F. OCUMPAUGH.

PRINTING DEVICE.

APPLICATION FILED JUNE 29, 1914.

1,158,545.

Patented Nov. 2, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

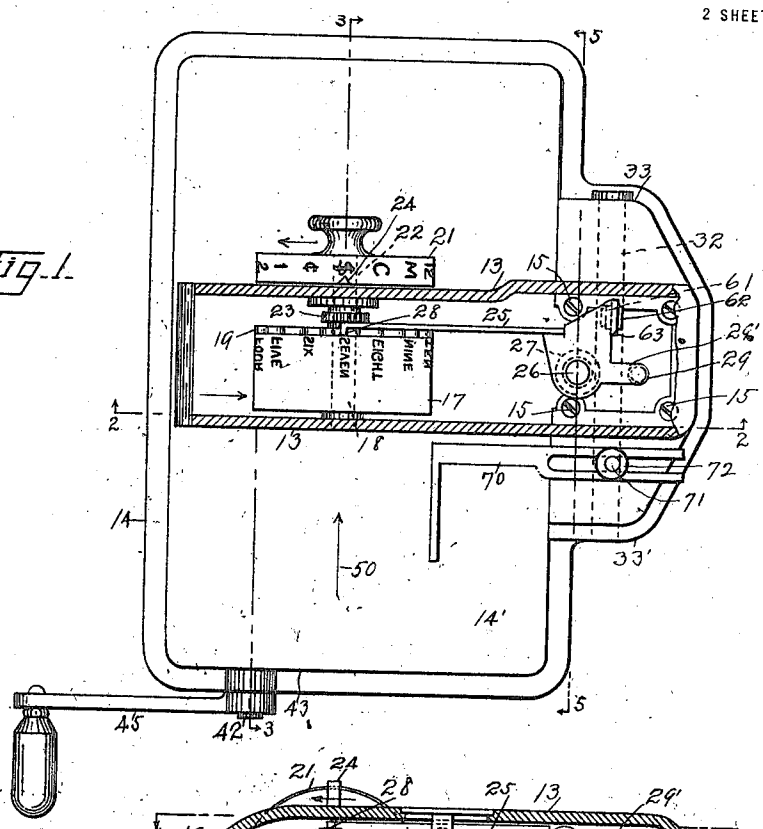
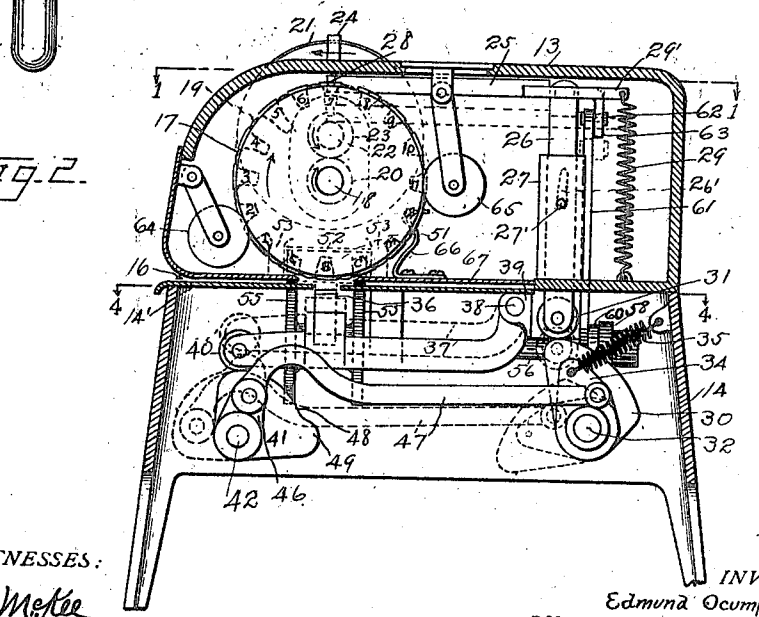


Fig. 2.



