

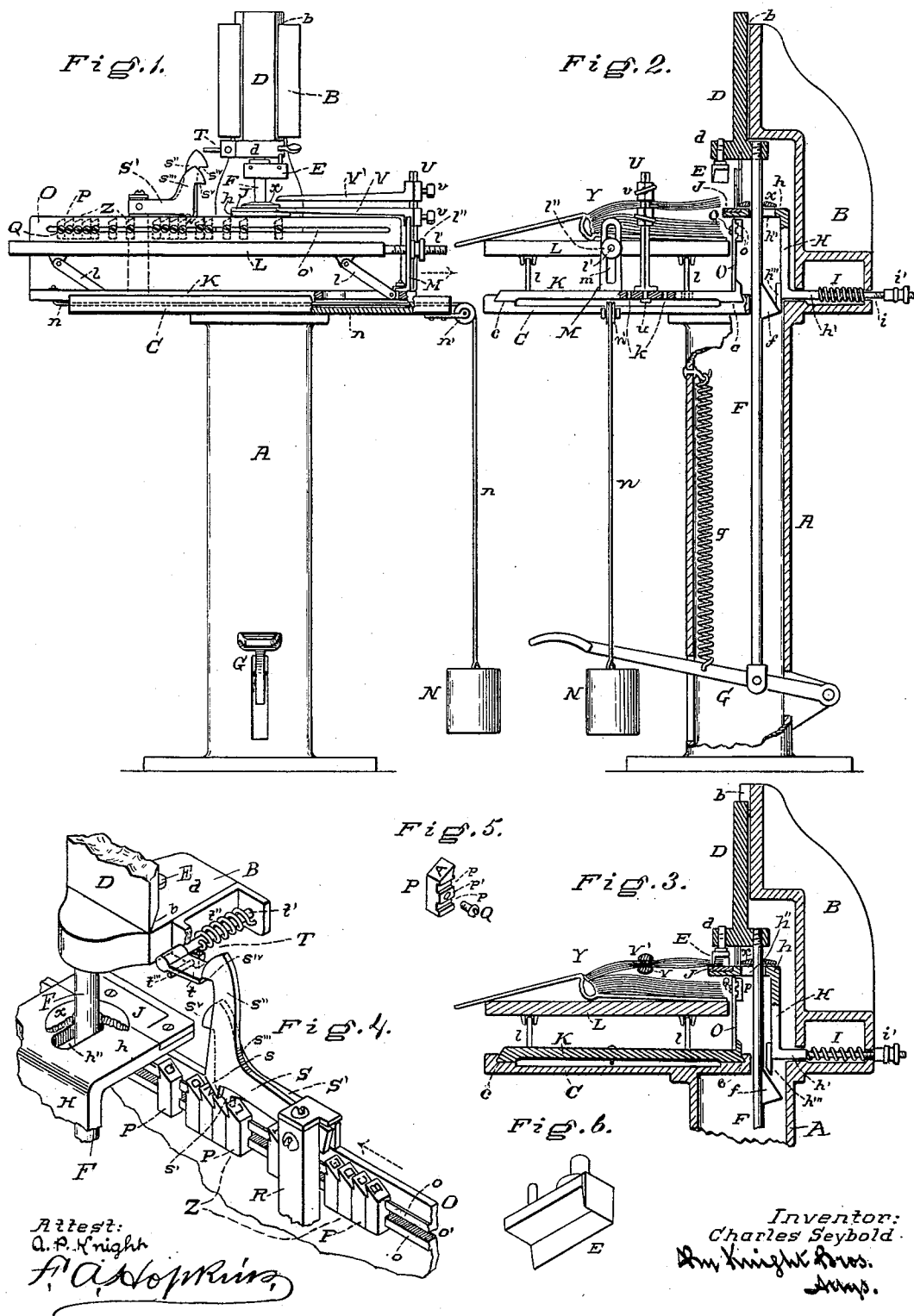
(No Model.)

