(No Model.) 4 Sheets—Sheet 1.

J. BRADY.

NUMBERING AND PERFORATING MACHINE.

No. 499,281. Patented June 13, 1893.

Fig. 1.

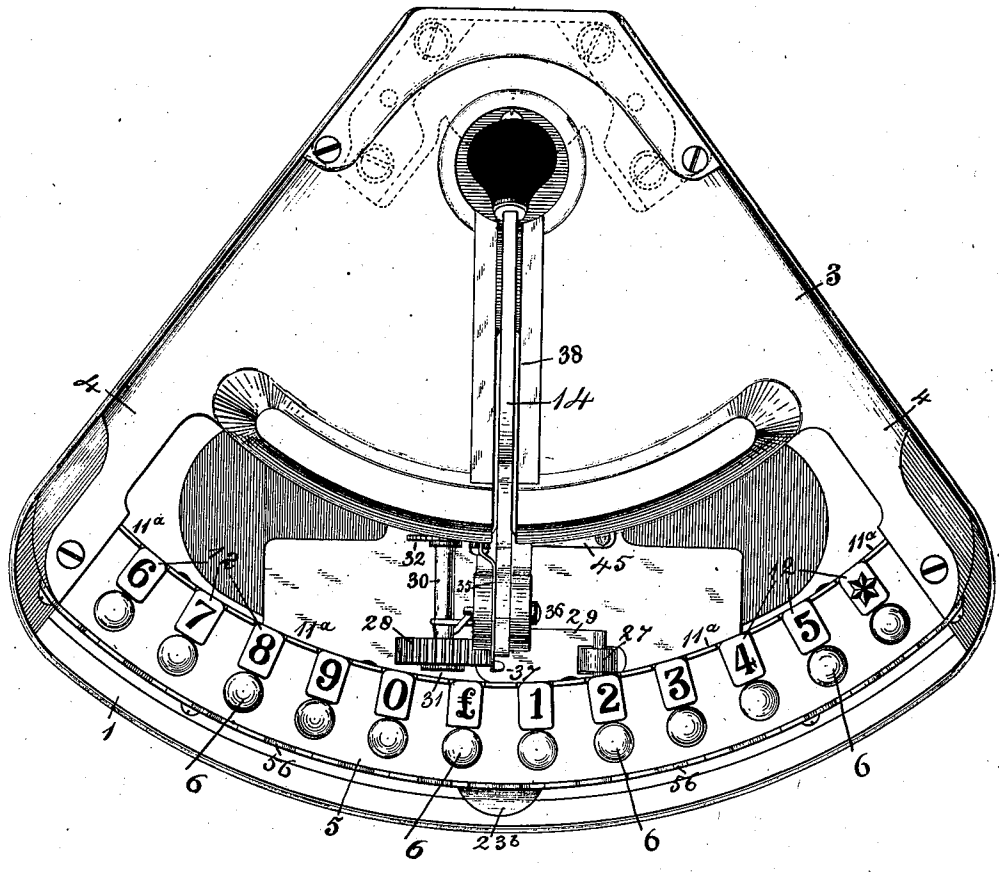
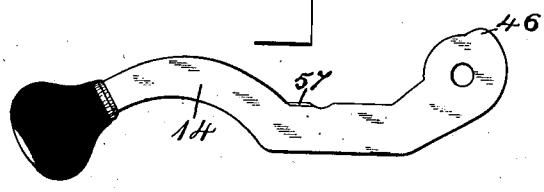


Fig. 7.



Witnesses.
Lillie Hanna
Mazie V. Bidgood

Inventor.
James Brady
By Knight Bros
Attorneys.

(No Model.) 4 Sheets—Sheet 2.

J. BRADY.

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Fig. 2.

