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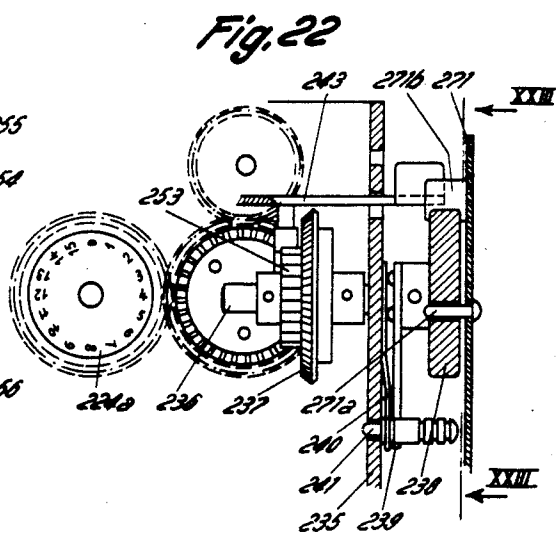
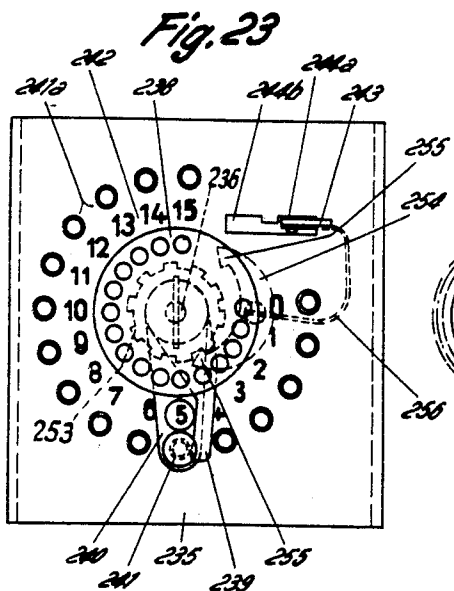
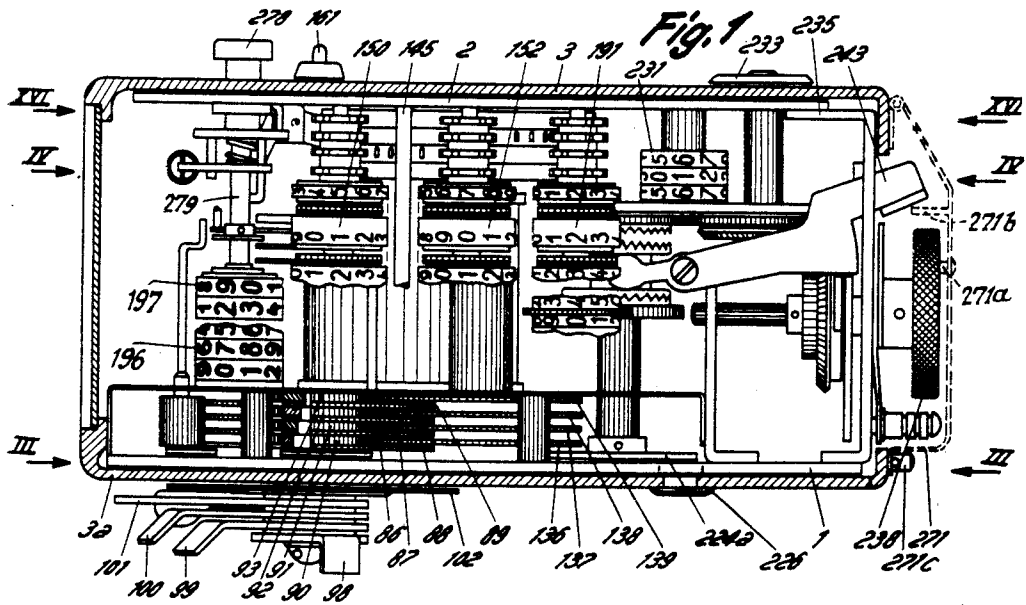
E. KOMUSIN

2,187,456

PRINTING APPARATUS

Filed March 22, 1938

12 Sheets-Sheet 1



INVENTOR  
 ERICH KOMUSIN  
 By *Lyell + Jennings*  
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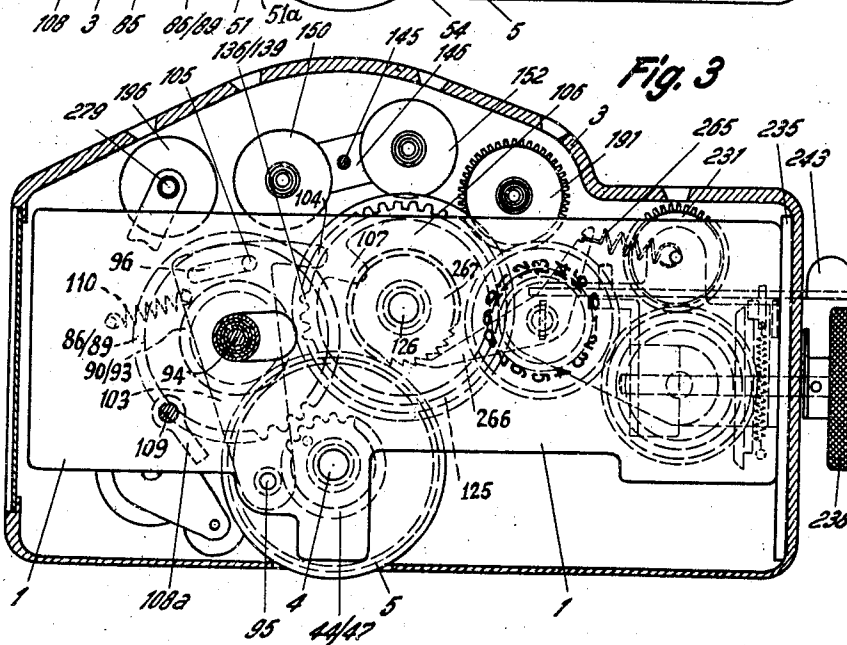
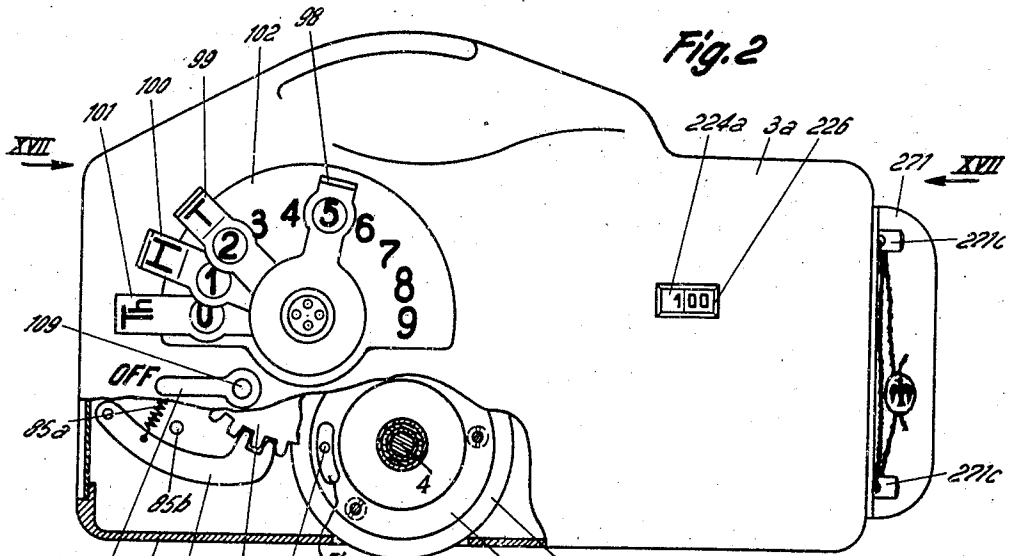
E. KOMUSIN

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PRINTING APPARATUS

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12 Sheets-Sheet 2



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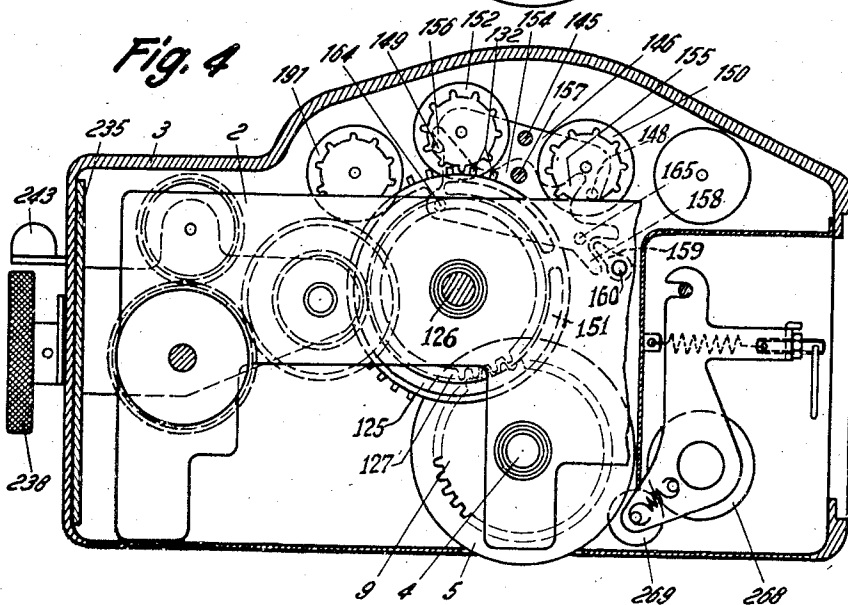
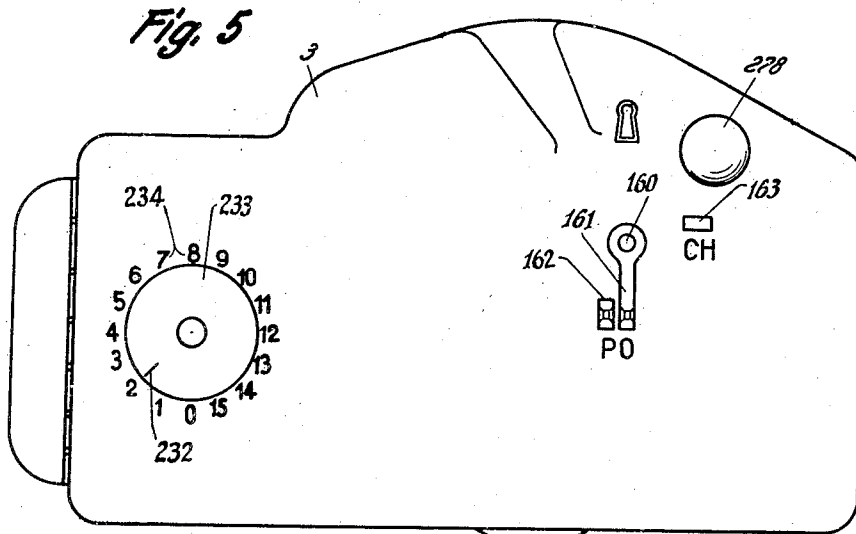
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12 Sheets-Sheet 3



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12 Sheets—Sheet 4

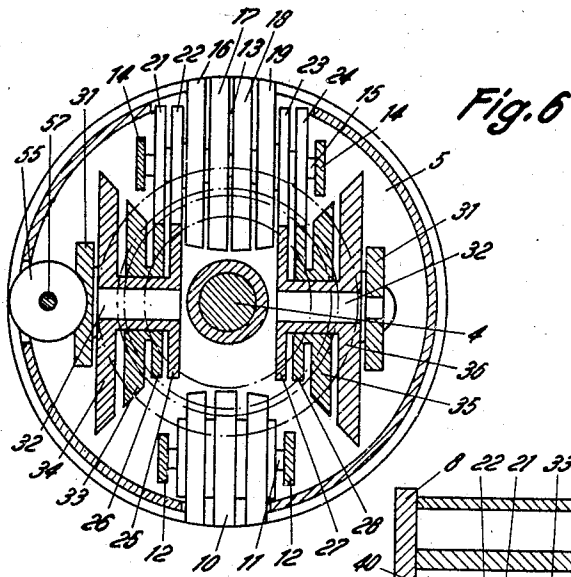


Fig. 7a

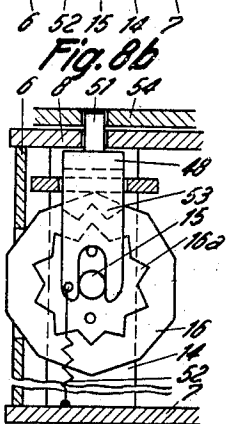
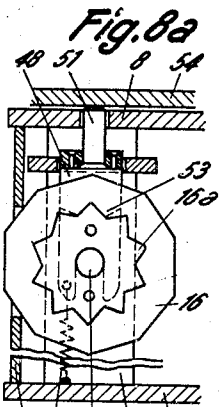
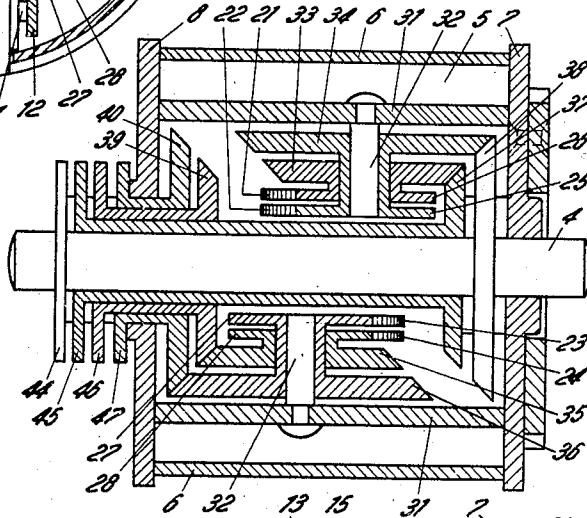
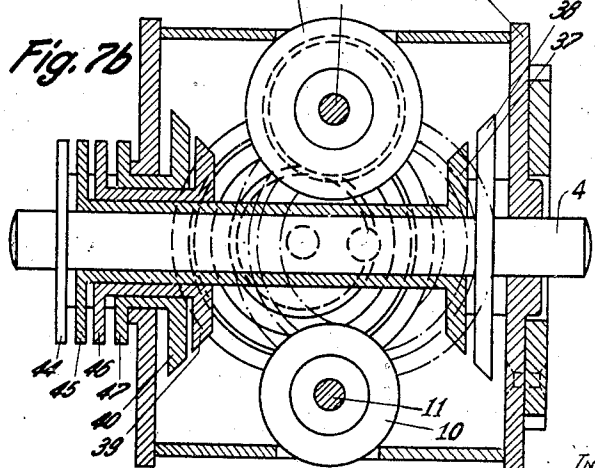