C. SEYBOLD.

MACHINE FOR CUTTING INDEX STEPS IN BLANK BOOKS.

No. 360,330.

Patented Mar. 29, 1887.



UNITED STATES PATENT OFFICE.

CHARLES SEYBOLD, OF CINCINNATI, OHIO, ASSIGNOR TO SEYBOLD & SCHLUETER, OF SAME PLACE.

MACHINE FOR CUTTING INDEX-STEPS IN BLANK-BOOKS.

SPECIFICATION forming part of Letters Patent No. 360,330, dated March 29, 1887.

Application filed April 5, 1886. Serial No. 197,871. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SEYBOLD, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Machine for Cutting Index-Steps in Blank-Books, &c., of which the following is a specification.

The object of my invention is to provide a machine whereby the index-steps in blank-books may be cut with greater facility, rapidity, and accuracy than by the common method of cutting with hand-nippers. To accomplish this object I employ a machine consisting, essentially, of the following parts, to wit: a book-holding table movable endwise; a propelling device whereby said table is caused to constantly tend to move toward one end; a detaining device for holding said table at certain predetermined points in its path against such tendency to move; means for momentarily releasing the table from such detention; a die-holder capable of being protracted and retracted above said book-table, and a cutter or knife which is brought down upon the die when the latter is protracted.

In my detaining device, co-operating with pawls or catches, is a detent-rack having shiftable teeth to enable variable regulation of the successive endwise movements of the book-table.

In addition to the above general features, my invention includes certain details of construction hereinafter described and claimed.

In the accompanying drawings, Figures 1 and 2 are partially sectioned elevations, respectively, from the front and end of an index-cutting machine embodying my invention, the machine being shown as at rest. Fig. 3 is a vertical section of said machine in the act of cutting, the lower part of the supporting-pillar being broken away. Fig. 4 is a broken perspective view of the devices for detaining and releasing the book-table. Fig. 5 is a perspective view of one of the rack-teeth of said detaining device. Fig. 6 is a representation in perspective of the cutter or knife.

A represents a pillar or column, supporting at its top a standard, B, and a bracket-plate, C.

In a dovetailed vertical groove, *b*, in the standard B runs a slide, D, to whose head *d* is attached the angle cutter or knife *e*, whose

cutting-edge is of the represented L shape. The head *d* is connected by a rod, F, with a treadle G, which is normally held up by a spring, *g*.

H is a sliding standard, having a forwardly-projecting top, *h*, and a rearwardly-extending foot, *h'*. Said foot and a rod, *i*, projecting backward from it, occupy and slide in corresponding orifices in the standard B. The die J is secured to the front portion of the top *h*. Said top has a slot, *h''*, for receiving the rod F, so as to allow of vertical movement of the rod and backward and forward motion of the standard H. A washer or guard, *x*, loosely embraces the rod F and rests on the top *h*, so as to cover the slot *h''* and prevent the paper cuttings or waste from passing down through the same.

A spring, I, pressing against the foot *h'*, tends to throw the standard or die-holder H forward; but when the rod F is elevated said standard is held back by an inclined plane, *f*, on said rod, which bears against a toe or stud, *h'''*, on the standard H. Depression of the treadle G draws the inclined plane *f* down and away from the toe *h'''*, allowing the die-holder H to spring forward, and at the same time draws down the cutter E upon the thus protracted die, as shown in Fig. 3. On release of the treadle the spring *g* returns the parts to their normal positions, the cutter being elevated and the die retracted, as shown in Fig. 2.

The rod projection *i* from the standard-foot *h'* may be screw-threaded to receive a nut, *i'*, which, striking the standard B, limits the protraction of the die-holder to any desired extent.

