No. 612,372. Patented Oct. 11, 1898.

S. N. WEBB.

KNIFE OR TYPE HOLDING BLOCK FOR INDEXING PURPOSES.

(Application filed May 10, 1897.)

(No Model.)

Fig. 3.

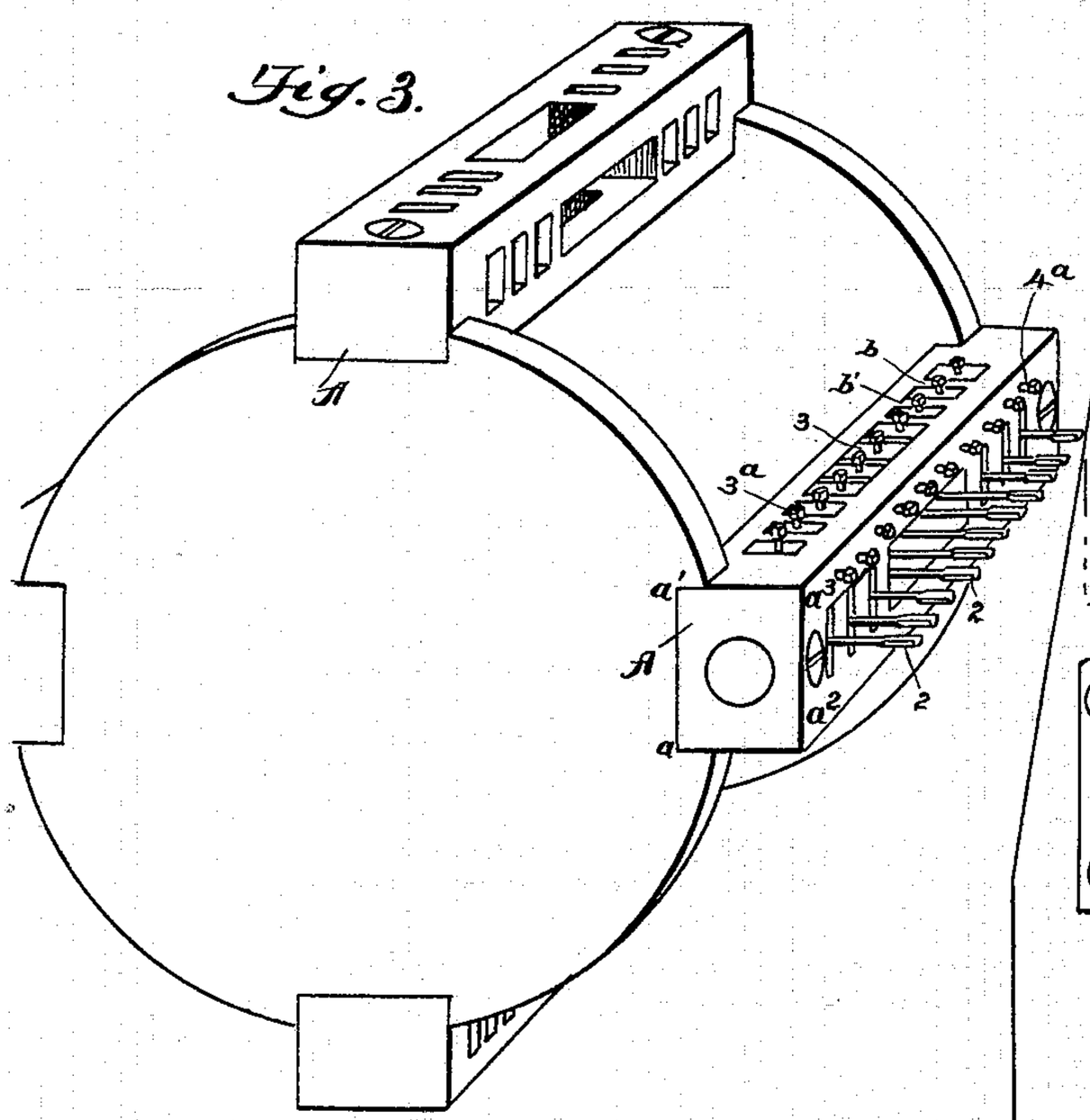


Fig. 4.

