

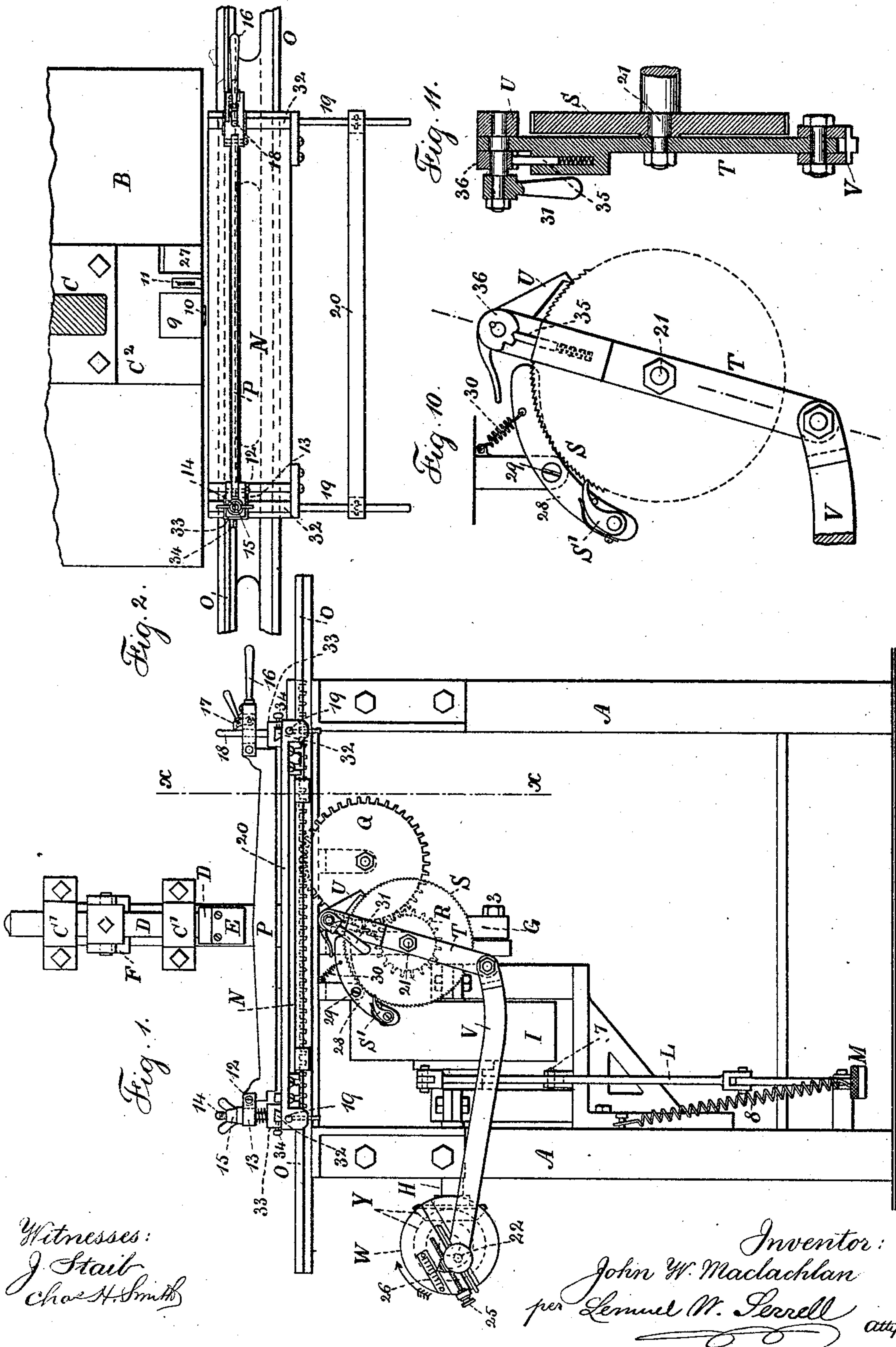
(No Model.)

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

No. 464,438.

Patented Dec. 1, 1891.



Witnesses:  
J. Stair  
Chas. H. Smith

Inventor:  
John W. MacLachlan  
per Lemuel M. Perrell atty.