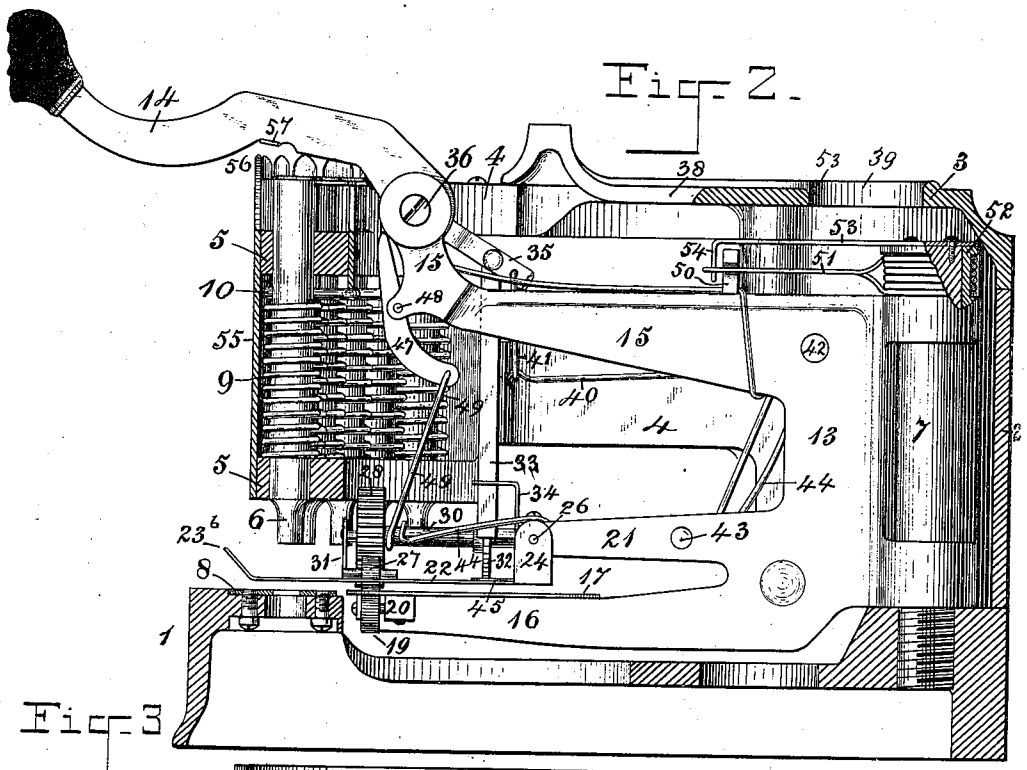
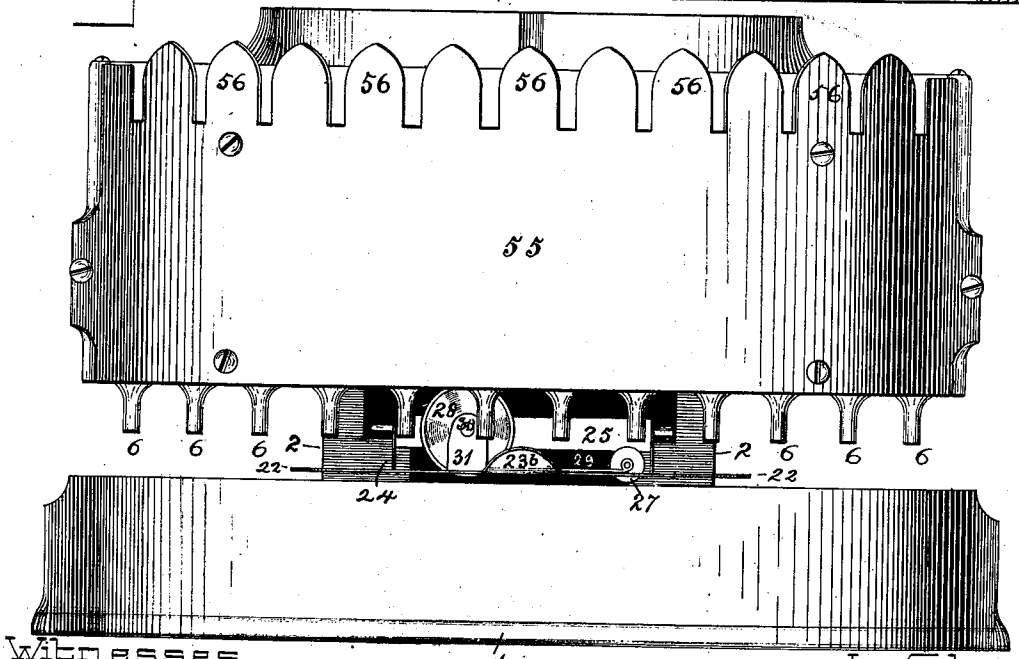


Fig. 3.



