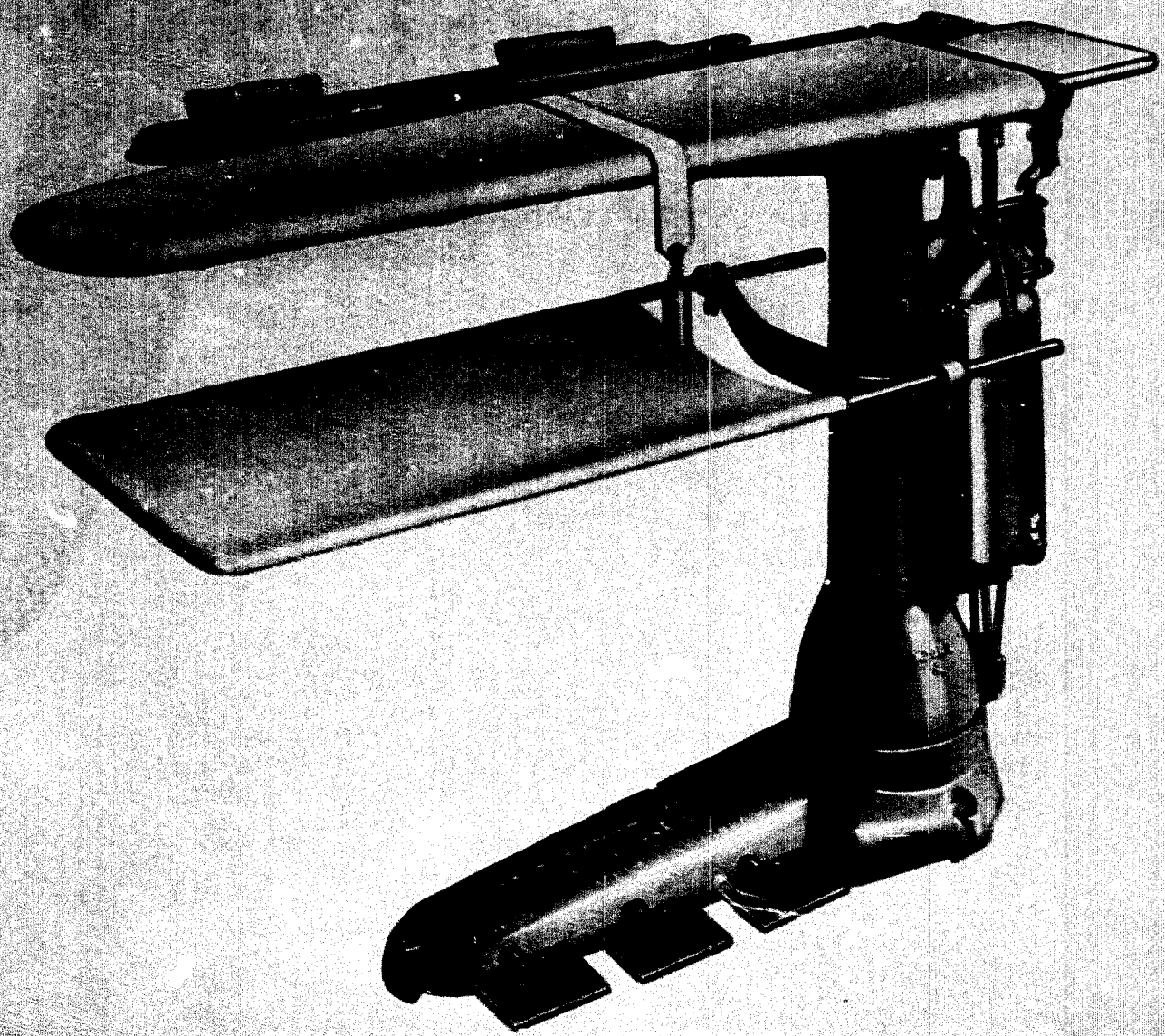




VACUUM UNIT

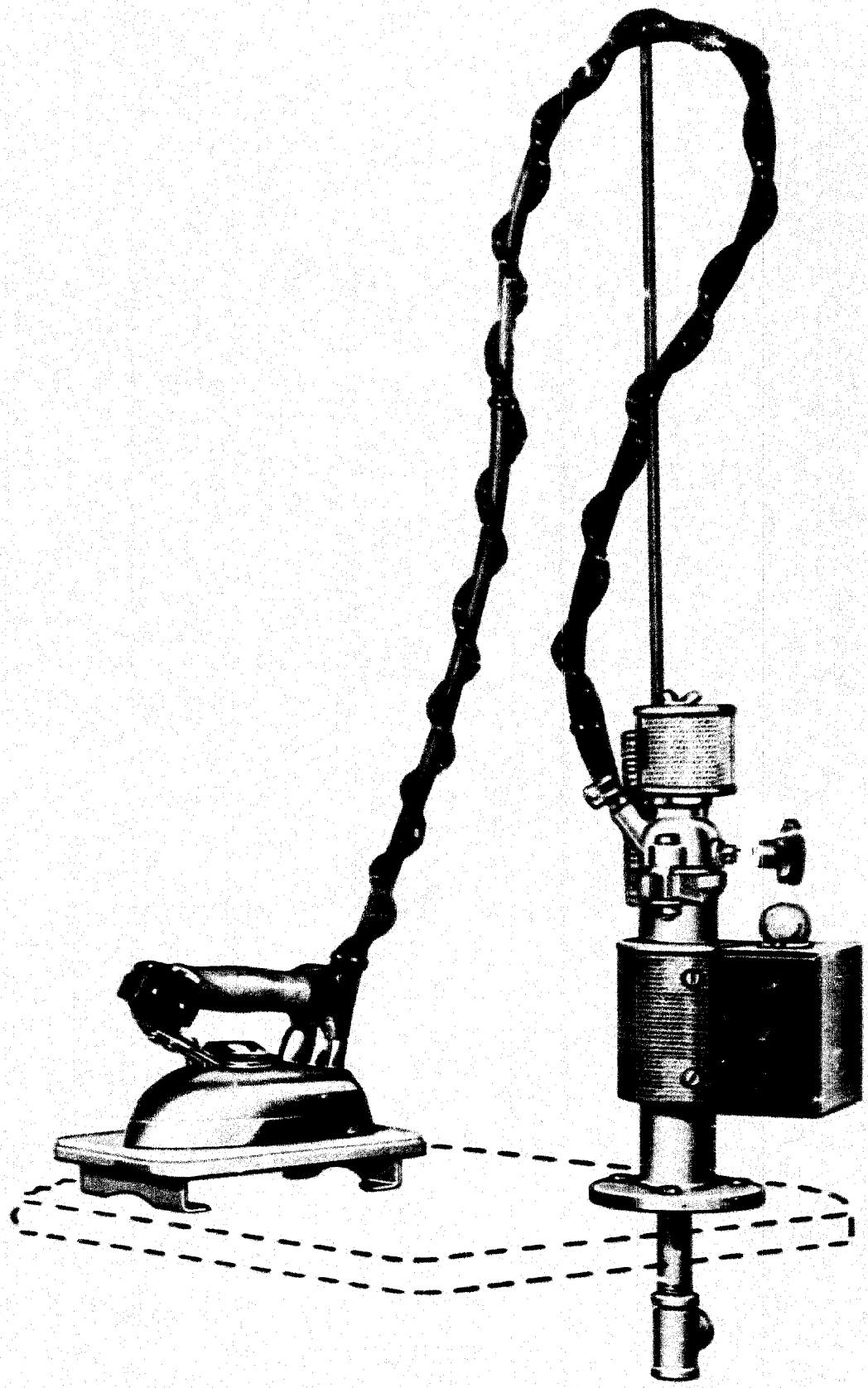


VACUUM SPOTTING BOARD



STEAM FINISHING BOARD

AUTOMATIC ADJUSTING UNIT



STEAM ELECTRIC HAND IRON

## PLANT SITE

The plant site should be located near the central part of the city. Unusually dusty areas should be avoided. The site should be where parking space for customers' automobiles is available. Such parking space may be provided on the site itself in addition to the space required for the building. The estimated cost of the site is $1,000.

## BUILDING

A single-story building of simple construction is satisfactory. It should have about 2400 square feet of floor space, and should be preferably 24 feet by 60 feet in dimensions. Provision should be made for ventilation. The building does not need to be new. An old building of approximately these dimensions can be used. It should, however, be clean and capable of being kept free from dust. The estimated cost of the building is $7,000.

