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# OFFICE EDITION

OF THE

## CANADIAN MANUFACTURER

DEVOTED EXCLUSIVELY TO OFFICE WORK AND NEEDS

Vol. 57. No. 5.

TORONTO, SEPTEMBER 4, 1908.

New Series—Vol. 1. No. 1.

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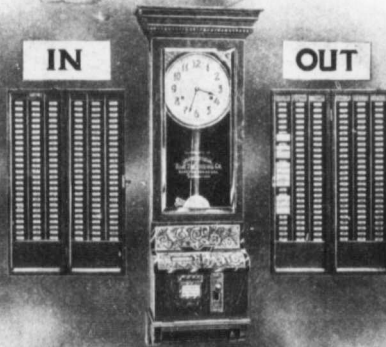
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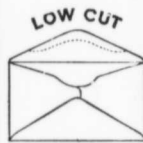
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# Time Systems in Manufacturing Plants

A PRACTICAL ARTICLE WRITTEN FOR THE CANADIAN MANUFACTURER BY J. A. T. DUNDAS.

I do not intend to write a time system that can be taken in its entirety and applied to the individual need of any establishment, but will describe a system that can be adapted with more or less change to meet conditions to any class of manufacturing establishment. Being best acquainted with the manufacture of machine tools will use this line to illustrate what I may have to write.

The first thing necessary in a manufacturing plant is a reliable time recorder. There are several reasonably reliable ones on the market. Place it in a convenient position at the work-

FIG. 1.—Card as Filled out, for First Operation.

man's entrance, where each man may record his own time, thus making him his own timekeeper. If your works are large and divided into sections or departments it is then advisable to have a recorder in each of these departments, bringing your employees into the immediate vicinity of their work before they register in. You can easily see the advantage of this. Your pay-roll hours are made up from the record each man has made for himself. This also prevents any differences between man and timekeeper.

Having secured an accurate system for checking the pay-roll hours of the employees you now proceed to arrange for the time in the manufacture of the piece you manufacture, also the time taken on the individual pieces and the different operations on each of these parts. The time can be easily and systematically taken care of by each piece

FIG. 2.—Card as Filled out for Second Operation.

having a number and an "operation card" being used to indicate the process through which the piece is put. The machine to which the piece belongs should also have a number, and it would be wise to give each job or lot a number as well, so that a job or lot going through your works would be described by the job or lot number, then by the

machine number and the individual piece of the machine by its number.

Now to illustrate we will say that you are manufacturing machine tools and you wish to manufacture twelve 30-in. engine lathes, standard design. Your 30-in. lathes are designated by the number 100. Your last job or lot number was 7,284, so this order would be for job or lot number 7,285; the machine number 100; twelve wanted. Now each piece having a number the part to be machined would be known as job 7,285; machine number 100; piece or drawing number 1. The operation is turning, so that an operation card is furnished as in Fig. 1, upon which the operator puts the date, his shop number, his name, the job number (in this instance called the order number); the machine number and the piece or drawing number upon which he is at work, also, when completed, the number of hours occupied in performing the operation. The hours are recorded by a check mark (V) under the hour of commencing the operation (in this case 7 a.m.), and when completed (say at 4.30 p.m.), he

morning a new card is used as though commencing a new operation or piece.

There are many pieces that occupy but a small amount of time, possibly only five minutes. The wish is to keep

FIG. 3.—First Card Filled out on Second Day.

record of the time on these while you do not charge less than fifteen minutes against any one piece, hence when two or more pieces of different numbers are machined in the fifteen minutes the time of commencing and leaving off each piece will be recorded the same on each

ORDER NO.	DESCRIPTION	TIME SUMMARY														DATE OF ORDER	CARD NO.
		APRIL 7 '08							APRIL 8 '08								
		MON	TUES	WED	THURS	FRI	SAT	MON	TUES	WED	THURS	FRI	SAT	TOTAL TO DATE			
7285	30" Engine Lathes (Standard Design) 72 off													9	10	22	
CLASS OF WORK		HOURS WEEK ENDING															
FORGING AND CUT-UP		1 1/4	3 3/4	-	6	9	9	2	5	6	9	10	22				
BORING		2	5	9	10 1/2	11	11	7	9	11	11	22					
TURNING		2 1/4	6 1/2	9 1/2	11	16	16	3	8	14	17	21	40				
PLANING			3	5	9	9	9	5	10	12 1/2	20 1/2	23 1/2	32 1/2				
MILLING & KEY SEATING					5	7	7	1	1 1/2	3	4	11					
GEAR CUTTING		1	3		4 1/2	5 1/2	5 1/2		3	7	12 1/2	12 1/2					
TRIMMING																	
GRINDING					4	4	4					4					
SLOTTING				3	4 1/2	7	7			1	3	10					
DRILLING		9	11	15	20	22	22	8	6	7 1/2	11	33					
CHUCKING			4		7	10	10			5		15					
ERECTING		2	10	17	25	30	34	34	9	17	25	30	64				
TOTAL HOURS ON ORDER		134 1/2							266								

FIG. 5.—Summary Sheet Listed in the Office.

places a cross (X) under the hour and also after the nearest fraction of the hour as measured in quarters in the line headed "minutes," the lapsed time being 8 1/2 hours, which is placed on the lower right-hand corner of the card, under "hours on job" as shown in Fig. 1. The operator then proceeds with his next piece, which may be designated as order or job number 7,285, machine 100, piece or drawing number 5. This time he marks the time of beginning on another card (only one entry being made on a card), with a check mark (V) as before. A card succeeding Fig. 1 is shown Fig. 2, where the check mark is under the hour IV, and also in front of the minute 30. If the operation on which he is working is not completed at the close of the day the operator marks his card as though it were completed, entering the hours occupied during that day. See Fig. 2. And on the following

card, but the time card for the second or more pieces would be marked with number—as in Figs. 3 and 4. The card

FIG. 4.—Second Card Filled out on Second Day.

suggested also provides for men operating more than one machine. Thus record may be kept of the number of hours each machine is kept in operation.

All cards should be sent to the time office each morning for the work done the day before, where they are first checked with the

register, then sorted in their respective operations and listed on a summary sheet, Fig. 5, with an adding machine, which lists the hours according to their

respective numbers. This gives you total hours for each operation for the day, as well as the total hours your employees worked. From these summary sheets the time is transferred to a time summary card, Fig. 6, for each order or lot. The hours spent on that number for the day on each operation, such as forging, boring, turning, etc., are recorded here. This summary card shows the total hours on the order to date as well as the total hours on any separate operation. It is compiled as follows:—

FORGING.	TURNING (Cont.)	GEAR CUT'G (Cont.)	DRILLING (Cont.)
5,000,006½	54,020	5,302,005	58,091
12,001½	6,600,010	32,006	85,009
42,001½	34,007	5,412,000½	
50,005	6,808,008	72,004	90,809,133½*
66,007½	92,004	5,500,001½	
6,200,001½	7,001,005	6,200,010	ERECTING.
34,004½	24,001½	34,003½	5,000,001
76,006½	30,002	56,007	12,007
89,001½	7,285,002½	60,005½	50,008
90,001		6,301,001½	66,009
6,445,005½	86,560,187	66,005	5,101,001
54,011		75,001	23,004
7,001,001½	PLANING.	6,445,002	5,302,010
30,003	5,101,008	7,285,001	4,007
43,002	23,006		5,412,006½
85,001½	5,304,004	58,247,083 *	35,002
	32,004		72,002
25,317,060½*	5,412,004	GRINDING.	5,500,008
	72,005	5,123,004	5,601,006½
BORING.	5,500,007½	5,304,004	5,905,012
5,101,001½	5,601,001	32,001	6,000,007
12,003½	5,905,007	5,412,002	34,002
23,001½	6,000,001½	6,000,010	6,200,001½
55,005	6,234,005	6,200,001½	34,002
5,412,004	76,007	6,445,005	89,003½
35,005	90,006	54,002	90,008
72,007	6,301,005	7,301,001	6,301,001
6,200,007	66,009	7,250,003	66,002
6,301,001½	6,405,006		7,001,005
44,009	7,001	48,821,033½*	30,004½
66,001½	7,001,007½		7,193,001½
6,405,001	43,002½	SLOTTING.	7,250,006
54,002	7,193,004½	5,412,003	58,007½
6,977,008	7,250,009	72,001	85,002
91,001	8,007	5,500,007	87,001
7,001,003	87,007	5,905,001½	90,004
7,193,001½	90,001	6,200,010	
7,250,012		76,007	78,691,142½*
58,009	79,801,125½*	90,009	
85,002		7,001,002	CHUCKING.
58,435,086 *	MILLING.	30,256,040½*	7,001,011
	5,000,004		7,193,002
	12,001		7,250,008
TURNING.	50,004	DRILLING.	58,001
5,000,005	66,009	5,000,004	90,012
50,001½	5,101,006½	42,001	5,000,003
66,007½	5,412,002	66,009	6,200,001½
5,101,009	72,005	5,101,007	76,006
23,005	5,905,001	23,002	6,445,007
55,006	6,234,007	55,004	7,001,002½
5,302,003	90,001½	5,302,001½	7,193,006½
32,001½	6,301,006	5,304,005	
5,412,008	66,007	32,001½	53,507,060½
13,001	6,407,003	5,472,009	
72,008	6,600,009	5,500,008	TOTALS.
5,905,003	6,808,009	5,905,002	25,317,060½
6,000,001½	7,001,004	6,000,005	58,435,086
6,200,010	7,193,003	6,200,006½	86,560,187
34,007½	7,250,008	6,301,001½	79,801,125½
41,001		66,007	75,568,089½
56,006	75,568,089½*	75,004	58,247,083
60,006		6,445,007	48,821,033½
6,301,001	GEAR CUTTING.	54,002	30,256,040½
6,366,006	5,050,001½	6,600,001	90,809,133½
75,011	66,007	34,006½	78,691,142½
6,405,005	5,101,002	6,808,003	53,507,06½
7,009	12,004	7,001,009	86,013,043 *
14,001½	5,123,005	30,011	
42,003½	55,010	7,250,006	

From the time summary sheets, Fig. 5, is checked off, order or job number 7,285, and on the summary card, under week ending April 11th are entered:— Forging, 1 1-4; boring, 2; turning, 2 1-4, etc. The entries for Tuesdays sheet are totalled with the previous entries. That is if these were 2 1-4 hours entered under turning for Monday, and the summary sheet called for four hours for Tuesday, you would record 6 1-4 hours on the summary card for Tuesday, thus showing 6 1-4 hours total time forging to Tuesday, and so on for the remaining days for that week. Each operation is carried out in like manner. The week's hours are then totalled, giving the total hours to date on that job or order. The next week's entries begin in the same manner and carried through as before, but the total for the previous week are added with second week's totals. These summary cards are continued (each card being numbered) until the job is completed. The cost of manufacture is then made from the information given.

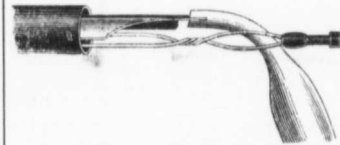
A glance at this card always indicates the total hours to date of any operation, as well as the total hours on the whole job. Comparisons can also be made with former records at any stage of the process. Your time cost being always up to date much time and labor is saved when your stock-taking and inventory season arrives.

[These systems will be fully discussed at a later date desirable.]

### A Self-Cleaning Pen

The cleaning of a fountain pen has been greatly simplified in the "Swan" model illustrated herewith.

In this pen all that is necessary when it is to be filled is to draw out the adjustment valve a sufficient distance to clear, and place the dropper over the point of the pen. The ink is drawn through the feed by gravity. This completely cleanses the pen and the feed by dissolving all particles of thickened ink that may have lodged in the feed.



This arrangement makes it unnecessary to unscrew the nozzle to clean or fill the pen, and saves many inky fingers.

The adjustment valve serves a valuable purpose in regulating the flow of ink, which can be made fast or slow according to the needs of the writer.

These pens are sold in Canada by Morton, Phillips & Co., Montreal.

Fig. 6.—Table Showing Total of Hours on Time Summary Card.

MONDAY, APRIL 6th

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OF THE  
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Canada \$1.00. United States \$1.50 per year. All other Countries in Postal Union six shillings sterling, including postage.

**ADVERTISING RATES:**

Made known on application to 408 McKinnon Bldg., Toronto

**PRACTICAL INFORMATION WANTED.**

We desire to make this edition of THE CANADIAN MANUFACTURER of the greatest possible value to the men who are responsible for results in the offices of industrial and commercial establishments.

To that end we desire to secure for the reading columns as much practical information regarding accounting, book-keeping, cost-keeping, sales management, advertising, etc., as possible.

We are willing to pay a fair price for all such articles. We would be pleased to receive from any of our readers a description of the methods they employ, information regarding any new equipment they may have installed or photograph showing any arrangement of office equipment which has proven efficient and satisfactory.

It is not necessary to write a long article in order to make it interesting. Just a paragraph or two may give other office men valuable information.

**THE MAN IN THE OFFICE.**

A practical knowledge of the business one is engaged in is undoubtedly one of the greatest factors in building up an industrial enterprise, at the same time it is easy for a practical man to underestimate the problems that have to be faced in the office.

The problem of selling has been the stumbling block over which many thoroughly practically have fallen. The problems of credits when trade is booming and of financing a business through a financial crisis have been too great for many splendid workmen who have lacked business insight and experience. The question of cost accounting, if given proper attention, may turn a losing enterprise into a profitable one. There are a hundred and one other problems of the office of which the mechanical experts in the factory have no knowledge.

It is the practical man, who understands the mechanical processes in his factory thoroughly, but who has enough business insight and breadth of vision to also recognize the primal importance of the office man's problems, who can hope to build a big, strong, profitable business.

