

*Dalton*

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**INSTRUCTION BOOK**

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# DECIMAL EQUIVALENTS OF COMMON FRACTIONS

	3rds	4ths	6ths	8ths	12ths	16ths	
.0025						1	.0025
.0633					1		.0633
.125				1		2	.125
.1667			1		2		.1667
.1875						3	.1875
.25		1		2	3	4	.25
.3125						5	.3125
.3333	1		2		4		.3333
.375				3		6	.375
.4167					5		.4167
.4375						7	.4375
.5		2	3	4	6	8	.5
.5625						9	.5625
.5833					7		.5833
.625				5		10	.625
.6667	2		4		8		.6667
.6875						11	.6875
.75		3		6	9	12	.75
.8125						13	.8125
.8333			5		10		.8333
.875				7		14	.875
.9167					11		.9167
.9375						15	.9375

**FIGURE IT ON YOUR**



# The *Odessa* "The machine that does things"

**Adds,  
Multiplies,  
Subtracts,  
Figures  
Interest,  
Does Cross  
Footing &  
Tabulating,  
Verifies  
Invoices,  
Etc.,  
Etc.,  
Etc., Etc.**

Rate %	10	12 1/2	15	18	20	22 1/2	25	27 1/2
And 3%.....	9000	9750	10500	11250	12000	12750	13500	14250
And 4%.....	9750	10500	11250	12000	12750	13500	14250	15000
And 5%.....	10500	11250	12000	12750	13500	14250	15000	15750
And 6%.....	11250	12000	12750	13500	14250	15000	15750	16500
And 7%.....	12000	12750	13500	14250	15000	15750	16500	17250
And 8%.....	12750	13500	14250	15000	15750	16500	17250	18000
And 9%.....	13500	14250	15000	15750	16500	17250	18000	18750
And 10%.....	14250	15000	15750	16500	17250	18000	18750	19500
And 11%.....	15000	15750	16500	17250	18000	18750	19500	20250
And 12%.....	15750	16500	17250	18000	18750	19500	20250	21000
And 13%.....	16500	17250	18000	18750	19500	20250	21000	21750
And 14%.....	17250	18000	18750	19500	20250	21000	21750	22500
And 15%.....	18000	18750	19500	20250	21000	21750	22500	23250
And 16%.....	18750	19500	20250	21000	21750	22500	23250	24000
And 17%.....	19500	20250	21000	21750	22500	23250	24000	24750
And 18%.....	20250	21000	21750	22500	23250	24000	24750	25500
And 19%.....	21000	21750	22500	23250	24000	24750	25500	26250
And 20%.....	21750	22500	23250	24000	24750	25500	26250	27000
And 21%.....	22500	23250	24000	24750	25500	26250	27000	27750
And 22%.....	23250	24000	24750	25500	26250	27000	27750	28500
And 23%.....	24000	24750	25500	26250	27000	27750	28500	29250
And 24%.....	24750	25500	26250	27000	27750	28500	29250	30000
And 25%.....	25500	26250	27000	27750	28500	29250	30000	30750
And 26%.....	26250	27000	27750	28500	29250	30000	30750	31500
And 27%.....	27000	27750	28500	29250	30000	30750	31500	32250
And 28%.....	27750	28500	29250	30000	30750	31500	32250	33000
And 29%.....	28500	29250	30000	30750	31500	32250	33000	33750
And 30%.....	29250	30000	30750	31500	32250	33000	33750	34500
And 31%.....	30000	30750	31500	32250	33000	33750	34500	35250
And 32%.....	30750	31500	32250	33000	33750	34500	35250	36000
And 33%.....	31500	32250	33000	33750	34500	35250	36000	36750
And 34%.....	32250	33000	33750	34500	35250	36000	36750	37500
And 35%.....	33000	33750	34500	35250	36000	36750	37500	38250
And 36%.....	33750	34500	35250	36000	36750	37500	38250	39000
And 37%.....	34500	35250	36000	36750	37500	38250	39000	39750
And 38%.....	35250	36000	36750	37500	38250	39000	39750	40500
And 39%.....	36000	36750	37500	38250	39000	39750	40500	41250
And 40%.....	36750	37500	38250	39000	39750	40500	41250	42000
And 41%.....	37500	38250	39000	39750	40500	41250	42000	42750
And 42%.....	38250	39000	39750	40500	41250	42000	42750	43500
And 43%.....	39000	39750	40500	41250	42000	42750	43500	44250
And 44%.....	39750	40500	41250	42000	42750	43500	44250	45000
And 45%.....	40500	41250	42000	42750	43500	44250	45000	45750
And 46%.....	41250	42000	42750	43500	44250	45000	45750	46500
And 47%.....	42000	42750	43500	44250	45000	45750	46500	47250
And 48%.....	42750	43500	44250	45000	45750	46500	47250	48000
And 49%.....	43500	44250	45000	45750	46500	47250	48000	48750
And 50%.....	44250	45000	45750	46500	47250	48000	48750	49500
And 51%.....	45000	45750	46500	47250	48000	48750	49500	50250
And 52%.....	45750	46500	47250	48000	48750	49500	50250	51000
And 53%.....	46500	47250	48000	48750	49500	50250	51000	51750
And 54%.....	47250	48000	48750	49500	50250	51000	51750	52500
And 55%.....	48000	48750	49500	50250	51000	51750	52500	53250
And 56%.....	48750	49500	50250	51000	51750	52500	53250	54000
And 57%.....	49500	50250	51000	51750	52500	53250	54000	54750
And 58%.....	50250	51000	51750	52500	53250	54000	54750	55500
And 59%.....	51000	51750	52500	53250	54000	54750	55500	56250
And 60%.....	51750	52500	53250	54000	54750	55500	56250	57000
And 61%.....	52500	53250	54000	54750	55500	56250	57000	57750
And 62%.....	53250	54000	54750	55500	56250	57000	57750	58500
And 63%.....	54000	54750	55500	56250	57000	57750	58500	59250
And 64%.....	54750	55500	56250	57000	57750	58500	59250	60000
And 65%.....	55500	56250	57000	57750	58500	59250	60000	60750
And 66%.....	56250	57000	57750	58500	59250	60000	60750	61500
And 67%.....	57000	57750	58500	59250	60000	60750	61500	62250
And 68%.....	57750	58500	59250	60000	60750	61500	62250	63000
And 69%.....	58500	59250	60000	60750	61500	62250	63000	63750
And 70%.....	59250	60000	60750	61500	62250	63000	63750	64500
And 71%.....	60000	60750	61500	62250	63000	63750	64500	65250
And 72%.....	60750	61500	62250	63000	63750	64500	65250	66000
And 73%.....	61500	62250	63000	63750	64500	65250	66000	66750
And 74%.....	62250	63000	63750	64500	65250	66000	66750	67500
And 75%.....	63000	63750	64500	65250	66000	66750	67500	68250
And 76%.....	63750	64500	65250	66000	66750	67500	68250	69000
And 77%.....	64500	65250	66000	66750	67500	68250	69000	69750
And 78%.....	65250	66000	66750	67500	68250	69000	69750	70500
And 79%.....	66000	66750	67500	68250	69000	69750	70500	71250
And 80%.....	66750	67500	68250	69000	69750	70500	71250	72000
And 81%.....	67500	68250	69000	69750	70500	71250	72000	72750
And 82%.....	68250	69000	69750	70500	71250	72000	72750	73500
And 83%.....	69000	69750	70500	71250	72000	72750	73500	74250
And 84%.....	69750	70500	71250	72000	72750	73500	74250	75000
And 85%.....	70500	71250	72000	72750	73500	74250	75000	75750
And 86%.....	71250	72000	72750	73500	74250	75000	75750	76500
And 87%.....	72000	72750	73500	74250	75000	75750	76500	77250
And 88%.....	72750	73500	74250	75000	75750	76500	77250	78000
And 89%.....	73500	74250	75000	75750	76500	77250	78000	78750
And 90%.....	74250	75000	75750	76500	77250	78000	78750	79500
And 91%.....	75000	75750	76500	77250	78000	78750	79500	80250
And 92%.....	75750	76500	77250	78000	78750	79500	80250	81000
And 93%.....	76500	77250	78000	78750	79500	80250	81000	81750
And 94%.....	77250	78000	78750	79500	80250	81000	81750	82500
And 95%.....	78000	78750	79500	80250	81000	81750	82500	83250
And 96%.....	78750	79500	80250	81000	81750	82500	83250	84000
And 97%.....	79500	80250	81000	81750	82500	83250	84000	84750
And 98%.....	80250	81000	81750	82500	83250	84000	84750	85500
And 99%.....	81000	81750	82500	83250	84000	84750	85500	86250
And 100%.....	81750	82500	83250	84000	84750	85500	86250	87000

