

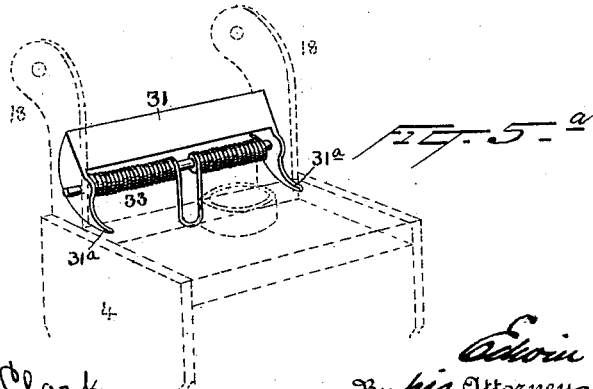
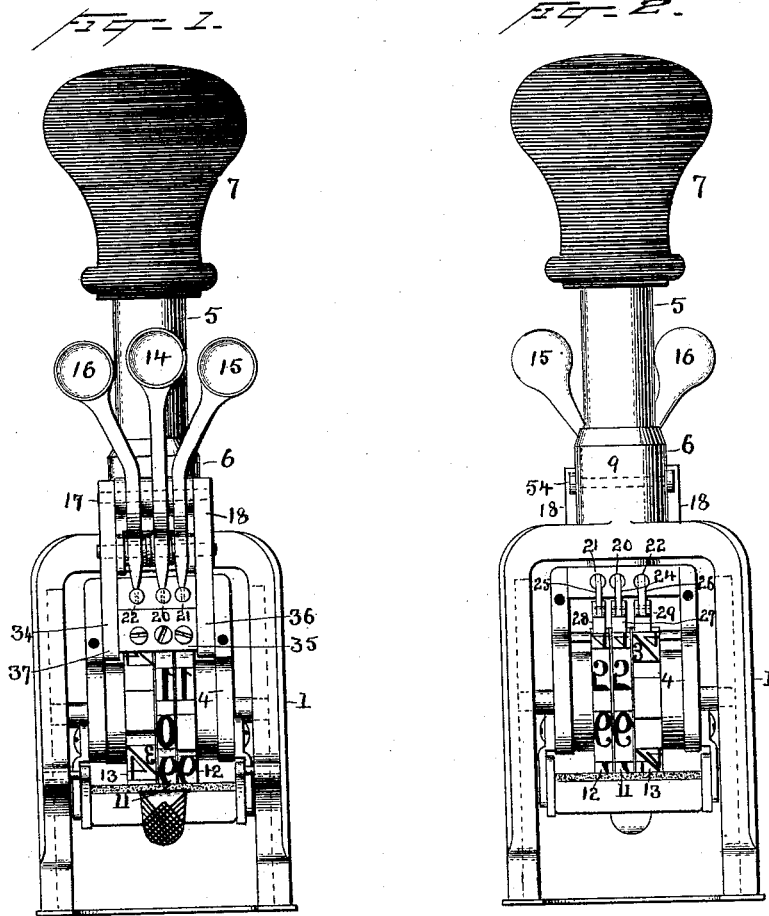
(No Model.)

2 Sheets—Sheet 1.

E. G. BATES.
NUMBERING MACHINE.

No. 489,449.

Patented Jan. 10, 1893.



