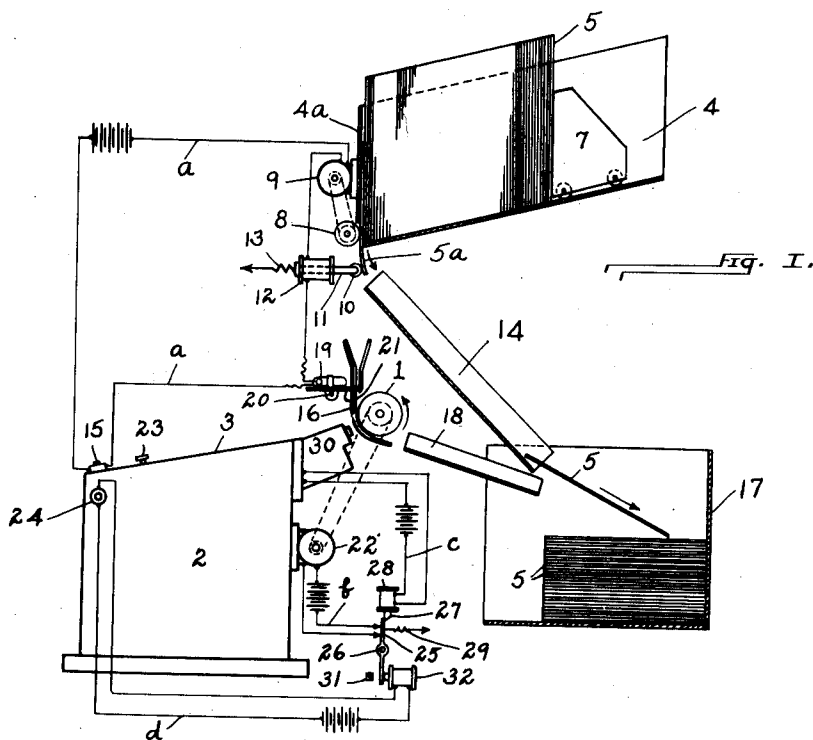


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D. L. FLEMING
TYPEWRITING MACHINE

2,111,619

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6

LEDGER DOE, JOHN				
DATE	CHECKS AND OTHER DEBITS		DEPOSITS	BALANCE
MAY 1	25.00	30.00	100.00	300.00
MAY 2	10.00			290.00

B

FIG. II.

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2,111,619

TYPEWRITING MACHINE

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9 Claims. (Cl. 197—130)

The invention relates to typewriting machines, particularly to bookkeeping machines—combination typewriting and adding machines—of the sort now commonly used by banks in keeping

5 their accounts.
In accordance with usual banking practice the ledger sheets of individual customers are arranged alphabetically and carried in a suitable file case, and each day the deposit slips and canceled checks of the customers are given to the
10 bookkeeper in quantity, already sorted and arranged in alphabetical sequence. In posting the customer's accounts, it is the duty of the bookkeeper, as he goes over each deposit slip and
15 check, to run through the ledger sheets in the file, draw out the one required, introduce it into and bring it to position in the bookkeeping machine, make the entry, and return the sheet to alphabetical place in the file.

20 The invention is of time saving nature. The whole file of ledger sheets is arranged in mechanical organization with the typing instrumentalities of the bookkeeping machine, and the organization is such that each sheet in turn,
25 exposed to the view of the operator, is automatically advanced in either of two courses. Either it is shunted around the typing instrumentalities, and deposited in alphabetical sequence in a second container, or it is advanced to the typing
30 instrumentalities. Means are provided for selectively controlling the advance of the sheets in these alternate courses, and, as each particular sheet is introduced to the typing instrumentalities, the advance of the succeeding sheets is
35 arrested, until the entries have been made on the particular sheet and the sheet, discharged from the typing instrumentalities, is brought to place in the second container.

40 Means are provided for bringing the sheet to be posted accurately and automatically to position in the typewriting instrument, and such means are responsive to an indicium provided on the sheet itself.

