Feb. 16, 1954 W. P. LOUDON 2,669,177

PRINTING MECHANISM

Original Filed Sept. 16, 1949 2 Sheets-Sheet 1

FIG. 1

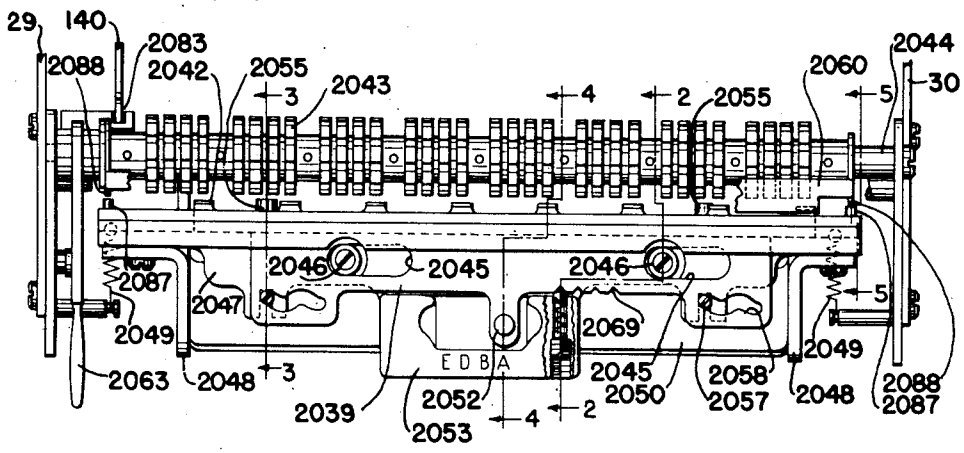



FIG. 2

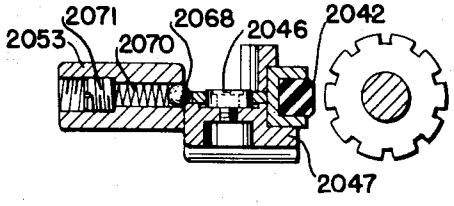
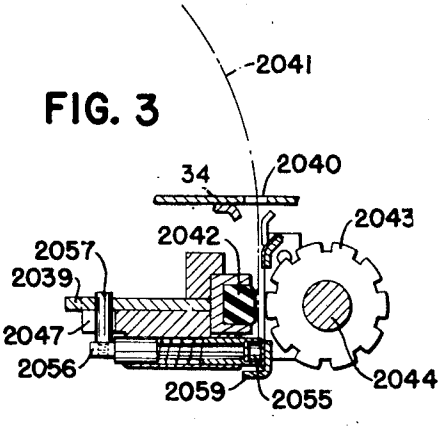



FIG. 3




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Feb. 16, 1954 W. P. LOUDON 2,669,177

