2 Sheets—Sheet 1.

E. GORENFLO.
Paging-Machine.

No. 200,527. Patented Feb. 19, 1878.

Fig. 1.

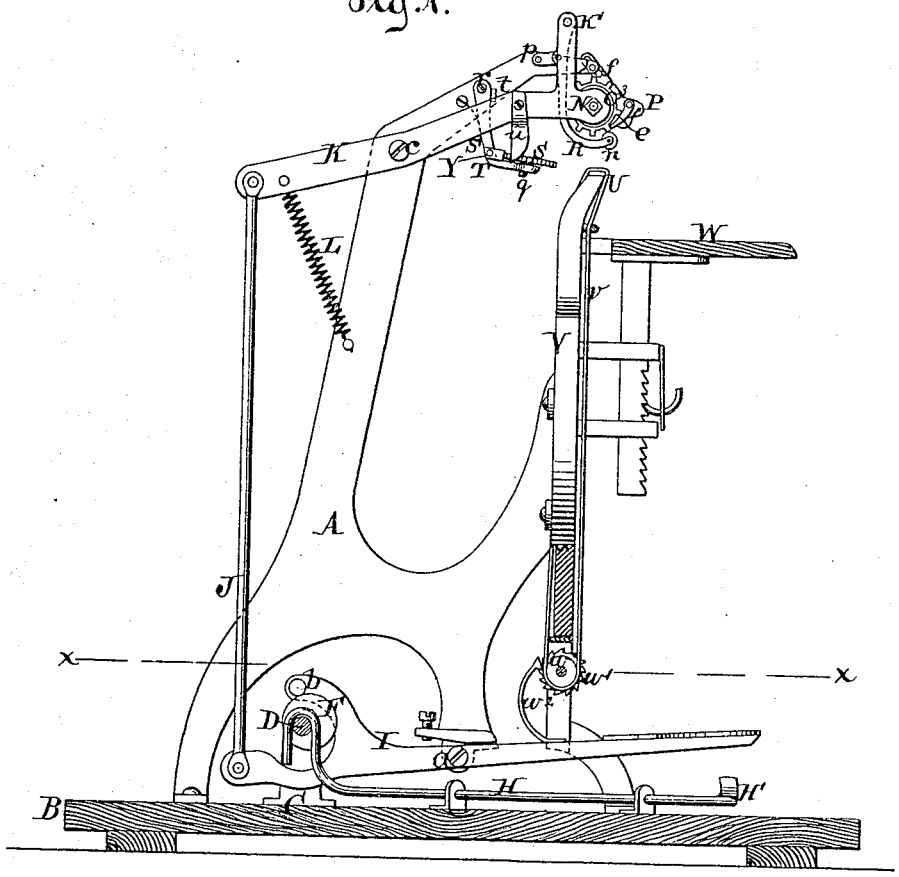
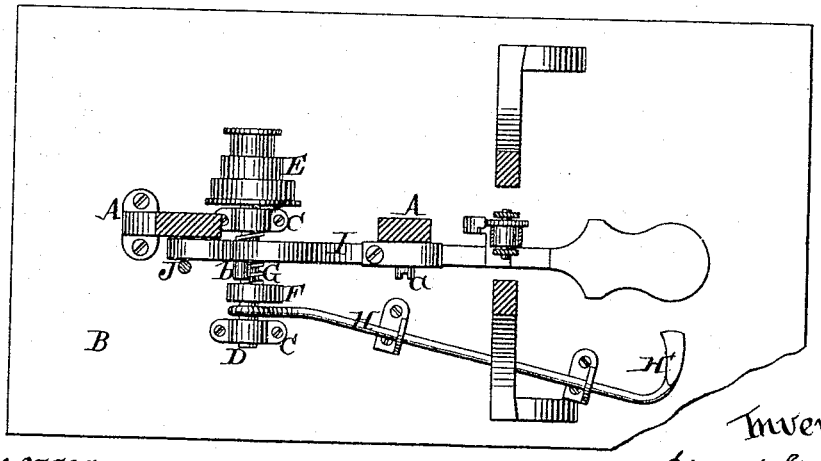


Fig. 2



Witnesses.
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Otto Schupland

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Edward Gorenflo
by
Van Santvoord & Hauff
his attorneys.

E. GORENFLO.

Paging-Machine.

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Fig. 3.

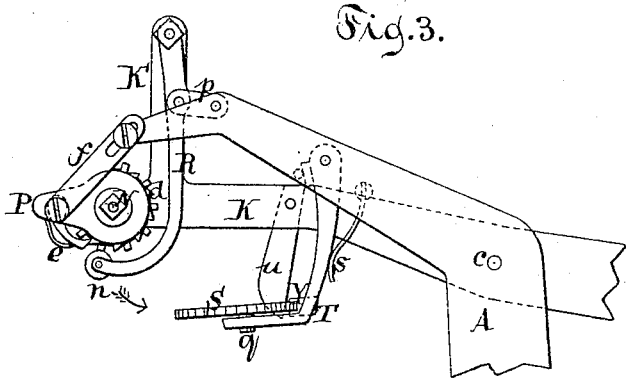


Fig. 4.

