

(No Model.)

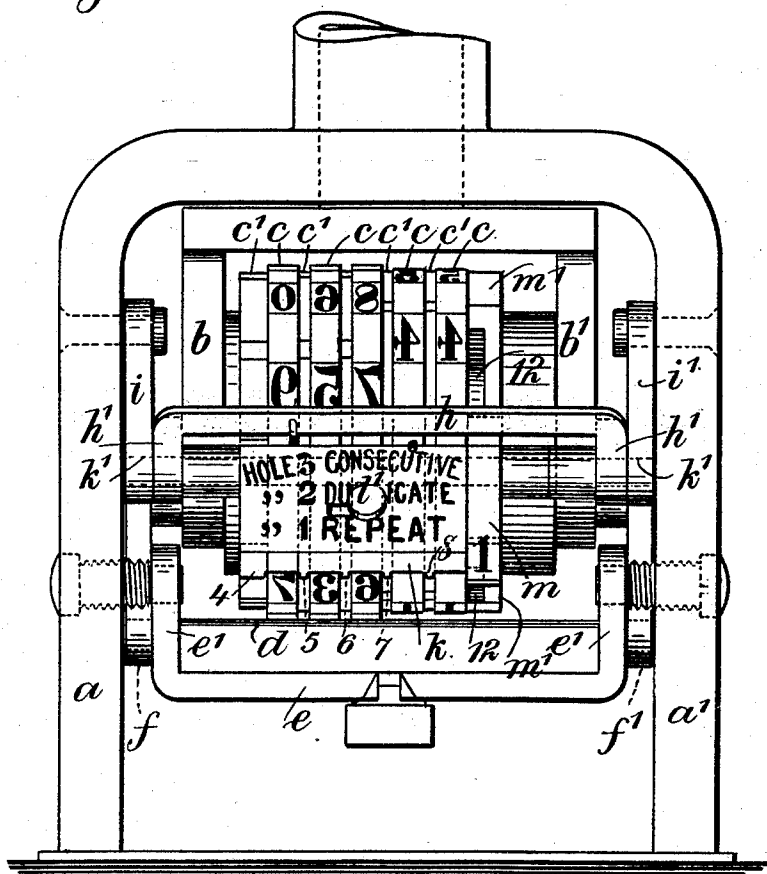
2 Sheets—Sheet 1

C. SPIELMANN.
CONSECUTIVE NUMBERING MACHINE.

No. 518,632.

Patented Apr. 24, 1894.

Fig. 1.



Witnesses

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Charles Spielmann
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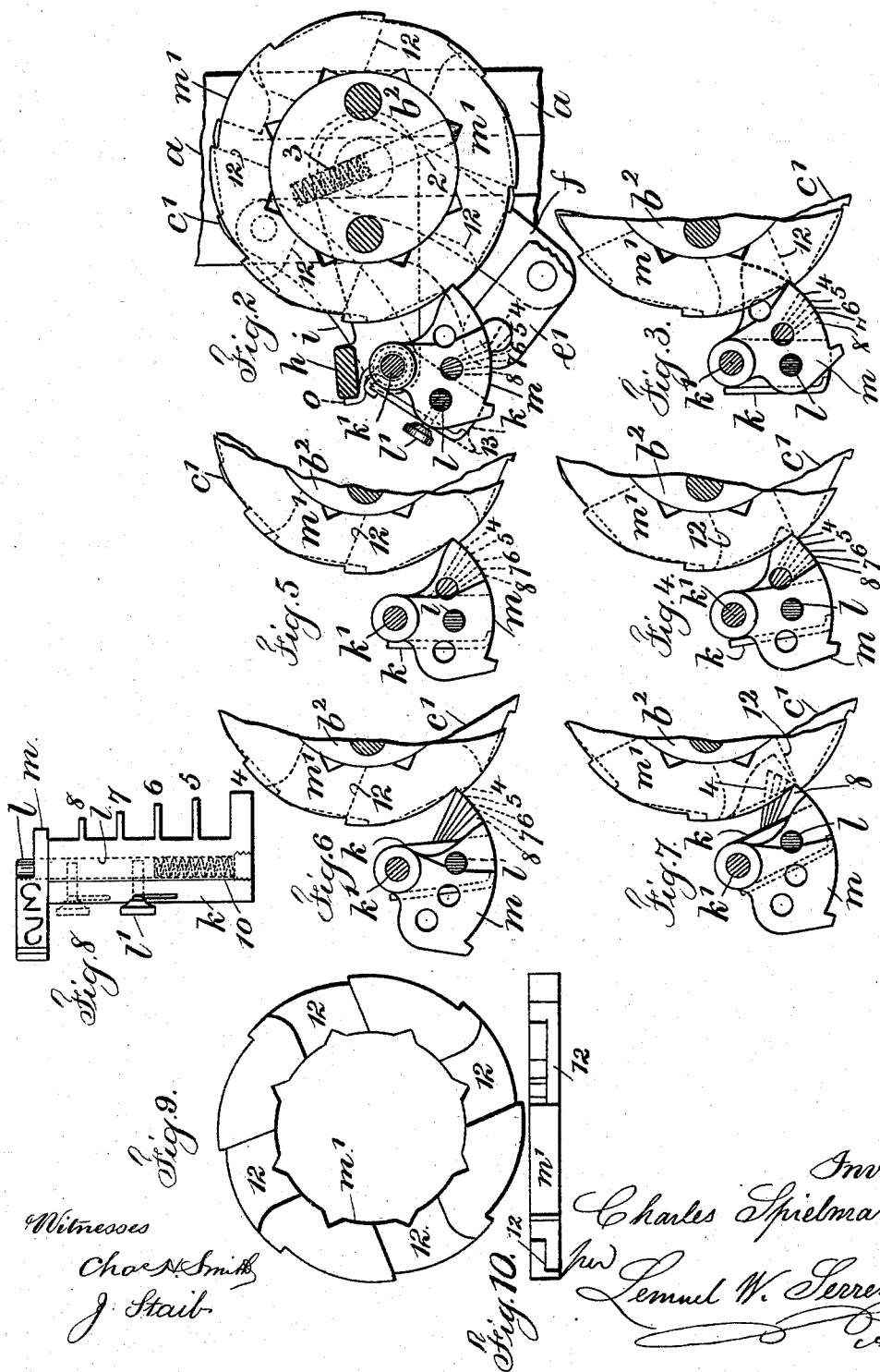
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UNITED STATES PATENT OFFICE.