Witnesses.
Lillie Hanna
M. V. Bidgood.

Inventor.
James Brady
By Knight Bros
Attorneys

(No Model.)

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J. BRADY.

NUMBERING AND PERFORATING MACHINE.

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Fig. 4

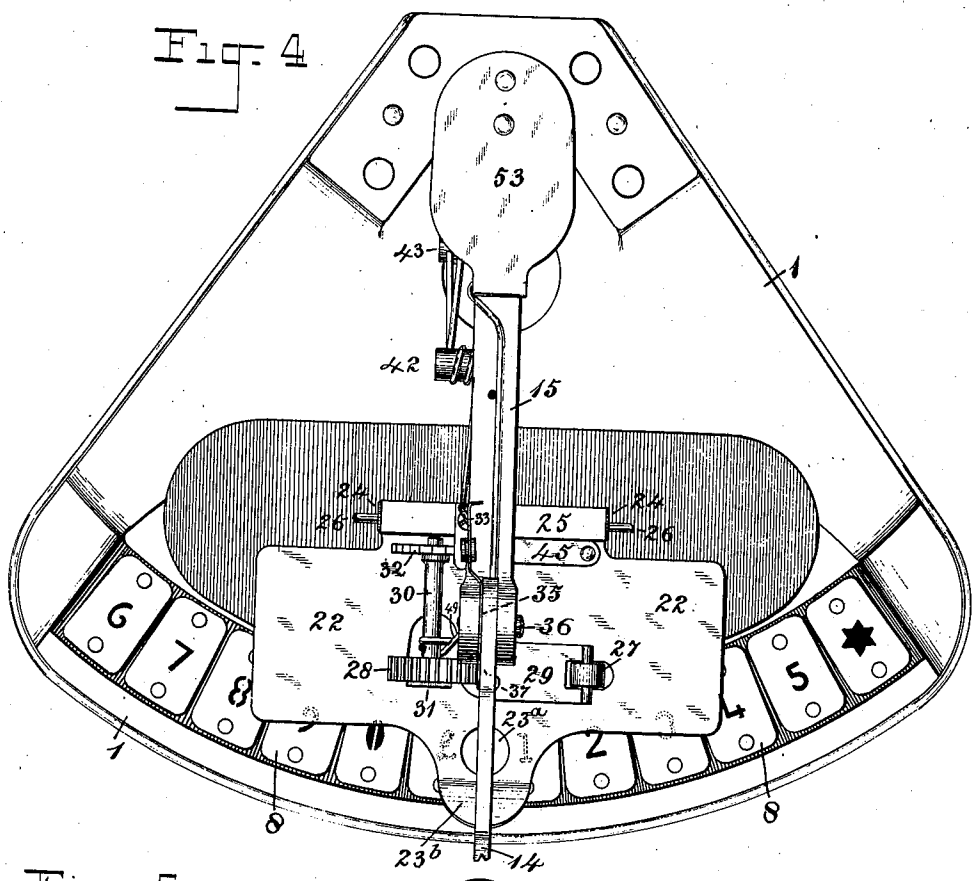


Fig. 6.

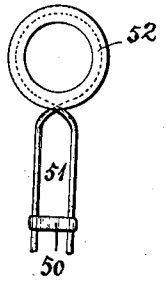
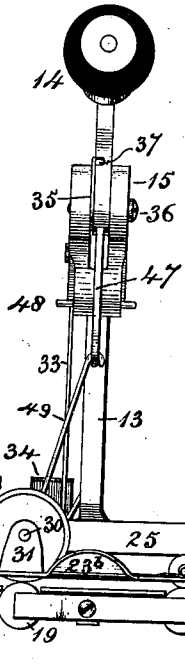


Fig. 5.



Witnesses.

Lillie Hanna

M. V. Bidgood.

Inventor.

James Brady

By Knight Bros

Attorneys

(No Model.)

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J. BRADY.

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Fig. 8.