**IT PAYS TO KNOW WHERE TO BUY.**

Sometimes we meet a man who says: "Oh, I never take the time to read trade papers. I am too busy looking after my own business." Such a man does not wisely look after his own business. He is neglecting one of the most important needs in business, his purchasing.

In the last thirty years trade papers have become a great factor in industrial and commercial life and one of their greatest values is the information they give the buyer regarding what and where to buy.

It pays to know where to buy. By keeping posted the shrewd buyer can always balance the propositions of competing sellers and is in the position of being able to nail down misstatements or unfair arguments of salesmen who are seeking his order.

The limitations of space, however, prevent the advertiser telling the buyer as much as he is willing to or as much as it pays the buyer to know. Hence it has been accepted wherever trade papers are read, that the buyer is at liberty to ask for further particulars regarding any line advertised and the advertiser has learned the wisdom of granting such requests in the most liberal spirit.

It pays to sit down after every paper comes in that is devoted especially to your work, to look through the advertisements and write for full information regarding every appliance or article you feel you should know more about than you do to-day.

**HONESTY ALONE DOES NOT SUFFICE.**

The honesty of the Treasurer of Toronto, is accepted. It has been proven to the satisfaction of all concerned that he is strictly loyal to the city's interest as well as honest and painstaking.

Yet this has not safeguarded Toronto from wrongful use of the city's money. The Parks Department investigation disclosed a system there that was far from business-like or satisfactory. One of the employees in another department has just been arrested because of shortages in 1904, while in a third department a shortage in the neighborhood of \$25,000 has been disclosed by independent auditors after the city auditors had failed to discover it.

The treasurer of a municipality or of an industrial corporation or the bookkeeper in a smaller business must be more than honest. He must be competent to devise a system of book-keeping which will entail accuracy and honesty or will at least entail discovery in case of the dishonesty or incompetence of those under him.

System without honesty would be a failure but honesty without system seems little better.

## The Adding Machine: An Investigation of Its Value

WRITTEN FOR THE CANADIAN MANUFACTURER BY H. L. GRIFFIN, B.A.

Does it pay the manufacturer to have an arithmetical machine in his office? No one is surprised at finding such a machine in the office of a bank or other large financial corporation, but can it be of sufficient use to the manufacturer to justify its large first cost? Put in another form, this question is, will an arithmetical machine justify itself in the manufacturer's office to a sufficient extent by reducing the cost or increasing the efficiency of the office organization?

The very small office of course can not afford the expense of a costly machine. At the other extreme is the office employing enough people to keep one.

An investigation of this problem by the writer disclosed the fact that the adding machine has found its way into and proven its usefulness to a great many manufacturing concerns.

According to the nature of the office's need the user employs an adding and listing machine; an adder attachment to a typewriter which is thus used for billing or a machine which merely calculates, without printing either entries or totals.

Wherever additions are to be made, if there are enough of them there is a field for the mechanical adder. If most of the additions are on sales bills, and a loose leaf system of bookkeeping is in use a billing and adding typewriter may be employed. In this the page remains fixed in a bed below the carriage, which has a double motion, the usual one from left to right, and one from top to bottom of the page, to replace the usual movement of the paper. It is operated just as an ordinary typewriter, and the amounts are posted in the proper columns. However, an adding register is placed above each column to be added and this automatically produces the total when desired.

By use of this machine the bill can be typed and added simultaneously with the sales record. The record must agree with the bill, and both totals must be right, so a great deal of checking is saved.

The straight adding and billing machine has a great variety of uses in the office. Trial balances are taken on it, invoices checked, pay rolls made up. In fact, once it is established in the office a great many opportunities are sure to be discovered for putting it to use.

### C. G. E. EMPLOY SEVERAL MACHINES.

At the office of the Canadian General Electric Company, which employs several adding machines, an interesting method is made use of in striking a trial balance. The names of the accounts are kept in permanent order on wide sheets. When the balance is to be taken off the various items of the accounts are entered in the proper place. Such totals can be inserted for various accounts, and when the bottom of a sheet is reached its total is instantly available.

Mr. Logan, assistant general auditor of the Canadian General Electric Co. was enthusiastic in his account of the economies of the adding machine. He did not believe that any machine would ever be able to beat the expert accountant for speed, on one adding

that is. But, as he pointed out, even the most expert accountant has to check over his additions. When he does this, he gets behind the machine in time. Mechanically correct, it cannot make a mistake in addition. The only source of error is the hitting of a wrong key by the operator, and that can be corrected almost instantly when it is discovered.

### TOTALS PURE GOLD SALES.

At the office of the Pure Gold Manufacturing Co., College Street, Toronto, a comparatively small office staff, by means of very complete organization, manages a large business. The secretary, Mr. Jamieson, is an enthusiast on the subject of the economy of the use of the adding machine. It is positively valuable to the Pure Gold Co. in totalling up sales. On the sheets used for the purpose vertical columns are used for different classes of goods, while horizontal divisions separate the transactions of the various firms dealt with.

The machine is employed, of course in trial balance work, and for many other things. A notable feature about the trial balance methods of the Pure Gold Co. is the employment of a large number of ledgers, which are balanced separately. Thus, when an error does creep in, the search for it is confined to a limited field, instead of being spread all over the books of the company. Mr. Jamieson was of the opinion that the maximum of economy of a single mechanical adder could probably be obtained in an office employing about fifteen people before its introduction. Properly used, he believed, the machine would cut down the required force in such an office by nearly one third.

A machine designed more for other arithmetical operations than mere adding finds a good deal of employment, especially where

it is important to assist the bookkeeper in his calculations, rather than to make a record of the operations. When there are a large number of discounts or percentages to be figured, a clerk once trained, can do it as well as the expert bookkeeper, whose time may be saved for other work. Some firms, instead of issuing new catalogues continually, use a system of chain discounts, which are revised whenever any alteration in price is to be made. In such an office a calculating machine, after it is once installed, is considered almost indispensable.

### FOR CALCULATING FAIRBANKS DISCOUNTS.

The Canadian Fairbanks Co., Front St., Toronto, may be mentioned as an example of a company which has recently installed such a machine. Mr. Jackson, the office manager, intends to use it for calculating discounts, and also for figuring percentages in the cost departments. As an adding machine it is used to total the entries in the loose leaf ledgers.

### KODAK CO. EMPLOY TWO MACHINES.

At the office of the Canadian Kodak Co., King St., Toronto, where Mr. Stevens is office manager, a straight adding and listing machine is employed as well as a calculating machine. The former is used in totalling sales and in trial balance work. The latter is a part of the very complete cost system maintained by the Canadian Kodak Co. When shipments of paper or plates are made their area must be given on the cost sheets in square feet the numbers being carried out to five decimal places. The area, of course, of every standard size, is previously figured out, but the multiplications required are carried out on the machine. It is further employed in getting at the percentages of various items to total cost.

## How to Operate a Follow-Up System

BY ADAM F. SMITH, OF THE OFFICE SPECIALTY MFG. CO., TORONTO.

The biggest problem that confronts any person engaged in business it may be a manufacturing, wholesale or retail business, an insurance agency, or a real estate office—is how to promote the sale of the commodity which it has for sale.

There are many ways of reaching the people with whom you want to do business.

The first thing to do is to get a line on probable customers, and the next thing is to sell them something.

It is in connection with the selling that a practical and efficient follow-up system is of great assistance.

This follow-up system must not be cumbersome, or involve extra clerical work. It has one mission, and that is to bring to your attention at the proper time all the details regarding every prospective sale.

The equipment of the follow-up system

here described, consists of an oak tray 20 inches long, 13 inches wide and 11½ inches high, which is fitted with hinged covers which drop down on either side when the tray is in use.

The tray contains one set each of daily, monthly, and alphabetical guides, and 200 manilla folders.

Every follow up system is based on time. A prospective customer calls in your office; or your traveller reports that a prospect is interested in something, but that he is not able to close the sale; or you receive a letter enquiring about something you sell; or you select certain people you think you can do business with. To all of these people a letter is written—say on August 2nd. If you have not had previous correspondence with any of them make two copies of your letter.

It is reasonable to suppose that if these



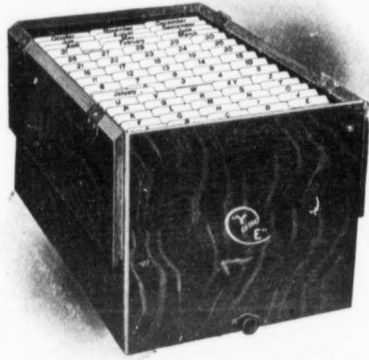
people are interested in your proposition they will reply to your letter within two weeks. File the first copy of your letter behind the daily guide for the 17th and write on one of the folders the name of the prospective customer and place in the folder the second copy of your letter, filing the folder behind the alphabetical guide bearing the first letter of the name of the person written to.

On this second copy is marked the date under which the first copy was filed, so that if you receive a reply before the date on

copy of this last letter another 10 days ahead, and the copy of the first letter and any other correspondence in the alphabetical file.

Thus the details of each prospect is automatically brought to your attention. You can write as many follow-up letters as you like, and extend the follow-up indefinitely, but the matter will always come up for attention at the proper time.

If a matter pending does not require attention for several months, it is filed behind the



which the letter is to come up you do not have to search behind every guide in the daily file, but locate the first copy alphabetically, and then immediately find the second copy by referring to the date written on the alphabetical copy.

If you have had previous correspondence or a letter of enquiry, it is only necessary to make one copy of your letter, which will be filed in the daily file as a reminder, the letter of enquiry, or other correspondence being filed in the folder in the alphabetical file.

When the 17th comes around you take all the copies of the letters from behind this guide for which you have not received replies, and write another follow-up letter, filing the

monthly guides, and when the month comes around all the papers are taken out and distributed behind the daily guides under the dates when they should receive attention.

This system is so simple and inexpensive that it can be used to advantage by almost every business house. Many heads of departments are using this system for following matters relating to their department work. Each tray will hold about 3,000 papers, so that quite extensive correspondence can be carried on, with the assurance that each individual matter will receive attention at the proper time, thus relieving your memory and leaving your mind free to consider the details of each matter as it comes up.

## Addressing Letters or Circulars by Machine

THE ADDRESSOGRAPH AND A FEW OF ITS USES.

By A. B. FARMER.

There are comparatively few firms of any importance in the industrial and commercial world to-day in which the mechanical copying out of names and addresses, for the purpose of sending out letters, notices or circulars to customers or prospective customers is not an important part of the office work, and, in many cases, a department peculiarly liable to cause loss through errors and omissions.

As a clerk can write only about 800 names and addresses a day, or about 500 on particular work, such as heading statements, this work represents a large item of expense.

Some twelve years ago the Addresso-

graph was devised and put on the market to relieve the clerks of this drudgery, and the employer of the mistakes and a good deal of the expense of hand work. To-day, there are over 30,000 Addressographs in use, with lists numbering from two hundred to over one and a half million names.

The Addressograph machines are made in two styles: the chain system and the card index system.

In the chain system, the addresses are set in links with sliding rubber type, and hooked together in the form of an endless chain, which hangs suspended on the revolving drum of the machine, as shown in the illustration.

The machine inks, prints and revolves to next address at one motion of the foot. It can be set to duplicate, or to print one name as often as required. Both hands are free to handle the matter to be addressed.

Two styles of address plates are used: in the one, the names and addresses are made up of sliding rubber type, set in metal holders; in the other, the names and addresses are embossed on metal plates, giving them a permanent character. From eighty to two hundred addresses may be put in one chain, according to whether the links are one, two or three line size. These chains may be conveniently classified and filed in specially-made cabinets for convenient use.

In the card index system, considered by many the last word for convenience and practical usefulness in addressing machine construction, the addresses—either sliding type or metal plate system—are set in metal frames and filed in steel drawers, as shown in illustration. This arrangement makes it very easy to quickly locate a name in case it is necessary to make a change in an address or to pick up a certain number of names from the entire list for making special lists, etc. New names may be filed properly, or dead ones removed without disturbing the balance of the



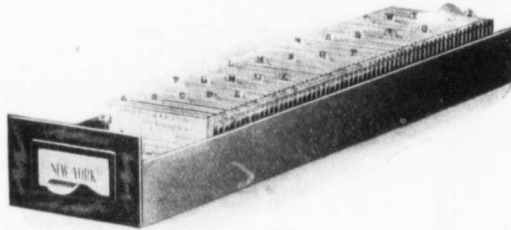
Addressograph with Endless Chain of Addresses Suspended on the Revolving Drum.

list. Proof cards bearing the impression of the address plates are inserted in the upper half of the frames, and have blank space for special printing or record notations.

In use, the plates are transferred directly from the drawer to the magazine of the machine and are returned to the drawer, placed underneath the machine, in their original order, without handling.

#### A RECORD INSTALLATION.

Among the first to appreciate the value of the Addressograph were the public utility companies, such as gas, water, electric light and power companies. Then came the manufacturers and dealers in every line. After these came the fraternal societies, clubs, lodges, corporations and associations of all kinds, with large memberships, and notices to send out weekly or monthly. Printers and publishers are also large users of the Addressograph.



Card Index System, Showing Tabs, Sub-dividing the Addresses.

The record installation at the present time is that of the Prudential Life Insurance Company, of London, England, where an Addressograph plant consisting of fifteen automatic electrically-driven machines, with something like one million seven hundred and fifty thousand names, all mounted on Addressograph endless chains, is being installed, that will cost over \$150,000. This large plant will be used to fill in and prepare premium notices and receipts, address envelopes for same and making up agents' debit notes for each agency, making an average of 25,000 impressions daily and reducing the clerical work by fully 80 per cent.

#### How It Is Used.

Many people think of an addressing machine only in connection with the addressing of envelopes, postcards, wrappers, etc. This is an important use of the Addressograph, but it has been found invaluable in many departments of large and small concerns. In the advertising department, the machine is used for filling in names and addresses in imitation type-written letters made by the Dupligrph or other process. The work of the Addressograph is an exact fac-simile of typewriting, and this has made it possible to add the appearance of personal letters to circulars on a scale never before equalled.