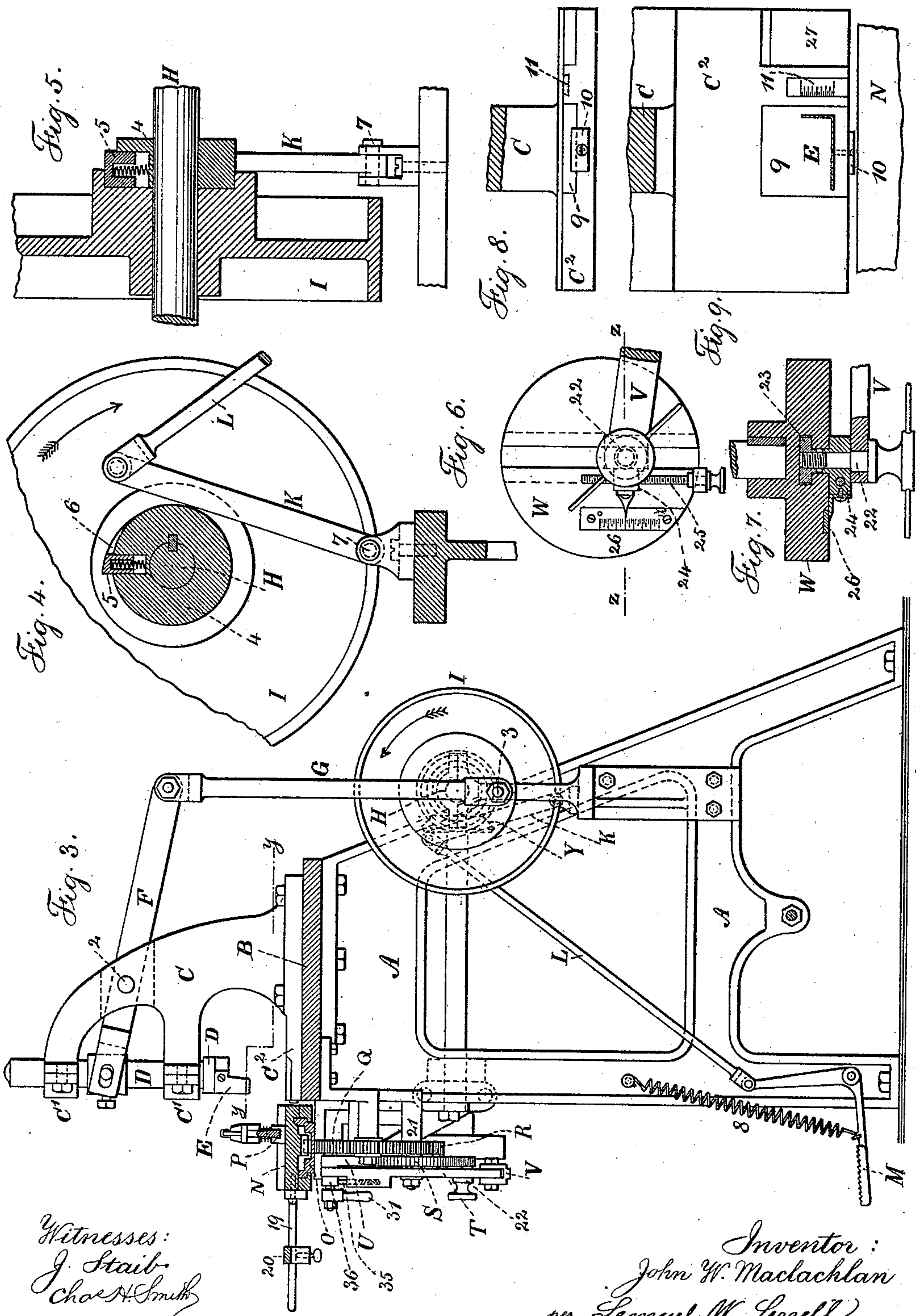
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# UNITED STATES PATENT OFFICE.

JOHN W. MACLACHLAN, OF BROOKLYN, ASSIGNOR TO GEORGE W. GARNER,  
OF NEW YORK, N. Y.

## MACHINE FOR CUTTING INDEX-BOOKS.

SPECIFICATION forming part of Letters Patent No. 464,438, dated December 1, 1891.

Application filed June 17, 1891. Serial No. 396,550. (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.