Witnesses
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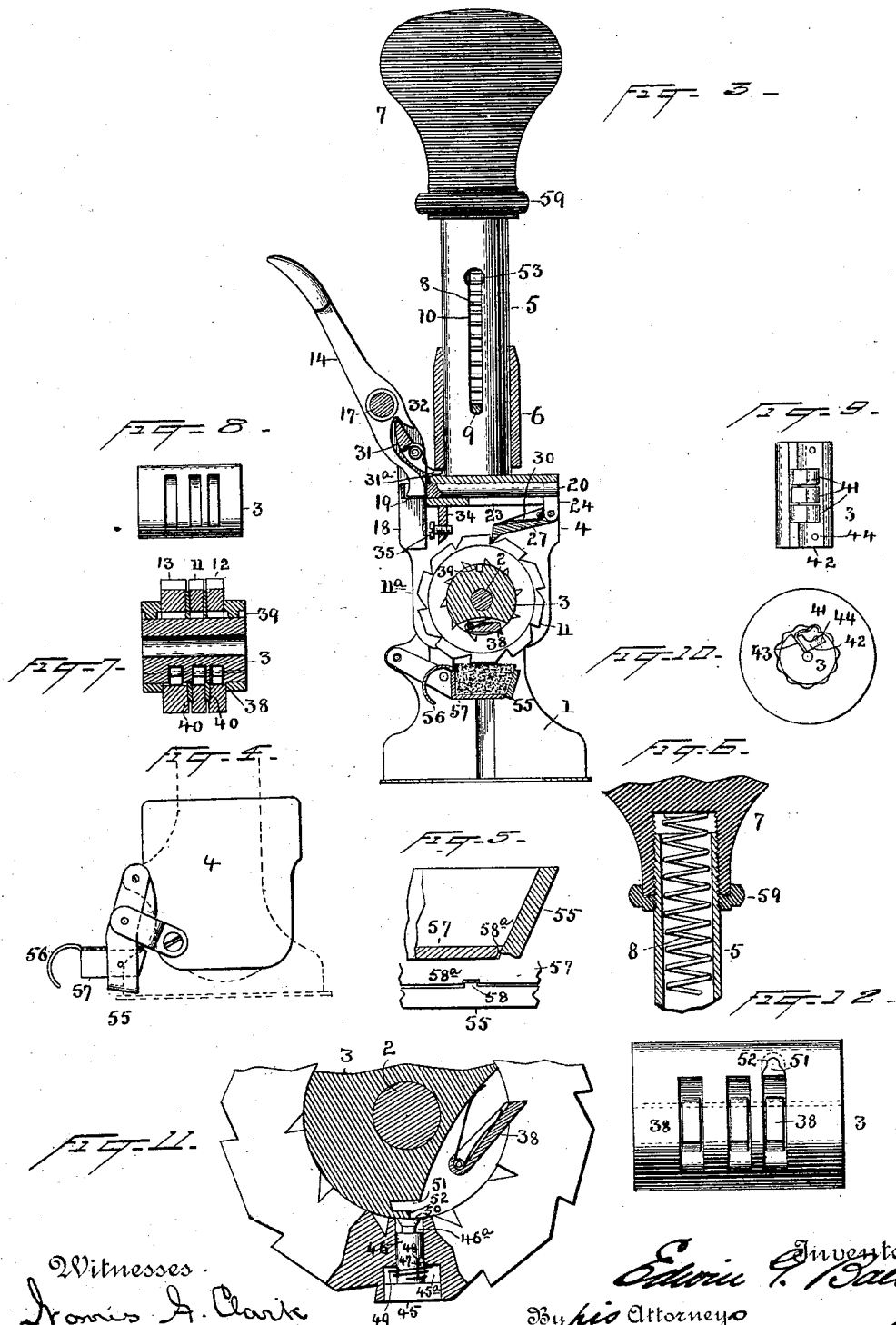
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2 Sheets—Sheet 2.

E. G. BATES.
NUMBERING MACHINE.

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2 Witnesses.
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J. F. Smith

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By his Attorneys
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UNITED STATES PATENT OFFICE.

EDWIN G. BATES, OF NEW YORK, N. Y., ASSIGNOR TO THE BATES MANUFACTURING COMPANY, OF NEW YORK.

NUMBERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 489,449, dated January 10, 1893.

Application filed October 2, 1891. Serial No. 407,515. (No model.)

To all whom it may concern:

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

The object of my invention is to simplify the construction of hand numbering machines and more especially that style of machine known as a "yardage machine" which is the numbering machine generally used for stamping the number of yards contained in a piece of cloth, ribbon, &c. upon a tag to be attached to such material.

The changing of the type-wheels in this class of machine is done by means of finger-levers and contains no mechanism for changing the wheels automatically. The reason for this is that the printing of numbers with yardage machines is seldom consecutive and by employing finger-levers the wheels are independently changeable and are therefore more readily brought to the desired position.

