(No Model.) 6 Sheets—Sheet 1.

C. PAINE.

CHECK PRINTING MACHINE.

No. 475,605. Patented May 24, 1892.

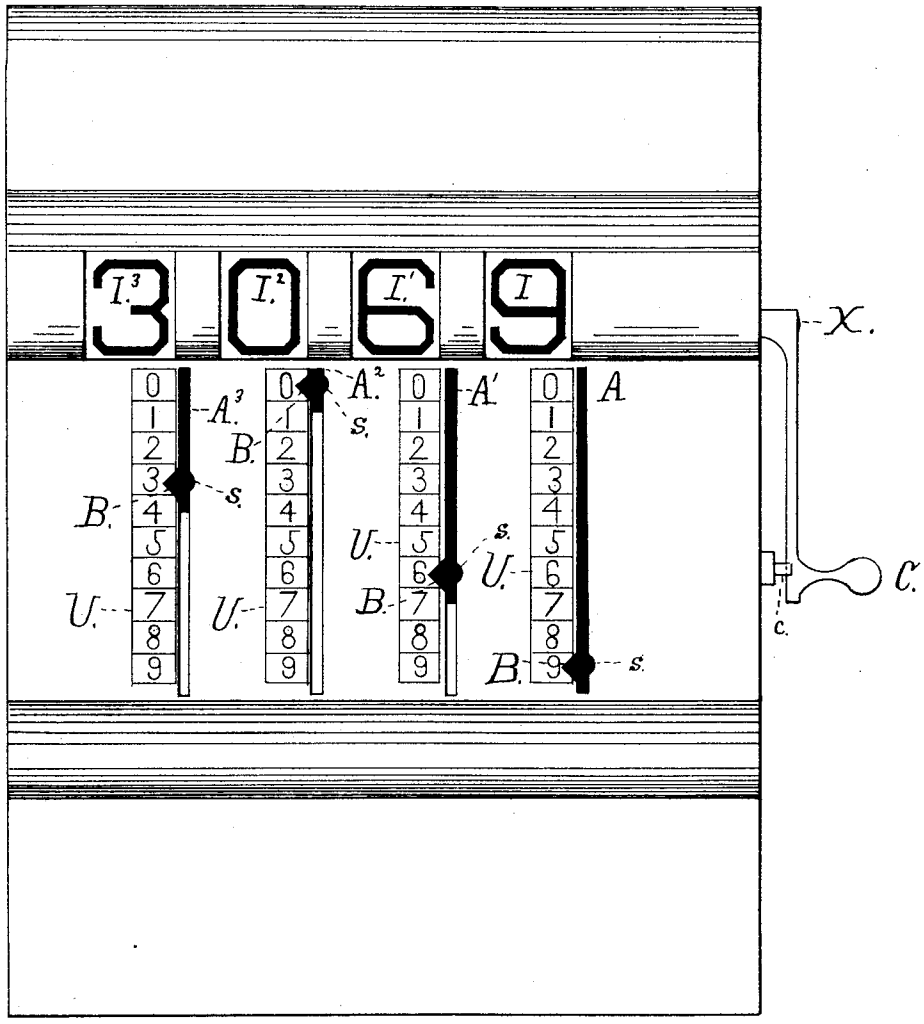


Fig. 1.

Attest:
Edwd. W. Dee
A W Wilson

Inventor:
Channing Paine

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 6 Sheets—Sheet 2.

C. PAINE.

CHECK PRINTING MACHINE.

No. 475,605. Patented May 24, 1892.

