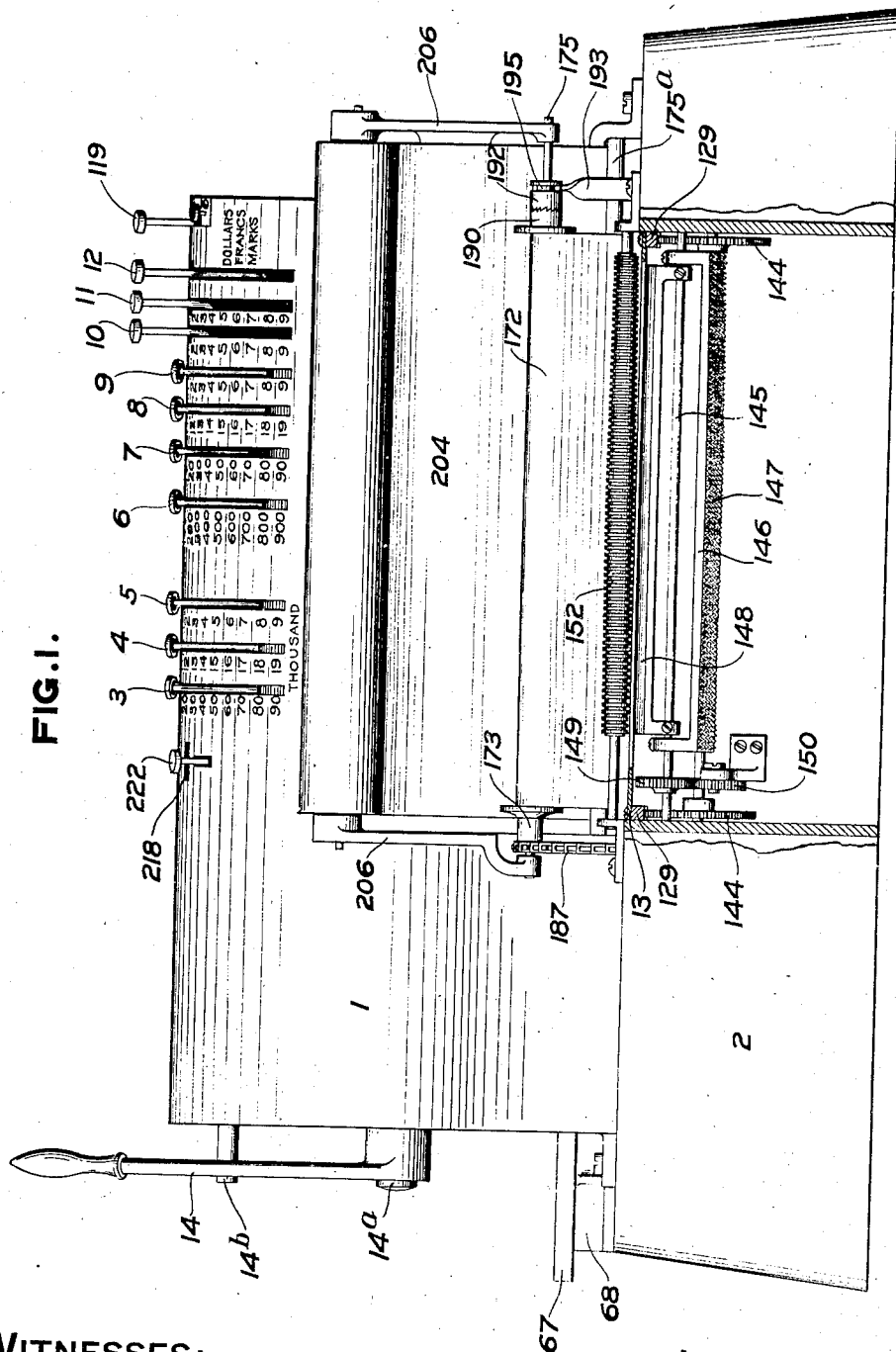


907,885.

C. F. RICHARDSON.
PRINTING MECHANISM.
APPLICATION FILED JUNE 6, 1907.

Patented Dec. 29, 1908.
12 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

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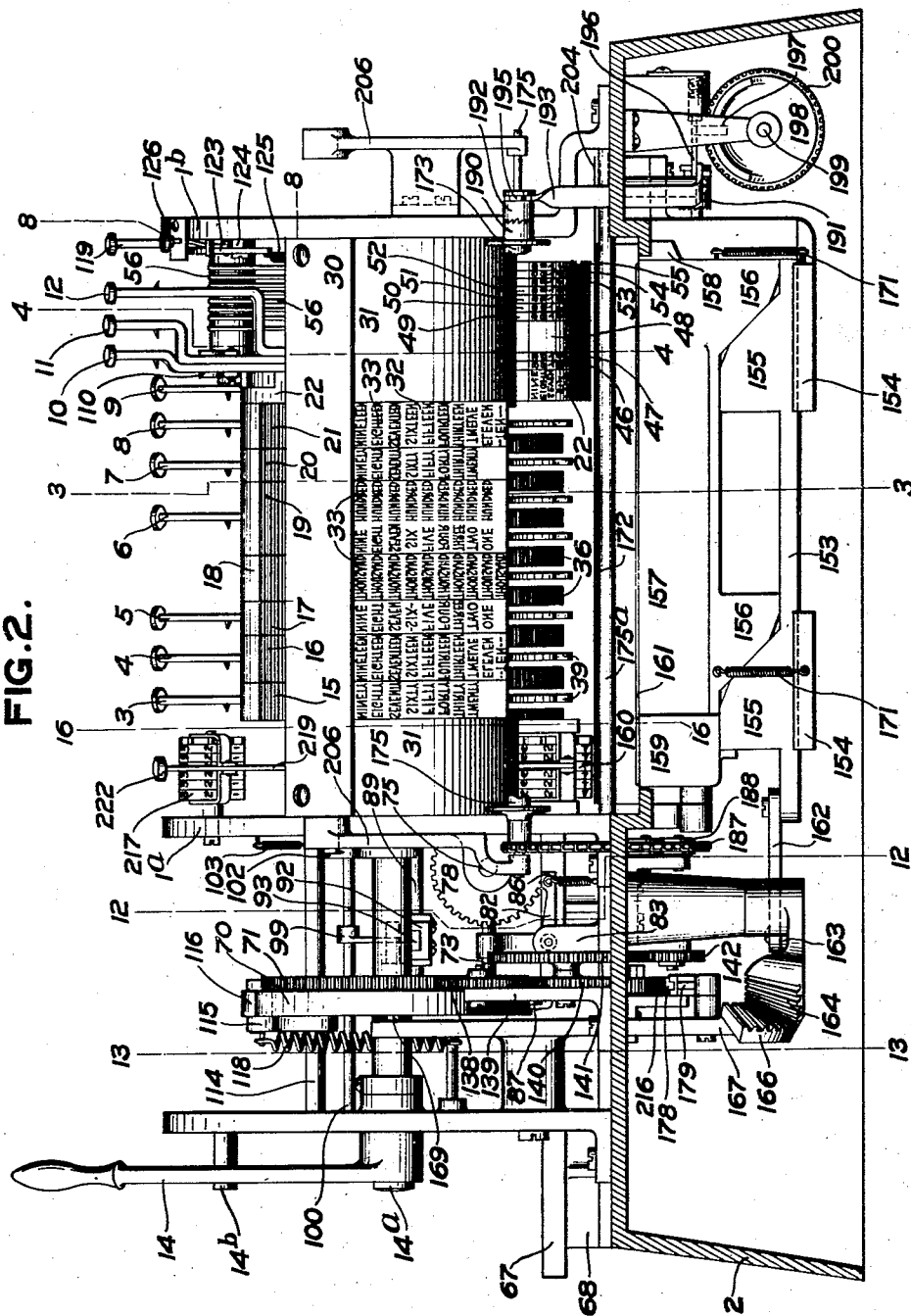
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by *Wm. H. Smith*
his atty

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Patented Dec. 29, 1908.

12 SHEETS—SHEET 2.

Fig. 2.



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12 SHEETS—SHEET 3.

FIG. 3.

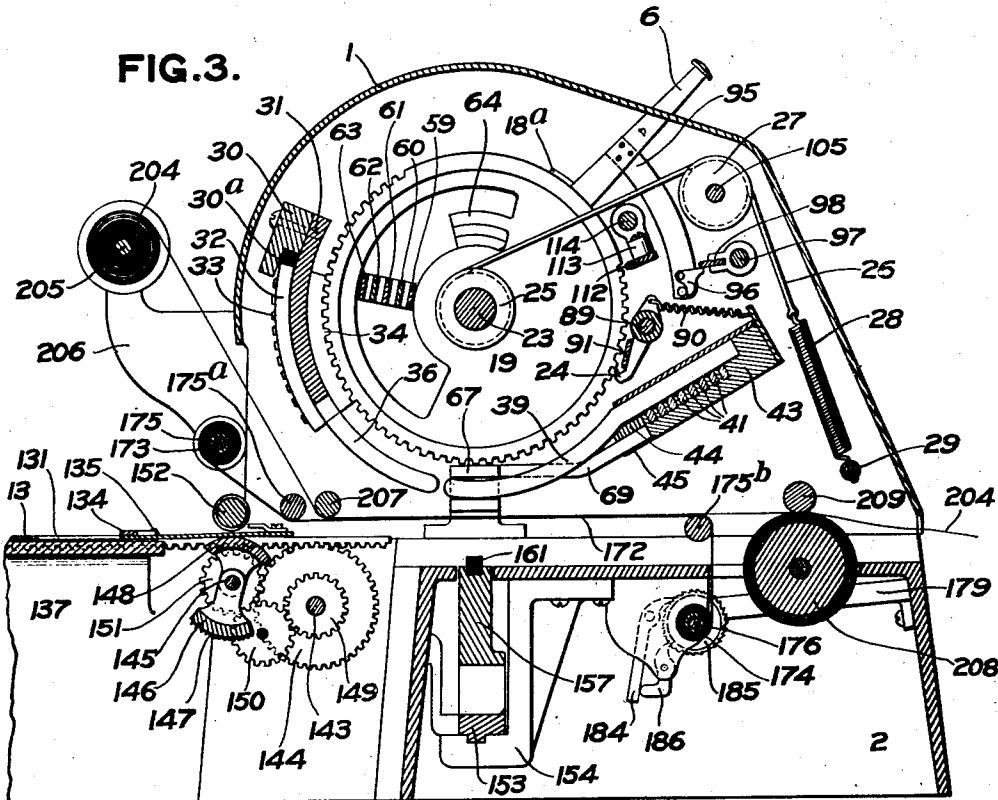
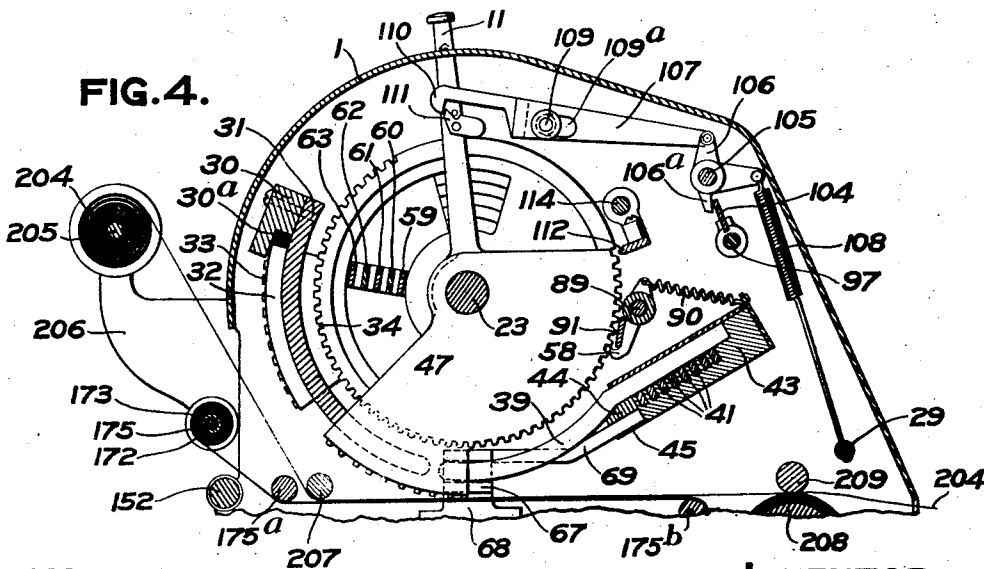


FIG. 4.



