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H. CORDT  
 MULTIPLE COUNTER CALCULATING AND  
 REGISTERING MACHINE  
 Filed Aug. 16, 1940

Serial No.  
**352,972**

4 Sheets-Sheet 1

Fig. 1

Soll-Liste

Monat:

Zählerstand	Verbrauch des Rech. 100%	Bilanz- preis	Betrag	Grenzausbe- halt Währung	Mittel- stand Währung	Bezie- hung	Gesamtbeitrag	Nummer des Abrechnungs
170	209	82L 40L	1560L	125L				
210	255	25K 25K	625K	75K				
1406	1513	K 8K	384K		150M			
1599	1852	155G 17G	2601G	60G				
853	419	57W 23W	1474W	115W		350	7499 =	4401
5154	2102	58L 40L	2220L	125L				
408	465	L 13L	720L					
8	100	92K 19K	1748K	75K				
8756	8819	G 10G	650G	60G	150M			
2476	2555	57W 23W	1254W	115W	220Kz		7417 =	4402
154	210	L 10L	1658L	125L				
8789	8899	110L 8L	860L					
54	105	K 12K	1572K	75K				
714	955	W 19W	4579W	115W	220Kz	575	9999 =	4405
4521	4679	L 10L						
	75	L 12L						
1481	1588	55L 6L	2114L	125L				
548	488	187K 26K	3426K	75K	150M			
		148W 23W	5140W	115W	220Kz	560	9920 =	4408
		Stk.	Stk.	Stk.	Stk.	Stk.	Stk.	Stk.
189	97L = 40	Stk.	9152L = 500L	1455 =	34555 =			
155	145L = 8							
48	102K = 25		7754K = 300K	60Kz				
151	93K = 19							
105	155G = 17		3231G = 120G					
241	357W = 22		10455W = 460W					

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Fig. 2a

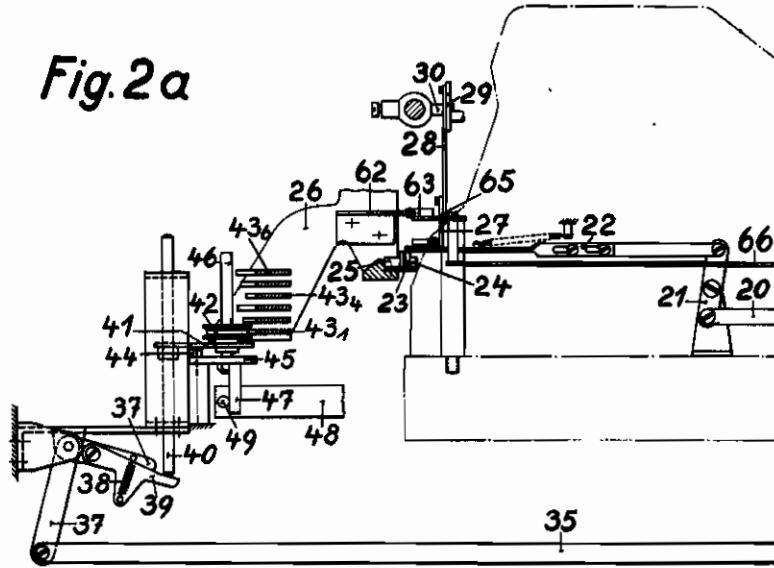
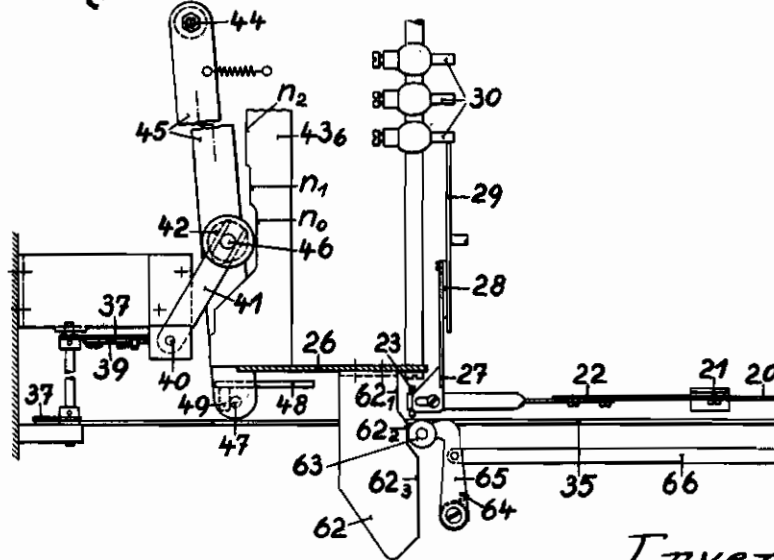