Fig. 7b



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12 Sheets-Sheet 5

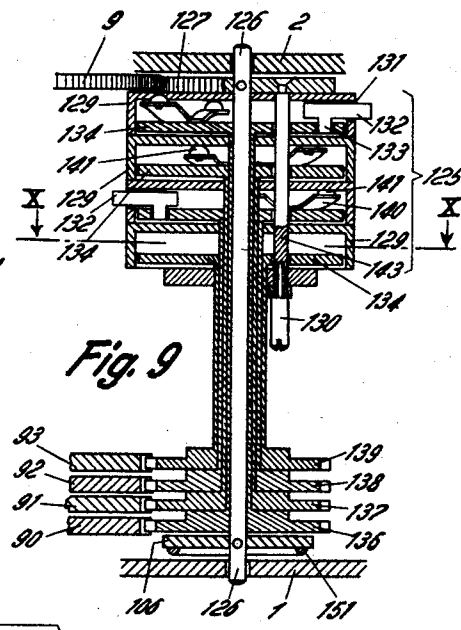
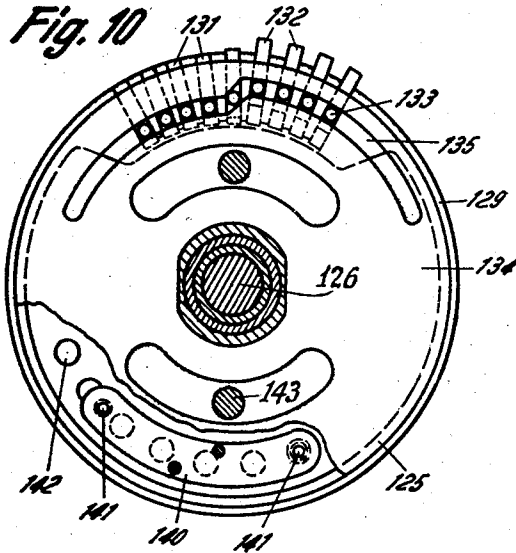


Fig. 11

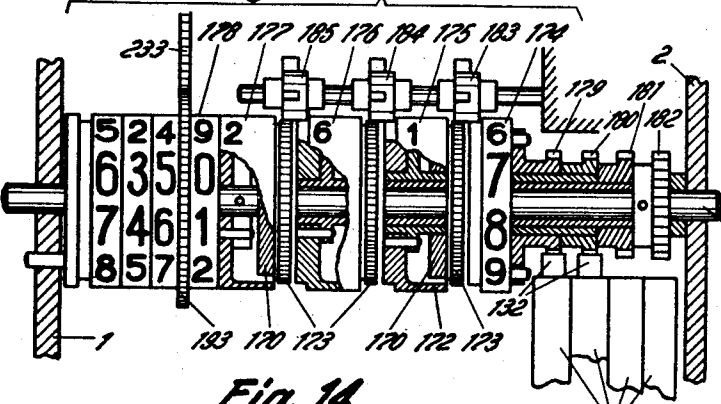


Fig. 13

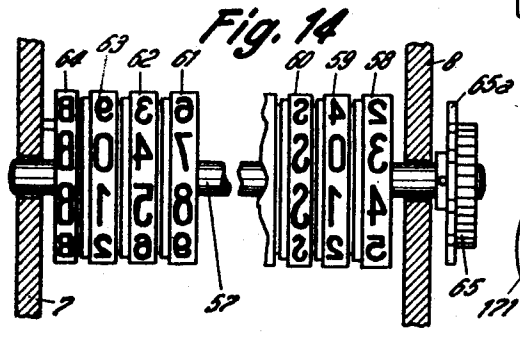


Fig. 14

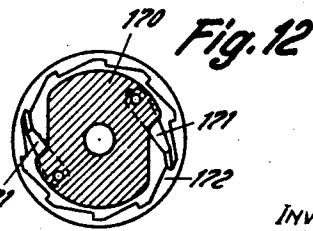


Fig. 12

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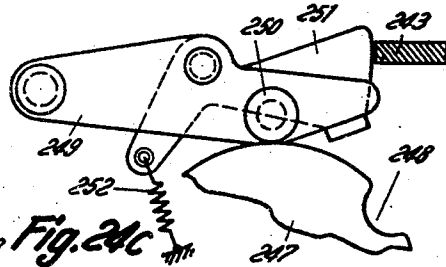
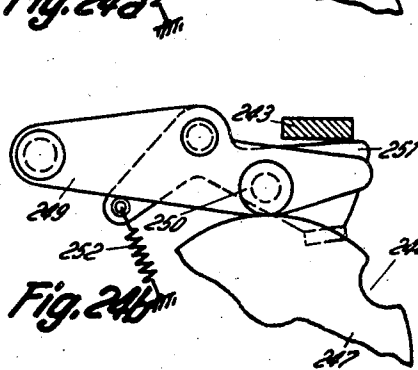
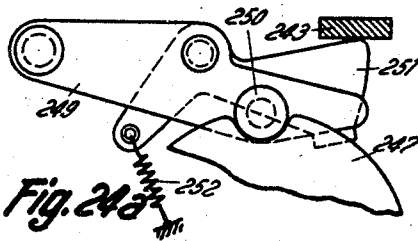
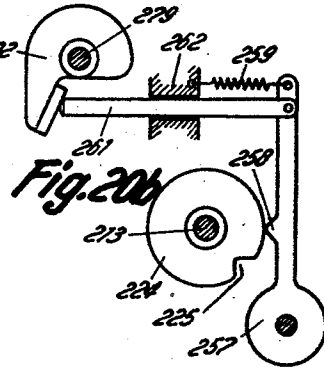
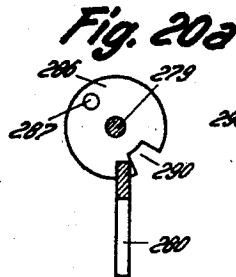
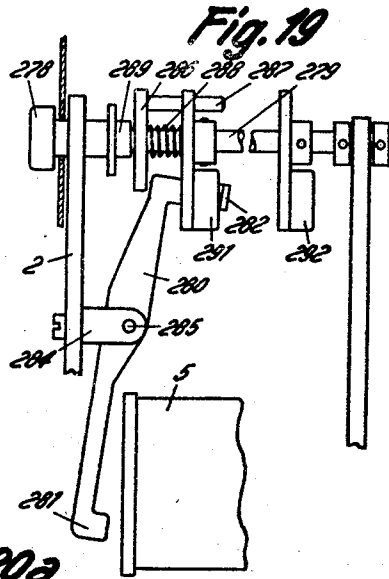
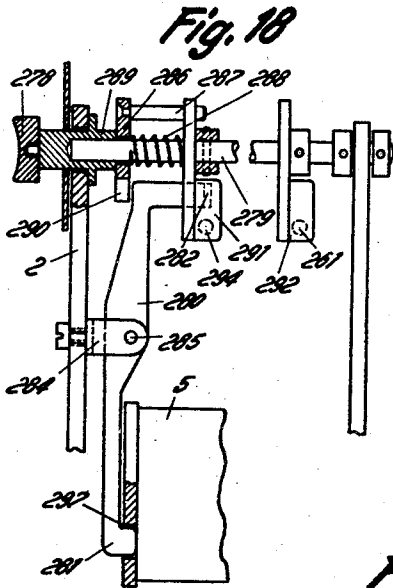
E. KOMUSIN

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PRINTING APPARATUS

Filed March 22, 1938

12 Sheets-Sheet 7



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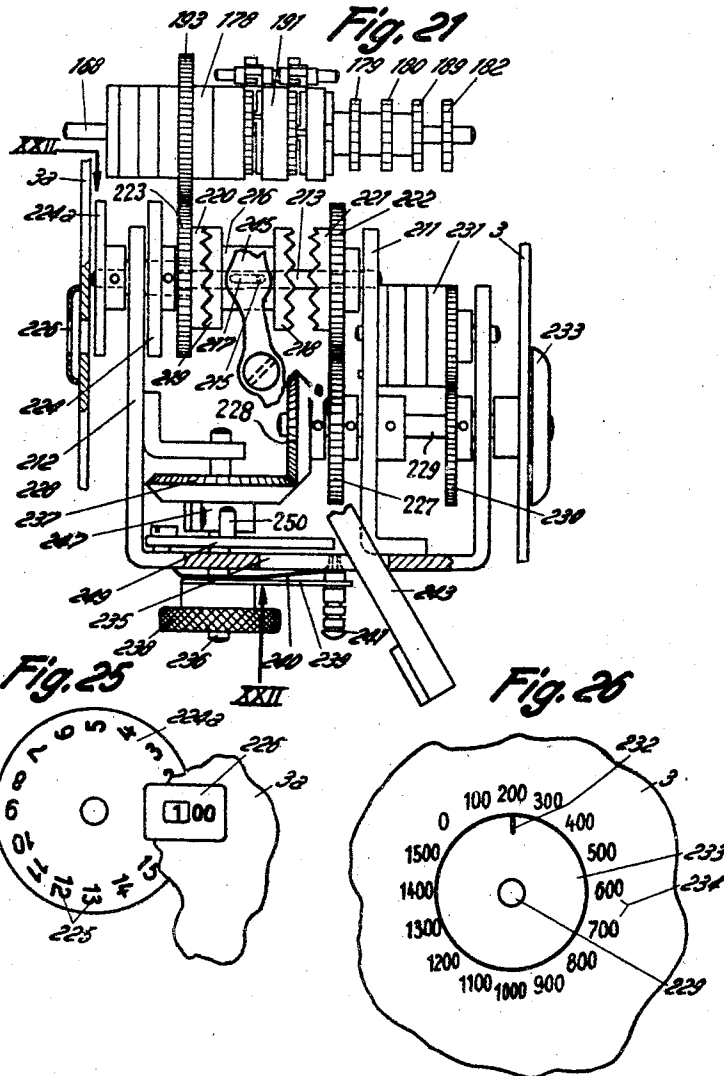
E. KOMUSIN

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PRINTING APPARATUS

Filed March 22, 1938

12 Sheets-Sheet 8



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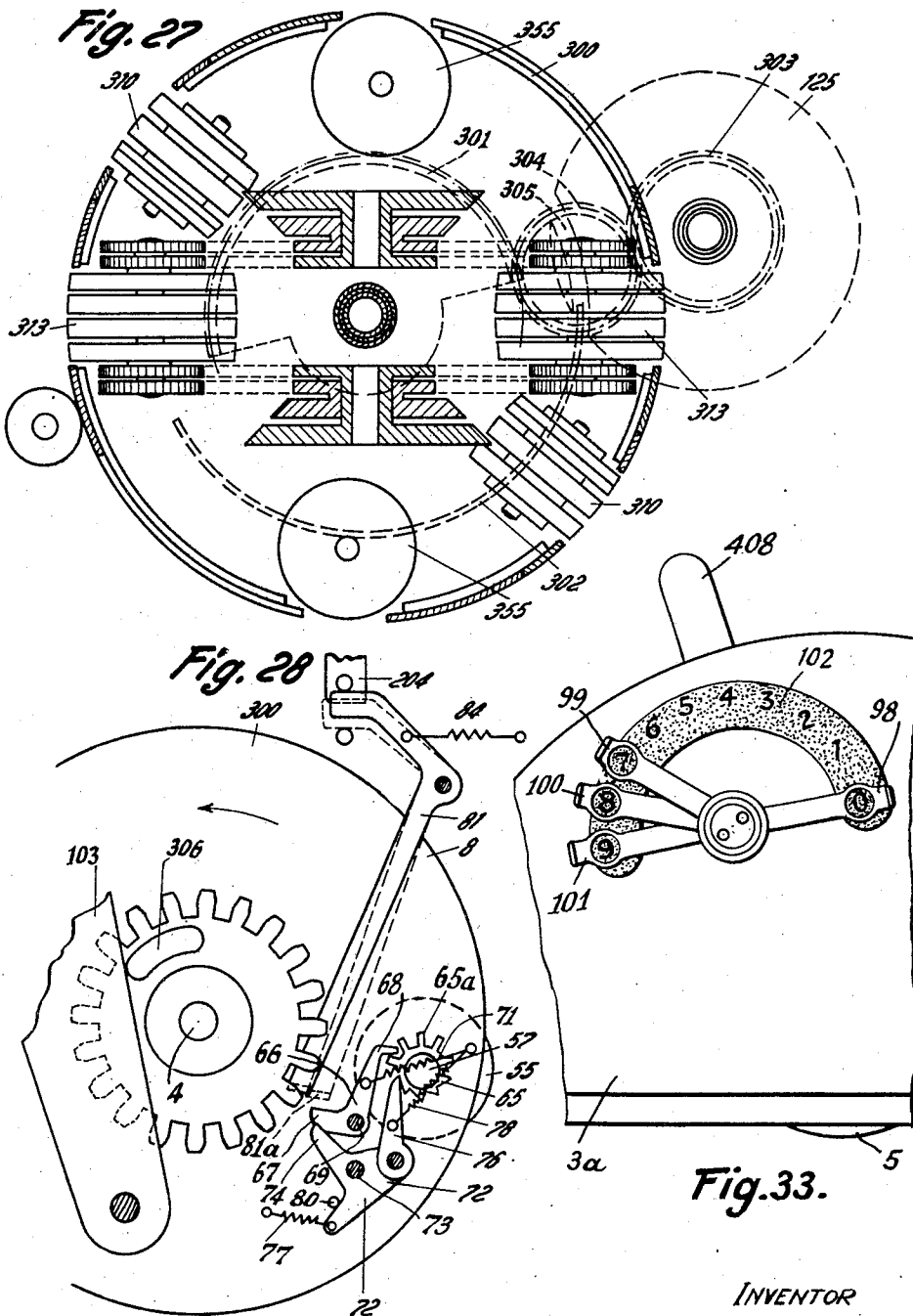
E. KOMUSIN

