No. 676,082. Patented June 11, 1901.

E. G. BATES.

AUTOMATIC NUMBERING MACHINE.

(Application filed Oct. 20, 1896.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1

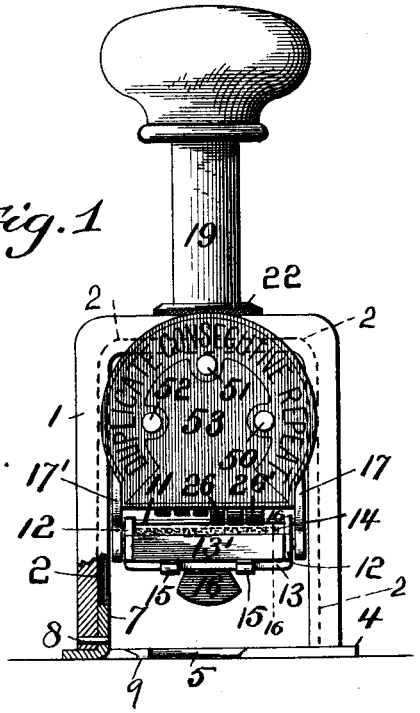


Fig. 2.

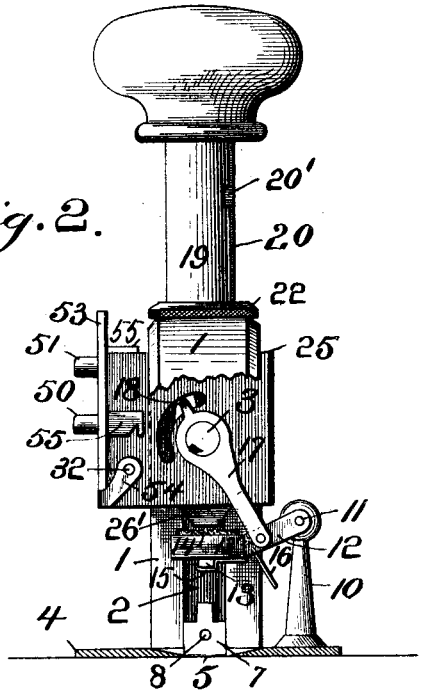


Fig. 4.

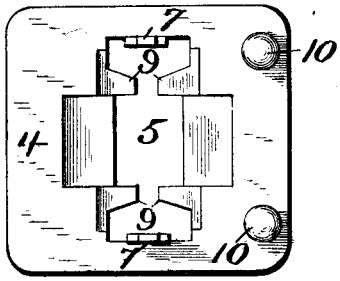
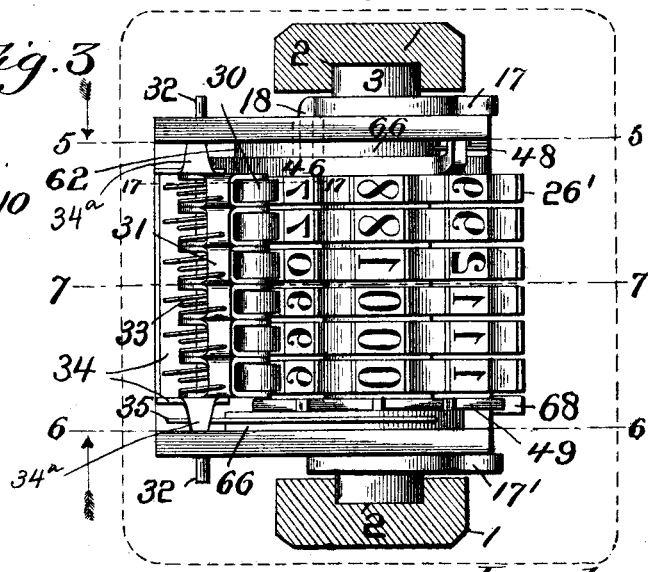


Fig. 3



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No. 676,082. Patented June 11, 1901.

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No Model.) 3 Sheets—Sheet 2.

Fig. 5.