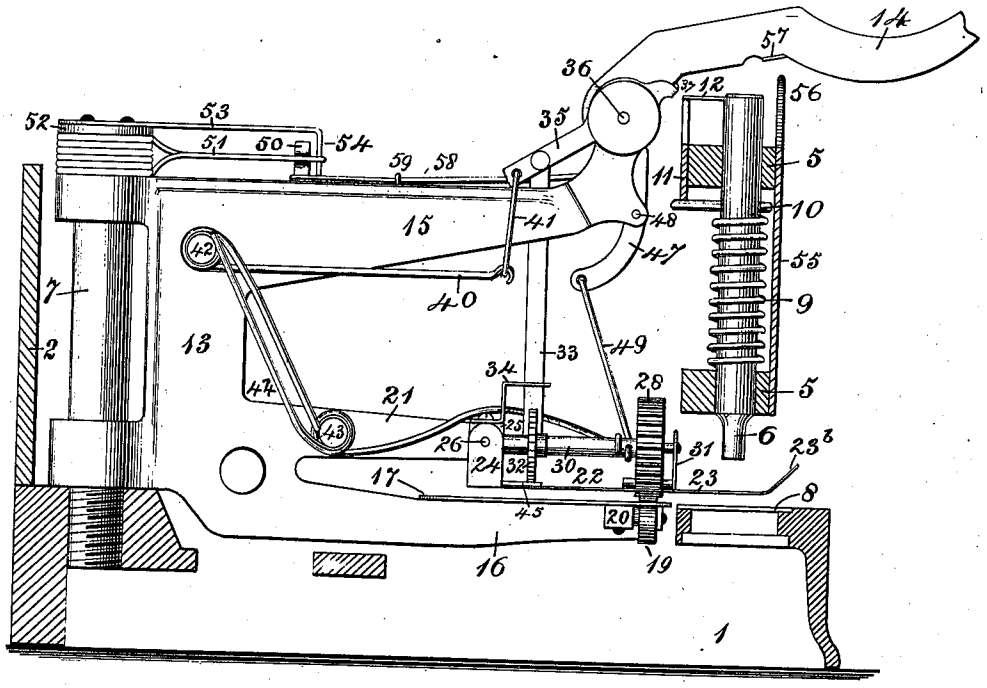
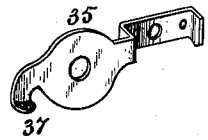


Fig. 9.



Witnesses.
Lillie Hanna
Mazie V. Bidgood

Inventor
James Brady
By Knight Bros
Attorneys

UNITED STATES PATENT OFFICE.

JAMES BRADY, OF BROOKLYN, NEW YORK.

NUMBERING AND PERFORATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 499,281, dated June 13, 1893.

Application filed June 17, 1889. Renewed July 22, 1892. Serial No. 440,923. (No model.)

To all whom it may concern:

Be it known that I, JAMES BRADY, a citizen of the United States, residing at Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Numbering and Perforating Machines, of which the following is a specification.

My new paper perforating and numbering machine belongs to the class of machines used for cutting the figures out of checks, drafts, bonds and other monetary paper, but it has been planned for a greater scope and variety of work and usefulness, such as cutting both the dollars and cents, or the pounds and shillings, bushels, barrels, pounds or tons in warehouse or grain receipts, bills of lading, coal or grain or other weight tickets and both the number of shares, par values of stock certificates, &c. and for cutting the dates in important papers by numbering the day, month and year, &c., and has been designed with special reference to simplicity of construction and great speed of operation. The simplicity of the parts contribute greatly to the cheapness and convenience of operating this machine. The perforating machines heretofore in use, have been made with separate hand-levers for each punch or character, to be grasped and operated successively, or with a punch selecting and one or more punch depressing levers, and all having a separate hand lever to operate the paper clamp of the feed machine.

Referring to the accompanying drawings which form a part of this specification:—Figure 1 is a top view of my improved numbering machine, the handle being bent over in position for shipping. Fig. 2 is a vertical sectional view of the same, the handle being in operating position. Fig. 3 is a front view of the machine with the handle bent back as in Fig. 1, so as to be out of sight. Fig. 4 is a plan view with the upper part of the frame and the punches removed. Fig. 5 is a front view of the paper holder and connected parts. Fig. 6 is a plan view of the pivot sleeve or drum and centering spring. Fig. 7 is a side view of the handle detached. Fig. 8 is a vertical sectional view with cover removed, taken in the opposite direction to Fig. 2, and, for sake of clearness, showing only the parts of the stationary frame which would be cut by the plane of section. Fig. 9 is a perspective view of the clamp plate operating lever.

