

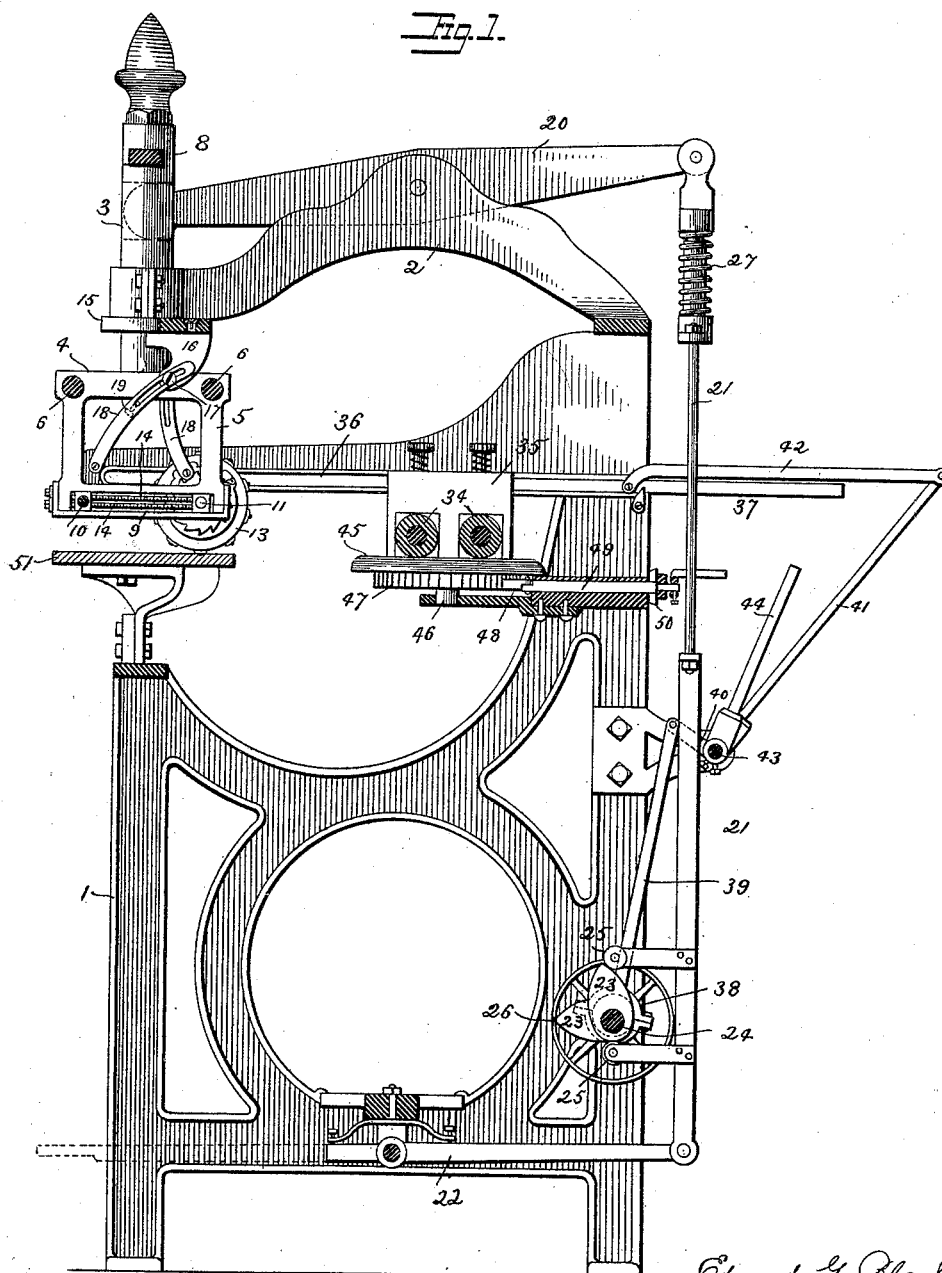
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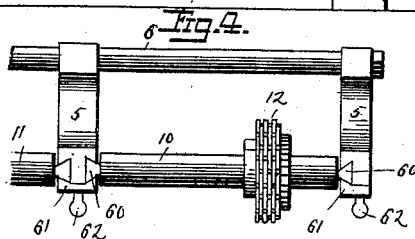
E. G. BLACK & J. F. WERLE.
PAGING AND NUMBERING MACHINE.