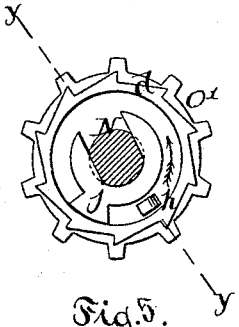


Fig. 5.

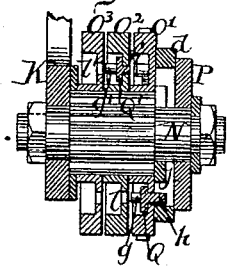
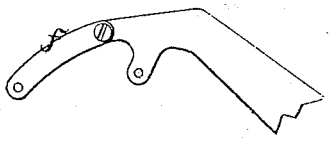


Fig. 6.



Witnesses.
Chas. Mahler.
Otto Hufeland.

Inventor.
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his attorneys

UNITED STATES PATENT OFFICE.

EDWARD GORENFLO, OF JERSEY CITY HEIGHTS, NEW JERSEY.

IMPROVEMENT IN PAGING-MACHINES.

Specification forming part of Letters Patent No. **200,527**, dated February 19, 1878; application filed October 26, 1877.

To all whom it may concern:

Be it known that I, EDWARD GORENFLO, of Jersey City Heights, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Paging-Machines, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a side elevation, partly in section, of a machine embracing my improvement. Fig. 2 is a horizontal section thereof in the line *x x*, Fig. 1. Fig. 3 is a side view of the printing mechanism, looking in an opposite direction to Fig. 1, and on a larger scale than in said figure. Fig. 4 shows the outer side of the unit-wheel. Fig. 5 is a cross-section of the printing mechanism in the line *y y*, Fig. 4. Fig. 6 is a modification, which will be hereinafter described.

Similar letters indicate corresponding parts.

My improvement relates to machines for paging or numbering books, bank-notes, and other similar articles; and consists in a peculiar form of driving-gear, through which the workman is enabled to operate the machine either by his foot, or by steam or other motive power, without detaching any part of the machine.

In the drawing, the letter A designates the frame of my machine, rising from a floor, B, on which are placed also two blocks, C C, which form the bearings for a horizontal shaft, D. On one end of this shaft is secured an ordinary cone-pulley, E, while on the same is also feathered a cam or eccentric, F, in such a way that this cam can be slid lengthwise of the shaft. On one side of the cam F is placed a spring, G, (see Fig. 2,) which, in the present example, is coiled on the shaft D, and on the other side of said cam is situated the bifurcated end of a rod, H, which serves to force the cam against the spring G.

In the example shown the bifurcated rod H is arranged to describe part of a revolution when it is caused to actuate the cam F, being provided with a foot-piece, H′, at its forward end, which is depressed by the workman in order to produce such motion; but said rod can also be arranged to oscillate.

Adjacent to the cam F is situated a treadle, I, which has its fulcrum on a pivot, *a*, in the lower part of the machine-frame, and is provided with a laterally-projecting pin, *b*, on that side thereof nearest the cam, the part of the treadle to which this pin *b* is attached being bent upward or above the shaft D, while the remaining portion of the treadle passes under said shaft, as shown in Fig. 1.

To the rear end of the treadle I is pivoted one end of a connecting-rod, J, the other end of which is pivoted to a lever, K, which has its fulcrum on a pivot, *c*, in the upper part of the machine-frame, and carries the printing mechanism at its forward end, this lever being, moreover, subjected to the action of a spring, L, having a tendency to draw the rear end thereof, as well as the rear end of the treadle I, downward.

When a revolving motion is imparted to the shaft D, and the cam F is forced in the direction of the treadle I by means of the rod H, and against the action of the spring G, the face of the cam comes in contact with the laterally-projecting pin *b* of the treadle, and thereby an oscillating motion is given to the treadle, and through the connecting-rod J to the lever K, while if the cam is allowed to follow the action of said spring G, it clears the laterally-projecting pin *b*, as seen in Fig. 2, and the treadle can be vibrated by the foot of the workman.

The printing mechanism is constructed of a fixed arbor, N, which is fastened to the lever K, and of a train of printing-wheels, O^1 O^2 O^3, mounted loosely and side by side on said shaft.