The stationary frame of the machine is almost entirely cast. It consists of base piece 1 of approximately triangular shape, with rounded front; a standard 2 at rear, extending partially around the sides of the base piece; top plate or cover 3 fixed at rear to the standard, and arms 4 extending forward from the standard and cover and supporting horizontal arcuate bars 5. In these bars are formed the vertical bearings of a series of punches 6. The series are in an arc of a circle whose center is at the pivot-pin 7 which is fixed to the base piece just forward of the standard 2. Each punch bears on its lower end a character corresponding to a die 8, a number of which are fixed in arcuate series to the base-piece immediately under the bearing bars 5. The die-plates may be of customary rectangular or the represented slightly tapering form. The base-piece is hollowed under them to permit the paper to pass out freely as shown in Fig. 2. The punches are held normally in their uppermost positions by spiral springs 9 and are arrested in their upward movement by stop pins 10, which come in contact with the under edge of a plate 11 fixed to the rear of the upper bearing bar 5. The upper edge of plate 11 which projects above the bar 5 is comb-shaped as at 11^a to receive horizontal flat fingers 12 fixed to the rear of the punches and serving to guide the latter so as to prevent their rotation and insure their proper alignment and register with the dies when once the latter have been set. Characters on the flat fingers 12 correspond to those on the several punches to which said fingers are attached thus serving to indicate to the operator the particular punch which it is desired to depress.

13 is a swing pivoted on the pin 7 and carrying all the operating parts of the machine except the punches.

14 is the handle for depressing the punches. It also serves for moving the check or other paper to be punched, under the series of punches, for lifting the clamp when it is desired to place the paper in position and for actuating the step-by-step feed, as will be more fully described farther on. This handle has its inner end pivoted on a horizontal

pivot 36 at the forward end of a rigid arm 15 of swing 13 in such a manner that it is capable of vertical movement on the said arm but so that it will turn said arm and the rest of the swing 13 around the pivot 7 when the handle is moved from side to side.

16 is another arm at the bottom of the swing 13. It carries a plate 17 which serves as the lower clamping jaw of the paper. The plate 17 is cut away at 18 (Fig. 5) and the upper peripheries of guide rollers 19 project slightly through it. These guide rollers are journaled on a cross-bar 20 on the outer end of arm 16. A third arm 21 of the swing 13 supports the upper clamping plate or jaw 22. The said plate has a stripper 23 at its forward edge with a hole 23^a to allow the punch to pass, and an upturned lip 23^b to direct the paper to proper place when being inserted. At its rear the plate has lugs 24 which are turned up at opposite ends of cross-bar 25 carried by arm 21 and are pivoted to said bar (and consequently to the swing 13) by pins 26 projecting outward from the ends of said bar 25.

27, 28 are the upper feed and guide rollers arranged immediately over the rollers 19 and supported on the upper or vertically movable clamping plate 22. The said plate is cut away to permit the passage through it of the lower peripheries of the said rollers. The roller 27 in connection with the roller 19 immediately under it serves as a guide roller in feeding the paper through the jaws of the clamp. Its trunnions are hung upon a plate spring 29 having a single rivet at one end for fixing it to the clamping plate 22. This arrangement enables the roller 27 to press lightly but firmly upon the paper and also enables it to be slightly turned about the rivet of the spring 29 to adjust it so as to feed the paper precisely as desired.

28 is the feed roller proper. It is of large size and its shaft 30 is journaled at one end to lip 31 turned up from the plate 22 and at its other end to the cross-bar 25 of arm 21. This rear journal is made sufficiently loose or is so rounded that it will not prevent a slight deflection of the shaft 30 from the horizontal when the latter is raised by the lifting of clamp-plate 22. Near the rear end of shaft 30 is fixed a ratchet-wheel 32.