CHARLES SPIELMANN, OF BROOKLYN, ASSIGNOR TO WILLIAM A. FORCE & CO., OF NEW YORK, N. Y.

CONSECUTIVE-NUMBERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 518,632, dated April 24, 1894.

Application filed June 15, 1893. Serial No. 477,645. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SPIELMANN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Consecutive-Numbering Machines, of which the following is a specification.

My invention relates especially to that class of consecutive numbering machines wherein letters, numbers or characters can be repeated, duplicated or impressed consecutively; and the object of my invention is to rotate automatically any number of numbered disks comprised in a single machine by the pawl block in impressing the characters in the above manner, and to indicate upon the pawl block and regulate from the mechanism connected therewith the operation of said numbered disks in printing so that the letters, numbers or characters can with accuracy and certainty be caused to repeat, duplicate or move consecutively.

In carrying out my invention and in connection with the numbered disks and their ratchets, I employ a pawl block carrying pawls of varying length and agreeing in number with the numbered disks so that each pawl may operate its disk at the proper time in the progressive movement of the disks, and adjustably connected to the pawl block I employ a dead pawl adapted to engage a friction ratchet upon the same shaft as the numbered disks, and this dead pawl and friction ratchet are so constructed as to hold the pawls above their ratchets in one position or allow them to engage their ratchets in every movement or alternate movement of the mechanism to effect the desired conditions. The face of the pawl block is marked with numbers, letters or characters such as "1 Repeat," "2 Duplicate" and "3 Consecutive," and the edge of the dead pawl adjacent to the holes therein is marked with numbers, letters or equivalent characters such as 1, 2, 3, to indicate which hole of the dead pawl shall be engaged by a catch pin according to the number upon the face of the pawl block opposite to the name of the condition desired to be filled in the operation of the machine.

In the drawings, Figure 1 shows the greater

part of a consecutive numbering machine illustrating my improvements. Fig. 2 is a side elevation partially in section of the pawl operating mechanism, and Fig. 3 is its companion view showing the mechanism in the position for repeating. Figs. 4 and 5 are companion views illustrating the pawl mechanism in the position for duplicating. Figs. 6 and 7 are companion views illustrating the pawl mechanism in the position for moving the numbered disks consecutively. Fig. 8 is an inverted plan of the pawl block, and Fig. 9 is a side elevation of the free friction ratchet wheel with the surface slots therein and Fig. 10 is an edge view of the same.

The main frame of the machine is represented at *a a'* and *b b'* represent the yoke frame.

c are the numbered disks and *c'* the ratchet disks connected therewith and by which said numbered disks are operated. These numbered disks and their ratchet disks are upon a hub or shaft *b²* carried by said yoke frame as usual.