Rate %	47 1/2	50	52 1/2	55	57 1/2	60	62 1/2	65
	net	net	net	net	net	net	net	net
And 3%.....	38250	40500	42750	45000	47250	49500	51750	54000
And 4%.....	40500	42750	45000	47250	49500	51750	54000	56250
And 5%.....	42750	45000	47250	49500	51750	54000	56250	58500
And 6%.....	45000	47250	49500	51750	54000	56250	58500	60750
And 7%.....	47250	49500	51750	54000	56250	58500	60750	63000
And 8%.....	49500	51750	54000	56250	58500	60750	63000	65250
And 9%.....	51750	54000	56250	58500	60750	63000	65250	67500
And 10%.....	54000	56250	58500	60750	63000	65250	67500	69750
And 11%.....	56250	58500	60750	63000	65250	67500	69750	72000
And 12%.....	58500	60750	63000	65250	67500	69750	72000	74250
And 13%.....	60750	63000	65250	67500	69750	72000	74250	76500
And 14%.....	63000	65250	67500	69750	72000	74250	76500	78750
And 15%.....	65250	67500	69750	72000	74250	76500	78750	81000
And 16%.....	67500	69750	72000	74250	76500	78750	81000	83250
And 17%.....	69750	72000	74250	76500	78750	81000	83250	85500
And 18%.....	72000	74250	76500	78750	81000	83250	85500	87750
And 19%.....	74250	76500	78750	81000	83250	85500	87750	90000
And 20%.....	76500	78750	81000	83250	85500	87750	90000	92250
And 21%.....	78750	81000	83250	85500	87750	90000	92250	94500
And 22%.....	81000	83250	85500	87750	90000	92250	94500	96750
And 23%.....	83250	85500	87750	90000	92250	94500	96750	99000
And 24%.....	85500	87750	90000	92250	94500	96750	99000	101250
And 25%.....	87750	90000	92250	94500	96750	99000	101250	103500
And 26%.....	90000	92250	94500	96750	99000	101250	103500	105750
And 27%.....	92250	94500	96750	99000	101250	103500	105750	108000
And 28%.....	94500	96750	99000	101250	103500	105750	108000	110250
And 29%.....	96750	99000	101250	103500	105750	108000	110250	112500
And 30%.....	99000	101250	103500	105750	108000	110250	112500	114750
And 31%.....	101250	103500	105750	108000	110250	112500	114750	117000
And 32%.....	103500	105750	108000	110250	112500	114750	117000	119250
And 33%.....	105750	108000	110250	112500	114750	117000	119250	121500
And 34%.....	108000	110250	112500	114750	117000	119250	121500	123750
And 35%.....	110250	112500	114750	117000	119250	121500	123750	126000
And 36%.....	112500	114750	117000	119250	121500	123750	126000	128250
And 37%.....	114750	117000	119250	121500	123750	126000	128250	130500
And 38%.....	117000	119250	121500	123750	126000	128250	130500	132750
And 39%.....	119250	121500	123750	126000	128250	130500	132750	135000
And 40%.....	121500	123750	126000	128250	130500	132750	135000	137250
And 41%.....	123750	126000	128250	130500	132750	135000	137250	139500
And 42%.....	126000	128250	130500	132750	135000	137250	139500	141750
And 43%.....	128250	130500	132750	135000	137250	139500	141750	144000
And 44%.....	130500	132750	135000	137250	139500	141750	144000	146250
And 45%.....	132750	135000	137250	139500	141750	144000	146250	148500
And 46%.....	135000	137250	139500	141750	144000	146250	148500	150750
And 47%.....	137250	139500	141750	144000	146250	148500	150750	153000
And 48%.....	139500	141750	144000	146250	148500	150750	153000	155250
And 49%.....	141750	144000	146250	148500	150750	153000	155250	157500
And 50%.....	144000	146250	148500	150750	153000	155250	157500	159750
And 51%.....	146250	148500	150750	153000	155250	157500	159750	162000
And 52%.....	148500	150750	153000	155250	157500	159750	162000	164250
And 53%.....	150750	153000	155250	157500	159750	162000	164250	166500
And 54%.....	153000	155250	157500	159750	162000	164250	166500	168750
And 55%.....	155250	157500	159750	162000	164250	166500	168750	171000
And 56%.....	157500	159750	162000	164250	166500	168750	171000	173250
And 57%.....	159750	162000	164250	166500	168750	171000	173250	175500
And 58%.....	162000	164250	166500	168750	171000	173250	175500	177750
And 59%.....	164250	166500	168750	171000	173250	175500	177750	180000
And 60%.....	166500	168750	171000	173250	175500	177750	180000	182250
And 61%.....	168750	171000	173250	175500	177750	180000	182250	184500
And 62%.....	171000	173250	175500	177750	180000	182250	184500	186750
And 63%.....	173250	175500	177750	180000	182250	184500	186750	189000
And 64%.....	175500	177750	180000	182250	184500	186750	189000	191250
And 65%.....	177750	180000	182250	184500	186750	189000	191250	193500
And 66%.....	180000	182250	184500	186750	189000	191250	193500	195750
And 67%.....	182250	184500	186750	189000	191250	193500	195750	198000
And 68%.....	184500	186750	189000	191250	193500	195750	198000	200250
And 69%.....	186750	189000	191250	193500	195750	198000	200250	202500
And 70%.....	189000	191250	193500	195750	198000	200250	202500	204750
And 71%.....	191250	193500	195750	198000	200250	202500	204750	207000
And 72%.....	193500	195750	198000	200250	202500	204750	207000	209250
And 73%.....	195750	198000	200250	202500	204750	207000	209250	211500
And 74%.....	198000	200250	202500	204750	207000	209250	211500	213750
And 75%.....	200250	202500	204750	207000	209250	211500	213750	216000
And 76%.....	202500	204750	207000	209250	211500	213750	216000	218250
And 77%.....	204750	207000	209250	211500	213750	216000	218250	220500
And 78%.....	207000	209250	211500	213750	216000	218250	220500	222750
And 79%.....	209250	211500	213750	216000	218250	220500	222750	225000
And 80%.....	211500	213750	216000	218250	220500	222750	225000	227250
And 81%.....	213750	216000	218250	220500	222750	225000	227250	229500
And 82%.....	216000	218250	220500	222750	225000	227250	229500	231750
And 83%.....	218250	220500	222750	225000	227250	229500	231750	234000
And 84%.....	220500	222750	225000	227250	229500	231750	234000	236250
And 85%.....	222750	225000	227250	229500	231750	234000	236250	238500
And 86%.....	225000	227250	229500	231750	234000	236250	238500	240750
And 87%.....	227250	229500	231750	234000	236250	238500	240750	243000
And 88%.....	229500	231750	234000	236250	238500	240750	243000	245250
And 89%.....	231750	234000	236250	238500	240750	243000	245250	247500
And 90%.....	234000	236250	238500	240750	243000	245250	247500	249750
And 91%.....	236250	238500	240750	243000	245250	247500	249750	252000
And 92%.....	238500	240750	243000	245250	247500	249750	252000	254250
And 93%.....	240750	243000	245250	247500	249750	252000	254250	256500
And 94%.....	243000	245250	247500	249750	252000	254250	256500	258750
And 95%.....	245250	247500	249750	252000	254250	256500	258750	261000
And 96%.....	247500	249750	252000	254250	256500	258750	261000	263250
And 97%.....	249750	252000	254250	256500	258750	261000	263250	265500
And 98%.....	252000	254250	256500	258750	261000	263250	265500	267750
And 99%.....	254250	256500	258750	261000	263250	265500	267750	270000
And 100%.....	256500	258750	261000	263250	265500	267750	270000	272250



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## Explanation of Keys, Levers, etc.

