(Model.)

2 Sheets—Sheet 1.

S. D. CARRIS.

Indexing Machine.

No. 242,751. Patented June 14, 1881.

Fig. 1.

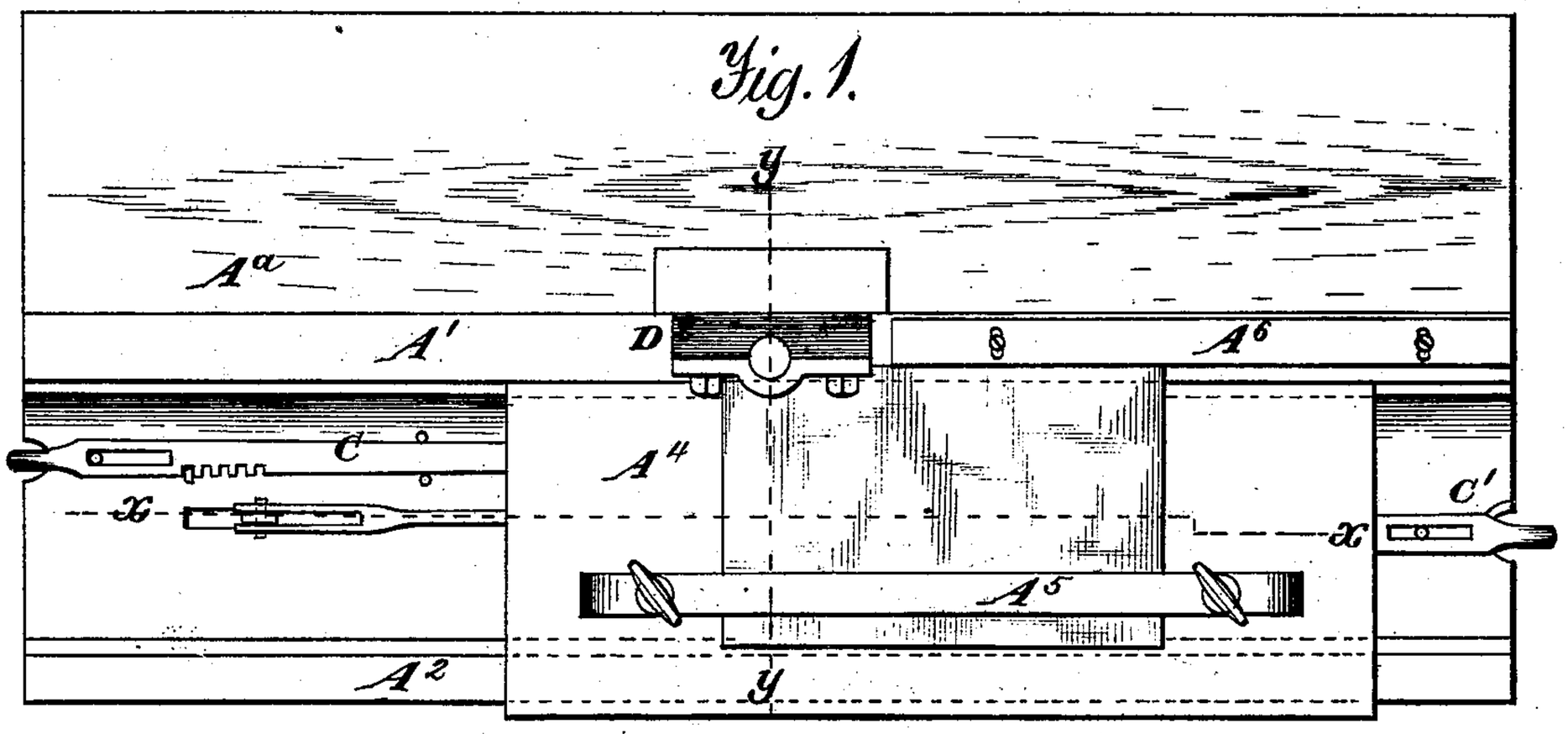
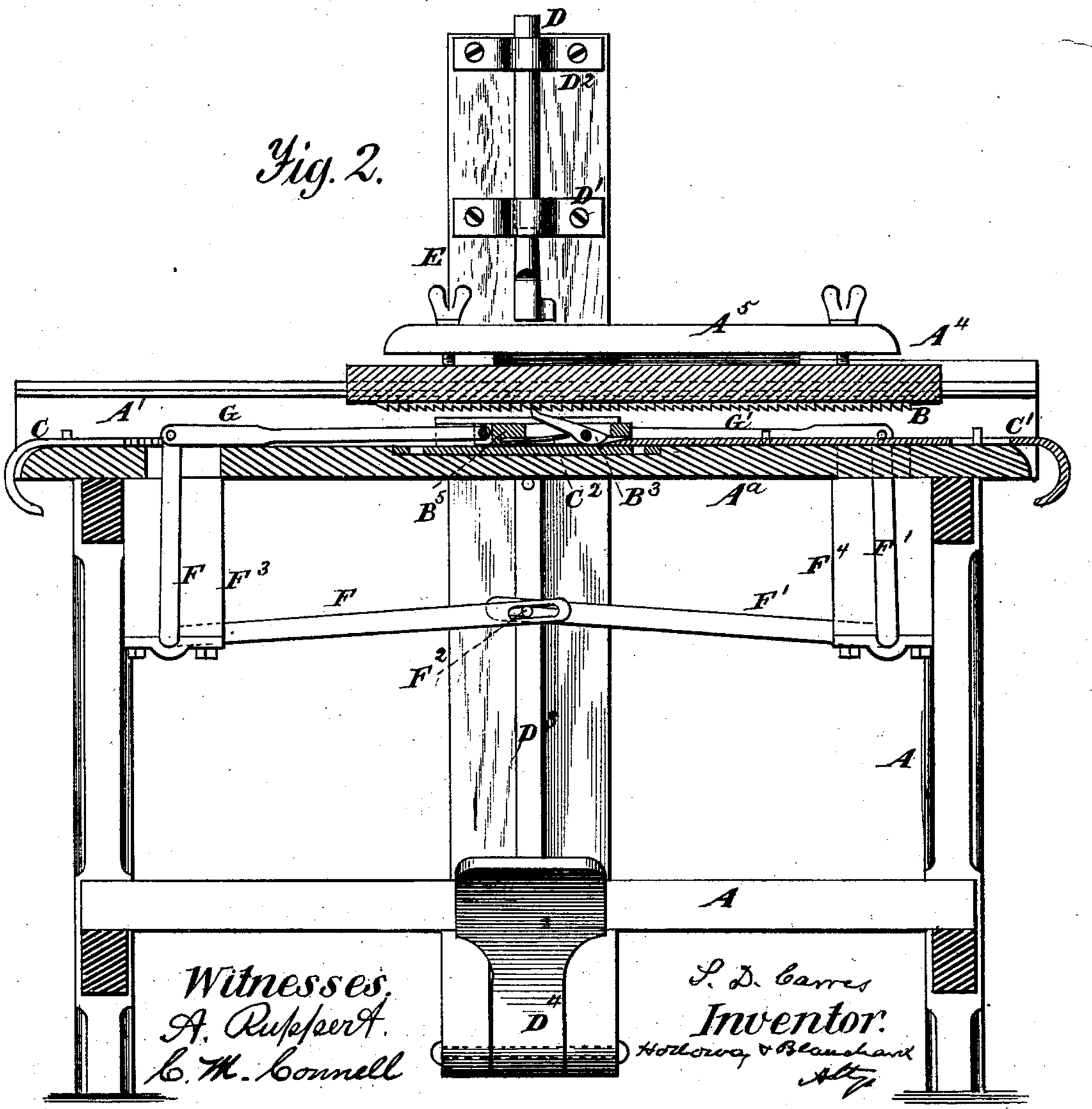


Fig. 2.