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PRINTING APPARATUS

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12 Sheets-Sheet 9



INVENTOR  
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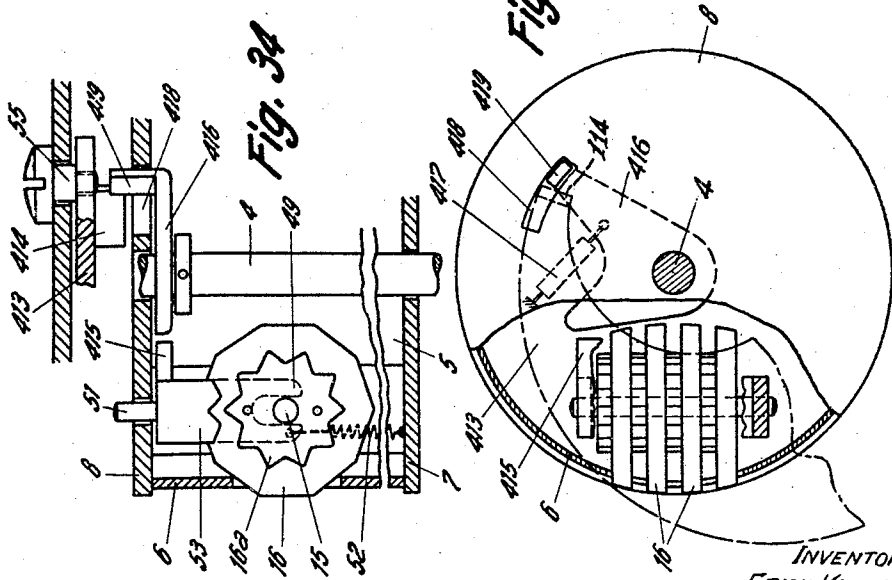
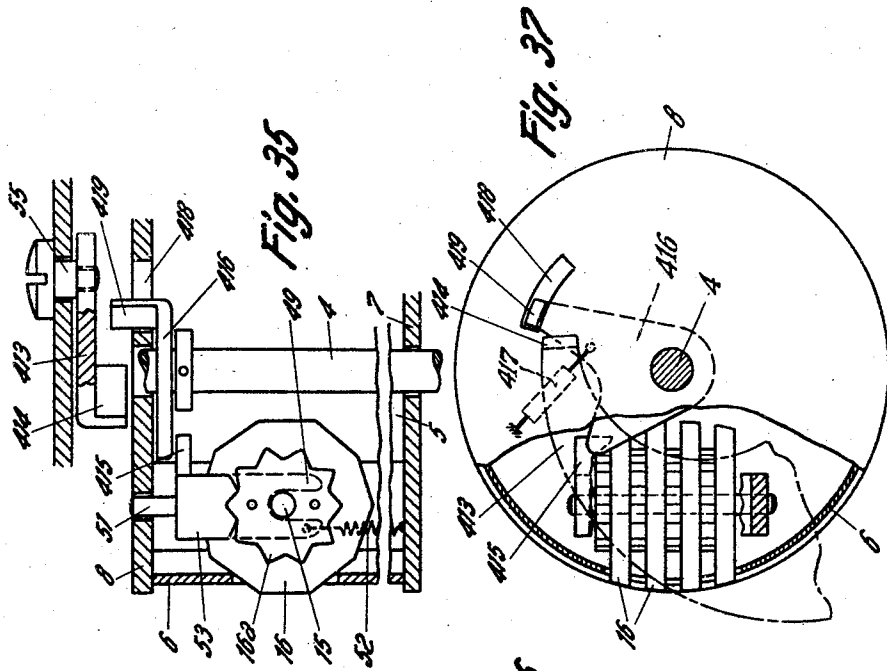
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2,187,456

PRINTING APPARATUS

Filed March 22, 1938

12 Sheets-Sheet 11



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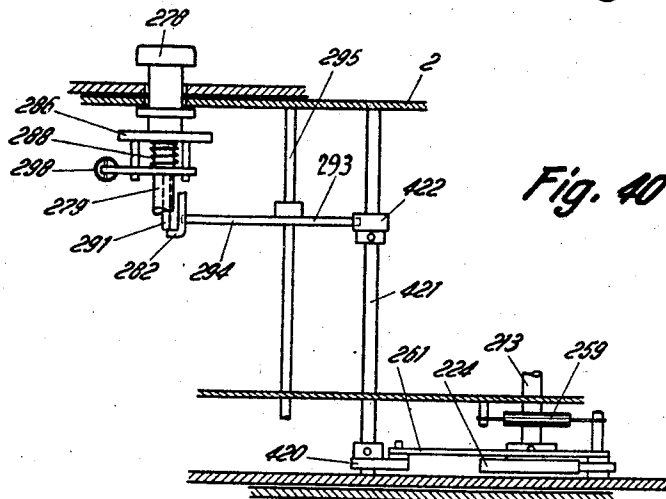
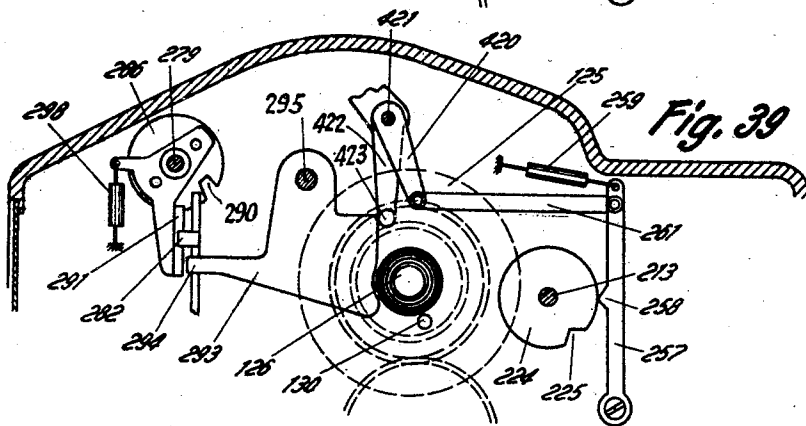
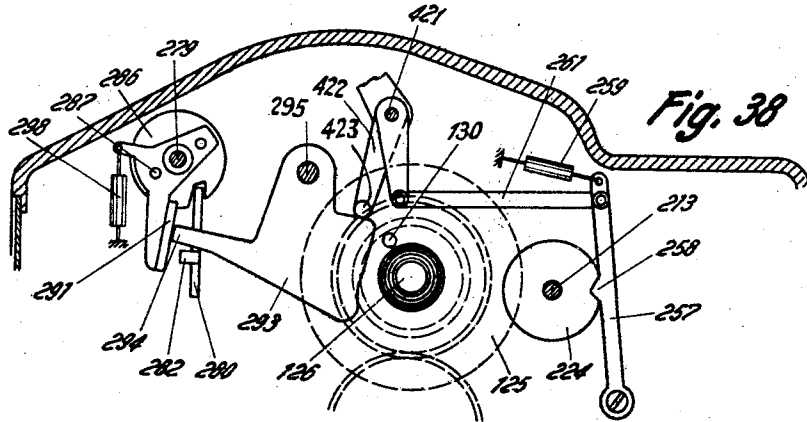
E. KOMUSIN

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PRINTING APPARATUS

Filed March 22, 1938

12 Sheets-Sheet 12



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# UNITED STATES PATENT OFFICE

2,187,456

## PRINTING APPARATUS

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Application March 22, 1938, Serial No. 197,343  
In Germany March 22, 1937

59 Claims. (Cl. 235—101)

This invention relates to apparatus for printing monetary amounts.

Apparatus of this kind is frequently used for franking letters by making impressions on them which take the place of the usual postage stamps. Such apparatus can, of course, only be used by arrangement with the proper authorities e. g. the post office and, in order to safeguard the authorities' interests, the apparatus must be such that when the aggregate value of the impressions made reaches a pre-determined figure, it becomes unusable until re-set, the resetting being effected by the authorities on payment of the appropriate amount. In devices of this kind which have previously been proposed, the setting to the pre-determined figure involves the insertion into the apparatus of a special card, ticket, token or the like or the use of special keys.

According to the present invention the apparatus is set for use by means which can be actuated to set a locking device which is itself connected to a metering mechanism registering the aggregate value of the impressions made. The setting means are such that they can only alter the setting of the locking device when moved from a normal or zero-position. Any other movement of the setting means is ineffective to alter the setting of the locking device. With such an arrangement, the use of special keys or the insertion of special cards, tickets or tokens is made unnecessary and a general simplification is effected.

The apparatus in accordance with the invention is not restricted to use as a franking device. It may be used instead or as well for the printing of cheque amounts particularly the amounts of cheques which in many countries can be drawn on a post office account. Where the apparatus is used for a dual or multiple purpose, it is preferably provided with a number of meters which are brought selectively into use to record the aggregate value of the different kinds of impressions made. It is also, in any case, useful to have an indicator which shows the amount of the last pre-payment, i. e. the additional amount for which the apparatus was last set and an indicator which shows at any time the amount up to which impressions can still be made before a re-setting becomes necessary.

The construction and operation of an apparatus in accordance with the invention and of a number of modifications which can usefully be made will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a sectional plan of the apparatus. Figure 2 is a front elevation.

Figure 3 is a section taken on the line III—III in Figure 1.

Figure 4 is a diagrammatic section taken on the line IV—IV in Figure 1.

Figure 5 is a rear elevation.

Figures 6, 7a and 7b are sections through the drum on which the type carrying members are mounted.

Figures 8a and 8b are fragmentary sections showing the parts provided for holding the type carrying members in a set position and for releasing them for being set.

Figure 9 is a fragmentary section showing the meter actuating mechanism.

Figure 10 is a cross-section on the line X—X in Figure 9.

Figure 11 is an elevation partly in section of a meter driven by the actuating mechanism of Figure 9.

Figure 12 is a section through a counting wheel of the meter of Figure 11.

Figure 13 is an elevation of an alternative form of counting wheel for the meter of Figure 11.

Figure 14 is an elevation of a meter for counting the number of impressions made.

Figure 15 illustrates diagrammatically the actuating and control mechanism for the meter of Figure 14.

Figure 16 is a section taken on the line XVI—XVI in Figure 1.

Figure 17 is a section taken on the line XVII—XVII in Figure 2.

Figures 18, 19, 20a and 20b illustrate diagrammatically the arrangement and operation of the parts used for locking and releasing the apparatus.

Figure 21 is a fragmentary section showing the parts used in setting the apparatus for use.

Figure 22 is a section on the line XXII—XXII in Figure 21.

Figure 23 is an elevation of Figure 22 as seen on the line XXIII—XXIII.

Figures 24a, b, c are fragmentary views to a larger scale showing in different operating positions certain parts shown in Figures 21 and 22.

Figures 25 and 26 are front elevations of two indicators shown in Figure 21.

Figure 27 is a cross-section through a modified form of the drum shown in Figure 6.

Figure 28 is a side elevation of Figure 27.

Figure 29 is a sectional elevation of a modification showing a different arrangement for setting the type carrying members.

Figure 30 is a fragmentary section taken on the line XXX—XXX in Figure 29.

Figure 31 is a fragmentary right hand end elevation of Figure 29.

5 Figure 32 is a section taken on the line XXXII—XXXII in Figure 31.

Figure 33 is a fragmentary outside elevation of the arrangement shown in Figure 29.

10 Figures 34—36 show alternative forms of the device for locking the type carrying members when set and

Figures 37—40 show alternative forms of the mechanism for locking the apparatus.

15 The whole mechanism is mounted in a frame having a pair of side plates 1, 2 and an end plate 235. The frame is enclosed in a casing 3, one side 3a of which is removable. A drum 5 (Figures 2 and 4) which will be referred to as the printing drum, is carried in the frame on a spindle 4 and has removable printing blocks arranged round its periphery. This drum acts as the driving member for the various other parts of the mechanism when the device is rolled on the drum over the sheet or the like on which matter is to be printed.

25 Figures 6 to 8 show the parts arranged within the printing drum. These parts comprise essentially two printing devices 10 and 13 and an integrating mechanism or meter 55.

30 The printing device 10 comprises three discs which are mounted for rotation independently of each other on a spindle 11 carried by a pair of rails 12 fixed to the side plates 7 and 8 of the drum. These discs can be set by hand and in the present example serve for printing dates.

35 The printing device 13 comprises four discs 16—19 which are mounted on a spindle 15 carried by a pair of rails 14, fixed to the end plates 7 and 8 of the printing drum. These four discs are connected through suitable gearing to four gear wheels 44—47 (Figures 7a and 7b) so that they can be set in any angular position independently of each other. For this purpose they are carried by independent hollow shafts and are connected through those hollow shafts each to a different one of four gear wheels 21—24 also mounted on the spindle 15. The disc 16 is connected to the gear wheel 22, the disc 17 to the wheel 21, the disc 18 to the wheel 24 and the disc 19 to the wheel 23. The gear wheels 21 to 24 are connected to the gear wheels 44 to 47 through further gear wheels mounted on a pair of pins 32 fixed to the rails 31 carried by the end plates 7 and 8 of the drum as shown in Figure 7a. 50 The gear wheel 21 meshes with a wheel 26 which is integral with a bevel wheel 33 meshing with a bevel wheel 37 on the end of a hollow shaft carrying the gear wheel 45; the gear wheel 22 similarly meshes with a wheel 25 which is integral with a bevel wheel 34 meshing with a bevel wheel 38 on the shaft 4 which carries the gear wheel 44; the gear wheel 23 meshes with a wheel 27 which is integral with a bevel 36 meshing with a bevel wheel 40 on a hollow shaft carrying the gear wheel 47; the wheel 24 meshes with a wheel 28 which is integral with a bevel wheel 35 meshing with a bevel wheel 39 on a hollow shaft carrying the gear wheel 46. The wheels 44—47 are outside the drum 5 and can be rotated independently of each other, as will be explained later on, so as to set the discs 16—19 in any desired angular position.