In the pay roll department many concerns have found the Addressograph very valuable, because, with its use, the timekeeper can print all the pay records in only a few minutes, and then have all the rest of his time available for clerical work.

In the shipping room, when an order is received, the address plate is placed in the machine, and as many tags or labels printed as are required, or tags and labels for regular customers may be printed in advance and placed in indexed trays for use when wanted.

Corporations having a large number of shareholders must frequently send reports, checks, lists, notices, etc., to their members. No work requires more care, or has to be done under greater

pressure than this. Then there are dividend sheets and dividend checks to be prepared. These can be filled in, and envelopes addressed with a minimum of time and labor by means of the Addressograph.

Economy, accuracy, despatch: these are the watchwords of business to-day. In every department of industry the old, slow, inaccurate methods of the past are being supplanted by the speedy, tireless work of machines that cannot make mistakes, and the addressing machine is taking its place with the type-

writer, adding machine and other clever office appliances that have become necessities of modern business.

## The Library Bureau Office Desk

### A DESCRIPTION OF ITS CONCEPTION AND DESIGN.

One of the objectionable features of the ordinary office desk is the bulky pedestal extending to the floor under which stray papers or dust can collect, and the base board of which so soon becomes marred and stained

idea. These desks are the result of many years of study and experiment in a field where, heretofore, no advance has been made in the last quarter century and combine in their style, equipment and devices the crystallization of the firm's best ideas and experience.

Particular attention is called to the design and structural features peculiar to Library Bureau desks. All desks are of the leg type, a style originated by Library Bureau. While no bulky pedestal extending to the floor under which stray papers or dust can collect, yet ample drawer space is provided for housing all the papers the user may require. The leg style offers unusual free knee space and by eliminating the pedestal the objectionable base board which soon becomes marred and stained by use, is obviated. A perfect sanitary desk is the result.

The desks are massive in appearance yet not over heavy. The lines are simple, yet not severe. Panels and mouldings are plain yet of a quiet elegance that impresses and never tires. There are no fancy mouldings or carvings to collect dust and breed disease.

These desks are made only from sound and perfectly seasoned lumber. All oak is white quarter sawn stock, carefully selected and matched for beauty of color, grain and figure, finished to the L. B. antique oak color and hand rubbed to a dull egg-shell gloss. Years of severest use will not impair their finish. The mahogany is especially chosen for color, figure and fire and is finished in L. B. colonial finish, bringing out to perfection the natural rich beauty of the wood. Interiors are of hard wood throughout and in the best grade of desks interiors are of solid oak or mahogany as the case may be. All drawer interiors are smoothly varnished.

In these desks are found the same flawlessness of workmanship, the same painstaking attention to small details, that are so characteristic of all Library Bureau work. All writing beds or tops are of special



by use. It is frequently urged that such desks are unsanitary.

To obviate this objection the Library Bureau of Canada have designed a desk which is distinctive. They are designed as a working tool, complete in itself. Utility has been the watchword in their conception and development, but at the same time beauty of design and architectural detail have not been sacrificed for this utilitarian

built up, reinforced construction, not solid or common ply which rapidly deteriorates. This is the most expensive construction for table and desk beds known to the arts to-day, but is the only positive method of preventing warp, check or split. The legs are of built up mitred construction, developing the natural figure of the wood on all sides.

All mouldings are coped-cut from the solid wood—not nailed or glued on. Panels



or class of goods and should be ruled to show the quantities received, quantities disbursed and balance in stock. While in some cases there may be reasons why the stock-keeper should not know the cost of goods, it is usually advisable to include prices in these records.

For all ordinary stocks of goods and for factories especially, the card shown in Form 1 will answer the requirements. It

Another stock card which is especially adapted to the needs of a manufacturing plant, and in which castings or other parts are received in the rough and afterward finished is shown in Form 2. It will be noted that on one side of this card is combined a record of rough stores, a record of finished stores and a record of the parts used and for what purpose or on what other number they have been used. This

In any business, this same rule should be followed, i.e., some one should be made responsible for the stock and no one else should have authority to go to the stock-room and help themselves. The stock should be delivered by the stock-keeper only on receipt of properly signed orders. Even in a retail store some one person should have charge of the reserve stock while the stocks on the shelves should be

Form 4

will be noticed that one card is used for each article in stock and these cards are filed between guide cards on which are written the indexes separating the different classes of material. The cards of a given class are arranged according to the name of the article, the size of the stock number, as may best meet the requirements of the business.

Referring to the form on the card, across the top we find the name of the article, the size or kind, the location (meaning its location in the storeroom), and at the extreme right, three spaces for high, normal and low limits. For every item in stock, it is advisable to establish a limit above which the stock should not be allowed to go without being given special attention; also a low limit which may also be termed "the danger limit." Between these two will be the normal quantity of stock.

By merely watching these limits, when goods are taken from the storeroom, the stock-keeper can keep in pretty close touch with the general condition of the stock, but the use of movable metal markers tabs in connection with the card will automatically indicate when an item reaches the danger limit, be it either high or low. When the stock reaches the high limit, a black tab will be placed over the word "high." If this stock moves rapidly, bringing the amount below the high limit, the tab will be moved along to the word "normal." If, by chance, the stock reaches the low limit before a new supply is received, the black tab will be replaced with a red tab or signal placed over the word "low." The manager or purchasing agent by merely glancing over the files once a day will at once have his attention called to the items which need looking after by the position of these tabs.

form possesses some features, the value of which will be recognized by any manufacturer having need for such records.

Stock records will not keep themselves, neither are those without responsibility in the matter likely to pay much attention to such records. Unless someone is made responsible both for the stock itself and the recording of that stock, the system will be of little value. In manufacturing and jobbing houses it has long since been demonstrated that the saving through the proper care of the stock is much greater

looked after by one clerk in each department. When we say that goods should be placed in charge of a stock-keeper, we do not necessarily mean that a person must be employed for that purpose only for the duties may be assumed by some other employe, but the main thing is to know that someone is making it a part of his business to maintain the inventory system.

We have already referred to the fact that a stock record system is not intended as a substitute for an actual physical inventory. While it is assumed that the records will be correctly kept, it is true that errors will creep in and these can be detected only by a frequent check. It is not necessary, however, to take an actual inventory of every item in stock to check the records, since our records are made up of a system of units, there is nothing to pre-

than the salary of a competent stockkeeper. Most manufacturing establishments, where any attention is paid to system, place their stores in charge of one man, holding him responsible for its proper storage and for a proper record of its disposition. Under no circumstances does he allow supplies of any character to leave the storeroom without first receiving a requisition or order signed by some one in authority. From these requisitions he obtains his data for posting the items on the stores records.

vent our checking one or more units at a time. In other words, instead of counting the entire stock we can count certain section or certain items.

One method which has been used successfully is to divide the stock into 26 sections, one for each day of the month, separating these sections in the file by a special guide card. Each day the items included in the corresponding section are counted and compared with the records. Another method which, in some cases

seems to be preferable is to call on the stock-keeper for a report on items taken at random. Every day he is called upon for a report on one or more items. Since he never knows when he will be called upon for the count of a given article, he is very likely to keep in exceedingly close touch with the stock rather than to be placed in a position where he must admit a discrepancy in his records.

#### THE ADVANTAGES OF A PERPETUAL INVENTORY.

Aside from the fact that it greatly lessens the labor at the dreaded stock-taking time,

a perpetual inventory is of great value in keeping the management in touch with the condition of the stock. By the use of the plans already outlined, it would be possible for the manager to know just what goods are running low and of what articles he has too large a stock. If to this is added a monthly report from the stock-keeper of all articles on which the records have not varied materially during the month, the manager will have brought to his notice promptly all slow-moving stocks so that he can take the necessary action, either by reducing prices or adding an incentive for the salesman to move the goods.

## The Science of Book-Keeping

A PAPER READ BEFORE THE LONDON SOCIETY OF BOOKKEEPERS BY MR. H. J. ELDRIDGE, F.S.S., F.S.A.A.

The subject of this paper is one that I feel must interest all associated with the pursuit of bookkeeping. It is, however, a very wide subject, for the variety of uses to which practical bookkeeping can be adapted are legion. I purpose devoting this paper to the consideration of practical bookkeeping as practised by merchants, manufacturers, and others who are able to follow the principles of bookkeeping on general lines.

Practical bookkeeping implies the adaptation of scientific and theoretical bookkeeping to practical use. Theoretical knowledge is essential, but theory without practical experience is inadequate.

What are the essential qualifications of a practical bookkeeper? I would suggest, firstly, a sound knowledge of double entry bookkeeping; secondly, intelligence; thirdly, neatness and accuracy.

#### THE ADVANTAGES OF CORRECT BOOKKEEPING

Let us for a moment consider the advantages to be derived from correct bookkeeping. It is a great preventive of losses either by fraud or wastage. Facts are recorded and comparisons between different periods of trading are available, so that the increase or decrease of incomings and outgoings can be watched, and advantage taken of the knowledge gained. In the case of a business with several departments or many branches, the principal can readily ascertain the trading results of each department or each branch, and by this means losing departments or branches can be improved or closed. In this way the principal can see in what direction his energies and those of his assistants can most usefully be employed. Small expenses should be carefully watched, for a little leak will eventually sink a great ship.

Correctness in bookkeeping is also necessary for income-tax purposes. With income-tax at its present figure it is essential that the bookkeeping of a business is such that facts can be accurately stated and proper allowances claimed for depreciation, bad debts and other items properly chargeable before the net assessable profit is ascertained.

Then look at our bankruptcy courts. I verily believe that at least one-half of

the failures in business would be avoided if accurate bookkeeping were universal. How is it possible for a man to conduct his business properly with books slovenly kept? It is the duty of every man engaged in business to keep a full and correct record of his transactions, and our judges often express this fact in the judgments they deliver. One frequently sees the discharge of a bankrupt suspended when his affairs have been allowed to drift into a state of chaos, while a bankrupt with properly-kept books (who is a rarity) easily gains his discharge. The Bankruptcy Law Amendment Committee which recently sat, recommended that proper books of accounts should be made compulsory by all engaged in business.

#### ADAPTION OF BOOKS TO BUSINESS.

There is one fundamental system which governs all correct bookkeeping, namely, double entry. As you know, this means the creation of a debit for every credit, and vice versa.

It is not the duty of a bookkeeper to adapt the business arrangements to suit the books, he must adapt the books to suit the business.

Almost every business has its own particular needs and requirements and it is the duty of a competent and practical bookkeeper to see that the system in force is adapted to the requirements of the business, and that time and labor are saved to the utmost extent without detriment to the results obtained.

A point to be borne in mind is: What final results are required? That is a question which each bookkeeper should consider. Detailed results of particular departments may be advisable. A wise bookkeeper will adapt his subsidiary books to the requirements of the final results, and the discreet assimilation of the final figures will greatly facilitate the conduct of the business.

Bought and sold day books, for instance, can be arranged on analytical principles, and the totals posted periodically to the various departments, thus saving tedious analysis at balancing time.

The cash book and other books would have to be similarly treated so that completeness could be attained. Adapt the system to the requirements of the

business. Think out the details to suit the business, thereby saving time and labor, and giving the fullest results.

#### ACCURACY ESSENTIAL.

I cannot impress upon all too strongly the value of accuracy. Errors are of two kinds—errors of principle, and clerical errors. Errors of principle can only be avoided by the acquisition of knowledge, and the exercise of intelligence and common sense. Clerical errors are mainly traceable to want of care and adherence to method, and want of care is said to do more harm than want of knowledge. Still, we are all only human, and slips will occur. It has been truly said that a man who never makes a mistake never makes anything, but I venture to think that a mistake is made even then, by doing nothing. To ensure accuracy in our work, the figures must be systematically and exhaustively checked, so that we may know that our books are correct. Banks supply an example of promptitude and exactness. They have to be particularly prompt in the verification of their work, and the correctness of the day's entries is ascertained at the close of each day's business.

Promptness in checking and calling back is most necessary. Here I would point out that it is not only essential that the calling back be accurate as regards amounts but that the names of the accounts to which items are posted must be verified. Again, the greatest care should be taken that the original entries in the subsidiary books are correct. If the business be that, say, of a contractor, see that no work is done or materials used without an entry eventually finding its way into the outwards day book—in short, see that no work is done or goods sold without a charge being properly made for the same.

The prime cost ledger requires careful examination, so as to see that all entries which can be charged outwards are so dealt with. Wages sheets must be analyzed, and all items exhaustively dealt with by charging them to some job or account. Materials must be similarly treated, whether coming from stock or being purchased specially for a particular job. By such a system of treating all items in detail, omissions should be prevented; in fact, the totals of the materials, wages, and other columns in the prime cost ledger, should be in agreement with the impersonal accounts in the general ledger.

#### THE CASH BOOK.

In every business it is strongly advisable that all cash received, from whatever source, be paid into the bank, and that no payments of any kind be made out of any cash that has not passed through the bank. For general use, a three-column cash book is suitable; the first column on each side being for discounts, the middle columns for cash receipts and payments, and the remaining columns for "bank." A payment to the bank will, therefore, be credited in the middle column on the credit side, and debited in the third column on the debit side, while a withdrawal from bank for the purpose of making payments other than by check, such as wages, etc., will be credited in the third or bank column of the credit side, and debited in the middle or cash column on the debit side.

The cash book is an all-important book. The bank column should be

agreed with the pass book as frequently as possible, and a reconciliation statement between the cash book and the pass book prepared and periodically entered in the cash book, preferably in red ink. A reconciliation statement is set out this way:—

	£	s.	d.
Balance as per pass book . . . . .	0	0	0
Add lodgments not cleared . . . . .	0	0	0
		0	0
Less checks outstanding . . . . .	0	0	0
Leaving balance as per cash book . . . . .	£0	0	0

Regarding petty cash, it is very desirable that the petty cashier has a floating balance sufficient for his needs as petty cashier, and that a check be drawn periodically for the exact amount of his expenditure during the period arranged, which will recoup him so that he may again have his full floating balance. Most firms adopt this principle, and draw weekly checks for petty cash expenditure.