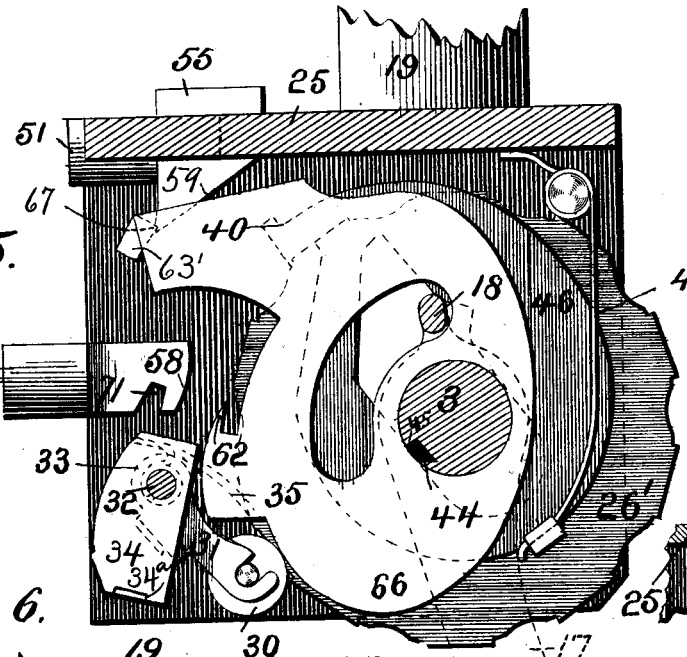


Fig. 14.

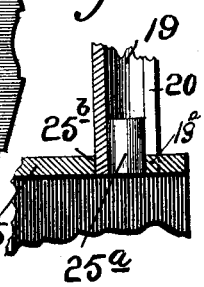


Fig. 6.

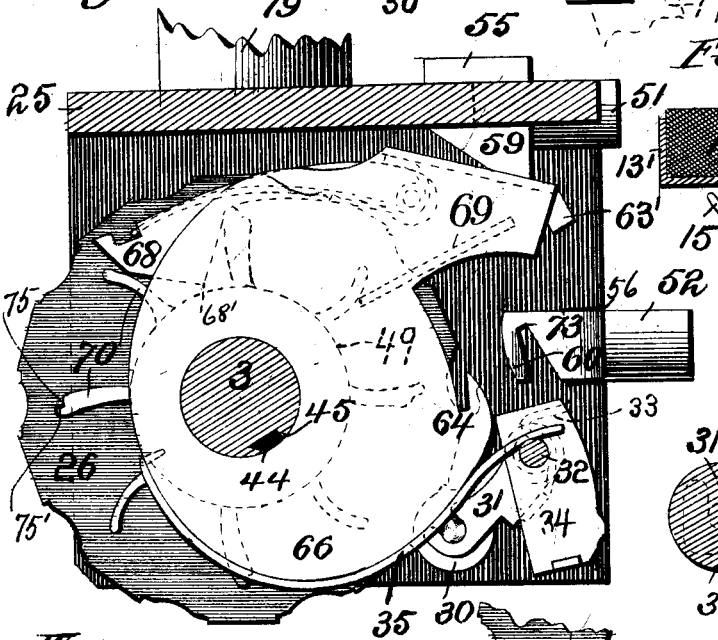


Fig. 16.

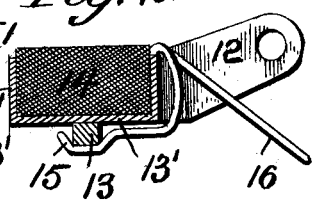


Fig. 17.

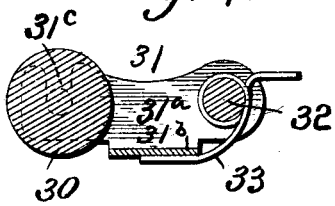
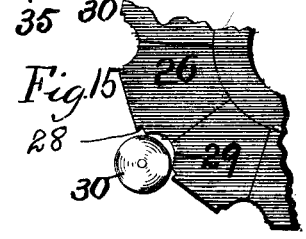


Fig. 15.



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AUTOMATIC NUMBERING MACHINE.

(Application filed Oct. 20, 1896.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 7.

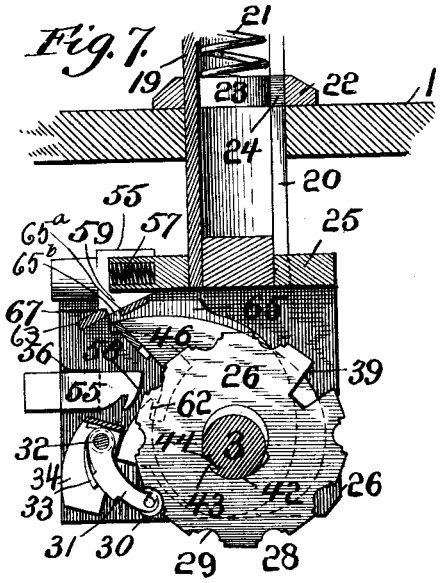


Fig. 8.

