

A. R. BAKER.

NUMBERING ATTACHMENT FOR PRINTING PRESSES.

No. 305,779.

Patented Sept. 30, 1884.

Fig. 1.

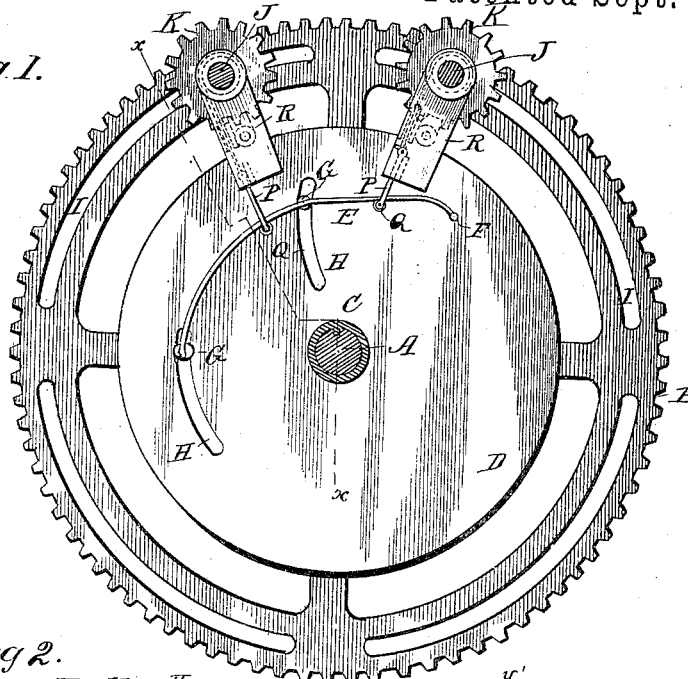


Fig. 2.

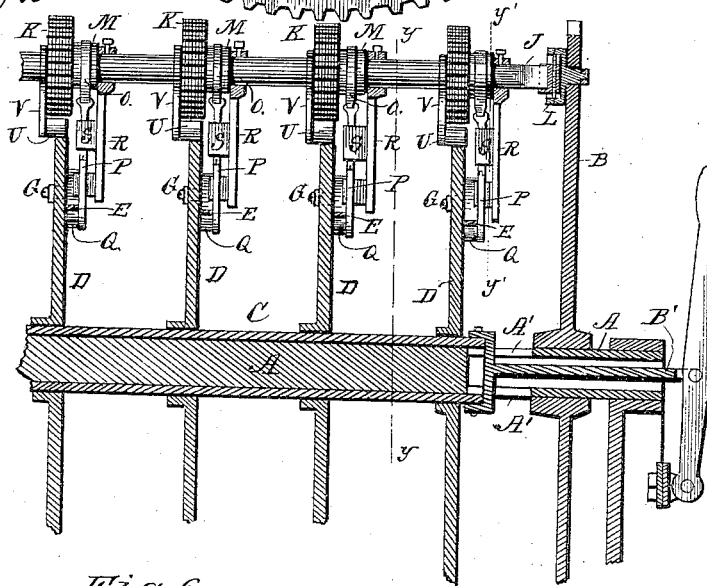


Fig. 6.

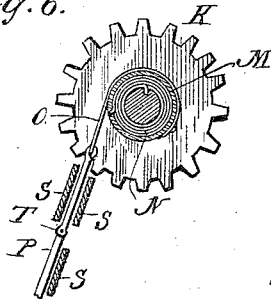
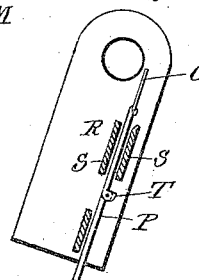


Fig. 7.



WITNESSES:

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INVENTOR.