Running in guides or ways *c* on the bracket-plate C is a table-slide, K, to which are pivoted the lower ends of struts or legs *l*, which may be three or more (preferably four) in number, and are pivoted at their upper ends to a platform, L. A screw-threaded bolt or pin, *l'*, projecting from one end of said platform, passes through a vertical slot, *m*, in an upright, M, rising from the table-slide K, and receives a nut, *l''*, which bears against said upright. By screwing up this nut the platform L is drawn toward the upright M, and is thereby caused to rise on its legs *l*, always re-

maining horizontal. On unscrewing the nut 7" the platform drops by its own weight. This platform constitutes the support for the book, and extends beneath the cutter E. A strap or 5 thong, *n*, is fastened at one end to the table-slide K, and, passing over a sheave, *n'*, carries at its other end a weight, N, which constantly tends to draw the whole book-table K L in the direction of the dotted arrow. A vertical 10 plate, O, rigidly fastened to the table-slide K, at the rear edge thereof, bears up on the die-holding plate *h*, and supports it when the cutter is brought down on it.

On the back of the plate O are one or more 15 horizontal ledges, *o*, along which are placed a number of teeth, P, of which each consists of a small block ratchet-pointed at top and having one or more grooves, *p*, corresponding to and receiving the one or more ledges *o*, and 20 having a tapped orifice, *p'*, in which engages a screw, Q, which is passed from the front through a long horizontal slot, *o'*, in the plate O, and bears by its head against said plate, so as, on being screwed up, to draw and clamp 25 the tooth P against the plate O. These ratchet-teeth all point in the direction in which the book-table tends to move, so as to form a detent-rack, Z. They may be shifted so as to obtain any desired regular or irregular arrangement of their space-intervals, or any number of them may be removed. The top of one of the ledges *o* and that of the corresponding 30 groove, *p*, are preferably dovetailed, so as to retain the teeth to the ledge when the screws Q are withdrawn, and enable them to be slid along the ledge.

Pivoted side by side to a rigid projection, R, from the bracket-plate C, are two pawls or dogs, S S', which engage with the rack-teeth 40 P, so as to detain the book-table K L from moving in the direction in which it is impelled by the weight N, but to freely permit its propulsion in the opposite direction by the operator.

The tooth *s* of the pawl S is a little in advance of the tooth *s'* of the pawl S', so that only one of them is in engagement with the rack Z at any one time. The pawls S and S' have upwardly-extending fingers *s''* and *s'''*, 50 whose hooks or catches *s^{iv}* and *s^v* at each upstroke of the cutter E engage with a tappet, T, carried by the cutter-head *d*. This tappet consists of a wing or leaf, *t*, on a pin, *t'*, pivoted in the cutter-head and actuated by a 55 spring, *t''*, so as to hold said wing *t* against a stop, *t'''*, in position for engaging with the catches *s^{iv}* and *s^v*. When the cutter-head is lowered by depression of treadle G, the spring *t''* allows the tappet-wing *t* to yield and slip 60 down past the catches *s^{iv}* and *s^v*; but on the upstroke of the cutter-head the tappet engages with said catches and lifts and drops the pawls S' and S in succession, the catch *s^v* being enough lower than the catch *s^{iv}* to be released 55 before the latter is caught. When the pawl S' is lifted, the table K L is drawn in the direction of the dotted arrow by the weight N

until the pawl S catches the tooth that has been released from the pawl S'. Then, when the pawl S is lifted, the table again advances 70 until the pawl S' engages with the next tooth.

It will be seen that one or other of the pawls S S' is always in position to engage with the rack, and hence there is no possibility of any rack-tooth being skipped. 75

The top or non-catching faces of the teeth P are inscribed with the letters or other headings or titles which are subsequently to be printed on the index-steps.