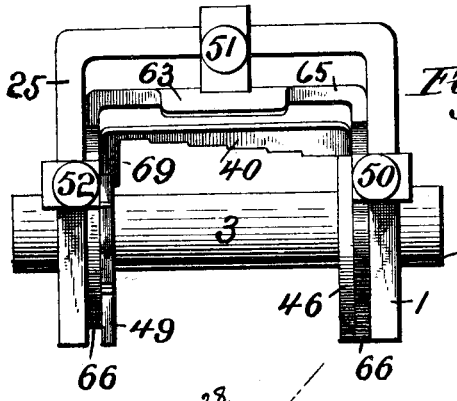
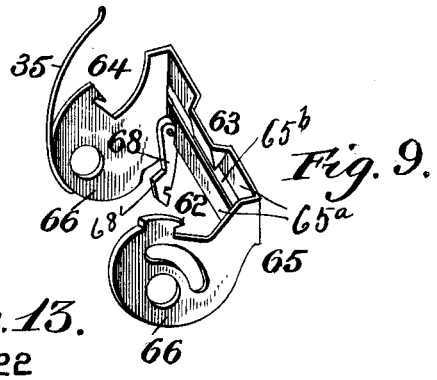


Fig. 13.



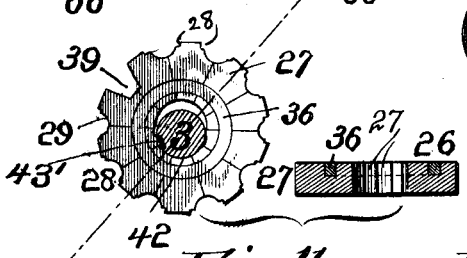


Fig. 11.

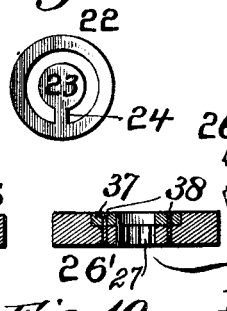


Fig. 10.

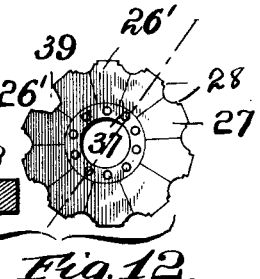
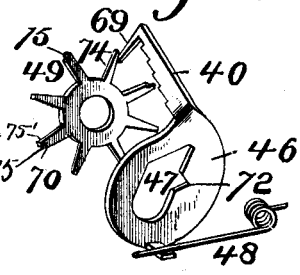


Fig. 12.



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Inventor:

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By Charles M. Catlin,

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UNITED STATES PATENT OFFICE.

EDWIN G. BATES, OF NEW YORK, N. Y., ASSIGNOR TO THE BATES MACHINE COMPANY, OF SAME PLACE.

AUTOMATIC NUMBERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 676,082, dated June 11, 1901.

Application filed October 20, 1898. Serial No. 609,455. (No model.)

To all whom it may concern:

Be it known that I, EDWIN G. BATES, a citizen of the United States, and a resident of New York, county and State of New York, have invented certain new and useful Improvements in Automatic Numbering-Machines, of which the following is a specification.

The object of this invention is to provide an improved numbering-machine which shall be readily adjustable to print the same number an indefinite number of times, to repeat any number twice and then automatically change to the next higher number, or to print numbers consecutively, such changes being controlled by push-buttons in reach from the outside of the machine.

The improvements relate to the frame of the machine, to the changing devices, to the moving devices for the number-wheels, to the number-wheels themselves, to the ink-pad and support, to the means for moving and holding certain of the number-wheels above the printing-plane until purposely moved forward, and to certain other parts hereinafter described, and pointed out in the claims.

In the drawings, Figures 1 and 2 are front and side elevations of the machine, parts being broken away. Fig. 3 is a bottom plan view of the printing-head. Fig. 4 is a plan view of the base or gage plate. Fig. 5 is a vertical section on line 5 5, Fig. 3. Fig. 6 is a vertical section on line 6 6, Fig. 3. Fig. 7 is a vertical section on line 7 7, Fig. 3. Fig. 8 is a front view of parts of the head, the front plate and the printing-wheels being omitted. Figs. 9 and 10 are perspectives of details. Figs. 11 and 12 are plan and sectional views of two type-wheels. Fig. 13 is a plan view of a detail. Fig. 14 is a section of a detail. Fig. 15 is a side view of a detail. Fig. 16 is a section on line 16 16 of Fig. 1, and Fig. 17 is a section on line 17 17 of Fig. 3.

The frame of the machine has an inverted-U-shaped body 1, which for cheapness and ease of manufacture is preferably made of drawn stock cut to the proper length and formed up, and has on its inner side a groove 2, in which the ends of the non-rotary main shaft 3 can slide up and down. In manufacturing these bodies 1 the stock is drawn in bars of long lengths of uniform cross-section and with a continuous groove in one side. To form the body from such long bars it is only necessary to cut from them short bars and bend them to U shape and to form a hole for the handle-tube. Groove 2 is shown extending the whole length of the body 1 in dotted lines in Fig. 1. The base or gage plate 4 has the usual central opening 5, through which the machine prints. In line with the opening at each end are vertical ears 7, being integral with the base-plate, as shown. Said ears fit into the ends of groove 2, and are secured by pins 8, and form a positive stop for the head just after the printing-wheels press the paper, preventing injury to the numbering-wheels by pressure against the gage-plate. In cutting the plate to form the ears fingers 9 may be left at the ends of the opening 5 to rest on the paper while the machine is printing.