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 12 SHEETS—SHEET 4.

FIG. 5.

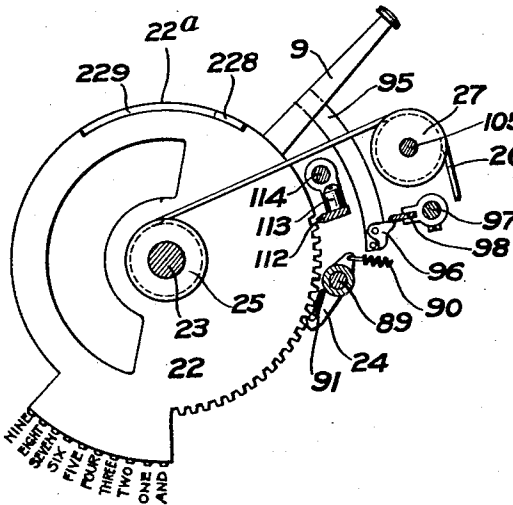


FIG. 6.

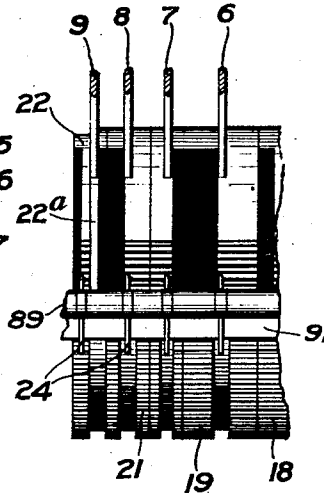
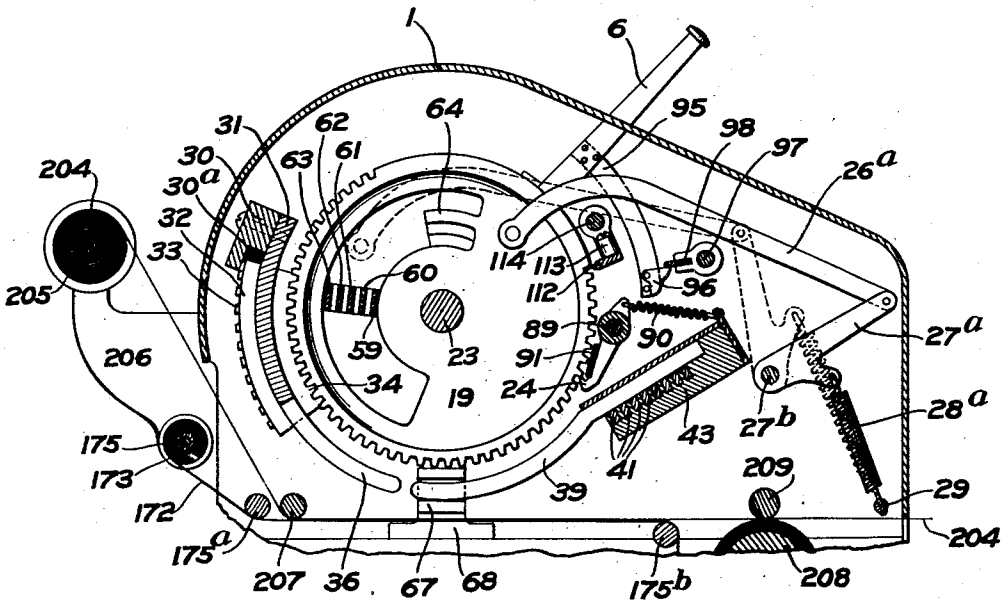


FIG. 7.



WITNESSES:

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FIG.8.

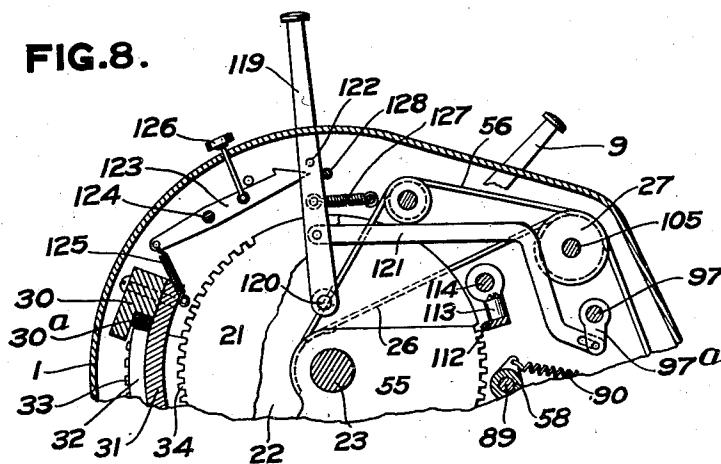


FIG.9.

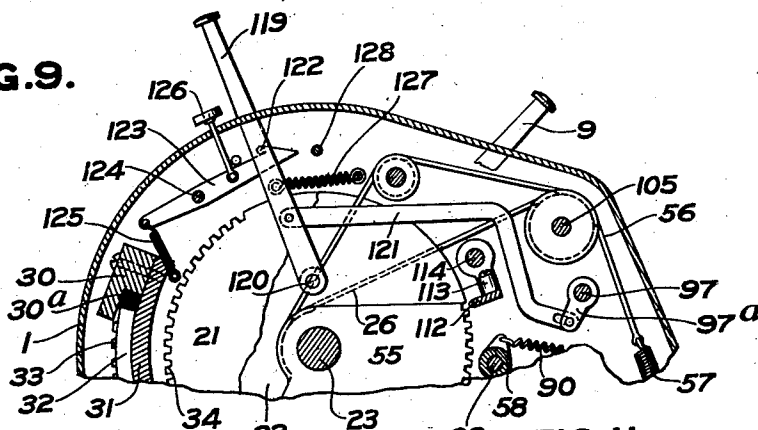
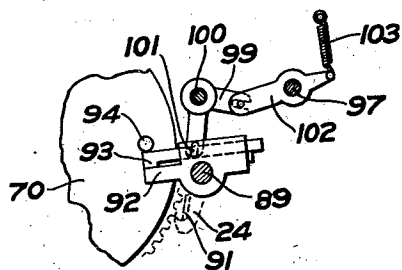
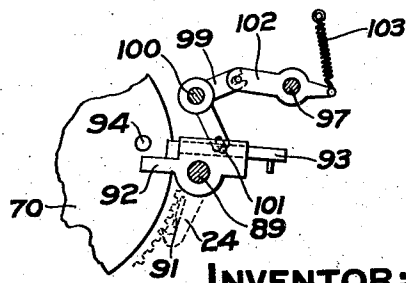


FIG.10.



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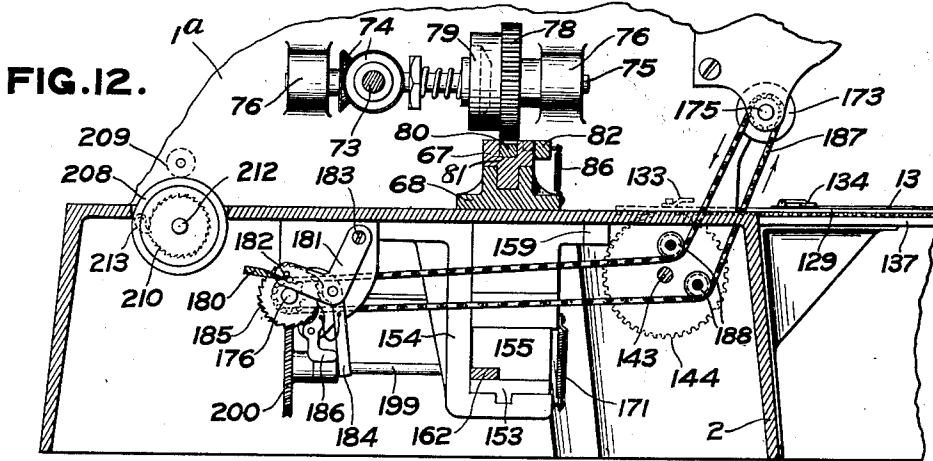
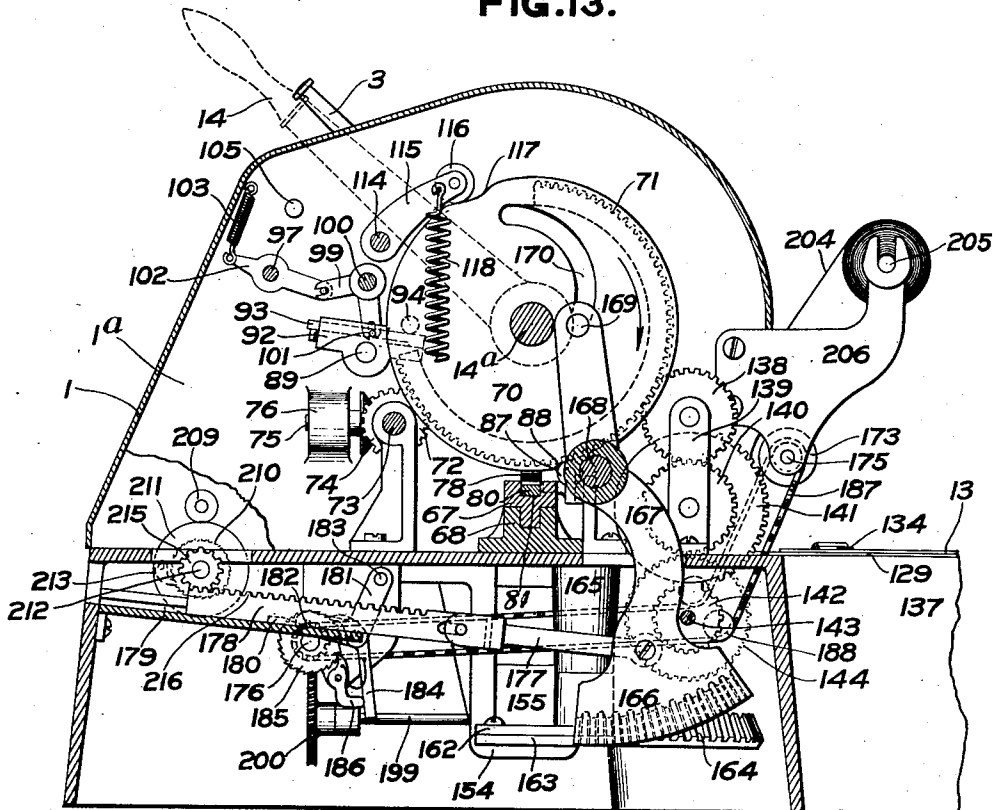


FIG. 13.



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Patented Dec. 29, 1908.

12 SHEETS—SHEET 7.

FIG. 14.