Fig. 3a



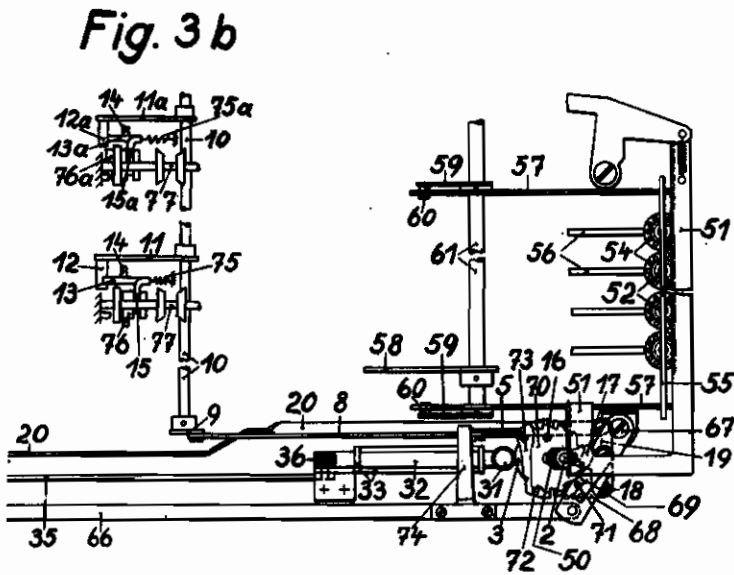
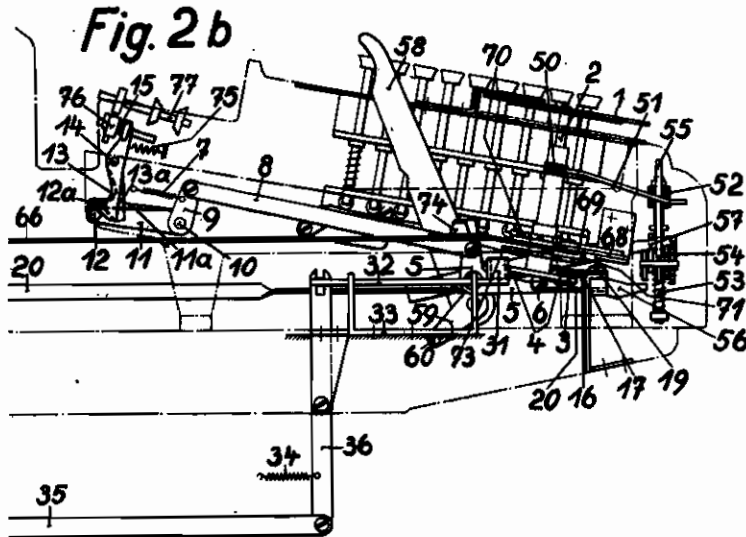
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4 Sheets-Sheet 3