To the base-plate, at a distance at the rear side of body 1, are secured standards 10 to support the pin 11, on which are pivoted arms 12, which are connected by a cross-piece 13, preferably rectangular in cross-section and forming a support for the ink-pad holder 13′ and pad 14. Standards 10, distinct and separate from body 1, are required because of the uniform cross-section of said body, there being no projections from the body to form pivot-supports as usual in numbering-machines. Said pad 14 consists of a U-shaped piece of sheet metal, from one edge of which project two fingers which are bent down and forward to form springs 15, which embrace cross-piece 13 to hold the pad-holder in position. By the support 13 and springs 15, embracing it, the pad-holder can be placed and held in three different positions—first, in position to ink the wheels; second, in position to reink the pad, (*i. e.*, ninety degrees from first position, the pad facing outward,) and, third, in inverted position for removal. From the same edge of the holder projects a third finger, which is bent down and back and forms handle 16, by which the holder can be moved. The arms 12 form or may form the ends of the pad-holder.

To the arms 12, between the pivot and the ink-pad, are pivoted arms 17 17′, which have

bearings on and are adapted to turn on shaft 3 and as shaft 3 descends in the act of printing push the pad from under the printing or numbering head. The arm 17 has a projecting inwardly-bent finger 18, which moves the stepped pawl-plate, as hereinafter described.

The handle-tube 19 has a longitudinal slot 20, with a side notch 20′ below the handle, and contains a spring 21, the top of which presses against the handle and the lower end of which bears on body 1 through ring 22, which for this purpose has a central part 23 connected to the ring by a neck 24, which is adapted to travel in the tube-slot. When tube 19 is depressed until notch 20′ is in line with neck 24, ring 22 can be turned to bring said neck into the notch to lock the tube down while the pad is being reinked. The tube 19 supports the printing-head, which has a U-shaped body 25, in which are supported shaft 3, the numbering type-wheels 26, &c.

While each number type-wheel may be made in one piece, as usual, I propose, for economy and ease of manufacture, to make each wheel in three or more sections, preferably ten sections, one for each character "0" to "9," each section 27 having, besides its number-type, a ratchet 28, with which the number-wheel-moving pawl is adapted to engage, and curved parts 29, which form bearings for rollers 30, carried by arms 31, pivoted on pin 32 and each pressed against its wheel by a spring 33, also on pin 32. Preferably rollers 30 are of larger diameter than the circle of curves 29. (See Fig. 15.)

34 is a holder, also on pin 32, between the legs of which the several arms or holders 31 are confined. Ears 34ª, which bear against the sides of the numbering-head, maintain holder 34 in such position on pin 32 that the individual arms 31 and rollers 30 will be held in alinement with their own number-wheels. One end of each of the springs 33 pressing against the upper front edge of frame 34 presses the lower ends of the legs of said frame against the front plate, preventing rattle or movement of the frame. This position of the frame is shown in Figs. 5 to 7, although the front plate is there omitted.

35 is a spring which tends to throw frame 65, hereinafter described, to its upper position.

The rollers 30 hold the wheels in the position to which they are normally set until they are purposely advanced. The sections 27 have curved grooves which when the sections are assembled form a continuous groove or depression, into which is inserted and secured a ring 36. Instead of a ring and a groove a ring 37 may surround the shaft-opening, being riveted to each section by rivets 38.

The number-wheels are adapted to turn on the non-rotary shaft 3 and have the usual deep notches 39 to admit the stepped moving pawl-plate 40 at the close of each rotation of a wheel to advance the next wheel one space. When the number-wheels are formed of several sections, the deep notches 39 are made by removing parts of the meeting sides of two contiguous sections, as shown in Figs. 11 and 12. The first or units wheel 26′ has a circular or all-round bearing for shaft 3 (see Fig. 12) and always prints when the head is depressed. The shaft-openings in the other wheels are not wholly circular, but are cut away on one side, as seen at 42, Fig. 11, to allow said wheels at a predetermined part of their rotation to be bodily moved upward a short distance, so that when the head is pressed down to print said retracted wheels will not reach the printing-surface. The cut-away portions should be in such position that the wheels will be retracted (pressed back by springs 33) when the "0" types or numbers are directly below shaft 3. Said wheels, except the units-wheel, have toothed parts 43, which to allow the wheels to be thus retracted enter the groove 44 in the lower side of shaft 3 but a little in advance of a vertical plane through the axis of shaft 3. When a sectional wheel is used, tooth 43 will be formed in one of the segments, as seen at 43′. When either of the toothed wheels is advanced by the stepped moving pawl-plate, the wheel is pushed outward a little by part 45 acting as a cam and drops into position without attention or adjustment, so that said wheel will print when the head is depressed.

