The
INVENTORY
SIMPLIFIED

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Material Shortages

MATERIAL shortages in stock rooms will accrue until the end of the year, only appearing when a physical account of stock is taken, unless methods are employed which will indicate periodically the actual loss or a book error, either having an adverse effect on the balance sheet when the books are closed.

Electric Tabulating and Accounting Machines, as explained on the following pages, assist in maintaining correct book values of stock throughout the year which will agree with the actual amount of material on hand, thus protecting inventories from unexpected shrinkages and losses in material.

The
Inventory
Simplified

THROUGH the use of The Digit System in conjunction with Electric Tabulating and Accounting Machines, extensions for numerous problems can be made, and results obtained either in total or by classes, in the minimum of time. A multiplicity of individual items which ordinarily would be extended are digited, thereby combining the factors that are uniform, thus reducing the computations to nine extensions, consisting of but one digit in the multiplier. The simplicity and rapidity with which the totals for many problems can be secured through the proper use of digits will be readily appreciated when compared with the computing of each item individually.

The forms illustrated, and the explanatory notes, are based on digiting unit costs and refer to a few of the many classes of work to which the Digit Method of making Group Extensions can be applied. Quantities can be digited with equal success, the principle being the same for all items of computations. The nature of the analysis and computations, however, should determine the factor which it is most advisable to digit.

Digiting Annual or Periodical Inventories

The following is a description of applying the Digit Plan for computing inventories, both Annual and Periodical, either by actual count or from book records. This method so greatly reduces the volume of work, as compared with extending each individual item, that it readily permits a verification of total Inventories with Ledger balances whenever desired. Or, a Rotating Count by classes can be obtained with ease monthly or at stated periods.

The latter plan simplifies the verifying of stock records for both quantity and amount, with the actual amount of stock on hand, as only a portion of the total inventory is counted and checked monthly; a different group of material consisting of several classes, covering numerous individual items, is verified each month. This plan of rotating verification makes possible the checking of the inventory of goods on hand at regular periods, or as often as the information is desired, during the fiscal year. Individual items or classes of materials can, however, be readily checked whenever required. The plan does not limit the verification of stock on hand to any specified or predetermined dates, but is flexible, and either Total Inventories, Classes of Materials or Individual Items can be readily checked with book records when desired.

Inventory Card

Dept. No.			Section		Bin		INVENTORY CARD EVERY CARD MUST BE RETURNED TO ACCOUNTING DEPARTMENT				Card No. **37485**		Card Unit No.
Card Serial No.	Dept.	Material Class	Account No.	Prod. Order No.	Part No.	Quantity	Unit Purchase or Labor or Material Cost			Unit Market or Burden Cost		
0 0 0 0	0 0 0	0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0			0 0 0 0 0 0 0		0

Material Classification — Article, Description, Size, Etc. — Counted — 1

108601

Account No. — Count Checked — 2 — 3

Production Order No. — Priced — 4

Part No. — Price Checked — 5 — 6

Quantity — Audited — 7

		Last Oper. No.	Per Cent. Job Completed	WORK IN PROCESS						8
				Labor	Material	Total	Burden	Grand Total		9
Unit Purchase Cost	Unit Market Cost									

Classifications

Classification numbers are applied to each item of Raw Material, Expense, Process Part or Completed Merchandise. The number is representative of a particular item only, and should be noted on stock records. In addition a suffix or Rotating Number is noted on each Stock Record Sheet, immediately following the classification number. The suffix, or latter number, indicates the items of stock that are included in the group of materials comprising a class. All items with the same Rotating Numbers are included when the quantity and value for each class of material are verified, thereby assuring that all materials included in a specific class are properly accounted for.
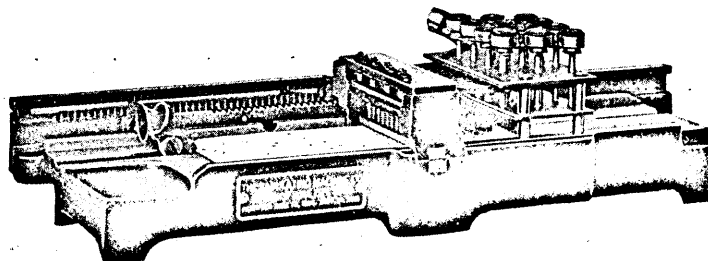