70 The discs 16—19 in the present example are used to print figures indicating monetary amounts, for example, the disc 19 prints units,

the disc 18, tens, the disc 17, hundreds, and the disc 16 thousands. The numerals to which the four discs are set should, of course, always be strictly in line and to ensure this, the arrangement shown in Figures 8a and 8b is used, which also ensures that the discs cannot be turned during a printing operation. Each of the discs 16—19 has fixed to it a star wheel 16a, the rotation of which is resisted by a forked member 48 engaging over the spindle 15 and having a notch 53 in it of the same shape as the points of the star. This fork is pulled into engagement with the star wheel by a spring 52. In order to rotate a disc and its star wheel 16a, the fork 48 has to be lifted against the pull of its spring. In the position shown in Figure 8a this cannot be done because the pin 51 on the fork 48, although lying in the hole in the plate 8, abuts against a cover plate 54. The plate 54 is fixed and if the printing drum 5 is rotated, there will be a position in which the pin 51 will come opposite the slot 51a in the plate as shown in Figure 2 so that the fork 48 can be lifted as shown in Figure 8b. The disc 16 and its star wheel 16a can then be turned and their position be accurately and automatically adjusted by the return of the fork and the engagement of the notch 53 over a point of the star wheel.

It is important to note that there is only one position of the drum in which the discs 16—19 can be rotated and that in all other positions, including those in which a printing operation takes place, the discs are locked against rotation.

35 A somewhat similar arrangement can be used for aligning the numerals on the discs of the date printing mechanism 10 although, in this case, it is not necessary that the discs should be movable only in one particular position of the drum.

40 The integrating device or meter 55 is for the purpose of indicating the number of impressions made by the discs of the printing device 13. The details of this mechanism are shown in Figure 14. In the form in which it is shown here, it can serve to print on each page of a book, a book number and a page number, such as B274 S16 and such as would be necessary on each page of the postal cheque books used in various foreign countries. For printing the page numbers, there are two numeral discs 58 and 59 and a letter disc 60 all arranged on a spindle 57 mounted in the side plates 7 and 8 of the printing drum. For printing the book numbers, there are three numeral discs 61—63 and a letter disc 64 also arranged on the spindle 57. The spindle 57 at its outer end, beyond the side plate 8, has fixed to it a ratchet wheel 65 and a star wheel 65a having ten teeth. The spindle 57 is driven at appropriate times through the ratchet wheel 65 and is held locked at all other times by the star wheel 65a.

70 The manner in which the spindle 57 is so driven and held locked is illustrated in Figure 28. In the normal position, that is to say, when the spindle 57 is not being driven, the nose 68 of a pawl 66 pivoted at 69 to a side plate of the printing drum is engaged between the teeth of the star wheel 65a. It is urged into engagement by a spring 71 and by the arm 74 of a lever 72 pivoted at 73 to a side plate of the printing drum and pulled against a stop 80 by a spring 77. The lever 72 has pivoted to it a pawl 76 which is urged into engagement with the teeth of the ratchet wheel 65 by means of a spring 78. In order that the spindle 57 may be stepped when the printing 75

drum is rotated in the direction of the arrow shown in Figure 28, the lever 81 is first of all swung against the action of its spring 84 into the position shown in dotted lines. (The manner in which this is effected will be explained later on.) When the drum is so rotated, the tail 67 of the pawl 66 first of all abuts against the turned over end 81a of the lever 81 so that its nose 68 comes out of engagement with the star wheel 65a. The lever 72 is thus turned against the action of its spring 77 so that the pawl 76 drives the shaft 57 through a small angle. As the rotation of the drum 5 is continued, the pawl 66 comes clear of the end 81a of the lever 81 and the parts resume the relative positions shown in Figure 28.

At each step made by the shaft 57, the disc 58 (Figure 14) is rotated so that the next numeral on it is brought into the printing position. The disc 59 is connected to the disc 58 through an appropriate form of tens transfer mechanism not shown in the drawings so that the disc 59 and the disc 60 fixed to it are stepped through one step at the end of each complete revolution of the disc 58.

The disc 61 is driven from the disc 58 or from the disc 59 through an appropriate mechanism not shown. The disc 61 makes one step, i. e., is turned so as to bring the next numeral on it into the printing position, after as many steps of the disc 58 as there are pages in the book in question. If, for example, there are 50 pages in the book, the disc 61 is stepped through one step on the completion of five complete rotations of the disc 58 or of half a revolution of the disc 59. The disc 59 in the example under consideration would be given two series of numerals 0-5 and could be connected to the disc 61 through a pair of cams disposed at 180° to each other. The discs 61, 62 and 63 are connected by tens transfer mechanisms which are not illustrated. It is, of course clear, that although in the arrangement shown, there are only two sets of discs, a great number could be provided if required for any particular purpose.

Four setting levers 98 to 101 (Figures 1 and 2) are provided for setting the discs 16-19 of the printing device 13. The lever 98 controls the units disc 19, the lever 99 the tens disc 18, the lever 100 the hundreds disc 17 and the lever 101 the thousands disc 16. These levers are mounted on hollow shafts for independent rotation on a pin 94 carried by a lever 103 pivoted to the frame at 95 (Figure 3). Each of these hollow shafts carries one of a set of toothed wheels 86-89 and one of a set of toothed wheels 90-93. The lever 103 is held by a spring 110, in the position shown in Figure 3, except when the setting of the discs 16-19 is to be altered, that is to say, so that the wheels 86-89 and 90-93 are out of engagement respectively with the wheels 44-47 and a set of wheels 136-139 mounted on the spindle 126. The lever 103 can be turned on its pivot to an extent determined by a pin 105 on the casing which projects into the slot 96.

Figure 3 shows the relative position assumed by the various parts after a printing operation has taken place and in which position the setting of the discs 16-19 can be altered. It will be seen that the projection 104 on the lever 103 is opposite the notch 107 in the disc 106 fixed to the spindle 126. In this position, the lever 103 can be swung so as to bring the wheels 90-93 into engagement with the wheels 136-139 and the wheels 86-89 into engagement with the wheels 44-47. This movement of the lever 103

is effected by turning the shaft 109 by means of the lever 108 (Figure 2). When the shaft 109 is so turned, the lever 108a within the casing forces the lever 103 to the right to the extent allowed by the pin 105 in the slot 96 against the action of the spring 110. At the same time, it brings the wheels 86-89 out of engagement with the teeth on the end of a set of levers 85 (Figure 2) which up till now have been held by the spring 85a in such a position that the arms 98-101 could not be displaced. When the lever 103 is swung over, the arm 85 rests against the stop 85b. The discs 16-19 can now be set in any desired angular positions. This is done by setting the levers 98 to 101 on to the appropriate numerals on the plate 102 (Figure 2) which are visible through apertures in the levers. Thus, for example, by setting the lever 98 to the numeral 5, one of the wheels 86 to 89 is turned and turns the disc 19 associated with it through one of the wheels 44 to 47 and the connecting gearing shown in Figures 6 and 7.

It is important to note that the arms 98 to 101 can only be moved when the parts are in the position shown in Figure 3, that is to say, when the projection 104 is opposite the notch 107 in the disc 106. This is the position assumed after printing has taken place. No movement of the arms 98-101 or of the discs 16-19 can be effected while the drum 5 is being rotated for causing a printing operation to be effected by the device 13.

An integrating mechanism or meter 191 is provided for indicating the total of the values printed by the printing device 13. Its disposition relatively to the other parts is illustrated in Figures 1, 3 and 4 and it is itself illustrated in Figure 11. It is driven by a drum 125 on the spindle 126 which is itself driven by the printing drum 5 through the wheels 9 and 127 (Figure 4). The drum 125 can rotate only in one sense, "backward" movement being prevented by a pawl 266 which is urged by a spring 265 into engagement with ratchet teeth 267 on the end of the drum.

As seen in Figure 9, the drum 125 is made up of four compartments or sections 129. One of these sections is fixed to the spindle 126 and the others are connected to it by a pair of pins 143 (Figures 9 and 10) so that the composite drum 125 can be rotated as a whole. Each of the compartments contains a cam disc 134 having slots as shown in Figure 10 for the passage of the pins 143. Each cam disc is connected through a hollow shaft to one of the wheels 136-139 meshing with the wheels 90-93. In this way, rotation of the discs 16-19 of the printing mechanism 13 results in a corresponding rotation of the cam discs 134. Each of the discs 134 has a cam groove 135 in it as shown in Figure 10 and each of the sections 129 of the drum 125 has a series of 9 pins 132 projecting through holes 131 in its periphery. These pins have lugs 133 which are engaged in the cam groove 135. Undue rotation of the cams 134 relatively to the drum sections 129 which house them is prevented by means of springs 140 having ball ends 141 which engage in suitable depressions 142 formed in the sections 129. The sets of pins 132 in the various sections are arranged in different angular positions round the spindle 126, no one set lying above or overlapping another set. The cam groove 135 has two circular portions of different radii connected by a sloping portion. It will be seen that according to the angular position of a cam 134 relatively to the spindle 126, a different number

of pins 132 will lie in the outer portion of the cam groove 135 and project out of the drum 125. Figure 10 shows a cam 134 in a position in which four pins 132 project beyond the wall of the drum. The section 129 of the drum 125 which contains those projecting pins is thus made to form a gear wheel sector having four teeth. The number of pins which project from a section 129 thus depends upon the setting of one of the discs 16—19 which itself depends upon the setting of one of the levers 98 to 101 in Figure 2. Thus, the lever 98 being set to the numeral 5 on the scale 102 causes the disc 19 to be set to the numeral 5 and five pins 132 to project from the uppermost casing 129; the lever 99 being set to the numeral 2 causes the disc 18 to be set to the numeral 2, and two pins 132 to project from the second casing 129 from the top of Figure 9, and so on.

The construction of the meter 191 is shown in Figures 11 and 12. This meter has a spindle 168 which carries a number of counting wheels 174—178 on which the various digits are registered. Each of the wheels 174—177 is connected to one of the pinions 179—182 through which they can be driven. The wheel 174 drives a pinion 183 which steps a pinion 173 through one step at each revolution of the wheel 174. This pinion 173 is fixed to a disc 170 (Figure 12) having a pair of pawls 171 engaging in internal ratchet teeth in the flange 172 of the counting wheel 175. The wheel 175 can therefore be rotated independently by the pinion 173 and by the pinion 180. The counting wheels 176 and 177 are constructed and arranged similarly to the wheel 175, each being stepped through one step at each complete revolution of the preceding wheel by the pinions 184 and 185.

When the drum 125 is rotated, the pins 132 which project from it are brought into driving engagement with the pinions 179—182. The pins 132 projecting from the uppermost casing 129 are first brought into engagement with the pinion 179. The pins from the second casing 129 are then brought into engagement with the pinion 180 and so on. In this way, the counting wheel 174 which is attached to the pinion 179 is stepped through a number of steps corresponding to the number of pins 132 projecting from the uppermost casing 129, i. e., to the numeral to which the disc 19 or the lever 98 is set and when it completes one revolution, it steps the wheel 175 on through one step as described above. When, after actuation of the pinion 179, the pinion 180 is driven by the pins 132 associated with it, the wheel 175 is further rotated through a number of steps corresponding to the setting of the disc 18 or the lever 99 and on completing one revolution steps the wheel 176 on through one step. The wheel 176 is subsequently stepped in a similar manner by the pins associated with the pinion 181 and the wheel 177 by the pins 132 associated with the pinion 182. In this way, the various counting wheels of the meter 191 are stepped at each revolution of the drum 5 through amounts corresponding to the setting of the discs 16—19.

The arrangement described above is appropriate to the case in which the amounts indicated by the discs 16 to 19 are based on a purely decimal currency system, each of those discs and the discs of the meter bearing numerals 0—9. It may, however, be that the lowest unit of value, that is to say, the value indicated by the disc 19, is represented by  $\frac{1}{2}$ , for example,  $\frac{1}{2}$  a cent or a half-

penny. In that case, the wheel 174 instead of bearing numerals 0 to 9 as shown in Figure 11 could, as shown in Figure 13, bear alternately the markings 0,  $\frac{1}{2}$ , 0,  $\frac{1}{2}$ , —. The transfer mechanism 173, 183 would, in that case, have to be actuated not once in every revolution of the wheel 174 but five times. This can be done by providing the wheel 174 with five pins 190 as shown in Figure 13. Of course, any or all of the wheels 174—177 might have numerals other than 0—9 on them according to requirements. For example they might be marked 0, 5, 0, 5, — 0, 50, 0, 50, — and so on.

The integrator or meter 191 has already mentioned, serves to sum up the values printed by the discs 16—19. If these discs are used at times for making different kinds of impressions, it may be useful for the values of the different kinds of impressions to be metered separately. In the arrangement illustrated here, there are two meters 150, 152 (Figures 1, 3 and 4) for this purpose, the meter 152 serving to sum up the value of all impressions made when the device is used as a letter franking machine and the meter 150 to sum up the value of all impressions made when the device is used as a cheque printer.

The two meters 150, 152 are mounted on a block 146 which can turn about a spindle 145 so as to bring one or the other of them into a position in which it can be rotated by the teeth 132 of the drum 125. The meters are swung into and out of engagement by a lever 154 mounted on a spindle 157 and controlled by an arm 159 on a shaft 160. This shaft projects out of the casing and is provided at its outer end with a handle 161 (Figure 5). This handle can be moved between a pair of stops 162, 163, so that the arm 159 acts on one or the other of the horns 158 on the lever 154 between which it lies. The drum 125 has an annular rib 151 (Figure 4) projecting from it in which there are two gaps. The lever 154 has two pins 164, 165 projecting from it and can only be turned about its pivotal axis if these pins are opposite the gaps in the rib 151. In the position shown in Figure 4, the postage meter 152 is in engagement and the relative positions of the pins 164, 165 and the gaps in the rib 151 are such that the other meter can be swung into operation instead. When the lever 154 is swung clockwise (Figure 4), a horn 156 on it turns the block 146 and gradually comes out of the space between the spindle of the meter 152 and a pin 149 on the block while a similar horn 155 gradually enters the space between the spindle of the meter 150 and a pin 148 on the block. One of the pins 164, 165 always lies inside the rib 151 so that there is only one angular position of the drum 125 in which one meter can be disengaged and the other engaged. Also, when both meters are disengaged, the pins 164, 165 60 will be in the gaps in the rib 151 and preclude rotation of the drum 125 and therefore of the printing drum 5.

