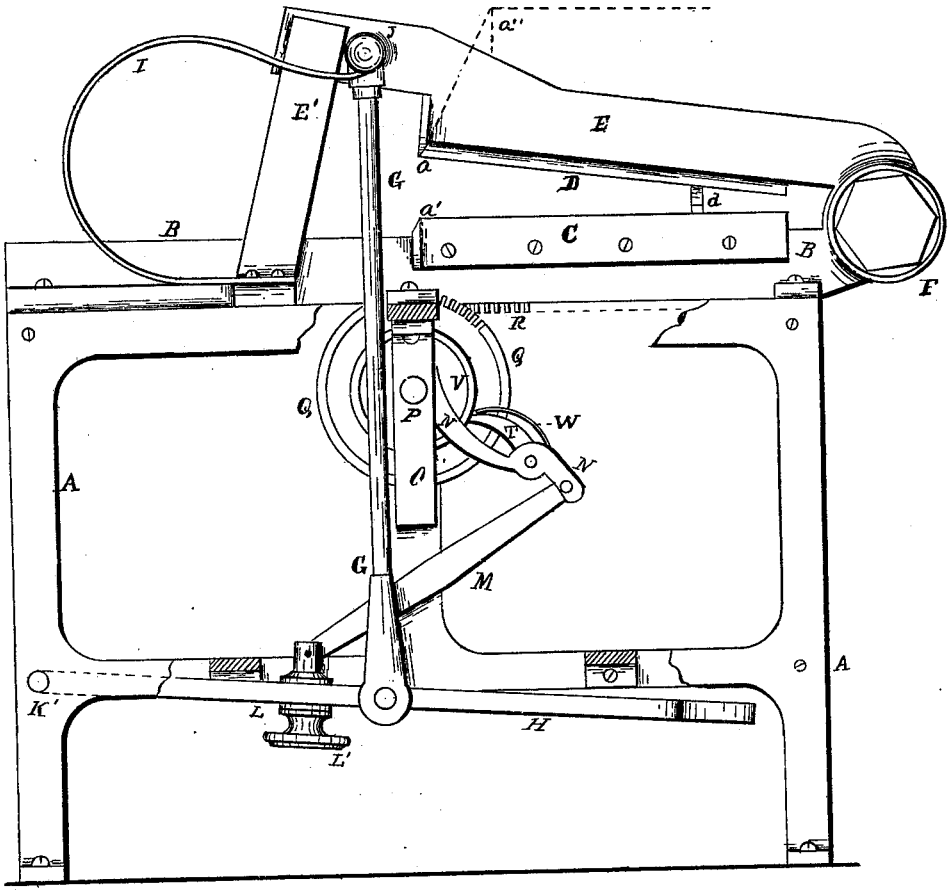
2 Sheets—Sheet 1.

W. McMILLAN.

Machine for Cutting Indexes.

No. 196,987. **Patented Nov. 13, 1877.**

Fig. 1.



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2 Sheets—Sheet 2.