The Key Punch

Preparation of Inventory Records

Inventory cards for either Annual or Rotating Count are numbered in numerical sequence. The digits in the serial number, with the exception of those in the "units column," are gang punched with one operation. The unit digit of the serial number is Key Punched individually in the last column of the card.

For illustration, the serial number 37,485 on the inventory card would be gang punched in conjunction with the remaining nine cards of the series number 3,748 and 5 would be key punched individually. The Punching of serial numbers is completed prior to the inventory period.

The numbered and punched cards are retained in their numerical sequence until they are distributed to the various departments and individuals responsible for taking the inventory, each department and individual being charged with the block of numbers assigned and distributed for recording the inventory.

A full description of the material and quantity inventoried is noted on each card, in accordance with the information required, a separate card being used for each item or uniform lot of material. All spoiled cards, as well as those that are not used, are returned to the office and credited to the individual or department to whom they were issued.
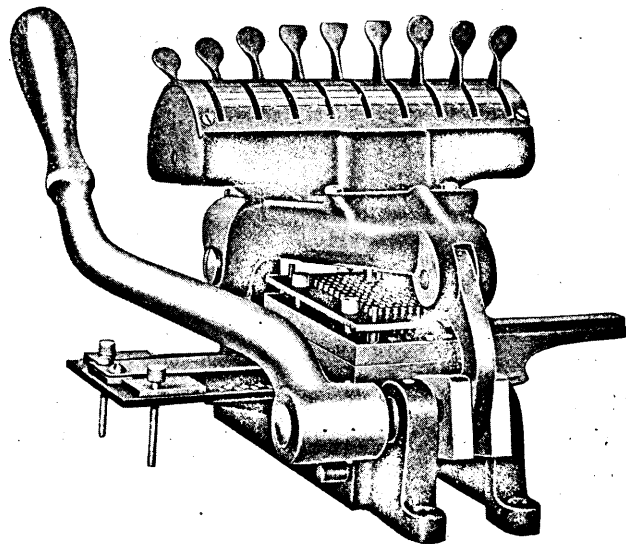

The Gang Punch
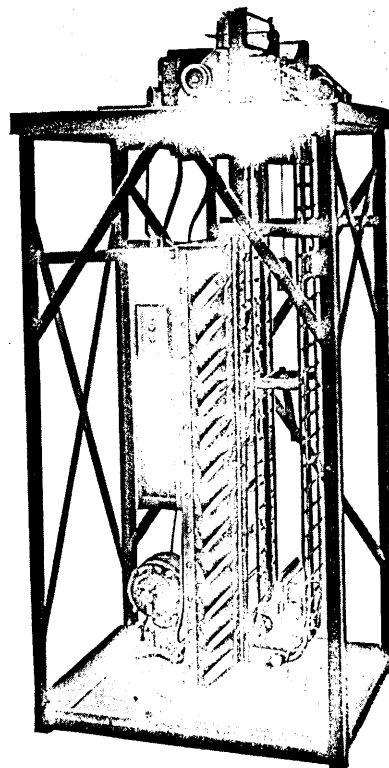
The Sorting Machine

Accounting for Inventory Records

The cards on which the inventory count has been recorded, upon receipt, are arranged into proper serial number sequence by the Electric Sorting Machine, at the rate of 250 cards per minute, per column. Stop cards are placed between each set of ten cards, or if verified in conjunction with the Automatic Control the cards should be controlled in relation to the "tens" column of the serial number. For illustration, cards numbered from 37,480 to 37,489, are tabulated and the amount of the units column of the ten cards for each series are accumulated and the number of cards counted on the Electric Tabulating and Accounting Machine at the rate of 150 amounts per minute. Both results are secured simultaneously with the same operation indicating that both the correct individual cards and the proper number of cards have been returned.