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1. **Correction key**, used to correct errors, see page 10.
2. **Repeat Key**. (To repeat an item any desired number of times, hold this key down and pull the lever.)
3. **Total key**, or taking totals and sub-totals.
4. **Eliminating key**, for printing items without adding.
5. **Designating key**, to designate desired items, also used in connection with eliminating key, to designate items eliminated. On machines made prior to 1909, the eliminating and designating keys are one.
6. **Non-print lever**, used in connection with the non-print dial, to prevent printing any desired item.
7. **Non-print dial**, used in connection with non-print lever to prevent printing. When the "2" is uppermost on the dial, the non-print lever if depressed will prevent printing of any figures that may have been listed in the two left hand printing sectors. If the "4" is uppermost, it will prevent printing on any of the four left hand sectors, and if the "9" is uppermost, it will prevent printing in all nine of the sectors. Items thus prevented from printing will be added in the machine just the same as if they were printed in the usual way.
- 8-8. **Paper release levers**, used to release and straighten paper. To release paper, pull No. 8 forward.
- 9-9. **Column space levers**, for spacing carriage to right or left for new column. To space carriage for new column, pull No. 9 forward and move carriage to desired column. This lever No. 9 if pushed backward acts as a lock and will hold the carriage in any desired position regardless of the fixed spaces.
10. **Ribbon guides** through which ribbon must pass.
11. **Non-space lever**. To prevent line spacing, push backward.



12. **Platen knob** for turning platen by hand.
13. **Ribbon cups** for holding ribbon.
14. **Operating lever.**
15. **Door** for covering opening over the splitting mechanism. Full instructions for splitting will be found on page 34.
16. **Ribbon.** To put on new ribbon, first see that the machine is clear; then **push down** total key and **remove** finger as if for taking a sub-total; pull the operating lever forward slowly until total key **releases** and goes back to normal position, and leave lever in this position. This will bring the **ribbon guides** above the printing sectors so that the ribbon may be easily removed. Remove the covers from the ribbon cups and take old ribbon out, using care to see that the new ribbon is put back in exactly the same manner as the old one. Before removing the ribbon from the guides, be careful to note how it is **threaded** between the **fingers** of the **guides** and thread the new ribbon in the **same** manner. A little care in taking off the old ribbon will enable the operator to put on a new ribbon without trouble or confusion.
17. **Paper roll.** In putting on new paper roll it is important to see that paper feeds from the bottom of roll.
18. **Keyboard clear signal.** Always shows whether any figures have been introduced into the machine after the last operation of the lever.

**NOTE.**—All the foregoing are features of the standard, fully equipped Dalton machine. The fact must not be lost sight of, however, that there are many models of the Dalton which lack some one or more of these features; and it should be understood that those parts of the instructions which relate to features not present in any given model are to be disregarded. The extra Special models, for instance, are not provided with eliminating and designating keys, non-print levers, non-print dial, etc. The instructions for Subtraction, Division, Splitting the Machine etc., are likewise not literally applicable to the Extra Special and other sub-standard models.





## Operating Instructions

### For the Dalton Adding, Listing and Calculating Machines.

By carefully following these instructions, the operator will greatly facilitate the work and more fully appreciate the many advantages and wonderfully versatility of the **DALTON**.

### See that the Machine is Clear

Before beginning to list items, it is important to see that the machine is clear. To ascertain if clear, depress the total key **without** holding it down, and pull the operating lever, making a complete stroke. If, as a result of this operation a red cipher be printed in the units column, it indicates that the machine is **clear** and ready for operation; but if figures **other** than a red cipher be printed, it indicates that it is **not** clear and that it **must be cleared** before going further.

### To Clear Machine

Pull the operating lever forward to the **end** of the stroke and permit it to return to normal position; then depress the total key and **hold it down** while the operating lever is moved forward again and **until it returns to normal position**. This operation will cause to be printed the total amount that is in the machine and at the same time **lock the keyboard** so that no figures can be depressed. Pull the operating lever forward again, this time **without** holding down the total key, and a red cipher, which is the clearing sign, will print in the units column, which indicates that the machine is **clear**.

### Key Touch

The key touch of the **DALTON** is very light and rapid, and a light touch, just enough pressure to push the key down, is all that is required to set up the number that is to be added.

## Correcting Errors

If by mistake a wrong key has been depressed, thus setting up an erroneous amount and the error is noted **before pulling the lever**, the entire amount so set up can be taken out by depressing the **correction key**, using care to **push it all the way down**. This operation clears out of the keyboard all the figures of the item in which the error occurred, so that the correct amount can be set up in the usual way.

If the error is discovered after pulling the lever forward part way, it can still be corrected by placing the fingers of the left hand on the **printing sectors** and pushing them back to **normal position** and holding them there while the **lever stroke** is completed. Care must be taken in this operation to see that **all the printing sectors** are held in their **normal position**, as any forward movement of a sector will **register** an amount representing the **value** of such movement.

## Operating Lever

The operating lever must make a complete forward and backward stroke immediately after an amount has been set up in the keyboard. This movement of the lever causes the amount so set up to be **printed** and **added** into the accumulating wheels.

Do not **grip** the lever in operating, but place the hand, with the fingers slightly curved, upon the handle and pull the same **forward** and **downward** quickly and evenly without jerking. Jerking the lever tends to retard rather than accelerate speed.

## Addition

To list and add on the **DALTON**, depress on the keyboard the figures of the various items to be listed in the same order as though you were writing with a pencil, and pull the operating lever, making a complete stroke, after depressing all the figures in each item, thus: To list and add \$125.75, depress the keys 1, 2, 5, 7, 5, in the order named and pull the operating lever; to list and add \$1.50, depress the keys 1, 5, 0, and pull



the operating lever, paying no attention whatever to numerical order, as the machine performs this function automatically. Continue the operation of listing in this manner until all the items to be added have been listed. After the last item has been listed, pull the operating lever again, making a complete stroke, thus leaving a blank space on the sheet of paper, and then take the **grand total** by depressing the total key and **holding it down** while the operating lever makes another complete **forward and backward** stroke. This operation will cause the **total** to be printed in **red** and leave the **total key** **locket down** and the **keyboard locked** so that no further figures can be listed until the lever is pulled forward again, which causes the clearing sign to be printed and leaves the machine clear and ready for use.

After taking a grand total, it is best to **leave** the machine with the **total key down** so that simply pulling the lever will print the clear signal at the beginning of the next operation.

## Sub-totals

If a **sub-total** is desired at any time, pull the operating lever forward after the last item has been listed, as if for the purpose of taking a grand total, then depress the total key, using care to push it **all the way down**, but **do not** hold it down while the operating lever is being pushed forward. This will print the **sub-total** to which other amounts may be added. As many **sub-totals** as may be desired can be had by depressing the total key and releasing it **before** pulling the lever, as above provided.

## \*Subtraction

To subtract on the Dalton, list the figures of the **minuend** the same as for addition; then depress the keys on the keyboard representing all the figures of the **subtrahend**, but **before** pulling the lever, depress the **eliminating** key and **hold it down** while the operating lever makes a **complete forward and backward** stroke. Thus the **minuend** and **subtrahend** have been listed and you are ready to make the subtraction, which is done in the following manner:

1067 91



Subtraction  
same as above  
without using  
non-print  
lever.

First, depress a figure "9" on the keyboard for each printing sector that appears to the left of the left hand figure of the subtrahend, then depress a figure on the keyboard that if added to the left hand figure of the subtrahend would make it equal to nine, (indicated by the small red figures on the key-tops) and do the same with reference to each figure in the subtrahend in regular order from left to right until you reach the last or right hand numeral, to which must be added a figure that will make it equal to ten; then hold down the non-print lever (with dial set at 9) and make one complete stroke of the operating lever; pull the operating lever again, without holding down the non-print key, making this time a blank stroke the same as if for taking a total, then depress and hold down the total key as if taking a grand total and pull the operating lever. The amount printed in red as a result of this operation will be the remainder or the difference between the two amounts.

The following  
examples in  
subtraction  
are all made  
without using  
non-print  
lever in order  
that operation  
may be more  
easily  
understood.

**EXAMPLE No. 1:** From 1243.56 subtract 175.65. Depress keys 1, 2, 4, 3, 5, 6, and pull the lever the same as for addition, then depress the keys representing 175.65, but before pulling the operating lever, depress and hold down the eliminating key while the lever makes a complete forward and backward stroke. It will in this particular example be noted (assuming that a nine-sector machine is being used) that there are four printing sectors to the left of the left hand figure of the subtrahend, therefore a nine must be depressed on the keyboard to represent each of these four sectors. The left hand figure of the subtrahend in this example being a one, it will be necessary to depress an eight on the keyboard in order to make this figure equal to a nine; then a two to make the seven a nine, then a four to make the five a nine, then a three to make the six a nine, then five to make the five, which is the last numeral, equal to ten. After this has been done, depress and hold down the non-print lever while the operating lever is moved forward and backward, making one complete stroke; then pull the operating lever again, without holding down the non-print lever, making a space as if for taking a total, then depress and hold down the total key while the operating lever again makes a complete forward and backward stroke and the figures printed in red as a result of this operation will be the difference between the above figures.