WITNESSES:

W. C. McKee

George D. Wallace.

INVENTOR.

Edmund Ocumpaugh

BY

Harry D. Wallace

ATTORNEY.

E. OCUMPAUGH.

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2 SHEETS—SHEET 2.

Fig. 3.

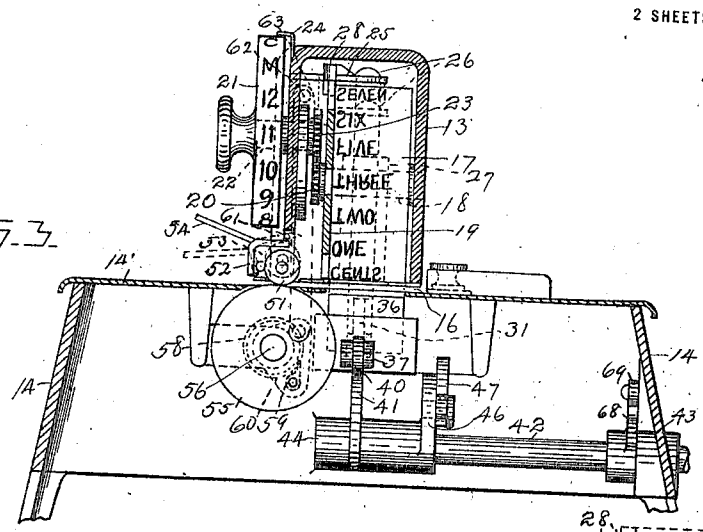
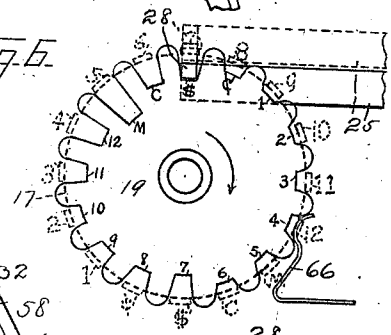


Fig. 6.



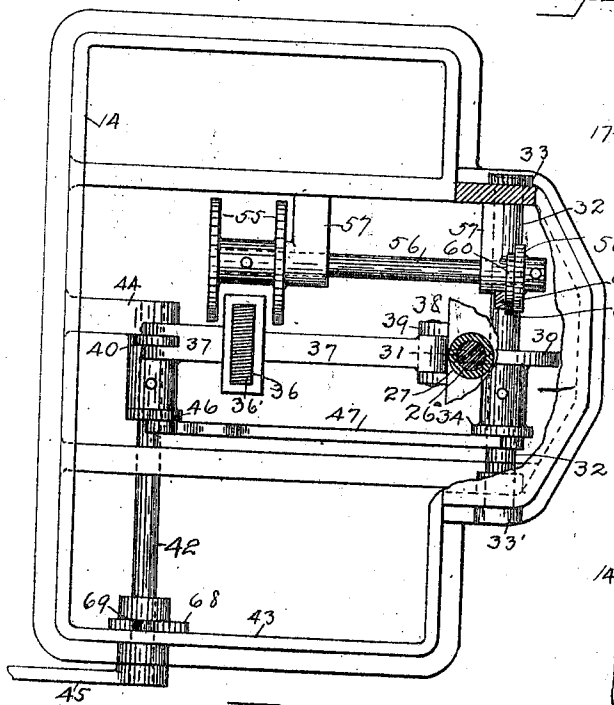


Fig. 4.

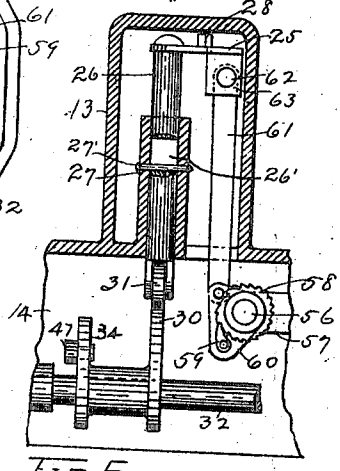


Fig. 5.