The accumulation of the digits will always amount to the same, as only the units column is counted and any missing card of the serial number would necessarily be reflected in the total.

Serial Number Count	No. Cards	Serial Number Count	No. Cards
3748— 0	1	3749— 0	1
3748— 1	1	3749— 1	1
3748— 2	1	3749— 2	1
3748— 3	1	3749— 3	1
3748— 4	1	3749— 4	1
3748— 5	1	3749— 5	1
3748— 6	1	3749— 6	1
3748— 7	1	3749— 7	1
3748— 8	1	3749— 8	1
3748— 9	1	3749— 9	1
Total value of Units Column 45	10	45	10
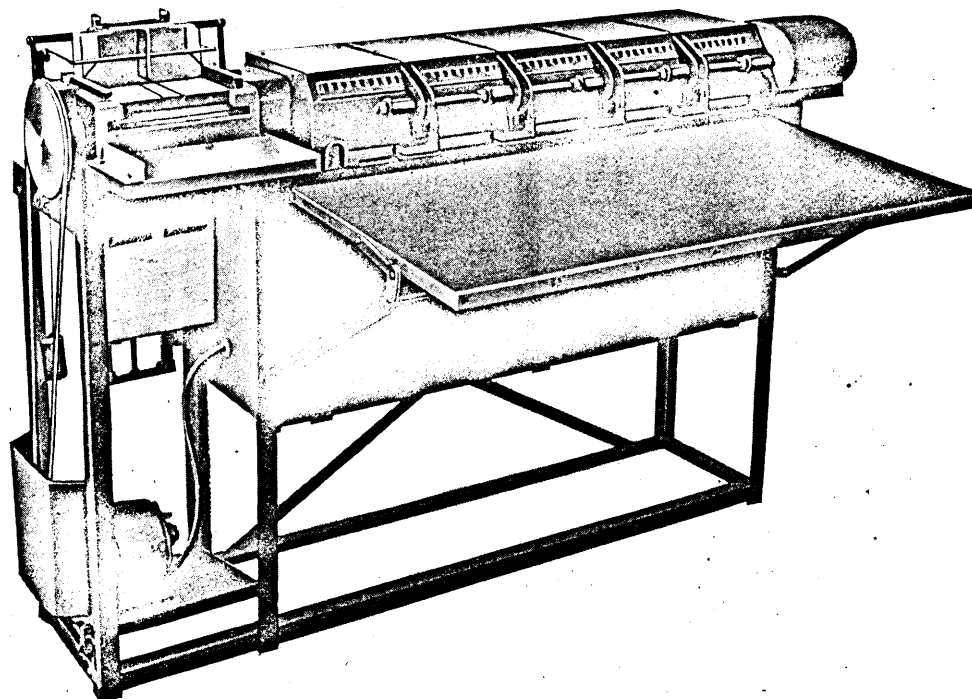
The Tabulating Machine

Sorting and Punching Inventory Records

After cards have been verified and found complete, the cards are sorted into class of material order and priced. The sorting of inventory Tabulating Cards into the order that price records are maintained simplifies the pricing of inventories as both records are then in the same order. After Tabulating Cards are priced and account numbers and other required information properly noted on the cards, the data is then permanently recorded by means of punched holes.

Preparing Records for Making Group Extensions

Tabulating Cards, after being punched, and preparatory to digiting, are sorted into proper accounting sequence for securing the value of material on hand by departments, account numbers, class of material, or in accordance with the individual requirements of each business. As the same procedure is followed to arrive at the value of the inventory by classes of material, or by any other division, the following description is based on arriving at the total value of all material combined.