45 More particularly, when, in the course of the automatic advance of the ledger sheets, a particular sheet is brought into proper position in the typewriting instrument and the advance of the succeeding sheets is arrested, the operator enters in usual manner the items to be posted.
50 While the sheet continues in the instrument, and at a particular point in the range of horizontal movement of the typewriter carriage the operator presses a particular button, with the consequence and effect that an indicium is placed upon
55 the sheet in alignment (or in other precise orien-

tation) with that entry. The indicium may be a black spot, or a short black line, or perhaps a perforation, but in any case there will be a localized change in the physical condition of the sheet. When, then, in posting subsequent items
5 the same sheet is again introduced to and caused to advance in the typewriting instrument, the last applied indicium serves as a tell-tale by which the sheet is arrested in precisely the position for making the next entry. The invention
10 consists in the provision of means to this end in a bookkeeping machine, or other typewriting apparatus.

Co-operating with a spot on the sheet may be a photo-electric eye. Co-operating with a perforation in the sheet may be a photo-electric
15 eye, or perhaps pneumatic instrumentalities. Such alternative control devices are well known. But in any case the localized change in the physical condition of the sheet serves automatically
20 to control means for positioning the sheet on its next ensuing introduction into the machine.

In exemplary way the accompanying drawing illustrates the invention embodied in a bookkeeping machine. Fig. I is a diagrammatic view of
25 the machine, partly in side elevation and partly in vertical section; and Fig. II is a view in plan of a typical ledger sheet.

Referring to Fig. I, the reference numeral 1 is applied to a rotary platen mounted in usual
30 way in the transverse carriage (not shown) of the machine, and 2 is applied to the usual housing that includes the typing instrumentalities and adding mechanism, which are operated by means of a key-board accessible in the top 3 of
35 the housing, for typing data upon a ledger sheet positioned on the platen.

In accordance with the invention, I provide a container 4 for a file of ledger sheets 5. Each ledger sheet carries in usual way, in its upper
40 left-hand corner, the name (6, Fig. II) of a customer, and the several ledger sheets of the file are arranged with the names carried thereby in alphabetical sequence. The container is inclined, and a weight 7, resting on wheels on the floor of the container, tends to advance the
45 sheets from right to left and presses the foremost sheet against the front wall 4a of the container. The sheets stand with their upper portions extending above the top of the front wall 4a, so that
50 the name borne by the foremost sheet is readily accessible to the view of the operator. The front wall 4a includes a transversely extending window immediately above the floor of the container, and in this window a roller 8 is mounted, with
55

the periphery of the roller in frictional contact with the foremost sheet 5a in the file. Normally the roller 8 is continuously rotated in clockwise direction, by an electric motor 9, and under the effect of the rotating roller the foremost sheet 5a is fed downward—the floor of the container 4 being adapted to support from below all but the foremost sheet of the file.

Below the feeding roller 8, a guiding roller 10 is mounted in the end of armature 11 of an electromagnet 12, which magnet is connected in series in the normally energized circuit a of motor 9. The energized magnet normally maintains the armature in its illustrated position, against the tension of a spring 13, and in such position of the armature the roller 10 is adapted to deflect the descending sheet (5a) into an inclined chute 14, leading to a second container or receptacle 17. Upon being released upon the chute, the sheet slides downward into the receptacle 17 and is deposited (in sequence) upon the sheets already discharged into the receptacle.

Alternately, by pressing a push button 15, the normally energized circuit a is interrupted, the electromagnet is de-energized, the spring 13 retracts the armature 11 in right to left direction, and the particular sheet descending from container 4 is fed vertically downward and enters between guiding straps 16 that are arranged at each of the opposite ends of the platen 1. It will be perceived that one strap 16 of each pair extends downward in close tangential relation with the face of the platen, and thence curves beneath the platen toward an inclined chute 18, also leading to the receptacle 17. The sheet descending vertically from container 4 is engaged at its opposite edges between the straps 16 and the surface of the platen, in such manner that rotation of the platen in the direction of the arrow is effective to feed the sheet under the platen and upon the chute 18, whence it is discharged into the receptacle, upon the pile of sheets already there. Thus, it will be perceived that the sheets removed in alphabetical sequence from the container 4 may be caused to advance in either of two courses—either to the chute 14 or to the platen 1—and after advancing through either course the successive sheets are deposited in the receptacle 17 in proper sequence.