## POWER

It is assumed that a dependable supply of electric power is available from public or private power service lines. The power load is not large. Probably the total number of electric motors will not exceed [illegible] cleaning plant on which the [illegible] brochure are based. The total maximum connected [illegible] horsepower. The annual cost of electricity for all purposes is estimated to be not more than $300.

## WATER

No great quantity of water is needed but such water as is used, should be clear. Soft water is preferable for wet washing. A water filter may be required in some places and water softening may be required. They are not included in the estimate. The estimated annual water cost is $100.

## FUEL

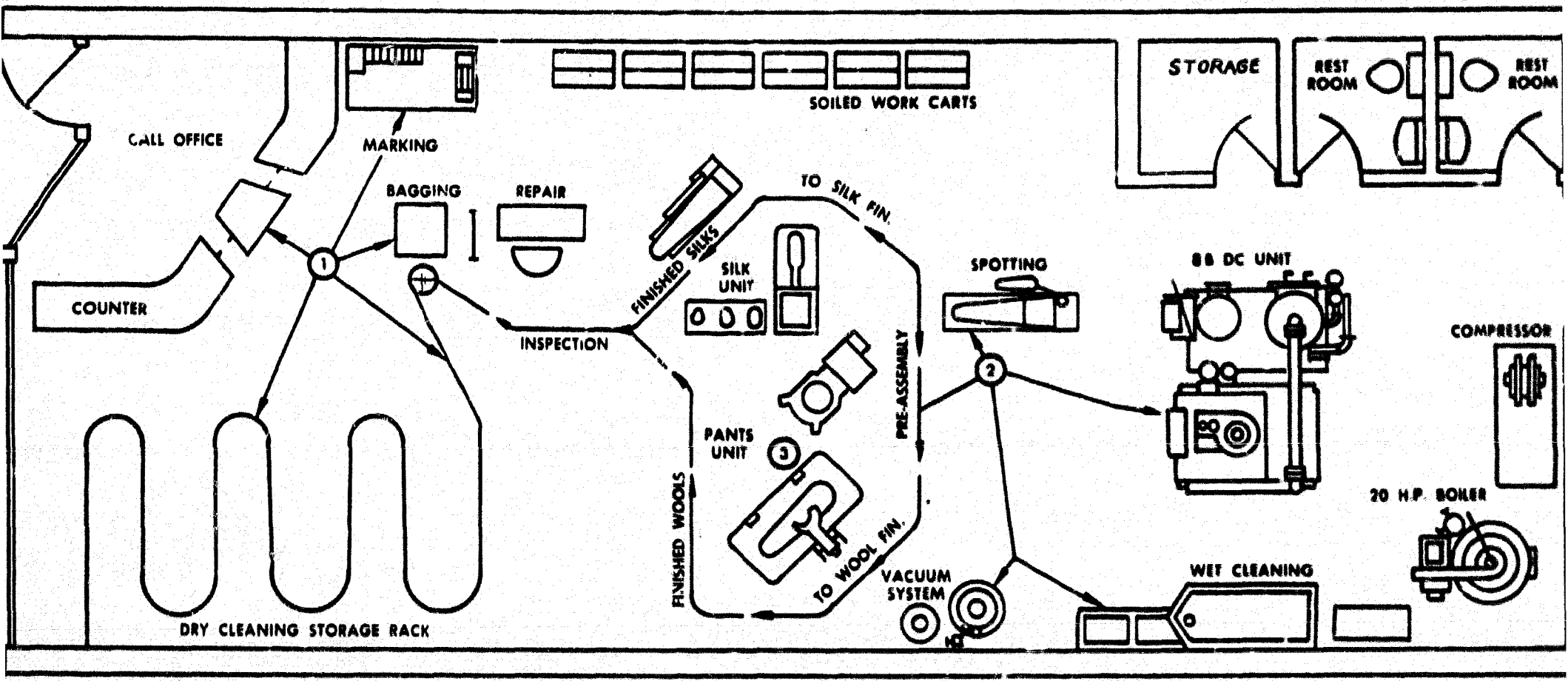
The fuel required to heat the steam generator is ordinary fuel oil. It is estimated that the total oil to be purchased for this and any other purpose will not cost annually more than $300.