1243 56  
E 175 65  
9999824 35

1087 91

2143 56  
E 175 65  
9999824 35

1967 91

2143 54  
E 1 75  
9999998 25

2141 79



0 If the subtrahend should end in ciphers to the right, it  
 2143 54 will be necessary to bear in mind that to the last or right  
 E 1 hand numeral (a cipher is not a numeral) in the subtrahend  
 9999999 99 must be added a figure that will make it equal to ten, and  
 2143 53 then a cipher depressed for each cipher that appears to the  
 right of the last numeral.

0 **EXAMPLE:** From 2143.56 subtract 1500. List the  
 2143 56 figures of the minuend the same as if for addition, then  
 E 1500 00 depress the figures of the subtrahend and hold down the  
 9998500 00 eliminating key while the operating lever makes a com-  
 643 56 plete forward and backward stroke. It will now be noted  
 0 that there are three printing sectors to the left of the left  
 2143 54 hand figure of the subtrahend, so that it will be necessary  
 E 150 05 to depress a figure nine three times, thus giving a nine for  
 9999849 95 each unused sector; the first or left hand figure of the  
 1993 49 subtrahend being in this instance a one, it will be neces-  
 0 sary to depress an eight in order to make it a nine, and to  
 2143 54 the five which follows must be added a five in order to  
 E 199 01 make it equal to ten, as the five, in this instance, is the  
 9999800 99 last numeral (a cipher is not a numeral); then depress  
 1944 53 four ciphers to represent each of the four right hand  
 ciphers in the subtrahend, and hold down the non-print  
 key while the operating lever is moved forward and back-  
 ward one complete stroke, as above described, then make  
 an additional blank stroke, as also described above and  
 take a grand total in the same manner as if for addition,  
 and the amount printed in red as a result will be the dif-  
 ference between the two sums.

The series of examples in subtraction shown on the margin hereof are all done without using the non-print key, for the purpose of enabling the operator more thoroughly to understand the process of subtraction, which is nothing more nor less than over-addition. It will be noted by referring to each of these examples, that if to the subtrahend be added the complementary figures printed below, the sum will amount to 10,000,000.00, which is just one cent more than the capacity of the machine, which has the effect of clearing or taking both sets of figures entirely out of the machine. The non-print lever is



made use of where the machine is used for practical subtraction in order to keep the **complementary** figures from printing and thus spoiling the appearance of the work.

## Multiplication

To multiply on the **DALTON**, depress on the keyboard all the figures of the **multiplicand**; then **hold down** the **repeat** key with the left hand while with the right you pull the operating lever as many times as there are units in the **right hand** figure of the **multiplier**; then with the repeat key **still down**, depress the cipher key with the **right hand**, after which pull the operating lever as many times as there are units in the **second** figure of the **multiplier**, and so on until the last or **left hand** figure of the multiplier has been used. After making a blank stroke, take the total in the ordinary way, which in this instance will be the product.

Care should be taken when multiplying by the **last** or **left hand** digit in the multiplier to **release** the repeat key just **before** the lever starts **forward** for the **final** stroke. If this is not done, the amount will be printed **one time too many** and thus cause an **error** in the result.

Multiplication Example  
No. 1  
214356 × 345

	0	the figures on the keyboard 2, 1, 4, 3, 5, 6, place the index finger of the left hand on the repeat key and hold it there while the operating lever is pulled five times, being once for each unit in the units column of the multiplier; with the left hand still on the repeat key, depress with the right hand the cipher, which has the effect of moving the figures of the multiplicand already in the keyboard to the next higher numerical order; then pull the lever four times, being once for each unit in the second digit of the multiplier; with the repeat key still down, strike the cipher again as before, thus raising the multiplicand to the next higher numerical order, then after pulling the lever twice and before starting forward the third time, release the repeat key so the amount will be printed three times in the hundreds column, being once for each unit in the third digit of the multiplier. After this has been done, pull the
2143	56	
2143	56	
2143	56	
2143	56	
2143	56	
21435	60	
21435	60	
21435	60	
21435	60	
214356	00	
214356	00	
214356	00	
739528	20	



lever one complete blank stroke and then take a grand total the same as in addition. The result of this operation will be the **product** of the above example.

If the multiplier ends with **ciphers to the right**, it will be necessary to **add** an equal number of ciphers to the **multiplicand** before pulling the operating lever. If intermediate ciphers appear between the figures of the **multiplier**, it will be necessary in passing to the next higher order to depress as many **additional** ciphers as there are **intermediate** ciphers in the multiplier.

**Multiplication Example No. 2.**

214356 × 3050

**EXAMPLE No. 2:** Multiply 214356 by 3050. Depress

21435	60	the figures on the keyboard representing the 214356 as if
21435	60	for ordinary addition, then with the index finger of the
21435	60	left hand hold down the repeat key. It will be noted in
21435	60	this instance that the <b>right hand</b> figure of the <b>multiplier</b> is
21435	60	a cipher, so it will be necessary to depress a cipher on the
21435	60	keyboard, thus raising the <b>multiplicand to the next higher</b>
2143560	00	numerical order <b>before</b> pulling the lever, and then pull
2143560	00	the lever <b>five times</b> , being once for each digit in the <b>second</b>
2143560	00	figure of the multiplier, then depress a cipher, which car-
		ries the figures of the multiplicand into the hundreds
		column; now as the figure in the hundreds column in the
6537858	00	multiplier is a cipher, the lever must <b>not</b> be pulled at this
		point, but the cipher key must be depressed <b>again</b> so as to bring
		the figures of the <b>multiplicand</b> into the thousand column; then,
		with the repeat key still down, pull the operating lever <b>twice</b> ,
		releasing the repeat key just before starting forward with the
		operating lever a third time, being once for each digit in the
		left hand figure of the multiplier, then pull the operating lever
		a blank stroke, as if for addition and take a grand total and the
		result will be the <b>product</b> of the above figures.

Multiplication, if done in this manner, is **very rapid**; and inasmuch as each operation is listed, it leaves a **physical record** of the work which can be **audited** at a glance. The figures 214356 x345 will appear as shown in Example No. 1 on the left hand margin of the page, which enables the eye to see quickly that the multiplicand was 214356 and that it was multiplied three times in the hundreds column, four times in the tens column and five times in the units column, and that the **sum** of the amount must of necessity be the **product**.



# Multiplication Beyond the Capacity of the Machine

## First Method

**EXAMPLE No. 1:** Multiply 214356 by 6123. The multiplicand containing six, and the multiplier, four figures, it is obvious that the product may contain as many as ten figures—too many to be printed in a nine-sector machine. A simple expedient, however, permits such multiplications to be performed and the exact product secured on a nine-sector **DALTON**. Set up all the figures of the multiplicand except the last one to the right. Multiply by the right-hand figure of the multiplier by operating the lever three times with the repeat key held down, as before explained. Now instead of spacing over with the cipher-key, strike the key representing the right-

Extended  
Multiplication Example  
No. 1  
214356x6123

214	35	0	hand figure that was omitted from the multiplicand. Multiply by the second figure of the multiplier and proceed from here on just as directed for regular multiplication, using the cipher-key for spacing over. When all the figures of the multiplier have been used and before printing the product, multiply (mentally) the right-hand figure of the multiplicand (6), which was omitted in the first instance, by the right hand figure of the multiplier (3). If the product contains two figures (as it does in this case), add the left-hand figure to the amount already in the machine by striking the proper key (1 in this case), take a total and then with a pen or pencil write the right-hand figure of the product just mentioned immediately to the right and as a part of the total as printed by the machine, and the total as so enlarged constitutes the complete product of the multiplication.
214	35		
214	35		
2143	56		
2143	56		
21435	60		
214356	00		
214356	00		
214356	00		
214356	00		
214356	00		
214356	00		
214356	00		
	1		

1312501 78 8

## Second Method

**EXAMPLE No. 2:** Multiply 1194743 by 214352. First, print and eliminate on the **DALTON** all the figures of the multiplicand, thus, E1194743, then likewise, all the figures of the multiplier—E214352. Now being at the right-hand figure of the





Extended Multi-  
plication Example  
No. 2

1194743x214352

multiplier and count to the left until all the figures of the multiplier have been counted and continue counting, beginning at the left of the multiplicand, until the total figures thus counted, including those in the multiplier, reach nine. Place a dot over the ninth figure. (Note: If a seven-sector **DALTON**, put the dot over the seventh figure.) Next list in the machine preparatory for multiplication in the usual way the figures of the multiplicand to the left of and including the dotted one. Multiply the figures just listed by the right hand figure of the multiplier in the usual way; then instead of spacing over with the cipher-key, strike the key representing the figure immediately to the right of the one with the dot over it, which in this instance is a four. Now multiply by the second figure of the multiplier, after which space over by using the figure in the multiplicand to the right of the one just used. Continue in this way until all the figures of the multiplicand to the right of the one dotted have been used, after which the cipher must be used for spacing as in ordinary multiplication. See illustration in the margin.