(Model.) 2 Sheets—Sheet 2.

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Fig. 3.

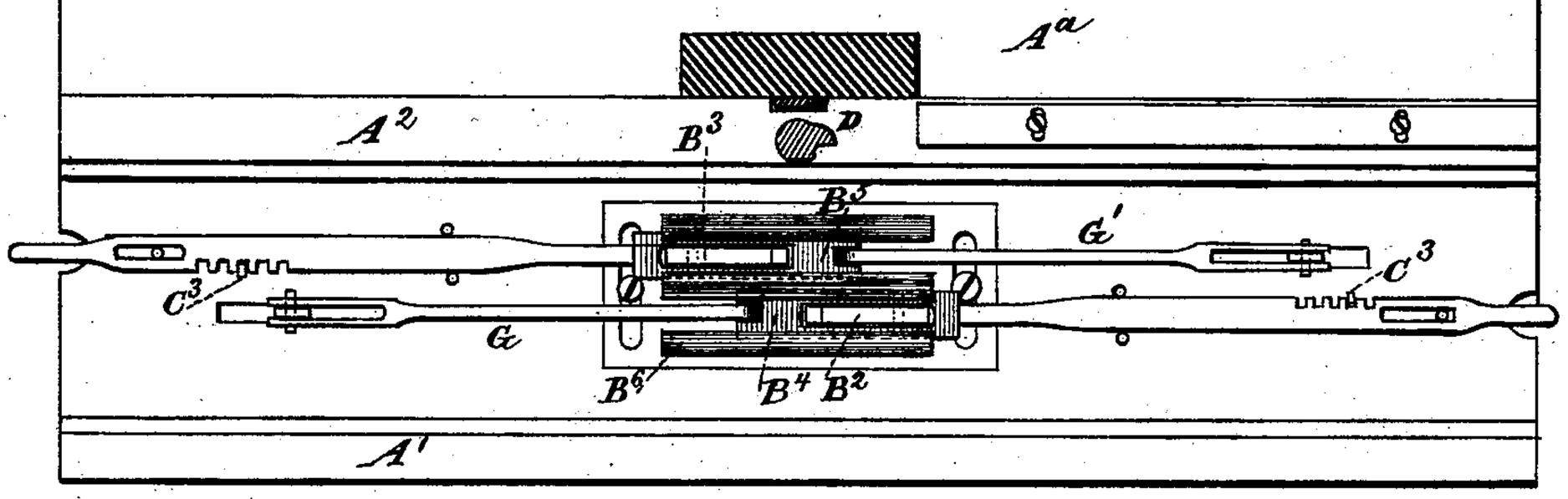
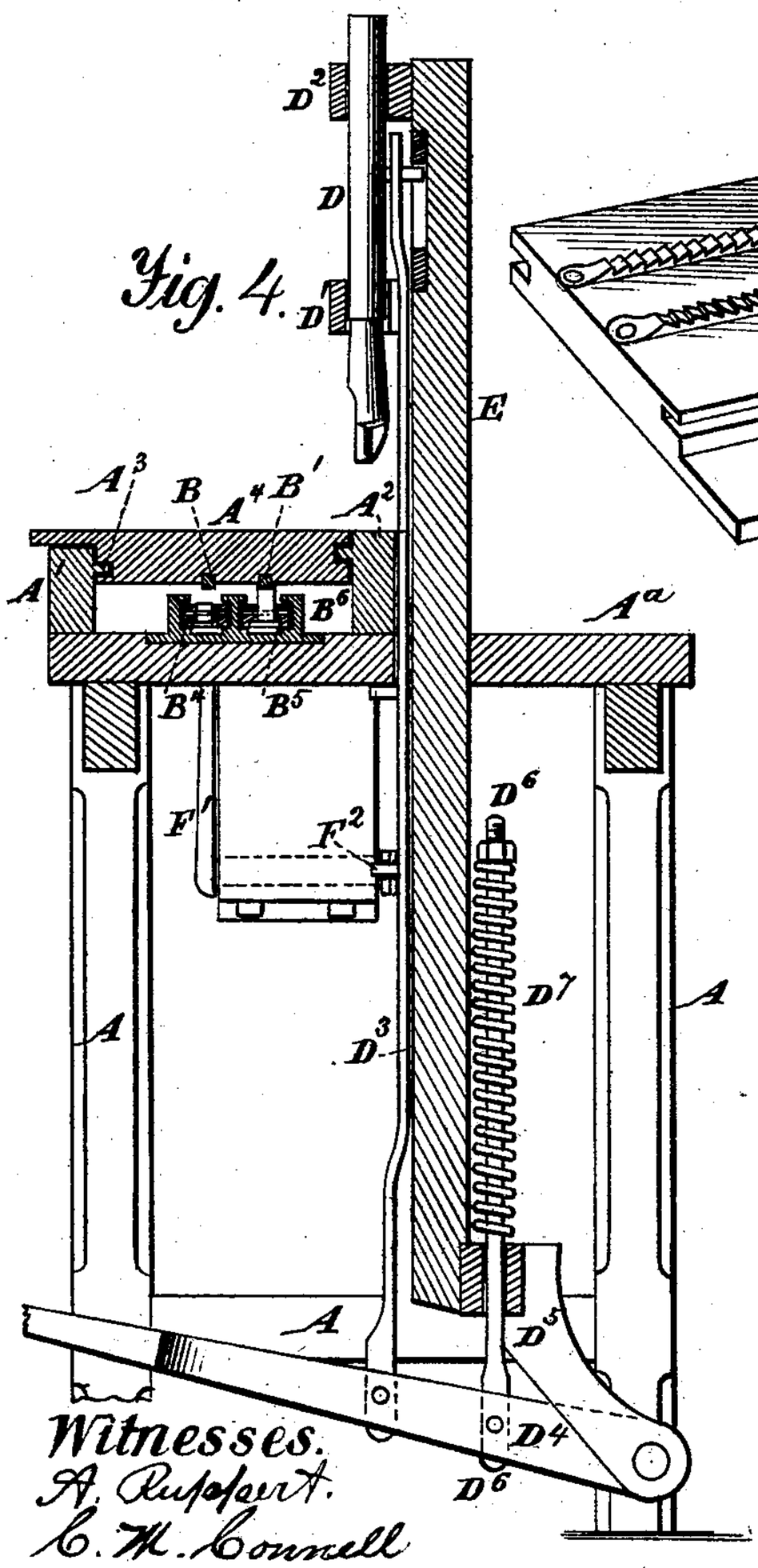