## TRUCK

A panel truck is included for pick-up and delivery. It is assumed that one-half of the business will be brought in by this means. The estimated cost of the truck is $3,000. The cost of fuel and oil and minor expense items for the truck will amount to an estimated annual total of $500. The depreciation is included in the general plant depreciation.

## EQUIPMENT

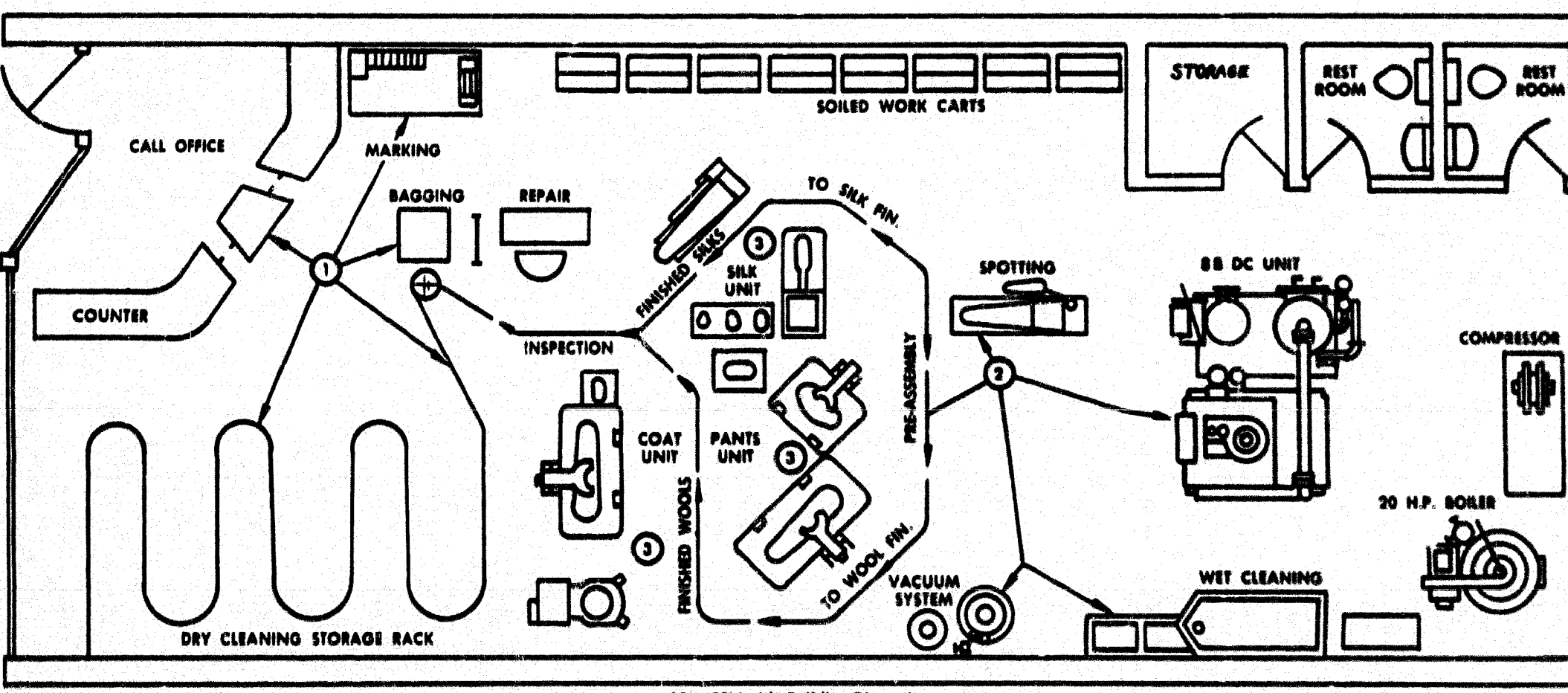
| Number | | Estimated Cost | Actual Cost |
|---|---|---|---|
| 1 | Dry cleaning machine | $ 8,850 | $_____ |
| 1 | Press | 985 | _____ |
| 1 | Press - shoulder steamer | 175 | _____ |
| 1 | Steam gun | 25 | _____ |
| 1 | Garment dryer | 315 | _____ |
| 1 | Wet cleaning table | 80 | _____ |
| 1 | Tub - 3 compartment | 89 | _____ |
| 1 | Spotting board | 330 | _____ |
| 1 | Finishing board | 376 | _____ |
| 1 | Bag sleever | 250 | _____ |
| 1 | Form - adjustable | 524 | _____ |
| 1 set | Puff irons with spray gun | 190 | _____ |
| 6 | Clothes carts | 179 | _____ |
| 1 | Bagging machine | 95 | _____ |
| 1 | Scale | 125 | _____ |
| 6 | Adjustits | 15 | _____ |
| 1 | Compressor (5 horsepower) | 877 | _____ |
| 1 | Vacuum system | 595 | _____ |
| 1 | Boiler (oil) | 1,950 | _____ |
| 1 | Marking table | 100 | _____ |
| 1 | Thread rack | 25 | _____ |
| 1 | Sewing machine | 200 | _____ |
| | Counter | 100 | _____ |
| 150 | Assembly hooks | 50 | _____ |
| 50 sets | Rail hangers, and pipe | 300 | _____ |
| | Fans - ventilating | 200 | _____ |
| | Installation | 1,500 | _____ |
| ESTIMATED TOTAL COST OF EQUIPMENT | | $18,500 | $_____ |