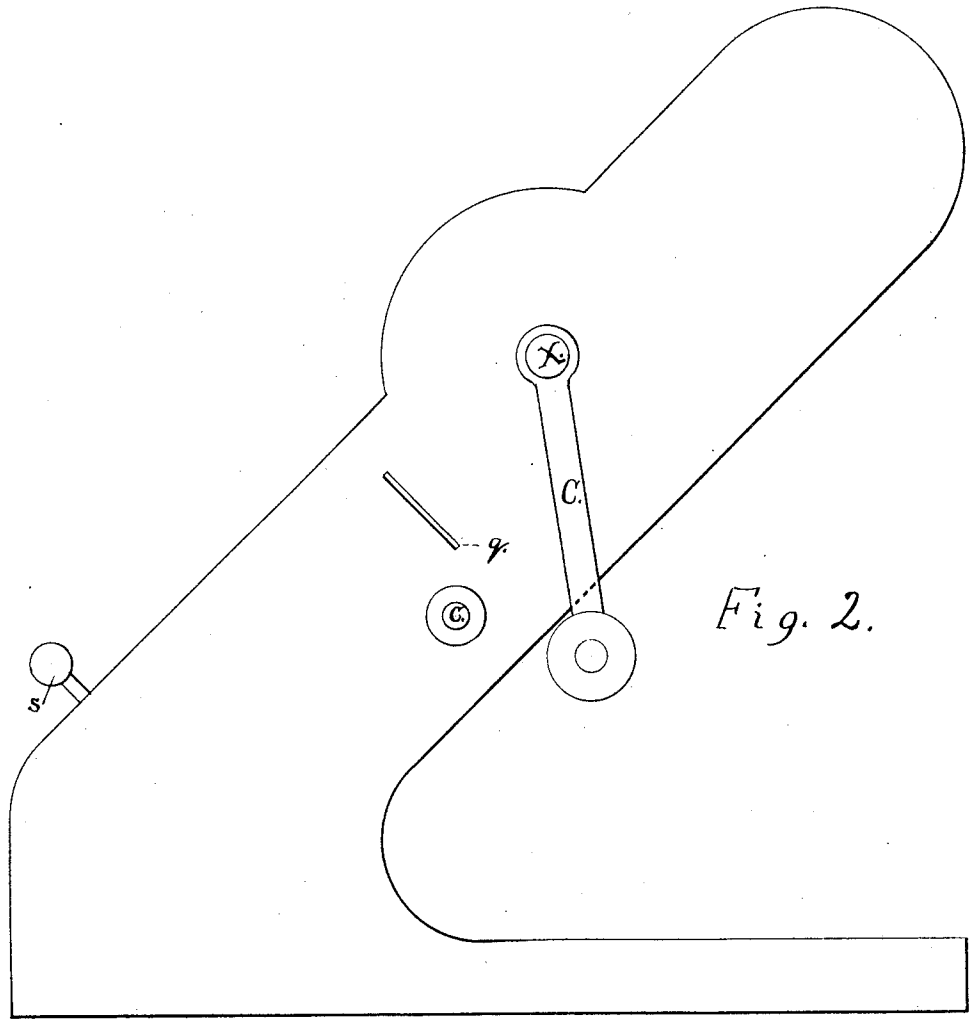


Fig. 2.

Attest:
Edwin W. Dee
A. W. Wilson

Inventor:
Channing Paine

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 6 Sheets—Sheet 3.

C. PAINE.

CHECK PRINTING MACHINE.

No. 475,605. Patented May 24, 1892.