No. 423,209.

Patented Mar. 11, 1890.



Witnesses
Jno. G. Hinkel Jr.
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Edward G. Black,
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Inventors

By Foster & Freeman

Attorneys

(No Model.)

2 Sheets—Sheet 2.

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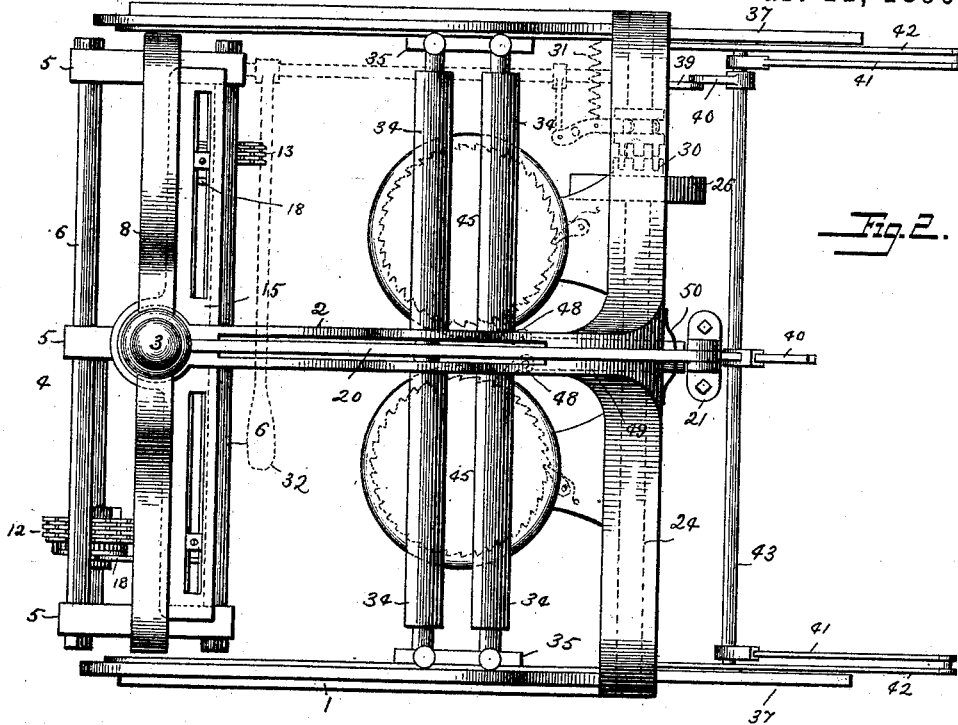
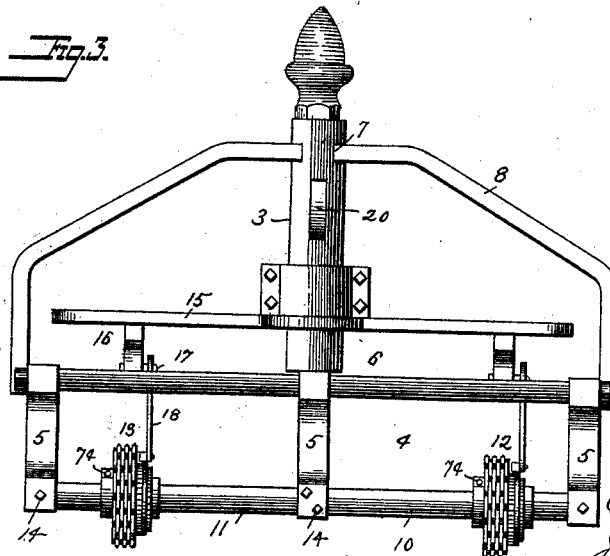


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWARD G. BLACK AND JOHN F. WERLE, OF NEW YORK, N. Y.; SAID WERLE
ASSIGNOR TO SAID BLACK.

PAGING AND NUMBERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 423,209, dated March 11, 1890.

Application filed December 26, 1888. Serial No. 294,638. (No model.)