W. McMILLAN.

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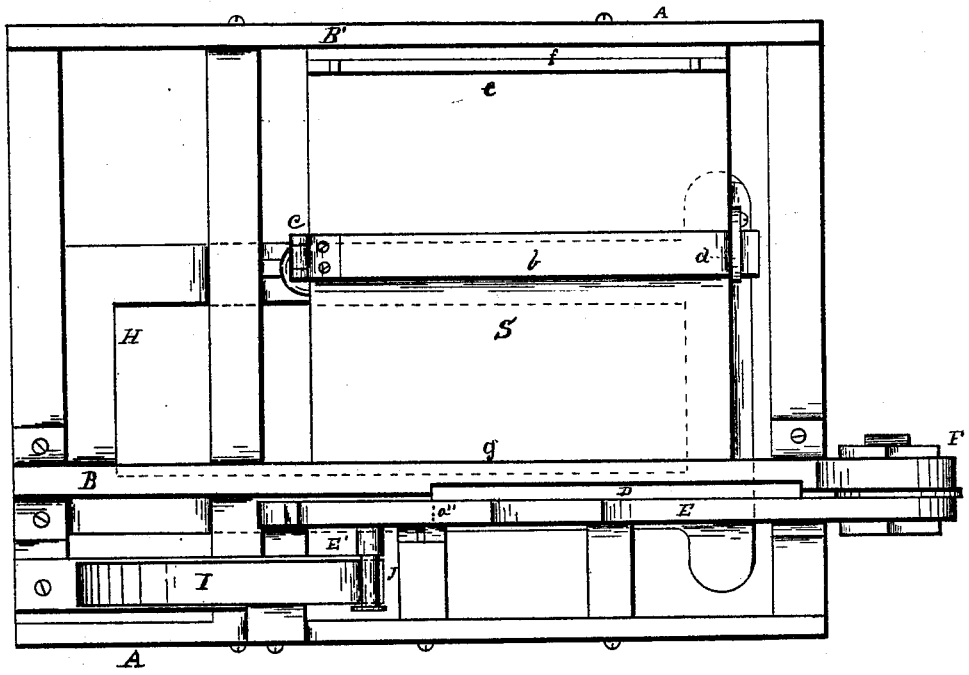
Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM McMILLAN, OF CLEVELAND, OHIO.

IMPROVEMENT IN MACHINES FOR CUTTING INDEXES.

Specification forming part of Letters Patent No. **196,987**, dated November 13, 1877; application filed July 10, 1877.

To all whom it may concern:

Be it known that I, WILLIAM McMILLAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Index-Cutting Machine; and I do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawings, making a part of the same.

This invention relates to a machine for cutting the index-pages of blank account-books, &c.; and consists in placing the book or pages to be cut upon a table, and held in place by a spring while the pages are being cut by a pair of cutters or shears, one of which is jointed so as to vibrate, and is operated by a foot treadle or lever, to which the knife is connected by a link.

The table, with the book, is moved or fed along by a pawl-and-ratchet mechanism operated by the treadle, as hereinafter more fully set forth.

Reference will be had to the annexed drawings and specification for a more full description of said machine.

Figure 1 is a side view; Fig. 2, a plan view. Like letters of reference refer to like parts in the several views.

The frame A of the machine may be of any proper construction suitable for the purpose designed. To the frame are secured the ways B B′. The lower or stationary knife, C, Fig. 1, is fastened to the way B, and the upper vibrating knife, D, is attached to the arm E. One end of said arm is jointed or hinged, at F, to the said way B, or otherwise so jointed that the knives or cutters will operate in concert. E′ is a guide for the arm, to aid in keeping the knife D in line with cutter C. The front end of the arm or lever E is connected by a link, G, to the treadle H. One end of the spring I is fastened to the frame, and the free end thereof extends up under the wrist J of the connecting rod or link G. These cutters have a return at the ends, forming angles *a a′*, as indicated by the line *a″* in Fig. 2. These cutters or knives are substantially alike, and may be curved at *a a′*. The treadle H is hinged, at K′, to the frame. The foot is placed upon the other end for operating it and the mechanism. In the treadle is an oblong slot for receiving the adjusting-screw L, in which slot the said screw can be moved longitudinally for setting the feed as required for the size of book. To the adjusting-screw is jointed one end of the link M, and the other end of this link is jointed to the arm N, which arm is keyed or fastened to the shaft P, journaled at its ends in brackets depending from the frame, one of which is seen at O, Fig. 1, the other being at the opposite end of the shaft P, and not seen in the drawings.

Upon the shaft P is loosely hung the pinion Q, which gears into the rack R of the table S. This table slides in the ways B B′, as may be required.

