

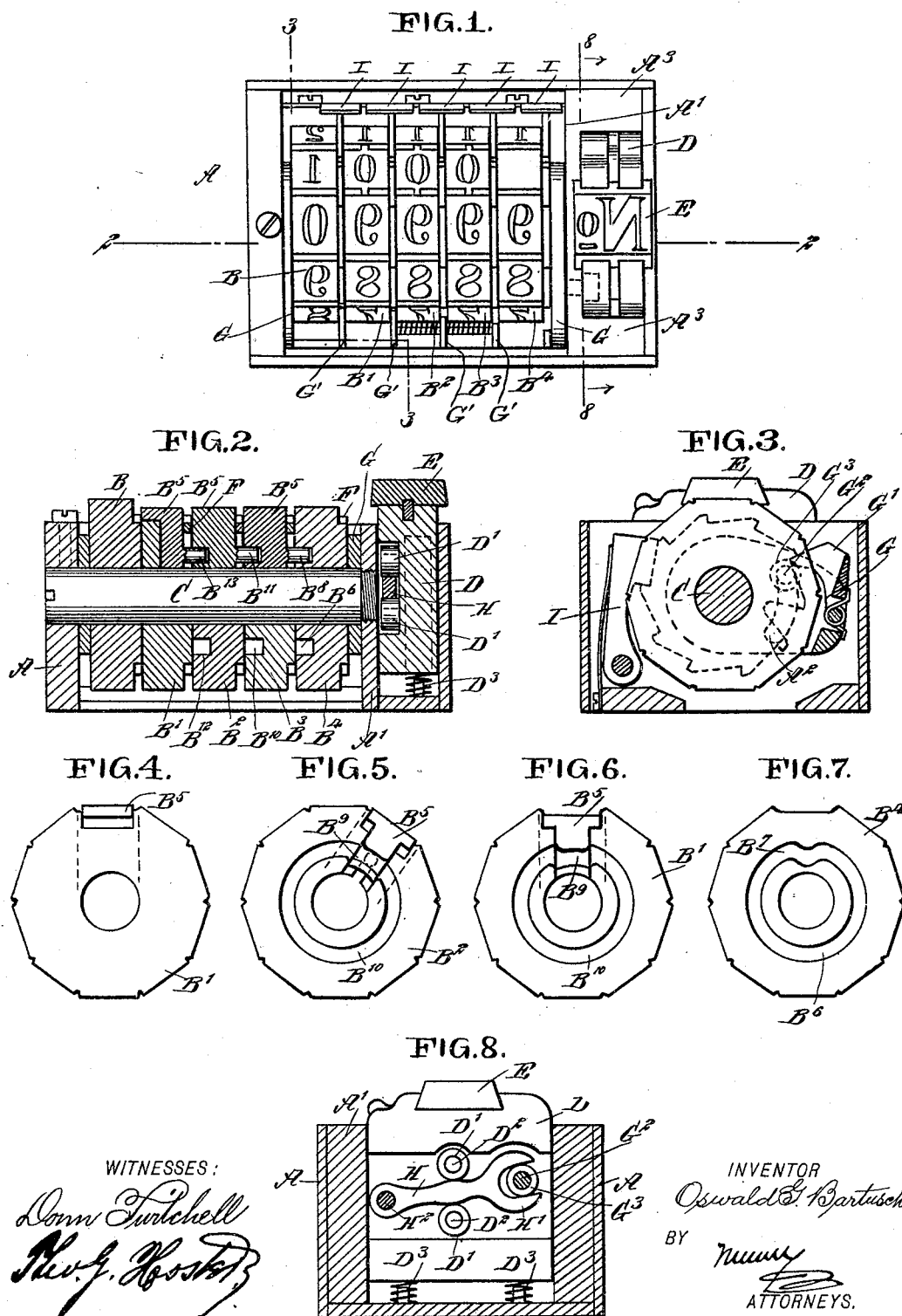
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Patented Mar. 27, 1900.