WITNESSES:

W. C. McKee

George H. Wallace.

INVENTOR.

Edmund Ocumpaugh

BY Harry D. Wallace.

ATTORNEY.

UNITED STATES PATENT OFFICE.

EDMUND OCUMPAUGH, OF ROCHESTER, NEW YORK, ASSIGNOR TO DEFIANCE MACHINE COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

PRINTING DEVICE.

1,158,545. Specification of Letters Patent. Patented Nov. 2, 1915.

Application filed June 29, 1914. Serial No. 847,842.

To all whom it may concern:

Be it known that I, EDMUND OCUMPAUGH, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Printing Devices, of which the following is a specification.

This invention relates to improvements in devices designed for printing or impressing upon checks, drafts, or other negotiable instruments, characters or marks, by which such instruments are limited as to the monetary or other value, the said markings being applied in such manner that fraudulent alteration is practically impossible.

The particular object of my invention is to provide novel and simple means for feeding the checks or drafts during the printing or marking thereof, as well as to properly space the printed characters.

A further object is to provide novel, simple and positive means for locking and holding the type or die wheel in the successive printing positions. And a further object is to generally improve, simplify and cheapen the construction of check printing and protecting devices.

Other features and part of the invention will be understood from the detailed description which follows, and by reference to the accompanying drawing, in which—

Figure is a top-plan view, and part section, taken on line 1—1 of Fig. 2. Fig. 2 is a transverse vertical section, substantially on line 2—2 of Fig. 1. Fig. 3 is a central vertical section, substantially on line 3—3 of Fig. 1. Fig. 4 is a horizontal section taken on line 4—4 of Fig. 2. Fig. 5 is a fragmentary vertical section taken on line 5—5 of Fig. 1. Fig. 6 is an enlarged detail view of the gage-wheel and the arm which regulates the spacing of printed characters, and locks the type-wheel in the printing position.

In the drawings, 13 and 14 represent respectively the upper and lower hollow casings, which are secured together near the rear of the machine by screws 15, so as to provide a relatively narrow horizontal slot or opening 16 through which the check or other instrument to be operated upon is automatically fed.

17 represents the type or printing wheel which is journaled in the casing 13 by a shaft 18, the latter also supports a gage-wheel 19 concentric to wheel 17, and a spur-gear 20 by which the said wheels are driven, the said parts all preferably secured together and journaled on the shaft 18.

21 represents the index-wheel which bears the characters, words or letters corresponding to similar characters which are embossed upon the periphery of the printing wheel 17. The index-wheel is journaled by a shaft 22 to one side of the casing 13, the inner end of said shaft supporting a spur-gear 23, which meshes with and drives gear 20. The rotating of the index wheel toward the left rotates the wheels 17 and 19 in the opposite directions (see arrows in Figs. 1, 2 and 6).

For clearness in illustrating and describing my invention I have shown but sixteen different index and printing characters, which may be printed or impressed upon checks, or drafts, as follows: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, M, C, $ and ¢. These all appear on the periphery of the index-wheel 21, while the words representing those ordinals and letters, are embossed on the wheel 17, as best seen in Figs. 1 and 2 and 3.