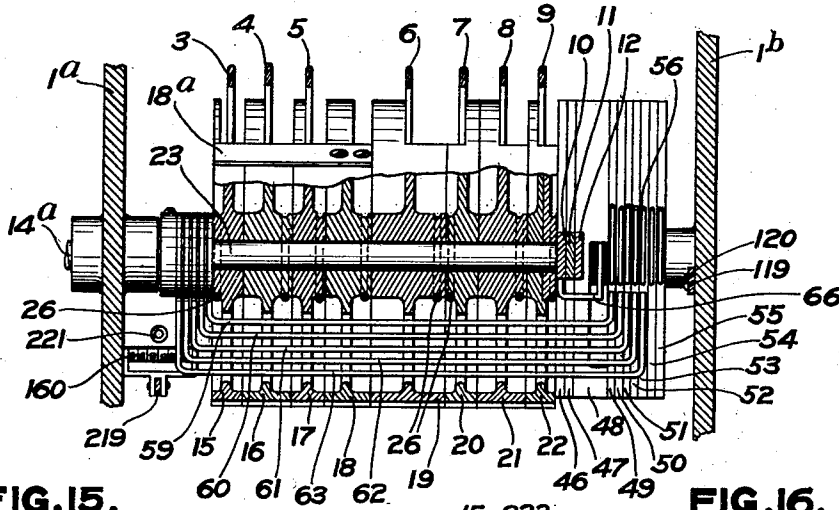


FIG. 15.

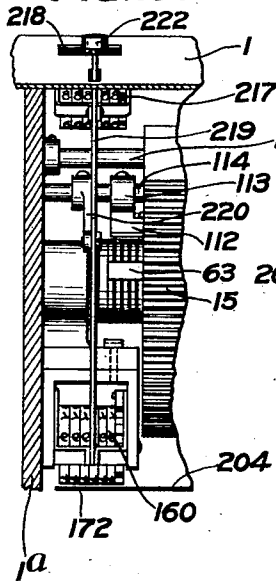
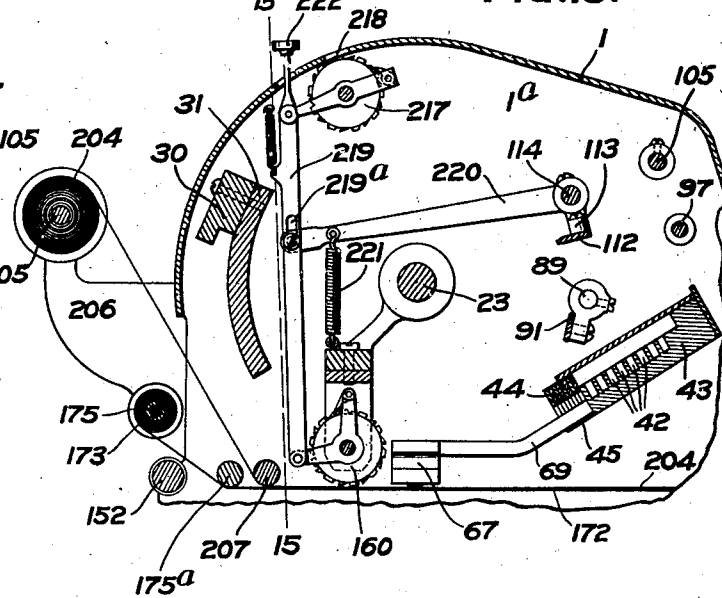


FIG. 16.



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APPLICATION FILED JUNE 6, 1907.

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12 SHEETS—SHEET 8.

FIG.17.

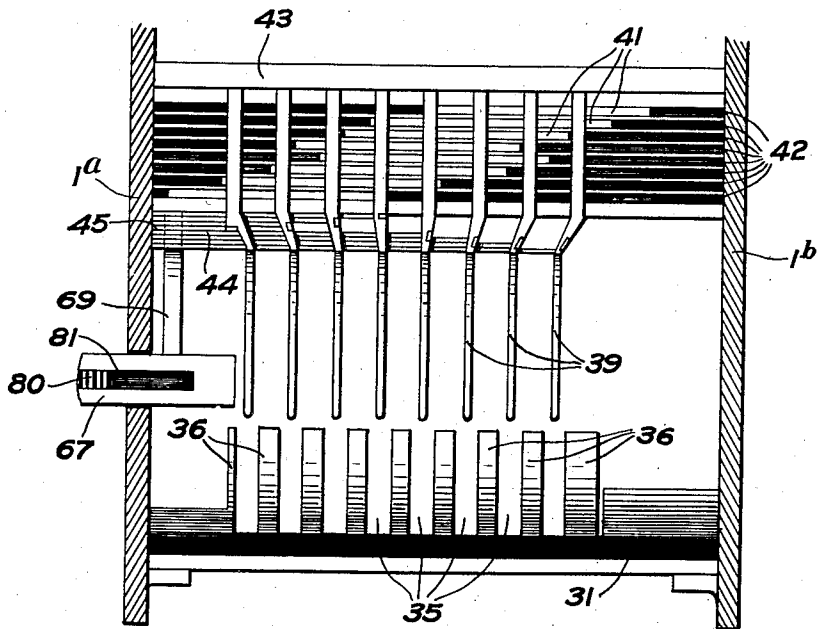


FIG.18.

FIG.19.

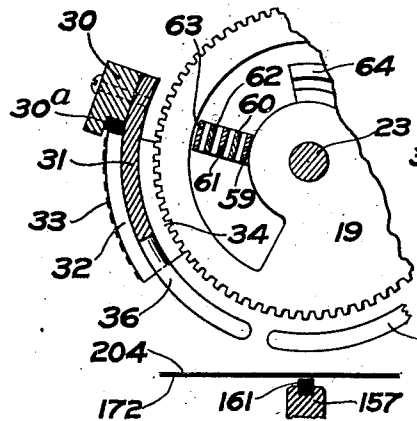


FIG.20.

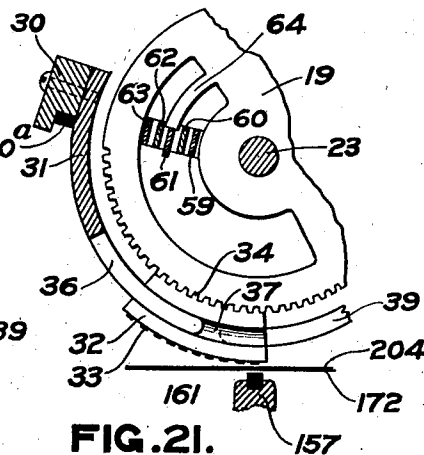


FIG.21.

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 12 SHEETS—SHEET 9.

FIG. 22.

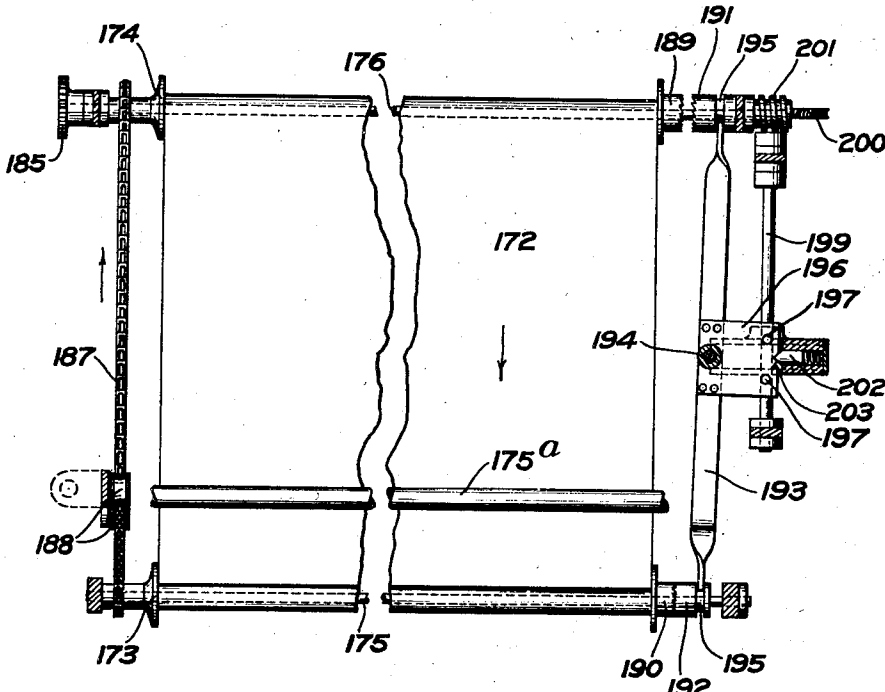
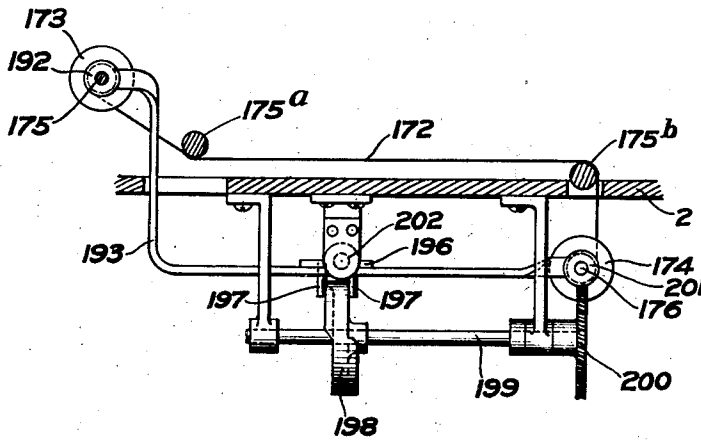


FIG. 23.



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 12 SHEETS—SHEET 10.

FIG. 24.

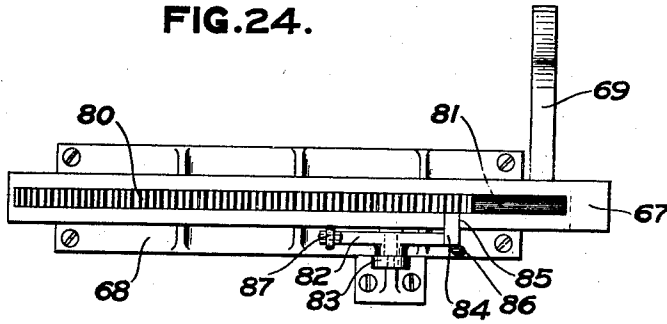


FIG. 26.

FIG. 25.

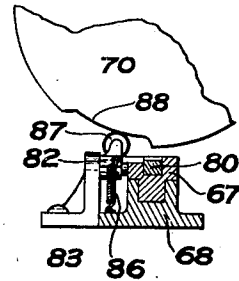
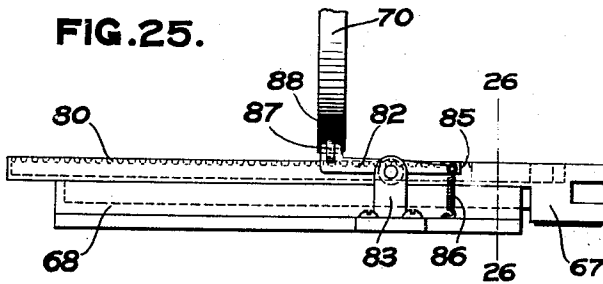


FIG. 27.