As to discounts, it should be remembered that trade discounts should go to purchases and sales accounts, while cash discounts are posted to discount account, the balance of which is carried to the profit and loss account.

#### PROVING OF LEDGERS.

I will now pass on to the subject of verification of work. The adoption of self-balancing ledgers is very advisable. The subsidiary books must be arranged on analytical principles and monthly, bi-monthly, or as often as can be arranged, each ledger should be balanced separately. As a simple instance, let us take a business which closes its books on December 31st. On January 31st the summary of the bought ledger postings may be as follows:—

#### BOUGHT LEDGER.

CASH BOOK.	£	LEDGER BALANCES.	£
Being the total of the B. L. Column on the Credit side of the Cash Book . . . . .	4,000	At 1st January . . . . .	5,000
Discounts allowed in connection with the above payments . . . . .	100	Bought Day Book being the total of entries in that book . . . . .	1,000
Bought Returns being the total of the B. Returns Book . . . . .	230		
Leaving Balance . . . . .	1,700		
	£6,000		£6,000

A schedule of the bought ledger balances at January 31st should, therefore, be £1,700. The same check may be applied to every ledger. But this is a somewhat elementary way of dealing with the principle of self-balancing ledgers, although sufficient in many cases. To complete the system, every ledger should contain material within itself for a trial balance. Each departmental ledger should contain a general ledger adjustment account, while the general ledger should contain an adjustment account for each of the departmental ledgers. By the adoption of this system the detection of error is greatly aided, and mistakes can be promptly localized.

#### BILLS.

It may here be useful to refer to the subject of bills—bills receivable and bills payable. These should be entered in the bill book under the proper heading, each item being posted to the personal account in the ledger, and the to-

als of the bill book to the debit of bills receivable account, or to the credit of the bills payable account. The postings from cash clear the accounts automatically. Dishonored bills should be at once debited to the customer, and never left on bills receivable account.

#### STOCK TAKING.

One of the most important events in regard to the figures of a business is stocktaking. Too often this is not only hurriedly but incompetently done. Stocktaking is a serious business, which should be most carefully watched. Errors made during stocktaking are liable to remain undetected, and an incorrect result of the trading profit is necessarily the consequence.

A careful watching of percentages may point to an error which may be traced to stocktaking, but the error to make a noticeable fluctuation in the percentage of gross profit, would have to be of considerable magnitude. In stocktaking goods must be taken at or under cost, and it is often advisable that a small percentage to provide for wastages, etc., be deducted from the total of the stock sheets before the final stock figure is arrived at.

#### TRIAL BALANCE.

The trial balancing period is of particular interest to the bookkeeper, although sometimes it is one of considerable anxiety. The correctness of the work under his control is to be ascertained. Too often the figures at first attempt do not agree. It then requires all the intelligence of the bookkeeper to decide what course shall be pursued to promptly ascertain in what direction the error or errors can be traced.

There is no golden rule for this. Experience only will enable the competent man to know where to look for the mistake. It may be that a balance of £8 10s. in the ledger has been brought down at 8s. 10d. A cast, an indistinct figure, an omission of a ledger balance in the schedules may prove to be the cause. On the agreement of the two sides a certain relief is attained. The result has proved that the debits in the trial balance equal the credits. It has not, however, proved more than that. An error in posting to a wrong account may still exist, although if reasonable care be taken by the clerks in posting, and all items are called back, the possibility of error should be small. When the process of calling back is taking place it is well that ordinary blacklead pencils be used, and not ink, as otherwise the marks might interfere with the work to be done by the professional auditors in their attendance at balance sheet time.

#### COST ACCOUNTS.

I may here just touch upon cost accounts. These are of great importance to a business. It is by economies in production that profits can be improved.

True and correct records of prime cost are essential in all manufacturing concerns. A firm cannot enter into a contract or give an estimate with any confidence of accuracy without having a detailed knowledge of the cost of the work to be done, and this knowledge cannot be correctly obtained unless a proper system of prime cost is in force.

By a complete analysis of the wages sheets, unproductive wages can be carefully watched.

#### FINAL RESULTS.

We are now coming to the ascertainment of the final results. The trial balance agrees and preparatory to drawing up the trading and profit and loss accounts we examine the various accounts comprised in the trial balance, to see that all have received correct treatment. Rent, rates and taxes, gas and electric light, and insurance accounts must be checked so as to see that the correct apportionments of rent, etc., accrued, and insurance unexpired, are taken into account and brought down as debit and credit balances (i.e., assets and liabilities), as the case may be, so that the balance carried to profit and loss account is actually and correctly the amount chargeable to that account.

In the case of fixtures, furniture, machinery, plant, etc., proper allowances must be made for depreciation. The amounts to be written off vary according to the estimated life of the property. Brooms and brushes wear out more quickly than mahogany desks, while horses must be dealt with according to their age and utility.

In writing off a percentage for depreciation, the calculation should be on the original amount and not on the balance of an account, otherwise, theoretically, the account could never be closed. With plant and machinery, and especially horses, fresh valuations are advisable as frequently as circumstances permit, and in many concerns preferably by high-class professional valuers.

Proper reserve must also be made for bad and doubtful debts. Debts should always be collected as promptly as possible, consistently with the business customs of the parties to the transaction.

The capital of a business is the surplus of the assets over the liabilities. If the reverse is the case, the capital is overdrawn and the business is insolvent. It will, therefore, be seen that the assets (that is, the stock, book debts, machinery, plant, etc.) must be stated at their correct value, otherwise any assets wrongly stated or any liabilities incorrectly recorded must of necessity affect the capital of the business.

I have not yet referred to the journal. Some have extensive use for the journal; others believe almost in its abolition. Personally, I think there is no necessity for many entries frequently found in a journal. For example, I fail to see that any advantage is gained by carrying the totals of the day books through the journal. Time can be saved, and equal efficiency secured, by posting direct from the day books. In opening the books of a business the journal is most useful and also at balancing times its necessity is very apparent. Entries in the journal should in each case be accompanied by a short explanation. Depreciation, reserves, and such like items should be journalized; the trading and profit and loss account figures should also go through the journal.

The object of the trading account is to show the gross profit of a business. The trading account may be regarded as the first section of the profit and loss account. The profit and loss account proper includes the balance of trading account, and all items of income and expenditure relating to the business. The balance sheet should be arranged as simply as possible, and with a clearness which will render misapprehension impossible.

## A Simple, Yet Accurate Cost Keeping System

ARTICLE I.—A DESCRIPTION OF THE DEY SYSTEM OF COST KEEPING.

To obtain the actual cost of production in factory or mill is the ideal of progressive factory managers and accountants, for by securing this, and only by so doing, are they able to figure out whether they are actually making a profit each month.

Three items enter into the cost of a manufactured article. These are: raw material, labor and burden expense, the last-mentioned including all fixed charges, office and selling expenses, material consumed in manufacturing, such as oil, waste, etc., non-productive labor (which should be determined by dividing the pay-roll into two parts, produc-

ive and non-productive), and there is nothing to show where the first man consumed more of the actual burden expense than the other, and yet you are charging over twice as much to the first man's labor.

To get the proper amount to add to this labor to cover this expense, you should divide the total amount of the burden expense for the month by the total number of productive hours. Say your burden expense is \$720.00, and your productive hours are 3,600. This gives you a rate of 20c. a productive hour, therefore, to the first man's wages of \$8.10, you add the burden rate of 20c. per productive hour, eighteen

hours, making 36c. The third man we pay one cent a piece. In six hours he turns out 225 pieces, \$2.25. If you add 40 per cent. to labor cost, you will add 76c. to the first man, \$1.20 to the second man and 90c. to the third man, when each and every one of them took six (6) hours and consumed an equal amount of the burden expense, and should be charged an equal amount, but on a percentage basis you would charge each man a different amount for burden expense. It is necessary to keep a record of the hours that piece hands work in order to obtain the accurate burden their product should bear.

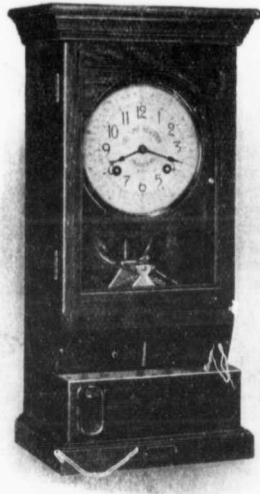
Another example. A piece worker starting to work in the morning and working only a half day, five (5) hours, earning \$1.00. By the old method they would charge 40 per cent. to this to cover burden expense, making \$1.40. This burden expense keeps right on the other half of the day, but what bears it? If she had worked the rest of the day she would have earned \$2.00, and 40 per cent. burden expense makes \$2.80. Although the burden expense went on just the same, but as she did not work and you could not, according to your methods, charge it to her labor, where does it come in? If you had obtained a productive hour rate by dividing the total burden expense by the total productive hours, the burden expense for this half day she did not work would be properly and accurately taken care of.

It is comparatively easy to obtain the cost of material that enters into your product, but the time or labor element is the difficult element in cost.

To get the exact elapsed time on every operation, every job, exact labor cost to a cent on every order that goes through the works, also the productive hours, which gives the proper burden rate and absolute accurate distribution of burden expense, is to save thousands of dollars each year.

To accomplish this the International Time Recording Co., Traders' Bank Building, Toronto, have placed on the market the "Dey" special cost keeper, Fig. 1. By this clock elapsed time on and off a job can be registered as often as necessary, so that the individual operation can be kept. If when an order is issued it is desired to start a job ticket and to have it accompany the order through the works, this clock will record the elapsed time of each man working on the job right opposite the operation he performs, so when the order comes through it will have with it one ticket with the exact amount of elapsed time of each operator, multiplied by their rate, giving the exact and entire labor cost on this one original ticket. If the business is such that it is desired to have a coupon tag to follow the work, each operator detaching a coupon to show what work he did, this clock will stamp the elapsed time on his coupon, showing (if it is piece work), the comparison of the piece price with an hourly rate.

If you prefer to keep a record of the various jobs a man works on in a day on one card or sheet, this clock will give you the elapsed time of each job on that same sheet, directly opposite the order he is working on, so that the total elapsed time will foot up to the exact working hours of the day, multiplied by the rate per hour will give you the



"Dey" Special Cost-Keeper No. 303.

hours \$3.60, making labor \$8.10, burden cost \$3.60, material \$4.50, total \$16.20, the absolutely accurate cost. To the second man's wages of \$3.50 you add the burden hour rate of 20c per productive hour, eighteen hours \$3.60, making labor \$3.60, burden cost \$3.60, material \$1.50, accurate cost \$8.70, and to this you add what per cent. of profit you intend to make.

By the percentage basis add 40 per cent. or \$3.24, to the first man's wages of \$8.10, material \$4.50, making cost \$15.84, a difference of 36c. short of actual cost. To the second man's wages of \$3.60 add 40 per cent., or \$1.44, plus cost of material \$1.50, making a total of \$6.54, a difference of \$2.24 short of actual cost. This is where you fall short of making the profit you had figured on. If you will give this careful thought you will see it is the only way to arrive at the accurate cost.

Take another example. Say we have three men working by the piece. The first man we pay 40c. per 100. In six hours he turns out 475 pieces, \$1.90. The second man we pay 50c. per 1,000. In six hours he turns out 6,000 pieces,

For example, two men working side by side at the bench; one is paid 45c. per hour, the other man 20c. per hour. Each man works on his respective piece of work eighteen (18) hours. By the percentage method you charge say 40 per cent. of labor cost on each man's work to cover burden expense. On this basis, for the first man's share you charge \$3.24 and only \$1.44 for the sec-

ond man, making labor \$8.10, burden cost \$3.60, material \$4.50, total \$16.20, the absolutely accurate cost. To the second man's wages of \$3.50 you add the burden hour rate of 20c per productive hour, eighteen hours \$3.60, making labor \$3.60, burden cost \$3.60, material \$1.50, accurate cost \$8.70, and to this you add what per cent. of profit you intend to make.

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amount of wages you are paying the workmen, thus proving first the productive hours and minutes, second the wages you pay, third the absolutely accurate labor cost, fourth the accurate burden hour to figure the burden expense.

In a subsequent article the writer will give diagrams showing how this system is operated.

### National Business Show

From Monday to Saturday, October 5 to 10, a business show will be held in Massey Hall, Toronto, under the direction of Messrs.

Hew R. Wood and Stewart Houston, of that city.

It is proposed to devote the main floor of this spacious building to the display of loose leaf devices, time recorders, typewriters, adding machines, duplicating machines, check protectors, office stationary and specialties of all kinds.

Though the show is still a month away Mr. Woods states that several prominent office equipment concerns have contracted for space while several others have reserved locations.

Tickets of admission can be secured by application to any of the exhibitors or to either Messrs. Wood or Houston.

## System in the Order Department

BY F. HARCOURT, MANAGING DIRECTOR CANADA LOOSE LEAF CO., LIMITED, MONTREAL.

Loose Leaf Systems are at present so much in vogue in our large mercantile offices in Canada, that a word on the method of operating some of the most important systems might not be out of place. It is doubtful if any part of the routine work in an industrial or mercantile business is of so much importance as the order department and certainly if this department is badly handled it is safe to say all other departments will be more or less affected. On the other hand if this department is working harmoniously it is also safe to say that all other departments will be doing likewise.