Two further meters are provided—the meter 196 which registers the number of “postage” impressions made by the discs 16—19 and the meter 197 which registers the number of “cheque” impressions made by those discs. These meters are mounted on a spindle 219 (Figures 1, 3, 15 and 17). The meter 196 has a crank 200 fixed to its spindle and the meter 197 a similar crank 201. These cranks are provided at their free ends with crank pins 200a. For actuating the meters two levers 203, 204, are provided. They are pivotally mounted at 202 on a lever 293 75

mounted to swing on a shaft 295 and are urged down towards a pin 293a on the lever 293 by springs 205 so that their tails 203a, 204a are in the path of movement of the block 146 carrying the meters 150, 152. Figure 15 shows the meter 152 in engagement with the drum 125. When the latter is rotated, the pin 130 on it will cause the lever 293 to swing clockwise on its shaft 295. The front end of the lever 203 is thus caused to strike the pin 200a on the crank 200 and turn the latter and with it the postage meter 196. The front end of the lever 204, however, misses the pin 200a on the crank 201 so that the cheques meter 197 is not operated. If now the meter 150 is put into operation by swinging the block 146 clockwise, the tail 203a of the lever 203 will be pressed down and its forward end will rise into the position shown for the forward end of the lever 204 in Figure 15; also, the forward end of the lever 204 will be pressed down by the spring 205 against the stop 293a and will assume a position in which it is opposite the pin 200a on the crank 201. When now the drum 125 is rotated, it is the meter 197 which is operated instead of the meter 196. If neither of the meters 150, 152 is in proper engagement with the drum 125, both levers 203, 204, will miss the pins 200a on the associated cranks 200, 201 when the lever 293 is swung by the pin 130.

The meters 196, 197 must be prevented from being operated when the levers 98—101 are set to zero so that the discs 16—19 make no effective impression. A simple device is provided for that purpose. Each of the wheels 86—89 (which are connected individually to the levers 98—101) has a notch 86a—89a (Figure 15) in its periphery. When the levers 98—101 are set to zero these notches are all in line and a roller 209 on a lever 208 loaded by a spring 210 lies in them. In this position of the lever 208, the bell crank 206 is held by the cranked arm 208a (Figure 17) out of the position shown in Figure 15 so that the shelf 207 projecting from it lifts the levers 203, 204 so that they cannot strike the pins 200a. If any one of the levers 98—101 is moved out of the zero position, the lever 208 resumes the position shown in Figure 15 and the bell-crank 206 swings clockwise so that one or the other of the levers 203, 204 again becomes effective for operating the meter associated with it.

When the levers 98—101 are set to zero the meter 55 must also be prevented from being actuated. As was explained in connection with Figure 28, the meter 55 is only actuated when the lever 81 is swung from the position shown in full lines in that figure to the position shown in dotted lines against the action of the spring 84. It will be seen from Figure 15 that the lever 81 is only brought by the levers 203 and 204 into the effective position for operating the meter 55 when one of these levers is in its lowest position i. e. in the position in which it can actuate the meter 197.

For preventing over-running of the printing drum 5, a lever 280 (Figures 16—20) is provided which is pivotally mounted on a pin 285 in a bracket 284 and the end 281 of which is pressed against a side wall of the drum 5 by a torsion spring 283. Rotation of the drum is stopped when the end 281 enters the hole 297 in its side wall.

The devices provided for bringing the lever 280 into and out of action are mounted on the spindle 279. These parts include a press-button 278 (Figures 18 and 19) the shank 289 of which bears against a disc 286 mounted to slide along the spindle 279. The latter also has fixed to it a lever 291 connected to the disc 286 by a pin 287

and separated from it by a spring 288. A spring 298 (Figure 16) normally holds the lever 291 pressed against the off-set end 282 of the lever 280 as shown in Figure 18. If the press-button 278 is pressed in, the disc 286 moves to the right into the position shown in Figure 19 and swings the lever 280 so that the end 281 of that lever comes out of the hole 297 and releases the drum 5 for rotation. Also, the end 282 of the lever moves past the lever 291 so that the latter is turned by its spring 298 and now prevents the return of the lever 280 by the spring 283 into the position shown in Figure 18 by the spring 283.

The lever 280 is released so that it can again lock the drum 5, by the lever 293 (Figures 15 and 16). When the lever 293 is swung by the pin 130 as already described, it swings the lever 291 against the action of the spring 298. The spindle 279 is thus turned so as to bring a notch 290 (Figure 20a) in the disc 286 opposite the lever 280. As the lever 291 has been brought clear of the end 282 of the lever 280, the latter can now be swung by its spring 283 and pass through the notch 290 so that its end 281 bears against the side wall of the drum 5 and can engage in the hole 297 and prevent further rotation of the drum (Figure 18). The pin 130 holds the lever 293 in a position in which the notch 290 is opposite the lever 280 until the latter has again locked the drum 5. Repeated actuation of the press-button during rotation of the drum 5 is therefore quite ineffective. The drum 5 will always be locked by the lever 280 when it has completed one revolution even if the press-button is held pressed in throughout the rotation of the drum.

The apparatus is set so that when the total value of the impressions made with it reaches a certain figure, it becomes inoperative. It may for example be set for \$50. In that case, it remains operative until postage and cheque impressions have been made to a total value of \$50 when, if it is to be further used, it must be set again for a further amount. The mechanism and parts provided for this purpose will now be described with particular reference to Figure 21.

There are two indicators. One of these, the indicator 224a (Figures 21 and 25), shows the amount up to which impressions can still be made. It is moved at each impression by the meter 191. It will be referred to as the cash balance indicator. The other indicator, the indicator 233 (Figures 21 and 26) shows the amount of the last pre-payment. It is only moved when a new pre-payment is made. When a pre-payment is made the two indicators are set through a setting knob 238. When the cash balance is reduced to zero, the whole device, as already indicated must be made inoperative until re-set. For this purpose, a disc 224 (Figures 16, 20b and 21) is provided which will be referred to as the locking disc. Those are the essential parts of the mechanism the details of which will now be described.

The cash balance indicator 224a and the locking disc 224 are mounted to rotate with the same spindle 213 journalled in the flanges 211, 212 of the end plate 235. This spindle can be driven either by the meter 191 or by the setting knob 238 according to the setting of a sliding clutch 216. This clutch has two sets of teeth 218, 219 and is connected to the shaft 213 through a pin and slot connection 215, 217. In the position shown in Figure 21, the teeth 219 are in engagement with the teeth 220 on a pinion 223 mounted for rotation about the spindle 213 and meshing with the pinion 193 of the meter 191. The spindle 213 and therefore the cash

balance indicator 224a and the locking disc 224 can therefore be driven by the meter 191. At its right hand end, the spindle 213 has, mounted to rotate on it, a pinion 222 having a set of teeth 221 into engagement with which the teeth 218 of the clutch 216 can be brought by swinging the clutch lever 243. This pinion 222 meshes with a pinion 227 fixed to the spindle 229 of the pre-payment indicator 233 which carries another pinion 230 serving to drive a meter 231 which records the sum of the various pre-payments. The spindle 236 of the setting knob 238 has a bevel wheel 237 fixed to it which meshes with a bevel wheel 228 on the spindle 229. Thus when the clutch 216 is engaged to the right (Figure 21), the spindle 213 and therefore the cash balance indicator 224a and the locking disc 224 are disconnected from the meter 191 but are in driving connection with the knob 238 as are also the pre-payment indicator 233 and the meter 231.

The setting spindle 236 has an arm 239 (Figures 21, 22, 23) fixed to it and has also freely mounted on it a spring arm 240 terminating in a pin 241 which can be inserted in any one of a series of 15 holes 241a (Figure 22) surrounding a ring of numerals 242. The pin 241 serves as an abutment for the arm 239 so that the knob 238 can be turned positively through a pre-determined angle.

The clutch lever 243 in its two engagement positions lies in one or the other of a pair of notches 244a, 244b (Figure 23) in the plate 235. It has to be prevented from being operated except when the printing drum is in a particular position and when the pre-payment indicator is in a particular position, namely the zero position. For this purpose, the actuating drum 125 is provided with an opening 41 in its side wall (Figure 16) into which the nose 246 of the lever 243 (Figure 17) can be engaged when the printing drum 5 is in its normal starting position. In all other positions of the drum, the lever 243 cannot be moved out of the position shown in Figure 21. Also, the setting spindle 236 has a disc 247 (Figure 21) fixed to it in the periphery of which there is a notch 248 (Figures 24a, b, and c). A lever 249 pivoted to the plate 235 carries a pin 250 which lies on the circumference of the disc 247. This lever also has pivoted to it a lever 251 through which the pin 250 is held on the disc 247 by a spring 252. When the setting knob 238 or its spindle 236 or the pre-payment indicator 233 is in the zero position, the roller 250 lies in the notch 248 (Figure 24a). When these parts are out of the zero position, the roller 250 is out of the notch 248 (Figure 24c). The lever 251 then prevents the lever 243 from being swung out of the position shown in Figure 21. If the lever 243 were in the opposite position to that shown in Figure 21 when the roller 250 engages in the notch 248 (Figure 24b) then it can be swung back into the position of Figure 21 against the action of the spring 252 so that the state of affairs depicted in Figure 24c is again reached.

Pre-payment is made to an exact number of units for example pounds, dollars, tens of marks, hundreds of francs and so on. According to the unit, the pinion 223 on the spindle 213 will be arranged to mesh with one or another of the pinions of the meter 191 associated with the disc indicating that unit. In the example illustrated here, it meshes with the pinion 193 which is associated with the disc indicating hundreds of marks. By inserting the pin 241 in one of the holes 241a (Figure 22) and correspondingly ro-

tating the setting knob 238, the device is set for a number of hundred of marks equal to the number associated with that hole. Thus with the pin 241 in the hole 241a bearing the number 15, the device is set for printing up to a total value of 1500 units; with the pin 241 in the hole bearing the number 5, the device is set to 500 units and so on. In this case, the pre-payment indicator can as shown in Figure 26 have an index mark 232 moving over a circular scale 234 calibrated in hundreds from 0-1500. Also, the cash balance indicator can, as shown in Figure 25, have a ring of numbers 225 from 0 to 15, one of which is visible through a window 226 beside which the two terminal noughts of the amount are permanently marked.

To set the device, the drums 5 and 125 must therefore first be brought into their starting positions and the setting knob 238 and the pre-payment indicator into their zero positions. The lever 243 is then swung from the notch 244a into the notch 244b so that its nose 246 enters the opening 241 in the drum 125 and locks the latter. The lever 243 thus disengages the teeth 219, 220 and engages the teeth 218, 221. The pin 241 is then inserted in the appropriate hole 241a and the knob 238 rotated. The meter 231 is thus rotated through the gearing 237, 228, 230 through a corresponding amount. The pre-payment indicator 233 is also correspondingly rotated. The shaft 213 is also rotated through the gearing 237, 228, 227, 222, 221, 218 and the pin and slot connection 215, 217. The locking disc 224 and the cash balance indicator 224a are thus turned through amounts corresponding to the pre-payment. It is to be noted that this rotation of the discs 224 and 224a is effected from the positions they happened to be in which are dependent upon the amount of a previous pre-payment which has not yet been used up. The indicator 224a thus indicates the sum of any residual amount and the new amount for which the device is being set and at any time indicates the total value of the impressions which can still be made.

As the disc 247 is rotated with the knob 238, the position of Figure 24b is now reached. In order to put the printing device into operation, the clutch lever 243 has now to be put back into the position shown in Figure 21. In being so moved, it slides over the lever 251 into the position shown in Figure 24c in which the spring 252 swings the lever 251 so as to lock the clutch lever in its new position. The drum 125 is now unlocked and the shaft 213 is connected through the pinions 223, 193 to the meter 191 so that a further impression can be made and the cash balance indicator 224a be correspondingly altered. On the other hand, the pre-payment disc 233 and the setting knob 238 are disconnected from the other rotating parts of the device.

The pinion 193 in the present example is associated with the hundreds digit of the amount registered on the meter 191 and is stepped through one step whenever impressions are made to the value of 100 units. At each step, it rotates the shaft 213 and the cash balance indicator 224a and the locking disc 224 through one step backwards, that is to say in the opposite sense to that in which they were set by rotation of the knob 238. They are thus eventually brought back to the zero position in which the whole device becomes inoperative as will be explained in detail later on.

It is not necessary to wait until the cash bal-

ance is zero before re-setting the device. For example, the cash balance indicator may be at the 200 unit mark when it is decided to have the device set for a further 500 units. The procedure is as follows:

The knob 238 is turned back to zero taking with it the pre-payment indicator 233. This does not cause the meter 231 to be actuated as the latter is connected to the spindle 229 through a one-way drive mechanism. The disc 241 is thus brought into the position of Figure 24a so that the pin 250 drops into the notch 248 and the lever 251 moves out of the position in which it blocks the lever 243. The latter is then moved over and the device is set in the manner indicated above. The pre-payment indicator 233 is thus set to 500 but the cash balance indicator 224a is set to the sum of the balance at the time the new setting was made and the amount of the new pre-payment—in the present case,  $200+500=700$ .

To prevent rotation of the knob 238 in the wrong sense, the spindle 236 has an escapement wheel 253 fixed to it (Figures 22, 23). The balance lever 254 of this escapement wheel is pivotally mounted on the plate 235 and is acted upon by the spring 256 under the control of the lever 243. When the lever 243 is in the notch 224a, the lower nose 255 (Figure 23) of the lever 254 is in engagement with the wheel 253 and holds that wheel and the knob 238 against clockwise rotation; when the lever 243 is in the notch 244b, the upper nose 255 of the lever 254 is in engagement with the wheel 253 and holds the knob 238 against counterclockwise rotation.