PRINTING MECHANISM

Original Filed Sept. 16, 1949 2 Sheets-Sheet 2

FIG. 4

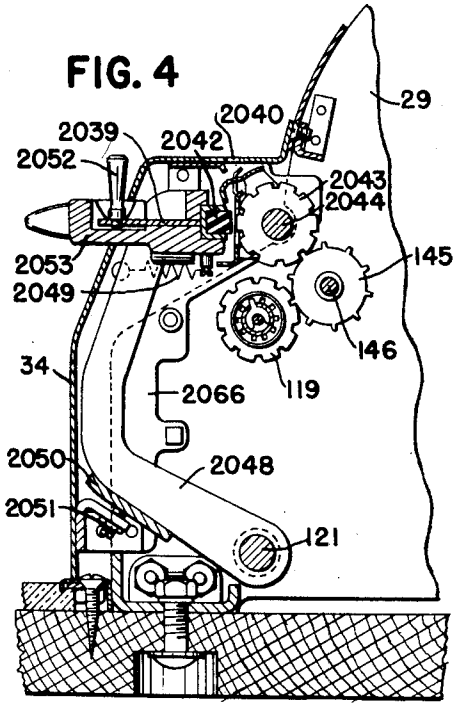



FIG. 5

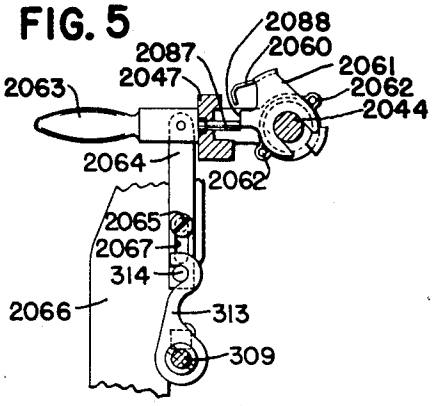
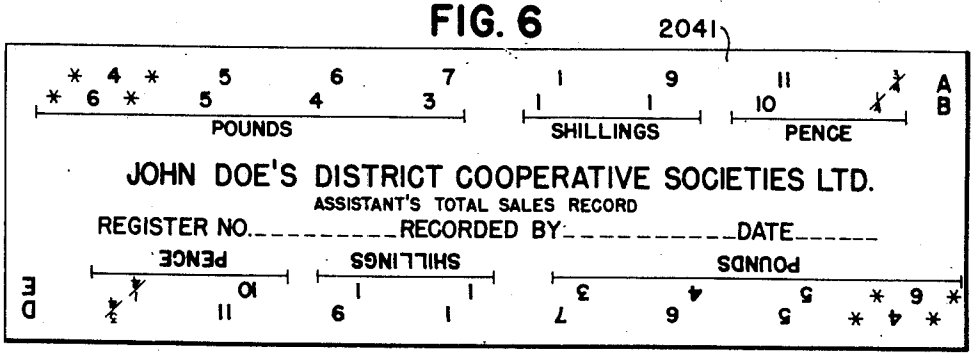



FIG. 6




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# UNITED STATES PATENT OFFICE

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## PRINTING MECHANISM

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Original application September 16, 1949, Serial No. 116,004. Divided and this application March 22, 1951, Serial No. 216,919

3 Claims. (Cl. 101—90)

1

This invention relates to total printing means of the class in which the total is printed on insertable record material, and particularly to a means for printing from a selected one of a plurality of groups of type carriers.

This application is a division of application Serial No. 116,004, filed September 16, 1949, now U. S. Patent No. 2,628,774.

The invention is shown applied to a machine of the type disclosed in United States Patent No. 2,209,763, issued to Ernst Breitling on July 30, 1940, and in co-pending United States applications of Frank R. Werner, Serial No. 46,165, filed August 25, 1948; Serial No. 58,114, filed November 3, 1948; and Serial No. 102,658, filed July 1, 1949 (now Patent No. 2,587,019).

The object of the invention is to provide a novel total printing mechanism and means to select lines on which totals are printed on insertable record material.

A specific object of the invention is to provide means for printing from a plurality of interspersed sets of printing elements and means to shift the printing platens into printing relationship with a selected set of printing elements, together with means to select a line on the record material on which the printing records are made.

With these and incidental objects in view, the invention includes certain novel features of construction and combinations of parts, a preferred form or embodiment of which is hereinafter described with reference to the drawings which accompany and form a part of this specification.

Fig. 1 is a top plan view of the printing mechanism.

Fig. 2 is a sectional view taken on lines 2—2 of Fig. 1, looking in the direction of the arrows.

Fig. 3 is a sectional view taken on lines 3—3 of Fig. 1, looking in the direction of the arrows, showing a part of the printing mechanism and the opening in the cabinet through which the record material is positioned for taking impressions thereon.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1, looking in the direction of the arrows, showing a part of the printing mechanism and the connection between a totalizer element and a type wheel.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1, looking in the direction of the arrows, showing the flash operating mechanism for permitting the insertion of record material into printing position for total printing.

Fig. 6 is a facsimile illustrating the insertable record strip on which the totals are printed from the type wheels set by the totalizer elements.

2

*General description*

In machines illustrated in the above-mentioned Breitling patent, data is entered into a totalizer in the well-known manner. In the machine illustrated in the parent case, four interspersed totalizers are provided to accumulate separate totals for individual clerks. Each set of totalizer elements has geared thereto a set of type wheels, which type wheels are also arranged in interspersed relationship.

The present invention relates to means for selecting the desired set of totalizers for total printing operations. To this end a printing hammer is provided with a plurality of platens, each platen wide enough to span one type wheel, and the number of platens are equal to the number of type wheels in each set of type wheels.

As illustrated herein the sets of interspersed type wheels are fixed in lateral relationship and the printing hammer is shiftable relatively to the type wheels to selectively aline the platens of the printing hammer with the desired set of type wheels.

In the system for which the machine is provided, all four totals are printed on a single insertable slip. In order that the respective totals may be printed on separate lines, the machine is provided with an adjustable means to determine the extent to which the insertable slip can be inserted into the receptacle therefor, for making the printed record thereon. The adjustable means is automatically set in accordance with the adjustment of the printing hammer for selecting a set of printing wheels for receiving an impression.

To avoid the necessity for too great an adjustment of the adjustable means, the insertable slip is arranged to be inserted into the machine either top side up, or top side down, so that the two totals can be printed along each edge thereof.