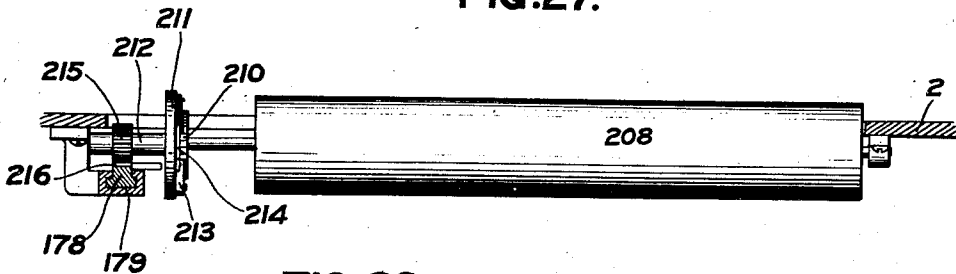


FIG. 28.

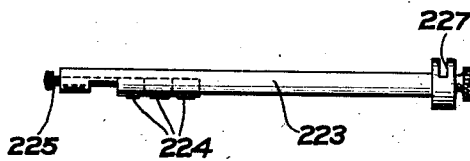
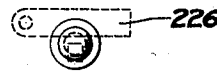


FIG. 29.



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APPLICATION FILED JUNE 6, 1907.

Patented Dec. 29, 1908.
12 SHEETS—SHEET 11.

FIG.30.

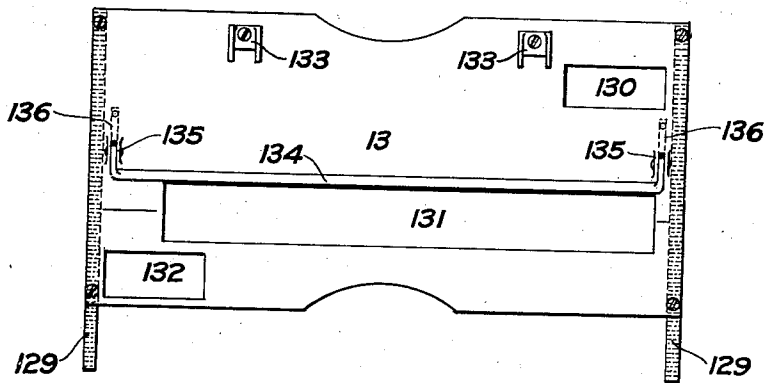


FIG.31.

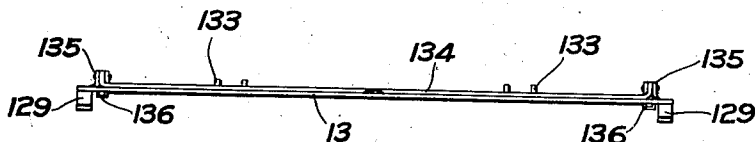


FIG.32.

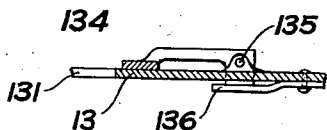


FIG.33.

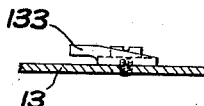
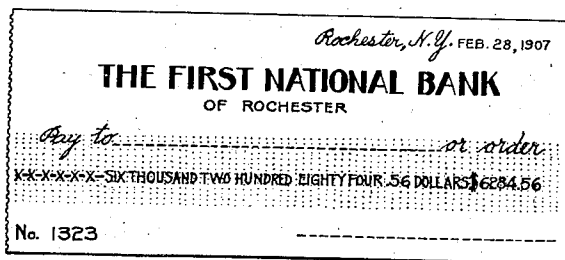


FIG.34.



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APPLICATION FILED JUNE 6, 1907.

907,885.

Patented Dec. 29, 1908.

12 SHEETS—SHEET 12.

FIG.35.

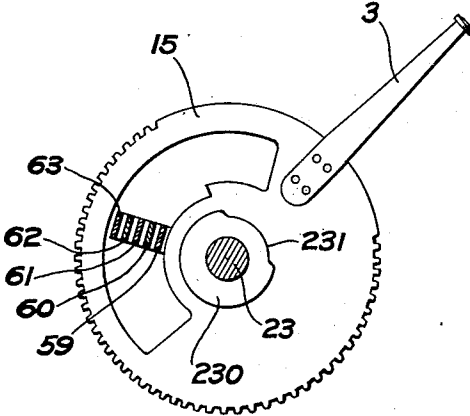


FIG.36.

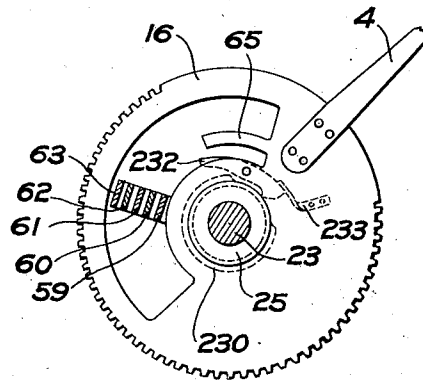


FIG.37.

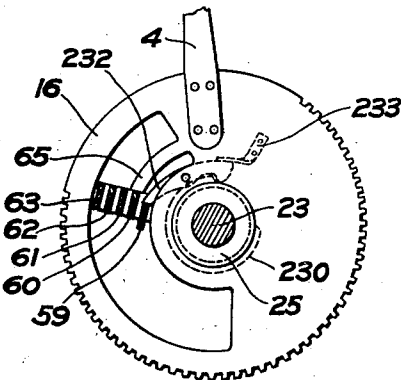


FIG.38.

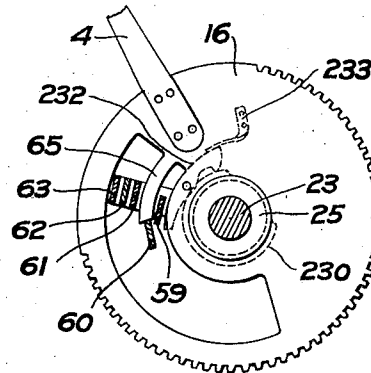


FIG.39.

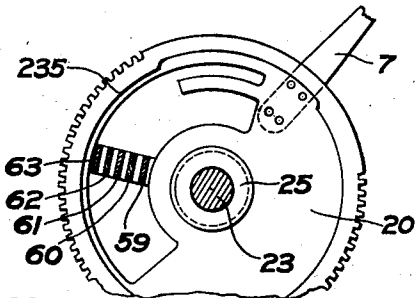
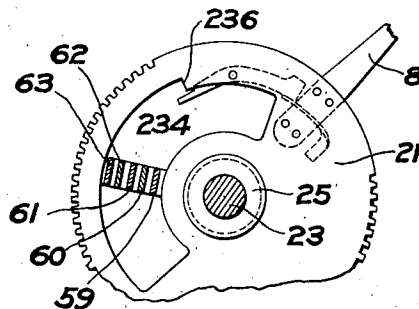


FIG.40.



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UNITED STATES PATENT OFFICE.

CHARLES F. RICHARDSON, OF WOONSOCKET, RHODE ISLAND, ASSIGNOR TO MUTSCHLER MACHINE COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

PRINTING MECHANISM.

No. 907,885.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed June 6, 1907. Serial No. 377,654.

To all whom it may concern:

Be it known that I, CHARLES F. RICHARDSON, a citizen of the United States, and resident of Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Printing Mechanisms, of which the following is a specification.

This invention relates to printing mechanisms, and its object is to provide an improved printing mechanism adapted to print upon the face of a check, and also, if desired, upon a record strip, words representing the amount for which the check is drawn without unnecessary spaces between the words.

A further object is to print, simultaneously with the words, the same amount in numerals, both words and numerals being set simultaneously in the printing position by the operation of the means for setting the words, and both words and numerals being printed at the same time by movement of an actuating lever.

Still other objects and features will appear.

In the drawings:—Figure 1 is a front elevation; Fig. 2 is a similar view, but with the casing removed, and with some parts shown in section, and parts being removed to exhibit interior construction; Fig. 3 is a section on the line 3—3 of Fig. 2; Fig. 4 is a section on the line 4—4 of Fig. 2; Fig. 5 is a side elevation of the units, type-disk, and some cooperating parts; Fig. 6 is a rear elevation of four of the type-disks and some cooperating parts; Fig. 7 is a section on the same plane as Fig. 3, of a modified form of a detail; Fig. 8 is a section on the line 8—8 of Fig. 2, the parts being shown in normal position; Fig. 9 is a section on the same line 8—8, but with the parts in operating position; Fig. 10 is an elevation of the pawl release mechanism in releasing position; Fig. 11 is the same elevation showing the parts in the retaining or non-release position; Fig. 12 is a section on the line 12—12 of Fig. 2; Fig. 13 is a section on the line 13—13 of Fig. 2; Fig. 14 is a plan view of the type-wheels, parts of which are shown in section; Fig. 15 is a front elevation of the consecutive numbering mechanism; Fig. 16 is a section on the line 16—16 of Fig. 2, showing a side elevation of the consecutive numbering mechanism; Fig. 17 is a plan view of the type-block supports; Fig. 18 is a side elevation of a type-block and disk,

with some related parts, on the line 3—3 of Fig. 2, in normal position; Fig. 19 is the same side elevation, the parts being in printing position; Fig. 20 is a side elevation of a single type-block; Fig. 21 is the rear elevation thereof; Fig. 22 is a plan view of the ribbon and the reversing mechanism therefor; Fig. 23 is a side elevation of the same; Fig. 24 is a plan view of the push-bar and guide; Fig. 25 is a front elevation thereof; Fig. 26 is a section on the line 26—26 of Fig. 25; Fig. 27 is an elevation of the record-strip roller and certain cooperating parts; Figs. 28 and 29 are front and end views, respectively, of the holder for the dating type; Fig. 30 is a plan view of the check carrier; Fig. 31 is a front elevation of the same; Fig. 32 is an enlarged view of a check-clip; Fig. 33 is an enlarged side elevation of a check-stop; Fig. 34 represents a check when printed; Fig. 35 is an elevation of one of the "thousands" type disks; Fig. 36 is an elevation of the next adjoining disk; Fig. 37 is the same as Fig. 36 at the first point of its operating position; Fig. 38 is the same at a further point in its operation; Fig. 39 is a similar view of a "tens" type disk; and Fig. 40 is an elevation of the next disk.

This device has a casing 1 on a base 2. Levers 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 project through slots in the top of the casing 1, and constitute means for setting a series of type-blocks to a printing line. An operating lever 14 on one side of the machine will, when vibrated, actuate mechanism to produce the printing impression and other functions.

Numbers are placed on the casing 1 adjacent to each lever, and when any lever is brought opposite any number, a type-block is moved first to the printing line and then, by operation of the lever 14, is shifted to the printing position for printing that number. Thus the lever 3 may set any words from "twenty" to "ninety"; the lever 4 from "ten" to "nineteen"; and the lever 5 from "one" to "nine". The word "thousand" will be set by automatic means to print with any or all of the characters set by the levers 3, 4, or 5. In like manner, the other levers are adapted to set words corresponding to the numbers adjacent to them, as indicated in Fig. 1. The last lever 12 sets a type-block for printing the name of the base of the currency such as "Dollars", "Francs", "Marks", etc.

In devices of this character, particularly where the whole series of desired words is to be printed at one operation of the platen mechanism, the words constituting the components of the total amount usually have been separated in accordance with the positions of the type-blocks—that is to say, without special mechanisms such as are herein set forth. For instance, if the levers 3 and 6 were set to print certain amounts, the printing would occur with a space between the printed words corresponding to the width of the gaps left by the non-operation of the levers 4 and 5, while this invention comprises means whereby such gaps may be prevented, and the words constituting the amount to be printed on the check follow each other at suitable closeness, so that other words cannot thereafter be printed between them nor on either end; thus removing the possibility of raising or altering the checks. This device is capable of printing any amount exactly.