The gage-wheel 19 is provided with radial notches or slots in its periphery (see Fig. 6), there being one notch for each of the characters carried by the index and type wheels. The full and dotted lines in Fig. 6 show how the type wheel and the gage-wheel are disposed relatively to each other, wherein the notches for the different characters are disposed in the gage-wheel diametrically opposite the same characters on the type-wheel, while the character notches of the gage 19 correspond exactly with the disposition and location of the index on the wheel 21. That is to say, when it is desired to impress the word "Dollars" on a check, the $ on wheel 21 is first brought opposite the pointer 24 (see Fig. 1), this brings the "Dollars" notch in the gage 19 at the top, and at the same time the embossed type for "Dollars" on the type-wheel 17 are at the bottom facing the slot 16, which is the printing position (see Figs. 1, 3 and 6). To hold the wheel 17 in the printing position I provide a horizontal arm 25 which is rigidly mounted on the upper end of a vertically reciprocatable plunger 26, the latter being slidable in a hollow bearing 27, disposed in the rear part of the casing 13. The forward end of the arm or bar 25 is bent to provide a lug 28 which,

when idle is held directly over the central top notch of the gage wheel 19 (see full lines Figs. 2 and 3), and which when lowered immediately in advance of the printing of the characters on a check or draft enters the said notch for locking and holding the wheels 17, 19 and 21 stationary until the printing is effected. (See dotted lines Figs. 2, 3, and full lines Fig. 6). The gage 19 is movable with the type wheel 17, and may be an integral part of the type-wheel. The arm 25 and plunger 26 are moved downwardly for effecting the said locking by a spring 29, which connects to the rear end 29′ of the said arm. The plunger 26 and arm 25 are raised to the idle position shown in full lines in Figs. 2, 3 and 5, and in dotted lines in Fig. 6, by a cam 30 which engages a roller 31 carried by the lower end of said plunger. The said cam is mounted on a rock-shaft 32, the opposite ends of said shaft being journaled in the walls 33 and 33′ of casing 14. The shaft 32, also carries a crank 34, to which a spring 35 connects and exerts its tension for holding the parts 25, 26 and 30 in the idle positions against the tension of spring 29 as shown in Figs. 2, 3, 4 and 5.

The printing or marking of checks, drafts, &c., may be carried out by any suitable embossing or impressing means, one of said means consisting of a platen of metal or a softer material, as 36, disposed centrally beneath type-wheel 17, the upper face 36′ of the platen arranged to press the check or paper against the embossed type when the platen is raised during the printing operation. The platen 36 is mounted on a horizontal lever 37, the rear end of which is pivoted by a pin 38 to a lug 39, while the forward end of lever 37 is provided with a roller 40, which plays upon a cam 41, mounted on a crank-shaft 42, supported by the wall 43 of casing 14 and a lug 44. The shaft 42 supports the operating handle or crank 45, by which the locking and printing work is effected. The shaft 42 also supports a crank 46 to which one end of a pitman or rod 47 is pivoted, the opposite end of said rod being pivoted to the crank 34. The rocking of the shaft 42 by the handle 45 through the rod 47 rocks the cams 30 and 41 to the same extent.

The face of the cam 41, as 48, for nearly 90° is a true arc of a circle the axis of which is the center of shaft 42, so that while the handle 45 is being moved downwardly during the first stage of the printing operation the roller 40 traverses the face 48 without disturbing the lever 37. At the end of the portion 48 there is an abrupt rise or throw, as at 49, which lifts the roller 40, and lever 37 and platen 36 (see dotted lines in Fig. 2). This impresses the platen against the underside of the check or paper, and effects the printing and embossing in the usual way. During the leftward rocking of the cams 30 and 41, the former moves from the full to the dotted line position shown in Fig. 2 at each operating stroke of the handle 45, and as the "throw" of the cam 30 decreases during the said movement, the plunger 26 and arm 25 instantly move downwardly under the pull of the spring 29, and the lug 28 of said arm enters the central notch at the top of the wheel 19, which locks and holds the wheels 17 and 19 until after the printing is done. Although the movement of cam 30 is always the same, substantially 90°, the same as the swing of the handle 45 and the cam 41, the plunger 26 and arm 25 can only descend the distances allowed by the varying depths of the character-notches in the gage 19, the said depth in each instance corresponding to the length of the word or character to be printed plus a uniform space to be left between the adjacent characters when impressed in the check or paper. As illustrative of the variation in the length of the said notches, attention is directed to the notches for the characters 1, 2, 6, and 10 as compared with 7, $, 12 and M (see Fig. 6).