33 is a spring pawl with its lower end pressed against the ratchet-wheel 32 by an arm 34 fixed to the cross-bar 25. This arm is bifurcated or slotted so as to pass on both sides of the pawl and thus to not only hold it against the ratchet-wheel when the pawl is in its most depressed position, but to prevent it from coming in contact with the wheel in its uppermost position. The amount of travel given to the ratchet-wheel by the pawl is thus fixed. The upper end of the pawl is hinged to a short lever 35 which in turn is pivoted on the pivot 36 of handle 14. On the forward side of its pivot, the lever 35 has a lip 37 projecting under the handle 14 the plates 17, 22 with the rollers supported therein form the clamp for the paper or other matter which is to be perforated. While the handle 14 is capable of being turned back around its pivot 36 so as to rest in a seat consisting of a slot 38 having circular ends 39 for the knobs in the top of the machine as shown in Fig. 1, it may also, as shown in Figs. 2, 4, 5 and 8, be turned over so as to ride immediately over the punches and bear upon the lip 37 of lever 35. When in this position if depressed on to the top of any punch 6, it will thrust the latter down and at the same time turn the lever 35 about its pivot so raising the pawl 33. Thus, as the handle 14 rises to release the punch, the lever 35 will follow it, its rear end being drawn down by spring 40 connected to said rear end by link 41 (see Figs. 2 and 8). This downward movement of the rear end of the lever 35 forces down the pawl 33 and, by turning the ratchet-wheel 32 operates the feed. The spring 40 is bent around a pin 42 on swing 13 and then passes down and behind a pin 43 on arm 21 of said swing 13. It thus holds on to said pin 43, the coil of a spring 44 whose one end passes forward and is bent over so as to rest freely upon the shaft 30, and whose other end is bent upward so as to bear against the rear side of pin 42 immediately outside of the coil of spring 40 which surrounds said pin. These two springs thus serve to hold each other on to their separate abutment pins. The end of spring 44 bearing on shaft 30, not only serves as a brake or drag for said shaft and consequently for the feed but, acts to press said shaft and the clamping plate 22 from which it is supported downward so that the latter will bear upon the paper which is between the feed-rollers with a yielding pressure.

A further brake is provided by the plate-spring 45 riveted to plate 22 at one end and bearing upward at the other under the ratchet-wheel 32. These means effectively prevent the feed-wheel from being thrown farther than it is positively moved by the depression of pawl 33. The butt of handle 14 has a cam-shaped projection 46 (see Fig. 7) which, when the handle is raised so as to stand vertically over its pivot 36, impinges against the upper end of a lever 47. This lever is pivoted at 48 to a lug or lugs on the forward end of the arm 15 of the swing 13. At its lower end the said lever is connected to a rod 49 which is bent under the shaft 30 of the feed wheel. The impingement of the cam 46 on the upper end of lever 47 rotates it about its pivot and lifts the rod 49 and with it the paper clamping plate 22 on which the shaft 30 is supported.

It is preferred to have the swing 13 return normally to a position central of the series of punches as shown in Fig. 4. To this end the upper arm 15 of said swing has a vertical pin or lug 50 which occupies a space between the two ends of a spring 51 coiled on a drum 52 which is rigid with swing 13 and surrounds the upper end of the pivot 7. 53 is a plate

rigidly fixed to the top of pivot 7 (see Figs. 2, 4 and 8) and having a lip 54 also arranged between the ends of spring 51. The turning of the swing 13 around its pivot will cause the lug 50 to deflect one or other of the ends of spring 51, the other end of said spring being retained by the lip 54 of plate 53 which thus serves as an abutment for the spring. It will be seen that this action occurs in whatever direction the swing 13 is swung and that the tendency of the deflected spring will be to return the said swing to central position.

55 is a plate which covers and hides from view the front of the punches, their springs and bearing bars. Its upper edge is crenelated or comb-shaped as shown, its projections 56 being rounded so as to direct the handle 14 centrally on to any punch it is desired to depress. A sharpened edge 57 on the under part of the handle on the portion of said handle immediately above said projections assists this action. The fingers 12 which guide the punches may be fixed to the forward instead of the rear side of the punches and be guided to the comb 56. The handle must be thick and in this event, the plate 11 is dispensed with. 58 is a spring bearing under the cam 46 on handle 14, so as to keep it from springing up too far after releasing a punch. The spring is held by passing around a stud 59 behind lug 50 and down under arm 15.