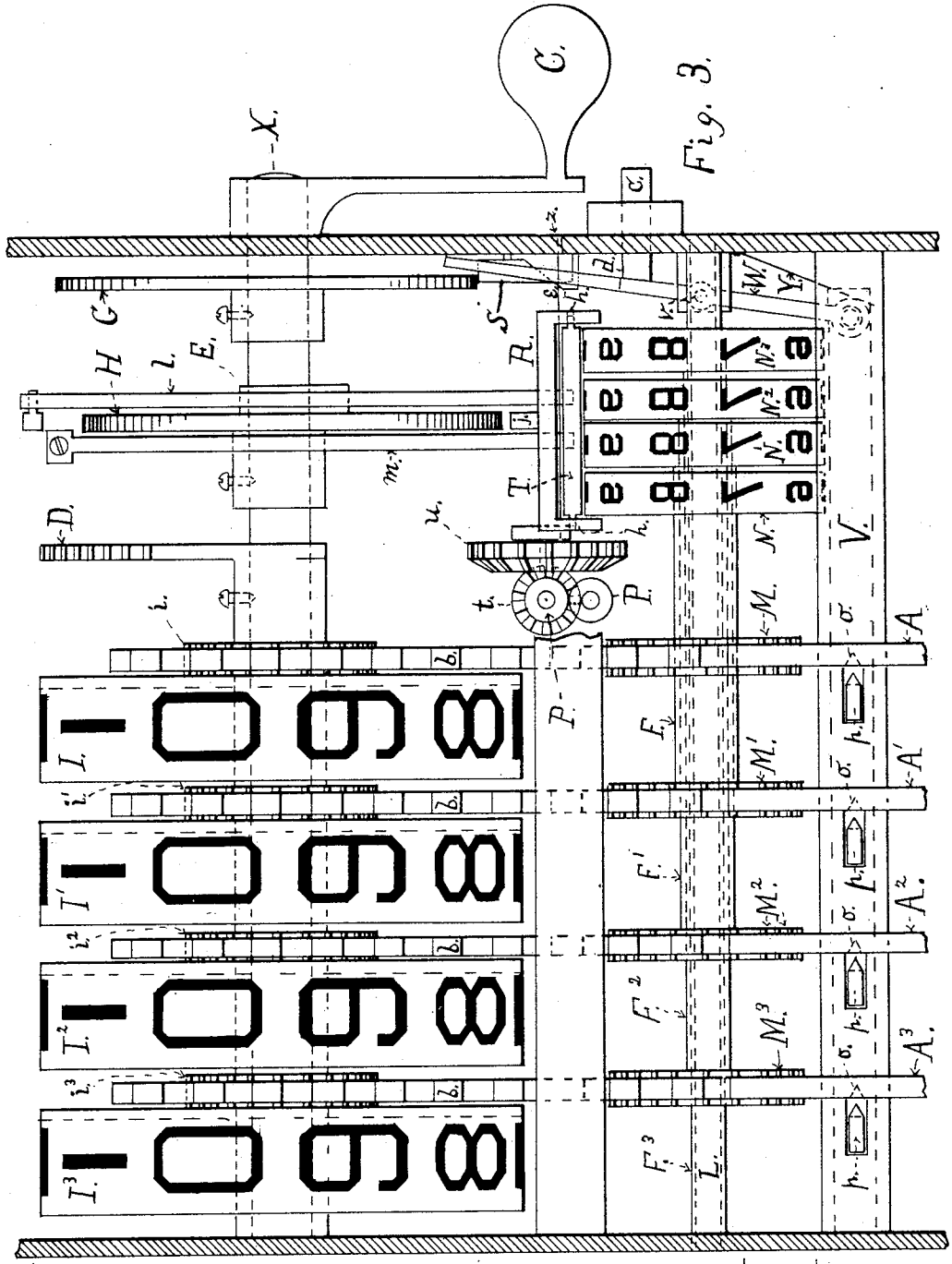


Fig. 3.

Attest=
Edw. W. Dee
A. W. Wilson

Inventor=
Channing Paine

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 6 Sheets—Sheet 4.

C. PAINE.

CHECK PRINTING MACHINE.

No. 475,605. Patented May 24, 1892.

Fig. 4.

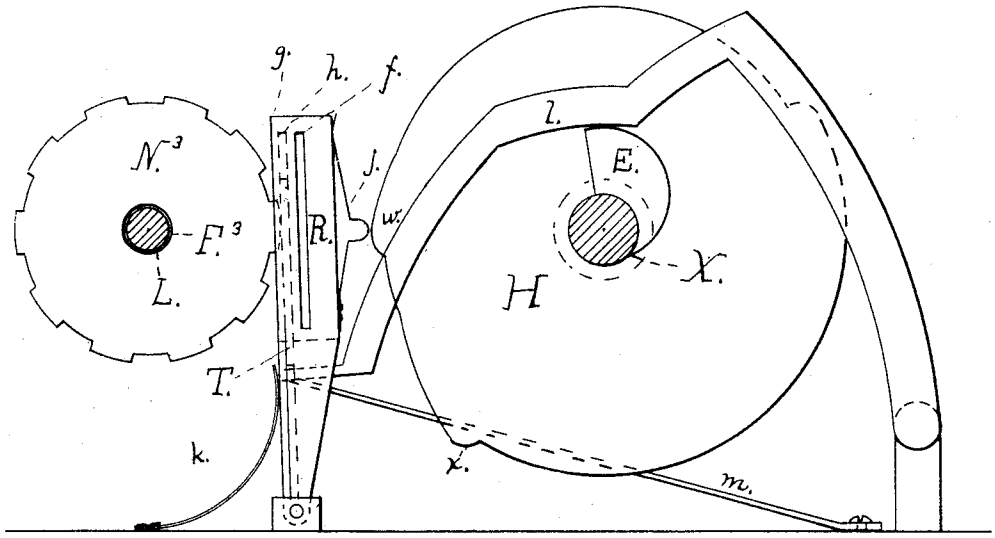
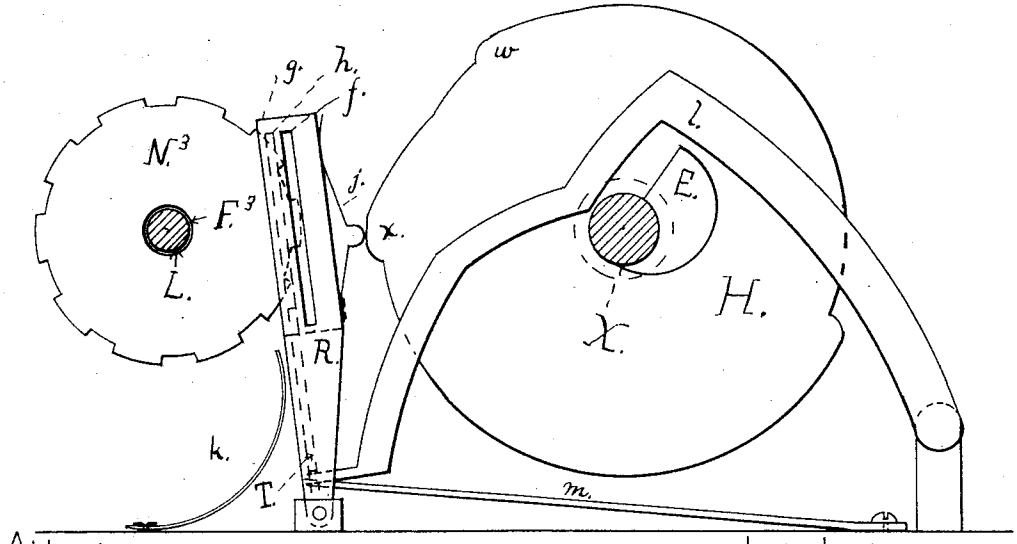


Fig. 5.