23 x 59 Inside Building Dimensions

Reference Drawing No. TP-332

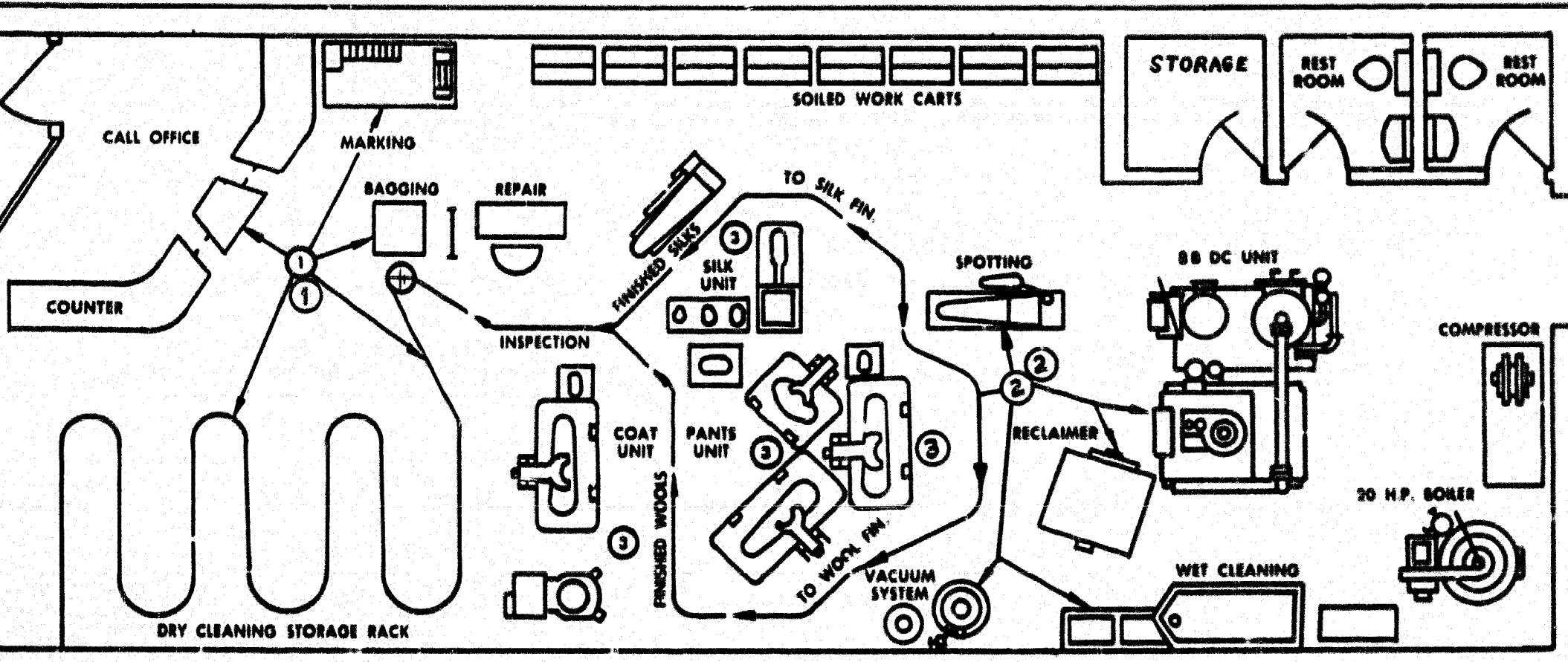
ICA 332-1




23 x 59 Inside Building Dimensions

Reference Drawing No. TP-332

ICA 332-2




23 x 59 Inside Building Dimensions

Reference Drawing No. TP-332

ICA 332-3

## FLOW SHEET

The flow of a large part of the articles in process from the counter to the packaging department is continuous as shown below. A portion of the materials may be sent back from inspection for correction. Other variations in flow may be caused by the need for spot removal and wet washing. For the purposes of this brochure, it is estimated that half of the articles will be routed from and to the customer by delivery truck. The other half of the articles will be received and delivered at the counter. The flow of work in process is as follows:

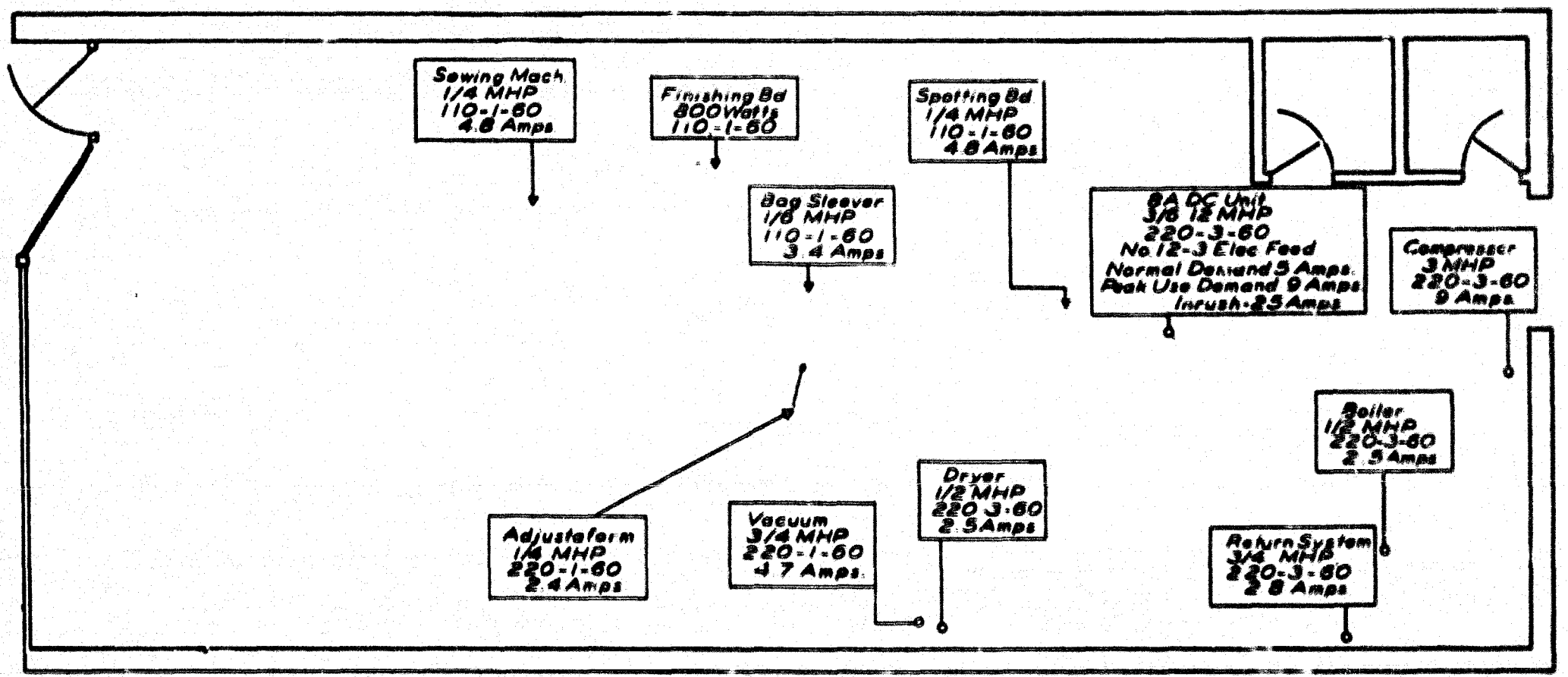
From invoicing and marking counter to classifying counter.
From classifying counter to spot removal table.
From spot removal table to cleaning machine.
The cleaning machine cleans, extracts the solvent and then dries the article in sequence.
Dried articles are passed to the finishing table.
Finished articles are inspected.
Articles passing inspection are assembled.
When assembly is complete, the articles are packaged ready for delivery.
Half of the deliveries are by automobile, the other half by hand at the counter.

## FIXED ASSETS

| | |
|---|---|
| Land | $ 1,000 |
| Building | 7,000 |
| Equipment | 18,500 |
| TOTAL PLANT ASSETS | $26,500 |
| Truck | 3,000 |
| TOTAL ASSETS | $29,500 |

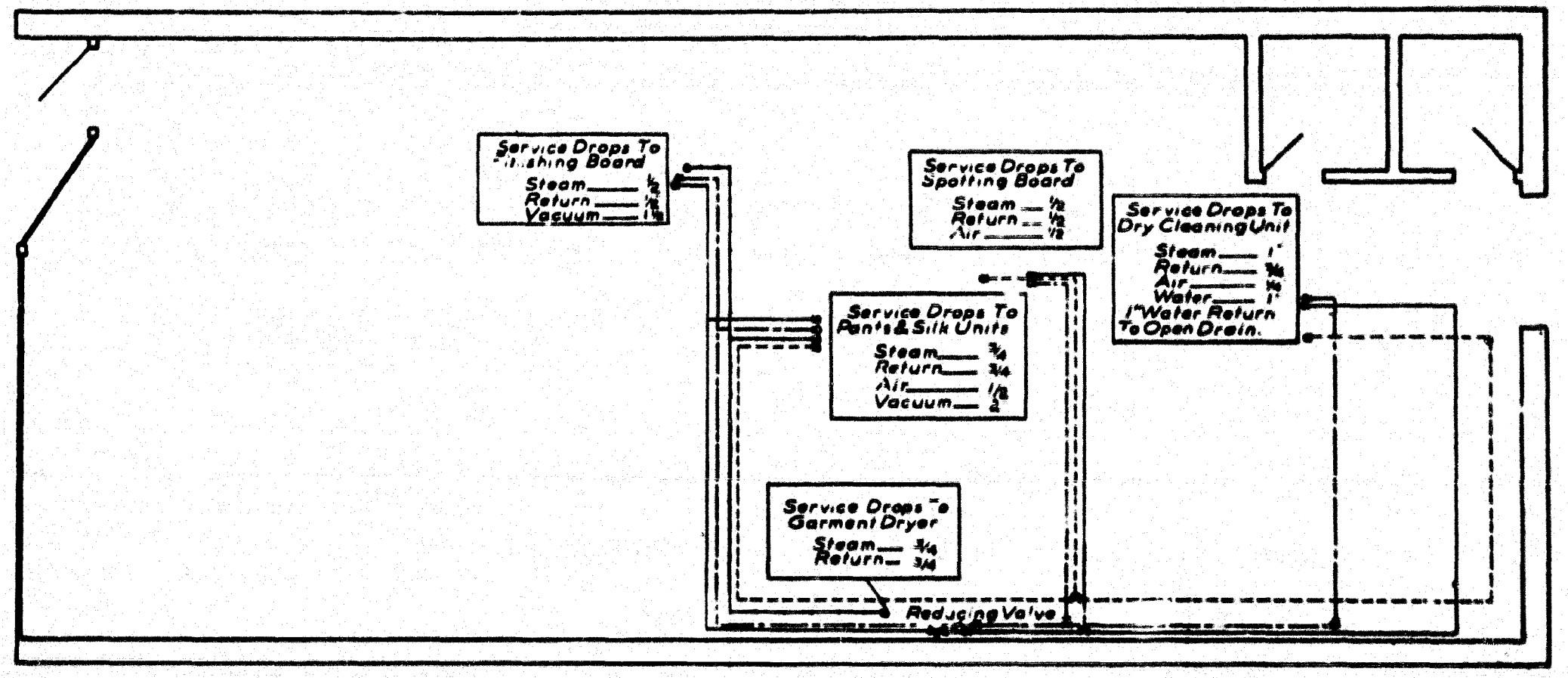
## DIRECT MATERIAL

The only direct material is clothing, bedding, draperies and other kinds of household textile articles that are brought in for cleaning. Accordingly, there is no direct material cost to be included in the annual direct operating cost.