Digit Sheet

The following Digit Sheet is arranged to cover unit price ranges from one ($0.01) to nine thousand nine hundred and ninety-nine dollars and ninety-nine cents ($9,999.99). Digit sheets for either an increased or decreased range of unit prices can be readily prepared by adding or deducting additional sorts, as each sort is the equivalent to the addition of another number in the multiplier. If additional price ranges or sorts are added to take care of unit prices in excess of those indicated on the sheets illustrated, care must be exercised to add an additional distinguishing mark or cipher for each sort added. The arrangement of the marks (X) for each succeeding sort is based on the multiplication rule of placing the result one place to the left, when multiplying with a multiplier containing more than one number.

Digiting

Cards are sorted, by means of the Electric Sorting Machine, to the "Units" in the "Unit Cost Column." The quantities for each digit in the "Units" column are then accumulated on the Tabulator. Where the unit is zero, the quantity is inserted in the digit sheet in the space noted "1 sort," opposite the "zero." The total quantity is then secured for the cards where the unit is "1" and inserted in the space noted "1 sort," opposite the "Digit 1." The same procedure is followed for all of the remaining digits, up to and including the "Digit 9," providing there is a figure in the cost price for each digit in the unit column. For illustration, if there is no material for the cost value of four (4) cents in the "Units Column," there will be no corresponding quantity opposite the "1 sort" for the "Digit 4."

Inventory Digit Sheet

_____
date

Unit Price Digits	Unit Price Field	Quantity				Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units		Amount		
	1 Sort														
	2 "									¢	×				
	3 "									×	×				
0	4 "							×	×	×	×				
	5 "						×	×	×	×	×				
	6 "					×	×	×	×	×	×				
	Total											× 0	× × ×	× × ×	× ×
	1 Sort										0				
	2 "										×				
	3 "									×	×				
1	4 "								×	×	×				
	5 "							×	×	×	×				
	6 "						×	×	×	×	×				
	Total											× 1			
	1 Sort										0				
	2 "										×				
	3 "									×	×				
2	4 "								×	×	×				
	5 "							×	×	×	×				
	6 "						×	×	×	×	×				
	Total											× 2			
	1 Sort														
	2 "										×				
	3 "									×	×				
3	4 "								×	×	×				
	5 "							×	×	×	×				
	6 "						×	×	×	×	×				
	Total											× 3			
	1 Sort														
	2 "										×				
	3 "									×	×				
4	4 "								×	×	×				
	5 "							×	×	×	×				
	6 "						×	×	×	×	×				
	Total											× 4			
	1 Sort														
	2 "										×				
	3 "									×	×				
5	4 "								×	×	×				
	5 "							×	×	×	×				
	6 "						×	×	×	×	×				
	Total											× 5			
	1 Sort														
	2 "										×				
	3 "									×	×				
C	4 "								×	×	×				
	5 "							×	×	×	×				
	6 "						×	×	×	×	×				
	Total											× 6			
	1 Sort														
	2 "										×				
	3 "									×	×				
7	4 "								×	×	×				
	5 "							×	×	×	×				
	6 "						×	×	×	×	×				
	Total											× 7			
	1 Sort														
	2 "										×				
	3 "									×	×				
8	4 "								×	×	×				
	5 "							×	×	×	×				
	6 "						×	×	×	×	×				
	Total											× 8			
	1 Sort														
	2 "										×				
	3 "									×	×				
9	4 "								×	×	×				
	5 "							×	×	×	×				
	6 "						×	×	×	×	×				
	Total											× 9			
	Grand Total All Digits														

CONTROL

	1 Sort											
	2 "										×	
	3 "									×	×	
	4 "								×	×	×	
	5 "							×	×	×	×	
	6 "						×	×	×	×	×	
	Grand Total All Sorts											

After the last entry has been made opposite each space noted "1 sort" in zero and each of the nine digits, the total quantities which have been accumulated for "1 sort" on the Electric Tabulating and Accounting Machine are noted in the space opposite "1 sort" in the "Control." The totals of the individual entries for "1 sort" for each digit should equal this item.