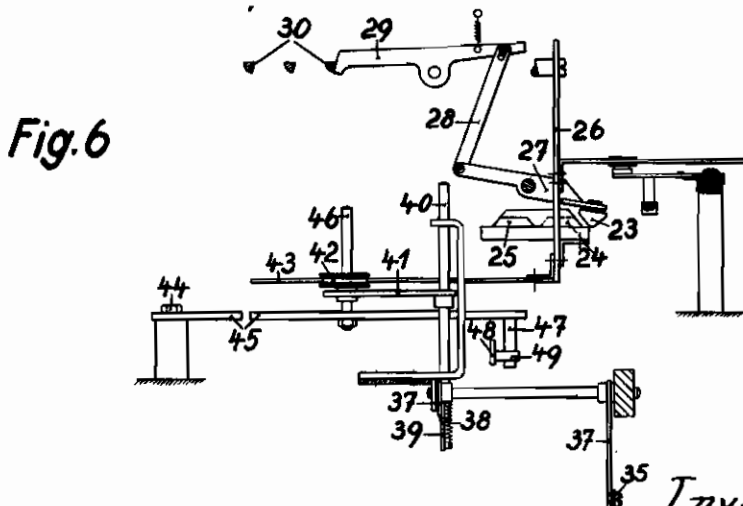
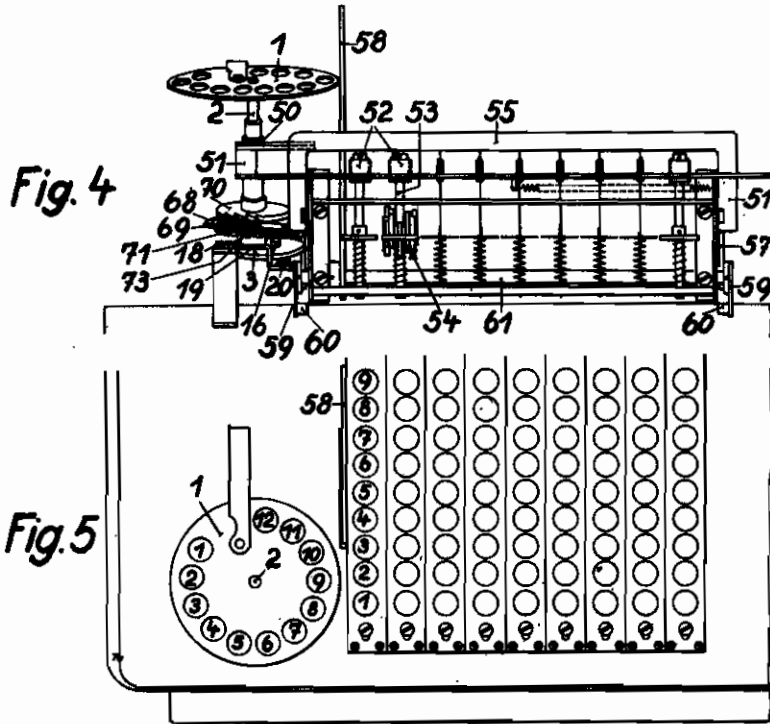
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4 Sheets-Sheet 4



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# ALIEN PROPERTY CUSTODIAN

## MULTIPLE COUNTER CALCULATING AND REGISTERING MACHINE

Hugo Cordt, Berlin-Schoneberg, Germany; vested  
in the Alien Property Custodian

Application filed August 16, 1940

The invention relates to a multiple counter calculating and registering machine with booking mechanism and a paper carriage provided with a step rail for controlling the several counting mechanisms performing the bookings or entries and it is an object of the invention not only to perform several bookings in a simple and easy manner with the same machine but also to enter in each booking frequently occurring factors as for instance in connection with current invoices the cost of current or in connection with gas invoices the cost of gas etc. by means of a single adjustment instead of the repeated registration of the factors consisting for the most part of several figures.

A further object of the invention is the provision of a selecting device arranged in the said multiple counter calculating and registering machine in order to rapidly pass over from one kind of booking to an other one by setting a corresponding step rail and to insert or call thereby the corresponding distinct factor. This selecting device may comprise a selector disc similar that which is used in telephone apparatus.

The device known up to the present permit either in performing successive cross-bookings in which the carriage is shifted from right to left from one column to the next one corresponding to the carriage-jumps determined by stops or the like a predetermined fixed order or sequence in bringing into register automatically and successively distinct counting mechanisms and columns or to call optionally counting mechanisms adapted to be selected at liberty in the several positions of the carriage.

The device according to the present invention permits the positive running off of a greater number of different cross-bookings by arranging a corresponding number of different step rails, while the selection of the booking or entry to be made is adjusted by a selector disc.

From this selector disc there are simultaneously controlled:

(1) The step rail to be selected for the respective booking,

(2) The selection of the calculating factor used for the momentary booking to be made,

(3) The carriage-jump for the columns to be leaved out according to the circumstances,

(4) Further, according to the present invention it is also possible to perform a transfer of the drive of the revolution counter mechanism from one column to another one by the adjustment of the selector disc, if desired.

The selecting device according to the present

invention is particularly useful for so-called tariff clearing-machines i. e. calculating or booking machines by means of which the bookings or entries of electric power stations, gas-works or waterworks are produced.

In view of the fact that the several accounts and columns store up their amounts in distinct counting mechanisms and furthermore for each column at a determined tariff the same factor is required for the calculation the above indicated four functions or operations may be controlled by the same angular movement of the selector disc.

The selection of the carriage-jump control is also accomplished by the said selector disc as a pawl cooperating with abutment stops is brought out of action on the determined places by the rotation of the selector disc.

Further, it is possible according to the present invention to enter determined and repeatedly occurring factors into the counting mechanisms by the operation of the said selector disc so that it is not necessary to enter these values repeatedly into the key-board.

Further, according to the invention a latching-device permits a selection by means of the selector disc only in a predetermined selector-position so that a selection during the performance of a calculating operation is not possible.

It may be noted that one or the other or several calculating operations adapted to be selected jointly may be dispensed with without departing from the spirit of the present invention.