The setting knob 238 and the clutch lever 243 are enclosed in a space bounded by the end plate 235 and a hinged lid 271 (Figures 1 and 2). This lid has a pin 271a projecting inwardly from it which, when the lid is closed engages in a hole in the knob 238 and holds the latter against rotation. The lid also has an inwardly projecting lug 271b which will prevent closing of the lid unless the lever 243 is in the correct starting position i. e. in the notch 244a. The lid can be sealed in any convenient manner, for example by a wire and lead seal on the pins 271c (Figure 2).

As already mentioned, the spindle 213 carries a disc 224 which serves to make the device inoperative when the prepaid amount has been exhausted. It will be remembered that in the normal condition, that is to say, immediately before the device is operated to make an impression, the printing drum 5 is locked by the nose 281 of the lever 280 (Figures 18, 19). The drum 5 is unlocked by pressing the button 278 which can swing the lever 280 unless the lever is opposite the notch 290 (Figure 20a). Normally, the notch 290 is brought into the position shown in Figure 20a by the spring 298 (Figure 16) when the lever 291 is released by the lever 293. The function of the locking disc 224 is to prevent the spring 298 from turning the disc 286 when the prepaid amount has been exhausted. When that amount has been exhausted, the disc 224 by its progressive stepping by the meter 191 is brought into a position in which the notch 225 in it (Figure 20b) is opposite the hump 258 on the pivoted lever 257. The latter is therefore swung counterclockwise by its spring 259 so that the free end of the rod 261 pivoted to it is moved to the left (Figure 20b) through its bearing 262 and abuts against a lever 292 fixed to the spindle 279 to which the lever 291 is also fixed. The relative strengths of the springs 298 and 259 are such that the lever 291 cannot be moved so as to turn the

notch 290 into the position shown in Figure 20a. The notch therefore remains opposite the lever 280 and actuation of the button 278 fails to have any effect on the lever 280 which remains in the position in which it locks the drum 5. The drum 5 cannot be unlocked until the locking disc 224 is moved again through the knob 238 when a fresh pre-payment is made.

If desired, the locking disc 224 can be arranged so that it is stepped by one of the meters 150, 152 so that it locks the mechanism when the total value of the postage impressions or that of the cheque impressions reaches the prepaid amount.

The procedure followed and the sequence of operations when a postage impression is made will now be briefly described.

The printing drum 5 is in its normal position and is therefore locked. The lever 161 is first swung into the position shown in Figure 5 so that the postage meter 152 is made effective (Figure 4). The lever 108 (Figure 2) is then swung into the "on" position so that the lever 103 and the wheels 86—89 and 90—93 are swung clockwise. The wheels 86—89 are thus released from the locking lever 85 and engage with the wheels 44—47 of the postage printer 13; the wheels 90—93 engage with the wheels 136—139 of the actuating drum 125; and the projection 104 on the lever 103 enters the notch 107 in the disc 106. The printing drum 5 and the actuating drum 125 are now both locked.

The postage printer is now set by setting the levers 98—101 (Figure 2) though the wheels 86—89 and 44—47 and at the same time, a number of pins 132 corresponding to the setting of the levers 98—101 is pushed out from each section of the drum 125 through the wheels 90—93 and 136—139. The displacement of the wheels 86—89 causes the lever 208 (Figures 15 and 17) to be turned against its spring 210 so that the stop lever 206 allows the lever 203 to come into the position shown in Figure 15 in which it can operate the postage meter. The lever 108 is then returned to the "off" position so that the lever 103 and its associated parts resume the position shown in Figures 2 and 3.

To complete the preparation of the device for printing the amount set on the levers 98—101 it is now only necessary to press the button 278 which releases the drum 5.

The printing is then effected by rolling the device on the drum 5 over the surface which is to receive the impression. During this rolling movement, three impressions are made—one from the printer 13 (postage impression), one from the printer 10 (date) and one from the meter 55 (serial number). In addition, matter may be printed from blocks arranged on the periphery of the drum 5. An inking device 268, 269 (Figure 4) is provided for the various printing devices. Rotation of the drum 5 also causes the drum 125 to be driven through the wheels 9 and 127 so that the meter 152 is driven by the teeth 132. Also, the pin 130 on the drum 125 causes the lever 203 to actuate the meter 196 which registers the number of postage impressions.

When all the impressions have been made and all the meters have been actuated, the lever 280 (Figure 18) takes up a position in which it can engage in the opening 297 in the side wall of the drum 5 and engages therein on completion of one revolution of the drum. All the parts are now either locked or out of operative engagement and to re-set the device for a fur-

ther impression, the button 278 has again to be pressed.

When the total value of the impressions made amounts to one hundred units, the drum 178 of the meter 191 is stepped up one. This stepping movement is transferred to the locking disc 224 and the cash balance indicator 224a through the pinions 193, 223 (Figures 11 and 21). Eventually, the total value of the impressions amounts to that for which the device is set. When that happens, the locking disc is in its locking position in which it allows the lever 257 (Figure 16) to engage in its notch 225 and to displace the rod 261. When now the printing drum 5 reaches the starting position, the lever 280 locks it but this lever can not be moved out of the locking position because the disc 286 (Figure 20a) is in a position in which its notch 290 is opposite the lever 280. Actuation of the button 278 is therefore ineffective and remains ineffective until the device is set again against a new prepayment.

In some cases, it may be required to make two identical impressions, the value of only one of which is to be recorded on the meter. For example, when printing cheques, it may be required that the amount be printed on a strip which takes the place of the usual counterfoil. This second printing of the amount must not lead to the amount being metered a second time. The modifications which have to be made to the printing drum 5 are shown in Figures 27 and 28. The drum has to be of larger diameter than in the previous case to accommodate the extra printing devices. As illustrated, it has two date printing devices 310, two amount printing devices 313 and two meters 355. These devices correspond to the devices 10, 13 and 55 of the previously described arrangement both as regards construction and operation. The amount printing devices 313 are simultaneously and identically set through gearing similar to that shown in Figures 6-8.

During the first half rotation of the drum 300, an amount is to be printed and that amount metered; during the second half, the printing operation is to be repeated but the metering mechanism is to be out of action. To this end, the printing drum 300 is provided with a toothed segment 301 subtending an angle of 180° which gears with the toothed wheel 303 of the actuating drum 125 through an idler 304. The diameter of the wheel 303 is half that of the segment 301 so that the actuating drum 125 makes a full revolution during the first half revolution of the printing drum 300. During this first half revolution, the actuating drum 125 actuates the meter 150 or 152, whichever is engaged, and the meter 191.

At the end of the first half revolution of the printing drum, the segment 301 comes out of engagement with the pinion 304 and on its second half revolution, the actuating drum 125 will not be driven and the meters will remain unactuated.

The printing drum 300 is provided over the half opposite to that in which the toothed segment 301 is provided with a semi-circular rib 302 which serves for the locking of the actuating drum 125 during the second half revolution of the printing drum. The actuating drum 125 is provided with a groove 305 in which the rib 302 engages during the second half revolution of the printing drum. When the rib 302 leaves the groove 305, the segment 301 engages with the wheel 304.

When the actuating drum 125 has carried out its complete revolution, i. e. at the end of the first half revolution of the drum 300, the notch 107 is opposite the nose 104 of the lever 103 (Figure 3), i. e. in the position in which, in the previously described form of construction, it was possible to alter the setting of the discs 16-19 through the levers 98-101. To make such alterations impossible at this stage, the drum 300 is provided with a projecting part 306 which, at the appropriate time prevents movement of the lever 103 as shown in Figure 28. It is not until the drum 300 has made a complete revolution so that the part 306 is in the diametrically opposite position to that shown in Figure 28 that the printing mechanisms 313 can re-set.

The meter 196 and 197 (Figure 15) are actuated in the manner already described by means of a pin 130 on the actuating drum 125. Since this pin actuates the lever 293 only during the first half revolution of the drum 300, the meters 196, 197 are not actuated during the second half revolution.

The two printing meters 355 which serve to count the number of impressions must be actuated one during one half-revolution and the other during half-revolution. Each of these meters is provided with actuating and locking devices identical with those shown for the meter 55 and no other special provision has to be made as the lever 81 remains in the position shown dotted in Figure 28 while the two meters move past it.

When, for example, the meter 197 (Figure 15) has been engaged, the lever 204 holds the lever 81 in the position shown dotted in Figure 28. During rotation of the drum 300, the pawl 67 strikes the lever 81 so that the driving wheel 65 is unlocked, the lever 72 is turned and the wheel 65 is driven by the pawl 76 i. e. one of the printing meters 355 is stepped on. The same operations are repeated during the second half revolution of the printing drum 300, when the pawl 67 of the second printing meter 355 strikes the lever 81.

When the roller 209 is again engaged in the notches 86a-89a in the wheels 86-89, the support provided for the lever 81 by the lever 203 or the lever 204 is removed because the latter levers are swung upwards by the lever 206. The spring 84 then swings the lever 81 clear of the pawls 67.

In the form of construction illustrated in Figures 29, 30 and 33, the wheels 86-89 (Figures 1, 3 and 17) are omitted, the setting levers 98-101 carrying only the wheels 90-93. When the lever 103 is swung into the position shown in Figure 29, the wheels 90-93 engage with the wheels 136-139 of the actuating drum 125. When the levers 98-101 are set, the wheels 136-139 are rotated so that the teeth 132 are set on the drum 125 in the manner described above. The wheels 136-139 of the drum 125 are permanently in engagement with the wheels 401-404 of the printing drum 5. These wheels 401-404 (as were the wheels 44-47 in the previously described arrangement) are connected to the type carrying discs 16-19. By movement of the setting levers 98-101, the discs 16-19 are, therefore, correspondingly set by the toothed wheels 90-93, 136-139 and 401-404.

A lever 405 is connected to the lever 103 and, together with a spring 406 fixed to it, projects out of the top of the casing 3 through a slot 407. This slot has two notches 408 and 409 in which the spring 406 can engage.

The lever 103 also carries a locking pawl 410 urged by a spring 411 into engagement with the toothed wheels 90—93. When the lever 103 is in a position in which the wheels 90—93 are out of engagement with the wheels 136—139 and in which the spring 406 lies in the notch 408, then the tail of the pawl 410 abuts against a fixed stop 412 so that it cannot be lifted out of the wheels 90—93. The setting levers 98—101 are thus locked.

If, on the other hand, the lever 103 is in the position shown in Figures 29 and 30 in which the spring 406 is in the notch 409, then on rotation of the setting levers 98—101, the pawl 409 is removed from the wheels 90—93 against the action of the spring 411.

The lever 103 also has an arm 413, the end 414 of which is bent over. This arm 413, 414 acts on the locking device for the type carrying discs 16—19 shown in Figures 34—37. This locking device is similar to that shown in Figures 8a and 8b and similar references are used in Figures 34—37. Here the locking member 53 has a projection 415. A lever 416 is pivotally mounted on the shaft 4 of the printing drum 5 and has a spring 417 (Figures 36 and 37) which tends to rotate it into the position in which it can engage between the projection 415 on the locking member and the side wall 8 of the printing drum 5 (Figures 35 and 37). When it can do so, the locking member 53 cannot be disengaged from the star wheel 16A and the associated type carrying disc is locked.

The side wall 8 of the drum 5 has a curved slot 418 in it centered on the axis of the drum. The bent end 419 of the lever 416 projects through this slot 418 and thus lies in the path of movement of the end 414 of the lever 103.

If the lever 103 is swung by means of the lever 405 into the position illustrated in Figure 29, then the end 414 of the projection 413 presses against the end 419 of the lever 416. The lever 416 is thus swung into the position illustrated in Figures 34 and 36 in which the projection 415 on the locking member is free. The discs 16—19 can now be set. As long, however, as the discs 16—19 are locked, the teeth 132 of the actuating drum 125 cannot be set because both parts are rigidly coupled to each other by means of the toothed wheels 401—404 and 136—139.

In the form of construction illustrated in Figures 38 to 40, the means provided for locking the apparatus when the prepaid amount has been used up are somewhat different. The rod 261 of the lever 257 (Figures 16, 20b and 38—40) is hinged to a lever 420 fixed to a spindle 421. A further lever 422 having a pin 423 at its free end is fixed to this spindle 421. As long as the prepaid amount has not yet been used up and the nose 258 of the lever 259 is, therefore, not in the notch 225 in the locking disc 224 (Figure 39), the pin 423 is in a position in which it does not affect the movement of the lever 293 under the action of the pin 130 on the actuating drum 125. When the pin 130 comes round, the lever 293 is therefore swung by it and the lever 291 is moved so that the locking lever 280 is released in the manner described in connection with Figures 16, 18, 19. When, however, the locking disc 224 is in the position shown in Figure 38, the pin 130 swings the lever 293 as before but when the nose 258 engages in the notch 225 in the locking disc 224 under the action of the spring 259, the lever 422 is swung clockwise so that its pin 423 lies immediately above the shoulder 493 on the

lever 293 and holds this lever in its displaced position even after the pin 130 has passed the lever 293. Consequently, the lever 291 and, therefore, the spindle 279 and the disc 286 are held in the position (Figure 38) in which the notch 290 lies opposite the locking lever 280. If now the press button 278 is pressed, the disc 286 cannot move the locking lever 280 and the apparatus is locked. It is only by setting the apparatus for a new amount by means of the knob 238 (Figure 21) that the locking disc 224 can be rotated and the apparatus used again.

In the form of construction illustrated in Figures 29, 31 and 32, the setting knob 238 is enclosed in a cover 424 hinged at 425. This cover has a lug 427 which engages behind a spring loaded pawl 426 on the plate 235. To open the cover 424, the pawl 426 has to be swung. The pawl is made accessible for this purpose through a hole 428 in the cover 424. Two guide rails 429 are provided on opposite sides of the hole 428 on the underside of the cover 424 and serve to hold a strip 430 which normally closes the hole 428. A spring arm 431 serves to retain the closing strip in position. The cover 424 can thus be opened only by breaking the closing strip 430.

The opening 432 in the casing through which the inking device 268, 269 (Figure 4) is accessible is closed, in the arrangement illustrated in Figure 29, by a shield 433 which is pivotally mounted on the frame by means of a lever 434 on a pin 435.