The order department is so wrapped up with the selling end of the business that it is necessary to solicit the co-operation of the selling staff in order to make either successful, in fact harmony must exist between the two forces. There is no surer way to obtain these results than a well organized order department. No other medium perhaps is more successful in dampening the ardor and enthusiasm of the salesman than the bad handling of orders which he has entrusted to his firm. Delays are dangerous and there is no more fruitful source of delay than a poorly organized and equipped order department. It puts the salesman in bad humor and it is sure to drive customers away and in nine cases out of ten the order department and not the factory or the warehouse is the guilty party.

A great percentage of the large wholesale offices of Canada can now endorse the benefits to be derived from operating the order department on a well devised Loose Leaf Method. Not only from an actual economic standpoint but from the standpoint of expedition.

The methods obtaining in nearly all offices in this department only a very few years ago are to-day antiquated so far as this country is concerned.

It is not my desire to here outline a plan of order system for any particular business but simply to point out in a general way the necessity for more progress in this direction.

Each different business or at least each different class of business must have its own distinctive method of handling its

orders. There are at least three reliable loose leaf companies in Canada to-day whose entire business it is to instal and manufacture these systems and in all cases these firms give the services of their accountants for the purpose of installing these systems free of charge. This is an advantage that the business public did not dream of fifteen years ago. There is, therefore, no good excuse which the party in charge of the order department can render to the management of his concern for not having an up-to-date method of handling his department.

So many so-called good business men—men shrewd in the financial end of their business are willing to shut their eyes to the advantage which might be gained in a more up-to-date method in the order department. This procedure certainly ends sooner or later in such houses falling behind in the race—in these days of keen competition. Only the house which is prepared to give quick and efficient service in its delivery of orders can hope to win in the race.

#### THINGS TO FORGET.

If you see a tall fellow ahead of a crowd  
A leader of men marching fearless and proud,

And you know of a tale whose mere  
telling aloud

Would cause his proud head to in  
anguish be bowed,

It is a pretty good plan to forget it.

If you know of a skeleton hidden away  
In a closet, and guarded, and kept  
from the day

In the dark; and whose showing,  
whose sudden display

Would cause grief and sorrow and  
lifelong dismay,

It's a pretty good plan to forget it.

If you know of a thing that will dark-  
en the joy

Of a man or a woman, a girl or a boy,  
That will wipe out a smile, or the least  
way annoy

A fellow, or cause any gladness to cloy,  
It's a pretty good plan to forget it. "

—Ex.

## The History of Envelopes

BY B. F. KNAPP.

The first record of the use of envelopes that has come to our knowledge is contained in the following lines from a satirical poem written by Dean Swift in 1726:—

"Lend these to paper sparing Pope

And when he sits to write

No letter with an envelope

Could give him more delight."

In the British Museum there are preserved two envelopes, one of which is dated, Stockholm, April 24th, 1755, and it is known that in 1760 Madame de Pompadour sent a letter in an envelope to the Duchess d'Aiguillon.

Envelopes were used in England soon after 1830, and are referred to in a paper written in 1839 by Sir Rowland Hill, the father of modern postal systems, as "the little bags called envelopes."

They were without gum on the open flap, which was secured by wafer or wax. It is evident, however, that the use of envelopes at that time was far from general. The English postoffice made a double charge for letters enclosed in them, and they were a refinement largely confined to those in easy circumstances. A letter written by an English lady in 1840 is still preserved, in which she asks for "a quire or so of small colored notepaper, and a paste-board pattern of the little envelopes."

Soon after 1840 Warren de la Rue and Edwin Hill, brother of Sir Rowland, invented a machine for making envelopes which attracted a great deal of attention in the Crystal Palace Exhibition of 1851. Envelopes rapidly came into general use, and an Englishman named Dangerfield became in 1845 the first envelope maker in New York. The first American patent for envelope machinery was granted in 1853 to a Philadelphia inventor.

The early machinery folded envelope blanks which were cut by steel dies, and on the open flap of which gum had been spread by hand and allowed to dry. Modern machines are more than twice as fast, and require no hand work, the gum being applied to the open flap and artificially dried on the machine. For some years after the introduction of machines, envelopes were made by hand in large quantities, and business men now living can remember when the ability readily and surely to distinguish hand-made from machine-made envelopes was a mark of the expert.

Within recent years there has been a remarkable development in envelope machinery, and every first-class factory keeps its machine shop busy repairing its machinery or fitting it with improved devices.

## PUBLICATIONS

HEATON'S ANNUAL—the commercial hand book of Canada and Boards of Trade Register fourth edition, 1908. This book contains a great amount of condensed information of value to persons doing business in Canada, such as cable regulations, postal information, customs tariff, commercial law, regulation of trust companies, transportation, shipping, business opportunities, statistics, etc., etc. Price \$1.00 from the publishers, or Morton Phillips & Co., Montreal.



## Extending Credit and Handling Accounts

THE ESSENTIAL EQUIPMENT OF A GOOD CREDIT MAN, WITH SOME EXAMPLES OF TACTFUL AND SUCCESSFUL LETTERS TO DELINQUENTS.

By S. ROLAND HALL, IN SELLING MAGAZINE.

In this day of ready transference of money through banks and other avenues, by far the greater proportion of business transactions are conducted on the confidence of the seller in the buyer. The extension of credit is a necessity in most selling enterprises, and properly so. Debt, however, is a subject to be handled delicately; often the humble tradesman figuring how he can meet all bills that are due, becomes offended at a harsh or hasty demand for money, and turns his patronage elsewhere.

### RETAIN THE GOOD WILL, BUT GET THE MONEY.

The correspondent who has charge of the work of collecting dilatory and delinquent accounts has a highly important work. He has need for as much tact and judgment as the correspondent who adjusts complaints; for there is a time to be severe and a time not to be severe. Because extreme measures are sometimes necessary, credit men and collecting departments often make the mistake of using too little tact. On the other hand, it is, of course, necessary to collect money promptly, in order to conduct a business properly. Those who sell have their own obligations to meet. Accounts cannot and should not be allowed to run indefinitely without system. "Short credit makes long friendships," says the credit man of a great Pittsburg concern. The collecting work must be under the management of a man who, while using tact and retaining the good will of customers, still keeps up the collections.

There must be some exceptions to all rules. Few, if any, firms could force all customers to live up to an iron-clad rule regarding the time of payment, and retain them. In some lines of trade and in some localities, it is the custom to discount nearly all bills. In other places, tradesmen in excellent standing are accustomed to pay bills only at the end of thirty, sixty or ninety days. Therefore, a firm desiring to have all bills paid in thirty days must, if it does business all over the country, be tactful and allow its rule to stretch at times.

### COMMERCIAL RATINGS NOT ALWAYS RELIABLE

An important requisite to intelligent collecting correspondence is a good understanding of the condition and responsibility of customers. The commercial agencies afford ratings, but these ratings—important as they are when no other information is available—form only a part of the information which a collection department should have. A firm on the verge of failure may sometimes have a good rating, and a new concern to which credit may be safely extended, even beyond usual limits, may not be rated as being safe, or be rated at all. Information of a general and personal nature, and private reports from salesmen are of great service. A salesman who calls often at a place of business is in a position from observation to make a safe estimate.

One large, successful firm, selling direct to grocers all over the United States, allows its salesmen to extend credit almost entirely on their own responsibility; to safeguard against worthless accounts, it requires the salesmen to pay ten per cent. of the amount when one of his accounts is lost. The plan works well.

Some mail-order concerns require new customers to secure the signatures of several neighbors or business acquaintances to a certificate on the order blank to the effect that the one ordering is trustworthy, able to secure an equal amount of credit at the local store, etc. Other concerns send goods on approval to only those using a business letter-head; but advisable as this might be in some instances, its usefulness as a plan is obviously limited.

### THE SALESMAN NOT A COLLECTOR.

While the services of a salesman are exceedingly valuable in collecting, because he can act understandingly, it is doubtful that it is good policy to have salesmen collect regularly if it is possible to arrange collections in any other way. Collecting and selling do not go well together; the service that a salesman renders in collecting will usually be offset by a loss in selling. It is better that the salesman should not, except in extreme cases, be a part of the active collecting system. He should contribute to intelligent action by keeping the firm informed. There should be close co-operation between the sales force and the credit department.

Let us suppose that we are running the collecting department of Brown & Co., Jones & Co., of Elmira, N.Y., retail grocers, owe us two hundred dollars. We require all accounts paid in thirty days, and the account is already a day or so overdue. It is obvious that previous dealings, if there have been any, govern action in any given case. It is the first of the month, and we find that Jones usually pays his bills on the 10th; so it is business policy to wait until the 10th has passed. The 10th comes and goes without hearing anything from Jones. If this were the first time Jones had let his account run overtime, we should probably inquire of our salesman or send a "statement rendered." But it seems that Jones has only a fair standing, and that he has several times been slow in paying. The balance now due is larger than usual. It seems important to secure payment, and yet we do not want to endanger the trade of Jones & Co. A letter something like this would do:—  
Gentlemen:

We are sending statement to date, and we trust you can let us have this amount at once.

We dislike to inconvenience our customers, but we have bills of our own to meet, and for this reason it is sometimes necessary to press our friends for payment earlier than we otherwise would. It will be a favor to us if you will give this statement immediate attention.

How does the Pepperoid sell? Some of the trade are finding it a first-class seller, not only on account of its good quality, but because of the large amount of advertising being done by the manufacturers. We ordered a good stock of Pepperoid in anticipation of duplicate orders. If you would like to have another gross, let us know and we will ship on the day ordered.

With best wishes, we are,

Faithfully yours,

If a letter of this kind brings no response, and there still seems no reason for alarm, it would be well, after giving a reasonable length of time for attention to the first letter, to send a second, something like this:—  
Gentlemen:

As you know, your account has run for some time over our usual limit. We have to collect money to run our own business, and we hope you can give the account attention without further delay.

By the way: we have not received an order of any kind from you for a month or more. We trust nothing about the last shipment was unsatisfactory, or that anything has happened to cause you to place your orders elsewhere. If ever there is any fault in our service, remember that we deem it a favor to be advised.

With the expectation of hearing from you at once, we are,

Faithfully yours,

### DRAFTS TO BE USED WITH CAUTION.

If a letter like the second brings no response, a firm is certainly justified in drawing on a customer. If the customer refuses to pay, or there seems danger of losing the account by failure, it is then time to act quickly, and perhaps, to send a personal representative. Business men in small towns often object seriously to drafts. Therefore, drafting is a method to be used with caution.

It is difficult to lay down rules, because what would hold good for one business and one class of debtors would not hold good for another, because, also, proper action must be determined largely by the circumstances of each case. Unless there is imminent danger of failure, every effort should be made to ascertain the cause of delay or refusal of payment before proceeding to extreme measures.

Some tradesmen are notoriously slow in paying, and are not sensitive to hints. With such persons, firm and formal requests, drafts, and threats to sue may be used earlier than with others. In all cases, the correspondence should be courteous.

### LEGAL STEPS THE LAST RESORT.

One prominent New York firm sends out with each of its monthly statements a brief letter that requests the customer to inform the house at once in the event that there should be any error. If payment is not received within a reasonable time, a correspondent writes suggesting that there has undoubtedly

been some good reason for the delay, and urging if the delay has been caused by anything for which the house is responsible, that the customer will be kind enough to write immediately. A third letter is a little more insistent, though courteous; and the fourth takes up the matter from an ethical point of view, appeals to the customer's sense of fairness, his pride, etc. If none of these has the desired effect, an attorney in the employ of the company takes the case. It is worthy of note that a letter over the signature of an attorney is often all that is necessary with obstinate and indifferent debtors.

Flattery is a subtle weapon in collecting accounts, as it is in other dealings. One very successful correspondent has a plan of writing a personal letter to a delinquent, saying that his firm has decided to draw on all delinquents in a few days, that he takes the liberty to write to Mr. Blank, believing that he prefers not to be drawn on, and suggesting that if a check is received by the 23rd the drafts will not be executed.

#### SHOWING AN INTEREST BESIDES THE DUN.

Many firms hold to the policy of writing letters the day after accounts are due, and making formal request for prompt payment. Some do not like to plead the need of money as an argument for payment, and perhaps it is not always a good plan; perhaps, occasionally, any excuse for pressing payment weakens the demand; but in most lines of business it is better to incorporate some manifestation of interest that will take away from the dunning letter all the disagreeable effects, while retaining all the usefulness of its mission. A resourceful correspondent can always find a logical and pleasant way of pressing collections.

The following are some paragraphs selected from letters used in the collection departments of a wholesale concern and a publishing house selling on the instalment plan:—

I shall esteem it a personal favor if you will write to me fully and frankly by return mail.

I trust you will not compel me to refer the matter to a local attorney for attention. Let me hear from you.

If we do not hear from you within ten days, your contract will, in the regular order of things, pass over to our attorney, and I am really eager to avoid that.

As soon as your account is placed in good standing by at least one regular payment, I will send you any one of three books described in the enclosed folder that you may select. When sending your payment, be sure to tell me which one of the books you want.

According to our rule, we shall have to draw on you next Thursday for the amount of your account due on the 10th. Can you send us your check before Thursday? We hope so.

## The Watchdog of Dividends

By H. P. N. IN SYSTEM.

Frequently a department head, long in the service of the house or with some special claim to consideration, will be indulged in his whim by the management and allowed to block installation of labor-saving devices in his immediate province. Such a case requires tactful handling. I recall an in-

stance where I had to enlist the president and chief owner of an important New York concern as an unofficial salesman before I could convert his office manager to purchase my appliances.

It happened that the office manager had a small share in the business, having received the stock when the concern was struggling to make headway. The president was a kindly, bighearted man who gave him full sway in the recording and accounting end of the business, overlooking the fact that he was wedded to old-time methods and made a showing only by the most niggardly economy.

The office manager admitted the worth of my device after a demonstration, but made the price his excuse for flat refusal to purchase the two he needed. His little dividend, he conceived, would be cut down by the unusual outlay and he may have needed the money, for all I know. At any rate he said "no" with emphasis.