To all whom it may concern:

Be it known that we, EDWARD G. BLACK and JOHN F. WERLE, citizens of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Paging and Numbering Machines, of which the following is a full, clear, and exact specification.

Our invention relates to paging and numbering machines, and has for its object to improve the construction and arrangement of such machines, whereby they are rendered simple and effective in operation, and more especially whereby they are adapted to print two or more series of numbers at the same time in various relations to each other; and our invention consists in a machine constructed and arranged substantially as hereinafter set forth, and in the details and parts thereof, as hereinafter specified.

Referring to the accompanying drawings, Figure 1 is a side view of the machine, partly in section, embodying our invention. Fig. 2 is a plan view. Fig. 3 is a front view of the same. Fig. 4 is a modification hereinafter described.

One of the leading objects of our invention is to provide a numbering-machine by means of which two or more series of numbers may be printed at the same time and in different relations to the sheet or article being printed. In other words, the numbering-heads are arranged so that they may be adjusted both laterally and longitudinally and operated to print their respective series of numbers in different vertical planes both laterally and longitudinally. In the present embodiment of our invention we have shown a machine having this capacity, and we will now proceed to describe the construction and arrangement of the various parts illustrated in the drawings.

The body of the machine is composed of a suitable frame-work 1, which is provided with an overhanging arm 2, in the front end of which is the reciprocating plunger 3, carrying the numbering-head-supporting frame 4. This supporting-frame is shown as consisting of three rectangular frame-pieces 5 5, which are joined at the top by rods or bolts 6, so as

to form a practically rigid supporting-frame, which is suitably connected with the plunger. In order that this frame may more steadily maintain its relations to the plunger and not be distorted by the continued impact of the numbering-heads upon the articles being numbered, we provide a bracket or brace-pieces 8 8, which is or are connected to the upper portion of the outside pieces of the frame and bent up and passed through or otherwise connected to the plunger 3 at or near its top portion, as at 7, although any other suitable construction may be adopted. This structure, while adding little to the cost of the machine, furnishes a very substantial support to the carrying-frame and prevents it from becoming deranged or thrown out of adjustment and insures a proper and regular impact and pressure on all parts of the numbering head or heads connected therewith.

The lower portions of the frame-pieces 5 are slotted at 9 to provide a horizontal guideway for the ends of the shafts 10 11, carrying the numbering-heads 12 13, or as many more as desired, respectively. The ends of these shafts 10 11 are squared, so as to be properly guided in the slots 9, and their position in said slots may be adjusted by any suitable means so that the shafts, with their respective heads, may be moved horizontally to the front or to the rear of the supporting-frame. As shown, there is provided a screw-rod 14, mounted in bearings in the ends of the slotted portions of the frames 5 and engaging with the ends of the shafts, so that by turning said screw-rod 14 the said shafts may be moved horizontally. The inner ends of the shafts 10 and 11 are guided by the same slot in the central frame 5, and in this case the screw-rods 14 may be duplicated, as shown in Fig. 3. As both shafts are independently mounted, they may of course be independently adjusted through their screw-rods, which should be moved simultaneously, so that the position of the numbering-heads may be varied both with respect to each other and to the frame, as will be apparent. The lateral movement of the heads both with respect to each other and to their carrying-frame is had by sliding them upon their respective shafts, being se-

cured in their adjusted positions thereon by any suitable means—as, for instance, a clamp-screw 74.

The construction of the heads may be as usual, and the manner of changing the numerals by the intermittent reciprocations imparted to the frame may also be had through the devices commonly employed therefor. Thus, for instance, the overhanging arm 2 may be provided with a laterally-extending bar 15, which supports a depending finger 16, (one for each numbering-head), that is adjustably mounted in said bar 15, (see Fig. 2), so that it may be moved laterally to the same extent that the head with which it is connected is moved. The finger 16 carries at its lower end a stud 17, which is engaged by the slotted end of a link 18, the opposite end of the latter being connected with the pawl-carrier of its numbering-head to rotate its numeral-disks intermittingly, as usual. The slot-connection between the link and the stud 17 is had to permit of the horizontal back-and-forth adjustment of the respective numbering-heads, so that no matter what the position of said heads with respect to the stud 17 it will operate the pawl-carrier in the usual manner.