O. G. BARTUSCH.  
CONSECUTIVE NUMBERING MACHINE.

(Application filed Feb. 23, 1899.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## CONSECUTIVE-NUMBERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 646,047, dated March 27, 1900.

Application filed February 23, 1899. Serial No. 706,558. (No model.)

*To all whom it may concern:*

Be it known that I, OSWALD GUSTAV BARTUSCH, of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Consecutive-Numbering Machine, of which the following is a full, clear, and exact description.

The invention relates to numbering-machines having a plunger for actuating the numbering-wheels and adapted to be engaged for each impression at its head-plate by a moving part of the printing-press, usually the platen.

The object of the invention is to provide a new and improved consecutive-numbering machine more especially designed for use on printing-presses and arranged to permit of running the numbering-machine at a high rate of speed and to permit consecutive numbering in either an ascending or descending scale and with the superfluous ciphers automatically disappearing, so that they do not print when not needed.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of my invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the improvement. Fig. 2 is a longitudinal sectional elevation of the same on the line 2 2 in Fig. 1. Fig. 3 is a transverse section of the same on the line 3 3 in Fig. 1. Fig. 4 is a front face view of one of the numbering-wheels having a disappearing-cipher section. Fig. 5 is a rear face view of the same with the cipher-section in an outer or printing position. Fig. 6 is a similar view of the same with the cipher-section in an innermost or non-printing position. Fig. 7 is an inner face view of the outermost numbering-wheel, and Fig. 8 is a cross-section of the improvement on the line 8 8 in Fig. 1.

In numbering-machines having movable cipher-sections as heretofore constructed it was necessary when printing numbers in the

cipher-scale for the pressman or other attendant to set the cipher-section of all the numbering-wheels except the units-wheel in a non-printing position by hand previously to starting the press, as otherwise the numbering would start with, say, "00001" instead of "1," and when it was desired to print the numbers in the reverse or descending scale—say from "99999" down to "0"—it was necessary for the pressman to move the cipher-sections of the tens-of-thousands, thousands, hundreds, and tens numbering-wheels successively into a non-printing position when the proper numbers were reached, as otherwise the ciphers would appear in undesirable places and the numbers would read, for instance, "09999," "00999," "00009" instead of "9999," "999," "99," "9," respectively. In order to thus set the cipher-sections, it was necessary to stop the press whenever a change had to be made. With my improvement, presently to be described in detail, the character-numbers without the addition of superfluous ciphers can be printed in both the ascending and descending scale and without stopping the press for making the ciphers disappear at the proper moment, as such ciphers will automatically disappear and remain in this position until the end of the scale is reached, when all the numbering-wheels are instantly returned to starting position.

The improved numbering-machine is mounted in a suitably-constructed casing A, provided near one end with a transverse partition A' for forming two compartments in the casing, one for containing the numbering-wheels B B' B<sup>2</sup> B<sup>3</sup> B<sup>4</sup>, mounted to turn on a shaft C, fixed in one end of the casing and the partition A', as is plainly shown in Fig. 2. In the other compartment is mounted to reciprocate a plunger D, carrying at its upper end a head-plate E, which is preferably in the shape of a type bearing the abbreviation "No." for the word "number," as is plainly shown in Fig. 1.

The numbering-wheels B B' B<sup>2</sup> B<sup>3</sup> B<sup>4</sup> should be provided with suitable wheels—for instance, the usual ratchet-wheels F shown in the drawings, which are engaged by pawls G', held on a pawl-frame G, mounted to swing from the shaft C as a fulcrum, all of which

is the usual and well-known construction. For the purpose of driving the pawls I provide the following-described device: The end of the frame G adjacent to the partition A' carries a pin G<sup>2</sup>, extending through a slot A<sup>2</sup>, formed in the partition A' and projecting into the compartment containing the plunger D. On the inner end of this pin G<sup>2</sup> is held a friction-roller G<sup>3</sup>, engaged by the forked end H' of a lever H, fulcrumed at H<sup>2</sup> on the partition A' and extending in a recess formed on the inner face of the plunger, as is plainly indicated in Figs. 2 and 8. The lever H is engaged at its top and bottom edges between the fulcrum and the forked end H' by friction-rollers D', journaled on studs D<sup>2</sup>, carried by the plunger D. The plunger D is normally held in an uppermost position by springs D<sup>3</sup> pressing against the lower end of the plunger, as is plainly shown in Figs. 2 and 8.