**NOTE:** This process cannot be depended upon always to afford accuracy in the final figure of the product. When absolute accuracy is required, one of the other methods should be employed.

256095 48

### Third Method

Extended Multi-  
plication Example  
No. 3

814956x324354

all the figures of the multiplicand in the machine in the usual way for ordinary multiplication and multiply by the three right-hand figures of the multiplier as usual, after which take a grand total, the three right-hand figures of which will be the three right-hand figures of the grand product and the figures to the left of these will be the amount necessary to carry over into the next product. Now list the carry-over figures just referred to in the machine as in ordinary addition. Then below them list all the figures of the multiplicand as before for multiplication and multiply by the three remaining figures of the multiplier, taking a grand total. This total, taken in connection with the three right-hand figures of the first product, is the complete product. See illustration in the margin.

2884944 24



### Fourth Method

2884 94 **0** **EXAMPLE No. 4:** Multiply 73948739 by 20314231.  
 8149 56 List all the figures of the multiplicand in the machine, us-  
 8149 56 ing the eliminating key, thus E73948739. Just below list  
 8149 56 the figures of the multiplier in like manner, E20314231.  
 8149 56 Now draw a vertical line between the fourth and fifth  
 81495 60 figures, counting from the right, of both multiplicand and  
 81495 60 multiplier. This separates the multiplicand into two sec-  
 814956 00 tions, that on the right of the vertical line being for con-  
 814956 00 venience designated (a) and that portion on the left (b).  
 814956 00 Similarly, the multiplier is divided, and we will designate  
 2643342 38 the portion on the right of the line (x) and the portion on  
 the left, (y).

Extended Multi-  
plication Example  
No. 4

b	a	0
E7394	87	39
E2031	42	31
y	x	

Now list as for ordinary multiplication the section of the multiplicand designated as (a). Multiply in the ordinary way by the figures composing the right-hand section of the multiplier and designated (x), printing a grand total. The four right-hand figures of this total constitute the four right-hand figures of the grand product.

87	39	total to the left of these four figures, as they are to be car-
873	90	ried over into the next product, as described in the <b>Third</b>
873	90	<b>Method.</b> Below them list the figures of the left-hand
873	90	section of the multiplicand designated (b) and multiply in
8739	00	the ordinary way by the four right-hand figures of the
8739	00	multiplier designated as (x). Without printing a total, list
87390	00	in the machine for multiplication section (a) of the mul-
87390	00	tiplicand and multiply by the figures of section (y) of the
87390	00	multiplier. Now print a grand total, the four right-hand
87390	00	figures of which will constitute the second section of the
589747	09	grand product, and those on the left the carry-over figures
		into the next product, as before.

36	97	Again list into the machine the carry-over figures from
73	94	the last operation and below them list for multiplication
739	40	section (b) of the multiplicand. Multiply the latter by sec-
739	40	tion (y) of the multiplier. The total, together with the
739	40	four right-hand figures from each of the two previous
		operations, will constitute the grand product, which is
		absolutely correct to the final figure.

Continued on  
next page



Continued from  
page 18

## Multiplication by Fractions

7394 00

7394 00

73940 00

73940 00

73940 00

73940 00

87 39

873 90

873 90

873 90

87390 00

87390 00

To multiply by fractions, reduce the fractions to a decimal and multiply as in ordinary multiplication, always remembering to point off as many decimals in the product as there are decimals in both the multiplier and multiplicand.

**EXAMPLE No. 1:**  $235\frac{1}{4} \times 34\frac{1}{8}$ ;  $235\frac{1}{4}$  equals 235.25 and  $34\frac{1}{8}$  equals 34.125. Put 235.25 in the keyboard in the ordinary way and multiply by 34.125. Point off five decimals to the right, so that the product is 8027.90625. This example will be found to be worked out in full on the margin of page 20.

490366 20

0

49 03

73 94

739 40

739 40

739 40

73940 00

73940 00

Common fractions that cannot be made into round decimals can be handled in the same manner by running out two or three additional decimal points in both the multiplicand and the multiplier containing such fractions.

## Division

The **DALTON**, while not a dividing machine, is a great aid to division. As there is considerable mental work in the process of division, we do not deem it fair to call the **DALTON** a dividing machine. Better results will usually be obtained by using a table of decimal reciprocals such as the one published by this Company (see page 27). However, the process of mental division is greatly facilitated, by the use of the **DALTON** in the following manner:

Depress the figures on the keyboard representing the divisor and hold down the eliminating key while these figures are being listed; then depress the figures representing the dividend and list as if in ordinary addition; then depress on the keyboard the figures representing the complement of the divisor, and in order that these figures may be printed in the proper numerical order, it will be necessary to depress a sufficient number of ciphers to bring the right-hand figures of the complement under the right-hand figure of the lowest number of figures, beginning at the left of the dividend, into which the divisor, will be contained. With the repeat key, repeat the complement as many times as you will mentally ascertain that

150221 17

Example No. 1  
Multiplication by  
fractions  $235\frac{1}{4} \times 34\frac{1}{8}$

235 25

235 25

235 25

235 25

235 25

2352 50

2352 50

23525 00

235250 00

235250 00

Continued on  
next page

Continued from  
page 19

235250 00 the divisor will be contained in the fewest left-hand figures of the dividend, as above noted. When this has been done, pull the lever a blank stroke as if for taking a total, and take the sub-total. The left-hand red figure of this sub-total will be the first figure of the quotient, and the figures to the right will be the remainder, as in ordinary long division, into which the next division must be made. Now put the complement into the keyboard again, but with one cipher less than before and repeat it as many times as the divisor will be contained in the next fewest number of figures beginning at the left, which must be ascertained mentally, pull the operating lever again for a blank stroke, take a sub-total as before, and the second red figure from the left will be the second figure of the quotient, and the remaining figures to the right will be the remainder of the dividend. Put the complement into the keyboard again, leave off another cipher and continue with the process until there are no ciphers to the right of the

Division  
Example  
No. 1  
3456 ÷ 25

0 complement and a grand total after the last operation will be the quotient and any figures appearing to the right of intervening ciphers will be the remainder.

34 56  
75 00  
109 56  
7 50  
7 50  
7 50  
132 06  
75  
75  
75  
75  
75  
75  
75  
75  
138 06

**EXAMPLE No. 1:** 3456 divided by 25. First depress the numeral 25, representing the divisor and list the same, with the eliminating key down; then list the 3456 representing the dividend the same as if for ordinary addition. It will now be noted that the complement of 25 is 75 and that the divisor 25 will be contained in the two left-hand figures of the dividend, so that in order to get the 75 in the proper numerical order it is necessary after depressing the 75 to strike two ciphers. It will now be noted that 25 will be contained in the left hand figures of the dividend, 34, but once, so that the operating lever must be pulled a single time and the 75 with two ciphers to the right printed as if for ordinary addition; a blank stroke is then made and a sub-total taken. The figure "1" or the left hand figure of the sub-total in this instance is the left-hand figure of the quotient, and the figures to the right which are 956, represent the remainder of the dividend. Depress again the 75 representing the complement and inasmuch as the divisor 25 will be contained into the next two figures, 95, it is necessary to put in only a single cipher in order to bring the complementary



Division  
Example  
No. 2  
3456 ÷ 24

24 0  
 34 56  
 76 00  
 110 56  
 7 60  
 7 60  
 7 60  
 7 60  
 140 96  
 76 76  
 76 76  
 76 76  
 144 00

figures under the 95. It will now be ascertained **mentally** that 25 will go into 95 **three** times, so that the operating lever must be pulled three times with the repeat key down, thus repeating the item three times and a blank stroke made and a **sub-total** taken as before, and in this instance the **second** left-hand figure of the sub-total is the second figure of the **quotient**. The figures 206 remaining to the right represent the **remainder** of the **dividend**. Strike the figures 75, representing the **complement**, again, without a cipher, as it will be noted now that 25 is contained only in the three remaining figures 206; so a cipher is not necessary to bring the complement into the correct numerical order, as it will automatically print in this instance, in the proper column. It will now be noted **mentally**, that 25 is contained in 206 eight times, so with the repeat key down, pull the operating lever, thus repeating eight times, and take a grand total. The figures 138 represented at the left will be the **quotient** and the 6 to the **right** of the intervening **cipher**, the **remainder**.  
 If this same number were to be divided by 24, the complement would be 76 and the operation carried out in exactly the same manner (see division Example No. 2), except 76 would be used in the place where 75 is used in Example No. 1.