The same procedure should be followed, after the cards are sorted for the "tens," or second row of digits in the "Unit Cost Price." The cards are then tabulated and the quantity for the "zero" is inserted in the space "2 sort," opposite the "zero," the "2 sort" referring to the tens column in the unit price. The quantity for the "Digit 1" should then be inserted in the space noted "2 sort" opposite the "Digit 1" and the same procedure followed until the quantity for all of the digits and the "Control" has been inserted opposite the "2 sort."

The cards are again sorted for the "hundreds" or third digit of the cost price and quantities for each digit as explained for "units" and "tens" inserted opposite the "3 sort" of each digit.

The same procedure is followed for the "thousands" or "4 sort," and for each digit column, until the last column of digits in the "unit cost column" has been reached.

Multiplication of Groups

The quantities for all of the "sorts" for each digit appearing on the digit sheet should be totaled in the space reading "total." The total for each digit should be extended by that digit into money value and the result inserted in the space noted "amount." For illustration, the total quantity for "zero" will naturally not be extended, the total quantity for "Digit 1" should be multiplied by 1, and the quantity for "Digit 2" should be multiplied by 2, this process continuing for each of the nine digits. The totals for all digits, for both quantity and value should be accumulated and the amounts inserted in the space noted "Grand Totals all Digits." The total of the nine digits, appearing under "amount," after pointing off for decimals, if any, represents the total value of the inventory.

A rapid verification of the digited amounts which are the total of all digits listed under each sort, which have been transposed into money value, can be readily obtained by accumulating the quantities appearing opposite the various "sorts," listed under the "Control"; this total should equal the quantity appearing under "Grand Total all Digits" indicating the complete accuracy of the figures upon which the conversion into value was based.

Comparison of Individual and Group Extension Method

The following problem will indicate the principle of group extensions, as compared with the same problem individually extended:

Individual Extension Method

175 dozen	375 gross	575 feet
1.22 per dozen	2.23 per gross	3.33 per foot
3 50	11 25	17 25
35 0	75 0	172 5
175	750	1725
Total 213.50	836.25	1914.75

Group Extension Method

HUNDREDS COLUMN	TENS COLUMN	UNITS COLUMN
Add two zeros to quantity for the Hundreds Column in "Unit Price."	Add one zero to quantity for the Tens Column in "Unit Price."	Unit Column in "Unit Price."
	1750	$175 \times 2 = 3.50$
	3750	375
$17500 \times 1 = 175.00$		575
$37500 \times 2 = 750.00$	$5500 \times 2 = 110.00$	
$57500 \times 3 = 1725.00$	$5750 \times 3 = 172.50$	$950 \times 3 = 28.50$
Group Totals 2650.00	282.50	32.00

Summary of Individual Extensions	Summary of Group Extensions
213.50	2650.00
836.25	282.50
1914.75	32.00
2964.50	2964.50

Through the digit process of making group extensions the number of extensions can never exceed nine for any problem regardless of the number of individual items to be computed or the number of digits in either unit prices or quantities as an additional zero is merely added for the thousandths column and one for the ten thousandths column, etc., as illustrated above for the units, tens and hundreds column. The saving, therefore, it will be noted, increases in direct proportion to the number of items which are to be computed.

Work in Process

Work in Process should be counted and priced in the usual manner. Quantities should be entered on a "Work in Process" digit sheet in the same way as outlined for Inventories for Raw Materials or Completed Merchandise, the total extension of the nine digits supplying the value of the "Work in Process" Inventory.

Digiting Inventories from Regular Inventory Sheet

The Digit Plan for either total inventory values or by classes can be used with equal success in connection with the use of inventory sheets. In this case, after the inventory has been priced and classified, cards are punched for each item on inventory sheets.