When the movable part of the printing-press comes in contact with the head-plate E, then the plunger D is caused to slide downward in its bearing in the casing, said bearing being formed by the longitudinally-extending sides A<sup>3</sup>, integral with the partition A', as indicated in Fig. 1. When the plunger D moves downward, the friction-rollers D' impart a downward-swinging motion to the lever H to impart a like swinging motion to the pawl-frame G and cause the pawls to glide over the ratchet-wheels F, without, however, turning the numbering-wheels. When the movable part has passed the head-plate E, then the springs D<sup>3</sup> impart a return or upward sliding motion to the plunger D, so that an upward-swinging motion is given to the lever H by the friction-rollers D', and an upward-swinging motion is imparted by the lever to the pawl-frame G, so that one, two, or more of the numbering-wheels are turned to bring a consecutive number to an uppermost or printing position.

It is evident that by the arrangement described the sliding motion given to the plunger D is utilized to positively impart a swinging motion to the pawl-frame to actuate the numbering-wheels without causing any of the parts to bind, and at the same time to reduce the friction to a minimum, so that the numbering-machine can be run at a very high rate of speed and with great accuracy, as none of the parts referred to are liable to get out of order.

The numbering-wheels B B' B<sup>2</sup> B<sup>3</sup> B<sup>4</sup> are held against accidental return movement by the usual spring-dogs I shown in the drawings.

In the drawings but five numbering-wheels are illustrated; but it is evident that a greater or lesser number of such wheels may be arranged on the shaft C in the casing for increasing or decreasing the range of the machine.

The units numbering-wheel B is provided with the usual fixed numerals from "0" to "9," while the tens, hundreds, and thousands

numbering-wheels B' B<sup>2</sup> B<sup>3</sup> are each provided with the fixed numerals from "1" to "9," the naught or cipher being on a block B<sup>5</sup>, fitted to slide radially in suitable bearings formed in the body of the wheel. The tens-of-thousands numbering-wheel B<sup>4</sup> is formed with fixed numerals from "1" to "9," the cipher being cut out or omitted, as indicated in Figs. 1 and 7, and on the inner face of this wheel is arranged an annular groove B<sup>6</sup>, having an inward bend B<sup>7</sup> in radial alinement with the cut-out or cipher portion of the wheel. The groove B<sup>6</sup> is engaged by a pin B<sup>8</sup>, projecting from the cipher-section B<sup>5</sup> of the adjacent numbering-wheel B<sup>3</sup>. (See Fig. 2.)

When the numbering-wheel B<sup>4</sup> is in the position shown in Fig. 7 and the next wheel B<sup>3</sup> is turned until the pin B<sup>8</sup> passes into the bent part B<sup>4</sup> of the groove, then the pin B<sup>8</sup> causes the cipher-section B<sup>5</sup> of the wheel B<sup>3</sup> to slide downward or inward a sufficient distance to bring the cipher out of position for making an impression, so that the wheels B<sup>4</sup> and B<sup>3</sup> do not print when the two ciphers are reached. As the wheels B<sup>4</sup> and B<sup>3</sup> now remain stationary and the cipher-section B<sup>5</sup> of the numbering-wheels B<sup>3</sup> is formed on its front face with a groove B<sup>9</sup>, adapted to register with a circular groove B<sup>10</sup>, formed in the face of the wheel B<sup>2</sup>, adjacent to the wheel B<sup>3</sup>, it is evident that this groove B<sup>9</sup> moves out of register with the groove B<sup>10</sup> at the time the cipher-section B<sup>5</sup> of the wheel B<sup>3</sup> is moved into a non-printing position. (See Fig. 6.) When the other wheel B<sup>2</sup> is rotated and the pin B<sup>11</sup> of its cipher-section B<sup>5</sup> moves from the groove B<sup>10</sup> into the depressed groove B<sup>9</sup>, then the cipher-section B<sup>5</sup> is likewise drawn inward into a non-printing position at the time the cipher is at the top of the wheel.