Each of the levers 3 to 9 is connected to one of a series of disks 15 to 22, revoluble on a shaft 23 (see Figs. 3 and 14). These disks are toothed through a portion of their peripheries, the teeth on all being of equal pitch. Spring pawls 24 (Figs. 3 and 6) engage the said teeth, and operate to hold the disks in any set position until released by means hereinafter described. The disk 18 (Figs. 2 and 6) has no projecting lever, but is moved by means of a bar 18^a screwed to its top and projecting in front of the levers 3, 4, and 5 (see Fig. 14). This causes the word "Thousand" to be brought to the printing line whenever one or all of the levers 3, 4, and 5 is moved. On the hubs of the said disks are groove pulleys 25, (Fig. 3), and flexible bands attached thereto lead over a set of idler wheels 27 to springs 28. These springs, each of which is fixed at one end to a stationary bar 29, tend to contract, and therefore, through the movement of the cords 26, return the disks 15 to 22 to the position shown in Fig. 3, immediately upon the disengagement of the pawls 24.

Across the front of the machine, between the end plates 1^a and 1^b, is a bar 30. To this is attached a segment of a cylinder 31, concentric with the shaft 23. Portions of the lower edge of said segment are cut away for a purpose to be described, (see Fig. 17).

The type-carrying blocks 32 (shown in Figs. 20 and 21) are adapted normally to lie between the disks 15 to 22, and the segment 31. These blocks are also curved in arcs drawn from the center of the shaft 23, and the type characters 33 are on the convex or outer side, while the inner or concave side has teeth 34 adapted to fit the teeth on the disks 15 to 22 aforesaid. The cut-away portions 35 of the segment 31 are proportioned so that the blocks may be retained normally

in exact vertical alinement with their respective disks. The portions 36 of the segment 31 which are not cut away fit into recesses 37 (Fig. 21) in the sides of the type-blocks, and the slots 35 receive the short bridges 38 which connect the inner and outer halves of said blocks. A strip of rawhide or rubber 30^a (Figs. 3 and 4) is inserted in the lower edge of the bar 30 to absorb the shock and to prevent noise when the type-blocks 32 are restored to their initial positions.

It will be seen that, in the first part of the setting movement, when any one of the levers 3 to 9 is brought forward, a particular type-block is moved correspondingly, because of its toothed connection to the disk of said lever. The teeth on all the disks and type-blocks being of equal pitch, any type-block may be moved along under any disk, at right angles to the first part of the setting movement, as soon as the bridge 38 has cleared the ends of the portions 36 of the segment 31. However, the blocks must be held in contact with the lower side of the disks, and for this purpose a series of supports or prongs 39 are provided, so placed as to take into an opening or socket 40 in each type-block, and thus to support it.

Each support or prong 39 is fixed perpendicularly to one of a set of bars 41 which lie in guide ways 42 in a stationary frame 43 (see Figs. 3, 4, and 17). The bars 41 are short enough to allow considerable longitudinal movement before coming in contact with the end plate 1^b. Another set of bars 44, (see Figs. 16 and 17) each of which is fixed to one of the prongs 39, lies adjacent to the frame 43. These bars are turned downward at one end, as 45 (see Fig. 3), so as to be engaged by a bracket 69 and thereby to be moved into the normal position of rest as shown in Fig. 17.

From the foregoing it will be seen that when one or more type-blocks are slid down and off the segment 31, so that their sockets 40 engage corresponding prongs 39, the teeth 34 on the back of the type-blocks remain in engagement with the teeth on the disks, and the blocks may be slid sidewise until all the type-blocks that have been set by movements of the levers are brought close together and so will print their characters in consecutive order without undue spaces between them.

The units disk 22 has no movable type-block, as will be explained.

In order to print the amount of the check in figures, as well as in words, mechanism is provided as follows:—Adjacent to the disk 22 are two thin disks 46 and 47, to which are attached the levers 10 and 11, for tenths and hundredths, respectively. On each of these disks are figures "1" to "9". Next to the disk 47 is a thicker one 48, moved by the lever 12, and carrying type denoting the

several systems of currency, as, for instance, the words "Dollars", "Francs", "Marks". These disks 46, 47 and 48 are pivoted on the shaft 23, but the type-characters are not moved longitudinally. Between the disk 48 and the end plate 1^b is another series of disks 49, 50, 51, 52, 53, 54 and 55. These are normally held in the position shown in Fig. 2 by means of flexible bands 56 attached to tension springs 57 (see Figs. 8 and 9) in a similar manner to the disks 15 to 22, and also, by means of pawls 58, may be held in printing position. Portions of the disks 15 to 22 are cut away, as shown in Figs. 3 and 4. Through these openings extend flat, narrow bars 59, 60, 61, 62 and 63 (Fig. 14) attached to the disks 49, 50, 51, 52 and 53, respectively, at one end, and at the other end having a loose pivotal connection with the shaft 23.

The top edges of the opening in each disk 15 to 22 is so shaped as to depress a particular one of the bars 59 to 63, and thus to set the corresponding number on one of the disks 49 to 53 into printing position. For instance, on the disk 19 (Figs. 18 and 19), a step 64 will engage the bar 61; a like step on each other disk differently placed with reference to the center, will strike a particular one of the other bars 59, 60, 62 and 63, so that said bars will be depressed by their proper disks, and the numbers on the disks 49 to 53 will be set to correspond with the words on the type-blocks 32.

The disks 46 and 47 carry numbers which denote decimal divisions of currency, such as cents, if the U. S. money system is used. Therefore these are not printed in words, but their indications are repeated by the disks 54 and 55 respectively. The disks 47 and 55 are connected through the shaft 23, and the disks 46 and 54 are connected by a short bar 66 (Fig. 14) through a sleeve on said shaft.

To slide the movable type-blocks 32 into close contact with each other, a bar 67 movable in a guide-way 68 is so placed as to strike the first of said type-blocks, when the bar is moved to the right. As the type-blocks, when ready for printing, are carried by the prongs 39, both will be moved along together. Upon the rear side of the bar 67 is a bracket 69 (Fig. 24) adapted to engage the ends 45 of the bars 44, when the bar 67 is moved to the left. In its extreme left hand position, as shown in Fig. 17, the bracket 69 will have carried the bars 44 into contact with the end plate 1^a, and, when so placed, the prongs 39 are aligned with the notches 35. Then, upon the release of the disks 15 to 22, the type-blocks will be moved to their initial positions on the segment 31.

The bottom side of the bar 67 carries a number of type-characters, such as "XXXXX". These will always be printed immediately before the words on the first set

type-block, and renders it difficult or in fact impracticable to "raise" the check.

To operate the bar 67, mechanism is provided which will act positively, and still adjust itself to the varying travel of said bar when a greater or smaller number of type-blocks is set to the printing line. In order to close the space between the type-blocks, the bar 67 must travel farther when only two are set than when four or five are in position.

A cam-wheel 70 is fixed upon the shaft 14^a of the operating lever 14, and a segmental gear 71 on its inner face meshes with a pinion 72 on a countershaft 73 (see Fig. 13). Bevel gears 74 transmit the motion of this shaft to a shaft 75 held in bearings 76 on the end plate 1^a (Fig. 12). A gear 78, driven by a friction-clutch 79, engages a rack 80, which lies and slides in a slot 81 on the top of the bar 67. The rack 80 is made shorter than the said slot (see Fig. 24) in order that lost motion in the connecting gears may be taken up before the bar 67 moves.

Means are provided to hold said bar 67 stationary until the rack 80 reaches the end of the slot 81. This consists of a lever 82 pivoted in a bracket 83 (Fig. 25), and having a lug 84 on one end adapted to enter a notch 85 in the bar 67. A spring 86 tends to hold the lever in this position. A roller 87 on the opposite end of said lever is thus held in a depression 88 (Fig. 26) on the cam-disk 70.

When the operating-lever 14 is pulled forward, the rack 80 immediately begins to move, and at the instant it touches the end of the slot 81, the roller 87 rides out of the depression 83 onto the circular face of the cam-disk 70. The lug 84 is thus raised out of the notch 85 in the bar 67, and the said bar moves with the rack, pushing the set type-blocks on the supports or prongs 39 to the right side of the machine, and crowding them close together. If at this point the operating-lever 14 has not completed its forward travel, the friction clutch 79 slips, allowing the said lever to finish the other operations of the machine dependent upon it.

On moving the operating-lever back, the friction clutch drives the gear 78, and moves the rack 80 to the opposite end of the slot 81. The bar 67 then moves to the left with said rack, and the bracket 69 engages the ends 45 of the bars 44, pushing them all against the end plate 1^a. The clutch 79 then slips and allows the lever 14 to be thrown back to the starting point. The type-blocks thus having been brought opposite their respective guides, are pulled back into place by the action of the springs 28 as soon as the pawls 24 and 58 are disengaged from the toothed disks.

The disk-holding pawls 24 for the disks 15 to 22, and the pawls 58 for the disks 46 to 55

are hung free on a longitudinal shaft 89, and are normally pressed toward the respective toothed disks by the action of springs 90. These pawls are the retaining means for the several disks. Each disk is automatically caught by its pawl and held when it reaches a set position. Between the pawls and the said toothed disks is a pawl-operating bar 91, fixed at its ends to the shaft 89, so that when the shaft is turned forwardly, the bar 91 swings back and disengages all the pawls from their respective disks, and when the opposite movement takes place, the springs 90 operate to hold the pawls against the disks. The springs 90 and the bar 91 with its actuating mechanism, constitute the pawl-operating mechanism.

The teeth on the back of each of the disks 15 to 22 are cut away in the paths of the pawls 24 (see Fig. 6) sufficiently to allow the first row of type-characters to reach the printing line before said pawls can engage a disk. The purpose of this is to insure the return of each type-block to the zero position, and to avoid any possibility of its sticking part-way, in case the pawls should fail to release completely.

Fixed on the end of the shaft 89 outside of the end plate 1^a, is a block 92 (see Figs. 10, 11, and 13). Another block 93 is slidable in guides on said block 92, and in its forward position (Fig. 10) will be struck and tilted downward by a pin 94 on the cam-disk 70 when the operating-lever 14 is pushed back to "zero" or the starting point. This movement will swing the bar 91 backward as aforesaid, and release the pawls 24 and 58, as shown in Figs. 10 and 13.

When it is desired to reset the type-blocks for another operation of the machine, it is necessary that the pawls 24 engage the disks 15, 16, etc. Mechanism is provided to accomplish this result.

Each of the levers 3, 4, 5, 6, 7, 8, and 9, bears a bar 95 (see Figs. 3 and 7), on which is a dog or catch 96, and a stop to prevent movement thereof in one direction. A revolvable shaft 97 has fixed to it a bar 98 (see Fig. 3) which is engaged by the dog 96 and is tilted, when any lever 3, 4, etc. is pulled forward, and thus turns said shaft through a slight arc.

In line with the center of the block 92 is a bell-crank 99, pivoted at 100 (Figs. 10, 11 and 13), the lower end of which engages a pin 101 in the piece 93, the upper end having also a slot-and-pin or similar connection to a lever 102 on the shaft 97. The opposite end of lever 102 is normally pulled upward by a spring 103.

It will be seen that when the bar 98 is tilted as aforesaid, the lever 102 will be tilted also, and will thus swing the bell-crank 99, and move the block 93 backward and out from under the pin 94. As soon as this oc-

curs, the tension of the springs 90 acting through the shaft 89 will tilt the block 92 upward and thus will allow the pawls 24 and 58 to rest against the disks 15, 45, etc. After the dog 96 slips off the edge of the bar 98, the spring 103 (Fig. 13) tends to move the arm 102 and bell-crank 99 in the opposite direction to that just described, and the piece 93 will therefore be forced against the side of the pin 94. As the latter moves upward, on the forward stroke of the operating-lever 14, the spring 103 carries the piece 93 farther out, and into the position shown in Fig. 10, so that it will be struck by the pin 94 on the return stroke of the operating-lever, to release the pawls from all the disks.