To the arm N is pivoted the pawl T, which engages the wheel V, forming a friction-pawl and ratchet or clutch. This wheel V is also loose upon the shaft P, but is fastened to or forms a part of pinion Q. The spring W is fastened at one end, by any proper means, to the arm N, between the pawl and the connection of the link M with the arm. The free end of the spring presses upon the pawl T, as seen in the drawings, Fig. 1. Hence, by means of the pawl and ratchet-wheel V, link M, and treadle, the pinion Q is operated, and by its engagement with rack R the table is fed or moved along, as may be needed. By pressing the treadle down, the free end of the pawl is disengaged from the face of the wheel V, but on raising the treadle the pawl is pressed against the face of the wheel V by the spring W, and holding it until the reaction of the treadle takes place, which frees the pressure of the pawl on the wheel. The spring I, which raises the arm E by its action, also raises the treadle at the same time, and operates the feeding mechanism, in the manner before described. This feeding of the table only takes place when the arm E is being raised and the cutting of the page is completed. The treadle moves down the arm E when the page or index is to be cut, at which time the table is at rest; but as soon as the page is cut the knife-arm E rises, and the table is moved along for the next leaf or page to be cut.

The blank-book in which the index is to be cut is placed upon the table S.

Supposing the index-pages to be the same number as the letters of the alphabet, these

twenty-six leaves of the book are laid upon the table, and held down by the spring or plate *b*, hinged at *c* to the table. The other end is held by the hook *d*. By this means the leaves or book are closely held in place upon the table. The leaves are so placed upon the table that the outside edges of the leaves will extend beyond the edges of the cutters or knives, but in line or parallel with the edges.

The edges of the leaves should extend only to or inside of return ends *a a'* of the knives. By this means there will be from each leaf a piece cut in width the distance the page is extended over the edge of the cutter to the return or right-angle ends *a a'*. After the book or pages are thus secured upon the table, with the open side toward the knives and the back at *e*, the leaves which are to be cut are held up by hand from the cutters. The first leaf is then allowed to slip or spring down under the knives, after which, by forcing down the treadle, the knives cut out an oblong piece from the edge of the leaf. As soon as this is cut the table is fed along the proper distance while the knife-arm is rising. As soon as the table and knife-arm stop, another leaf is allowed to pass down under the knives, which is also cut in the same manner as the first leaf. Thus each leaf is cut consecutively until the entire twenty-six (more or less) have been fed along and passed under the knives. Each oblong piece as it is severed becomes shorter, and the space in the leaf correspondingly shorter, which admits of the printed alphabet or figures on the pages of the cut leaves being seen as the leaves lie upon each other.

The spaces between the letters on the pages may be more or less, according to the size or number of letters or figures to be printed on the space of the page between the cuttings of the leaves. This gaging of the space is governed by the feed-works and the adjusting-screw L, which may be moved to or from the axis K′ of the treadle in an oblong slot at any desired point of the treadle, and there secured by means of the nut L′ of the adjusting-screw.

This adjustment of the link M will give greater or less sweep to the arm N, and more or less feed to the table and pages thereon, by the feed devices before mentioned. After the table has been fed along to the end of the rack R, the table may be readily drawn back to any point by lifting the pawl T. Thus the pinion will turn upon the shaft P as the table returns. The table on one side is hinged to the side *f*, Fig. 2, which moves in the way B′. The other side *g′* of the table slides in the way B, in the ordinary operation of the machine. By withdrawing the side *g′* from the way B, and resting upon the top of the way B, the table may be moved backward and forward by hand without engagement of the rack and pinion.

In cutting the leaves for indexing the pages of large and heavy account-books, &c., it may be convenient in some such cases to move the table by hand without the feed-works, and this hinging of the table admits of it being raised for the convenience of adjusting the feed-works.

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

The combination of the stationary knife C, having return cutter *a′*, and the knife D, attached to the vibrating arm E, pivoted in a line with the knife C to give a shear-cut, and having a corresponding return cutter, *a*, the connecting-rod G, and spring I, guide-bar E′, feed-table S, with a rack, R, operated by spur Q, friction-wheel V, pawl T, lever N, and lever M, attached to an adjustable sliding pivot, L, and set-screw L′, arranged in the slot of the treadle H, all constructed substantially as and for the purpose described.

WILLIAM McMILLAN.

Witnesses:

J. H. BURRIDGE,

WILLIAM F. BEECHER.