Electric Service: Power-3 Phase
A Minimum Entrance Service Of 3 No 6 Wires For 60 Amp - 8 Circuit Panel
A Minimum Entrance Service Of 3 No. 2 Wires For 100 Amp - 16 Circuit Panel
Lights - Single Phase
No 6 Wire Entrance For 60 Amp - 8 Circuit Panel Box

ELECTRIC DIAGRAM




**NOTE:-**

*Water Service To Provide A Minimum Flow Of 6 Gal. Per Min @ 20 Lbs @ 70° F. Usually Requires. 1" Galvanized Pipe. Water Return To Sewer. 1" Dia Galvanized Pipe Preferred.*

**Main Header Sizes**

| | | |
|---|---|---|
| 1½ | Steam | Black Iron |
| 1" | Return | Black Iron |
| ¼ | Air | Galvanized |
| 2 | Vacuum | Galvanized |

**PIPING DIAGRAM**

## SUPPLIES

| | Estimated Annual Cost | Actual Annual Cost |
|---|---|---|
| Solvent | $ 800 | $____ |
| Hangers | 50 | ____ |
| Bags and boxes | 500 | ____ |
| Staplers | 10 | ____ |
| Staples | 30 | ____ |
| Tags | 70 | ____ |
| Invoice tickets | 150 | ____ |
| Soaps and detergents | 400 | ____ |
| Spotting chemicals | 400 | ____ |
| Findings (taylor supplies) | 90 | ____ |
| ESTIMATED TOTAL ANNUAL SUPPLIES | $2,500 | $____ |

The cost of operation of the panel truck is charged to the cost of sales since it is used exclusively for sales purposes. Depreciation on the truck will be found in the depreciation of fixed assets.

## PERSONNEL REQUIREMENTS

| DIRECT LABOR | Estimated Annual Salary | Actual Annual Salary |
|---|---|---|
| Manager (does production operations) | $3,000 | $____ |
| Cleaner | 2,600 | ____ |
| Presser | 2,400 | ____ |
| TOTAL DIRECT LABOR | $8,000 | $____ |

INDIRECT LABOR

As previously stated, there is no indirect labor in the plant. There is, however, a driver, with a panel truck, to pick up and deliver for customers who prefer that service. This work, because of the order taking and public relations involved, is considered sales work. Therefore, the cost of this service is paid for on a commission basis and charged to cost of sales.

| | |
|---|---|
| Driver's commissions at 15 percent on estimated sales of $13,000 | $1,950 |

## SAFETY

Since the plant described in this brochure uses synthetic-solvent instead of petroleum solvent, the fire hazards inherent in the use of petroleum are eliminated. As previously stated, the fact that a fire hazard is not involved, has an advantageous effect on the fire insurance rates.

Care must be taken, however, if any toxic synthetics are used, to make sure that the building is well ventilated to avoid danger from poisoning by the fumes. Perchlor-ethylene is considered to be the least toxic of synthetic solvents.

Since considerable steam is used, there may be some danger from scalding and other burns. Therefore, each operator of steam equipment and pressing irons should be thoroughly trained and cautioned on how to avoid burns, as well as injuries due to other accidents.

The training course provided by the National Institute of Dry Cleaners, Silver Spring, Maryland, deals with the subject of accident prevention. Therefore, anyone who has been trained there could, in turn, give instruction to other operators on safety methods.

One complete first aid kit should be maintained near the counter where the manager works. Thus the manager can take immediate action in case of accident.

The manager should be responsible for taking some specific action at least once each month to bring to the attention of each employee the importance of safety precautions and intelligent first aid.

Some machines have safety appliances and the manager should see that these are in good operating condition and that the operator is using them.

## TRAINING

Due to the fact that the men have to be versatile, it is recommended that the manager and the worker who is responsible for operating the drycleaning machine and who does the spot removal work, should have the benefit of a course at the National Institute of Drycleaning, Silver Spring, Maryland, U.S.A. They will then be able to train the other men on the job.

## CAUSES AND EFFECTS OF PRICE CHANGES

Many years of experience in the operation of drycleaning plants in the United States provide the manager of a new plant with a vast amount of valuable data on which to base his estimates of cost of operation and the prices he should charge in order to make a fair profit when his plant is in full operation.

For a drycleaning business in another country, the United States experience is not quite so applicable. The actual costs incurred and the scale of prices that can be charged for cleaning work will not differ from corresponding costs and prices in the United States to the same extent in all cases.

A scale of prices that is representative of good successful practice in the United States can, however, make a very satisfactory initial example for the manager in other countries to follow in designing his own standard or base scale. His judgment can guide him when he is setting up the variations from that standard to arrive at a scale of prices for actual work done in his plant. These prices will need to be set with a great deal of care. Reference must be made to the actual costs incurred, as well as the probable volume of business which will be done in each of the items under the scale of prices proposed.

If the prices are set too high, it will probably result in idle personnel and unused facilities and, consequently, loss of revenue. If the prices are set too low, there probably will be enough business but the total receipts will not be enough to pay the current bills. If some prices are too high and some are too low, the results still will be unsatisfactory. Prices can be changed, and no doubt such changes will be necessary, but changes should not be made too often, for the customer will not be pleased.

## BASE PRICE

Prices for work in different plants in the United States are usually compared by comparing the prices charged for a standard job on a man's business suit or a woman's plain dress. This is known as the standard, or base, price. The base price varies in different drycleaning establishments. The average base price in the United States at the present time is probably about one dollar. The specific prices for cleaning work other than the standard job of a plain dress or a man's business suit, range up or down from the base price.