I claim:

1. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted, when said printing drum is rolled, to print the desired amounts, said casing having mounted in and on it, an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure and means for operatively connecting said locking means alternatively to said setting means or to said meter.

2. Apparatus for printing monetary amounts as claimed in claim 1 comprising also means controlled by said locking means for indicating at any time the aggregate value of the amounts which can be printed before said means becomes operative to lock the apparatus.

3. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted, when said printing drum is rolled, to print the desired amounts, said casing having mounted in and on it an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for setting said type carriers to print a predetermined amount and for simultaneously

adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure, means for operatively connecting said locking means alternatively to said setting means or to said meter and means controlled by said setting means allowing said operative connection between said locking means and said setting means to be effected only in a predetermined position of said setting means.

4. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted, when said printing drum is rolled, to print the desired amounts, said casing having mounted in and on it an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for setting said type carriers to print a predetermined amount and for simultaneously adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, means comprising a member movable out of a zero position for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure, means operable to make movement of said locking means dependent alternatively upon movement of said setting means or upon movement of said meter and means allowing said last-mentioned means to be operated in said first-mentioned sense only when said member of said setting means is in its zero position.

5. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted, when said printing drum is rolled, to print the desired amounts, said casing having mounted in and on it, an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure, means for operatively connecting said locking means alternatively to said setting means or to said meter, means actuated by said setting means when said setting means are connected to said

locking means for indicating the aggregate value of amounts which the apparatus can still be caused to print without being re-set and means actuated by said setting means for indicating the additional aggregate value of amounts which the apparatus can be caused to print as a result of the last actuation of said setting means.

6. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, a plurality of adjustable type carriers adapted when said printing drum is rolled, to print the amounts set on said type carriers, a meter, means driven by said printing drum during its rotation for stepping said meter to an extent dependent upon the setting of said type carriers, means normally holding said printing drum against rotation, manually operable means for releasing said drum for rotation, means movable out of a zero position for setting the apparatus for the printing of amounts representing a predetermined aggregate value, means actuated by said meter for making said releasing means ineffective when the aggregate amount of the printed amounts reaches said predetermined figure, an adjustable stop for limiting the movement of said setting means out of its normal position and means for simultaneously disconnecting said locking means from said meter and connecting it to said setting means for actuation by said setting means only when said setting means is moved out of its zero position.

7. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, a plurality of adjustable type carriers adapted, when said printing drum is rolled, to print the amounts set on said type carriers, a meter, means driven by said printing drum during its rotation for stepping said meter to an extent dependent upon the setting of said type carriers, means normally holding said printing drum against rotation, manually operable means for releasing said drum for rotation, means movable out of a zero position for setting the apparatus for the printing of amounts representing a predetermined aggregate value, means actuated by said meter for making said releasing means ineffective when the aggregate amount of the printed amounts reaches said predetermined figure, a clutch for operatively connecting said locking means alternatively to said meter or to said setting means, a lever for actuating said clutch, means controlled by said setting means for holding said lever against movement into the position in which said locking means is connected to said setting means when said setting means is out of its zero position, closure means on said casing movable into a position in which said setting means is inaccessible from outside said casing and means allowing said closure means to be moved into said position only when said lever is in the position in which said locking member is connected to said meter.

8. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted, when said printing drum is rolled, to print the desired amounts, said casing having mounted in and on it, an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on

rotation of said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure, a clutch for operatively connecting said locking means alternatively to said setting means or to said meter and manually operable means for actuating said clutch and means controlled by said actuating means for holding said printing drum against rotation when said locking means is connected to said setting means.

9. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted, when said printing drum is rolled, to print the desired amounts, said casing having mounted in and on it, an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, means movable out of a zero position to set the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure, a clutch for operatively connecting said locking means alternatively to said setting means or to said meter, manually operable means for actuating said clutch, means controlled by said actuating means for holding said printing drum against rotation when said locking means is connected to said setting means, means controlled by said setting means allowing said actuating means to be operated to connect said locking means to said setting means only when said setting means is in its zero position and means controlled by said actuating drum allowing said actuating means to be operated to connect said locking means to said setting means only when said printing drum is held against rotation.

10. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said printing drum is rolled to print the desired amounts, said casing having mounted in and on it, an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated only on rotation of said printing drum, means for adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means for holding said printing drum and said actuating drum against rotation, manually operable means for releasing said printing drum and said actuating drum for rotation, means movable out of a zero position for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure, a clutch for

operatively connecting said locking means alternatively to said setting means or to said meter, a lever movable into two alternative positions for actuating said clutch, a stop controlled by said setting means allowing movement of said lever into that of its positions in which said locking means is clutched to said setting means only when said setting means is in its zero position, and means controlled by said lever allowing said setting means to be moved in one or the other of its possible directions of movement according as said lever is in one or the other of its two alternative positions.

11. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said printing drum is rolled to print the desired amounts, said casing having mounted in and on it, an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated only on rotation of said printing drum, means for simultaneously setting said type carriers and adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means for holding said printing drum and said actuating drum against rotation, manually operable means for releasing said printing drum and said actuating drum for rotation, means movable out of a zero position for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure, a clutch for operatively connecting said locking means alternatively to said setting means or to said meter, a lever movable into two alternative positions for actuating said clutch, a stop controlled by said setting means allowing movement of said lever into that of its positions in which said locking means is clutched to said setting means only when said setting means is in its zero position, and means controlled by said lever allowing said setting means to be moved out of its zero position only when said lever is in the position in which said locking member is clutched to said setting means and allowing said setting means to be moved into its zero position only when said lever is in the position in which said locking member is clutched to said meter.

12. Apparatus for printing monetary amounts as claimed in claim 7, in which means are provided on said closure member for holding setting means against actuation when said closure means is in the position in which said setting means is inaccessible from outside said casing.

13. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, a plurality of adjustable type carriers adapted to print the desired amounts on rotation of said printing drum, a meter, an actuating drum adapted to be rotated on rotation of said printing drum and to actuate said meter in accordance with the setting of said type carriers, means normally locking said printing drum against rotation, a press-button, releasing means controlled by said press-button for moving said printing drum holding means in an inoperative position, means for holding said printing drum holding means in its inoperative position independently of said releasing means, means for setting the apparatus

for the printing of amounts representing a predetermined aggregate value, locking means for making said press-button ineffective when the aggregate value of the printed amounts reaches said predetermined figure, means for operatively connecting said locking means alternatively to said setting means or to said meter, means controlled by said actuating drum for releasing said drum holding means out of its inoperative position and means controlled by said locking means for moving said first-mentioned releasing means into a position in which it cannot be controlled by said press-button.

14. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said printing drum is rolled to print the desired amounts, a lever arranged within said casing, a spring urging said lever into a position in which it prevents rotation of said printing drum, a press-button operable from outside said casing to swing said lever against the action of said spring into a position in which it allows rotation of said drum, means for holding said lever in said last-mentioned position and means controlled by said printing drum for releasing said lever from said holding means and for making actuation of said press-button ineffective until said lever has returned into the position in which it prevents rotation of said printing drum.

15. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said printing drum is rolled to print the desired amounts, a lever arranged within said casing, a spring urging said lever into a position in which it prevents rotation of said printing drum, a press-button operable from outside said casing, a disc mounted for translation by said press-button whereby to swing said lever against the action of said spring into a position in which it allows rotation of said drum and for rotation by said printing drum, and means connected to said disc for holding said lever in said last-mentioned position and adapted to release said lever on rotation of said disc, said disc being provided with a notch which on rotation of said disc is brought opposite said lever so that translation of said disc is ineffective to swing said lever.

16. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, a plurality of adjustable type carriers adapted to print the desired amounts on rotation of said drum, an actuating drum having a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, a meter adapted to be driven by said teeth on rotation of said actuating drum, means for simultaneously setting said type carriers and adjusting the number of teeth in said sets in accordance with said setting, a lever arranged within said casing, a spring normally urging said lever into a position in which it locks said printing drum in a particular angular position of said drum, a press-button operable from outside said casing, a disc mounted for translation by said press-button whereby to displace said lever against the action of said spring out of said position in which it locks said printing drum, retaining means mounted for rotation with said disc for holding said lever in its displaced

position, means controlled by said actuating drum on its rotation for rotating said disc and said retaining means whereby to release said lever for movement under the action of its spring, said disc being provided with a notch which is brought by said rotation of said disc opposite said lever whereby to make operation of said press-button ineffective to displace said lever, means on said locking lever for holding said disc in its rotated position until said locking lever returns into its printing drum locking position, means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, and means for making the apparatus inoperative when the aggregate value of the printed amounts reaches said predetermined figure.

17. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said casing is rolled on said printing drum to print the desired amounts, said casing having mounted in and on it an actuating drum provided with a plurality of sets of gear teeth adapted to be rotated on rotation of said printing drum, means for simultaneously setting said type carriers and adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, rotary means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, rotary locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure, means for coupling said locking means to said setting means and allowing rotation of said locking means in one direction and means for coupling said locking means to said meter and allowing rotation of said locking means in the opposite direction, and a lever for selectively making one or the other of said coupling means effective.

18. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said casing is rolled on said printing drum to print the desired amounts, said casing having mounted in and on it an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for simultaneously setting said type carriers and adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means normally holding said printing drum and said actuating drum against rotation, manually operable means for making said holding means ineffective, rotary means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, rotary locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure and means for operatively connecting said locking means alternatively to said setting means or to said meter, said meter being provided with a plurality of counting wheels adapted to be driven each by a different one of said sets of teeth on

said actuating drum and transfer mechanisms between successive counting wheels.

19. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with type carriers adapted when said casing is rolled by means of said printing drum to print desired amounts, said casing having mounted in it an actuating drum provided with a set of gear teeth and adapted to be rotated on rotation of said printing drum, a meter actuated by said gear teeth on rotation of said actuating drum, means for holding said printing drum and said actuating drum against rotation, manually operable means for making said holding means ineffective, rotary means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, rotary locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure, and means for operatively connecting said locking means alternatively to said rotary setting means or to said meter.

20. Apparatus for printing monetary amounts as claimed in claim 19, comprising also means for holding said printing drum and said actuating drum against rotation, manually operable means for making said holding means ineffective, rotary means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, rotary locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure and means for operatively connecting said locking means alternatively to said setting means or to said meter.

21. Apparatus for printing monetary amounts as claimed in claim 19, in which the meter includes a plurality of counting wheels, a plurality of gear wheels each driven by said actuating drum, and a transfer mechanism between each two successive counting wheels.

22. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said casing is rolled on said printing drum to print the desired amounts, said casing having mounted in and on it an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for simultaneously setting said type carriers and adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means adapted to be driven by said meter, and means controlled by said last-mentioned means for holding said printing drum and said actuating drum against rotation when the aggregate value of the printed amounts reaches a predetermined figure, said meter comprising a plurality of counting wheels each provided with means for stepping the following wheel, at least one of said wheels bearing on its periphery the same sequence of numerals repeated a plurality of times and being adapted during one complete revolution to step the next wheel through as many steps as there are repetitions of said sequence.

23. Apparatus for printing monetary amounts comprising a casing, a spindle journaled in said casing, a printing drum fixed to said spindle, a plurality of type carriers adjustable by rotation arranged on the circumference of said drum,

toothed gearing arranged within said drum, means outside said drum for setting said type carriers individually by rotation through said toothed gearing and means for locking said type carriers against rotation except when said printing drum is in a particular position.

24. Apparatus for printing monetary amounts comprising a casing, a spindle journaled in said casing, a printing drum fixed to said spindle, a plurality of type carriers adjustable by rotation arranged on the periphery of said drum, a meter, a meter actuating drum driven by said printing drum and provided with a plurality of sets of gear teeth, means for simultaneously setting said type carriers and adjusting the number of teeth in said sets in accordance with the setting of said type carriers, transmission gearing connecting said setting means to said type carriers and comprising a plurality of spur wheels—one for each of said type carriers—mounted on said spindle externally of said drum for independent rotation, and a like number of bevel wheels mounted on said spindle within said drum, means normally holding said printing drum and said actuating drum against rotation, manually operable means for releasing said drums for rotation, means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said releasing means ineffective when the aggregate value of the printed amounts reaches said predetermined figure and means for operatively connecting said locking means alternatively to said setting means or to said meter.

25. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, a plurality of type carriers adjustable by rotation and adapted to print the desired amounts on rotation of said drum, a star wheel mounted for rotation with each of said type carriers, notched means arranged within said casing adapted to engage with the points of said star wheel, a spring urging said notched means into engagement with said star wheel, means for holding said notched means against displacement on attempted rotation of said star wheel whereby to prevent such rotation, means controlled by said printing drum for making said holding means ineffective in a particular angular position of said drum and means for setting said type carriers, said means being effective only in said position of said printing drum.

26. Apparatus for printing monetary amounts as claimed in claim 25, including an actuating drum and in which said last-mentioned means is effective for simultaneously setting said type carriers and actuating drum, said actuating drum adapted to be rotated on rotation of said printing drum, a meter actuated on rotation of said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, rotary means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, rotary locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure and means for operatively connecting said locking means alternatively to said setting means or to said meter.

27. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, a plurality of type carriers adjustable by rotation and adapted to print the desired amounts on rotation of said

drum, a star wheel mounted for rotation with each of said type carriers, notched means arranged within said casing adapted to engage with the points of said star wheel, a spring urging said notched means into engagement with said star wheel, means for holding said notched means against displacement on attempted rotation of said star wheel whereby to prevent such rotation, means for setting said type carriers, and means controlled by said setting means for making said means for holding said notched means ineffective.

28. Apparatus for printing monetary amounts as claimed in claim 27, comprising also an actuating drum in which said setting means is effective for simultaneously setting said type carriers and adjusting said actuating drum in accordance with the setting of said type carriers, a meter actuated on rotation of said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, rotary means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, rotary locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure and means for operatively connecting said locking means alternatively to said setting means or to said meter.

29. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said casing is rolled on said printing drum to print the desired amounts, means for holding said type carriers against adjustment, means controlled by said printing drum for releasing said holding means only in a particular angular position of said printing drum, means for setting said type carriers and means for operatively connecting said setting means to said type carriers only in said particular angular position of said printing drum.