Naturally I carried it up to the president, expecting that a word from him would alter the "shadow's" decision. His eyes twinkled when I told him frankly why the office manager balked.

"He's the watch-dog of our dividends," he said and explained the other's interest

in keeping down expenses. "We'll have him in and see if we can't sell him."

The manager showed his vexation, but the president handled him as gently and tactfully as though he were a big customer with a just complaint.

"I wondered if Mr. Blank, here," he began, indicating me, "showed you how he could spread the costs of his appliances over ten or twenty years and make them pay for themselves several times over." It was an argument I had used on this office man as well as the president and this "old man" developed it beautifully. With pencil and paper, adding interest charges and allowing for depreciation, he showed that his devices in twenty years would cost only twenty cents a day. He was a natural salesman—was the president—and he made the thing clear as rock-crystal.

"They'll cost you, personally, Jim," he wound up, about two dollars a year. Don't you think we can afford that for the clerk's sake, even if they don't make the savings they seem to promise?"

Stumped, the "shadow" fenced a little longer and finally gave in. But he didn't wait twenty years to get his squandered dividends back. The next time I called I found he had dropped one clerk and was figuring on letting out a second.

## Organization in Manufacturing Plants

EXTRACTS FROM PAPER READ BY EUSTACE THOMAS, B.S.C., BEFORE THE INSTITUTE OF ELECTRICAL ENGINEERS

Everyone who has visited a number of shops, some working on day work system and some on the premium system, must be impressed with the difference in the atmosphere of the two. With piece or premium work there is not only a brisker air about, but also the author seemed always to notice a more cheerful atmosphere. Probably the reason is that with either the piece or premium system the man feels that he is working for his own benefit. The following are some disadvantages of day work, especially in general shops. The men slack off as soon as the foreman's vigilance relaxes at all. Some men regard it as a matter of principle to make jobs last as long as possible with a view to increasing employment. The men are quite content to wait for material. The handling of material by the foremen is always less efficient. Costing is uncertain and unsatisfactory. Some advantages of premium or piece work are: Each man has an interest in the work. The men press the foreman to give efficient delivery of material, and the foreman is thus placed between two fires. Each job must have careful consideration before being committed to a price or time which may be hard to change. Each job makes the estimation of new work easier. The foreman has more time to plan his jobs, and is better able to estimate for and keep correct promises of completion. If the assemblers are on piece or premium work, they draw attention themselves to any inaccurate manufacture of parts coming to them.

DAY WORK TO HAVE TIME AND PRICE ESTIMATED.

In cases where day work seems neces-

sary, it should be insisted on that a price and time are estimated for each job, even although these are not made known to the men. The actual price and time must be compared later with this estimate. The effect is to force attention to all day work jobs, and in some measure to bring about the other advantages enumerated under premium and piece work. But, further than this, it must eventually make the foreman desire to get piece or premium work in where he has been accustomed to give out day work, for, if a price has to be given in any case, it is easier for him, if it is given to the man outright and the man is working with him, to keep the time down. The simplicity, comfort and general advantage of piece or premium work cannot be sufficiently proclaimed. So much so that where appreciated every manager of a general shop will find means to introduce it to a much greater extent than is at present common.

#### PREMIUM WORK

It was well known that with piece work a man seldom attempts to earn more than about time and a quarter for fear of getting the rate cut. This caused an uneasy feeling in the employers that they were not getting the best efficiency, and it was hoped by the introduction of the premium system that this difficulty would be got over, a promise being made that the time allowed should not be altered unless a new method were adopted. In fact, the masters hoped that they might be able to relax some of their vigilance, and that the men would of their own accord

**Send out Circulars**

One of the most direct and profitable ways of advertising any commodity, especially when the number of prospective buyers is limited, is by sending circulars personally addressed to the firms or persons one desires to reach.

For instance, a manufacturer who has something important to say to the five hundred retailers who have his exclusive agency, can, by the use of modern appliances, reach all of them at very low cost, and yet in most effective manner, by sending a circular letter to them.

A few years ago this meant large expense, for it entailed having each letter written and addressed on a typewriter. Now he can have the letters so well written by duplicating machines and so well addressed by machines for that work that each letter looks so like a typewritten letter that the agent who receives it cannot see the difference.

This is but one of a score of ways in which manufacturers and other large business concerns will find circulars exceptionally effective.

It is by keeping in touch with all such labor-saving equipment for office work, that the general manager, the accountant, or the sales manager can

**An Actual Example of A Saving of 50% over Printers Charges**

**GEORGIA LOCOMOTIVE COMPANY.**

Atlanta, Georgia, \_\_\_\_\_ 190\_\_

To *Georgia Car Company.*

Please furnish Labor and Material, charging to our account, for account of Engine No. \_\_\_\_\_ as follows:

Cost of 10,000 copies of this form 8" x 11"		\$12.00
Printer's estimate		
Multigraphing	.40	
Pro rata cost of Electro	6.00	
Paper	.50	
Time, 5 hrs. at 12¢ per hr.	2.00	9.20
Miscellaneous	.80	
Saving by Multigraph		\$1.00

*Georgia Locomotive Company*

By \_\_\_\_\_ Superintendent.

O. K. for G. C. Co.  
By \_\_\_\_\_

The above order when O.K'd by Mr. HARRIS or Mr. YANCEY constitutes order to Foreman of Department for work to be done.

**INSTRUCTIONS:**  
Copy for Dept. Engr. Ch.  
G. C. Co. Shop Office  
Foreman Department doing work who will endorse material and labor required for job.

By the

# Gammeter Multigraph

**Office Printing Machine and Multiple Typewriter**

The Multigraph does good office printing at practically the cost of the paper and an office boy's time. Small quantities are produced at the lowest rate, instead of according to the printer's sliding scale which increases the rate as the quantity is decreased.

The Multigraph not only saves 50% of the cost in printing, but it saves time and keeps confidential matter private. The work is produced with twice the speed of a printing press, and ordinary runs can be finished on the same day as started. The Multigraph will handle forms up to 8½ x 17 inches in size. (The actual size of the form shown above is 8x11 inches.) Electrotypes may be used on the Multigraph and a direct inking attachment is supplied for straight printing purposes.

**As a Multiple Typewriter**

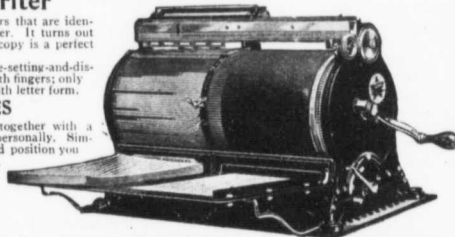
The Gammeter Multigraph typewrites form letters that are identical with the work of a regular high grade typewriter. It turns out copies faster than any duplicating device, and each copy is a perfect ribbon-printed original.

The Gammeter Multigraph has an automatic type-setting-and-distributing device which avoids all touching of type with fingers; only a minute to a line is required for setting up a full-width letter form.

**LET US SEND YOU SAMPLES**

of forms printed on the Gammeter Multigraph, together with a Multigraphed typewritten letter addressed to you personally. Simply send us your name, the name of your firm, and position you occupy. We'll also send descriptive booklet or catalog.

**The American Multigraph Sales Co.**  
Canadian Office:  
28 Adelaide St. W., TORONTO, Canada



hope to keep the efficiency of his office staff and of his sales force up to the highest standard. The office manager should make a point of keeping on file the catalogues, bulletins, etc. issued by the various firms who are selling such equipment and to also have full information re the first cost and the operating expense in connection with

these modern appliances. Having such information makes it easy to calculate the saving effected by installing any of them. By such saving or rather by such increase of efficiency, it is possible to very materially increase the ratio of net profits and to thus swell the dividends.

do their best in their joint interests. Such a golden vision was not likely to be realized. The men know quite well that if they make too much premium a new method will always be found. The author has been amused to find that the managers of some of the works visited have declared that the rate was never cut. Their responsible assistants, however, have usually acknowledged, on being pressed, that practically the same result was obtained by this plan of "finding a new method." The practical result is that the premium system, after all, requires just as much vigilance as the piece work system. It has the disadvantage of requiring rather more bookkeeping, and of rather more difficulty in adjusting the price when a mistake has been made. If there had never been any cutting, the older firms would have been placed at considerable disadvantage as compared with newer firms, and would find that they had been pioneering for such newer firms, who are enabled to take advantage of the improvements effected and set shorter times to start with. In actual practice, however, it is probable that the greater proportion of the rates fixed, especially in large machine work, are pretty correct and there is not perhaps so much scope for any undue bonus to be earned.

#### EXPERT CHECK ON TIMES SET.

Where it is considered that the best results are not being obtained, the author is convinced that the only way to improve matters is to have enough expert men who are paid well, and can be relied upon to work in the employers' interest. Such men, for example, may act as rate fixers. One or more of them can work on such of the jobs as seem to require checking, and they will advise on any changes that seem likely to be profitable. In particular, they seek economy in "non-cutting" times. It seems very desirable that the rate fixers should keep their hands in in this way, otherwise some stagnation is probable. Also if some system of remuneration for improvements they effect can be introduced, it will probably yield a very profitable return.

On small work especially the proportion of non-cutting time is sometimes very great. In a certain rather tricky job a very experienced rate fixer set the following time: Cutting, 16 minutes; changing tools, 10 minutes; gauging, 20 minutes; setting up and fixing, 30 minutes. This, of course, was not quite an average job, but in particular the item for gauging is to be noticed.

#### GAUGING.

There happened to be a number of surfaces to machine, and each to exact dimensions. "Gauging" included the actual measuring and the successive short cuts necessary to get down to the exact depth for the final cut. A little thought will show how antiquated and wasteful are the ordinary methods of doing this. A cheap gauge or micrometer is badly required, which will tell in a second or two to ordinary men just how far they are off the final dimension, and then means are required to set the tool forward just that amount. Micrometer heads on lathe screws are useless without the micrometer or gauge for showing how much remains to be taken off. The introduction of some cheap device of this sort will eas-

ily effect an appreciable percentage economy.

#### CHANGING BELTS.

With belt-driven machines and cone pulleys the speeds usually change in not less ratio than 1.75 to 1 or even 2 to 1. In the latter case we shall on the average be working at just three-quarters of the correct speed, and the cutting time is increased one-third. This is a very serious loss, and argues strongly the advantage of a gradual speed change device; also of some cheap speed indicator to be applied to the work and show instantaneously the rate of cutting. But in an even simpler way losses constantly occur. It is usually not quite easy to change from one speed to another, and the tired man in particular will not take the trouble to speed up and down as often as perhaps he should. One large firm doing very accurate work, provides a handle which automatically shifts the belt by pressure to right or left. There is no doubt the cost of this has been repaid many times.

#### QUICK-CHANGE DRILL CHUCKS.

A quantity of work comes under the radial or single spindle drill, and requires fairly frequent change of drills. Quick-change drill chucks, which enable the drill to be changed instantaneously without stopping the spindle, may easily save anything from 10 to 50 per cent.

#### SETTING WORK IN JIGS.

In small and thin work the cutting time is often very little, and the setting and handling of the jig may be a large percentage of the whole. In one shop where the work was all repetition, and large numbers of very expensive jigs were used, the foreman estimated, at a rough guess, 25 to 75 per cent. of non-cutting time, a multiple spindle drill being used, and very good jigs.

#### PICKING UP TOOLS

In one very accurate and tricky job, requiring a number of operations to be performed from the same setting, and requiring a number of tools in successive use, the author was impressed with the small cutting time, and also with the loss in finding and picking up the exact tool required. A large block, having exactly as many holes as tools and gauges, and with these arranged in suitable groups, will save its cost many times over. A careful study of this particular job enabled the time required for it to be halved, with considerably greater satisfaction in the character of the work turned out, and all by attention to these small details. The above details will sufficiently emphasize the point that there is a large field open at present for improvement to reduce the non-cutting time, as well as the cutting, and that employers may often profitably take obvious opportunities of economizing which lie ready to their hands, instead of looking abroad for new tools.

#### VISITING CONSULTANTS.

In America, and in a few cases in this country, visiting consultants are called in to examine the works, its lay out, its organization, and to suggest improvements. Such men must have an experience which no one attached to a single works can possibly attain to, and should be able to exercise it without breach of confidence. In any single

concern there must be some tendency to stagnation, and there seems as good reason for the visiting consultant as for the visiting auditor, whose services are now regarded as essential, and taken as a matter of course.

In a general shop having many small jobs in hand at once, it requires a very clever foreman to give times of completion of all work in hand which he can adhere to and yet not have too much labor employed. The author has devised a special indicator for the purpose, which gives the foreman a bird's-eye view of the work in hand and of the capacity for work. It requires that time shall be estimated on all work in detail, whether on the day, piece or premium systems. One or more suitable boards are laid out with horizontal grooves to represent the different men in classes according to employment, wages, etc.; some spare grooves are also allowed to each class. Vertical lines are drawn to scale to represent hours, days and weeks. Fairly narrow strips of card are cut off for each job, of length equal to the number of hours estimated, and marked with the job number and date by which completion is required. These are then set up in the grooves, always to the left of the date marked on them. If there is more work in hand than capacity in men, some cards must go into the spare grooves. The card to the left in each groove is always the job in progress at the time with that man, those to the right being arranged in the order of present urgency. They can be reshuffled later as altered circumstances may seem to require. Thus the foreman or manager can see at a glance what work is likely to be late, what is the present capacity for new work, stock work, etc., what jobs are hanging, and where it is desirable to take on or discharge men. The material laborer can also see what materials, tools, etc. are likely to be required soon and get them ready. The cost of keeping up is small and amply repaid by the advantages.