## PRICE DIFFERENTIALS

The differences between base price for the standard job on a woman's plain dress or a man's business suit, and the prices for other work, will vary more or less according to the work involved. A price differential may also be set for work picked up and delivered as compared with work on a cash and carry basis, received and delivered at the counter.

## PRICE VARIATIONS

The base price in the United States varies as has been noted. These variations in the base price are accompanied by comparable variations in the prices for other work than that on a man's standard business suit or a woman's plain dress. These variations may occur for various reasons including, but not limited, to the following:

1. Wage rates. There are considerable variations in the wage rates in different parts of the United States. The cost of operating a drycleaning plant may vary accordingly.

2. Cost of living. The cost of operating a drycleaning plant will be lower in places where the cost of living is lower.

3. Competition. In some parts of the United States competition is so great that it has a marked effect on the prices for drycleaning.

4. Quality of work. Some drycleaning plants are operated on the basis of performing only the highest possible type and quality of service. Work of that kind costs more and the scale of prices is higher on that account. At the other extreme, there are some drycleaning establishments operated

on a mass production basis. At these places, low prices are charged in order to get a large volume of business. The quality of the work often is not maintained at a high level in such plants and personal attention cannot be given to the same extent that is warranted where higher prices are paid. The widest differences may occur between two plants in the same city, even in the same neighborhood, and catering to the same types of trade. Under such circumstances, a large part of the difference in prices is likely to be reflected in the difference in the quality of the work.

TYPICAL PRICE LISTS

A typical list of articles has been prepared to show the variation in prices. The price listings shown include the following:

base price $1.00, cash and carry
base price $1.15, pick-up and delivery
base price $1.30, cash and carry
base price $1.50, pick-up and delivery

## SALES

The base price for drycleaning used in this brochure is $1.00. Assuming that this base price is the average price for all articles cleaned, the total number of articles cleaned per week would be 500 in order to yield a total annual sales volume of $26,000. If a base price of more than $1.00 could be charged, the total amount of increased income derived from the higher base price would represent net profit, since the operating costs would not be affected.

In this connection it should be noted that the $1,950 paid the driver for commissions is charged to the customer and is therefore an addition to the annual sales volume of $26,000.

## TYPICAL PRICE LIST

| | Base Price $1.00 | | Base Price $1.30 | |
|---|---|---|---|---|
| | Cash and Carry | Pick up and Delivery | Cash and Carry | Pick up and Delivery |
| **Men's wear** | | | | |
| Suits, regular, 2 or 3 pieces..... | $1.00 | $1.15 | $1.30 | $1.50 |
| Suits, tuxedo, 2 pieces..... | 1.50 | 1.75 | 1.75 | 2.00 |
| Suits, full dress, 3 pieces..... | 1.75 | 2.00 | 2.00 | 2.30 |
| Suits, white..... | 1.50 | 1.75 | 1.80 | 2.15 |
| Trousers, except white..... | .50 | .60 | .65 | .75 |
| Topcoats..... | 1.00 | 1.15 | 1.30 | 1.50 |
| Overcoats..... | 1.50 | 1.75 | 1.75 | 2.00 |
| Raincoats..... | 1.50 | 1.75 | 1.75 | 2.00 |
| Neckties..... | .15 | .20 | .25 | .35 |
| Robes, wool..... | 1.00 | 1.15 | 1.30 | 1.50 |
| Robes, silk..... | 1.25 | 1.40 | 1.65 | 1.90 |
| Gloves, pair..... | .50 | .60 | .75 | .90 |
| Hats, felt..... | 1.25 | 1.40 | 1.30 | 1.50 |
| **Women's wear** | | | | |
| Dresses, plain..... | 1.00 | 1.15 | 1.30 | 1.50 |
| Dresses, 2 pieces..... | 1.15 | 1.30 | 1.50 | 1.75 |
| Suits, 2 pieces..... | 1.00 | 1.15 | 1.30 | 1.50 |
| Suits, 3 pieces..... | 1.75 | 2.00 | 2.25 | 2.55 |
| Blouses..... | .75 | .85 | 1.00 | 1.15 |
| Skirts..... | .75 | .85 | 1.00 | 1.15 |
| Coats, unlined..... | 1.00 | 1.15 | 1.30 | 1.50 |
| Coats, lined..... | 1.25 | 1.40 | 1.65 | 1.90 |
| Coats, fur collar..... | 1.50 | 1.75 | 2.00 | 2.50 |
| Coats, fur collar and cuffs..... | 1.75 | 2.00 | 2.40 | 3.00 |
| Fur coats, full length..... | 5.00 | 5.75 | 6.50 | 8.00 |
| Fur coats, three-quarter length... | 3.00 | 3.45 | 4.00 | 5.00 |
| Fur jackets..... | 2.50 | 2.90 | 3.25 | 4.50 |
| Evening dresses..... | 1.50 | 1.75 | 2.00 | 2.30 |
| Evening wraps..... | 1.50 | 1.75 | 2.00 | 2.30 |
| Sweaters..... | .60 | .70 | .75 | .90 |
| Gloves, pair..... | .40 | .45 | .50 | .60 |
| Hats..... | 1.25 | 1.40 | 1.65 | 1.90 |
| **Household items** | | | | |
| Drapes, unlined, pair..... | 1.00 | 1.15 | 1.30 | 1.50 |
| Drapes, lined, pair..... | 1.50 | 1.75 | 1.75 | 2.00 |
| Bed spreads..... | 1.00 | 1.15 | 1.30 | 1.50 |
| Blankets, single or double..... | 1.00 | 1.15 | 1.30 | 1.50 |
| Quilts..... | 1.25 | 1.40 | 1.65 | 1.90 |
| Comforts..... | 1.75 | 2.00 | 2.00 | 2.30 |
| Rugs: | | | | |
| 9 by 12 domestic, per square foot | .05 | .06 | .075 | .09 |
| 9 by 12 oriental, per square foot | .06 | .07 | .09 | .105 |
| Slip covers, per square foot..... | .05 | .06 | .07 | .085 |
| Slip covers, chair, plain..... | 1.75-up | 2.00-up | 2.00 | 2.30 |

## ANNUAL DIRECT OPERATING COST

As previously stated, there is no direct material cost in connection with a drycleaning plant. The only direct cost is labor.