The levers 10 and 11, on account of the short travel required to place the type carried by them at the printing line, have a different arrangement for actuating the shaft 97. In line with said levers a short bar 104 is fixed to the shaft 97. On the shaft 105 which carries the idler wheels 27 is a bell-crank 106, the upper arm of which is pivoted to one end of a lever 107, its lower end being normally pulled downward by a spring 108. A lug 106^a on the bell-crank 106 touches the bar 104 when in this position. The lever 107 is pivoted near its center on a pin 109, which extends through a slot 109^a, and its forward portion is forked. Each branch of the fork is hooked and passes beside one of the levers 10 and 11, and engages, as at 110, over a dog 111 on the lever (see Figs. 2 and 4).

When either lever 10 or 11 is brought forward, the dog 111 carries the lever 107 along and thus swings the bell crank 106 and moves the bar 104, which accomplishes the same result as the movement of the bar 98, i. e., permits the pawls 24 and 58 to engage their disks. As the bell-crank 106 swings on its shaft 105, the rear end of the lever 107 is drawn downward, and the forward end rises, and just as the lug 106^a slips over the top of the bar 104, the hooks 110 slip off the dogs 111. The spring 108 then returns these parts (lever 107 and bell-crank 106) to place.

In Fig. 7 is shown a modification, in which the flexible bands 26 and the idler wheels 27 on the disks 15 to 22 are replaced by links 26^a connected to bell-cranks 27^a. Said bell-cranks are pivoted on a shaft 27^b, and the springs 28^a act to pull them downward, and thus to carry the links 26^a toward the rear, returning the disks to normal position.

To aline the type-disks so that the type-blocks 32 may be slid along all of them, a universal bar 112 (Figs. 3, 4, 8, and 9) is fixed to lugs 113 on a shaft 114, and when the latter is turned, enters between teeth on the rear of said disks. The type-blocks will thus be accurately "lined up", and 13

also locked against accidental release. The means for turning the shaft 114 consists of an arm 115 (Figs. 2 and 13), in which is a roller 116, resting in a depression 117 on the upper edge of the cam-disk 70 (Fig. 13). When the operating-lever 14 is brought forward, the roller 116 rides on the circular face of the cam-disk, thus raising the arm 115, and when said lever is returned, a spring 118 pulls the arm 115 downward, thus lowering the arm 115 and swinging the bar 112 out from the type-disks.

In case it becomes necessary to print two or more checks alike, it would not be desirable to have the pawls 24 and 58 released, as this would allow all the type-blocks to return to zero, and they would then have to be reset. So mechanism is provided which may be used to hold the slide-piece 93 out of the path of the pin 94 and so prevent the bar 91 from releasing the said pawls. A lever 119 (Fig. 8) is pivoted to the inside of the end plate 1^b at 120. From said lever a link 121 extends to a crank 97^a on the shaft 97, so that when the lever is brought forward, the shaft 97 will be turned, and the slide-piece 93 in the block 92 will be moved, as before described, into the position shown in Fig. 11, out of the path of the pin 94. The lever 119 carries a pin 122, which will slip over the hooked end of a latch 123 (see Fig. 9). This latch is held in latching position on its pivot 124 by a spring 125, and so long as the lever 119 is so held the same amount may be reprinted by merely vibrating the operating lever. But when the parts are to be reset, the hooked latch may be disengaged from the lever 119, by means of an outside button 126, thus allowing the pin 122 to slip off the hooked end. A spring 127 then pulls the lever 119 back against the stop 128, and the slide-piece 93 is again allowed to enter the path of the pin 94, and thus the shaft 89 is tilted, the pawls 24 and 58 are withdrawn, and the disks are automatically reset.

The check-carrier 13 is a flat plate fixed to two parallel bars 129 (Figs. 3 and 30), which are toothed on their lower sides to form a pair of racks. Openings 130, 131 and 132 are cut through the plate 13 for the dating type, the main type-block line, and the consecutive-numbering device, respectively. Near the rear of said plate are a pair of adjustable stops 133 for the edge of a check, and a clip 134 is hinged at 135 and is adapted to snap down and hold the check in place by pressure of flat springs 136.

In the normal position the racks 129 rest in grooves in an extension base 137 (Fig. 12), but when the check-carrier is drawn into the machine, said racks rest on top of the main base 2.

The check carrier is driven as follows:—

The segmental gear 71 (see Fig. 13) on cam-disk 70 meshes with a pinion 138 in a bracket

139, which, in turn, drives a pinion 140 pivoted also in the bracket 139. On the same pivot with the pinion 140 is a mutilated gear 141, and adapted to drive a mutilated pinion 142 on a shaft 143. This shaft carries a pair of gears 144 (see Fig. 3) which engage the racks 129. On forward movement of the operating-lever 14, the toothed portion of the mutilated gear 141 drives the pinion 142, and the check-carrier travels into the machine, reaching the proper position for printing just as the un-toothed portions of said gear 141 and pinion 142 meet. The operating-lever may then continue to move forward, while the check-carrier remains at rest. On backward movement of the operating-lever, the carrier will remain at rest until the teeth of the gear 141 and pinion 142 again engage each other, and then will move outward with the printed check.

On a shaft 145 pivoted in the base 2, is a segment of a cylinder 146 (Figs. 1 and 3), the convex face of which is covered with a large number of sharp-pointed projections 147, very close together. A counterbalance 148 for said segment is also fixed to the shaft 145, which latter receives a rotary motion from the shaft 143 through a train of gears 149, 150, and 151, (Fig. 3).

Above the center of the shaft 145 is a roller 152, grooved to receive the projections 147. The gears 149, 150 and 151 are so proportioned that as the check-carrier 13 is moved inwardly, the segment 146 will enter the slot 131 in the check carrier, and the check held in said carrier will be pressed between the segment 146 and the roller 152, and punctured with many small holes, over the area on which the printing is to occur, (Fig. 34). Then, when the printing impression takes place, ink from the ribbon will enter the punctures in the check under the type-faces, and soak into the grain of the paper, so that it cannot be removed without almost destroying the check. Therefore it is practically impossible to alter an amount printed by this machine, without detection.

The impression mechanism consists primarily of a platen actuator 153 (Fig. 2), held in suitable guides 154 in the base. This platen actuator comprises wedges 155 which abut against corresponding wedges 156 on the lower side of the platen 157. The platen has a lug 158 forming a platen for the dating-type, and a lug 159 forming a platen for the type of the numbering device, 160, while the main part 157 is vertically under the printing line of the type-blocks 32. In the top edge of the platen a piece of rubber 161 may be inserted to give an even impression.

The left hand end of the platen actuator 153 is connected by a link 162 with a crank 163 on a segmental bevel gear 164 (see Figs. 2 and 13). The latter is pivoted in a boss 165, and meshes with another gear 166, on 130

the lower end of a lever 167 which swings on a pivot 168. In the upper end of the bar 167 is a roller 169, lying in a cam-slot 170 in the cam-disk 70 (Fig. 13).

5 On forward movement of the operating-lever 14, the cam-disk 70 will be turned in the direction shown by the arrow in Fig. 13, and the roller 169 will move in the cam-slot 170 toward the front of the machine. The gear 10 166 will swing back, and thus turns the gear 164, moving the link 162 and the platen-actuator 153 toward the right in Fig. 2. The action of the wedges 155 and 156 on each other will cause the platen 157 to rise in its 15 guides, until it strikes the type. On backward movement of the operating-lever 14 the platen will be brought down by the action of springs 171 fastened at their lower ends to the guides 154, and at the upper ends to 20 the platen.

The inking medium, as before mentioned, is a ribbon 172 (Figs. 3 and 4), wide enough to lie under all the type-disks. It is wound on spools 173 and 174, which are revolvably 25 supported, respectively, on shafts 175 and 176, and passes under a guide-roller 175^a and over a guide-roller 175^b. Attached to the lever 167, by a link 177, is a rack bar 178 (Fig. 13), adapted to slide back and forth in 30 guides 179 as said lever 167 moves. Projecting from one side of the rack bar 178 is a wedge 180 (Figs. 12 and 13) adapted to raise a bell-crank 181 by striking a pin 182 thereon. The said bell-crank is hung at 183 and carries 35 a pawl 184 which engages a ratchet wheel 185 on the shaft 176. When the lever 167 swings outward, the ratchet wheel 185 will advance one tooth, and a spring pawl 186 prevents the ratchet wheel from revolving 40 backward.

The shafts 175 and 176 are connected by a link chain 187 running over idlers 188 (Fig. 12). It will be seen from Fig. 13 that the said shafts must therefore continually turn 45 in one direction, which results in the winding of all the ribbon on the spool 174.

It will be seen that the ribbon 172 is wound on the spools in such a manner that if the spool 174 is turned by its shaft in the direction of the hands of a clock in Fig. 3, the 50 ribbon will be wound thereon, and unwound from the spool 173, when the latter is free from its shaft, while if the spool 173 is turned by its shaft in the same direction, the ribbon 55 will be wound upon it, and unwound from the spool 174, when the latter is free upon the shaft 176. Clutch devices are provided for connecting said spools to their shafts and for disconnecting them therefrom.

60 On the end of the spool 174 opposite the driving ratchet is one member of a clutch 189 (see Figs. 22 and 23), and a similar member 190 is fixed to the corresponding end of the spool 173. A clutch member 191 is held by 65 a feather on the shaft 176, and another 192

is also held on the shaft 175 in the same manner. When the clutch members 190 and 192 are engaged (Fig. 22), the spool 173 is winding up the ribbon 172 in a direction shown by the arrow upon the latter; the 70 spool 174 and the clutch member 191 are rotating in opposite directions.

A bar 193, pivoted at 194, is forked at its ends to enter a groove 195 in each of the clutch members 191 and 192. It will be 75 seen that if the said bar is swung on its pivot, the clutch members 189 and 191 will be thrown into engagement, and the clutch members 190 and 192 will be thrown out of engagement. The ribbon is thus reversed, 80 and will be wound up on the spool 174, traveling in a direction contrary to that shown by the arrow in Fig. 22.

The means for swinging the bar 193 are automatic, and the parts are so proportioned 85 that the ribbon will be reversed once in about 500 strokes of the operating lever. Fixed on the bar 193 is a plate 196, from which two pins 197 project downwardly, one on each side of a cam 198. This cam is on a horizon- 90 tal countershaft 199, which has at its rear end a worm-wheel 200 in engagement with a worm 201 on the shaft 176. The pins 197 fit close to the sides of the cam 198, and as shown in Fig. 23, the said sides are formed so 95 that the said pins will be moved sidewise in two opposite directions at each half revolution of the cam, thus swinging the plate 196 and the bar 193. A spring-pin 202 snaps into one of two notches 203 in the edge of 100 the plate 196, holding the bar 193 from vibration and latching it in position.

A record-strip may be used in the machine for taking a copy of each impression. In the present case this strip 204 is shown as mount- 105 ed in roll form on a shaft 205, which is supported in brackets 206 (see Fig. 3). The strip is led under an idler 207, and runs close to the top of the ribbon 172, then between two rubber feed rollers 208 and 209, and out 110 from the rear of the machine, being fed by the intermittent rotation of the roller 208. The shaft of said roller has fixed upon it a ratchet 210 (Fig. 27), and a pawl carrier 211 on a revoluble sleeve 212 carries a pawl 213, 115 which is held in contact with said ratchet by a spring 214. The sleeve 212 also carries a pinion 215 meshing with the rack 216 in the rack bar 178, (Fig. 13). When the operating-lever 14 is moved forward, the pawl-car- 120 rier 211 and pawl 213 are rotated without moving the roller 208, but on the rearward stroke of said lever, the pawl 213 engages the ratchet 210, and the roller 208 is turned, feeding the record-strip 204 a suitable dis- 125 tance to provide a fresh ribbon surface for the next impression.