## To Figure Interest

The **DALTON**, if it could be used for no other purpose, is worth more than its purchase price in any busy bank or accounting house for figuring interest alone, which is done in the following manner:

Multiply the principal by the number of days; take a **grand total** (this will be the number of dollars on interest for one day) put the dollars back in the machine, **omitting** the **cents**, multiply this amount by the decimal representing the rate per cent, and when a total has been taken, draw a line through the five figures to the right and the remaining figures to the left will be the interest expressed in **cents**.

Decimal equivalents representing the interest on \$1.00 for one day at a given rate are as follows (these equivalents are figured on the basis of 360 days to the year):



Example: Find the interest on \$123.17 for 5 mos. 6 days at 8%; 5 mos. 6 days equals 156 days.

	RATE	DECIMAL	RATE	DECIMAL
	1%	.0000278	$\frac{1}{2}$ of 1%	.0000035
	2%	.0000556	$\frac{1}{4}$ of 1%	.0000089
	3%	.0000833	$\frac{3}{8}$ of 1%	.0000104
123 17	4%	.0001111	$\frac{1}{2}$ of 1%	.0000139
123 17	5%	.0001389	$\frac{5}{8}$ of 1%	.0000174
123 17	6%	.0001667	$\frac{1}{4}$ of 1%	.0000207
123 17	7%	.0001944	$\frac{3}{8}$ of 1%	.0000243
123 17	8%	.0002222	$\frac{1}{2}$ of 1%	.0000093
123 17	9%	.0002500	$\frac{5}{8}$ of 1%	.0000185
1231 70	10%	.0002778		
1231 70				
1231 70				
1231 70				
1231 70				
12317 00				

To find the decimal equivalent for any given rate, divide the rate per cent by the number of days in one year. The quotient will be the decimal equivalent or the interest on one dollar for one day.

**EXAMPLE:** To find the decimal equivalent of  $7\frac{1}{2}\%$ :  $0.75 \div 360 = .000208$ , or if on the basis of 365 days to the year, divide by 365:  $.075 \div 365 = .000205$ .

If the rate of interest be a fraction, add the decimal representing the fractional rate to the decimal representing the whole number. This will give the correct decimal which will then be used in the ordinary way.

**EXAMPLE:** To find the decimal equivalent of  $4\frac{1}{8}\%$ , add to .0001111, which is the decimal at 4%, .0000104, which is the decimal at  $\frac{1}{8}\%$ , thus giving .0001215, which is the decimal for  $4\frac{1}{8}\%$ .

426935 08

Sample trial balance showing both debits and credits taken at a single time going through the ledger

123 45  
4 50  
34 50  
24 35  
7 65

Continued on next page.

## \* Trial Balance

The DALTON greatly facilitates making a trial balance, as by its use both sides of the ledger can be taken at one time going through, thus saving much valuable time and avoiding the liability of making many errors.

In order to make clear the great value of the DALTON in taking a trial balance, let us assume that we have before us the customer's ledger of a mercantile establishment. In this ledger 95% of the amounts will repre-



Continued from

Page 22

	45	00	sent indebtedness due to the merchant and the other
E	34	50	5% will represent amounts <b>due customers</b> on account of
	145	00	discount, allowances, return goods, produce purchased,
	375	00	etc. The sample trial balance shown at the left hand
	43	50	margin of this page represents the accounts taken from a
	24	30	ledger of this kind. The items <b>undesigned</b> represent
E	75	00	the indebtedness of the various customers, while the
	43	50	amounts <b>designated</b> by the letter "E" to the left represent
	34	66	the amounts due customers. The total of the upper column
	57	00	of figures in the sample trial balance shown represents
	43	50	the sum of all the debit items. The items <b>designated</b> by
	100	00	the letter "E" in this problem have also been eliminated.
	150	00	In the lower column, however, is the sum of the <b>desig-</b>
E	45	00	<b>nated</b> credit items and following that the <b>remainder</b> after
	43	50	deducting the sum of the credit items from the sum of
	43	50	the debit items, thus leaving the net amount of the debits
	7	65	shown on the trial balance and all at a <b>single time</b> going
	4	55	<b>through the ledger.</b>
	43	50	It is necessary after the credit items have been added
	245	75	and a grand total taken, to put the <b>total</b> of the <b>debit</b> items
	130	50	back into the machine. This is done in the ordinary
	50	00	manner as if for addition, except that the <b>non-print key</b>
	150	00	<b>should be held down</b> with dial set at 9 while this sum is
		65	being transferred or put back into the machine, so as to
	67	50	keep it from being printed on the sheet. After the sum
	45	00	of the debits has been put back into the machine in this
	75	45	manner, make the subtraction in the ordinary way, and
	230	50	the result will be the net amount of the debit items.

2393 96

0

## \*Making Statements

34 50

75 00

45 00

154 50

0

2239 46

A great many **DALTON** adding, listing and calculating machines have found their way into busy mercantile establishments for making monthly **statements**, and the machine is worth its entire purchase price for making statements alone if it could be used for no other purpose. Statements are made, or greatly facilitated on the **DALTON**, by splitting the machine in the second column



Sample of monthly statement on the Dalton:

Mr. John Doe Dr.  
to Dalton Adding  
Mach. Company.

Date	Jan.	Am't	0
1	123	45	
5	76	55	
10	5	00	
15	130	50	
20	7	50	
25		75	
26		5	
27	121	75	
28	1375	65	
29	3	50	
30		50	

Total Debit

1845 20

Jan.	Credits	0
5	125	00
10	75	00
15	5	00
20	125	00
25	75	00
30	500	00

Total Credits

905 00

0

Feb.	Bal.	Due
1	940	20

from the left. (Full and complete instructions for splitting the machine will be found on page 34.) When the machine is split in this manner, the **two left hand** columns are used for dates and the **seven right hand** columns for amounts; and both **dates** and **amounts** are printed at **one operation** of the lever and in the following manner:

First, the figures representing the **date** should be depressed on the keyboard, then if the amount to be printed opposite that date should consist say of **five** figures, it will be necessary to depress **two ciphers** before depressing the five figures so as to fill out the **intermediate unused sectors** and print the items in their proper column. The example shown at the left of the margin of this page is done in the following manner:

First, after having split the machine, the figure representing the date of the first item is depressed on the keyboard. It will then be noted that there are **five** figures opposite this date, so in order to fill in the two blank or unused spaces so that the figures will print in the proper numerical order, it is necessary to strike two ciphers and then strike the figures 123 45 and pull the lever, when the amount will be printed as shown on the sheet. In the item following, strike the figure 5, representing the date, and inasmuch as there are only **four** figures in this item, it is necessary to strike **three** ciphers before striking these figures in order to fill all the **unused** spaces, then strike the figures 76 55 and pull the lever as before. In the third item, strike 1, 0, representing the date, and as there are only **three** figures in this item, it will be necessary to strike **four** ciphers before striking the figures representing the item and pulling the lever as before. The same is true of each and every item on the list, and it is only necessary to bear in mind that enough of intermediate ciphers must be struck after striking the figures representing the date, to make **seven figures in all**, including the figures to be listed opposite the date. When all the items representing the debits of a given statement have been listed and a total is desired, turn the non-





print dial until the figure "2" shows uppermost in front, and then depress the total key and non-print key at the same time by use of middle and index finger of left hand and pull the lever. This will print the sum of the amounts, but the non-print key will prevent printing the sum of the dates.

List the credits in the same manner as the debits and print them in the same way. After both debits and credits have been listed, a subtraction can be made and the remainder printed on the statement, by depressing the figures representing the debits on the keyboard and holding down the non-print key, with dial set at 9, to prevent printing, as the lever is pulled. This will accumulate the amount of the debits in the keyboard, when a subtraction can be made in the ordinary way without again listing the credits and the remainder will be printed as shown on this page.

