

(No Model.)

2 Sheets—Sheet 1.

J. W. MACLACHLAN.
MACHINE FOR CUTTING INDEX BOOKS.

No. 565,551.

Patented Aug. 11, 1896.

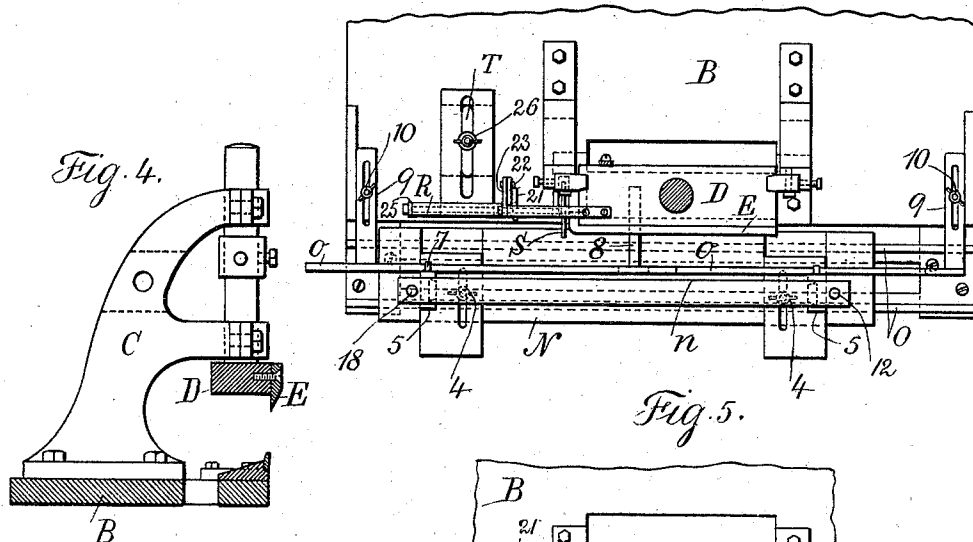
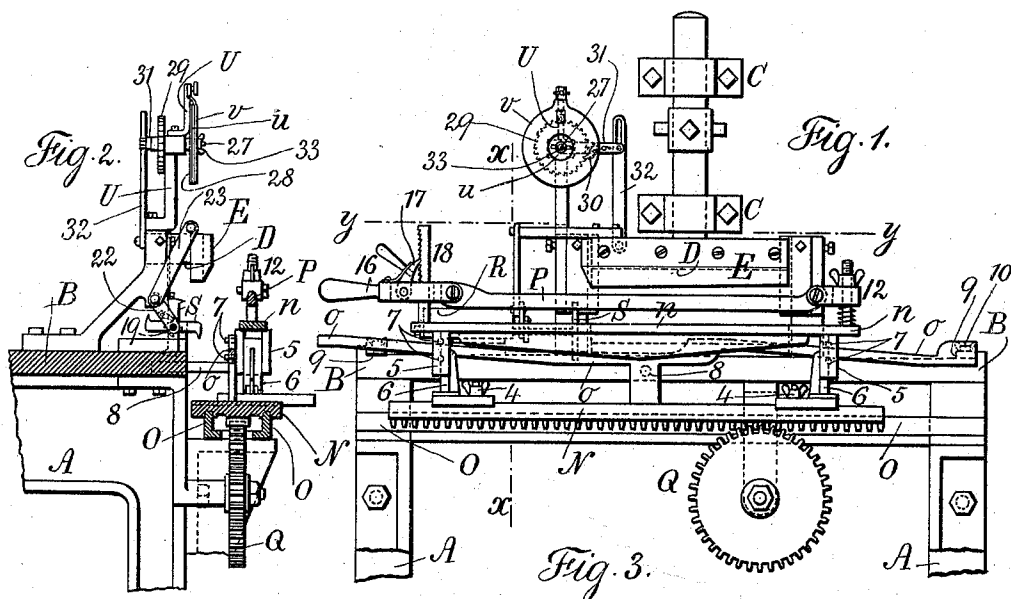
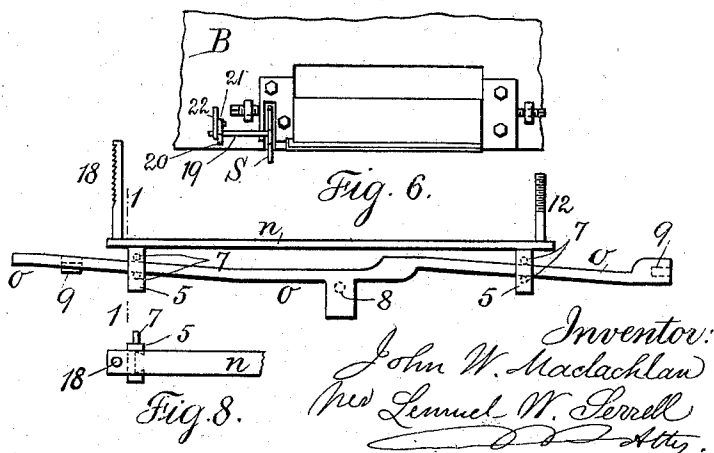


Fig. 7.
Witnesses:
J. Stait
Chas. N. Smith



Inventor:
John W. MacLachlan
Per Lemuel W. Lovell
Att'y.