After each impression of the characters on the check or paper, the latter is automatically fed another step in the direction of the arrow 50 (Fig. 1), which indicates the course of the check through the slot 16. The feeding mechanism will now be described: 51 represents a tension roller journaled in a holder 52, pivoted between lugs 53 of casing 13 beneath the index-wheel 21. The holder has a handle 54 which may be depressed (see dotted lines Fig. 3) for raising the roller 51 for the insertion of the check or paper. A spring (not shown) may be employed for depressing the roller 51 against a pair of feed rolls 55, which are disposed in the casing 14 and their upper edges project through slots in the top 14′ of said casing. The feed rolls 55 are mounted on one end of a shaft 56, journaled in lugs 57, the other end of shaft 56 supports a ratchet-wheel 58 which is operated in one direction by a pawl 59 pivoted to a crank 60, which is loosely mounted on the shaft 56. The crank 60 is operated by a rod 61, the lower end of which is pivoted to said crank while its upper end is pivoted by a pin 62 to a lug 63 which depends from the rear end of arm 25. The downward movement of the arm 25 by the tension of spring 29 through the rod 61 rotates the crank 60 a distance corresponding to the depth of the notch into which lug 28 is thrust. This moves the pawl 59 a corresponding distance over the periphery of the ratchet 58, which is held stationary by the tension roller 51 upon rolls 55. The feeding parts then remain in the position last described, until the operator lets go the handle 45 at the end

of the printing stroke, whereupon the spring 35 restores the operating parts to their idle or resting position shown in full lines in Figs. 2, 3 and 5. The return movement of cam 30 lifts the plunger 26, arm 25, and also rod 61, and pawl 59 at the same time rotates the ratchet 58 and rolls 55 the distance required to move or feed the check the length of the last character printed thereon, plus the space between the said character and succeeding one. The turning and setting of the index-wheel 21, and the printing operation may then be repeated until the check or paper is written.

The inking of the type wheel may be accomplished in any suitable manner, as by inking rolls 64 and 65.

To prevent too free a movement of the wheels 17 and 19 during the indexing, I provide a brake comprising a spring 66, preferably supported by the bottom plate 67 of casing 13, the free end of which engages the notches of the gage 19, as best seen in Figs. 2 and 6. 68 represents a ratchet wheel carried by shaft 42, and 69 a pawl pivoted to the casing 14, for preventing the reversing of handle 45 before its down stroke is completed.

The position and travel of the check or other paper while being printed is controlled by a gage 70, which is slidable laterally on the plate 14''. The gage 70 is adjustable by means of a bolt 71 which passes through a slot in one arm of the gage, and is then held rigidly in the adjusted position by a nut 72.

Each of the gage notches in wheel 19 are the same width at the bottom, and as the lug 28 substantially fits this portion of said notches it tends to positively hold the type wheel in the true printing position.

When the operator depresses the handle 45 for printing the characters on the check, at the first movement of said handle, the plunger 26 and arm 25 instantly gravitate for locking the gage and type wheels, although the printing does not take place until near the end of the handle stroke when the rise or hump 49 of the cam 41 engages the roller 40 and lifts the platen 36. During the up stroke of the handle 45 the locking parts remain stationary until the cam 30 swings backward and engages roller 31, lifts plunger 26 and arm 25 and withdraws lug 28 from the notch in wheel 19. By this construction and arrangement the interval during which the type-wheel is locked and held stationary is nearly equal to the upward and downward movements of handle 45. This is advantageous, because it allows the quick release of the operating handle without danger of contracting the spacing between the printed characters. The value of this feature will be appreciated when it is understood that in many of the older check-writing machines the sudden release or upstroke of the handle causes the feeding parts to slip on the smooth paper to such extent that the succeeding character frequently overlaps the preceding impression, thus rendering the markings illegible.