Now when the cipher-section B<sup>5</sup> of the wheel B<sup>2</sup> passes into an innermost position, its groove B<sup>9</sup> passes downward out of alinement with the groove B<sup>12</sup> in said wheel B<sup>2</sup>, and consequently when the numbering-wheel B' is turned until the cipher-section moves to the top then the pin B<sup>13</sup> of the section B<sup>5</sup> moves into the groove B<sup>9</sup> of the cipher-section B<sup>5</sup> for the wheel B<sup>2</sup>, and consequently the cipher-section B<sup>5</sup> of the wheel B' is likewise drawn inward out of a printing position. Thus the four wheels B<sup>4</sup> B<sup>3</sup> B<sup>2</sup> B' stand in such position that none of them will print, as the cipher-sections of the wheels B' B<sup>2</sup> B<sup>3</sup> have moved inward to bring the ciphers out of printing position, and the cipher in the wheel B<sup>4</sup> has been cut out for the same purpose. Thus only the wheel B prints until it reaches its cipher, and then on the next stroke given to the plunger D the pawls G' impart a simultaneous turning movement to all the wheels, so as to bring them back to a starting position, with the numerals "9" on the top of the apparatus. When the machine is in this position and it is desired to print from "99999" to "0," it is evident that the wheels B B' B<sup>2</sup> B<sup>3</sup> B<sup>4</sup> operate in the usual manner to print

the consecutive numbers until the wheel B<sup>4</sup> is moved into the position shown in Fig. 7—that is, with the cut-out portion standing on top, so that the wheel now remains stationary during the remainder of the printing, and when the following wheel B<sup>3</sup> is moved around to bring its pin B<sup>8</sup> into the bend B<sup>7</sup> of the groove B<sup>6</sup> then the cipher-section of this wheel B<sup>3</sup> slides inward to cause its cipher to disappear from the impression-line. This operation is repeated by the other wheels B<sup>2</sup> and B<sup>1</sup> in the manner above described, so that no superfluous ciphers appear when impressions are made. In the same manner when printing the numerals in the ascending scale the ciphers of the wheels B B' B<sup>2</sup> B<sup>3</sup> B<sup>4</sup> remain dormant until required.

It is understood that the machine described can be readily put to other uses besides the one referred to. For instance, the machine can be designed as a hand numbering-machine or as a paging-machine for numbering blank books or other work of similar character.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a numbering apparatus, the combination with a case or frame, of two numbering-wheels one of which has a groove therein, the groove having an inwardly-extended portion and a type mounted to move on the other wheel independently thereof and having a part running in the cam-groove of the first-named wheel, the said type being automatically moved inward by the bend in the groove.

2. In a numbering apparatus, the combination with the case or frame, of two numbering-wheels, the one having a circular groove therein, a type mounted to move on each

wheel independently thereof, the movable type of the grooved wheel having a groove capable of registering with the groove of the said wheel, and the movable type of the second wheel having a part running in the grooves of the first wheel and its movable type, and means for automatically moving the movable type of the first wheel independently of its wheel.

3. In a numbering apparatus, the combination with a case or frame, of three numbering-wheels, the one of which has a cam-groove therein, and the second of which has a groove therein, and a movable type mounted on each of the second and third wheels, the movable type of the second wheel having a groove capable of registering with that of the second wheel, and said movable type of the second wheel having a part running in the cam-groove of the first wheel to automatically move said type, the movable type of the third wheel having a part running in the groove of the second wheel and in the groove of the movable type on said second wheel.

4. In a numbering apparatus, the combination with the case or frame thereof, of a numbering-wheel, a pawl for driving the same, a lever fulcrumed on the case and having a connection with the pawl to drive the pawl, the connection including an antifriction-roller, a plunger mounted in the case, and two antifriction-rollers attached to and moving with the plunger and bearing respectively on opposite sides of the lever to drive the same.

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