INVENTORY CARD

Sheet No.	Item	Dept.	Material Class	Account No.	Prod. Order No.	Part No.	Quantity	Unit Purchase or Labor or Material Cost	Unit Market or Burden Cost
0 0 0	0 0	0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0
1 1 1	1 1	1 1 1	1 1 1	1 1 1 1	1 1 1 1	1 1 1 1 1	1 1 1 1 1 1	1 1 1 1 1 1 1	1 1 1 1 1 1 1
2 2 2	2 2	2 2 2	2 2 2	2 2 2 2	2 2 2 2	2 2 2 2 2	2 2 2 2 2 2	2 2 2 2 2 2 2	2 2 2 2 2 2 2
3 3 3	3 3	3 3 3	3 3 3	3 3 3 3	3 3 3 3	3 3 3 3 3	3 3 3 3 3 3	3 3 3 3 3 3 3	3 3 3 3 3 3 3
4 4 4	4 4	4 4 4	4 4 4	4 4 4 4	4 4 4 4	4 4 4 4 4	4 4 4 4 4 4	4 4 4 4 4 4 4	4 4 4 4 4 4 4
5 5 5	5 5	5 5 5	5 5 5	5 5 5 5	5 5 5 5	5 5 5 5 5	5 5 5 5 5 5	5 5 5 5 5 5 5	5 5 5 5 5 5 5
6 6 6	6 6	6 6 6	6 6 6	6 6 6 6	6 6 6 6	6 6 6 6 6	6 6 6 6 6 6	6 6 6 6 6 6 6	6 6 6 6 6 6 6
7 7 7	7 7	7 7 7	7 7 7	7 7 7 7	7 7 7 7	7 7 7 7 7	7 7 7 7 7 7	7 7 7 7 7 7 7	7 7 7 7 7 7 7
8 8 8	8 8	8 8 8	8 8 8	8 8 8 8	8 8 8 8	8 8 8 8 8	8 8 8 8 8 8	8 8 8 8 8 8 8	8 8 8 8 8 8 8
9 9 9	9 9	9 9 9	9 9 9	9 9 9 9	9 9 9 9	9 9 9 9 9	9 9 9 9 9 9	9 9 9 9 9 9 9	9 9 9 9 9 9 9
1 2 3	4 5	6 7 8	9 10 11	12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30 31	32 33 34 35 36 37 38	39 40 41 42 43 44 45

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Checking Inventories With Rotating Counts

In checking inventories with rotating counts the stock record quantities and values of the various items inventoried should be listed on the reverse side of the digit sheet. If the quantity and value of Material on Hand, as shown by the Rotating Inventory Count are correct, they will agree with the stock record or material ledger values, which are included in and balanced with the general ledger valuation of materials on hand, but if they do not agree an immediate check of each individual item inventoried should be made with the stock record in order to determine the item or items causing the difference. In such an event the original error should be located and the records balanced immediately. If

Work in Process
Inventory Digit Sheet

_____
date

Unit Price Digits	Unit Price Field	Labor and Material — Quantity (Hundred Thousands / Ten Thousands / Thousands / Hundreds / Tens / Units)	Labor and Material — Amount	Burden — Quantity (Hundred Thousands / Ten Thousands / Thousands / Hundreds / Tens / Units)	Burden — Amount
0	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Total	x 0	x x x x x x x x x	x 0	x x x x x x x x x
1	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Total	x 1		x 1	
2	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Total	x 2		x 2	
3	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Total	x 3		x 3	
4	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Total	x 4		x 4	
5	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Total	x 5		x 5	
6	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Total	x 6		x 6	
7	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Total	x 7		x 7	
8	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Total	x 8		x 8	
9	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Total	x 9		x 9	
	Grand Total All Digits				

Control

		Labor and Material		Burden	
	1 Sort				
	2 "				
	3 "				
	4 "				
	5 "				
	6 "				
	Grand Total All Sorts				

Inventory
Discount Digit Sheet

_____ date

Sheet No. _____
Branch _____
Class _____
Discount Rate _____

the latter is not done, either a deficit or an excess will be reflected in the inventory at the end of the year and profits affected correspondingly.