Having thus described my invention, what I claim, is—

1. In a printing device, the combination with a type-wheel, a platen coöperating with said wheel, and a gage-wheel actuated by said type wheel, of a pair of cams, one of said cams actuating said platen, shafts for supporting said cams, means connecting said cams for simultaneous operation, a mechanism coöperating with the gage-wheel for automatically locking said type-wheel in the printing position when the second cam is moved in one direction, and means for moving the second cam in the opposite direction for unlocking said type-wheel and for feeding the paper after each printing operation.

2. In a printing device, the combination with a revoluble type-wheel, means for setting said wheel ready for printing, of a locking mechanism comprising a notched wheel carried by said type-wheel and a reciprocatable arm adapted to engage said notched wheel, a feeding mechanism, a rod for actuating said mechanism, said rod connected to said arm, a hand-lever, a cam operated by said lever for permitting the gravitation of said arm and said rod, and means actuating said cam for raising said arm and actuating said feeding mechanism.

3. In a check printer, the combination with a wheel having printing characters upon its periphery, means for rotating said wheel for successively bringing said characters into printing position, and a platen for pressing the paper against the characters, of a gage-wheel carried by the type-wheel, a reciprocatable part coöperating with the gage-wheel, a mechanism for feeding the paper, a rod for actuating said mechanism, said rod connected to said reciprocatable part, a cam, said cam adapted when moved in one direction to permit the locking of the type-wheel and at the same time to permit said rod to move into position for actuating said feeding mechanism, means for operating said cam in the opposite direction for releasing the type-wheel and for simultaneously causing said rod to actuate said feeding mechanism.

4. A printing device, having in combination a type-wheel, a shaft supporting said wheel, a gage-wheel also mounted on said shaft, a platen coöperating with said type-wheel, a cam for operating said platen, a locking mechanism coöperating with said gage-wheel, said mechanism operated in one direction by gravity, a cam for operating said mechanism in the opposite direction,

and means for connecting said cams for simultaneous operation.

5. A printing device, having in combination a type-wheel, a shaft for supporting said wheel, a gage-wheel mounted upon said shaft concentric to said type-wheel, a platen, a cam for actuating said platen, a locking mechanism coöperating with the gage-wheel and operative by gravity for locking the type-wheel in the printing position, a cam in constant engagement with parts of said mechanism adapted to release said type-wheel, means for connecting said cams for simultaneous operation, and means for actuating said cams.

6. A device of the class described, including a type-wheel and means for rotating said wheel for successively bringing the characters thereon into printing position, a notched gage carried by said wheel, a vertically movable arm for engaging the notches of said gage for holding said wheel immovable during the printing operations, a platen coöperating with the type-wheel, a hand lever for operating said platen, a cam operated by said lever for permitting the gravitation of said arm, and means actuating said cam for releasing said arm from said gage.

7. A device of the class described, including a type-wheel and means for rotating said wheel for successively bringing the characters thereon into printing position, a notched gage carried by said wheel, an arm adapted to gravitate into the notches of said gage for holding said wheel immovable during the printing operations, a platen coöperating with said type-wheel, a hand lever for operating said platen, a cam operated by said lever for permitting the gravitation of said arm, means actuating said cam for releasing said arm from said gage, and means engaging the notches in said gage for preventing the accidental rotation of said type-wheel while said arm is disengaged.

8. In a printing device, the combination with a type-wheel, an index-wheel, a platen, a check-feeding mechanism, and a hand-lever for operating said platen, of a gage-wheel carried by said type-wheel, said gage wheel having radial notches of varying depth in the periphery thereof, an arm having a lug adapted to engage the notches in said gage-wheel, a vertically reciprocating plunger supporting and operating said arm, said plunger operable by gravity for entering said lug in the said notches, a cam for moving said plunger in the opposite direction for withdrawing said lug from said notches, and means controlled by said arm for actuating said feeding mechanism.