The invention in its preferred form or approximately such form is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Fig. 1 shows a booking example according to the present invention for illustrating the problem upon which the invention is based.

Figs. 2a and 2b serving as supplements show the device according to the present invention in a side elevation, and

Figs. 3a and 3b show the said device in a plan view.

Fig. 4 is a front elevation, and

Fig. 5 a plan view of the selector disc and the keyboard.

Fig. 6 is an elevation from the rear side of the machine.

A selector disc 1 fixed on the spindle 2 is adapted to operate, as above explained, four different devices, viz.

1. The step rail selector control mechanism,
2. The factor control device,

3. The carriage-jump control device, and

4. The revolution counter control mechanism.

The operation of these several control mechanisms is the following:

On the frame of the machine there is fixed a bracket 33 in which is slidably mounted a rail 32 carrying a roller 31 which is urged by means of a spring 34 against a cam disc 3 rotatable with the selector disc 1. If the said selector disc 1 is rotated the roller 31 with its rail 32 is moved to the left (see Fig. 3b) whereby by means of a two-armed lever 36 pivotally connected at one end with the rail 32, a draw-bar 35 pivotally connected with the other end of the said lever 36 is shifted to the right as viewed in Fig. 2a and 3a, so that a bell crank lever 37 pivotally mounted on the frame of the machine is oscillated. One arm of this bell crank lever supports a spindle 40 on which a forked arm 41 carrying a roller 42 is fixed so that on oscillation of the said bell crank lever 37 the said spindle with its arm 41 and the roller 42 is raised or moved downwards respectively. Cooperating with the said roller 42 is a plurality of rails 43<sub>1</sub>, 43<sub>2</sub>, 43<sub>3</sub> etc. for the tariffs arranged one above the other and the roller 42 may be brought in engagement with each of these rails when lifted by oscillating the lever 37. This, however, is only possible in the selector position (step  $n_0$ , Fig. 3a) as in the other positions the selector disc is locked by a latching device later to be described. The accumulator drum drive is also derived from the said roller 42. An arm 45 oscillatorily mounted at 44 carries a stud 46 on which the said roller 42 is rotatably and axially shiftable mounted, and further a second depending stud 47 with which a stud 49 engages fixed on the accumulator drum control lever 48. If the roller 42 runs e. g. from the step  $n_0$  to the step  $n_2$  the arm 45 is oscillated and therefore the accumulator drum control lever 48 is lengthwise shifted to the left as viewed in Fig. 2a and the accumulator drum (not shown) is operated.

In order to avoid a rotation of the selector disc 1 during a booking or printing operation there is provided a device permitting only in a predetermined position a selecting operation or an operation of the selector disc.

On the paper carriage of which a part is shown at 26 in Fig. 2a and 3a there is fixed a control rail 62 provided with three steps, for instance, a step 62<sub>1</sub> for the locking position, a step 62<sub>2</sub> for the selecting position and a step 62<sub>3</sub> for clearing the selector disc. Upon these steps 62<sub>1</sub>, 62<sub>2</sub> and 62<sub>3</sub> rides a roller 63 rotatably mounted on a lever 65 adapted to be oscillated by the action of a torsional spring 64. A link 66 is connected with one end to the said lever 62 and with its other end to an arm 68 pivotally mounted at 67 on the frame of the machine, as shown in Fig. 3b. Upon this arm 68 is fixed a spring pressed pawl 59 adapted to engage with a ratchet wheel 70 fixedly secured on the spindle 2. Further a stud 71 is fixed on the said arm 68 and adapted to enter in one of the slots 72 arranged in a locking disc 73 also fixed on the said spindle 2. If the roller 63 bears upon the step 62<sub>1</sub> of the rail 62 the arm 68 is moved by the link 66 into such a position that the stud 71 enters in one of the slots 72 of the locking disc 73 so that a turning movement of the selector disc is prevented. If the roller 63 is in engagement with the step 62<sub>2</sub> of the rail 62 as shown in Fig. 3a, the arm 68 is moved by the link 66 into such a position that the stud is out of engagement with the locking

disc 73, however, the pawl 69 is in engagement with the ratchet wheel 70. Therefore, the selector disc 1 can now be rotated in one direction and in the example shown in a clockwise direction (selecting position). In the third position in which the roller 63 rests on the step 62<sub>3</sub>, the arm 68 is moved by the link 66 so much to the right that the selector disc may be returned in its starting position as also the pawl 69 is brought out of engagement with the ratchet wheel. A toothed bar 51 being under the tension of a spring (not shown) moves the selector disc into this starting position.