Index-books have heretofore been manufactured with the edges cut at successively decreasing distances from the bottom, so that the paper is shingled and the alphabet-letters are visible in a row along one side of the index. Usually the cutter for separating the paper has been of a length equal to the longest cut, and the cutting has been done progressively by removing the strip of paper from the edge of each leaf of a length corresponding to the distance from the bottom edge of the leaf to the offset upon which the letter is applied.

In the present improvements the book is placed upon a proper support and the cutter cuts the whole of the edges of the sheets where the shortest cut is to be made and then the sheets are raised in succession in groups of the desired number for each letter of the index and the book is moved bodily between one cut and the next, so that there are as many cuts performed along the edge of the book as there are letters or numbers to be printed upon the overhanging or shingled edges of the leaves. By this means the cutter is comparatively short, only needing to be as long as the length exposed for one letter or number of the largest book to be cut, and I provide means by which the book can be moved along automatically and bodily the proper distance, so as to cut the sheets for a large or a small index-book by the same mechanism.

In the drawings, Figure 1 is a front elevation. Fig. 2 is a partial plan of the holding mechanism, the standard for the cutter being in section. Fig. 3 is a section near the line  $xx$ , Fig. 1. Fig. 4 is a section of the shaft and clutch crosswise of the shaft, and Fig. 5 is a section of the same parts lengthwise of the shaft. Fig. 6 is an elevation of the adjustable crank-pins, and Fig. 7 is a section of the same at the line  $zz$ . Fig. 8 is an elevation of the gage. Fig. 9 is a plan view of the

gage-block and a section of the cutter at the line  $yy$  of Fig. 3. Fig. 10 is a diagram of the feeding-pawl, and Fig. 11 is a vertical section of the same.

The side frames A support the table B, and upon this rises a standard C, having bearings C' for the cutter-stock D, at the lower end of which the cutter E is fastened, and there is a lever F, pivoted at 2 and connected at one end to the cutter-stock D and at the other end to a connecting-rod or pitman G, to the crank-pin 3, preferably on a disk upon the driving-shaft H, which shaft is moved by any-suitable power. I have represented and prefer to use a pulley I, driven by a belt, which pulley I is loose upon the shaft H, and there is a hub 4, fastened permanently to the shaft H, and in a recess of this hub is a spring-pawl 5, which, when it is pressed outwardly by its spring, passes into a recess 6 in the hub of the driving-pulley I, and this pulley I, revolving in the direction indicated by the arrow in Fig. 4, gives motion to the shaft H; but when the spring-pawl 5 is pressed inwardly it is separated from the hub of the pulley I, so that such pulley I can continue its rotation while the shaft H remains quiescent. It will be seen by reference to Fig. 5 that this spring-pawl 5 projects about one-half its width from the side or face of the hub upon the driving-pulley I, and I provide a lever K, pivoted at 7 upon the frame of the machine, which lever is in the path of the pawl 5, and there is a connecting-rod L from the upper end of the lever K to the treadle M, and the spring 8 serves to hold the treadle in an elevated position and press the lever K toward the hub 4, so as to keep the spring-pawl 5 out of action, and this spring-pawl 5 stops against the lever K at the time the cutter E is elevated, as indicated in Fig. 3. Hence the attendant can properly adjust the book for the cutting operation to be performed, and then by putting his foot upon the treadle M the lever K is drawn back and the pawl 5 allowed to spring out into the recess 6 of the driving-pulley I, so that the cutter E is brought down and by relieving the pressure on the treadle the lever K presses the spring-pawl 5 out of the recess 6, and the shaft H again stops until the treadle is moved



for the next cut. It will be noticed by the section, Fig. 9, that the cutter E is L-shaped, and it is to be in the form of a knife that shears off the paper, cutting from the edge of the sheet inwardly and then parallel with the edge of the sheet, and it is advantageous to use a cutting-block 9 of suitable material, such as zinc, the same being inserted into a recess in the base C<sup>2</sup> of the standard C and held by a clamp 10, and it is also advantageous to place in the base C<sup>2</sup> a measure or rule 11 to enable the operator to place the edge of the book upon the base C<sup>2</sup> in such a position as to cut the proper width from the edges of the sheets as determined by this rule or gage 11.