By my invention the size and weight of the machine is considerably reduced and the various parts are so constructed that prolonged use will be attendant with a minimum of fatigue to the operator, and my invention consists in the various novel devices and combinations of devices hereinafter set forth and pointed out by the claims.

In the accompanying drawings forming a part hereof, Figure 1 is a front elevation of the machine; Fig. 2 is a rear elevation; Fig. 3 is a partial elevation and vertical section looking from the left of Fig. 2; Fig. 4 is a view showing the position of the ink-pad box when in position for receiving a supply of ink; Fig. 5 is an enlarged view showing the means for keeping the ink pad box locked in its normal position; Fig. 5^a is an enlarged perspective view of the lever for removing the inking pad from contact with the type-wheels before rotating the same; Fig. 6 is a view showing the manner of fastening the handle to the shank which carries the operating parts; Fig. 7 is a longitudinal section of the hub, type-wheels and stationary disks; Fig. 8 is a view of the hub with the retaining pawls for the wheels omitted, show-

ing the cavities wherein these pawls are placed; Fig. 9 is a view of a modified form of hub and retaining pawls, the pawls being made of pieces of spring metal; Fig. 10 is an end view of the same and a wheel placed thereon showing the notched or corrugated inner periphery of the wheel with which the spring pawls engage; Fig. 11 is a view, partly in section and partly in elevation, of a portion of the hub and a type-wheel, showing the form of drop-cipher employed; and Fig. 12 is a view of the hub showing one of the cavities for the retaining pawls extended so as to form the means for holding the drop-cipher out of the printing position.

1 is a U-shaped frame in which works the ends of the type-wheel shaft 2, upon which is placed the hub 3, carrying the type-wheels, the whole being supported in the casing 4, placed at the lower end of a plunger 5, which works in the collar 6 upon frame 1. The plunger 5 has a handle 7 at its upper end and inside the plunger is placed a spiral spring 8, held between the pin 9 and the inside of the handle. The pin 9 is passed through openings in the collar 6 and the slots 10 on each side of the plunger 5, which permits the plunger to be forced downward when printing and is returned to its normal position by the spring 8.

In the machine as illustrated there are three type-wheels. 11 is the unit wheel; 12 is the tens wheel; and 13 is the fraction wheel.

Heretofore in numbering machines having the shifting pawls for the type-wheels working on the outside of the wheel, as distinguished from wheels rotated by pawls working in notches on the inner periphery of the wheel, such pawls operated in the teeth of ratchet wheels rigidly secured to the printing wheels. These ratchet wheels of course considerably increased the total width of the machine and added considerably to the weight and cost thereof. In some cases it has been proposed to advance type-wheels by means of notches between the type, but in these cases complicated pawl mechanism for advancing the wheels was necessary. The type-wheels employed by me are substantially the width required for the face of the type and simple advancing pawls are employed. The charac-

ters on the wheels are as usual cut in relief, but the spaces between the characters are so cut as to form an angular notch, as clearly shown in Figs. 3 and 11 of the drawings, thus forming upon the outer periphery of the wheels and between each character the notches 11^a with which the pawls for actuating the wheels engage, said pawls riding directly over the face of the numerals. The pressure of the pawls upon the face of the type being very slight, no injury is apt to result to the type from the constant travel of the pawls over them. By forming the notches on the wheels in this manner it will be seen the width of the machine is considerably reduced.

The changing of the type-wheels is done by the finger-levers 14, 15 and 16. These levers are pivoted on the pin 17 supported in the uprights 18 extending from the casing 4. The lower ends of the levers enter into slots 19 formed in the sliding bars 20, 21 and 22, which bars are placed in ducts or channels formed in the top piece of the casing 4; the channels are slotted for a portion of their length as at 23, through which slots extend the lugs 24, 25 and 26 depending from the rear ends of the sliding bars 20, 21 and 22, respectively, and upon these lugs are pivoted the pawls 27, 28 and 29, respectively. These pawls engage with the notches 11^a on the type-wheels to actuate the same. The pawls have hair-springs 30 placed in a cavity formed in their upper sides, which springs act to force the pawls into the notches 11^a.