*Detailed description*

As is well known, machines to which the present invention is shown applied, are provided with totalizer elements 119 (Fig. 4). The parent case illustrates four sets of interspersed totalizer elements. Amounts are added to the totalizer elements by well known differential mechanisms, such as illustrated in the Breitling patent, above mentioned. Each totalizer element 119, is connected to a printing wheel 2043, by a gear 145, mounted on a shaft 146. The type wheels 2043 are rotatably mounted on a fixed shaft 2044, carried by frames 29 and 30 (Fig. 1). The type wheels 2043 are held in spaced relationship on

the shaft 2044 by spacing collars as illustrated in Fig. 1.

The entire machine is enclosed in a cabinet 34, a fragmentary part of which is illustrated in Figs. 3 and 4.

*Total printing mechanism*

The mechanism for printing the totals on an insertable slip 2041, shown in Fig. 6, is located in the front of the machine adjacent the totalizer. The totalizer wheels 119 have coupled thereto a series of type wheels from which the total impressions are made manually without an operation of the machine. To obtain such a total printing, a slot 2040 is provided in the cabinet 34, as shown in Figs. 3 and 4, through which the slip is inserted. A total is printed from each of the four totalizers, designated A, B, D and E, and the insertable slip 2041 (Fig. 6) is inserted into the slot 2040 for each total-printing operation. Means is provided to select the proper line on which the total is to be printed, and, as shown in Fig. 6, the total of the A totalizer is printed in the line indicated by the letter A near the right-hand edge of the insertable slip 2041. The total from totalizer B is printed below that of A, and, inasmuch as the totalizer is interspersed, the total printed from the B totalizer is slightly offset. To print from the totalizer D, the slip is withdrawn and reversed, and, when the slip is viewed upside down from the position shown in Fig. 6, the total standing on totalizer D will be at the top of the slip, and the total taken from totalizer E will be slightly offset therefrom and below the total D. The means for selecting the totalizer for printing the totals therefrom will be described presently.

When the insertable slip 2041 is inserted through the slot 2040, the slip is positioned between a printing platen 2042 and the type wheels 2043. The type wheels are carried on the shaft 2044 and are engaged by the before mentioned gears 145, which are coupled to the totalizer elements so that, when an amount is entered into the totalizer, the corresponding amount will be at the printing line of the type wheel 2043. Also, when the totalizer is reset to zero, the totalizer wheels 2043 will also be reset to zero.

A printing platen 2042 is provided for each set of type wheels 2043 of the same denomination, and the platens are selectively moved to come in alinement with the desired totalizer type wheels 2043; that is to say, with the A, B, D or E totalizer type wheels. To selectively shift the platens 2042, they are mounted on a sliding plate 2039, having two slots 2045, each engaging a roller 2046. The rollers 2046 are mounted on a cross bar 2047, which joins two arms 2048, pivotally mounted on a shaft 121. A spring 2049 is connected at each end to studs on the cross bar 2047, and the other ends are secured to the framework of the machine to maintain the hammer arms 2048 and the platens 2042 in the position shown in Fig. 4, wherein a cross yoke 2050, connecting the two arms 2048, engages a set screw 2051. The set screw 2051 provides a positive stop to limit the movement of the arms 2048 under the action of the springs 2049.

In order to select a set of totalizer wheel type elements 2043, the slide 2039 is moved longitudinally as guided by the roller 2046. To facilitate the movement of the slide 2039, a knob 2052 is mounted thereon and projects upwardly in front of the machine cabinet so as to be accessible to the operator. As shown in Fig. 1, an extension 2053, of the cross bar 2047, projecting out of the cabinet of the machine, is provided with four letters—A, B, D and E—representing the four clerks' totalizers. Shifting the slides longitudinally, so as to bring the knob 2052 opposite the letter representing the totalizer to be selected, positions the platens 2042 opposite the corresponding type wheels 2043.

An aliner ball 2068 is held in engagement with a notch 2069 (Figs. 1 and 2) to maintain the slide 2039 in proper alinement. The ball 2068 is spring-urged into engagement with the notch by a spring 2070. The ball 2068 and the spring 2070 are located in an opening formed in the extension 2053, where they are held securely by a screw 2071.

After the proper set of totalizer wheels 2043 have been selected, the operator strikes the projection 2053 with his hand, thus carrying the printer platens against the inserted slip to take an impression from the selected type wheels 2043 through the medium of an inking ribbon (not shown).

Shifting of the slide 2039 longitudinally to select the proper set of type wheels 2043 also positions a stop in the slip receptacle to properly aline the insertable slip 2041 so that the printing will be effected on the line corresponding to the line marked with the letter A, B, D, or E which corresponds to the setting of the knob 2052. Fig. 3 shows the stop mechanism in detail and set for printing on the line A. When the stop is in the position shown, the ends 2055 of a pair of rods 2056 lie in the path of the insertable slip 2041 and position the slip for printing on line A. The rods 2056 are slidably mounted, and suitable openings are provided in the cross bar 2047 of the hammer. Secured to the outer end of each rod 2056 is a cylindrical member 2057, which is threaded at its bottom to be secured to the rod 2056. The upper end of the cylindrical member 2057 projects through a cam slot 2058 in the slide 2039.