An item printing device equipped with fifteen logotype thereby enabling the operator to print a selection of fifteen words such as "Debit," "Credit," "Cash," "Balance," "Forward," "Freight," "Drayage," "Merchandise," the names of the months, etc. (abbreviated to not exceeding six letters), can be furnished with each DALTON machine at an additional price of \$25.00. For further particulars see catalogue.

Cost  
Price

Selling  
Price

## ★ Two Totals at Once

125 1 75  
1175 14 50  
250 3 25  
1325 17 50

The DALTON is very useful, and is being used in many mercantile houses throughout the country, for listing cost and selling price at the same time. This is done in the following manner:

2875 37 00

After the machine has been split in the fourth column from the left (full instructions for splitting the machine will be found on page 34), the example shown on the left hand margin of this page will be accomplished in

1234 9 75  
1235 13 75  
1236 8 75  
1237 22 50  
1238 34 50  
1239 45 00

the following manner: Depress the keys representing the left hand figures, or cost, as if for ordinary addition. There are now five sectors left to the right for use in printing the selling price; and as it will be noted that the first item on the list consists of only three figures, it will be necessary to depress two ciphers after depressing the figures 1, 2, 5, representing the cost, and before

134 25



Bale  
Number

Weight

		0	depressing the figures 1, 7, 5, representing the selling price, then pull the lever. When this has been done, the item will be found printed as shown in the example to the left. List all other items in the same way, always bearing in mind that enough ciphers must be added to the left of the item representing the selling price, or right hand column, to make five in all, including the ones to be used in listing the figures representing the selling price.
125	5	75	
126	5	77	
127	5	65	
128	5	55	
129	5	60	
130	5	53	

**33 85** The machine when split for taking two totals at once, can be used for numbers and amounts by using the four left-hand sectors to represent the numbers and the five sectors to the right to list amounts. Illustration No. 2 on the margin (page 25) represents voucher numbers and amounts. Illustration No. 3 (on this page) represents cotton bale numbers on the left, with the weights on the right. The sum of the numbers is prevented from printing by holding down the non-print lever with the dial set at 4 at the time of taking total.

Many other practical uses can be found in many lines of business for the split device, which is furnished with all regular **DALTON** machines without extra charge.

## Verifying Invoices

The **DALTON** will save its purchase price in a single year if used only for verifying and proving invoices, and it is the only machine that furnishes a physical verification or proof to be attached to the invoice, thus showing that it has **actually** been **audited**.

Items on invoices can be proven separately by multiplying in each instance the number of items by the price and taking a grand total, after which it will be necessary to add together the sum of the various items that have been proven in order to get the total amount of the invoice.

Where it is only necessary to know that the total amount of the invoice is correct, it is better to multiply the number of items by the price **without** taking a total after each multiplica-



This example shows physical verification of invoice shown on this page.

0  
2 75  
2 75  
27 50  
3 25  
3 25  
3 25  
3 25  
3 25  
32 50  
1 50  
1 50  
15 00  
15 00  
1 75  
1 75  
1 75  
1 75

tion, thus permitting the amounts to accumulate in the machine and enabling you to take a **grand total** at the **end** or **last** multiplication, which will be the amount of the invoice. The illustration on the margin hereof is a **physical verification** of the invoice which follows, and was done by making **all** the multiplications **before** taking the total:

12	Pairs of Shoes	at \$2.75—	\$33.00
15	"	"	3.25— 48.75
22	"	"	1.50— 33.00
4	"	"	1.75— 7.00
			<hr/> \$121.75

In verifying invoices and carrying forward totals, as illustrated in this example, it is necessary to use care so that the **decimals** will accumulate in the machine in the proper numerical order. If as a result of some of the multiplications four decimals would appear in the product, it will be necessary to allow four decimal places in **each** and **every** item on the invoice. Thus,  $3\frac{1}{2}$  dozen at  $.12\frac{1}{2}$  per dozen if multiplied on the machine would show a printed product of .4375, making four decimal points. If the item following this should be 4 dozen at .16 per dozen, it will be necessary to add **two** ciphers to the .16 before multiplying by four in order that the product may contain four decimals and thereby list in the proper column for addition.

121 75

An audit slip same as above should be pinned to each invoice.

## Dalton Helps

We publish a book of reciprocals of numbers from 1 to 10,000 which will prove of great assistance to Dalton users who find it necessary to do considerable dividing by a constant. Numerous other tables of general utility are also included. The book will be sent post-paid on receipt of the price of one dollar.

We have also established a correspondence course in the Touch Operation of the Dalton machine and have a limited number of scholarships for free allotment amongst the users of our machine. If you would like to have your bookkeeper, clerk or stenographer become more proficient in the operation of the Dalton, write us at once and we may be able to place one of these free scholarships at your disposal for that purpose.

See the following pages for a further explanation of Touch Operation, the sensational Dalton achievement which is literally revolutionizing the figure-handling methods of modern business.



## Touch Method

We have urged repeatedly throughout these instructions the importance of learning the touch method of operation, which is possible **only** on the **DALTON**, thus saving the operator the nerve-racking operation of having to look alternately at the item to be listed and then at the keyboard, as **must be done** on all machines **except the DALTON**. We cannot exaggerate the importance of the touch method of operation. It **increases** the speed fully 25% and **reduces** the liability to commit error by depressing a wrong key, in like proportion. It **saves** the strain on the **eyes** and enables the operator to turn out **more work** in a given time with **less fatigue** than if done in any other manner.

When using the touch method, the operator confines his eye and attention entirely to the items to be listed, thus avoiding mistakes of the eye, which so frequently occur on **other** machines with **large keyboard**. The operator finds, when he becomes thoroughly acquainted with the **DALTON** keyboard, that there are only **two** keys for each finger to remember, and in a short time the fingers will automatically drop on the proper keys as the numbers are read by the eyes. Not even the most skeptical has doubted our superior speed when confronted with the fact that we add and list 76 items in 50 seconds.

Full and complete instructions for quickly learning the touch method will be found in the following pages.



## Front View

From the cut below you will observe the simplicity of our keyboard arrangement and that it is not necessary to move the hand in operation. The keys are lined to each finger and you will note that

The thumb	depresses the	—1 key
" fore finger	"	2—3—4 keys
" middle finger	"	0—5 "
" ring finger	"	6—7 "
" little finger	"	8—9 "

We suggest the fore finger of the left hand for totals, repeats and eliminations, and the thumb of the right hand for corrections. In no instance should the operator use one hand for pulling the lever and the other for operating the keyboard.



The cut below shows the exact position of the hand as viewed from left to right when in position for operation.

The thumb	covering the 1 key
" fore finger	" 3 "
" middle finger	" 0 "
" ring finger	" 6 "
" little finger	" 8 "

It will be noted that the thumb rests against the total key, which acts as a guide for the hand when leaving the handle and positively places the fingers on the proper keys at each operation.

Try the figures 130, 1306, 6013, 125, 115, 560, 1350.

The best results are obtained by using a partial wrist movement in conjunction with the fingers, as in depressing the ciphers rapidly without moving the fingers from the key.



The cut below, looking from right to left, demonstrates the nearness of the operating lever to the hand, also the position of the fingers when looking from the lever side of the machine.

It requires practically **no mental effort** to operate the machine successfully by **touch method**, and the operator is on this account enabled to answer questions and carry on an ordinary conversation without in any way interfering with the operation of the machine. It requires but little time and practice to learn this method; and as it adds more than 25% to the efficiency of each operator, we earnestly urge its adoption. Send for our special free booklet on Touch Operation.