I am aware that numbering-machines have been described having a shaft with an undercut groove and printing or number wheels with drop-ciphers having hooks adapted to engage the groove and to be held back and automatically released and moved forward when the wheel is advanced. The present invention differs from these in that the wheels are bodily moved back and then moved forward when needed, thus dispensing with the somewhat complicated and delicate drop-cipher, with its springs, pins, &c.

The moving pawl-plate 40, referred to above, is supported by a right-angled wing 46, which has an opening 47, through which passes shaft 3. As shown in Fig. 10, the opening is of such shape that the wing can move transversely to the shaft. The wing is normally pressed in the direction to move pawl-plate 40 to engage with the number-wheels by spring 48. The upper side of the opening 47 is inclined, as seen in Figs. 2, 5, and 10. The effect of this is that when finger 18 (which passes through the curved slots in the head-body and in the wing of frame 65) moves against it during the forward movement of the head it exerts pressure in two directions—radially and circumferentially—and the construction is such that it raises pawl-plate 40 in a line radial or nearly radial to the number-wheels during the first part of its movement, so that it will not rub over the face of the type wheel or wheels to be advanced, and when the lower side of the opening reaches the under side of the shaft the pressure of finger 18 carries said pawl-plate forward in

an arc to engage the next ratchet-tooth. The wing 46 of the pawl-plate stands between wing 66 and the first numbering-wheel and is thereby steadied and held in proper position. It is evident that if the pawl-plate wing turned around its axis without any resistance the finger 18, acting on the upper side of opening 47, might turn the wing without giving it a radial movement against the tension of spring 48. In practice the wing 66 and the numbering-wheel, by friction against wing 46, form a practical means for slightly opposing the turning of the wing and the consequent circumferential movement of the pawl-plate, at the same time allowing the wing to move both radially and on its axis under pressure from finger 18. When the head moves up under influences of spring 21, the pawl-plate drops radially to engage the ratchet and is moved in a reverse arc by reverse movement of finger 18, advancing the wheel or wheels engaged one space. The pawl-plate I term a "floating" pawl-plate, as distinguished from a plate having a fixed pivoted connection.

The changing devices by which the machine can be instantly converted from consecutive, duplicate, or repeat (continuous) numbering to either of the others consists of a toothed wheel 49, loose on shaft 3, and which can be moved to either of three positions by pressing in one or the other of the push-buttons 50, 51, 52, which project through the front or index plate 53 and are movable directly in and out through the plate, which is secured to the head by reversely-bent perforated ears 54, through which the pin 32 (above mentioned) passes, thus making extra parts for securing the index-plate unnecessary. Wheel 49 is a means controlled by frame 65 for determining the operation or non-operation or the order of operation of the stepped pawl-plate. The push-buttons (one of which is always in, the others being out) have behind the front plate bifurcated bodies 55, adapted to straddle the body 25. Notches 56 are formed in body 25, in which the bodies 55 are placed. Behind each of the bodies 55, in a hole in body 25, is a spring 57, tending to press the push-buttons out. The inner leg of each bifurcated body forms or is provided with a wedge portion 58 59 60 and, just above, a detent-notch. The outer legs of bodies 55 are merely to assist in holding the bodies in place. The wedge parts when pushed in coöperate with the corresponding wedge or beveled parts 62, 63, and 64, forming parts of a frame 65, with wings 66, having bearings on shaft 3. In Fig. 9 incline 63 terminates at the outer edge of the cross-piece of frame 65. In Figs. 5 and 6 said incline is extended outward beyond said edge, as at 63', to show more clearly the location of the incline in relation to its operating-wedge. When frame 65 is made with two cross-pieces 65^a and an opening 65^b between them, the rear cross-piece should be so arranged as to allow the edge of incline 63 to enter notch 67. (See Fig. 7.) Each push-button wedge when pressed in turns frame 65 forward its complete throw; but such wedge is formed to allow the frame to turn reversely a short distance, different for the different wedges, to catch each wedge as it is pushed in and hold it in and to hold the frame in a definite position until another of the wedges is pushed in. Wedge 59 has a shallow notch 67, which allows the rear edge of incline 63 to drop back into it, as in Fig. 7. This leaves frame 65 in such position that pawl 68, the angle 68' of which is toward wheel 49 and normally stands between two of the teeth thereof, will have moved wheel 49 to such position that tooth 69 on the pawl-plate at each operation of the machine drops into one of the spaces between teeth of wheel 49, dropping in front of one of the teeth 70, (which teeth may be curved, as in Fig. 6, or straight, as in Fig. 10;) but the movement of the pawl is not sufficient to move wheel 49 far enough to allow pawl 68 to drop between the next pair of teeth. Wheel 49 is moved forward a little when finger 69 strikes it, but is brought back to position by spring-pressed pawl 68 as the head is pressed down. Thus pawl-plate 40 is allowed to engage and move one or more number-wheels at each depression of the head printing numbers consecutively. If now the "repeat" push-button 50 and its wedge be depressed, it first turns frame 65 forward, releasing the "consecutive" wedge, which is thrown out by its spring 57. The wedge just pressed in has a notch 71, deeper than notch 67, which allows hook 62 to enter under influence of spring 35, holding the push-button and wedge depressed and allowing the frame 65 to move reversely a little farther than in the first case. In this operation pawl 68 will move far enough to move wheel 49 to such position that tooth 69 will not enter between the teeth of wheel 49, but will rest on the extreme outer end of one or other of the teeth 70 of said wheel 49. This holds up the pawl-plate, allowing tooth 18 when it swings to the other side of opening 47 during the upward movement of the head to enter notch 72 before finger 69 is carried from tooth 70 by the further movement of tooth 18, which prevents pawl-plate 40 reaching the number-wheels to turn them, whereby the same number will be printed at each depression of the head.