When the B set of totalizer type wheels is selected and the slide 2039 is moved longitudinally leftwardly into the B position, the cam slot 2058, acting on the cylindrical member 2057, withdraws the end 2055 from the path of the insertable slip 2041, thus permitting the insertable slip to drop into contact with a shelf 2059. The shelf 2059, being lower than the ends 2055 of the rods 2056, permits the slip to drop far enough to make the impression on the line B of the insertable slip 2041 (Fig. 6).

When the total is printed from the totalizer D, after the slide 2039 has been shifted to bring the knob 2052 opposite the letter D, the cam slot 2058 will again have permitted the ends 2055 to move inwardly to the position shown in Fig. 3. Thereafter, when the insertable slip 2041 is inverted and again dropped into the slot 2040, the line D of the insertable slip 2041 is at the printing line.

Further shifting of the slide 2044 leftwardly (Fig. 1) causes the cam slot 2058 to again withdraw the ends 2055 from the path of the insertable slip 2041, thus permitting the inserted slip 2041 to drop low enough to bring the line D of the insertable slip 2041 to the printing line.

Normally a shutter 2060 (Fig. 5) lies beneath the slot 2040 to prevent the insertion of an insertable slip into the machine to prevent unauthorized persons from taking total printings from the totalizers. Before an insertable slip can be dropped into the slot 2040, the shutter

2060 must be moved out of the path of the slip. To accomplish this result, the shutter 2060 is formed on a yoke 2061 rotatably mounted on the before mentioned shaft 2044. Secured to the yoke 2061, through the medium of two studs 2062, is a lever 2063. The lever 2063 has secured thereto one end of a link 2064, the other end of which is provided with a stud 314. The link 2064 is guided in its up-and-down movement by a stud 2065 carried by a plate 2066, said stud projecting through a slot 2067 of the link 2064.

When a unit control lock key, fully described in the parent case, is moved to the reset position in the manner there described, and a shaft 309 is rocked, and thereby a hook 313 is disengaged from the stud 314, and the lever 2063 is freed to be rocked clockwise. Clockwise movement of the lever 2063 carries with it the shutter 2060, thus removing it from beneath the slot 2040 and permitting the insertion of the slip into the machine for receiving the impression in the manner just described.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form or embodiment herein disclosed, for it is susceptible of embodiment in various other forms.

What is claimed is:

1. In a machine of the class described, the combination of a plurality of interspersed sets of printing elements, a printing hammer comprising a manually operable, rockable frame and a plurality of platens arranged to take an impression from one of said sets of printing elements during each printing operation, means to shift the printing platens in the frame to aline the printing platens with a set of printing elements selected for a printing operation, an insertable record material receptacle to receive insertable record material between the platens and the printing elements, and a plurality of selectable stops in the receptacle selected by the means to shift the platens to arrest the insertable record material in the receptacle to aline selected areas of the record material with the printing elements.

2. In a machine of the class described, the combination of a plurality of interspersed sets of printing elements, a printing hammer comprising a manually operable, rockable frame and a plurality of platens arranged to take an impression from one of said sets of printing elements during each printing operation, means to shift the printing platens in the frame to aline the printing platens with a set of printing elements selected for a printing operation, an insertable record material receptacle to receive insertable record material between the platens and the printing elements, a plurality of selectable stops in the receptacle selected by the means to shift the platens to arrest the insertable record material in the receptacle to aline selected areas of the record material with the printing elements, and connections between one of said stops and said means to shift the printing platens to withdraw the said one of said stops from the path of the insertable record material to obtain a printed record on an area corresponding to the selected set of printing elements.



3. In a machine of the class described, the combination of a plurality of interspersed sets of printing elements; a printing hammer; a plurality of platens on said hammer and arranged to take an impression from one of said sets of printing elements during each printing operation; means to shift the printing hammer to aline the printing platens with a set of printing elements selected for a printing operation; an insertable record material receptacle to receive insertable record material between the platens and the printing elements; a plurality of selectable stops in the receptacle to arrest the insertable record material in the receptacle to aline selected areas of the record material with the printing elements, one of said stops being movable and another one of said stops being in fixed relation with the printing elements, said movable stop alining the record material to receive printed records in one area and said fixed stop alining the record material to receive records in another area; and connections between the means to shift the printing hammer and the movable stop whereby the movable stop is withdrawn from the path of the record material when a certain set of printing elements are selected for a printing operation.

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