In this position an arm 74 fixed on the link 66 presses upon a bell crank lever 5 whereby a roller 6 is lifted off from the cam disc 3 and lies out of the path of the extensions 4 so that the latter do not interfere on the turning back of the selector disc.

#### Control for the factors

In order to use a constant value repeatedly without the necessity of inserting it afresh by depressing the corresponding key there is provided a factor control device operated from the selector disc. On the spindle 2 there is fixed a toothed gear 50 as shown in Fig. 4 which meshes with a rack 51. This rack 51 meshes with a plurality of toothed gears 52 of which each is arranged in the corresponding column. Each toothed gear 52 is fixed on carrier 53 provided with a number of adjustable abutments 54. If the said carrier 54 is depressed by the yoke 55 later to be described, an abutment 54 set corresponding to the rotation of the selector disc 1 is adapted to operate a key bar 56 which is usually depressed by the keys of the multiplying machine. The yoke 55 is shifted by means of two two-armed levers 57 arranged on opposite sides and adapted to be oscillated by pulling a hand lever fixed on a shaft 51. On this shaft there are fixed two arms 59 each arranged adjacent to a two-armed lever 57 and each carries a roller 60 adapted to cooperate with the corresponding two-armed lever 57.

The hand lever 58 may be brought into its original or idle position after a booking operation or entry by means of a device (not shown) by the return movement of the machine in order to use again the columns for new booking operations because the factor entered into the columns are cleared by the return movement of the hand lever 58.

#### Carriage shift control

A pin 16 fixed on the upper side of the cam disc 3 is adapted on the rotation of the selector disc 1 to strike against a nose 17 of a lever 19 pivotally mounted at 18 as shown in Fig. 3b. On the free end of this lever there is attached a link 20 which is shifted by the actuation of the said lever 19 towards the right. The other end of the said link 20 is connected to a two-armed lever 21 which is moved by this in a counter-clockwise direction as viewed in Fig. 2a. A spring-pressed lever 22 consisting of two parts and also connected to the said two-armed lever 21 carries at its free end a sliding block 23 which is shifted to the left during the swinging movement of the lever 21, so that the said sliding block 23 is moved from the path of the switch-member 24 fixed on the paper carriage 26 into the path of the switch-member 25 also fixed on the paper carriage. Now, if the paper carriage is moved to the right as viewed in Fig. 6 the slid-

ing-block 23 is raised and thereby oscillated a two-armed lever 27 also connected to the said lever 22. A link 28 connected to the lever 27 at one end and to a pivotally mounted pawl 29 at its other end transmits this movement to the said pawl so that a locking engagement of the said pawl 29 with the corresponding abutment-stop 30 of the paper carriage does not occur. The abutment-stops 30 are adjustably secured on a bar or rail secured to the paper-carriage. A locking engagement of the pawl 29 with another abutment-stop takes place as soon as the sliding block 23 is slid over the switch-member 24 or the switch-member 25 respectively.

*Revolution counter control*

On the lower end of the spindle 2 there is fixed a cam 3 provided on its under side with a plurality of projections 4 adapted to cooperate with a roller 6 fixed on a bell crank lever 5. A link 8 pivotally connected to the said lever 5 at one end is attached with its other end on a spring pressed arm 9 fixed upon a shaft 10, so that by the tension of the said spring 7 the roller 6 is urged against the projections 4. If on the other hand during the rotation of the selector disc 1 a projection 4 impinges upon the roller 6, the bell crank lever 5 is oscillated and, therefore, by means of the link 8 and the arm 9 the shaft 10 is rotated. Upon this shaft 10 there are fixed

two levers 11, 11a arranged in staggered relation to one another and each provided with a stud 12, 12a adapted to operate the levers 13, 13a provided with cam faces with which the said studs cooperate. While on the oscillation of the shaft 10 the lever 11a with its stud 12a is brought out of the field of action of the lever 13a the lever 13 is swung out by the lever 11. The ineffective lever 13a is moved by its spring 15 against an abutment-stop. The ends 15, 15a of these levers 13, 13a are in engagement with the catch or indexing fingers 16 of the revolution counter mechanism 17 and have the effect to transfer the drive of the said revolution counter from one column to the other during the rotation of the selector disc.

The simultaneous operation of the above described four functions performed in the example shown by a selector disc can also be made by other setting means which in their effect are similar to the working of such a selector disc.

While I have set forth the idea of my invention in the foregoing, it is obvious that many changes and variations might be made without departing from the spirit of the invention and I desire to have it understood that the specific terms herein are used in their descriptive and not in their limiting sense.

HUGO CORDT.