Fig. 4.



Witnesses.
A. Ruppert.
C. M. Connell

Fig. 5.

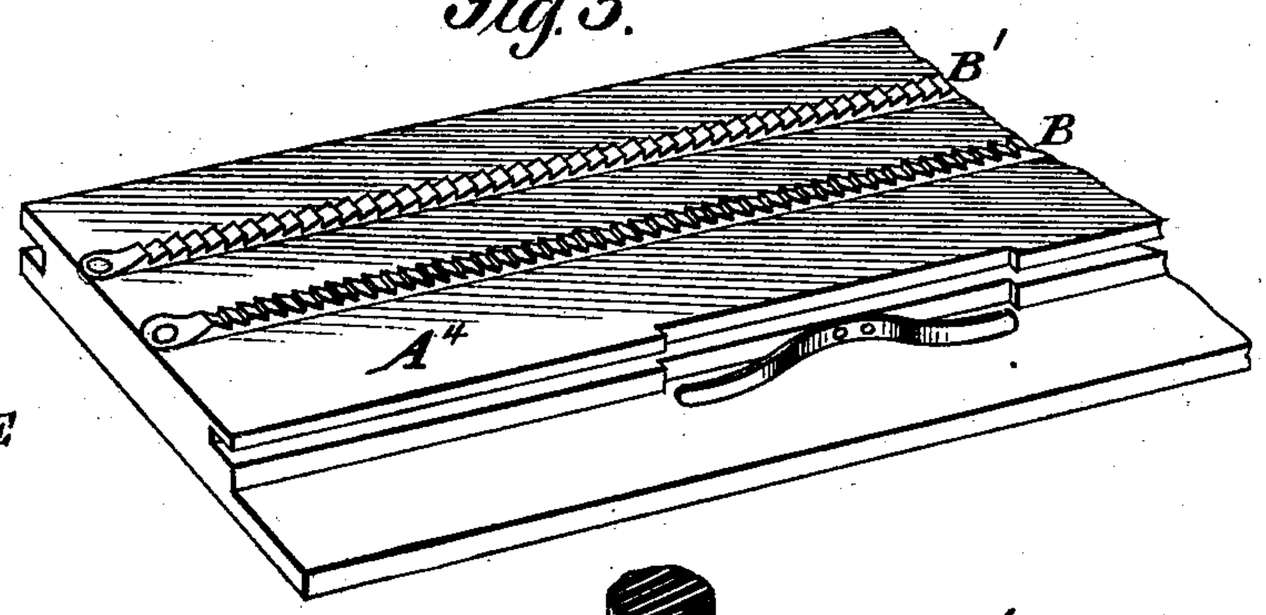


Fig. 6.

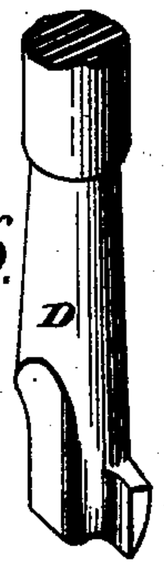
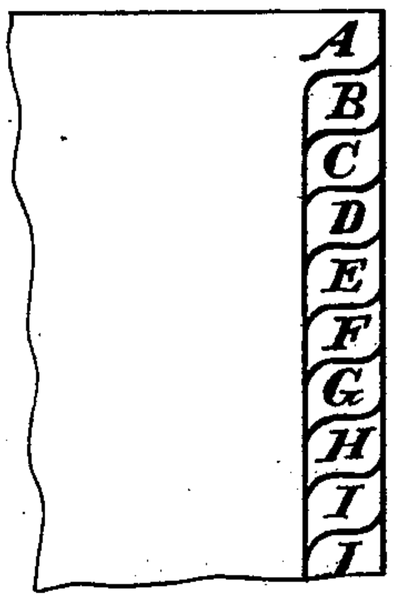


Fig. 7.



L. D. Carris
Inventor
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Attys

UNITED STATES PATENT OFFICE.

SETH D. CARRIS, OF WASHINGTON, IOWA, ASSIGNOR OF ONE-HALF TO WILLIAM R. ADAIR, OF SAME PLACE.

INDEXING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 242,751, dated June 14, 1881.

Application filed February 16, 1881. (Model.)

To all whom it may concern:

Be it known that I, SETH D. CARRIS, a citizen of the United States, residing at Washington, in the county of Washington and State of Iowa, have invented certain new and useful Improvements in Indexing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to indexing-machines which are used for cutting the leaves of books by the use of a vertically-reciprocating knife; and the objects of my improvements are, first, to provide suitable mechanism and combinations thereof for moving the book after the upward stroke of the knife; and, second, to provide novel devices and combinations thereof for the regulation of the movements of the reciprocating bed. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view, showing a stationary table, to which the feeding mechanism is attached, a horizontally-reciprocating bed or table upon which the book is placed, a clamp for holding it in position, an adjustable guide for controlling the position of the book with reference to the knife, the support for the upper end of the knife, and a portion of the feeding mechanism. Fig. 2 is a longitudinal section on line *x x* of Fig. 1, showing the framework of the machine, the knife in position, the reciprocating bed or table, a book in position, the clamp which holds it, the ratchets upon the under side of the bed, one of the pawls which move the same, the sliding bars for regulating the position of the pawls, one of the shuttles which carry the pawls, and the mechanism for operating said shuttles and the knife. Fig. 3 is a plan view, showing the stationary table, the reciprocating bed, the standard which supports the knife, the shuttles in position, the pawls operating therein, the sliding bars for regulating the position of the pawls, and the arms and rods which move the shuttles, and the guide for controlling the position of the book on its bed. Fig. 4 is a transverse section on line *y y* of Fig. 1, showing the frame, the treadle, the rod for moving the knife, a spring for returning it to its position after it has been depressed, the reciprocating bed, and the method of operating the shuttles. Fig. 5 is a perspective view of the reciprocating bed upon which the book rests, the ratchet-bars upon its under surface, and a spring for preventing its lateral movement. Fig. 6 is a perspective view of the knife, showing its peculiar form of cutting-edge; and Fig. 7 is a plan view, showing the form of the cut as made by the knife.