A. R. Baker
Munn & Co

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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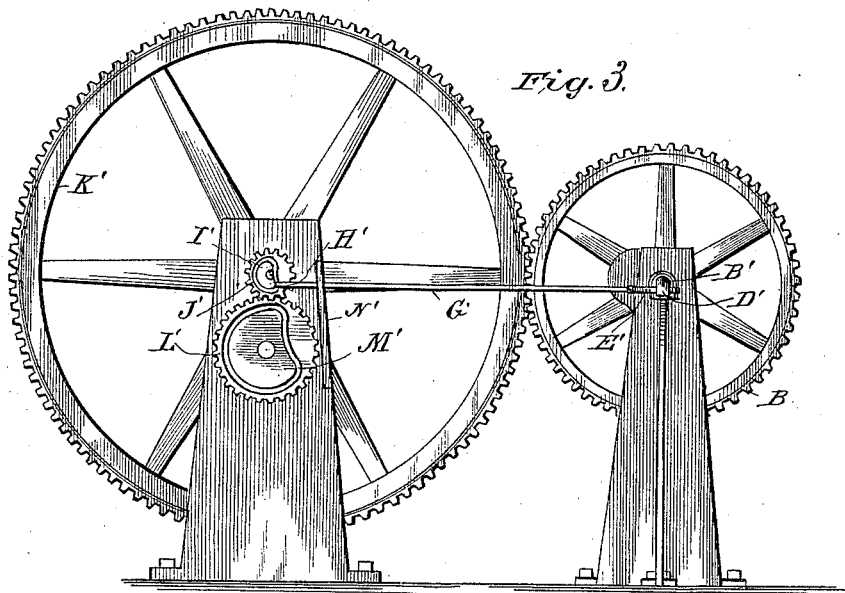


Fig. 3.

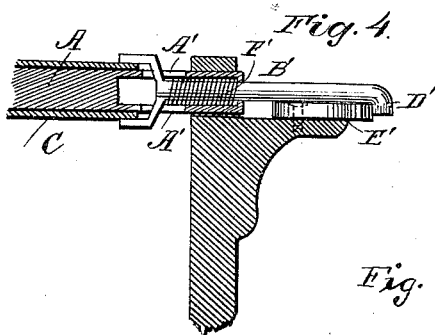


Fig. 4.

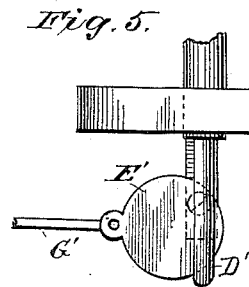


Fig. 5.

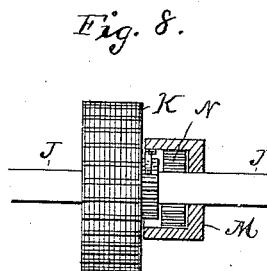


Fig. 8.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ALBERT R. BAKER, OF INDIANAPOLIS, INDIANA.

NUMBERING ATTACHMENT FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 305,779, dated September 30, 1884.

Application filed December 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, ALBERT R. BAKER, of Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Improvement in Numbering Attachments for Printing-Presses, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, forming part of this specification.

In a preceding application for patent filed October 6, 1883, to which I refer for a better understanding of the following, I have shown a movable carrier containing a series of numbering devices arranged in one or more rows, and a series of operating devices arranged in one or more rows extended in the direction of the movement of the carrier and corresponding to the position of the numbering devices, whereby each operating device of a given row may act upon the numbering device or all the numbering devices of its corresponding row, to the end that the numbering devices may be automatically set for numbering sheets of blanks consecutively from sheet to sheet.

My present invention consists, primarily, in a construction whereby I secure the same results by using, instead of a series of separate operating devices arranged in one or more rows corresponding to the position of the numbering devices, a continuous operating device arranged in the direction of the movement of the carrier, or a series of such continuous operating devices, according to the number of rows of numbering devices employed, each continuous operating device being adapted to act upon the numbering device or head or all the numbering-heads corresponding thereto in position. This continuous operating device consists of a cam, which is to be so arranged with respect to the numbering-heads that as the numbering cylinder or carrier revolves the disks of the numbering head or heads in engagement with the cam shall be advanced in regular order.