Attest=
Edw. W. Dee
A. W. Wilson

Inventor=
Channing Paine

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 6 Sheets—Sheet 5.

C. PAINE.

CHECK PRINTING MACHINE.

No. 475,605. Patented May 24, 1892.

Fig. 7.

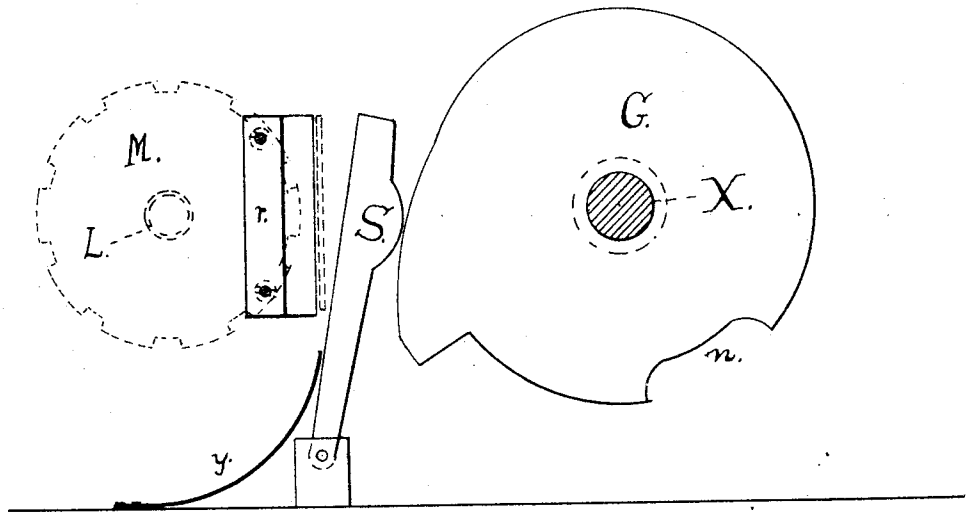
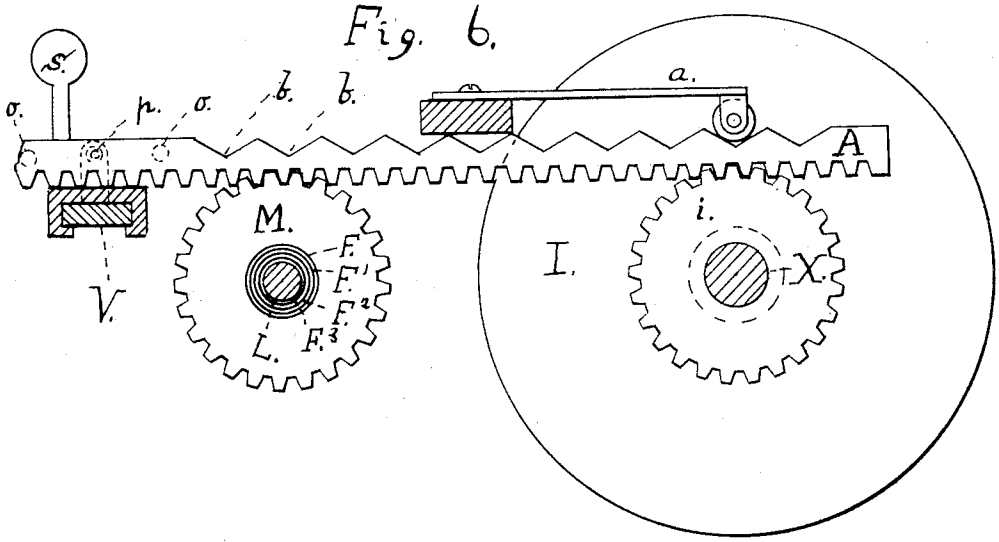


Fig. 6.