Pivoted upon a bar 33^a supported between the two uprights 18, which as before stated are carried by frame 4, and below the pivots of the finger-levers is a spring-pressed lever 31, which engages with the projections 32 on the finger-levers 14, 15 and 16. The lever 31 has two curved lower legs 31^a which bear against the under side of the top part of frame 1. Upon operating any of the finger-levers to rotate a type-wheel, the projection 32 will force the lever 31 downward, and by reason of the legs 31^a bearing against the frame 1 it will give a slight downward movement to the casing 4 and consequently a slight downward movement is given to the inking pad box away from the wheels. If the casing 4 should be held stationary and the lever 14, 15 or 16 be operated, the frame 1 would be moved relative to the casing, and this would accomplish the same result as the downward movement of the casing 4. The lower ends of the finger-levers have a very slight free movement in the slots 19, so that the projections 32 will act on the lever 31 before motion is communicated to the rotating pawls. The movement given the inking pad box through the lever 31 is just sufficient to place the pad out of contact with the face of the type.

The pivot bar 33^a of the lever 31 has coiled around it a spring 33. The ends of this spring bear against the front of the lever and at the middle the spring has a loop in it which bears against the top-plate of the casing 4; this

gives more pressure to the spring when it is strained. This spring serves to return the finger-levers and type-wheel pawls to their normal position, after rotating the wheels.

The top-piece of the casing 4 has a flange 34 projecting from its under-side and passing through this flange are set-screws 35, 36 and 37. These set-screws are adjustable so as to limit the forward movement of the type-wheel pawls. It will be readily seen that these limiting-stops provide a simple and efficient means for securing the proper distance of rotation of the type-wheels for bringing the numerals into the printing position.

The hub 3 has recesses formed therein into which are placed the retaining pawls 38 for preventing a backward movement of the type-wheels while the shifting-pawls are returning to their normal position.

In Figs. 9 and 10 is shown a modified form of hub and type-wheel. In this form instead of the retaining pawls 38, I employ pawls 41 made of spring metal. The hub 3 has a section cut out of it, either angular as shown or any other form. A clamping-piece 42 of a shape corresponding to the cut-out section of the hub is employed to hold the spring metal pawls in place. In the form shown the spring metal pawls are bent into an angle at 43, which part is held between the angle formed in the hub 3 and the clamp 42. Pins 44 serve to hold the clamp in place. The outer ends of the pawls 41 are curved to fit corresponding notches formed upon the inner periphery of the type-wheel. These notches however may be of any other desired form and the ends of the spring metal pawls bent to a corresponding shape. The type-wheels have placed between them thin disks 40 and the wheels are mortised to receive the disks thus permitting the wheels to be brought close together. The hub has a slot 39 formed therein as shown in Figs. 3 and 7, to which slot the disks 40 are keyed so that they will be stationary with relation to the type-wheels. The object of these stationary disks is to permit of the rotation of each type-wheel independently and without liability of rotating its adjoining wheel through friction or otherwise.

In a "yardage machine" having three wheels (a unit, a tens, and fraction wheel) it is not necessary to have a drop-cipher. The unit wheel has numerals 1 to 0, the tens wheel 1 to 9 and a blank space, and the fraction wheel the desired fractions and one or more blank spaces. To print the single numerals the unit wheel is brought to any desired number and the tens and fraction wheels to a blank space.