In conclusion the author would recapitulate a few of the points which stand out most strongly before him: (a) Make it unnecessary for the workman to think or remember what can be committed to writing, and he might forget. (b) Some red-tape is necessary and cheap. Remember that discretion may also mean indiscretion. (c) Use routine books arranged for easy weekly inspection. (d) Give every piece made a carefully-chosen catalogue number, and use this everywhere. (e) Provide an auxiliary stores for each foreman where there is much small work. (f) Make use of the list of material in the numerous ways suggested. (g) Drawings should be divided up, and each detail given a list of operations and tools. (h) Get as many men as economically possible on to each order in progress, and so have as few in hand at any one time as possible, and finish each quickly. (i) Check standard jobs by expert labor, and reward improvements made. (j) Insist on an estimate of the time required for each day work job. (k) For the sake of comfort, as well as for economy, displace day work as much as possible. (l) Keep the attention directed to the "non-cutting" losses, especially with small work. (m) Keep the whole of the work under general view by means of a suitable foreman's indicator.

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**\$1.50 per Day up**  
With Bath connection  
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**C. N. OWEN, Prop.**  
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when you can secure comfortable lodging, supplemented by a Turkish Bath, a scientific rub, a shower and a plunge in the finest swimming pool in America for

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**14 QUINCEY STREET, Near State**  
In the very Heart of the City.

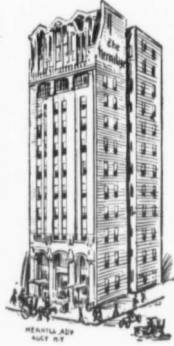
NEW YORK CITY

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Restaurant on the street floor, — a restaurant where ladies are welcome.

Every other part of the house exclusively for men.

Telephones in every room.

Respectful, quiet, obedient and alert Japanese servants.

Bedroom and bath, **\$2.00** a day upward.

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American Plan,  
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Hot and Cold Running Water in all Rooms.  
Rooms with Bath extra.

**A High Grade Cafe**

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57 to 63 West 45th  
Between 5th and 6th Aves.

Most satisfactory accommodations for tourists; center of shopping and theatre district; rates ranging from \$3 to \$5 per day, with board, or sitting room, bedroom and bath at \$2 to \$4 per day, without board.

**M. LUEZ**

Established 1849.

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Capital and Surplus, \$1,500,000

Offices Throughout the Civilized World.

**EXECUTIVE OFFICES,**

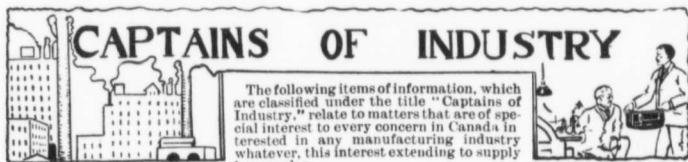
346 & 348 Broadway, New York City, U.S.A.

CORRESPONDENCE INVITED.

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London, Ont.	Montreal, Que.
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St. John, N.B.	Toronto, Ont.
Vancouver, B.C.	Winnipeg, Man.

**THOMAS C. IRVING, Gen'l Manager Western Canada**  
TORONTO.



The W. R. Hearst newspaper syndicate will erect a large pulp mill at Norman, Ont.

The Martin & Stanworth Co.'s stone cutting plant at Port Arthur, Ont., is being enlarged.

The Dominion Engineering Co., Toronto, expect soon to make a start on the construction of the Central Railway which will run from Midland, Ont., to Montreal.

The Eureka Refrigerator Co. have purchased a site in Toronto on which they will erect a factory.

The Brantford Emery Wheel Co. is a new concern starting in Brantford. A new plant is being erected and machinery installed.

The Canadian Northern Ontario Railway purpose commencing construction of their line to Orillia right away, so that cars will be running into that town before winter.

The Electric Railway Commission, Port Arthur, Ont., will proceed with the double tracking of the railway line between Current River Park and the southern boundary of the city.

Alterations and enlargements will be made to St. George's church, Owen Sound, Ont.

The town of Petrolea, Ont., will lay 6,000 square yards of brick pavement.

The transformer house of the Falls Power Co., St. Catharines, Ont., was struck by lightning and badly damaged.

The New Ontario Publishing Co., Limited, Sudbury, Ont., have been incorporated with a capital of \$50,000, to engage in a general printing and publishing business. The provisional directors include C. R. Willmott, J. N. McKay and C. H. Meredith, Toronto.

The St. Lawrence Pulp and Paper Co., Limited, Ottawa, Ont., have been incorporated with a capital of \$300,000 to manufacture pulpwood, and lumber. The provisional directors include L. W. Stone, C. B. Ross and J. J. O'Meara, Toronto.

A \$15,000 foundry and machine shop will be erected at Toronto by the Bigley Mfg. Co. of that city.

The Grand Trunk Railway purpose erecting a \$150,000 car shop and repairing plant at Barrie, Ont.

The Brabant's Brass Works, Detroit, are considering the establishment of a branch in Windsor, Ont.

The Hamilton Steel & Iron Co. Hamilton, Ont., are making preparations for the erection of a new office building for their east end plant.

The James Smart Mfg. Co., Brockville, Ont., are building a new brick machine shop.

The Toronto Electric Light Co. are extending their underground service in that city.

A sawmill will be erected at Guelph, Ont., by A. Todd, Walkerton, Ont.

McAllister's stove and heading factory at Hawkesville, Ont., has recently been burned.

The Canadian Steel Specialty Co., Gravenhurst, Ont., who now make a specialty of bent steel, furniture, counter stools, etc., intend going into the business of making wooden chairs as well.

An electric railway is proposed to be built between Dunnville and Beamsville, Ont.

A new school building will be erected at Windsor, Ont.

It is probable a new bridge will soon be erected at Market Street, Brantford, Ont.

The waterworks plant at Brantford, Ont., was struck by lightning and badly damaged.

The Canadian Shipbuilding Co. have decided to build a new 600 foot dry dock in the slip at the foot of Hurontario Street., Collingwood, Ont.

An armory is to be erected at Durham, Ont.

The armory hall at Elora, Ont., is soon to be extensively improved.

Street pavements to the extent of \$150,000 worth will be constructed at Brantford, Ont.

A steel highway bridge will be erected over the Credit River, Caledon, Ont.

Sanita Hotel, Chatham, Ont., will be enlarged shortly.

A new planing mill and wood working factory will be erected at Fort Frances, Ont.

A new wheeling factory at Goderich, Ont., was recently damaged by storm.

A courthouse and jail will be erected at Fort Frances, Ont.

It is probable that a flour mill with a capacity of 20,000 bbls. a day will be erected at Fort Frances, Ont., by the Ogilvie Flour Mills Co., Montreal.

The congregation of the Ryerson Methodist Church, Hamilton, Ont., intend erecting a new church building.

The school buildings at Kemptville, Ont., will be repaired.

The Grand Trunk Railway are purchasing property at London, Ont., preparatory to the elevation of their tracks.

The Agricultural Association at Port Arthur, Ont., will proceed at once with the erection of new Fair Buildings.

The work of connecting the Niagara, St. Catharines and Toronto line with the T. H. & B. Railway at Welland, Ont., will be proceeded with as soon as the Government approves of the plan for the bridge.

The Campbell Press, Limited, Toronto, have been incorporated with a capital of \$40,000, to carry on the business of printing, publishing and book binding and to manufacture office stationery. The provisional directors include W. B. Campbell, R. F. Davey and H. E. Davey, Toronto.

The congregation of the York Mills Baptist church, York Mills, Ont., will erect a new edifice.

St. George's church, Owen Sound, Ont., will enlarge and alter its building.

A new public library will be built at Mitchell, Ont.

A fire broke out recently in Gore Bay, Ont., and destroyed eight residences and fifteen places of business including two printing offices.

A new public school will be built at Picton, Ont.

The Freeborn school at Stratford, Ont., will be rebuilt at once.

The Ontario Government power transmission lines from Niagara to St. Thomas, Ont., in the West and Toronto in the east will be constructed.

The hardware store of Rice, Lewis & Co., Toronto, was damaged by fire recently to the extent of \$200,000.

A new school building will be erected at Fort Erie, Ont.

A new post office will be built at Welland, Ont.

A new Grand Trunk Railway station is being built at Vars, Ont.

St. Matthew's Evangelical Lutheran congregation, Brantford, Ont., will erect a new church.

St. Clement's Mission Church, Toronto, will build a church.

A \$25,000 addition will be built to the Toronto post office.

Inter-Agents, Limited, Toronto, have been incorporated with a capital of \$40,000, to manufacture stoves, hardware, etc. The provisional directors include G. Noble, G. R. Sproat and H. Ferguson, Toronto.

The W. A. Moore Co., Meaford, Ont., have been incorporated with a capital of \$40,000, to manufacture mantels and high-class woodwork. The provisional directors include W. A. Moore, W. Johnston and H. R. Clelland, Meaford.

A waterworks system will be installed at Chesley, Ont.

The Canadian Silk Co. will erect a \$10,000 factory at Toronto.

The Imperial Steel & Wire Co., of Toronto, are shortly to erect a factory building at Fort William, Ont.

A plant for the manufacture of concrete for building purposes, chimneys, etc., is being erected at Ventnor, Ont.

The Grey & Bruce Cement Co., Owen Sound, Ont., will close down the plant for some time on account of the present unsatisfactory state of the market.

The Canadian Tap & Die Co., Limited, Galt, Ont., have opened up a store at 196 King St. West, Toronto.

The Dodge Mfg. Co., Toronto, have shipped about 300,000 pounds of machinery of their manufacture to the Grand Trunk Pacific elevator at Tiffin, Ont.

Prospects are good for the beginning of operations at the Leason copper mines at Stoney Lake, Ont. Some rich ore has been found and a building will be erected over the whole plant.

The tunnel under the bay, in connection

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 HIGH GRADE PAPER MAKERS  
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 CO. LIMITED  
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**THE MERCHANTS BANK**  
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 MAIN OFFICE: Corner St. James and St. Peter Streets.  
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 Street West, cor. University. 1330 St. Lawrence Boulevard, and  
 Town of St. Louis.

**JUDICIAL SALE**  
 OF  
**MACHINE SHOP & EQUIPMENT**

Pursuant to an order of the High Court of Justice made by James S. Cartwright, Esquire, Official Referee of the High Court of Justice in the matter of the Winding up of The Canadian MeVicker Engine Company, Limited, sealed tenders will be received, addressed to the said Official Referee at his office, Osgoode Hall, Toronto, Ontario, and marked "Tender re The Canadian MeVicker Engine Company, Limited."

**Up to 12 o'clock, noon, of the 23rd day of SEPTEMBER, 1908**

For the purchase of the following assets of the said Company,—

**Parcel No. 1.**  
 Real Estate and buildings (Book Value). \$12,500.00  
 This parcel is subject to a mortgage for about \$6,500.00, but will be sold free from encumbrance

**Parcel No. 2.**  
 Plant, Equipment, Stock in trade and certain patent rights for manufacture of gas and gasoline engines (full information in respect of such rights will be given on application to the Liquidators) including the stock in trade of finished and partly finished gas and gasoline engines and parts thereof. Tenders should be made on the basis of:

- 1st. En Bloc.
- 2nd. In lots as follows:—
  - "A" comprising machine, tools and equipment.
  - "B" Machine shop supplies, consisting of cold rolled shafting, bolts, screws, files, etc.
  - "C" Electrical equipment.
  - "D" Pattern shop machinery and equipment.
  - "E" Shafting, hangers, pulleys and belting.
  - "F" Standard brass goods, and iron pipe and pipe fittings.
  - "G" Stock in trade, including engine and engine parts, finished and in process of manufacture, Canadian Patent rights, patterns, blue prints, etc.

The Book value of parcel No. 2, exclusive of value of patents and patterns is . . . \$36,908.29

**Parcel No. 3.**  
 Office furniture, fixtures and supplies  
 (Book Value) . . . . . \$300.83

Total . . . . . \$49,709.12

The property is situated in the Town of Galt, and is suitable for any class of machine shop work, and is especially adapted to the manufacture of natural gas engines, a large demand for which is created through the fact that Galt is centrally located in the Great Natural Gas District of Ontario. The buildings and machinery are practically new, the plant having been in operation less than two years. Good shipping facilities are provided.

Tenders will be received for the purchase of all the assets of the Company en bloc, or for the purchase of either of parcels No. 1 and No. 2 separately, or for the purchase separately of any of the lots comprising parcel No. 2.

The inventory prepared by the liquidators under the direction of the Court may be seen on the premises of the Canadian MeVicker Engine Co., Limited, at Galt, Ont., or at the office of The Trusts & Guarantee Company, Limited, 43-45 King Street West, Toronto.

Terms of Sale—10 per cent. with tender, and balance within ten days after acceptance of tender, without interest.

The tenders will be opened and considered at the office of James S. Cartwright, Esquire, Official Referee at Osgoode Hall, Toronto, Ontario, at 12 o'clock noon on the 23rd day of September, 1908, when all tenderers should be present, or represented, and tenders must be accompanied by a marked cheque payable to the order of the Liquidators, for 10 per cent. of the amount of the tender, which will be returned if the tender is not accepted. The highest, or any tender, not necessarily accepted.

The Conditions of Sale are the standing conditions of the Court as far as applicable.

The purchaser shall search the title at his own expense and the vendors shall not be required to furnish any abstract or produce any deeds, declarations or other evidences of title, except those in their possession.

The purchaser shall have ten days in which to make any objection or requisitions in respect of the title, and in case the purchaser shall make any objections or requisitions which the vendors shall from any cause be unable or unwilling to answer, the vendors may at any time rescind the sale. In that case the purchaser shall be entitled to a return of the deposit, without interest, costs or compensation.

**The Trusts & Guarantee Company, Limited**  
 JAMES J. WARREN, Managing Director,  
 Liquidators of The Canadian MeVicker Engine Co., Limited.  
 Macdonell & Boland, 2 Toronto St., Toronto,  
 Solicitors for the Liquidators, Toronto, Ont.  
 Toronto, August 24, 1908.

with Toronto's waterworks system, is now completed.