The invention includes certain other novel features of construction, as hereinafter described and claimed.

In the drawings, Figure 1 is a section of the numbering-cylinder, taken on line yy of Fig. 2. Fig. 2 is a section taken on line xx of Fig. 1, and partly broken away, showing a hand-

lever for throwing the cams out of engagement with the numbering-heads. Fig. 3 is a side elevation of the numbering-cylinder and the impression-cylinder, showing means for throwing the cams out of engagement with the numbering-heads by power. Figs. 4 and 5 are detail views of parts shown in Fig. 3. Fig. 6 is a sectional detail view taken on the line $y'y'$ of Fig. 2, looking toward the left-hand, and Fig. 7 is a sectional detail view taken on the same line, looking toward the right-hand; and Fig. 8 is a sectional detail view showing the connection of the drums with the numbering-heads.

A indicates a stationary shaft, upon which the numbering-cylinder B is adapted to rotate. On this shaft, within the cylinder B, is loosely feathered a sleeve, C, to which are rigidly secured a series of disks, D, each being provided with a cam, E, which is preferably formed of a curved plate having one end pivoted to the disk at F, and its other end made adjustable toward and from the center of the disk by means of the projections or set-screws G and the slots H, as shown in Fig. 1.

In segmental slots I in the heads of the cylinder B are mounted rods or shafts J, on which the numbering-heads K are adapted to rotate. These shafts, besides being circumferentially adjustable, are also made radially adjustable by means of the connections L, which are the same as those shown in my application filed October 31, 1883, No. 110,483.

The numbering-heads K are of the usual construction, consisting of a number of disks connected to a ratchet-wheel in such manner that the rotation of the ratchet-wheel shall advance the number-printing disks in regular order.

On the shafts J are a series of drums, M, which are intended to be connected to the ratchet-wheels of the numbering-heads, as shown in Fig. 8; and which are provided with internal retracting-springs, N, connected to the shafts, as shown in Fig. 6.

To each drum M is attached a strap, O, which is partially wound thereon, and is connected to a jointed bar, P, carrying a roller, Q, adapted to engage with the inner side of the cam E as the cylinder revolves. By a proper arrangement of the cams, the straps

O will be drawn out as the cylinder revolves, and the numbering-heads will thus be operated to advance the numbers in a well-known manner. A greater or less action will be communicated to the numbering-heads, according as the cams are adjusted inward toward the center of the disks D or outward therefrom. As a guide for each jointed bar P, a plate, R, is attached to the shaft J, having lugs S extended on opposite sides of the bar. A lug, T, on each bar P is adapted to strike one of the lugs S to form a stop for the said bar against the action of spring N, while a roller, U, supported in an arm, V, attached to the shaft J, is arranged in contact with the periphery of each disk D, to prevent said shaft from yielding under the action of the cams upon the numbering-heads, or when the impression is being taken.

The above-described parts are so arranged with respect to each other that when the sleeve C is moved longitudinally on the shaft A the cams will be drawn out of engagement with the rollers Q and cease to operate on the numbering-heads. Both ends of the shaft A are to be made tubular and provided with slots A', through which slots the ends of a T-shaped or bifurcated bar, B', arranged in the tubular end of said shaft, engage with the sleeve C. To one of these bars B' is connected a handle, C, as shown in Fig. 2. When the handle of this lever is moved inward toward the cylinder, the disks D and cams E, with the sleeve C, will be moved toward the opposite end of shaft A.

As shown in Fig. 4, which is supposed to represent the opposite end of shaft A from that shown in Fig. 2, the bar B' is provided with a lug, D', at its outer end, which engages with the periphery of an eccentric, E', so that a given movement of the eccentric will draw the bar B' and sleeve C outward in the same direction as the action of the lever pushes them.