The consecutive-numbering device 160 (Figs. 15 and 16) may be of any ordinary type, employing a series of type-carrying 130

wheels advanced by means of a pawl or pawls. In the present case an indicator 217 is also shown, close to an opening 218 in the top of the case 1, which duplicates the setting of the numbering device. The said indicator and numbering device are connected by a bar 219, so that the indicator will at all times move with the numbering wheels. The means for automatically actuating the device consists of an arm 220, fixed to the shaft 114, and having a slot-and-pin connection with the bar 219. Every time the shaft 114 is rocked, as before described, the arm 220 moves upward a sufficient distance to advance the numbering-wheels one digit. Said arm is pulled downward by a spring 221. The slot 219^a in the bar 219 is for the purpose of permitting the latter to be moved, and the type advanced, by pressure on a button 222 which extends through the case 1, without movement of the arm 220.

The dating device in the present case consists of a rod 223 (Figs. 28 and 29) in which are set type-characters 224, held in place by a thumbscrew 225. The rod 223 is slipped in a proper opening in the end plate 1^b, and is prevented from dropping out or turning around by a latch 226 adapted to enter a slot 227 in the enlarged end of said rod.

In Figs. 5 and 6 the construction of the units type-disk 22 is shown, which carries the words "One" to "Nine", also the word "and" immediately preceding "One". Said disk 22 has between it and the disk 21 a portion 22^a, to which the lever 9 is attached. From the right side of the disk 22^a a lug 228 extends into a notch 229 in the top of the disk 22. Said lug will engage the end of the notch 229 in the disk 22 and move the disk forward when the lever 9 is advanced far enough. In normal position the word "and" is printed when the lever 9 is not pulled forward to set any digit from "one" to "nine". This is for the purpose of preventing the "raising" of a check on which an amount ending in a cipher is printed. Thus \$480.61 would print as follows: "Four hundred eighty and .61 dollars \$480.61". When the lever 9 is set to print "3", the impression will show thus: "Four hundred eighty three .61 dollars \$483.61".

The complete cycle of operations of the machine is as follows:—Suppose it were desired to print the amount of \$6284.56. A blank check is inserted, face upward, in the carrier under the clip 134 and so far that its rear edge abuts against the stops 133, and then the clip 134 is snapped down to hold the check in place. The lever 5 is then pulled forward by the operator until it is opposite "6" on the casing. This one movement allows all the pawls 24 and 58 to rest against their respective toothed disks, preventing the latter from going back from the set position under the actions of their springs. The lever

6 is then pulled forward to "2", the lever 7 to "80", the lever 9 to "4", the levers 10 and 11 to "5" and "6", respectively, and the lever 12 to "Dollars". The type-blocks for these levers, and their corresponding disks 51, 52, etc., are moved to the printing line. The operator then pulls the lever 14 forward, and immediately the check-carrier and the rack 80 move toward the interior of the machine, while at the same time the perforating roll 146 revolves, the arm 220 rises, preparing to advance the numbering mechanism, and the locking-bar 112 enters between the teeth on the disks 15 to 22 and 46 to 55, aligning all the set type-blocks. As the lever 14 continues to move forward, the latch 82 is lifted out of the notch 85, and the rack 80 carries the bar 67 along, striking the first type-block, and moving it and the other set type-blocks into juxtaposition against the disk 22. At this time the cam-slot 170 has moved the lever 167 and the platen 157 is therefore moving upward, the bar 178 is moving toward the rear, turning the plate 211, which carries the pawl by which the record-strip roller 208 is turned. As soon as the type-blocks are closed against each other, the bar 67 can be driven no farther, so the friction clutch 79 slips, while the lever 14 continues to move forward until the platen 157 squeezes the check against the ribbon, the record strip and the type, and makes an impression. Then said lever has reached the end of its stroke and the printing operation is completed.

When the operator pushes the lever 14 back, the platen 157 begins to move downward, and the rack 80 moves to the left. As the lever 167 swings forward, the rack 216 revolves the pinion 215, and the record-strip is fed along by the roller 208. The rack 80 then reaches the end of the slot 81, and carries the bar 67 along toward the left. The check-carrier 13 also starts toward the front. When the bracket 69 strikes the bent ends 45 of the bars 44, the type-blocks on their supporting forks 39 will be carried along, and when said ends 45 touch the end plate 1^a, the type-blocks will be in line with their respective slots in the segment 31. The latch 82 drops into the notch 85, and, as the bar 67 can move no farther, the clutch 79 again slips, while the lever 14 continues its backward movement. As the operating lever goes farther back, the roller 116 drops into the depression 117, and the locking or aligning bar 112 is swung out from the type-disks, while at the same time the arm 220 swings downward, advancing the numbering device one unit.

When the operating lever reaches the end of its stroke, the pin 94 on the cam disk 70 depresses the blocks 93 and 92, swinging the bar 91 and thus releasing the pawls 24 and 58 from the teeth of the type-disks. The

latter are then returned to "zero" by the tension of the springs 28.

When the check is removed from the carrier 13, it will have on it the date printed in the upper right-hand corner, the number in the lower left-hand corner (Fig. 34), and across the middle, on a perforated surface, will appear the amount of the check in words and figures, as follows: "XXXX Six thousand two hundred eighty four .56 dollars \$6284.56."

Referring to Fig. 1, it is obvious, from the numerals engraved on the casing 1, that to print, say "18000", it will be necessary to move only the lever 4 to a position opposite the figure 18. This brings down the type-block carrying the words "Ten" to "Nineteen". But in order to duplicate the amount in figures, namely, by means of the disks 49, 50, etc., it is necessary to move two of said disks to printing position, because each disk carries but one row of figures "1" to "9". Therefore, to print "18000" in figures, the disk 49 must be advanced to "1," and the disk 50 to "8" by a single movement of the lever 4. This is accomplished as follows: On the right-hand side of the disk 15 is a cam 230, Fig. 35, having a depression 231. A pawl 232, Fig. 36, is pivoted on the left side of the disk 16, so that its rear end rests normally in said depression, and a flat spring 233 presses said end downward. When the lever 4 is brought forward, the disk 16 revolves, and the pawl 232 moves until it strikes the bar 59 which is fixed to the disk 49 (Fig. 14). The bar 59 is thus moved downward, (Fig. 37) and the numeral "1" on the disk 49 is advanced to the printing-line. At the same time a step 65 strikes the top of the next bar 60, which is fixed to the disk 50. Now, as the lever 4 is farther advanced, the rear end of the pawl 232 rides out of the depression 231 and upon the cam 230. Its front end is thus moved inward, (Fig. 38) out of the path of the bar 59. Said bar then remains stationary, (because the disk 49 is held by a pawl 58), and the bar 60 is depressed by the tongue 65 in exact ratio to the movement of the lever 4, so that when said lever is opposite "8" on the casing, the numeral "8" on the disk 50 is at the printing-line. A similar pawl 234 (Fig. 40) is carried by the disk 21, and a cam 235 (Fig. 39) is formed on the disk 20 to engage it. The pawl 234, in its downward movement, strikes the bar 62, moving it one unit, and then is thrown off by the cam 235. This operation carries the numeral "1" on the disk 52 to printing position. Further movement of the lever 8 causes a shoulder 236 on the disk 21 to strike the bar 63, and thus the numerals on the disk 53 are advanced to the printing line, as indicated by the position of the said lever.

What I claim is:—

1. In a printing mechanism, a series of

type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the set type-blocks together and into printing position, means having a predetermined operating stroke for operating said bar and comprising a connection having engaging parts adapted to slip upon each other upon occurrence of a predetermined resistance between said means and said bar, whereby said means and said bar may take and retain their operated positions, and restoring mechanism for said type-blocks.

2. In a printing mechanism, the combination of a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the set type-blocks laterally and into printing position, platen mechanism, means having a predetermined operating stroke for operating said platen mechanism and for operating said bar and comprising a connection having engaging parts adapted to slip upon each other upon occurrence of a predetermined resistance with the bar whereby said means and said bar may take and retain their operated positions, and restoring mechanism for said type-blocks.

3. In a printing mechanism, a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the said type blocks laterally and into the printing position, platen mechanism, operating mechanism having a predetermined operating stroke for actuating said platen mechanism and said bar, and comprising a slipping friction clutch between said operating mechanism and said bar, whereby said mechanism and said bar may take and retain their operated position and restoring mechanism for said type-blocks.

4. In a printing mechanism, a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the set type-blocks together and into printing position, means having a predetermined operating stroke for operating said bar and comprising a connection having engaging parts adapted to slip upon each other upon occurrence of a predetermined resistance between said means and said bar, whereby said means and said bar may take and retain their operated positions, restoring mechanism for said type-blocks, and a connection between said restoring mechanism and said slipping connection.

5. In a printing mechanism, the combination of a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the set type-blocks laterally together and into printing position, platen mechanism, means having a predetermined operating stroke for operating said platen mechanism and for operating said bar and comprising a connection having engaging parts adapted to slip upon each

other upon occurrence of a predetermined resistance with the bar, whereby said means and said bar may take and retain their operated positions, restoring mechanism for said type-blocks, and a connection between said restoring mechanism and said slipping connection.

6. In a printing mechanism, a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the said type-blocks laterally and in the printing position, platen mechanism, operating mechanism having a predetermined operating stroke for actuating said platen mechanism and said bar, and comprising a slipping friction clutch between said operating mechanism and said bar, whereby said mechanism and said bar may take and retain their operated position, restoring mechanism for said type-blocks, and a connection between said restoring mechanism and said slipping friction clutch.

7. In a printing mechanism, a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the set type-blocks together and into printing position, means for operating said bar comprising a slipping connection, restoring mechanism for said type-blocks, a latch for holding said bar in its initial position, and means for automatically releasing said latch after movement of the operating mechanism has begun.

8. In a printing mechanism, the combination of a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the set type-blocks laterally together and into printing position, platen mechanism, means for operating said platen mechanism and for operating said bar comprising a slipping connection to the bar, restoring mechanism for said type-blocks, a latch for holding said bar in its initial position, and means for automatically releasing said latch after movement of the operating mechanism has begun.

9. In a printing mechanism, a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the set type-blocks laterally and into printing position, platen mechanism, operating mechanism for actuating said platen mechanism and said bar comprising a slipping friction clutch between said operating mechanism and said bar, restoring mechanism for said type-blocks, a latch for holding said bar in its initial position, and means for automatically releasing said latch after movement of the operating mechanism has begun.

10. In a printing mechanism, a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the set type-blocks together and into printing position, means for operating said

bar comprising a slipping connection, restoring mechanism for said type-blocks, a connection between said restoring mechanism and said slipping connection, a latch for holding said bar in its initial position, and means for automatically releasing said latch after movement of the operating mechanism has begun.

11. In a printing mechanism, the combination of a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the set type-blocks laterally together and into printing position, platen mechanism, means for operating said platen mechanism and for operating said bar comprising a slipping connection to the bar, restoring mechanism for said type-blocks, a connection between said restoring mechanism and said slipping connection, a latch for holding said bar in its initial position, and means for automatically releasing said latch after movement of the operating mechanism has begun.

12. In a printing mechanism, a series of type-blocks, means for setting one or more of said type-blocks to a printing line, a bar for pushing the set type-blocks laterally and into printing position, platen mechanism, operating mechanism for actuating said platen mechanism and said bar comprising a slipping friction clutch between said operating mechanism and said bar, restoring mechanism for said type-blocks, a connection between said restoring mechanism and said slipping friction clutch, a latch for holding said bar in its initial position, and means for automatically releasing said latch after movement of the operating mechanism has begun.