Similar letters refer to similar parts throughout the several views.

In constructing my improved indexing-machine I provide a suitable frame-work, A, for supporting the other parts. Upon the upper surface of this frame there is placed a table, A^a, which is secured thereto, to the upper surface of which are affixed two guides, A′ and A^2, which have upon their inner surfaces projections A^3 A^3, as shown in Fig. 4, said projections entering grooves or recesses formed in the edges of a reciprocating bed or table, A^4, which slides thereon. This bed or table receives the books to be indexed, it being provided with a screw-clamp, A^5, for holding them in position while the leaves are being cut.

To the guide A′ there is attached another guide, A^6, which serves as a gage for regulating the position of the books with reference to the knife, in order that the cut may extend for a greater or less distance into the leaves. The arrangement of this guide is shown in Fig. 1, where it will be seen that owing to slots formed in it, through which screws pass for securing it in position, it can be moved toward or from the book, and thus determine the depth of the cut into the leaves.

Upon the under surface of the reciprocating bed A^4 there are secured two bars of metal, B B′, the lower surfaces of which are provided with ratchet-teeth, with which pawls B^2 and B^3 engage, for the purpose of giving the required movements to said bed or table A^4. These pawls are pivoted to and carried by shuttles B^4 and B^5, which move in grooves formed

in a metal plate, B^6, as shown in Figs. 3 and 4. The arrangement of the pawls B^2 and B^3 is such that their free ends point in opposite directions, in order that a right or left hand movement may be imparted to the bed A^4 as occasion may require, the ratchet-teeth on the bars B and B′ being adapted for the reception of the pawls when thus arranged.

In Fig. 2 of the drawings the pawl B^3 is shown as engaging with the ratchet-bar B, in which case the pawl when operated would move the bed A^4 from right to left; but if this pawl is disengaged and the other one brought into position the same movement of the operating mechanism (soon to be described) would move the bed in the opposite direction.

For the purpose of throwing the pawls B^2 and B^3 out of contact with the ratchet-bars there is placed upon the upper surface of table two sliding bars, C and C′, the inner ends of which are beveled, as shown in Fig. 2, so that as they are forced inward said beveled ends will be forced under the rounded or beveled under surface of the pawls, and those under surfaces thus working on the inner ends of the bars the pawls are thrown out of contact with the ratchet-bars, but when drawn outward will permit a spring, C^2, acting upon the under surface of said pawls to carry their free ends into contact with the ratchet-bars and retain them in that position until again forced out by the inward movement of the sliding bars, they being provided with notches in their edges for engaging pins placed in table A^a, for holding them in their adjusted positions. The arrangement of the last-named parts is such that by adjusting the positions of the sliding bars C C′ the length of the spaces to be cut may be regulated. If it is desired to have the spaces of considerable length the left-hand notch of the right-hand slide is placed over the pin C^3; but if desired to have them very short the last notch or the last but one to the right will be placed on the pin.