TOTAL ANNUAL DIRECT LABOR IS..... $ 8,000

## ANNUAL INDIRECT OPERATING COST

TOTAL INDIRECT MATERIAL COST..... $ 2,500
No indirect labor is used.

## TOTAL ANNUAL OPERATING COST

TOTAL ANNUAL OPERATING COST..... $10,500
Includes direct labor and indirect materials.

## WORKING CAPITAL REQUIREMENTS

Business is done on a cash basis; therefore, no working capital is required to handle regular operations. Because most supplies will require considerable time for delivery, about 3 months supplies or 25 percent of the annual cost of supplies, will be needed.

TOTAL WORKING CAPITAL REQUIRED..... $ 800

## CAPITAL REQUIREMENTS

| | |
|---|---|
| Fixed assets..... | $29,500 |
| Working capital..... | 800 |
| TOTAL CAPITAL REQUIREMENTS..... | $30,300 |

## DEPRECIATION

| | Cost | Life Years | Annual Depreciation |
|---|---|---|---|
| Building..... | $ 7,000 | 20 | $ 350 |
| Equipment..... | 18,500 | 15 | 1,233 |
| Truck..... | 3,000 | 4 | 750 |
| TOTAL ANNUAL DEPRECIATION..... | | | $2,333 |

## COST OF SALES

| | |
|---|---|
| Advertising..... | $ 400 |
| Delivery commissions..... | 1,950 |
| Truck maintenance, gas, oil..... | 500 |
| Bad debts and claims..... | 550 |
| TOTAL ANNUAL COST OF SALES..... | $3,400 |

## RECAPITULATION OF COSTS, SALES AND PROFITS

| | | |
|---|---|---|
| Total annual operating cost | | $10,500 |
| Depreciation | | 2,333 |
| Interest on loans | | 400 |
| Insurance | | 200 |
| Legal and auditing | | 300 |
| Unforeseen expense | | 267 |
| TOTAL OPERATING AND BURDEN COST | | $14,000 |
| COST OF SALES | | $ 3,400 |
| PROFIT BEFORE TAXES | | 10,550 |
| Revenue from pick up and delivery | $ 1,950 | |
| Sales from base price | 26,000 | |
| TOTAL ANNUAL SALES | | $27,950 |

## BUDGET CONTROL

It is essential to maintain accurate control of costs with as little clerical work as possible. On the volume of business as low as would be considered for a small drycleaning plant, even minor losses could wipe out a large proportion of the estimated profit. Likewise, an unwieldy and expensive method of accounting would reduce profits quickly. For this reason, a budget form has been designed which will provide a simple method of checking expenditures. The budget suggested is based on an annual sales volume of $26,000. If business should fall below that level, or increase above it, the budget should be adjusted accordingly.

## BUDGET CONTROL ACCOUNTS

| Account Number | | Monthly Expenditures | Monthly Budget | Annual Budget |
|---|---|---|---|---|
| 10 | Sales, commissions | | 130 | $3,400 |
| 11 | Sales, gas and oil | | 412 | 500 |
| 20 | Plant payroll | | 666 | 8,000 |
| 30 | Solvent | | 66 | 800 |
| 31 | Soaps, chemicals | | 66 | 800 |
| 32 | Bags, boxes, hangers | | 42 | 500 |
| 33 | Invoice tags, findings, other | | 26 | 310 |
| 35 | Power | | 25 | 300 |
| 36 | Oil | | 25 | 300 |
| 37 | Water | | 8 | 100 |
| 40 | Unforeseen | | 22 | 267 |

| PURCHASE REQUISITION | DRY CLEANING | DATE |
|---|---|---|

( ) 10 SALES COMMISSIONS
( ) 11 SALES GAS AND OIL
( ) 20 PLANT PAYROLL
( ) 30 SOLVENT
( ) 31 SOAP AND CHEMICALS
( ) 32 BAGS, BOXES, HANGERS
( ) 33 INVOICE, TAGS, FINDINGS
( ) 35 POWER
( ) 36 OIL
( ) 37 WATER

INDICATE BELOW THE USE OF MATERIALS
( ) 40 UNFORSEEN EXPENSE

SPECIAL PROJECT

NUMBER

TITLE

DESCRIPTION

PLEASE ORDER THE FOLLOWING MATERIALS OR SERVICES:

DELIVERY WANTED:

| QUANTITY | DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
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| | | | |
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| | | | |

QUOTES FROM:

REQUISITION BY:

APPROVED BY:

ORDER FROM:

ORDER NO.:

ORDER DATE:

## SUMMARY

A small dry cleaning plant built and operated to dry clean articles aggregating an annual sales volume of $26,000, according to the assumptions made in this brochure, would be a profitable undertaking.

There are some determinations, however, that should be made before a decision is reached to build and operate such a dry cleaning plant. Among the necessary determinations to be made, are those with respect to the following items:

### SALES

Will the potential annual sales amount to at least $26,000?

### COSTS

After revising the estimates of costs and earnings shown in the brochure so they conform to actual local costs, where it is proposed to build the plant, will a profitable operation be indicated?

### COMPETITION

Is there potential competition which will reduce the revenues below a profitable level either by lowering the prices, or by reducing the volume of sales?

### EXPANSION

A small dry cleaning plant, such as described in this brochure, when installed and operating, will serve as a good nucleus for a much larger dry cleaning business, if an increasing sales volume warrants expansion.

It could also serve as a good nucleus for expansion by developing dyeing and laundering operations as a source of additional sales volume. Such a transition should be made by gradual growth. The first addition should be the dyeing facilities. The second addition could be facilities for doing laundry work.

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