13. In a printing mechanism, the combination of a series of type-block carriers, a type-block upon each carrier, stationary means for supporting said type-blocks on said carriers, type-block supports each adapted to receive a particular type-block and to support it in its movement from the set position to the printing position, shifting means for pushing the set type-blocks to the printing position, means for moving said type-block supports from the printing positions to their initial positions, and means having a predetermined operating stroke for operating said shifting means and said type-block supports comprising a connection having engaging parts adapted to slip upon each other upon the occurrence of a predetermined resistance.

14. In a printing mechanism, the combination of a series of type-block carriers, a type-block upon each carrier, stationary means for supporting said type-blocks on said carriers, type-block supports each adapted to receive a particular type-block and to support it in its movement from the set position to the printing position, shifting

means for pushing the set type-blocks to the printing position, means for moving said type-block supports from the printing positions to their initial positions, and means
 5 having a predetermined operating stroke for operating said shifting means and said type-block supports comprising a slipping friction clutch connecting said means and said shifting means whereby they may take and retain
 10 their operated positions.

15 15. In a printing mechanism, a series of type-block carriers for setting type-blocks to a printing line, type-blocks on said carriers, means for moving the set type-blocks from
 15 said carriers to a printing position, means for restoring the set type-blocks to the carriers, automatic retaining means for holding each carrier in its set position, platen mechanism,
 20 operating mechanism therefor, automatic apparatus controlled by the operating mechanism for releasing all said retaining means simultaneously, and means for holding said
 25 releasing apparatus out of action whereby the operation of the mechanism is duplicated.

16. In a printing mechanism, the combination of two series of type-blocks, means for
 30 setting the same to a printing line, shifting means for moving certain type-blocks of one series along the supporting means to positions thereon adapted to print without undue
 35 spaces between the printed characters, connecting means between the two series of type-blocks comprising a series of bars connected with the second series of type-blocks,
 40 means connected with the type blocks of the first series for striking and moving the respective bars to different positions in accordance with the setting of the type-blocks of the first series, platen mechanism, and means for
 45 moving said shifting means laterally and for actuating said platen mechanism.

17. In a printing mechanism, the combination of two series of type-blocks, means for
 50 setting type-blocks of one series to a printing line, shifting means for moving type-blocks of the same series laterally to positions adapted to print without undue spaces between the printed characters, a series of bars
 55 connected with the type-blocks of the other series, differently placed steps connected with the type-blocks of the first series adapted to strike the respective bars so that the type-blocks of the second series are set by movement to the printing line of the type bars of the first series, platen mechanism, and means
 60 for operating said platen mechanism and for moving said shifting means laterally.

18. In a printing mechanism, the combination of movable type-blocks, platen mechanism;
 65 means for restoring the type-blocks to their initial positions, a check carrier, and a common operating apparatus for moving the type-blocks to printing position, then for moving the check carrier into printing position, then operating the platen mechanism,

then returning the check carrier, and then returning the moved type-blocks.

19. In a printing mechanism, the combination of a series of type-blocks movable to and from printing positions, a check carrier having an aperture, platen mechanism, and a
 70 common means for moving the set type-blocks to the printing position, then moving the check carrier into printing position, then effecting the printing impression, then returning the check carrier, and then returning
 75 the moved type-blocks to their initial positions.

20. In a printing mechanism, the combination of movable type-blocks, platen mechanism, a check carrier having an aperture,
 80 means for puncturing the check over the area on which the printing is to occur through said aperture, and a common operating apparatus for moving said type-blocks to printing
 85 position, then moving the check carrier into printing position, puncturing the check as it moves into printing position, then effecting the printing impression, then returning the check carrier, and then restoring the moved
 90 type-blocks to their initial positions.

21. In a printing mechanism, the combination of movable type-blocks, platen mechanism, a check carrier for carrying a check into and out of printing position, a paper puncturing device for puncturing the whole surface of the check over the printed area, and a common operating apparatus for operating the parts, first, to carry the check carrier into printing position, next, to puncture the whole printing surface of the check as it moves on the carrier into printing position, next, to operate the platen mechanism, and then to remove the check carrier from the printing position.
 105

22. In a printing mechanism, the combination of movable type blocks, platen mechanism, a check carrier for carrying a check into and out of printing position, a paper puncturing device for puncturing the check over the printed area, and operating apparatus for operating the parts, first, to carry the check carrier into printing position, next, to puncture the check as it moves on the carrier into printing position, next, to operate the platen mechanism, and then to remove the check carrier from the printing position, the said puncturing apparatus comprising a grooved roller and a cylindrical segment having a surface covered with points adapted to co-
 115 operate with the surface of the roller.
 120

23. In a printing mechanism, the combination of movable type-blocks, a rocking lever, platen mechanism actuated from said lever, a link connected to said lever, a rack reciprocated by the link, a gear meshing with the rack, a roller for actuating a record strip, and a pawl and ratchet connection between said gear and said roller.
 125

24. In a printing mechanism, the combination of movable type-blocks, a rocking lever, platen mechanism actuated from said lever, a link connected to said lever, a rack reciprocated by the link, a gear meshing with the rack, a roller for actuating a record strip, and a pawl and ratchet connection between said gear and said roller.
 130

tion of movable type-block carriers having teeth registering with each other, toothed type-blocks supported in said carriers, means for moving blocks along said carriers
 5 after setting them to a printing line, a universal bar adapted to engage and to aline said teeth, platen mechanism, operating means for moving said type-blocks and for operating the platen mechanism, comprising a cam, a
 10 lever provided with a segmental gear, a gear meshing with said segmental gear, and a link from said gear to said platen mechanism, and a connection therefrom to said universal bar for operating the same to engage with and to
 15 disengage from said teeth.

25. In a printing mechanism, the combination of movable type-block carriers having teeth registering with each other, toothed type-blocks supported on said carriers, means
 20 for moving blocks along said carriers after setting them to a printing line, a universal bar adapted to engage and to aline said teeth, platen mechanism, operating means for moving said type-blocks and for operating said
 25 platen mechanism comprising a rocking cam, a lever operated thereby, a connection from said lever to said universal bar for operating the same to engage with and to disengage from said teeth, and a geared connecting
 30 means between said cam and said platen mechanism.

26. In a printing mechanism, the combination of movable type disks having teeth, spring pawls for engaging the teeth and holding the respective disks in set position, platen
 35 mechanism, operating means for said platen mechanism, means for disengaging all the pawls from the disks after completion of a printing impression, and means for causing
 40 all the pawls to engage the disks when any type disk is moved to set the same.

27. In a printing mechanism, the combination of movable type disks having teeth, spring pawls for engaging the teeth and holding the respective disks in set position, platen
 45 mechanism, operating means for said platen mechanism, means for disengaging all the pawls from the disks after completion of a printing impression, means for causing all the
 50 pawls to engage the disks when any type disk is moved to set the same, and automatic means for restoring the disks to their initial positions.

28. In a printing mechanism, the combination of movable type disks having teeth, spring pawls for engaging the teeth and holding the respective disks in set position, platen
 55 mechanism, operating means for said platen mechanism, means for disengaging all the pawls from the disks after completion of a printing impression, means for causing all the
 60 pawls to engage the disks when any type disk is moved to set the same, springs for restoring the disks to their initial positions,
 65 and connections from the springs to the disks.

29. In a printing mechanism, the combination of movable type disks having teeth, spring pawls for engaging the teeth and holding the respective disks in set position, platen
 mechanism, operating means for said platen
 70 mechanism, means for disengaging all the pawls from the disks after completion of a printing impression, means for causing all the pawls to engage the disks when any type
 75 disk is moved to set the same, springs for restoring the disks to their initial positions, levers operated by the springs, and links connecting the levers and the disks.

30. In a printing mechanism, the combination of movable type blocks having teeth, spring pawls for engaging the teeth and holding the respective disks in set position, platen
 mechanism, operating means for said platen
 80 mechanism, means actuated from said operating means for disengaging all the pawls
 85 from the disks after completion of a printing impression, and means for causing all the pawls to engage the disks when any type disk is moved to set the same, comprising a dog
 90 carried by each disk, a bar with which all the dogs normally engage, and connections from said bar to all the pawls.

31. In a printing mechanism, the combination of movable type disks having teeth, spring pawls for engaging the teeth and holding the respective disks in set position, platen
 95 mechanism, operating means for said platen mechanism, automatic means for causing all the pawls to engage the disks when any type
 100 disk is moved to set the same, means for disengaging all the pawls from the disks after completion of a printing impression, comprising a striker movable with said operating
 105 means, a lever, and connections therefrom adapted to disengage all the pawls from the disks, and a block on said lever adapted to be moved into and out of the path of said
 110 striker.

32. In a printing mechanism, the combination of a series of type-blocks adapted to be set to and held at a printing line, platen
 110 mechanism, means for actuating the platen mechanism to make an impression against said type-blocks, an inking ribbon, two
 115 spools therefor, means for driving one of said spools from said platen-operating means, alternately acting clutches on both spools, and means for shifting said clutches actuated
 120 from said platen operating mechanism.

33. In a printing mechanism, the combination of a series of type-blocks adapted to be set to and held at a printing line, platen
 120 mechanism, means for actuating the platen mechanism to make an impression against said type-blocks, an inking ribbon, two spools
 125 therefor, means for driving one of said spools from said platen-operating means, alternately acting clutches on both spools, a cam operated from said platen operating mechanism and adapted to shift said clutches, and
 130

step by step mechanism actuated from the platen operating mechanism for moving said cam.

34. In a printing mechanism, the combination of a series of type-blocks adapted to be set to and held at a printing line, platen mechanism, means for actuating the platen mechanism to make an impression against said type-blocks, an inking ribbon, two spools therefor, means for driving one of said spools from said platen-operating means, a driving connection between both spools, alternately acting clutches on both spools, and means for shifting said clutches actuated from said platen operating mechanism.

35. In a printing mechanism, the combination of a series of type-blocks adapted to be set to and held at a printing line, platen mechanism, means for actuating the platen mechanism to make an impression against said type-blocks, an inking ribbon, two spools therefor, means for driving one of said spools from said platen operating means, a driving connection between both spools, alternately acting clutches on both spools, a cam operated from said platen operating mechanism and adapted to shift said clutches, and step by step mechanism actuated from the platen operating mechanism for moving said cam.

36. In a printing mechanism, the combination of two series of movable type-blocks the second of which is set by the first, connecting means between the two series comprising bars connected with blocks of the second series, means connected with blocks of the first series for striking and moving particular bars to different positions in accordance with the setting of the type-blocks of the first series, and platen mechanism.

37. In a printing mechanism, the combination of two series of movable type-blocks the second of which is set by the first, connecting means between the two series comprising bars connected with blocks of the second series, means connected with blocks of the first series for striking and moving particular bars to different positions in accordance with the setting of the type-blocks of the first series, connections between adjacent blocks of the first series, whereby movement of one block moves the adjacent block of the second series, one digit and then is disengaged from said adjacent block, and platen mechanism.

38. In a printing mechanism, the combination of two series of type disks the second of which is set by the first, connecting means between the two series comprising bars connected with disks of the second series, means connected with disks of the first series for striking and moving particular bars to different positions in accordance with the setting of the type-disks of the first series, a pawl on one of the disks of the first series adapted to engage the bar relating to said disk, a cam upon the adjacent disk for disengaging said pawl from its bar when it has moved said bar one digit and then is disengaged from said adjacent disk, and platen mechanism.

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Witnesses:

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