For the purpose of cutting the leaves, there is provided a peculiarly-formed knife, D, it having a curved or bent edge, by which means it is made to cut the leaves in the manner shown in Fig. 7, or in any other manner, according to the form given to the edge or edges of the knife. In the example shown the knife consists of two cylindrical portions, one serving as a guide, and the other being cut away, so as to form a cutting-edge; and in addition to these there is formed upon that part on which the cutting-edge is made a projection of substantially the form shown in Fig. 6; but it may be of any other form if it is desirable to have the cut vary from that shown. The knife D is supported in bearings D' D^2 in a vertical position, and has in its rear side a pin or other suitable device for attaching it to a connecting-rod, D^3, the lower end of which is secured to a treadle, D^4, the outer end of which is pivoted to a bracket, D^5, secured to a cross-beam of the frame, its free end being outside of said frame and in a convenient position to be operated by the foot of the attendant.

To the treadle D^4, between its pivotal point and the point where the rod D^3 is connected to it, there is secured a rod, D^6, upon the upper end of which is placed a nut, which, when screwed downward, presses upon and compresses a spring, D^7, the lower end of which rests upon the cross-beam of the frame, the arrangement being such that when the outer end of the treadle is pressed downward the spring D^7 is compressed and at the same time the knife is made to descend and cut the sheets of the book, and when the pressure is removed from said treadle the recoil of the spring carries the knife and the outer end of the treadle up to their original positions.

The knife and the bearings in which it moves are supported by a vertical post or standard, E, placed near the center of the table A^a and supported by it and the cross-beam of the frame above alluded to.

For giving the required movements to the shuttles cranks F F′ are provided, the long arms of which are provided with slots which span a pin, F^2, placed in or secured to the rod D^3, their opposite ends being turned at a right angle, so as to form bearings for their support, as shown in Fig. 4. The last-named portions of these cranks rest in bearings F^3 and F^4 attached to the table A^a, upon one side of which the short arms of the cranks F F′ extend vertically and pass through a slot formed in the table A^a, their upper ends being connected to rods G G′, the inner ends of which are connected to the shuttles, as shown in Fig. 3.

Should it be found desirable at any time to cut the books so as to leave parts of irregular length, upon which the letters are placed, such a result can be accomplished by placing the ratchet-teeth on the bars at such distances from each other as to leave the required space between the cuts, and this may be done by having the spaces between said teeth at one point one inch and at another one-half an inch, or any other desired difference can be made.

If it is desired to move the bed upon which the book is placed to the left, the right-hand slide is drawn out until its innermost notch will inclose the pin, when by operating the treadle the desired movement will be imparted, and when the reverse movement is required the right-hand slide is replaced in its position and the left withdrawn.

In operating this machine, the book is placed in the position shown in Fig. 2 and the clamp A^5 screwed down upon it, the gage A^6 having been previously set so as to regulate the depth of the cut. In placing the book upon the bed care should be taken to so arrange it that its back part or last leaves should be uppermost, the edges of the leaves to the extent that it is desired to cut them being under the knife when the last leaf, which has a letter upon it, is to be raised up by the finger of the operator, who, by pressing with his foot upon the treadle,

will cause the knife to descend and cut away a portion of all of the remaining leaves, when, by removing the pressure from the treadle, the knife will be elevated and the bed moved into the proper position to bring that part of the book which it is desired to still further cut away under the knife. Another leaf is then turned up, as in the first instance, and the knife again made to descend, and the operation repeated until the first leaf of the book is reached and all the parts of the intermediate leaves which it is desirable to remove have been cut away.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, in a machine for indexing books, of the treadle D^4, the rod D^3, the treadle-spring D^7, the cranks F F′, the connecting-rods G G′, the shuttles B^4 and B^5, the pawls B^2 and B^3, springs C^2, and bed or table A^4, the parts being arranged for operation substantially as set forth.

2. The combination, in a machine for indexing books, of the notched sliding bars C C′, the shuttles B^4 and B^5, and the reciprocating bed A^4, the arrangement of parts being substantially as described, whereby the movements of the bed may be regulated, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

SETH D. CARRIS.

Witnesses:

ELMER L. WILSON,

P. P. INK.