30. Apparatus as claimed in claim 29, comprising also an actuating drum adapted to be rotated on rotation of said printing drum, and in which said setting means is effective for simultaneously setting said type carriers and adjusting said actuating drum in accordance with the setting of said type carriers, and a meter adapted for rotation by said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, rotary means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, rotary locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure and means for operatively connecting said locking means alternatively to said setting means or to said meter.

31. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, a plurality of type carriers adjustable by rotation adapted to print the desired amounts on rotation of said printing drum, a meter for registering the aggregate value of the printed amounts, means for actuating said meter comprising a drum having a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for holding said printing drum against rotation when it assumes a particular angular position, manually operable means for releasing

said printing drum from said holding means, means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches a predetermined figure and means for setting said type carriers and simultaneously adjusting the number of gear teeth in said sets on said meter actuating drum in accordance with the setting of said type carriers, said setting means comprising a plurality of levers arranged for independent movement about a common axis, a pinion fixed to each of said levers, means for operatively connecting said pinions to said type carriers and means allowing said operative connection to be effected only when said printing drum is held against rotation.

32. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and having a plurality of type carriers adjustable by rotation and adapted on rotation of said drum to print the desired amounts, a plurality of levers for setting said type carriers, a plurality of toothed wheels connected one to each of said setting levers, means for operatively connecting said setting levers to said type carriers through said toothed wheels and comprising a pivotally mounted member carrying said setting levers and said toothed wheels, means for holding said member in a position in which said toothed wheels are disconnected from said type carriers, and means controlled by said printing drum allowing said member to be swung to effect said operative connection between said toothed wheels and said type carriers in a particular angular position of said printing drum.

33. Apparatus for printing monetary amounts as claimed in claim 32 comprising also a meter for registering the aggregate value of the printed amounts, an actuating drum for said meter having a plurality of sets of gear teeth and adapted to be rotated by said printing drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said manually operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure and means for operatively connecting said locking means alternatively to said setting means or to said meter.

34. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, a plurality of adjustable type carriers adapted to print the desired amounts on rotation of said drum, a plurality of apertured levers having a common axis, a scale centred on said axis and having markings visible through the apertures in said levers and means for transmitting rotary movement of said levers to said type carriers.

35. Apparatus for printing monetary amounts as claimed in claim 34 comprising also an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means for holding said printing drum against rotation, manually operable means for making said holding means ineffective, means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means for making said manually

operable means ineffective when the aggregate value of the printed amounts reaches said predetermined figure and means for operatively connecting said locking means alternatively to said setting means or to said meter.

36. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, a plurality of adjustable type carriers adapted to print the desired amounts on rotation of said printing drum, a meter for registering the aggregate value of the printed amounts, a drum driven by said printing drum and having a plurality of sets of teeth for actuating said meter, means for simultaneously setting said type carriers and said sets of actuating teeth, means for locking said printing drum against rotation and further meters selectively actuatable by said sets of actuating teeth.

37. Apparatus for printing monetary amounts as claimed in claim 36 comprising also a pivotally mounted supporting member for said further meters and means for pivoting said member into alternative positions in which one or another of said further meters is adapted to be actuated by said actuating teeth.

38. Apparatus for printing monetary amounts as claimed in claim 36 comprising also a pivotally mounted supporting member for said further meters, manually operable means for swinging said supporting member to bring one or another of said further meters within the path of movement of said actuating teeth and means controlled by said actuating drum allowing said supporting member to be swung only in the normal position of the actuating drum.

39. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said casing is rolled on said printing drum to print the desired amounts, said casing having mounted in and on it, an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for adjusting the number of teeth on said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, means connectable to said meter for making the apparatus inoperative when the aggregate value of the printed amounts reaches said predetermined figure, two further meters adapted to be driven by said gear teeth, a pivotally mounted supporting member for said further meters, a control member for swinging said supporting member whereby to bring one or the other of said further meters within driving range of said gear teeth and means allowing movement of said further meters into and out of driving range of said gear teeth only in a particular position of said printing drum comprising a pin on said control member and an interrupted rib on said actuating drum, said movement being only possible when said pin passes through the interruption in said rib.

40. Apparatus for printing monetary amounts comprising a printing drum having a plurality of type carriers projecting beyond its periphery and adapted to print on rotation of said drum, a meter for registering the aggregate value of the printed amounts, means for driving said meter comprising a rotary member having a plurality of sets of gear teeth, means for rotating said

rotary member on rotation of said printing drum, means for setting said type carriers to print different amounts and for simultaneously adjusting the numbers of teeth in said sets of gear teeth in accordance with the setting of said type carriers, means for setting the apparatus for the printing of amounts representing an aggregate value not exceeding a predetermined figure, a rotary member adapted to be driven in one sense by said last-mentioned setting means and in the other sense by said meter, means controlled by said rotary member for holding said printing drum against rotation in a particular angular position of said drum and a meter for registering the number of impressions made.

41. Apparatus for printing monetary amounts as claimed in claim 40, comprising also a meter provided with type carriers and arranged on the circumference of said printing drum and means for stepping said meter at each rotation of said printing drum.

42. Apparatus for printing monetary amounts comprising in a casing, a rotatable printing drum having a plurality of adjustable type carriers, a meter, a rotatable drum having a plurality of adjustable sets of actuating teeth for actuating said meter, means for simultaneously setting said type carriers and said sets of actuating teeth, a disc, a rotary setting member, means for selectively coupling said disc to said setting member or to said meter, means controlled by said disc for locking said printing drum against rotation, a pair of meters adapted to be actuated by said sets of actuating teeth, means for selectively bringing one or the other of said pair of meters into a position in which it can be actuated by said teeth, a further pair of meters adapted to be actuated each time an impression is made, stepping means controlled by said actuating drum for actuating said last-mentioned pair of meters, means controlled by said means for bringing said first pair of meters into the position in which they can be actuated for making said stepping means effective for stepping one or the other of said last-mentioned meters.

43. Apparatus for printing monetary amounts as claimed in claim 42, comprising also means controlled by said means for setting said type carriers for preventing said stepping means from acting on said last-mentioned meters.

44. Apparatus for printing monetary amounts comprising in a casing, a printing drum, a plurality of adjustable type carriers adapted to print the desired amounts on rotation of said printing drum, a meter, a drum driven by said printing drum and having a plurality of adjustable sets of actuating teeth for driving said meter, means for simultaneously setting said type carriers and said sets of actuating teeth, a disc, a rotary setting member, means for selectively coupling said disc to said setting member or to said meter, means controlled by said disc for locking said printing drum against rotation, a further meter, a lever adapted to step said further meter on being swung and a cam on said actuating drum adapted to swing said lever at the end of each rotation of said actuating drum.

45. Apparatus for printing monetary amounts as claimed in claim 44, in which said means for locking said printing drum against rotation in its normal position is constructed as a lever, and comprising also, a press-button, a notched driving disc actuated through said press-button for setting said lever in its non-locking position, a spring acting on said driving disc and tending

to rotate said driving disc and means connected to said driving disc for holding said locking lever in its non-locking position after rotation of said driving disc, said meter stepping lever being arranged to act on said printing drum locking lever to release it from its non-locking position and to rotate said driving disc against the action of its spring so as to bring the notch in said driving disc opposite said locking lever.

46. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said casing is rolled on said printing drum to print the desired amounts, said casing having mounted in and on it, an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, two further meters, a supporting lever, two levers for stepping said meters mounted on said supporting lever, a cam on said actuating drum for swinging said supporting lever at the end of each rotation of said actuating drum and means for selectively making one or the other of said stepping levers effective.

47. Apparatus for printing monetary amounts according to claim 46 comprising also two further meters adapted to be actuated by said sets of actuating teeth and means for selectively bringing one or the other of said further meters into a position in which it can be so actuated, said means being controlled by said means for selectively making said stepping levers effective.

48. Apparatus for printing monetary amounts comprising in a casing, a printing drum having a plurality of adjustable type carriers, an actuating drum having a plurality of adjustable sets of actuating teeth, a meter controlled by said sets of actuating teeth, means for simultaneously setting said type wheels and said sets of actuating teeth, a second meter, a lever for locking said printing drum against rotation in its normal position, a press-button, a notched driving disc adapted on operation of said press-button to set said lever in a non-locking position, a spring tending to rotate said driving disc, means for holding said locking lever in its non-locking position after rotation of said driving disc under the action of said spring, a pivotable lever for stepping said meter and for rotating said driving disc against the action of its spring into a position in which said locking lever is released and in which the notch in said driving disc lies opposite said locking lever, a cam on said actuating drum for pivoting said lever towards the end of each rotation of said actuating drum, a locking disc, rotary setting means, means for selectively coupling said locking disc to said setting means or to said first-mentioned meter and means controlled by said locking disc for holding said lever in its displaced position.

49. Apparatus for printing monetary amounts comprising in a casing a printing drum having a plurality of adjustable type carriers, an actuating drum having a plurality of adjustable sets of actuating teeth, a meter actuated by said sets of actuating teeth, means for simultaneously setting said type carriers and said sets of actuating teeth, means for locking said printing drum and said actuating drum against rotation in their normal positions, manually operable means for

making said locking means ineffective, a locking disc, rotary setting means, means for selectively coupling said locking disc to said setting means or to said meter, means controlled by said locking disc for preventing said locking means from being influenced by said manually operable means, a further meter provided with type carriers and arranged on the circumference of said printing drum, a locking wheel and a stepping wheel connected to said further meter, a pawl mounted on said printing drum and engaging in said locking wheel, a pawl mounted on said printing drum and engaging in said locking wheel and an abutment in the path of movement of said locking pawl and said stepping pawl for removing said locking pawl and for stepping said stepping pawl during the movement of said printing drum.

50. Apparatus for printing monetary amounts as claimed in claim 49, comprising also two further meters adapted to be actuated by said sets of actuating teeth, means for selectively switching one or the other of said further meters into operation, a movable abutment lever, means controlled by said last-mentioned means for setting said movable abutment member into and out of the path of movement of said locking pawl and said stepping pawl.

51. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing and provided with a plurality of adjustable type carriers adapted when said casing is rolled on said printing drum to print the desired amounts, said casing having mounted in and on it an actuating drum provided with a plurality of sets of gear teeth and adapted to be rotated on rotation of said printing drum, means for adjusting the number of teeth in said sets in accordance with the setting of said type carriers, a meter actuated by said sets of gear teeth on rotation of said actuating drum, means controlled by said meter for locking said printing drum against rotation, a further meter provided with type carriers and arranged on said printing drum, said further meter comprising two counting wheels bearing numbers 00—49 and further counting wheels stepped by said first-mentioned counting wheels at each fifty steps and means for stepping said meter at each rotation of said printing drum.

52. Apparatus for printing monetary amounts as claimed in claim 51, comprising also printing wheels connected to said counting wheels of said last-mentioned meter and carrying letter types.

53. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, two sets of adjustable type carriers arranged on said printing drum and adapted to print the desired amounts on rotation of said drum, an actuating drum having a plurality of adjustable sets of actuating teeth, a meter actuated by said sets of actuating teeth at each rotation of said actuating drum, means for simultaneously setting said two sets of type carriers and said sets of actuating teeth, a further meter, means for stepping said further meter at each rotation of said actuating drum, means controlled by said printing drum for driving said actuating drum through one full rotation during the one-half rotation of said printing drum, and means connected to said printing drum for holding said actuating drum against rotation during the other half rotation of said printing drum.

54. Apparatus for printing monetary amounts comprising a casing, a printing drum mounted for rotation in said casing, two sets of adjustable

type carriers arranged in opposite halves of said printing drum, an actuating drum driven by said printing drum and having adjustable sets of actuating teeth, a meter actuated by said sets of actuating teeth at each rotation of said actuating drum, means for simultaneously setting said two sets of type carriers and said sets of actuating teeth, a further meter, means for stepping said further meter at each rotation of said actuating drum, a toothed wheel connected to said actuating drum, a toothed segment connected to said printing drum and engaging with said toothed wheel so that said actuating drum makes one full rotation during a half rotation of said printing drum, a groove in said actuating drum and a semi-annular rib on said printing drum and engaging in said groove in said actuating drum during the second half of a rotation of said printing drum.

55. Apparatus for printing monetary amounts as claimed in claim 54, comprising also means controlled by said actuating drum in its normal position for making said means for setting said type carriers and said sets of actuating teeth ineffective and means controlled by said printing drum during the second half of its rotation for making said means for setting said type carriers and said actuating teeth ineffective.

56. Apparatus for printing monetary amounts according to claim 54, comprising also means controlled by said meter for locking said printing drum against movement.

57. Apparatus for printing monetary amounts as claimed in claim 54, comprising also means for locking said printing drum and said actuating drum against movement, manually operable means for making said locking means ineffective, a locking disc, rotary setting means, means for selectively coupling said locking disc to said setting means or to said first-mentioned meter and

means controlled by said locking disc for preventing said locking means from being influenced by said manually operable means.

58. Apparatus for printing monetary amounts comprising a printing drum provided with a plurality of adjustable type carriers adapted on rolling of said drum to print the desired amounts, means for altering the setting of said type carriers, a meter, means for driving said meter on rolling of said drum, means for maintaining a driving connection between said driving means and said meter during angular movements of said printing drum dependent upon the setting of said type carriers, means normally holding said printing drum against rotation, means for releasing said printing drum, means for setting the apparatus for the printing of amounts representing a predetermined aggregate value, locking means actuated by said meter for making said releasing means ineffective when the amounts printed have reached said predetermined aggregate value and means for connecting said locking means so as to be driven by said setting means.

59. Apparatus for printing monetary amounts comprising a printing drum, a plurality of type carriers adapted to print the desired amounts on rotation of said drum, means for altering the setting of said type carriers for the printing of different amounts, a meter for registering the aggregate value of the printed amounts, means driven by said printing drum for actuating said meter in accordance with the setting of said type carriers at each rotation of said drum, means normally holding said drum against rotation, means for releasing said drum for rotation, means settable to make said releasing means ineffective when the aggregate value registered by said meter reaches a predetermined figure.

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