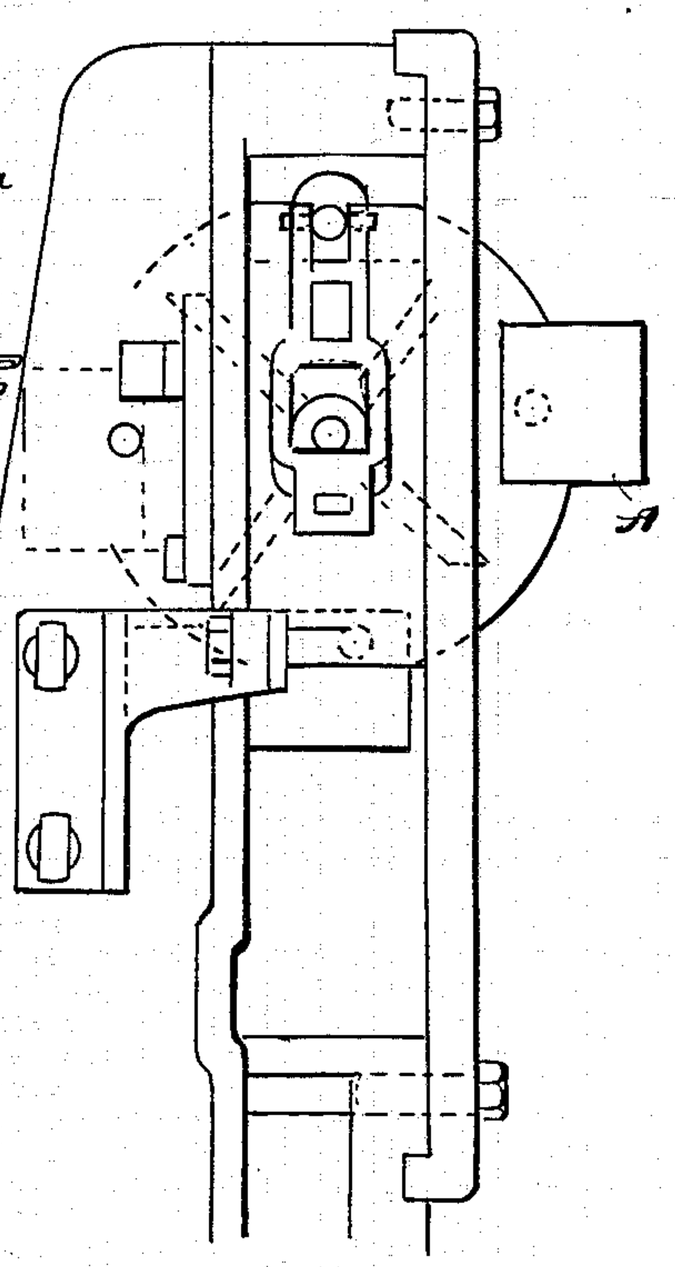
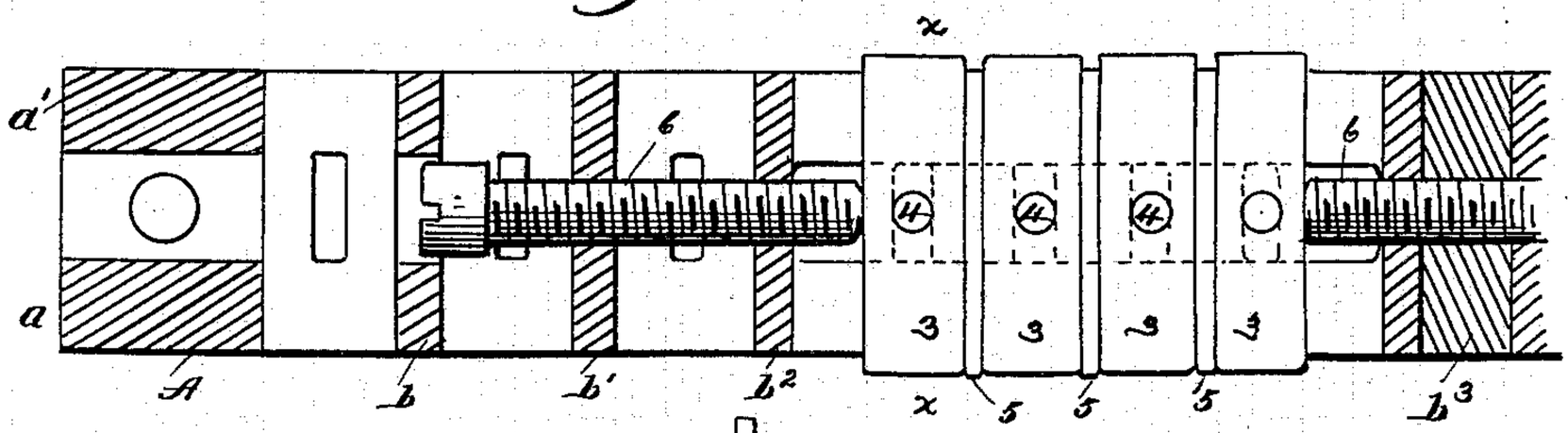


Fig. 1.