The energizing circuit a of the motor 9 includes a mercury switch 19 normally standing in circuit-closing position, as illustrated. The switch 19 is delicately mounted to swing about a pivot 20, and carries a finger 21 that extends athwart the vertical way through which sheets 5 move to the platen 1. The operator, desiring to make an entry on the ledger sheet of John Doe, say, permits the sheets 5 of individuals whose names stand before John Doe in alphabetical order to be successively ejected from the container 4 and carried, by way of chute 14, to the receptacle 17. When, by scanning the names appearing on the sheets above the wall 4a of container 4, the operator sees the name of John Doe, he presses the button 15. Thereupon, the circuit a is interrupted, the magnet 12 is de-energized, and the guiding roller 10 shifted, permitting John Doe's sheet to move vertically downward. The mass of the rotating roller 8 and of the rotor of motor 9 is of such effective value that, when the circuit a is interrupted, the roller continues to turn under inertia until John Doe's sheet is ejected from the container. As the roller 8 comes to rest, the feeding of sheets from container 4 ceases. As John Doe's sheet 75 descends to the platen 1, it engages the finger 21

of the delicately poised mercury switch 19, and swings the switch into circuit-interrupting position, and, by engagement of the tip of finger 21 with the face of the sheet, the switch is held in such position, so long as the sheet remains upon the platen. Thus, the circuit a, opened by pressing button 15, is maintained open and no sheet is fed from the container, so long as John Doe's sheet remains on the platen 1.

Normally, a motor 22, energized by an electric circuit b, rotates the platen 1 continuously, and by such means John Doe's sheet is advanced downward, until an indicium provided on the sheet, as already mentioned, causes the operation of means for arresting the sheet in precise position to receive the intended entry. In this case the indicia provided on the ledger sheets comprise black spots or bars B, arranged on the right-hand margin of each sheet, as shown in Fig. II, and the means for arresting the advance of a particular sheet on the platen consist in a photo-electric eye, which, by scanning the right-hand margin of the advancing sheet, is operated when a bar B comes opposite it. Such operation of the photo-electric eye opens the energizing circuit of motor 22; the platen 1 (conveniently operating against a braking drag) immediately stops, and the sheet is arrested in proper position on the platen to receive the entry. The operator then makes the entry, and, at the end of the entry applies an indicium B that will be effective when in the course of operation the next succeeding entry is to be made. A key 23 may readily and in known way be adapted to operate a type for applying the black bar B at the end of, and in this case below, the entry "May 2—10.00—290.00" last posted on John Doe's sheet. When the operator has thus posted the entry and applied the indicium, he presses a button 24, and in consequence the motor 22 is again set in motion, the platen rotates, and John Doe's sheet is by way of chute 18 discharged into the receptacle 17. As the sheet leaves the platen, the switch 19 swings back into circuit-closing position, the motor 9 and electromagnet 12 are energized, and the successive advance of sheets from the container 4 to the receptacle 17 again proceeds by way of chute 14.

Specifically, the means for automatically interrupting rotation of the platen 1 in the manner mentioned above include a switch-arm 25 mounted to swing on a pivot 26. The armature 27 of a normally de-energized electromagnet 28 normally engages the upper end of the switch-arm, as shown, and secures the switch-arm, against tension of a spring 29, in circuit-closing position. The photo-electric eye—consisting in known way of a light source, a photo-electric cell, amplifying tubes, etc.—is arranged within a windowed housing 30, mounted in such position that the indicia B of sheets advancing on the platen must pass the window. When a sheet 5 is advanced (bottom end first) over the platen, the indicium last applied to the sheet is the first to reach a position before the window. Such indicium (a black bar B) effects a diminution of or a reflection of the light entering the window. This change in illumination of the photo-electric cell effects in known way a change in the intensity of the minute current of the photo-electric cell circuit in housing 30, and such change in this minute current, amplified in usual way, causes a current of substantial value to flow through a circuit c. Thus, the magnet 28 is energized, its armature 27 is drawn upward, and the switch-arm (released to the force of spring 29) swings clockwise until 75

its lower end abuts upon a stop 31. Thus, the motor circuit *b* is automatically interrupted when the last-applied indicium on the advancing ledger sheet comes to position before the photo-electric eye, and thus the rotating platen is arrested and the ledger sheet positioned to receive the desired entry.