To an upright, U, rising from the table-slide 80 K, are fastened, by set-screws *v*, two arms, V V', which extend endwise over the platform L, and of which the lower arm, V, is on a level with the die J. The upright U is secured to the table K by a bolt, *u*, which occupies one or 85 other hole of a row of holes, *k*, in said table, according to the distance desired between the arms V V' and the die J. The operator arranges the rack-teeth P so as to correspond in order of succession and in space-intervals with 90 the index-steps which are to be cut in the blank-book. For ordinary letter-indexing each tooth is marked with a single letter, there being one tooth to each letter of the alphabet. The teeth are arranged in alphabetical order in the direction of the dotted arrow. When there is 95 to be more than one letter on any step, the teeth corresponding to all but the bottom letter of that step are removed. Laying the book on the platform L, as shown at Y, the operator 100 turns the nut 7" so as to bring the top leaves of the book a little below the arm V. He then pushes the table K L in the opposite direction to the dotted arrow until the pawl S' catches on the last tooth, the book being so placed as 105 to then be in proper position with respect to the cutter E for the cutting of the bottom index-step. He then lifts the requisite number of leaves for the index and clamps them between the arms V V', so that their free edges are 110 parallel to the line of motion of the table K L and extend sufficiently beyond the edge of the cutter to give the desired width to the index-steps. Then, holding the free leaf-edges in one hand, he depresses the treadle G, allowing the 115 die J to be thrown forward beneath the index-leaves and bringing the cutter E down, so as to cut the bottom step. He then releases the treadle, and the die is retracted, enabling him to drop as many leaves as belong to the next 120 step, and at the same time the table K L is released, drawn along, and caught in position for said next step. By successively depressing and releasing the treadle and dropping the appropriate number of leaves for each cut, the steps 125 are made in rapid succession and with perfect accuracy. At any time, by observing the title or letter on the step which is caught by the pawl S', the operator can tell what step is going to be cut, and hence how many leaves he 130 must drop. The book, having been thus index-stepped, is removed and replaced by another, the table K L is again pushed back and the operation repeated, and so on for an in-

definite number of books, the teeth P and platform L being set once for all for any particular style of book and index.

It is obvious that not only blank-books, but files or letter-holders, or any other collection of leaves arranged in a stack or pile, can be index-stepped by this machine.

I claim as new and of my invention in an index-cutting machine—

1. The combination of a book-holding table, a cutter reciprocating vertically above said table, and a die alternately protracted into and retracted from its effective position beneath said cutter, the motion of said die alternating with that of said table, substantially as and for the purpose set forth.

2. The combination of slidable die-holder H, treadle-rod F, inclined plane *f* on said rod and bearing against said die-holder, and spring I, pressing said holder toward said inclined plane, substantially as and for the purpose described.

3. The combination of cutter E, cutter-operating treadle-rod F, having inclined plane *f*, slidable die-holder H, engaging with said inclined plane, and spring I, pressing said holder toward said inclined plane, substantially as and for the purpose set forth.

4. The combination, with table K, movable endwise and impelled toward one end, of a detent-rack for said table, whose teeth are shiftable relatively to one another, and pawl mechanism, substantially as described, for engaging with said rack, substantially as and for the purpose set forth.

5. The combination, with the cutter and die actuating rod F and with the table K, slidable and impelled endwise, of the spring-tappet T on a rigid attachment to said rod, pawls S S', having catches *s*^{iv} and *s*^v, adapted for non-simultaneous engagement with said tappet and having non-coincident teeth *s s'*, and rack Z, engaging with said teeth *s s'*, substantially as and for the purpose specified.

6. The combination of plate O, having slot *o'* and one or more ledges, *o*, ratchet-pointed teeth P, each having a tapped hole, *p'*, and one or more grooves, *p*, and screws Q, substantially as and for the purpose explained.

7. The combination, with table K, having a row of orifices, *k*, of the upright U, fastened to said table by a bolt, *u*, occupying one or other of said orifices, and arms V V', fastened to said upright by set-screws *v*, substantially as and for the purposes explained.

8. The combination, with the vertically-reciprocating cutter-rod F and the horizontally-reciprocating die-holder H, having a slot, *h''*, to receive said cutter-rod, of the washer or guard *x*, loosely embracing said rod and resting on said die-holder, substantially as and for the purpose explained.

In testimony of which invention I hereunto set my hand.

CHARLES SEYBOLD.

Attest:

A. P. KNIGHT,
E. M. WILLIAMS.