The normal position of my machine is with the hand-lever extending forward over the punches and facing the operator. To operate it the lever is grasped between the thumb and fore-finger, lifted enough to permit placing the paper under the clamping plate, then swung to the right or left on the desired character, as indicated by the corresponding dial character on the flat finger or plate 12, and without releasing, the lever is depressed upon the punch, lifted and depressed again, or swung successively to the next desired characters; the lever as it is depressed and raised, automatically operating the feed and spacing mechanism in time for the next character and finally the lever is lifted sufficiently to permit the paper to be withdrawn. This simple means of operating with only a single hand lever grasped but once and returned to the end adds much to the speed and convenience of this machine and such speed and convenience are often indispensable, it being a fact, that the use of perforating machines in places where they are most needed, has often been prohibited by the length of time required to operate them.

In the drawings I have shown punches for making the characters £, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, *. But it is of course understood that others may be added or substituted for these. The employment of a punch bearing the character * is useful. Such a character may be used alone or in connection with the $ or £ employed, it being especially a convenient sign for separating the figures representing day, month and year, pounds, shillings and pence, or dollars and cents.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination of the stationary frame, the arcuate series of dies and punches mounted thereon, the swing pivoted at the center of said series of dies and punches and having its forward end movable immediately in rear of said punches, and a handle at the forward end of said swing overhanging said punches and pivoted so as to fold back over the frame, substantially as set forth.

2. The combination of the stationary frame, whose cover has a seat as shown, the series of punches mounted on said frames and the punch operating handle pivoted immediately in rear of said punches and adapted to be folded back into said seat, substantially as set forth.

3. In a numbering or perforating machine, the combination of a clamp, feeding mechanism, a series of punches, and a handle overhanging said punches and having operating connection with the feeding mechanism, with the clamp support and with the vertically moving member of the clamp, whereby the same lever operates the punches and feeding mechanism and shifts and opens the clamp, substantially as set forth.

4. The combination of a clamp, feed-mechanism, a handle, and clamp-opening, and feed-operating levers arranged in connection with said handle so that movement of the handle in one direction will operate the feed mechanism while movement of it in the opposite direction will open the clamp, substantially as set forth.

5. The combination of a swing, a clamp carried thereby, a lever connected to the movable member of the clamp and a handle pivotally mounted on said swing and adapted to operate said lever and open the clamp, substantially as set forth.

6. The combination of the swing, the clamp carried thereby, the lever 47 pivotally mounted on said swing and connected to the upper member of said clamp, and handle 14 also pivotally mounted on said swing and having cam 46 for operating said lever 47 and opening the clamp, substantially as set forth.

7. The combination of a swing carrying a clamp and feed mechanism, a feed-operating lever mounted on said swing and a handle also mounted on said swing independently of said lever and adapted to impinge against and move said lever at one end of its movement and to be turned back out of the way of said lever at the other end of its movement, substantially as set forth.

8. The combination of swing 13, a clamp carried thereby, feed mechanism on said clamp, lever 35 pivoted to an arm of said swing and having lip 37 and connection with the feed mechanism, and the handle 47 also

pivoted on the arm of said swing and adapted to impinge on said lip, substantially as set forth.

9. The combination of a hinged clamping plate 22, a feed shaft 30 carried thereby and a spring 44 bent over said shaft and serving as a brake while pressing down the said shaft and the clamping plate carrying it, substantially as set forth.

10. In a numbering and perforating machine, the combination of a clamp, feeding mechanism and its operating lever, the swing, 13, having studs or pins 42, 43, and the springs 40, 44 connected with the feed-operating lever and the paper clamp, said springs being wound on the studs 42 and 43 respectively and each having its stationary end bearing against the stud or pin whereon the other spring is wound and outside of the latter, whereby the said springs hold each other in position, substantially as set forth.

11. The combination of the swing 13, the clamping plate 22, feed-shaft 30, connecting rod 49 bent under the same, lever 47 connected to said rod and pivoted on said swing and handle 14 also pivoted on said swing and adapted to operate said lever 47, substantially as set forth.

12. In a numbering or perforating machine, the combination of an arcuate series of corresponding dies and punches, a swing pivoted concentrically with said series, and bearing a clamp and punch-operating mechanism, and a spring, wound on a fixed abutment and having its ends projecting on opposite sides of a projection or part of said swing, whereby the said swing is brought automatically to a predetermined position when released on either side thereof, substantially as set forth.

JAMES BRADY.

Witnesses:
HARRY E. KNIGHT,
MAZIE V. BIDGOOD.