Finger 18 will not enter notch 72 except when tooth 69 rests on the extreme end of one of the teeth 70. At other times the notch has dropped below the finger before the latter reaches that side of the opening. If now the "duplicate" button and wedge be depressed, frame 65 is first thrown forward, releasing the repeat-wedge, which is thrown out by its spring. The hook 52 then drops back into notch 73, deeper than notch 71, moving wheel 49 into one of two positions—viz., if the last time the machine was used for duplicating, the last number set up was printed twice be-

fore one of the other buttons was depressed and wheel 49 would be in position to receive tooth 69 on a step 75; but if said number had only been printed once wheel 49 would be in position to receive tooth 69 at 74. In the latter case pawl-plate 40 is allowed to operate, but in the former case not, since during the reverse movement of pawl-plate 40 tooth 69 rests on one of the lower steps 75 of a step-tooth 70, preventing operation of pawl-plate 40, and tooth 69 by pressing against the side 75' of the upper step of said step-tooth turns the wheel 49 reversely as far as pawl-plate 40 moves, whereby each number set up is printed twice, and then the following number is set up.

The upper step of the stepped teeth makes these teeth of the same length as the alternate non-stepped teeth. Said step also enables the tooth 69 when resting on the lower step to turn wheel 49 during reverse movement of the pawl-plate. The lower step 75 when tooth 69 rests thereon allows the pawl-plate to approach, but not to reach, the type-wheels to cause duplicate numbering, as above described.

The wheel 49 is not moved a full space from its position by pawl 68 except in setting the machine for duplication. Evidently the number of push-buttons and wedges used can be varied.

The changing devices described are simple, not liable to get out of order, and are positive in operation. The entire machine is put together without the use of screws, and the number of parts is smaller than heretofore.

The arms 31, hereinbefore referred to, are stamped up from H-shaped blanks and have their two parallel members 31^a extending edgewise from the cross member 31^b. At one end of the parallel members are pivot-holes, and at the opposite end are bearings, preferably open notches 31^c, for the trunnions of the rollers 30. Said notches face the wheels against which the rollers rest, and the rollers are thus held in place without being positively secured to their holders. One end of the coiled spring which presses the roller-holder forward rests on the cross member of the holder, as shown.

Arm 17, with its finger 18, it will be seen, has three functions—to move the pad-holder, to move the stepped pawl-plate, and to hold the stepped pawl-plate away from the number-wheels when finger 18 engages notch 72 during duplicate printing.

Tube 19 is secured in a seat 25^b in body 25. The seat on one side has a lug 19^a extending into slot 20, insuring a strong connection and the proper positioning of said tube. A plug 25^a may be forced to the bottom of the tube within the seat to strengthen the connection between the tube and body.

I claim—

1. The combination, in a numbering-machine, of a movable head carrying a shaft, numbering-wheels, a stepped moving pawl-plate therefor having both radial and circumferential movement relative to the numbering-wheels, a wing extending from the pawl-plate to the shaft and having an opening longer than the diameter of the shaft to allow the wing and pawl-plate to move radially, a spring normally forcing the pawl-plate toward the shaft, means opposing the circumferential movement of the pawl-plate, and means for moving the pawl-plate when the head is moved, substantially as described.

2. The combination, in a numbering-machine, of a movable printing-head carrying a shaft, printing number-wheels thereon, and means for moving the wheels on the shaft consisting of a stepped pawl-plate having a wing with an opening for, but larger than, the shaft, an arm having a bearing on said shaft, and a finger carried by said arm and extending into said opening in the wing of the pawl-plate, said arm and finger being moved by movement of the printing-head and moving the pawl-plate.