On the outer side of the first or unit wheel O^1 are ratchet-teeth *d*, ten in number, which are engaged by a spring-pawl, *e*, pivoted to one side of an arm, P, (best seen in Fig. 3,) which is loosely mounted on the arbor N, exterior of the unit-wheel, and connected by a jointed link, *f*, to the machine-frame. When the lever K is vibrated the printing-wheels with the arbor N alternately descend and rise, one or more of the printing-wheels being brought in contact with the platen of the machine in the descent thereof, while the pawl *e* rides over the ratchet-teeth *d* during such descent, so that when the parts again rise said pawl moves the unit-wheel to the extent of

one of its teeth, which is equivalent to one of its figures.

When the unit-wheel has completed a revolution, except one step, the trip-wing *j* strikes the curved or inclined face of the lug *h*, which projects through the said unit-wheel, and forces the spring-plate Q and pin *g* outward, so that said pin catches in one of the perforations of the ten-wheel, which will thus be carried with the unit-wheel one step, or until the lug *h* has passed the trip-wing *j*, and the unit-wheel will then continue its revolution, step by step, as before, and perform the same operation upon the ten-wheel, when the lug *h* again strikes the trip-wing *j*. When the ten-wheel has made a complete revolution, all but one step, it engages with the next or hundred wheel, and operates it in the same manner itself has been operated by the unit-wheel, and so on through a series of any number of wheels. This numbering-head I do not claim as new, and it may be replaced by any other of suitable construction.

The printing-wheels O^1 O^2 O^3 are supplied with ink by a roller, *n*, journaled in a swinging arm, R, which is pivoted at its upper end to a projection, K′, of the lever K, and by a jointed link, *p*, said arm is connected to the machine-frame. When in the vibratory movement of the lever K its forward end descends, the arm R is swung or tilted in the direction of the arrow marked opposite thereto in Fig. 3, and thereby the inking-roller *n* is made to clear the printing-wheels O^1 O^2 O^3, and is brought in contact with the surface of an ink-slab, S, arranged in its path, so as to become coated with ink, said arm and the roller being returned to the position shown, when the forward end of the lever again rises.

The ink-slab S is supported on a central pivot, *q*, in a bracket, T, so that it is adapted to rotate, and the bracket T is hung on a pivot, *r*, in the machine-frame, and is subjected to the action of a spring, *s*, which has a tendency to keep the same in a forward position, while it is held by a stop, *t*, so that the slab is allowed to yield to the pressure of the inking-roller *n* when the latter rides over the same, and automatically returns to its normal position when this roller passes off from the slab.

On the periphery of the ink-slab S are formed ratchet-teeth of ordinary form, and to the lever K is secured a curved plate, *u*, which is so located that when the forward end of the lever K descends, so as to bring the inking-roller *n* in contact with the ink-slab S, said blade *u* engages with one of the ratchet-teeth on the periphery of the ink-slab, and causes the latter to describe a partial rotation, this movement being repeated as often as the lever K is vibrated. The portion of the ink-slab S presented to the inking-roller *n* is thus constantly changed, while at the same time the ink placed on the slab is uniformly distributed over its entire surface. The ink-slab S is held in its different positions, when rotated by the blade *u*, by a pawl or detent, Y, secured to the bracket T.

The platen U of this machine is formed on the top of a standard, V, and over the platen passes a smut-belt, *v*, which passes also over a roller, *w*, with which is combined a ratchet-wheel, w^1, engaged by a pawl, w^2, secured to the treadle I, so that when the treadle is vibrated an intermittent motion is imparted through the pawl w^2 and the ratchet-wheel w^1 to the smut-belt. The book or other article to be paged or numbered is placed on a table, W, which is supported by the standard V, and made adjustable vertically, so as to adapt the same to books or piles of different thicknesses.

In Fig. 6 I have shown a modification in the construction of that part of the machine-frame to which the jointed link *f* is connected, (see also Fig. 3,) its object being to render this link adjustable, and thus lengthen or shorten the movement of the arm carrying the pawl *e*. In the example shown in Fig. 3 this object is accomplished by providing the link *f* with a slot, while in Fig. 6 I have provided the machine-frame with a supplemental projection to receive the link, so that the position thereof may be changed and the desired object thereby attained.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for paging or numbering, the combination of the driving-shaft D, sliding cam or eccentric F, spring G, bifurcated rod H, the treadle I, having a laterally-projecting pin *b*, connecting-rod J, and lever K, carrying the printing mechanism, all adapted to operate substantially as described.

2. In combination with the lever K, the fixed arbor N, the arm P, mounted on said arbor, the jointed link *f*, spring-pawl *e*, the unit-wheel O^1, having ratchet-teeth *d*, the spring-blade Q, affixed to said unit-wheel, its pin *g*, and lug *h*, the trip-wing *j*, secured to said fixed arbor, and the ten-wheel O^2, having concentric perforations *l*.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 23d day of October, 1877.

EDWARD GORENFLO. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.