Stock records should be maintained showing quantity and money value but in such cases where records only indicate quantity of material received, disbursed and on hand, a limited number of accounts should be carried in memoranda form. Each such account representing the values of the various individual items which are included in a Rotating Count, thereby permitting the verification of material on hand as indicated by the rotating counts for both the quantity appearing on stock records and for the value of such material included in general ledger accounts. The necessary debits and credits to these memorandum accounts may be secured by digiting receipts and disbursements and posting the totals to the accounts affected. The totals of all memorandum accounts should agree with the General Ledger.

Analyzing Inventories

Inventories can be classified and an analysis quickly secured from any viewpoint. Cards should be sorted to the desired class of information and digited, a separate digit sheet being used for each classification or group of items tabulated.

Shrinkage in Inventory

Under the usual method of operation shrinkages or losses of stock are not discovered until the close of the year, causing a corresponding shrinkage in profits, even though a periodical count of the quantity of stock on hand is made throughout the year, and quantities are found to be in agreement with stock records, as such verifications do not include the verifying of values of materials on hand with the Ledger balances, which are used in arriving at the Profit and Loss account.

Errors in pricing requisitions, errors in extensions and other mistakes are likewise not found until the books are closed, unless the value of stock on hand is balanced periodically with the general ledger accounts.

The plan of Rotating Counts and making group extensions to arrive at values quickly, immediately indicates losses or variations in the value of materials on hand, as compared with stock records and ledger accounts. Such errors, under this plan, are reflected in the merchandise accounts and localized to the class of material incurring the deficit.

Rapidity and Flexibility of the Digit System

The rapidity and flexibility of the Digit Plan is so great that materials purchased or carried on a basis of various units of measurement, such as feet, pounds, quarts, gross, etc., need not be segregated into their respective or distinctive classes. The amount of all classes of measurements, including fractional quantities, are combined, thereby securing a total with but nine extensions.

Prices which are based on fractional costs are merely transposed into their decimal equivalent and costs may be carried to as many places beyond the decimal point as desired. The use of decimals in either price or quantity, or both, will not increase the number of extensions, as the maximum will never exceed nine, for any one class of analysis.

Electric Tabulating and Accounting Machines prevent the waste of *motions, minutes* and *material,* and enable fewer people to do more work in less time.

Some Analyses Made by Electric Tabulating and Accounting Machines

Labor
Material
Purchases & Disbursements
Sales
Cost of Shipments
Production
Orders
Sales Possibilities
Commissions
Journal Voucher Entries
Accident Statistics
Plant Inventory
Employees Statistics
Stock Records
Meter Records
Cost Summary
Payroll
Child Labor Statistics
Stockholders Records
Notes & Accounts Receivable
Machine Records
Mortality Investigations
Distribution of Expense
Advertising
Premiums
Cancellations
Claims

Classifications
Dividends
Loans
Losses
Paid-up-Additions
Reinsurance
Reinsurance Cancellations
Reserves & Valuations
Salvage
Insurance Written
Mileage
Tonnage & Revenue
Traffic Statistics
Fuel Statistics
Freight—Local & Interline
Hygiene
Marriage & Divorce Statistics
Motor Vehicle Statistics
Pension Fund
Postal Money Orders and Government
   Statistics
School Statistics
State Department Records
Vital Statistics
Workmen's Compensation
Charity Statistics & Welfare
Census

We have in our employ a staff or representatives trained in the application of Electric Tabulating and Accounting Machines who will work either with your company direct or with outside accountants, or auditors, and demonstrate how these machines can be used to advantage in working out your plans.

We shall be glad to furnish additional information upon request.

The Tabulating Machine Company

Division of

INTERNATIONAL BUSINESS MACHINES CORPORATION

50 BROAD STREET, NEW YORK, N. Y.

Manufacturers and Distributors of

AUTOMATIC WEIGHING DEVICES

ELECTRIC TABULATING AND ACCOUNTING MACHINES

TIME RECORDERS AND ELECTRICAL TIME SYSTEMS

Members of the National Association of Office Appliance Manufacturers