The ink pad is shown at *d* and a yoke frame *e e'* is pivoted to the frame *a a'* and carries said pad, and *f f'* are the arms for operating said ink pad as usual to carry the same beneath the numbers of the disks *c* in inking and in swinging the same away as the numbered disks are caused to descend.

h h' is another yoke frame, and *i i'* are arms connected therewith at one end and to the frame *a a'* at their other ends. The arms *f f'* and ends *h'* of the yoke frame are pivoted to the ends of the shaft carrying the disks *c* and they move down and up with said disks and their yoke frame *b b'* and operate the ink pad *d* and pawls for rotating the disks *c*. The pawl block *k* is pivoted to the shaft *k'* which at its ends passes through the yoke frame *h h'* and arms *i i'*, and upon the under side of this pawl block are pawls 4, 5, 6, 7 and 8, that engage the ratchet disks of the units, tens, hundreds, thousands and ten thousands disks *c*, so as to turn them with a progressive and step by step movement. A spring *o* on the shaft *k'* acts to press the plate *k* and its pawls against the ratchets of the numbered disks *c* and through the pin *l* presses the dead pawl *m* against the friction ratchet wheel *m'*. A

hole within the pawl block *k* receives said pin *l* and a spring 10, and there is a slot through the face of the pawl block, and the stem of the knurled head *l'* passes through this slot or mortise into the pin *l* and by grasping the knurled head and moving it along the pin *l* can be operated against the projecting tendency of the spring 10 and be withdrawn from engagement with the dead pawl. Figs. 1 and 8 show in full lines these parts located centrally of the pawl block but they may be upon one side, as shown in Fig. 8 by dotted lines. The dead pawl *m* is pivoted to the aforesaid shaft *k'* and engages the free friction ratchet wheel *m'* upon the shaft *b²* of the numbered disks *c*. Through the dead pawl are three holes either one of which receives the end of the pin *l* to hold the said dead pawl to the pawl block *k* in either of the three positions to which the parts can be placed. The edge of the dead pawl adjacent to the holes therein is marked with the numbers 1, 2 and 3, agreeing with the numbers upon the face of the pawl block, and in order that these numbers may be plain and distinct the edge of this pawl receiving them is made wider than is necessary or desirable for its operating point, and the face of the pawl block or a plate secured thereon is marked or engraved with the numbers, letters or characters "1 Repeat," "2 Duplicate" and "3 Consecutive," and the operative relations of the dead pawl *m* and the various pawls of the pawl block to each other are controlled and effected by these three positions. The ratchet wheel *m'* is loose or free on the hub or shaft *b²* and the positions of this and of the numbered disks *c* are maintained frictionally by pins 2 and springs 3 in holes in said shaft *b²*, the pointed ends of which pins engage notches in the inner edges of said wheel and disks in the usual manner. This ratchet wheel *m'* is made with equidistant shallow teeth on the outer edge or periphery thereof and in its side adjacent to the first numbered disk are four equidistant recesses 12 with edges parallel to radial lines, and these recesses agree with each alternate edge tooth. These recesses are in depth about equal to half the width of the ratchet wheel *m'*. With this construction the requisite strength of the ratchet wheel is not impaired as it would be by cutting deep notches between the teeth, and the recesses are deep enough in the side of the wheel to provide for a pawl point of sufficient width for operative strength. The dead pawl *m* has its engaging point reduced or cut away in a vertical plane to the desired extent to permit this end to enter the recesses 12 of the ratchet wheel *m'*, so as to bring the pawls of the pawl block into operative engagement with the ratchets of the numbered disks to rotate said disks, and said dead pawl is also of sufficient depth to be able to raise the pawl block and its pawls entirely above the ratchets of the numbered disks so that

none of said disks are operated. These various positions are illustrated in Figs. 2 to 7 inclusive.

The companion Figs. 2 and 3 illustrate the position of the parts in repeating a number by the machine wherein the pin *l* is in the first hole 1 of the pawl *m* in the position "1 Repeat," as indicated on the face of the pawl block *k*. In Fig. 2 the engaging point of the dead pawl *m* is in the shallow tooth of the friction ratchet wheel *m'*, and the pawl block *k* and its pawls shown by dotted lines are held high above the ratchets of the numbered disks, and in Fig. 3 the reduced end of the pawl *m* has entered one notch 12 and brought its second engaging edge in the next shallow tooth of the wheel *m'*, the pawls of the pawl block being still held above the ratchets *c'* of the disks *c* and out of engagement therewith, so that the number printed is constantly repeated.