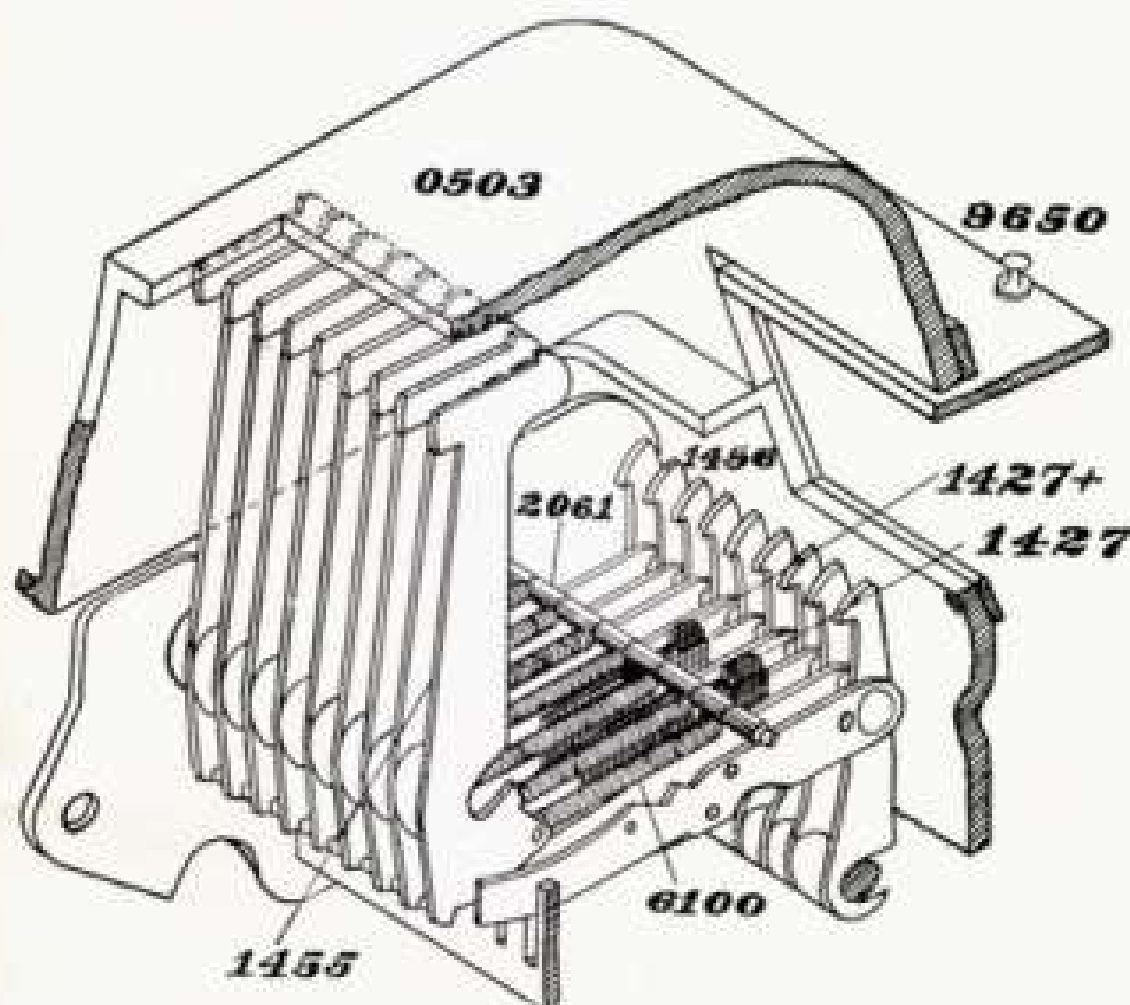
## Practice Items

Run the following lists each ten times slowly being careful to depress the keys correctly. A correct total in any of these lists three times in succession shows very rapid progression.

<sup>0</sup> 13	<sup>0</sup> 10	<sup>0</sup> 1 30	<sup>0</sup> 1 25
30	1 30	3 06	1 75
60	3 60	8 60	35
80	12	1 08	75
86	1 25	8 06	10
81	54	1 23	10 50
38	5 40	2 34	4 50
36	75	3 42	15
12	7 50	4 32	5
15	6 54	3 24	11 50
19	4 56	1 45	25
17	8 60	1 75	35
14	60	1 77	10
23	9	1 04	1 25
34	91	1 05	1 30
45	9 10	8 35	3 75
56	9 15	7 54	1 00
67	98	5 79	7 50
89	9 83	7 65	2 25
85	77	9 54	25
75	8 75		1 00
	9 87	82 58	2 35
9 75	42		45
	24		25
	23		1 15
	32		11 25
	2 45		
			65 35
	93 97		







- 0503 is the dust shield for the hammer section which sits on top of the machine between the ribbon cups.
- 9650 is the nicked name plate that covers the opening in the dust shield. (Note: In some machines this is located higher up.)
- 1455 is the printing hammer.
- 6100 is the spring for printing hammer.
- 2061 is the shaft on which hammer springs are fastened.
- 1456 is the detent which holds the hammers in normal position.
- 1427 is the date split.
- 1427+ is the center split.



## \*Instructions Showing How to Split the Dalton

First, turn name plate door 1017 to the right so as to uncover the opening in 1070. (Note—On some machines the door lifts out.)

Second, depress the figure 1 on the keyboard nine times.

Third, pull the operating lever forward very slowly until the hammers release and strike against the type, using care **not** to pull the lever forward far enough for it to return to normal position.

Fourth, by looking down the opening while the hammers are in this raised position, you will be able to see the hammer springs 6100 and the shaft 2061 upon which the springs are fastened. Immediately in front of the shaft 2061, by looking closely, you can see the two notches, 1427 and 1427+, on top of the end of the slide that controls the splitting mechanism. To split the machine, put a screw driver or other suitable instrument in the notch 1427 or 1427+ on the end of the slide, and push the slide under the shaft 2061. The movement of this slide is about one-eighth of an inch. Do not press down on these slides as you attempt to move them, as pressure makes them move harder.

To take the splits out, reverse the operation of the slide, that is, pull it out from the shaft about one-eighth of an inch.

### OBSERVATION

Splitting the **DALTON** adding machine has no effect whatever upon its adding and listing, except that it will not print a cipher or a series of ciphers immediately to the right of the point split. For example: If the machine is split at the center and you should attempt to write 5,000.00, you would write the 5 in the proper column but no ciphers would appear to the right. The addition, however, would be correct.



## The Dalton Electric Motor Drive

The Dalton electric motor drive is years in advance of anything hitherto offered to the public.

The separate unit construction as illustrated on the following page possesses numerous advantages over the old style "build-in" drives, among which are the following:

It simplifies the manufacture by reducing the number of parts.

Reduces the liability to get out of repair owing to the extraordinary simplicity of construction.

Facilitates the making of repairs by affording greater accessibility.

Reduces the cost of transportation by reducing the weight, which at the same time makes the machine more portable.

Makes it unnecessary to ship the entire equipment to the factory in the event that either machine or drive needs overhauling and adjusting.

Enables the owner, in case of accident to the motor drive, to continue the use of the machine by hand (the hand lever being always attached) while the motor is being repaired.

Enable the owner of a hand driven Dalton to convert the same into an electric drive instantly and without the aid of a mechanic.

Permits of instant change from one machine to another, thus making it unnecessary to interrupt the work of the operator in case of accident to either machine or drive.

Permits removal of machine from the motor drive to the Moody traveling desk stand, where it may be operated by hand, leaving the motor free to be used independently for driving fans, ventilators or other light machinery.

Permits of unheard of speed of operation, thus enabling Dalton operators to smash all speed records.

Makes installation so very simple that a mechanic is unnecessary. A child can do it. Just place the drive unit on the stand, set the machine on top, screw in the socket from a light wire and the machine is ready for operation.

## The Automatic Cut-Off

The motor drive can also be furnished with the automatic cut-off feature, which will stop the machine automatically, without thought or attention on the part of the operator. This, in fact, constitutes a real adding machine sensation.



# The Dalton Electric Motor Drive



The Machine Unit complete, and ready for operation by hand or electricity.



## THE MOTOR DRIVE UNIT

A complete power plant equipped especially for driving the Dalton, but useful for other purposes requiring power.



## THE METAL STAND UNIT

**Directions**—Just drop the motor drive unit on the stand unit, set the machine unit on top, slip in the lamp socket and the hand-driven Dalton is an electric. A child can do it.

# A UNIVERSAL INTEREST TABLE

Rate	Value	Rate	Value
1%	.00278	14%	.00335
2%	.00556	15%	.00369
3%	.00833	16%	.00403
4%	.01111	17%	.00437
5%	.01389	18%	.00471
6%	.01667	19%	.00505
7%	.01944	20%	.00539
8%	.02222	21%	.00573
9%	.025	22%	.00607

**RULE.**—To find the interest, multiply together the principal, time (expressed in days) and value corresponding to the rate as shown by the table.

**NOTE.**—The values in the table are on the basis of 360 days to the year.

There is no interest table—it matters not how elaborately worked out—which can give results comparable for speed and accuracy with those obtained by the use of this simple table in connection with a nine-sector Dalton Adding Machine.

When using the Dalton machine, multiply principal by number of days; take a grand total; put the dollars back into the machine, omitting the cents; multiply this by the value corresponding to the rate as shown by the table; take a total, discarding the five figures to the right. The remaining figures of the total will be the interest expressed in cents.

For additional explanations, see other side.

## FIGURE IT ON YOUR