3. The combination, in a numbering-machine, of a drawn metal body grooved throughout its length, and of uniform transverse cross-section throughout its length, a handle and a head movable in the body, said head having a main shaft the ends of which project into said groove, numbering or printing wheels on said shaft, a pawl-plate for moving the wheels, and means for moving the pawl-plate.

4. A stepped pawl-plate having a right-angle wing, an elongated shaft-opening therein said opening having an operating edge inclined toward the shaft and adapted to cooperate with a moving finger as described.

5. The combination, in a numbering-machine, of a movable head having a shaft, printing-wheels thereon, a floating stepped pawl-plate having a bearing on the shaft but movable transversely to the shaft to carry the pawl-plate from and toward the peripheries of the wheels, an ink-pad holder, and operating-arms with bearings on the shaft and pivoted to the ink-pad holder, one of said arms having a finger coöperating with the pawl-plate to move it.

6. The combination, in a numbering-machine, with a shaft, number-wheels thereon, and a pawl-plate for moving them, of changing devices for changing the machine from duplicate, consecutive or repeat printing to either of the other, consisting of a toothed wheel loose on said shaft, a frame or body, as 65, a pawl moved by said frame and moving said toothed wheel, means for moving said frame, and means coöperating with said toothed wheel and determining the operation of the pawl-plate.

7. The combination, in a numbering-machine, with a shaft, number-wheels thereon, and a pawl-plate for moving them, of changing devices for changing the machine from duplicate, consecutive or repeat printing to either of the other, consisting of a toothed wheel loose on said shaft, a body pivoted on

said shaft and controlling the position of said toothed wheel, wedges for moving said frame, and means coöperating with said toothed wheel and determining the operation of the number-wheel pawl-plate.

8. The combination, in a numbering-machine, with a shaft, number-wheels thereon, and a pawl-plate for moving them, of changing devices for changing the machine from duplicate, consecutive or repeat printing to either of the other, consisting of a toothed wheel loose on said shaft, a frame with bearings on said shaft, as 65, controlling the position of said toothed wheel, wedges for moving said frame, wedge-operating push-buttons extending to the outside of the machine, and means coöperating with said toothed wheel and determining the operation of the number-wheel pawl-plate.

9. The combination, with the body of a numbering-head having suitable notches in an edge thereof, of wedges with legs adapted to straddle said body and to move in said notches, springs behind said wedges, an index-plate carried by the head through which the wedges extend and by which they are held in place, and a changing device for the number-head moved by said wedges.

10. The combination with the wheels and pawls of a numbering-machine, and means for automatically operating said pawls by the act of printing, of means controlling the operation or non-operation of said pawls, an index-plate, several push-buttons projecting through said plate and movable in and out by force applied thereto at right angles to said plate and controlling said means controlling the operation or non-operation of the pawls.

11. The combination with the body of a numbering-head, including numbering-wheels, means for moving the wheels, and changing devices for changing the numbering from one order to another, said changing devices being operated by push-buttons movable in and out by force applied thereto at right angles to the face-plate, and a face-plate through which the push-buttons project.

12. The combination, in a numbering-machine, of numbering-wheels, a moving pawl-plate therefor, means for changing the order of printing including several push-buttons and wedges, one of which is normally pushed in and locked, and the others of which are out, said lock being disengaged by inward movement of another of said push-buttons, and means for locking in the push-button last operated.

13. The combination with the shaft, numbering-wheels, and stepped pawl-plate, of frame 65 pivoted on the shaft and having beveled parts, coöperating wedges adapted to move said frame, the wedges when pushed in being held by said frame, and a wheel also on said shaft the position of which is controlled by said frame, and which in turn controls the stepped pawl-plate.

14. The combination with the shaft, number-wheels, and stepped pawl-plate, of frame 65 pivoted on the shaft and having beveled parts, coöperating wedges adapted to move said frame, said coöperating wedges having notches of varying depth, means on the frame to engage the notches of the wedge pressed in, holding the wedge in and the frame in a definite position, and means controlled by the frame determining the operation or non-operation of the stepped pawl-plate.

15. The combination, in a numbering-machine, of a head adapted to be reciprocated or moved to print, a shaft immovable in the head, several numbering-wheels thereon, all of which wheels except the first or unit wheel being adapted to be moved back bodily on said shaft, and means for automatically advancing said wheels into printing position when needed.

16. The stepped pawl-plate having a wing with a shaft-opening larger than its shaft, a finger operating on the wing to move the pawl-plate, and said shaft-opening having in one side a notch into which the finger can enter during one operation to hold the stepped pawl-plate from the numbering-wheels.