Attest=
Edw. W. Dee
A W Wilson

Inventor=
Channing Paine

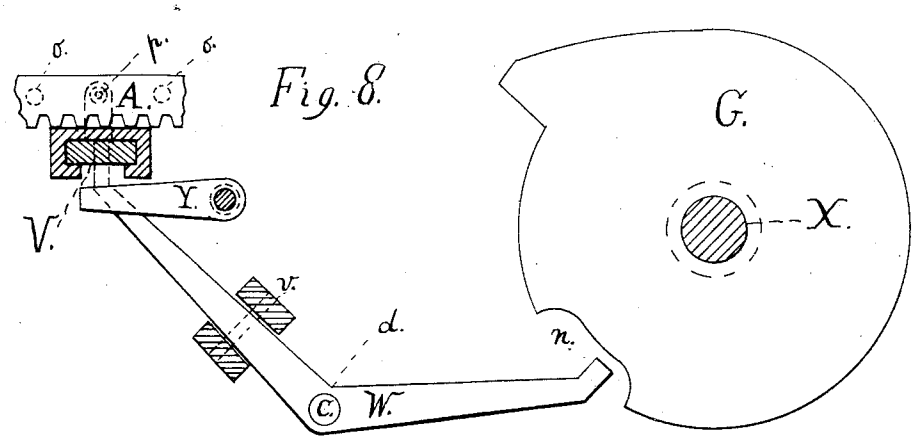
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

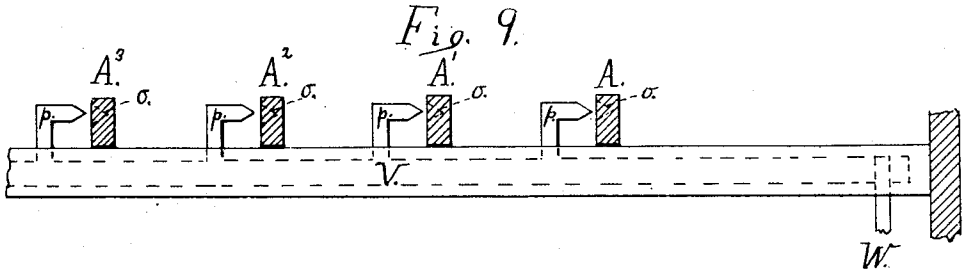
(No Model.) 6 Sheets—Sheet 6.

C. PAINE.

CHECK PRINTING MACHINE.

No. 475,605. Patented May 24, 1892.





Attest:
Edwin Dee
A. W. Wilson.

Inventor:
Channing Paine

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHANNING PAINE, OF NEW YORK, N. Y.

CHECK-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 475,605, dated May 24, 1892.

Application filed October 24, 1889. Serial No. 328,108. (No model.)

To all whom it may concern:

Be it known that I, CHANNING PAINE, a citizen of the United States, and a resident of New York city, in the county and State of New York, have invented new and useful Improvements in Check-Printing Machines, of which the following is a specification.

My invention relates to improvements in check-printing machines.

The object of these improvements is to secure greater simplicity and durability.

In the drawings, Figure 1 is a front view of the machine. Fig. 2 is a side view. Fig. 3 is a front elevation of the machine with the front of the casing removed. Fig. 4 is a side view of the printing mechanism, showing the inking-pad elevated into position and pressed against the type-wheel. Fig. 5 is a side view of the same mechanism, showing the inking-pad depressed and the platen pressed against the type-wheel. Fig. 6 is a side view of an indicating-wheel and a pinion which moves one of the type-wheels. Fig. 7 is a side view of the cutting-off mechanism. Fig. 8 is a side view of the locking device. Fig. 9 is a detail view of a portion of the locking-rod, showing the racks in cross-section.

Similar letters refer to similar parts in all the figures.

A A′ A^2 A^3 represent, respectively, the units, tens, hundreds, and thousands racks. (See Figs. 1, 3, and 6.) These racks are used to set the machine for printing any desired number. They slide at right angles to the shaft X in suitable bearings, and are in constant engagement with the geared hubs *i i′* i^2 i^3 of the indicating-wheels I I′ I^2 I^3 and with the type-wheel pinions M M′ M^2 M^3. On one side of the racks, preferably the upper, are ten V-shaped notches *b b*, Fig. 6, corresponding to the numerals from "0" to "9," inclusive. The distance between the centers of these notches is equal to one-tenth of the pitch circumference of the pinion M with which it engages. The hub *i* is the same size as the pinion M. Suitably fastened to the frame of the machine and working into these notches are roller-springs, (see *a*, Fig. 6,) designed to bring the racks accurately into their proper position when they are to be set at any desired number, as hereinafter shown. For convenience in moving the racks an arm extends from each rack upward through a slot in the case of the machine *s*, Figs. 1 and 6. Index-plates U U U U, Fig. 1, are placed at the side of each slot. Ten equal spaces are laid off in each index-plate, on which are placed the numerals from "0" to "9," inclusive. These spaces are the same length as the distances between the notches of the racks *b b*, Fig. 6. A pointer B B B B, Fig. 1, is attached to each arm, and by moving the pointer to any desired numeral on the index-plate the rack is carried to a corresponding position. The roller-spring *a*, Fig. 6, is so designed and situated that when the rack is placed at any desired numeral the roller-spring bears on the center of the corresponding notch. If the pointer is stopped a little to one side of the desired place, the roller-spring, acting on the inclined side of the notch, brings the rack into proper position.