9. In a printing device, the combination with a revoluble type-wheel, a platen coöperating with said wheel, of a notched gage-wheel carried by the type-wheel, the notches in said wheel varying in depth corresponding to the length of printing characters on the type-wheel, the said notches arranged diametrically opposite the corresponding characters, a reciprocatable arm disposed horizontally and having a lug to engage said notches, a feeding mechanism, a rod carried by said arm controlling said mechanism, a hand-lever, a cam operated by said lever in the direction for permitting the gravitation of said arm for locking the type-wheel, and means actuating said cam for disengaging said arm from said notches and for causing said rod to operate said feeding mechanism.

10. In a printing device, the combination with a type-wheel, a platen and a hand lever for operating said platen, of a gage-wheel carried by and movable with said type-wheel, an arm coöperating with said gage-wheel for locking said type-wheel in printing position, a pair of rocking cams operatively connected with each other and with said hand-lever, one of said cams adapted to raise said platen against said type-wheel when said lever is moved downwardly, the other cam allowing the said arm to gravitate into a notch in said gage-wheel during the said movement of said lever, both of said cams rocked in the opposite direction by the raising of the said lever, the first cam allowing said platen to move away from the type-wheel and the second cam raising said arm out of engagement with said gage-wheel.

11. In a printing device, the combination of a revoluble type-wheel having printing characters on its periphery and having radial gage-notches on one side coinciding with said characters, and means for setting said type wheel in the printing position, a locking mechanism comprising a reciprocatable arm adapted to engage said gage-notches for holding the type-wheel in the printing position, a reciprocatable part supporting and actuating said arm, and a cam controlling the movements of said reciprocatable part.

12. In a check printing device, the combination with a type-wheel, an index-wheel for operating the type-wheel, and a platen co-operating with the type-wheel, of a mechanism for locking and holding said type wheel in the printing positions comprising a notched wheel carried by said type-wheel, an arm having a lug movable into and out of said notches, a spring for effecting the engagement of said lug and said notches, a cam for breaking the engagement of said lug with said notches, a cam for operating said platen, a rod for connecting said cams, a lever for operating said cams in one direction, and a spring for operating said cams in the opposite directions.

13. A check printing device, including a type-wheel, an index-wheel for operating said type-wheel, a platen, a cam for operating said platen, an intermittent check feed-

ing mechanism, a gage carried by said type-wheel and provided with peripheral notches of varying depths, an arm to engage said notches for locking said type-wheel in the printing positions and for predetermining the intermittent movements of the feeding mechanism, said arm actuated for locking the type-wheel by gravity during the initial movement of said cam, and a second cam for releasing said arm from said notches.

14. In a printing device, a revoluble type-wheel having printing characters on its periphery and having radial gage-notches on one face coinciding with said characters, means for rotating said type-wheel for bringing the characters into printing position, a lever movable into and out of said gage-notches, a plunger supporting and actuating said lever, a cam controlling the movements of said lever, means for operating said cam for permitting said lever to enter said gage-notches, and means for operating said cam for disengaging said lever from said gage-notches.

15. In a printing device, the combination with a revoluble type wheel having printing characters thereon, and a check-feeding mechanism, of a platen coöperating with said type-wheel for embossing said characters on a check, and a locking mechanism including a gage-wheel carried by said type-wheel having radial notches of varying lengths for spacing the characters when printed, and a movable arm adapted to engage said notches for positively holding the type-wheel in the printing position, and a rod operatively connecting said arm with said feeding mechanism, the said rod movable to the same extent as said arm for feeding the paper varying distances corresponding to the lengths of the printing characters.

In testimony whereof I affix my signature in presence of two witnesses.

EDMUND OCUMPAUGH.

Witnesses:
HARRY DE WALLACE,
GEORGE H. HARRIS.