(No Model.)

2 Sheets—Sheet 2.

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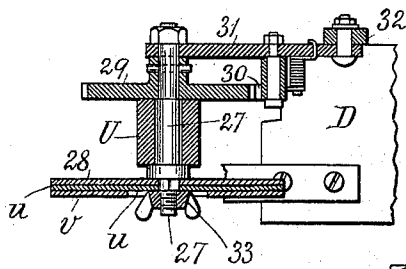
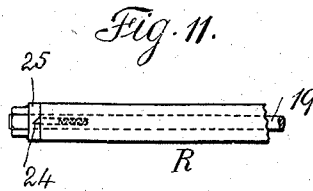
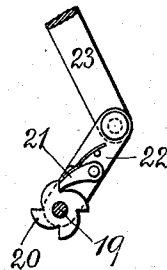
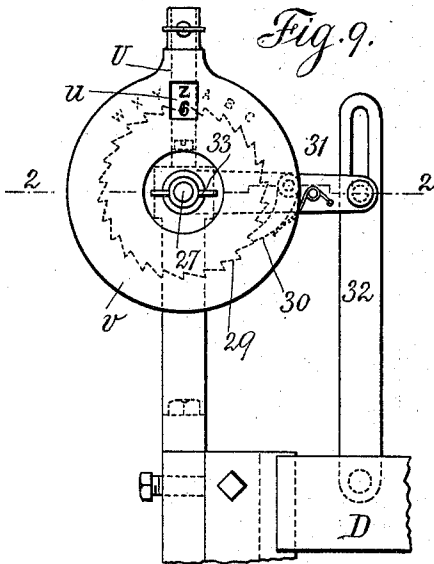


Fig. 12.

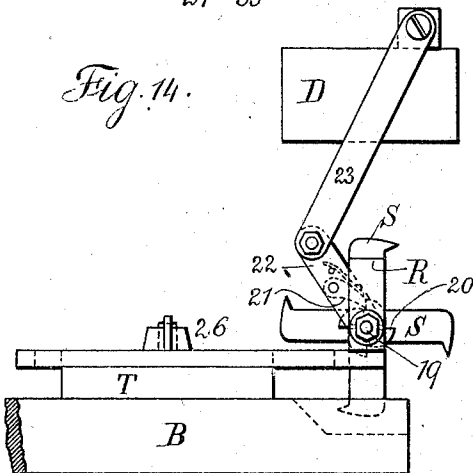


Fig. 14.

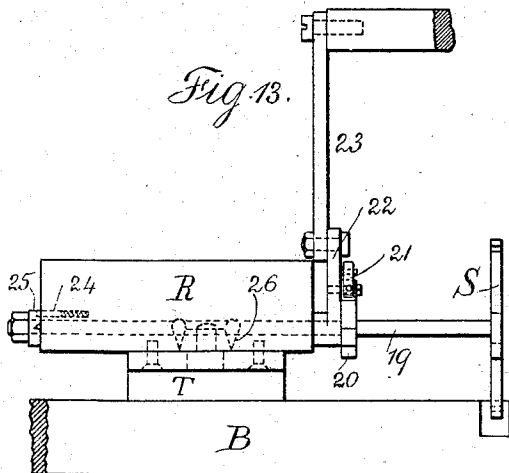


Fig. 13.

Witnesses:
J. Stair
Chas. H. Smith

Inventor:
John W. MacLachlan
per Samuel W. Perrell
Att'y

UNITED STATES PATENT OFFICE.

JOHN W. MACLACHLAN, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO JOHN G. CAMPBELL, OF SAME PLACE.

MACHINE FOR CUTTING INDEX-BOOKS.

SPECIFICATION forming part of Letters Patent No. 565,551, dated August 11, 1896.

Application filed July 28, 1893. Serial No. 481,694. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. MACLACHLAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Machines for Cutting Index-Books, of which the following is a specification.

In Letters Patent No. 464,438, granted December 1, 1891, I have represented a vertically-reciprocating cutter having an L-shaped end adapted to cutting the edges of the sheets in making index-books, and I have also shown a carriage adapted to carrying the book and presenting the same to the action of the cutter, and the length of movement can be regulated according to the size of the book.