The shaft X, which carries the fixed cam G, the fixed cam H, the fixed segmental wheel D, and the loose indicating-wheels I I′ I^2 I^3, Fig. 3, is journaled in proper bearings in the frame of the machine, and is revolved by a crank C or other suitable means. A single revolution of this shaft actuates the mechanism which prints, cuts off, and delivers the check.

The indicating-wheels I I′ I^2 I^3, Figs. 3 and 6, are intended to show the purchaser or any other person the figures at which the printing-wheels are set. These indicating-wheels revolve freely on the shaft X and have the geared hubs *i i′* i^2 i^3, into which the racks A A′ A^2 A^3 respectively mesh. The peripheries of these indicating-wheels are preferably rimmed in order to give a wide face. This face is divided into ten equal spaces, on which are the numerals from "0" to "9," inclusive. These numerals are so arranged that the setting of the rack at any numeral on the index-plate will bring the same numeral on the indicating-wheel into view through an opening in the case provided for that purpose. (See Fig. 1.)

Parallel to the shaft X and at a suitable distance therefrom is the fixed arbor L, Figs. 3, 4, 5, and 6, preferably extending to and fixed in the sides of the machine. On this revolve the sleeves or hollow arbors F F′ F^2 F^3, carrying the type-wheels and the pinions by which they are operated. For con-

venience the thousands type-wheel N^3, Fig. 3, and connected parts will be first described. This type-wheel is rigidly fixed near one end of a sleeve or hollow arbor F^3 of suitable inside diameter to freely turn on the arbor L, which forms its bearing. This sleeve extends longitudinally on the arbor L a sufficient distance to bring the type-wheel opposite the end of the platen R and to bring the pinion M^3, which is rigidly attached to the sleeve F^3, to such a point that the rack A^3 will simultaneously be in engagement with the hub i^3 of the thousands-indicating wheel and with the pinion M^3.

Revolving freely on the sleeve F^3 and extending from the type-wheel N^3 to the pinion M^3 is the sleeve F^2. Rigidly attached to this sleeve, at a suitable distance from the type-wheel N^3, is the hundreds type-wheel N^2. A pinion M^2, similar to M^3, is fixed to the sleeve F^2 at such a point as to be in engagement with the rack A^2. Revolving on the sleeve F^2 is the tens-sleeve F′, its type-wheel N′ and pinion M′ being placed between M^2 and N^2, as shown. The units-sleeve F revolves on the tens-sleeve F′ and is placed with its type-wheel N and pinion M between N′ and M′, as shown. A construction in which the units-sleeve would be the inside and longest and the thousands-sleeve the outside and shortest would be equally feasible.

The periphery of each type-wheel is divided into ten equal parts, in which the figures from "0" to "9" are placed in consecutive order. The relation between each type-wheel and its pinion-rack and indicating-wheel is such that when any figure is indicated the same figure on the type-wheel is in a position to make an impression on the check.

The feeding of the paper on which the checks are printed is accomplished by means of the following-described mechanism: Two friction or feed rollers P P, Fig. 3, are placed at right angles to the shaft X at a point near the segmental wheel D, and between them passes the strip of paper *e*. A wheel *u*, with spur-teeth on its periphery and bevel-teeth on its side, is journaled on a stud in such a position that its spur-teeth will engage with the teeth on the periphery of the segmental wheel D at every revolution of the shaft X. The bevel-teeth on the side of the wheel *u* are in engagement with the bevel-gear *t* on one of the friction-rolls, and the relation between the teeth on the segmental wheel D and the teeth on the wheel *u* and on the bevel-gear *t* is such that at an appropriate part of the revolution of the segmental wheel D the friction-rolls will revolve sufficiently to carry forward to the type-wheels, through suitable guides, enough paper from a suitably-placed roll for the printing of one check. (See Fig. 3.)