The book-holder is formed of a bed N, resting upon stationary tracks O, supported adjacent to the edge of the table B, the surface of the bed N coinciding, or nearly so, with the surface of the base C<sup>2</sup>, and over the book-holding bed N is a clamp-bar P, one end of which is hinged at 12 to the block 13, supported by the vertical screw-stud 14, and the nut 15 serves to adjust the block 13 and adapt the clamp-bar P to different thicknesses of books, and at the other end of the clamp-bar P is a handle 16, upon which is pivoted a pawl 17, to engage teeth upon the vertical stud-rack 18, so that after the book has been laid upon the bed N the clamp-bar P can be swung down upon the same, and the loop of the handle 16, passing over the stud 18, allows the pawl 17 to hold the clamping-bar down upon the book.

It is advantageous to provide rods 19 upon removable blocks near the ends of the book-holding bed N, and upon which rods is a supporting-bar 20, the surface of which is at the same level as the bed N, so that with large-sized books this bar 20 can be moved nearer to or farther from the bed N to aid in holding the book; but with small books these rods 19 and bar 20 can be easily removed.

Upon the under side of the book-holder bed N there are rack-teeth, into which the wheel Q gears, and there is a pinion R upon a stationary axis 21, gearing into the wheel Q, and to this pinion R a fine-toothed ratchet-wheel S is permanently connected, and the stud or axis 21 forms also the fulcrum for a lever T, that carries at one end a pivoted pawl U, acting upon the teeth of the wheel S, and at the other end the connecting-rod V extends to the adjustable crank-pin 22, so that by varying the position of this crank-pin 22 a greater or less motion is given to the lever T, and the pawl U takes up a greater or less number of teeth each movement. The crank-pin 22 is connected with a disk W, that is slotted diametrically for the reception of a clamping-block 23, which forms a nut for the crank-pin, said crank-pin having a head, preferably with a lever-pin through it, by which the crank-pin can be rotated to screw the same in to clamp the parts tightly or to unscrew such crank-pin to allow the block 23 to be

slid along in the undercut or dovetailed groove of the disk W, and it is preferable to employ an index-block 24, through which the screw-crank pin passes, and upon this index-block 24 is a pointer, and upon the face of the disk W is a scale 26, so that when this pointer is set to the measurements of the scale a corresponding movement will be given to the book-holding bed to regulate the distance between one cut and the next, and I prefer to make use of an adjusting-screw 25, passing through the index-block and also through a lug or ear at the edge of the disk W, so that this screw 25 facilitates the proper adjusting and holding of the crank-pin and index-block in the proper position. The disk W is rotated once for each movement of the driving-shaft H, and with this object in view the driving-shaft H and the axis or shaft of the disk W are connected by bevel-gears Y or any other suitable means.

It is advantageous to make the teeth of the wheel S of a measurement proportioned to that required in cutting the leaves to form the index, so that when only one tooth of the wheel S is taken up by each movement of the machine the book-holding bed will be moved the smallest distance required at each movement of the cutter in cutting the index, and when the crank-pin 22 is placed nearest to the periphery of the disk W the pawl U will take up the largest number of teeth each movement for giving the longest motion required to the book-holding bed N between one cut and the next. Hence by properly placing the crank-pin 22 the machine can be adjusted to cut the same number of cuts along the edge of a long book or a short book. In the surface of the bed-plate or base C<sup>2</sup> there is a recess 27, to enable the attendant more easily to manipulate the edges of the sheets in the book that is being cut.

After the machine has been adjusted, as before indicated, the clamping-bar P is to be swung up and the book which is to be cut is laid with the front leaf thereof upon the book-holding bed N, and then the bar P is brought down to hold the book; but there is sufficient distance between the bar P and the edges of the leaves for the leaves of the book to be lifted in succession, and the attendant lifts two or more leaves and places his foot on the treadle, and the cutter comes down and cuts through all the other leaves to expose the surface of the leaves that have been lifted for the reception of the last letter of the alphabet. Then the attendant lifts the proper number of leaves and the bed N receives a motion to the left the proper distance, and the cutter is brought down again and cuts through all of the leaves that remain flat, to provide for the next letter of the index, and the operator again lifts up the edges of the proper number of leaves, the bed moves to the left and another cut is made, and these operations are proceeded with until the whole of the edge of the



book has been properly cut to form the index, the last cut being through the smallest number of leaves.