In my present improvements I make use of a carriage for clamping the book, a cutter for cutting the edges of the sheets, and gearing and an adjustable crank-pin for regulating the extent of movement between one cut and the next, these parts being substantially similar to those in my aforesaid patent, but I have provided for lowering the book-holder as the cutting progresses in order that the sheets may be as nearly level and in line with the cutting-edge as possible, and I provide a means for carrying down and out of the way the edges of the sheets that have been cut, so as to prevent the risk of such sheets being cut a second time or otherwise injured; and in making index-books it is important to cut the leaves so as to apportion to one letter of the alphabet a greater number of leaves than to another, and with this object in view I employ an indicator that denotes the particular part of the index-book that is being cut is adapted, and adjacent thereto a number to denote the number of sheets that the attendant allows to fall down into position for being cut by the next movement of the apparatus.

In the drawings, Figure 1 is a general elevation. Fig. 2 is a cross-section at the line *xx*. Fig. 3 is a plan view below the line *yy*, the clamp-bar being removed. Fig. 4 is a cross-section in larger size of the cutting devices. Fig. 5 is a separate plan view of the rotary sheet-holder and of the lower knife and its support. Fig. 6 is a diagrammatic view of the inclines that act upon the book-holder.

Fig. 7 is a section at the line 1 1. Fig. 8 is a plan view at one end of the book-holder. Fig. 9 is a detached elevation in larger size of the counting apparatus. Fig. 10 represents the pawl and ratchet for the rotary sheet-holding device. Fig. 11 is a detached view illustrating the latch in the gage. Fig. 12 is a section at the line 2 2 of Fig. 9. Fig. 13 is an elevation of the rotary sheet-holder and its actuating mechanism sidewise of its shaft. Fig. 14 is an elevation of the rotary sheet-holder and connected parts endwise of its shaft.

The side frames A, table B, standard C, cutter-stock D, and cutter E are substantially the same as represented in my aforesaid patent, but the knives are longer, and I have not shown the mechanism for actuating this cutter, because the same corresponds with that in said patent, and at N is a sliding bed having rack-teeth upon its under surface engaging the gear-wheel Q, by which such bed N is moved endwise, and such bed N is supported upon suitable slides O, and these parts are substantially the same as in my aforesaid patent, and the means for giving motion to the gear-wheel Q and moving the bed N endwise are not herein represented, because I employ substantially the same devices as shown in the said patent, in order that the book after it has been clamped may be moved along progressively and proportionately, so that the incisions made in the edges of the sheets may be adapted to the letters of the alphabet and the cut for each letter may be of a length proportioned to the size of the book, all of which is described in the said patent.

Instead of laying the book upon the bed N, I make use of a book-holding bar *n*, having near its ends the slides 5, that are made with dovetailed edges engaging the slides 6 upon the bed N, so that this book-holding bar *n* can be raised or lowered, and the slides 6 are connected with the bed N by a base and clamp-screws, so as to be changeable if necessary, and upon the back surfaces of the slides 5 are projections preferably in the form of pins 7, that come above and below the cam-bar *o*, which cam-bar is preferably supported at the center by a horizontal pin 8, passing into a hole in the table B, and at its ends by the

slotted arms 9, that rest upon the table B and are provided with clamp-screws 10. By this means the book-holding bar *n* will be lowered gradually by the pins 7 and cam-bar *o*, such cam-bar *o* being made with two inclines, as shown in Fig. 6, the object of this improvement being to lower the book gradually by the equal action of the cam-bar *o* at the two ends of the book-holding bar *n*; and it will be apparent that this cam-bar *o* can be detached and a different cam-bar applied, so as to adapt the apparatus to a different length of index-book, and the cam-bar *o* can be set farther away from or nearer to the cutter E, and the screws 4, which are used to clamp the bases of the slides 6, passing through slots in said bases, allow for the book-holding bar *n* being sustained at any desired distance from the cutter, thereby giving facility for holding either large or small books; and I remark that the clamp-bar P above the book-holding bar *n* is similar to that shown in my aforesaid patent, there being a screw and thumb-nut 12 at one end and a lever 16 and pawl 17 acting upon a stud 18 at the other end. In operating this part of the apparatus the book to be cut is laid upon the bar *n* and clamped by the bar P, the edge of the book being adjacent to the gage R, hereinafter described, and as the cutting progresses and the bed N is moved to the right the book-holding bar *n* is gradually lowered by the pins and cam-bar *o*; and I remark that as the object of lowering the book as the cutting progresses is simply to maintain the sheets at approximately the level of the cutters, the cam-bar *o* is adapted to more than one thickness or size of book, and the same can be varied when necessary for very small or very large books.