The mechanism for inking the type and pressing the paper against the type-wheels to get the impression is described as follows: The double cam-wheel H, carrying on its side the smaller cam E, is rigidly attached to the main shaft X. Between this cam H and the type-wheels is the platen R, Figs. 3, 4, and 5, pivoted to the frame of the machine and provided with a spring *j* on its back to give elasticity and prevent undue jar when the points *w* and *x* of the cam H come in contact with it. On the face of this platen, nearest the type-wheels, is carried the strip of paper for printing. On each side of the platen and at right angles to its face are the projections *g g*, each containing a slot *f* for the paper to run through and grooves or ways *h h*. An inking-pad T is so constructed as to work up and down in these ways. In the extreme upward position a sufficient portion of the inking-pad is opposite the face of the type-wheels to ink them when pressed into contact, and in its extreme lower position the pad is sufficiently below the center of the type-wheels to clear them. This inking-pad is brought into position for inking by the cam E in connection with the arm *l*, which is pivoted at a suitable point, and the inking-pad is in position for inking when the shaft X is in its initial position of rest. When the shaft is revolved, the point *w* of the cam H first comes into contact with the platen R, thus pressing the inking-pad against the face of the type. As this point releases the platen, the latter, carrying the inking-pad with it, is forced away from the type-wheels by the spring *k*, Figs. 4 and 5, and the inking-pad is lowered in its ways by the spring *m*. A further revolution of the shaft X brings the point *x* of the cam into contact with the platen and forces it, with the paper on its face, against the type-wheels, thus making the impression. A still further revolution of the shaft releases the platen sufficiently to allow the free movement of the strip of paper on which the number has been printed. At this point of the revolution of the shaft the teeth of the segmental gear D engage the spur-teeth of the wheel *u*, by which motion is imparted to the friction-rollers, and as the shaft continues to revolve the friction-rollers feed the printed check through the slot *q*, Fig. 2, in the case ready to be cut off, at the same time placing a fresh surface of the strip of paper in a position ready to be printed on in the next operation. A still further revolution allows the spring *k* to force the platen still farther away from the type-wheels and again brings the inking-pad into position for inking by means of the cam E and the arm *l*, heretofore described. The cutting off of the printed checks is accomplished by means of the knife-blade S, pivoted on a stud in the frame of the machine and working in connection with the cam G on the shaft X, the knife-edge *r*, and the spring *y* in the ordinary manner.

To lock the racks from movement during the revolution of the shaft X and the operation of the printing mechanism, I employ the locking-rod V. This rod extends in suitable bearings from the lever W, Figs. 3 and 8, to which it is attached, across and at right an-

gles to the racks a a' a^2 a^3, and has the locking-bolts p p to engage the holes o o in the racks. Of these holes there are ten in each rack, corresponding to the ten numerals for which the rack may be set, and are preferably made funnel or wedge shape. The points of the locking-bolts are conical or wedge-shaped, so as to exert a wedging action when entering the holes, and thus bring the racks accurately into position. The lever W is suitably fulcrumed near the frame of the machine, as at v, and its free end is of sufficient length to vibrate through the slot n of the cam G, Fig. 8.

From a point on the free end of the lever, as at d, an arm c extends through the case of the machine and forms a stop for the crank at the end of its revolution. When the crank C is at rest against the stop c, the free end of the lever is between the cam G and the frame of the machine, and the locking-rod V is in such a position that its locking-bolts are free from the racks. The cam G has the opening n in such a position that when the stop c is pushed inward to permit the crank to be revolved the free end of the lever W passes through the opening. This action slides the locking-rod so as to bring its bolts into engagement with the holes in the racks, in which position it is held during the revolution of the shaft X by the cam G, which is rigidly attached to X and which acts as a stop to prevent the movement of the free arm of the lever toward the crank. As the cam G nears the end of its revolution, the opening n comes opposite the free end of the lever, and the latter is drawn through it toward the crank by the spring Y. This action of the spring draws the locking-rod out of engagement with the racks and brings the arm c into a position to stop the crank.

What I claim as my invention is—

1. In a check-printing mechanism, a shaft, a pinion, and a printing-wheel upon said shaft, a rack engaging said pinion to set the printing-wheel, printing-actuating mechanism, a lock applied to the setting mechanism during the movement of the printing mechanism, and a connection between said lock and the printing-actuating mechanism, substantially as described.

2. In a check-printing mechanism, a shaft, a pinion, and a printing-wheel on said shaft, a rack engaging said pinion to set the printing-wheel, printing-actuating mechanism, a lock in engagement with the setting mechanism during the movement of the printing mechanism, means for disengaging said lock at the completion of said movement, and the connection between the lock and the printing-actuating mechanism, substantially as described.

3. In a check-printing mechanism, a shaft, a pinion, and a printing-wheel on said shaft, a rack engaging said pinion to set the printing-wheel, printing mechanism, a lock in engagement with the setting mechanism during the movement of the printing mechanism, and actuating mechanism therefor, means for disengaging the lock at the completion of such movement, and a stop for the printing-actuating mechanism actuated by the releasing movement of the lock for the setting mechanism, substantially as described.

4. In a check printing and indicating machine, the combination of the indicating-wheels I I' I^2, the pinions i i' i^2, the racks A A' A^2, the pinions M M' M^2, the printing-wheel sleeves F F' F^2, and the printing-wheels N N' N^2, substantially as described.