The length of the slot in the link will be determined by the length of the back-and-forth movement of the numbering-heads, and the intermittent movement of the numeral-disks will be imparted, as usual, upon the upward stroke of the frame by the end of the slot contacting with said stud. Of course the length of the slot may be made adjustable, as by a screw 19, so that the extent to which the numeral-disks are intermittently moved at each reciprocation of the frame may be varied, should it be desired. By this means the throw of the pawl-carrier may be varied to move the consecutive figures into position for printing, or to skip one or more of such figures, as the exigencies of the work being done may require.

The reciprocations are imparted to the plunger 3 by means of a lever 20, pivoted to the overhanging arm 2, as shown, and connected at one end by a rod 21 with a treadle 22, by which it may be vibrated by the operator; or said rod 21 may be provided with arms 25, extending in the path of the two cams 23, that are carried by a shaft 24, mounted in the frame-work of the machine, to which shaft motion may be imparted through a belt-wheel 26, so that the reciprocations of the plunger and its carrying-frame may be had automatically.

In the connection between the lever 20 and the rod 21 there is interposed a spring 27, which takes the impact of the blow of the head, and also permits a certain amount of lost motion between the lever and the rod to compensate for the varying thicknesses of the material or articles being operated upon.

It is obvious that the treadle and the cams may both be applied to the same machine,

but in practice they will be used separately. When the cams are used, the treadle will be disconnected, and when the treadle is used the cams will be placed so as not to interfere with the operation of the treadle.

As it is seldom necessary that the reciprocations of the plunger and its frame be had in rapid succession, there will be provided a clutch mechanism in connection with the shaft 24, so that each time its cam 23 operates to reciprocate the plunger and frame it will be automatically disconnected, and the shaft 24 or the belt-wheel 26 may be a continuously rotating one. This construction enables the operator, after each reciprocation of the plunger and its frame, to remove the material or work being operated upon and replace it by other work, and when he has properly adjusted the position of the material or articles to be numbered he may operate the clutch to connect the cam with the shaft, so that the plunger and its frame are reciprocated.

As shown, the clutch 30 is adapted to clutch and unclutch the belt-wheel 26 from the shaft, and the clutch is automatically thrown out of engagement by means of a spring 31, and is thrown into engagement with the belt-wheel by a treadle 32. In this construction the operator will press his foot upon the treadle and keep it there long enough to cause the cam to make a single revolution and impart a single complete reciprocation to the plunger and its carrying-frame. When he removes his foot from the treadle, the spring 31 will automatically draw the clutch back and stop the further movement of the cam.

It should be remarked in passing that when a treadle, as 22, is employed, the cams (shown in the position they will occupy when they are operating to reciprocate the plunger and its carrying-frame to their lowest position) will occupy such a position that they will not interfere with the independent movement of the rod through the treadle should it be so desired.

The inking of the numbering-heads is had by one or more inking-rolls 34, which in the present instance are mounted in a reciprocating carrier 35, that is properly guided in its reciprocations by a guideway 36, formed in the opposite sides of the frame of the machine. In the preferred construction there is a carrier 35, provided on each side of the inking-rolls 34, as well as a central one, and the two outer carriers are provided with a rod 37, which slides in a guideway 36. Reciprocations are imparted to the carriers from the shaft 24 by means of an eccentric 38, rod 39, levers 40 41, and connecting-rod 42, the construction being such that at each revolution of the shaft 24 the eccentric will cause the inking-roll carriers to be reciprocated forward when the plunger and its frame are at their highest position under the numbering-

heads to impart ink to the lower row of numerals and to be immediately returned to their normal and rearward positions out of the way of the downward reciprocation of the plunger and its frame.

The levers 40 and 41 are secured to a common shaft 43, that is loosely mounted in bearings in a bracket extended from the side of the frame of the machine, and the lever 41 and the connecting-rod 42 are preferably duplicated at each side of the machine, so that a perfect horizontal movement of the carrier is had, and said shaft also carries an arm 44, which, simultaneous with the reciprocation of the inking-roll carrier, causes a movement of the ink-distributing table 45.