The rotating sheet-holder S is upon a shaft 19, and such sheet-holder is preferably formed with four equidistant fingers, and upon the shaft 19 is a ratchet-wheel 20, actuated by a pawl 21 upon a lever 22, that receives its motion in any suitable manner, but preferably by a link 23 to the cutter-head or stock D, and there is a spring-pawl 24, preferably introduced in a hole in the gage R and acting against a small disk 25 at the end of the shaft 19 to prevent the sheet-holder turning backwardly.

The gage R is supported by a guide-block T upon the table B, and there is a slot and clamp-nut 26, that allows the gage to be set forward or backward and held firmly in position, and the face of the gage, being vertical, is adapted to receive the edges of the book to be cut, and when set back the cut in the edges of the sheets will be wider and when set forward narrower, and in operation the attendant places the book in its proper position, when the parts are at the extreme left, and clamps the book with the edges of the sheets against the face of the gage R, and then the whole of the sheets composing the book are raised upwardly and held by the attendant, preferably in the left hand, and the proper number of

sheets for each successive cut are allowed to drop down, and such sheets rest upon one horizontal arm of the rotating sheet-holder S, and as the cutter-stock and cutter are brought down to cut the sheets thus presented the pawl 21 is turned backwardly, and takes another notch in the ratchet-wheel 20, and as the cutter-stock rises the rotating sheet-holder is turned a quarter of a revolution and the finger that had been vertical comes upon the sheets that have been cut and presses them downwardly, and such finger assumes a horizontal position ready to receive upon it the next group of sheets that the attendant allows to fall down horizontally in position to receive the second cut, and so on. Hence by this means the sheets that are cut are by the rotary sheet-holder kept below and out of the way of the cutter, and the attendant simply has to drop the sheets successively, the proper number in each group, until the entire book is cut in a manner adapted to form an index.

In the foregoing operations it is not necessary to use skilled labor, and inattention on the part of the operator may cause him to forget which letter of the alphabet is being cut or how many sheets are required for the given letter. This risk is lessened or entirely removed by the indicating device next described.

A standard or arm U, projecting from any suitable part of the apparatus, receives an axis 27, on which is a ratchet-wheel 29, having as many teeth as there are letters in the alphabet, and the pawl 30 is upon a radius-bar 31, that receives its motion from a link or other connection 32 to the head-block or cutter-stock D, so that this axis 27 is rotated completely during the cutting of one index, and upon this axis 27 is a dial *u* behind the disk *v*, which disk has an opening therein, as indicated in Fig. 9, and the disk is held stationary by any suitable support, and the dial can be observed through the opening in the disk, and upon the dial *u* the letters of the alphabet are placed and also a number indicating the number of sheets required for the corresponding letter. Hence as the dial is rotated the operator not only knows by observing the dial which letter will come upon the portion of the index that is to be cut, but he also knows how many sheets must be provided for that particular letter of the index. Hence by this improvement the operator is enabled to recognize the letters that are to be provided for in the index and the number of sheets for each letter, and he also knows when the book is completed.

Upon reference to Fig. 9 it will be observed that the rotation of the dial is backward, commencing with "Z," because the cutting operation commences at the back part of the index, where the cut is the shortest, and the cutting of the index proceeds to the front part of the book, where the cut is the longest.

The dial *u* is preferably of paper or other suitable material pressed against the surface

of the metal disk 28 upon the axis 27 by the thumb-nut 33, so that such paper dial will rotate with the disk, and it may be changed as required from time to time according to the thickness of the book and the number of sheets required for each letter.

I claim as my invention—

1. The combination with the cutting devices, the bed and book-holding bar and clamp, of sliding supports for the same, a stationary cam-bar acting to lower the book-holding devices and book as said parts are moved endwise during the cutting operation, substantially as set forth.

2. The combination with the device for cutting index-books, of a holder and clamp for the book, a bed and means for moving the same endwise, an intervening cam-bar that supports the book-holder and book, and a connection from the bed to the book-holder that allows the book and holder to descend as moved endwise, substantially as specified.

3. The bed N and means for moving the same endwise, the book-holding bar, and

slides between the bed and the book-holding bar to allow the latter to be raised or lowered, in combination with a cam-bar having an inclined surface and means for holding such cam-bar in position, whereby the book is lowered as the bed is moved endwise, substantially as set forth.

4. The combination in an index-cutting machine, of a bed-shear and a cutter, and means for moving the same, a book-holding bar and clamp-bar, a bed having teeth and a wheel for moving the same, vertical slides connecting the book-holding bar and the bed, a cam-bar having an inclined surface, and projecting pins upon the book-holding bar and engaging the inclined cam-bar, for lowering the book as the cutting progresses, substantially as set forth.

Signed by me this 26th day of July, 1893.

JOHN W. MACLACHLAN.

Witnesses:

HAROLD SERRELL,
A. M. OLIVER.