5. In a check-printing mechanism, a shaft, a series of totalizing printing-wheels, a pinion for each wheel, a series of racks engaging with the pinions and forming the setting mechanism, printing-actuating mechanism, a lock applied to each setting mechanism during the operation of printing and released upon the completion of such operation, and a connection between said printing-actuating mechanism and the lock, substantially as described.

6. In a check-printing machine, the combination, with the type, of an oscillating platen, a reciprocating inking-pad sliding in guides therein, means for reciprocating the pad, and means for oscillating the platen, substantially as described.

7. In a check-printing machine, the combination, with a type-wheel, a pinion on said wheel, and a rack engaging with said pinion and adapted to set the same, of an oscillating platen, a reciprocating inking-pad on said platen, means for reciprocating the pad, and means for oscillating the platen, substantially as described.

8. In a check-printing machine, the combination, with the type, of the intermittently-oscillating platen carrying the check-strip, and the reciprocating inking-pad on the platen, substantially as described.

9. In a check-printing machine, the combination, with the type, of the intermittently-oscillating platen having guides for the check-strip, and a reciprocating inking-pad sliding in bearings therein, of intermittently-actuated feed mechanism for the check-strip, and a cut-off, substantially as described.

10. In a check-printing machine, the combination, with the type, of an oscillating platen across which a check-strip is fed, an inking-pad sliding in bearings therein, means for sliding the pad, means for oscillating the platen to ink the type, means for oscillating the platen to print the check, a cut-off, and feed mechanism to discharge the check, substantially as described.

11. In a check-printing machine, the combination, with the type-wheel, setting mechanism for the type-wheels, the intermittently-oscillating platen carrying the check-strip, and a reciprocating inking-pad moving in guides in said platen crossing the path of the check-strip, intermittent feed mechanism for the check-strip, a cut-off, and a shaft forming the actuating means for inking, printing, feed,

and cut-off mechanism, substantially as described.

12. In a check-printing machine, the combination, with the casing, printing, and setting mechanism, of an arm actuating the setting mechanism, a numbered index, beside which said arm moves, a spring-pawl adapted to hold said arm at the numbers, and a lock for the setting mechanism held inoperative during the movement of the index-arm between the numbers on the index, substantially as described.

13. In a check-printing machine, the combination, with the type, of the oscillating platen formed with side flanges, of guide-bearings formed in said flanges at the base, a check-strip adapted to be fed through such guide-bearings, and a reciprocating inking-pad moving in guide-grooves in said flanges above the check-strip, substantially as described.

14. In a check-printing machine, the combination, with the type, of an oscillating platen formed with side flanges, an inking-pad slidingly secured in guide-grooves in said flanges, an actuating-shaft, and connection for reciprocating said pad in one direction, and a spring for reciprocating it in the other direction, substantially as described.

15. In a check-printing machine, the combination, with the type-wheel and its setting mechanism, of the actuating-shaft, the cams H and E thereon, the spring-actuated platen R, oscillated by the cam H, the inking-pad T, sliding in ways on said platen, the arm *l*, secured to said pad and actuated by the cam E, and the spring, substantially as described.

16. In a check printing and indicating machine, the combination of a printing-wheel, an indicating-wheel, pinions on said wheels, a rack engaging said pinions and adapted to move them synchronously, printing mechanism, a shaft for actuating said printing mechanism, a stop for said shaft during the actuating of the setting mechanism, and a lock for the setting mechanism during the movement of the actuating mechanism, substantially as described.

17. In a check-printing machine, a platen R, pivoted to vibrate between a double cam-wheel H on the rotating shaft *x* and the face of a printing-wheel and having projecting sides with the guide-slots to hold a strip of paper carried across the platen, and the grooved ways *h h*, with an inking-pad freely sliding therein between the strip of paper and the printing-wheel, in combination with an arm pivoted to the frame of the machine and extending over the shaft X and having its free end attached to the inking-pad, a cam on the shaft X to operate the arm and cause it to bring the inking-pad into a position for inking the type-wheel at a certain part of the revolution of X, a cam on the shaft X to cause the platen to press the inking-pad against the type-wheel, a cam to cause the platen to carry the strip of paper against the type-wheel, and the rotating shaft X, substantially as shown, and for the purpose specified.

18. In a check printing and indicating machine, a locking-rod V, having the locking-bolts *p* to engage with the racks A A′, &c., in combination with the lever W to move the locking-rod longitudinally to engage its locking-bolts, the cam G, having the slot *n* to permit the movement of the free end of the lever from one side of the cam to the other, the arm *c* of the lever projecting through the case of the machine to form a stop for the crank C, and the spring Y to release the locking-rod from the rack, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 3d day of October, 1889.

CHANNING PAINE.

Witnesses:
T. A. McKERROW,
M. C. HASCALL.