Any suitable pawl may be made use of to prevent the wheel S from turning backwardly. I have shown a pawl S' for holding the wheel S, and this pawl S' is on a lever 28, pivoted at 29, and there is a spring 30 to act upon this lever and hold the pawl S' toward the teeth of the ratchet-wheel S, and it is advantageous to be able to lift the pawl U and the pawl S' simultaneously, so that the bed N may be run back to the right rapidly after the book has been cut, so as to place the bed N in the proper position for the reception of another book. With this object in view the pivot of the pawl U passes through the lever T and receives upon it a handle 31, and this pawl U has a tail-piece projecting over the lever 28, so that when the handle 31 is moved to lift the pawl U the tail-piece of such pawl depresses one end of the lever 28, lifting the pawl S' out of contact with the teeth of the wheel S.

The clamping-bar P may be in a fixed position; but to more readily adapt the same to different sizes of books I prefer to employ dovetailed ribs upon the end portions of the book-holding bed N, with blocks 33 thereon, which blocks receive the vertical studs 14 and 18, that hold the parts of the clamp-bar P, and these blocks 33 may be held in position upon the dovetailed ribs 32 after they have been properly adjusted by the small screws 34. If desired, a spring-pin 35 may be made use of in connection with notches in a disk 36 upon the axis of the pawl U, as seen in Fig. 10, to press such pawl U to the teeth of the ratchet-wheel S, or to hold up such pawl when it has been turned to disconnect it and the pawl S' from the said ratchet-wheel.

I claim as my invention—

1. The combination, with the cutter E and its stock, of a lever, a connecting-rod and crank-pin, a driving-shaft and its pulley loose upon the shaft, a clutch for connecting the pulley and its shaft, and a treadle for controlling the action of the clutch, substantially as set forth.

2. The combination, with the driving-shaft and the driving-pulley loose upon the shaft, of a spring-pawl and a hub upon the driving-shaft, recessed for the reception of the spring-pawl, the driving-pulley also being recessed for such pawl, and a lever and treadle for controlling the action of the spring-pawl, substantially as set forth.

3. The combination, with a cutter adapted to cut a notch in the edge of a book, of a book-holding bed and clamping-bar, and mechanism for moving the book-holding bed progressively between one movement of the cutter and the next for cutting the edges of

the book progressively in forming an index, substantially as set forth.

4. The combination, with the cutter and means for reciprocating the same, of a book-holding bed, a clamping-bar connected with the bed, a rack and gearing for moving the bed, a ratchet-wheel, pawl, lever, connecting-rod, and adjustable crank-pin for varying the movement of the book-holding bed, to adapt the same to different sizes of index-books, substantially as set forth.

5. The combination, with the cutter and book-holding bed and clamping-bar, of gearing for moving the book-holding bed, an adjustable crank-pin, connecting-rod, lever, and pawl for giving motion to such bed, a holding-pawl, and a connection between the two pawls for throwing them simultaneously out of action to allow the book-holding bed to be run back to the point of beginning, substantially as set forth.

6. The combination, in a machine for cutting index-books, of a cutter, a book-holding bed, a clamping-bar, an adjustable hinge at one end of the clamping-bar, and a pawl and notched stud for holding the other end of the clamping-bar, substantially as set forth.

7. The combination, in a machine for cutting index-books, of a cutter, a book-holding bed having dovetailed ribs, a clamping-bar, blocks upon the dovetailed ribs, and studs and connections to the clamping-bar for adjusting the position and action of said clamping-bar, substantially as set forth.

8. The combination, in a machine for cutting index-books, of a cutter and its standard, mechanism for reciprocating the cutter, a changeable cutting-block received into a recess in the base of the standard, a book-holding bed, supports for the same upon which the bed can be moved endwise, a clamping-bar adapted to hold the book, a supporting-bar and movable rods for the same, connected to the book-holding bed, substantially as set forth.

9. The combination, in a machine for cutting index-books, of a cutter and means for reciprocating the same, a book-holding bed and clamp-bar for receiving and holding the book, gearing for moving the book-holding bed, and an adjustable crank-pin for giving more or less motion to the bed-moving mechanism, whereby the length of cut for each movement of the cutter can be varied according to the size of book that is being cut by adjusting the crank-pin, substantially as set forth.

Signed by me this 25th day of May, 1891.

J. W. MACLACHLAN.

Witnesses:

GEO. T. PINCKNEY,  
WILLIAM G. MOTT.