The Hamilton Brick Co., Toronto, have been incorporated with a capital of \$40,000 to manufacture bricks, tiles, etc. The provisional directors include S. Thompson, G. E. Bevan and A. F. Caldwell, Toronto.

The Ontario & Manitoba Flour Mills, Ottawa, have been incorporated with a capital of \$40,000, to manufacture flour, etc. Provisional directors include A. W. Fraser, H. H. Williams and N. G. Mather, Ottawa.

The Seymour Power & Electric Co., Campbellford, Ont., have been incorporated with a capital of \$1,000,000, to produce and accumulate electricity. The provisional directors include A. G. Ross, M. L. Gordon and W. S. Edwards, Campbellford, Ont.

The Ontario Railway Signal Co., Toronto, have been incorporated with a capital of \$40,000 to manufacture air compressors, electrical machines, cars, etc. The provisional directors include G. Russell, E. Lindsay and V. Waldoek, Toronto.

The Canadian Weber Gas Engine Co., Toronto, have been incorporated with a capital of \$300,000 to manufacture producer gas and gasoline engines. The provisional directors include R. J. Goudy, H. Macdonald and H. Kittle, Toronto.

A \$40,000 factory will be erected at Danville, Que., by the Asbestos & Asbestic Co.

The Belgo-Canadian Pulp Co., Shawinigan, Que., have recently made additions to their plant, increasing its capacity from fifty to eighty tons daily.

A new rubber factory will be erected at Granby, Que.

The Ouiatchouan Pulp Co., Ouiatchouan Falls, Que., will instal machinery at their plant for the manufacture of paper.

A bridge will be constructed across the Magog river at St. Johns, Que.

The J. H. Hanson-Tilley Co., Montreal, Que., have been incorporated with a capital of \$145,000 to manufacture refrigerators, screen doors and milling tools. The provisional directors include A. Tilley, R. La-pierre and J. W. Blair, Montreal, Que.

A new rubber factory is nearing completion at Granby, Que.

A new Grand Trunk Railway station is being built at St. Louis, Que.

L. A. O'Brien & Co., Montreal, will carry on a business as sash and door manufacturers.

Taylor & Jamieson will rebuild their sawmill at Scotstown, Que., which was burned recently.

The Canadian Pacific Railway will likely spend about \$125,000 in improving their terminals at Hull, Que.

It is proposed to erect another school building at Buckingham, Que.

The Matane & Gaspé Railway will build 35 miles of line from St. Flavie to Matane, Que.

The Vulcan Portland Cement Co. are establishing works at Longue Pointe, Que.

The big Carrier, Laine & Co. factory at Levis, Que., has been purchased by the Bank of Montreal.

The Improved Paper & Machine Co., Nashua, N.H., manufacturers of paper and pulp-making machinery, will erect a plant at Sherbrooke, Que., under the name of the Sherbrooke Machine Co.

L. H. Gaudry & Co., Montreal, have been awarded subcontract for ornamental iron work in the new Montreal General Postoffice. Peter Lyall & Co. are the general contractors.

Contract for structural steel and ornamental iron for the addition to St. Joseph's Academy, Hochelaga, P.Q., has been awarded to L. H. Gaudry & Co., Montreal. Jos. Venne, Montreal, is the architect.

The St. Lawrence Lumber Co. will build a sawmill at Dalhousie, N.B.

A woodworking factory will be built at Ryan's Brook, N.B., by the Stanley Railway & Manufacturing Co.

A sawmill will be erected at Oromocto, N.B.

Enterprise Foundry, Sackville, N.B., was struck by lightning and completely destroyed.

The New Brunswick Telephone Co. are considering the extension of their line from Prince William to Harvey Station, N.B.

The Ferry House at St. John, N.B., will be altered shortly.

An armory will probably be erected at St. John, N.B.

The Marine & General Engineering Co.'s foundry at Sydney, C.B., is being rapidly erected. The forge department is now working and machinery is being placed in the machine shop.

Part of the plant of the Nova Scotia Steel & Coal Co., at Sydney, C.B., has resumed operations. The coke ovens and blast furnaces opened on July 20. The latter will manufacture foundry iron.

J. & D. A. Harquail, Campbellton, N.B., are rebuilding their woodworking factory recently destroyed by fire.

Reports to the Ottawa Government from N.S. and N.B. are to the effect that the gypsum deposits of N.S. and N.B. probably exceed anything known to the world both in quantity and quality.

A planing mill will be erected at Beaver Cove, N.S., by M. W. White & Co.

The sewer system of Dartmouth, N.S., is to be improved and extended.

The county court house at Port Hood, N.S., will be remodelled.

Manganese has been discovered in Beresford parish, Gloucester County, N.B.

An immense body of plaster has been located at St. Martin's, N.S. Marked activity in the development of the quarries is looked forward to for next year, when railways will be extended to the different quarries on the shore.

Abrams & Sons, Moncton, N.B., have built a new machine shop.

Tenders will be received by G. C. Smith, secretary-treasurer of Boissevain, Man., until Sept. 15th for 30 town debentures.

The waterworks system at Carman, Man., is soon to be completed.

A by-law will be submitted in Morden, Man., to raise \$10,000 for electric light purposes.

The Government will expend \$25,000 in improving the telephone system at Portage la Prairie, Man.

The Canadian Pacific Railway are erecting a bridge across Highwood River at Menton, Man.

The Arden, Man., flour mills and elevator were burned to the ground recently.

The public hospital at Banff, Alta., will probably be enlarged soon.

The School Board of Estevan, Sask., are asking the council for \$7,100 for school purposes.

The Saskatchewan Provincial Government will build four steel bridges across the creek to the south of Prince Albert.

An Anglican church will be built at Blucher, Sask.

A sanitarium and academy are proposed to be built at Lacombe, Alta.

The new Prague Flour Mills, Moose Jaw, Sask., will be enlarged from a 300 to a 1,000 barrel mill. A new elevator and a new oatmeal mill will also be erected by the company.

Grain elevators will be erected at Delisle, Sask.

The Empress Hotel at Victoria, B.C., is soon to be enlarged.

The Carbolinium Paving Co., Vancouver, are removing their plant from that city to New Westminster.

A plant for the manufacture of launches will be erected at New Westminster, B.C.

Despite decreased building returns from almost all other cities of Canada, Vancouver reports for the half year just ended show an advance of over fifty per cent. on the amount of business done during the same period last year. Permits for that city issued during the six months to June 30th, totaled \$3,351,550, as against \$2,168,015 for the same time a year ago. The greatest activity was shown forth in April when permits totaled close up to a million and a half.

The city council of Nelson, B.C., will purchase an additional 500 feet of fire hose.

The city wharf at Nelson, B.C., will be repaired and improved.

A bakery to cost about \$30,000, will be built at Vancouver, B.C.

The Western Bridge & Equipment Co., Chatham, Ont., are thinking of locating at Vancouver, B.C.

Rapid construction work is being done in the new Victoria Machinery Depot's buildings at Victoria, B.C.

Devey & Owen's sawmill at New Westminster, B.C., has been destroyed by fire.

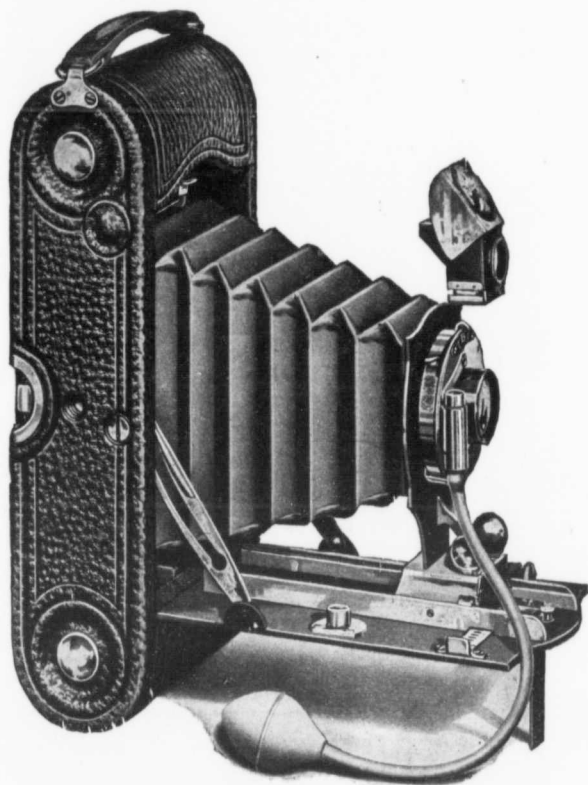
A new fire hall will be erected at Chilliwack, B.C.

A Government building will be erected at Grand Forks, B.C.

The Hotel Vancouver, Vancouver, B.C., will be remodelled next spring.

Alex. McKay, Montreal, has just completed installing a 700,000 gallon oil tank for the gas works of the Montreal Light, Heat & Power Co., Montreal.





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JUST AS GOOD AS A CAMERA CAN BE MADE.  
SO SMALL AS TO NEVER BE IN THE WAY.

There has never before been so much quality put into so small a camera—in lens and shutter and mechanical precision it is right. Making the popular  $2\frac{1}{2} \times 4\frac{1}{4}$  pictures, the camera itself measuring but  $2 \times 2\frac{3}{4} \times 8$  inches and with a high speed lens and shutter equipment it fills every requirement of those who demand a perfect combination of convenience and efficiency.

No. 1A Folding Pocket Kodak Special, with Rapid Rectilinear Lens, speed f8 and F.P.K. Automatic Shutter - \$15.00

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**TORONTO, CANADA**

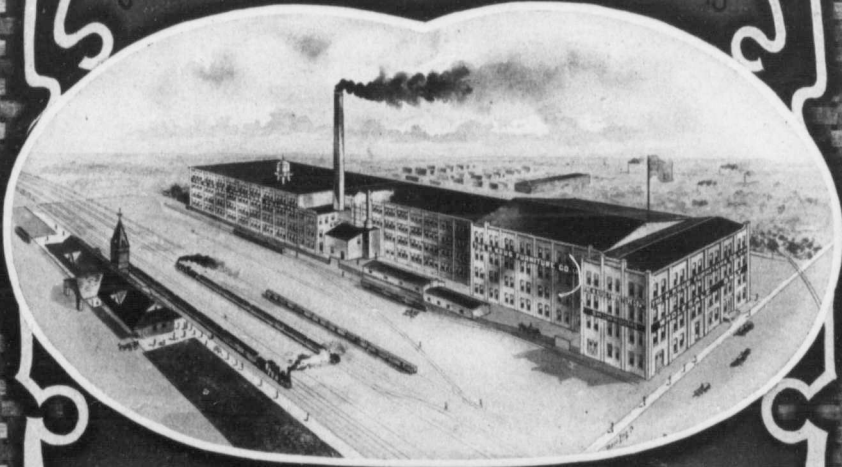
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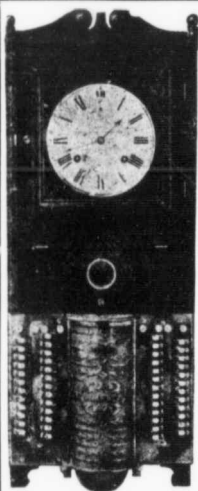
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Start recording the time that every man in your shop gets to work and note the good effect. Where there is no "time system" men get careless, and from "5 to 15 minutes late" is a frequent occurrence. Fact is, without knowing the time men lose—you pay for the time they don't work.

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records (by the simple push on a button), the exact time of every man in every department where there is a Recorder. If your shop forces numbers between 20 to 100 people one Recorder will probably answer requirements. Some concerns are using as many as 100 of our R-recorder. The "Simplex" is the only Recorder on which an unlimited number of registrations can be made by an employe, with absolutely no setting of the Recorder for "in" or "out." The "Simplex" is simple, practical and durable. It will last a life time.

Made in 3 Sizes—for 30, 50 and 100 People

ANY RESPONSIBLE CONCERN MAY HAVE A "SIMPLEX" ON PRACTICAL TRIAL

You ought to have our latest booklet entitled "The Timekeeper." May we send it?

**SIMPLICITY      ACCURACY      RAPIDITY      LEGIBILITY**

THOUSANDS ARE IN CONSTANT USE. NOT ONE HAS EVER COME BACK FOR REPAIRS.

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Advertising by mail to receive attention must be addressed like business correspondence — with a typewriter

## The Addressograph prints exactly like a typewriter

30,000 in use

Indestructible type.

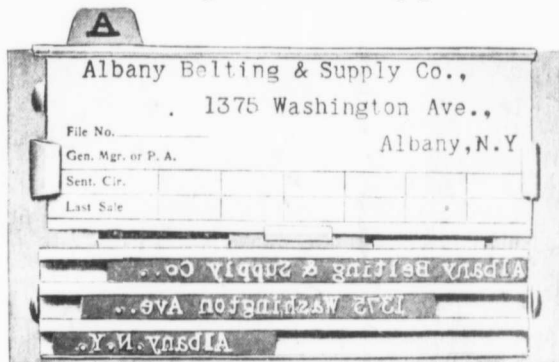
Perfect typewriter face.

Set your addresses in your office and make additions and changes as they occur with sliding type.

Anyone can slide it without practice.

Cannot be set wrong.

Cannot fall out.



## The Card-Index Addressograph 3000 per hour

Combines all the features of a complete card index and a perfect Addressing machine. Addresses Envelopes, Tags, Statements, Wrappers, etc.

Fills names in imitation typewritten letters, mimeograph or neostyle work, pay sheets, time clock cards, time tickets, pay envelopes, etc.

Reference cards have ample room for rating, prices, terms, etc.

The address plates are transferred without handling from the drawer to the magazine on the machine, and after addressing return automatically to the same drawer (placed under the machine) in their original order.

30,000 Machines in use. Write for Catalogue and Sample Plates.

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