While a single inking-table may be employed, we have shown a pair of them mounted side by side, so as to properly distribute the ink upon the inking-rolls on their operative portions. The inking-tables are of circular form and mounted upon pivots 46, supported by the frame-work of the machine, and to the under side of each table is secured a ratchet-wheel 47, which wheels are engaged by independent pawls 48, carried by a pawl-carrier 49, held in suitable bearings in the frame-work and adapted to reciprocate between and below the inking-tables, so as to move both ratchet-wheels simultaneously under the blow imparted by the arm 44. The pawl-carrier 49 is returned to its normal position, ready to impart another movement to the ratchet-wheels, by means of a spring 50. (Shown in Fig. 2.)

The table or platen 51, upon which the material or articles are placed in position to receive the impress of the numbering-heads, may be of any suitable construction, and may be adjustably mounted, so that its height may be varied to suit the thickness of the material or articles to be numbered.

From the foregoing it will be seen that a structure is provided employing two or more independent numbering-heads which are adapted to be independently adjusted either laterally or longitudinally in a horizontal plane, so that the numbers impressed thereby may occupy any desired position upon the material or articles that are operated upon, and so far as this part of our invention is concerned it is obvious that any means of inking the numbering-heads may be used other than the one particularly shown and described herein.

As before stated, any means may be employed whereby the numbering-heads or either of them may be adjusted horizontally back and forth. Thus in the modification shown in Fig. 4 the shaft 10, instead of having its ends squared and guided in slots in the frames 5 5, the said ends of the shaft are provided with angular blocks 60, entering similarly-shaped recesses or guideways in said frames 5, the said guideways being partially formed by removable plates 61, which are se-

cured in place by suitable set-screws 62, through which the removable plates may be firmly fastened, to clamp the angular blocks 60 to hold the shaft and the numbering-head in their adjusted positions, and by loosening which the said shaft may be horizontally adjusted to any position desired within the limit of the width of the frames 5 5. It will be observed that the central removable plate 61 forms one portion of both of the guideways for the adjacent ends of the shafts 10 and 11; but the plate 61 may be divided, so that they may be independently loosened and tightened, if desired.

We claim—

1. In a numbering-machine, the combination of a reciprocating frame carrying a plurality of numbering-heads, each on an independent support, and means, substantially as described, whereby to adjust the position of each head and its support independently back and forth horizontally toward the front and rear of the reciprocating frame, substantially as set forth.

2. In a numbering-machine, the combination of a reciprocating frame, a plurality of numbering-heads, each on a separate support mounted therein and adjustable upon their supports, and means, substantially as described, whereby to adjust the said numbering-heads and their supports independently, substantially as set forth.

3. In a numbering-machine, the combination of a reciprocating frame having the end and intermediate pieces 5, each slotted as at 9, the shafts of a length less than the length of the frame mounted in said slots, means for independently adjusting the shafts in the slots—such as the screws 14—and the numbering-heads mounted upon the said shafts, substantially as set forth.

4. In a numbering-machine, the combination of a reciprocating frame, a plurality of supports carrying numbering-heads, the said supports being shorter than the length of the frame and each supported intermediately between the ends of the frame, and means, substantially as described, whereby to adjust the position of each support independently of the others back and forth toward the front and rear of the reciprocating frame, substantially as set forth.

5. In a numbering-machine, the combination of a reciprocating frame, a numbering-head mounted therein, means, substantially as described, for adjusting said head back and forth in a horizontal plane, a pawl-carrier for moving the numeral-disks, and a slotted link connected to said pawl-carrier to move the same and adapted to permit the adjustment of the numbering-head, substantially as described.

6. In a numbering-machine, the combination of a reciprocating frame, a numbering-head carried thereby and adjustable laterally with respect to its frame, means, substan-

tially as described, for adjusting the head
back and forth in a horizontal plane, a pawl-
carrier for moving the numeral-disks, a slot-
ted link connected at one end to the pawl-
5 carrier, and a laterally-adjustable stud en-
gaging with the slotted end of said link, sub-
stantially as described.

In testimony whereof we have signed our

names to this specification in the presence of
two subscribing witnesses.

EDWARD G. BLACK.
JOHN F. WERLE.

Witnesses:

J. W. INNIS,
ARTHUR RENOUF.