In a machine having a unit, tens and hundredths wheel, or more, it is sometimes desirable, in order to be capable of printing with the unit wheel only, to have a drop-cipher in the wheels intermediate the unit and last wheel, or else to provide wheels with eleven spaces, having the numerals 1 to 0 and a blank space. The fraction-wheel has one or more

blank spaces to permit even numbers to be printed. In Fig. 11 is shown a form of drop-cipher which I prefer to employ. The cipher-section 45 fits into the recess 45^a cut the width of the wheel and is supported upon the stem 46 which works through the hole 46^a. The stem 46 is recessed at 47 and a pin 48 passes through the type-wheel against which the shoulder formed by the recess strikes and prevents the cipher-section from dropping out of the wheel or being forced farther out of the recess 45^a than the printing position by the spring 49 coiled around the stem 46. This spring is coiled in a conical shape so that when the drop-cipher is held out of the printing position the space occupied by the spring compressed is only the thickness of the wire. This allows more bearing surface for the stem, as the recess 45^a need only be slightly deeper than the thickness of the cipher-section. The inner end of the stem 46 is reduced to form a head 50, which when the drop-cipher is pressed inward will fit into the cavity 51 formed in the hub 3. This cavity is preferably made as an extension of the cavities for the retaining-pawls 38, as shown in Figs. 11 and 12. To place the cipher out of the printing position the type-wheel is turned to bring the cipher slightly past the printing position (which would be as shown in Fig. 11), so that the stem would be free to be pressed down into the cavity holding pawl 38 and on a backward movement the head 50 is forced into the cavity 51 and held in that position by the overhanging ledge 52. When the wheel is rotated to print another number the head will pass from under the ledge 52 and the spring 47 will force the drop-cipher into its printing position again.

The ink pad box is a modification of the one shown in my patent No. 456,874. On the lower edge of the frame 55 at a point about midway between the sides of the frame is formed a projection 58 in any suitable manner, and this projection bears against a rounded section 58^a at the middle of the box 57. The projection 58 acts as a wedge to hold the box 57 in place when returned to the position shown in Fig. 5, which is an enlarged view.

In Fig. 4 is shown the position in which the ink-pad box is held while supplying it with ink. To ink the pad the handle 7 is forced down as in printing and when the enlargement 53 of the slot 10 is opposite the head 54 (Fig. 2) on the pin 9 the said head is pressed into it and the casing 4 held in the position shown. The pad is then brought to the position shown, by drawing the pivoted ink pad case outward, using the handle 56.

It has been the practice in the manufacture of hand numbering machines to screw the handle 7 direct upon the shank 5, but very often the handle is screwed so far down on the shank as to cause the shank to jam hard upon the inside of the handle, resulting in either the stripping of the thread in the wooden handle or causing it to split. I over-

come this objection by screwing upon the shank the nut 59 (Fig. 6) to a point at which the handle will meet it before the inside can jam upon the upper edge of the shank. In addition to this function the nut acts as a collar upon the handle by having it cut out, thus forming a flange which fits snugly around the handle.

What I claim is,

1. The combination, in a printing machine, of a shaft or hub movable forward and backward in the act of printing, several type-wheels placed side by side thereon, said wheels having notches between their types, a separate pawl for each wheel and bearing on the surface thereof, and means for reciprocating each pawl at will to move the desired wheel or wheels, substantially as described.

2. The combination in a hand-stamp of reciprocatory character-bearing wheels provided with notches upon their peripheries intermediate the characters and of substantially the form shown, pawls engaging with said notches, there being a pawl for each wheel and means for operating said pawls to rotate the wheels, substantially as set forth.

3. The combination, in a printing machine, of character-bearing wheels mortised on adjacent faces and provided with notches on their peripheries intermediate the characters, shifting pawls working in said notches, means for operating said pawls, and disks in the spaces formed by the mortises, substantially as set forth.

4. The combination in a printing machine of character-bearing wheels having their sides mortised, and stationary disks between said type-wheels and fitting into said mortises, substantially as set forth.

5. The combination, in a printing machine, of a hub or shaft, character-bearing wheels side by side thereon and near together, adjacent faces of the wheels being mortised, and a disk, thicker than the space between the peripheries of two adjacent wheels, placed between such wheels so that the disk occupies the enlarged space without increasing the distance between the wheels, substantially as set forth.

6. The combination, in a hand stamp, of a hub or shaft, and means for reciprocating it character-bearing wheels side by side thereon and near together, adjacent faces of the wheels being mortised, and a disk, secured to the hub or shaft, thicker than the space between the peripheries of two adjacent wheels, placed between such wheels so that the disk occupies the enlarged space without increasing the distance between the wheels, substantially as set forth.