17. The combination, in a numbering-machine head, of a shaft, printing or numbering wheels rotatable thereon, said wheels or some of them being bodily movable back from printing position to a position eccentric to the shaft, and means operated by turning such wheels to move them to a position concentric to the shaft, whereby they will be brought into printing position.

18. A printing-wheel having a shaft-opening enlarged at one side whereby the wheel can take a position eccentric to the shaft, a tooth projecting inwardly in the enlarged part of the opening, in combination with a shaft having a groove in position to admit said tooth.

19. The combination, in a numbering-machine, of a grooved shaft, printing-wheels thereon having enlarged shaft-openings whereby they are movable bodily out of the printing position or plane, teeth on the wheels adapted to enter the groove, the teeth being automatically removed when their wheels are turned, and the wheels moved forward to the printing-plane.

20. A printing number-wheel consisting of several segments of a circle in a common plane and together forming a complete wheel, numerals on the periphery of the segments, and means for holding the segments permanently in the form of a wheel.

21. A printing number-wheel consisting of several segments of a circle in a common plane and together forming an entire wheel, numerals and ratchet-teeth on the periphery of the segments, and a ring with means for securing it to the segments, holding them in the form of a wheel.

22. A printing number-wheel consisting of several segments of a circle in a common plane and together forming an entire wheel, a character and a ratchet tooth on each segment, a

depression in the segments, and a ring secured therein to hold the segment in wheel form.

23. A printing number-wheel consisting of several segments of a circle in a common plane and together forming an entire wheel, a character and a ratchet tooth on each segment, a depression in the segments, and a ring riveted to each segment to hold the segments in wheel form.

24. A printing-wheel composed of several segments a grooved shaft therefor, the wheel having a shaft-opening larger than the shaft on one side, and a tooth on one of said segments adapted to enter said groove.

25. A printing-wheel composed of segments secured together in a common plane and together forming an entire wheel, ratchet-teeth on the periphery of the wheel for the moving pawl, and a deep notch formed by removing parts of two adjoining segments.

26. The combination with number-wheels bodily movable on their shaft back from printing position, of separate holding-rollers for the wheels, a separate spring for each roller and pressing the rollers against the wheels in the direction to thus move them back.

27. The combination with a numbering-wheel, having printing characters and roller-bearings around its periphery, of a spring-pressed roller-holder having two parallel members adapted to be pivoted at one end, and notched at the other end on the side toward the numbering-wheel, and a roller between the parallel members and journaled in said notches.

28. The combination of several wheels, rollers pressing thereon, roller-holders, a holder for the roller-holders, a pin extending through all the holders and a spring for each roller-holder located on the same pin with one end pressing on the roller-holder and the other end pressing on the other holder.

29. The combination with the U-shaped body of a numbering-head, of a face or index plate on one side of said body and having backwardly-bent ears and a pin passing through the two parallel limbs of said U-shaped body and extending on both sides of the body through said ears, numbering-wheels carried by said body, and means bearing against each of said wheels separately to hold them, said means being pivoted on said pin.

30. The combination with the body of a numbering-machine consisting of a U-shaped strip with a groove on the inner side of each leg, and a numbering-head movable in said body and having projecting parts movable in said grooves, of a base-plate having a printing-opening, ears extending up from the base-plate into said groove, said ears being of such length as to serve as stops for the head preventing the number-wheels striking the base-plate, and means for securing the legs and ears together.

31. The combination of an ink-pad holder, a support therefor, springs projecting from the upper edge of the holder down and under the holder and engaging said support.

32. The combination of an ink-pad holder, a support therefor, springs projecting from the holder and engaging said support which is of such shape in cross-section as to hold the pad-holder in either of several positions, as described.

33. The combination of pivoted arms 12, a cross-piece between them, a pad-holder on said cross-piece, and one or more springs engaging the cross-piece and holding the pad-holder thereon.

34. A pad-holder of channel shape with spring-fingers extending from an upper edge thereof and under the holder as described.

35. The combination with a pad-holder of channel shape, of a support therefor having pivoted arms which close the ends of the pad-holder.

36. The combination in a numbering-machine, of a U-shaped body grooved on its inner side and of uniform cross-section throughout its length, a head movable in the body, said head having numbering-wheels, and means for moving them, an inking-pad holder and pad, a base-plate secured to said body, posts secured in the base-plate at one side of said U-shaped body and distinct from it, arms pivotally supported by said posts, and means connecting said arms with the head whereby the pad is moved by movement of the head.

37. The combination with a reciprocatory tube, as 19, having a longitudinal slot and a notch 20′, and a body through which the tube moves, of a ring resting on said body and having a neck or extension passing into the slot, said ring being free to turn on the tube to bring said neck into and out of the notch, locking the tube in a certain position or releasing it.

Signed this 10th day of October, 1896.

EDWIN G. BATES.

Witnesses:
JOHN E. CONLEY,
E. M. CONNOLLY.