When the entry has been made, and a new indicium has been applied to the sheet in the manner already mentioned, the push-button 24 is pressed, with the consequence that a normally open circuit *d* is closed, an electromagnet 32 is energized, and the switch-arm 25 is by the magnet restored to its illustrated position beneath the latch 27, thereby closing motor circuit *b* and again setting the platen *i* in rotation.

By virtue of the foregoing description, my invention will be readily understood by those skilled in the art, and it will be understood that many refinements and elaborations in apparatus will occur to the engineer within the terms of the appended claims. And in modification of the exemplary machine described above, the typewriting instrumentalities may in known way be moved relatively to the entry-receiving sheet, and an indicium borne by the sheet caused to control means for arresting such instrumentalities in proper position with respect to the sheet.

I claim as my invention:

1. In typewriting machinery, the combination, with a typewriter platen, of a container for a plurality of sheets, means for removing sheets in sequence from said container, a receptacle for receiving such sheets in sequence, and means responsive to manual control for selectively advancing the sheets in alternate courses from said container to said receptacle, one of said courses leading over said typewriter platen.

2. In typewriting machinery, the combination, with a typewriter platen, of a container for a plurality of sheets, means for removing sheets in sequence from said container, a receptacle for receiving such sheets in sequence, means responsive to manual control for selectively advancing the sheets in alternate courses from said container to said receptacle, one of said courses leading to said typewriter platen, means for causing sheets automatically to advance over said platen, and means for arresting a sheet in the course of such advance.

3. In typewriting machinery, the combination, with a typewriter platen, of a container for a plurality of sheets, means for removing sheets in sequence from said container, a receptacle for receiving such sheets in sequence, means responsive to manual control for selectively advancing the sheets in alternate courses from said container to said receptacle, one of said courses leading to said typewriter platen, means for causing sheets automatically to advance over said platen, means for arresting a sheet in the course of such advance, and means operating in coordination with said last means for intermitting the removal of sheets from said container while a sheet is so arrested.

4. In typewriting machinery, the combination, with a typewriter platen, of a container for a plurality of sheets, means for removing sheets in

sequence from said container, a receptacle for receiving such sheets in sequence, means responsive to manual control for selectively advancing the sheets in alternate courses from said container to said receptacle, one of said courses leading over said typewriter platen, and means including an indicium borne by the sheet for arresting the sheet in the course of such advance over the platen.

5. In typewriting machinery, the combination, with a typewriter platen, of a container for a plurality of sheets, means for removing sheets in sequence from said container, a receptacle for receiving such sheets in sequence, means for selectively advancing the sheets in alternate courses from said container to said receptacle, one of said courses leading over said typewriter platen, and means for imposing a machine-controlling indicium upon the sheet advanced to said platen.

6. In typewriting machinery, the combination, with a typewriter platen, of a container for a plurality of sheets, means for removing sheets in sequence from said container, a receptacle for receiving such sheets in sequence, means for selectively advancing the sheets in alternate courses from said container to said receptacle, one of said courses leading over said typewriter platen, means for imposing an indicium upon the sheet advanced to said platen, and means responsive to the indicium imposed upon the sheet in the course of a previous advance over said platen for arresting the sheet in said course of advance over the platen.

7. The structure of the next preceding claim, together with means operating in co-ordination with said last means for intermitting the removal of sheets from said container while a sheet is so arrested on said platen.

8. In apparatus of the class described, the combination of a container for a plurality of sheets, a receptacle, means for removing sheets in sequence from said container, two lines of advance to said receptacle, manually controlled means, whereby the advancing sheets may be directed along one line or the other, a typewriter in one of said lines of advance, means included in the organization of the typewriter for imposing an indicium on the sheet advancing to it, and means for arresting the sheet in operative position in the typewriter in accordance with the indicium imposed on the sheet in a previous advance.

9. In apparatus of the class described, the combination, with a typewriter platen, of a container for a plurality of sheets, a receptacle, means for feeding sheets in sequence from said container to said receptacle, means for advancing a sheet into typing position on the face of said platen, means responsive to manual control for selecting from said sequence a particular sheet to be advanced into such typing position, and means responsive to an indicium borne by the sheet for arresting operation of such sheet-advancing means, with said particular sheet accurately positioned on the platen.

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