In the companion Figs. 4 and 5 the parts are shown in the position for duplicating the numbers as printed, the pin *l* being in the second hole "2" of the pawl *m* in the position of "2 Duplicate" as indicated on the face of the pawl block *k*. In these figures the pawl *m* and pawl block occupy an intermediate relation, Fig. 4 showing the reduced end of the pawl *m* in a recess 12 of the wheel *m'* wherein the pawl 4 is adapted to engage its ratchet *c'* and turn its numbered disk of units. In this position the pawl 4 can also enter the deep notch of its ratchet *c'* to bring the pawl 5 into engagement with its ratchet *c'* in changing the numbered disks *c* as an illustration from 39 to 40. A similar operation and change can likewise be effected with all the pawls of the pawl block in their progressive movements of changing from units to tens, from tens to hundreds and so on in the ascending scale. Fig. 5 illustrates the next movement wherein the point of the pawl *m* engages the shallow tooth of the wheel *m'* raising all the pawls of the pawl block above their ratchets and out of action so as to allow the numbered disks to stand still while duplicating or again printing the number previously printed, and the next movement brings the parts again into the position Fig. 4, wherein the next number to be printed is moved into position so that the numbers are printed successively, but each number is impressed twice.

In the companion Figs. 6 and 7, the parts are shown in the position for consecutive and progressive operations in printing the numbers of the disks *c*, the pin *l* being in the third hole "3" of the pawl *m* in the position of "3 Consecutive" as indicated upon the face of the pawl block *k*. In these figures the dead pawl *m* is held up above the friction ratchet wheel *m'* and does not come into engagement therewith, thereby permitting the pawls of the pawl block to engage their respective ratchets *c'* and in the usual step by step and

progressive movement rotate the numbered disks *c* as the numbers are impressed consecutively.

The mechanism hereinbefore described and the operations carried out thereby combine to make a successful and very perfect machine wherein all the number or character disks are fully operated automatically in effecting the printing of the numbers.

In machines of this class as heretofore made only the units, tens and hundreds numbered disks were operated automatically and those of higher numbers had to be turned by hand, the construction of the dead pawl *m* and ratchet wheel *m'* making it impossible to cut the alternate deep teeth of the said wheel *m'* any deeper. The devices of my present invention therefore overcome this difficulty and make it impossible to automatically operate all the numbered disks shown or any increased number in like manner by simply increasing the size of the dead pawl and depth of its reduced end.

In Fig. 2, I have represented by dotted lines at 13 the edge of the pawl block *k* as pointed and recessed on the under face; or in other words, as overhanging, and the object of this is to provide an edge readily grasped by the fingers simultaneously with the head *l'* so that the movement of the head *l'* and pin *l* can be effected by the fingers of one hand.

I claim as my invention—

1. In a consecutive numbering machine, the combination with the numbered disks and their ratchets and the pawls for operating the same, of the pawl block connected to or formed with said pawls, and letters, numbers, or characters upon its face, indicating the operative positions of the mechanism, a dead pawl pivoted upon the shaft of the pawl block having three transverse holes and characters upon the edge agreeing with those on the pawl

block, with the end reduced or cut away to form an engaging point, and with means for connecting the dead pawl and pawl block at either of the three holes, a friction ratchet wheel upon the shaft of the numbered disks having recesses in one side of and adjacent to the alternate teeth thereof to receive the reduced engaging point of the dead pawl, substantially as and for the purposes set forth.

2. In a consecutive numbering machine, the combination with the numbered disks and their ratchets and the pawl block and pawls for operating the same, of the dead pawl *m* having three holes and a reduced end or cut away portion, the pin *l* supported by the pawl block and engaging either hole of the pawl *m* to adjustably maintain their relations to each other, the friction ratchet wheel *m'* upon the shaft of the numbered disks, having shallow teeth around its periphery and recesses 12 in one side coinciding with the alternate teeth to receive the cut away portion of the dead pawl, substantially as and for the purposes set forth.

3. In a numbering machine having indicating devices and adapted to repeat, duplicate or print consecutively, the combination with a dead pawl having a reduced end or cut away portion; of a friction ratchet wheel having shallow teeth around its periphery and recesses 12 in one side to receive the cut away portion of the dead pawl, said recesses having edges parallel with radial lines and agreeing with the alternate teeth, substantially as set forth.

Signed by me this 8th day of June, A. D. 1893.

CHARLES SPIELMANN.

Witnesses:

GEO. T. PINCKNEY,
HAROLD SERRELL.