F' is a spiral spring for retracting the sleeve C after being acted upon by the eccentric E'. By thus disengaging the cams from their connections with the numbering-heads the numbers will be repeated as the numbering-cylinder continues to revolve. To the eccentric is pivoted a rod, G', which is to have a roller at its end H', which shall engage with a cam-groove, I', in the pinion J' on the shaft of the impression-cylinder K'.

When the numbering-cylinder is made one-half the diameter of the impression cylinder, as shown in Fig. 3, in order to change the numbers but once at every revolution of the impression-cylinder, the cam-groove I' should be concentric throughout one-half of its periphery, while the remaining part of the groove is curved inward toward the center, to allow the retracting-spring of the sleeve C to return the cams to acting position.

Where it is desired to change the numbers but once in two revolutions of the impression-cylinder, a pinion, L', twice the diameter of

pinion J' is to be geared with the latter and provided with a cam-groove, M', which is concentric throughout three-fourths of its periphery, having the remaining portion of the groove curved inward, as in groove I'. This pinion and cam-groove are to be so arranged that the rod G' may be removed from engagement with groove I' and placed in engagement with the former groove when the numbers are to be duplicated instead of printed consecutively.

N' is a guard for holding rod G' in engagement with the grooves I' or M'.

What I claim is—

1. The combination of a movable carrier, a series of numbering devices arranged therein in one or more rows, and a continuous operating device, substantially as described, for each row of numbering devices, which is arranged in the direction of the movement of the carrier, each said continuous operating device being adapted to act upon all the numbering devices corresponding thereto in position, giving them a throw corresponding to the number of devices in a row, substantially as and for the purpose described.

2. The combination of the numbering-cylinder, the numbering-heads having drums for rotating the same provided with retracting-springs, the straps and their connections attached to the drums, and the disks having cam-plates attached to their sides for engaging the connections of the said straps, substantially as shown and described.

3. The combination of the numbering-cylinder, the numbering-heads having drums for rotating the same provided with retracting-springs, the straps and their connections attached to the drums, the guide-plates and stops for the said straps and their connecting jointed bars, and the disks having cam-plates attached to their sides for engaging rollers on the ends of said jointed bars, substantially as shown and described.

4. The combination of the numbering-cylinder, the numbering-heads mounted on shafts therein, the internal stationary disks, and the arms attached to the shafts of the numbering-heads and having rollers placed in engagement with the disks, substantially as and for the purpose specified.

5. The combination of the numbering-cylinder having numbering-heads arranged in circumferential rows and provided with actuating devices, substantially as described, with the disks having slots therein, and the cam-plates pivoted at one of their ends to the disks and having parts engaged with the slots in the disks to render the cams adjustable, substantially as described.

6. The combination of the numbering-cylinder, its stationary shaft having tubular ends provided with slots, the sleeve feathered on said shaft and having the disks which carry the cams rigidly secured thereto, the T-shaped or bifurcated bar connected to said sleeve, and

means for shifting the sleeve on the shaft, substantially as shown and described.

7. The combination, with the disk and cam-supporting sleeve, tubular shaft, and bifurcated bar, of the eccentric engaging with a lug on the end of said bar, a retracting-spring on said bar, a rod connected to the eccentric, and a system of cams of different diameters geared together, and means for holding said rod in engagement with any one of the cams, substantially as shown and described, and for the purpose set forth.

8. The combination, with the numbering-

heads, arranged substantially as described, of the sleeve-carrying disks, which are provided with cams for operating the numbering-heads, the tubular shaft supporting the sleeve, the bifurcated bar connected to said sleeve, the retracting-spring and the eccentric connected to said bar, and means for operating the eccentric, substantially as shown and described, and for the purpose specified.

ALBERT R. BAKER.

Witnesses:

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SANFORD EVANS.