7. In a numbering machine, the combination of type-wheels having notches on their inner peripheries, a shaft or hub upon which said wheels rotate, spring metal pawls 41 secured to said shaft or hub, the free ends of said pawls being shaped to correspond to the notches on the inner peripheries of said wheels

and engaging therewith, and means for actuating said wheels, substantially as set forth.

8. In a numbering machine, the combination of type-wheels having notches on their inner peripheries, a shaft or hub upon which said wheels rotate, spring metal pawls 41 secured in a recess formed in said shaft or hub by the clamping plate 42, the free ends of said pawls being shaped to correspond to the notches on the inner peripheries of said wheels, and engaging therewith, and means for actuating said wheels, substantially as set forth.

9. In a printing or numbering machine, the combination of type-wheels, an inking pad box 57 pivoted in a frame 55, said frame 55 having a projection 58 acting as a wedge to lock said pad box 57 in the frame, means for actuating said type-wheels, and means for removing said inking pad from its inking position when printing, substantially as set forth.

10. In a numbering machine, the combination of finger-levers, a lever 31 having legs 31^a, projections 32 on said finger-levers engaging with said lever 31, said finger-levers and lever 31 being pivoted to or upon arms extending from the casing 4, and said legs 31^a engaging with the main frame 1, substantially as and for the purpose set forth.

11. In a numbering machine, the combination of finger-levers pivoted between arms extending from the casing 4, a lever 31 pivoted upon a bar 33^a supported between said arms, said lever 31 having legs which engage with the main frame 1, projections 32 on said finger-levers engaging with said lever 31, and a spring 33 coiled around said pivot bar 33^a having its ends bearing against the lever 31, and a loop formed at the middle bearing against the casing 4, for returning the levers to their normal position, substantially as and for the purpose set forth.

12. In a numbering machine, the combination of type wheels carried on a shaft or hub supported in a reciprocating casing 4, pawls 27, 28 and 29 engaging with said type-wheels, finger-levers connected to said pawls by bars 20, 21 and 22 for actuating said pawls to rotate the type-wheels, substantially as set forth.

13. In a numbering machine, the combination of type wheels carried on a shaft or hub supported in a casing 4, pawls 27, 28 and 29 engaging with said type-wheels, sliding bars 20, 21 and 22 working in channels formed in

the top piece of said casing 4, lugs 24, 25 and 26 connected respectively to one end of said bars, said channels having slots through which said lugs extend, and to which lugs said pawls 27, 28 and 29 are pivoted, and finger-levers entering slots formed at the other ends of said sliding bars, whereby motion is communicated to said sliding bars and pawls to operate the type-wheels, substantially as set forth.

14. In a numbering machine, the combination of a type-wheel, a hub upon which said type-wheel rotates, a loose section in said type-wheel carried by a stem working radially in said type-wheel, said stem having a shoulder or head formed at its free end, a cavity formed in the hub having an overhanging-ledge which engages with the shoulder or head formed on the stem when said head is forced into the cavity, whereby said loose section is held out of its normal position, and a spring for moving said section to printing position substantially as set forth.

15. In a numbering machine the combination of a type-wheel, a hub upon which said type-wheel rotates, a loose section in said type-wheel carried by a stem working radially in said type-wheel, said stem having a shoulder or head formed at its free end, a cavity formed in the hub having an overhanging-ledge which engages with the shoulder or head formed in the stem when said head is forced into the cavity, whereby said loose section is held out of its normal position, and a spring coiled around the stem as shown for returning the loose section to its normal or printing position, substantially as set forth.

16. In a numbering machine the combination with a plunger carrying the casing containing the printing mechanism, of a jam-nut screwed onto said plunger, said nut having a flange or collar formed thereon which surrounds the lower end of the handle when the said handle is screwed on the plunger and against the jam-nut, substantially as and for the purpose set forth.

This specification signed and witnessed this 30th day of September, 1891.

EDWIN G. BATES.

Witnesses:

J. A. YOUNG,
W. PELZER.