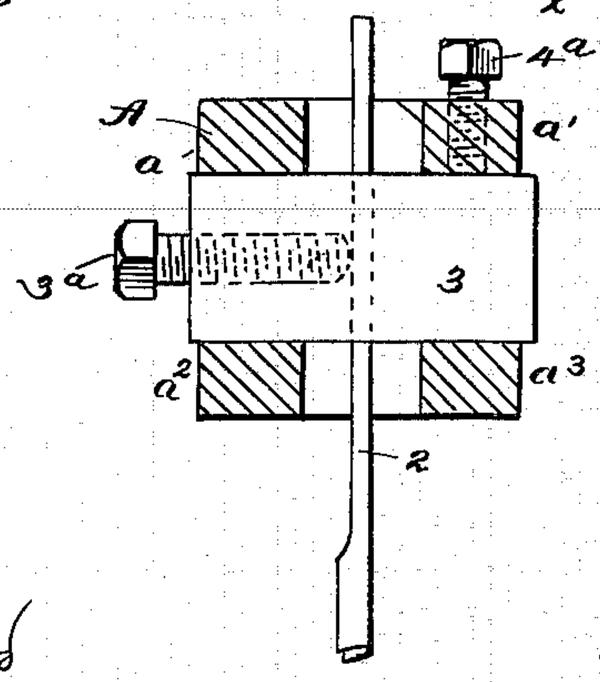


Fig. 2.

WITNESSES

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KNIFE OR TYPE HOLDING BLOCK FOR INDEXING PURPOSES.

SPECIFICATION forming part of Letters Patent No. 612,372, dated October 11, 1898.

Application filed May 10, 1897. Serial No. 635,856. (No model.)

To all whom it may concern:

Be it known that I, SMITH N. WEBB, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Knife or Type Holding Blocks for Indexing Purposes; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to indexing-machines of the class in which the indexing character is printed or otherwise placed on the margin of the leaf of a book, and in order that the indexing character may be seen while the book is closed a portion of the margins of adjacent leaves is cut away to form notches in the edge of the closed book, at the bottom of which notches the indexing character is exposed.

The particular object of this invention is to produce a bar in which are held the cutting-knives or the printing-type, and the bar and its attachments are so arranged that the cutting-knives may be adjusted in any one of three directions—that is, so as to cut to a greater or less depth, as may be desired; so as to be located along the edge of the book from the top of the leaf to the bottom of the leaf, as may be desired, and so as to be adjusted across the book to cut farther back or forward on the properly-arranged front edge of the book.

In using the cutting and printing appliance herein described the book is properly arranged for treatment under the gouges or printing-type. This arrangement consists in clamping it firmly with the front margin or front edge of the book arranged on a slant or diagonally across the plane in which the moving knives travel, and inasmuch as it is desirable to have the notches of about uniform depth it is necessary to so adjust the knives with respect to the book that those of them which cut the notches in the first part of the book shall be set farther back toward the back edge of the book than those which cut the index characters at the latter part of the book. It is also necessary that the intermediate knives be properly adjusted to cut the intermediate notches between the first and last. The knives cannot be set in all cases exactly in line, because the index characters are not dispersed through the book at uniform distances. For instance, the character "A" might fill twenty pages, the character "B" twenty-five, and the character "C" twenty-five. For these characters the adjustment of consecutive gouges would be substantially uniform; but the character "Q" would occupy only a single page, while "R" and "S" following it would occupy perhaps thirty or forty pages. In this case the gouge which is to cut the notch for the character "Q" must be set only slightly forward of the gouge or knife which is to cut the notch for the character "P," while the gouge which is to cut the notch for the character "R" will be set considerably forward of the "Q" gouge, and this same irregularity of adjustment of the consecutive gouges or knives will attend the use of the machine at all times. The adjustments are attained in the bar which holds the bank of gouges or the bank of type, and this bar may be used with any one of several actuating machines or devices. I have therefore confined the illustration mainly to a bar shown independent of the mechanism by which it is actuated, and for purposes of illustration have shown it as connected with a rotary cylinder and have indicated that the cylinder is set in a framework in which it is revolved and reciprocated; but the bar might be readily actuated by other mechanism than that indicated.

In the drawings, Figure 1 is a longitudinal cross-section of the bar, showing some of the central knife-holding blocks in position. Fig. 2 is a cross-section through the block, as at X X of Fig. 1. Fig. 3 shows an empty and a filled block attached to a rotary cylinder. Fig. 4 indicates the position of the rotary cylinder in the frame in which it rotates and reciprocates.

A indicates a bar adapted to hold the movable knife or gouge holding blocks. (The bar which holds the knives and the bar which holds the type are identical in all respects, the only difference between the two being

that knife-terminated tangs are inserted in one block and type-terminated tangs in the other.) The bar A consists of a strong framework of four corner posts or pillars $a\,a'\,a^2\,a^3$, between which is a cruciform opening. At intervals there may be placed connecting-webs $b\,b'\,b^2$ between the bars at those parts of it which are to be used at places where great adjustment along the axis of the bar is not necessary. At parts where considerable adjusting along the axis of the bar is necessary the webs are omitted.

For purposes of clearness I will call that diameter of the bar which is along the axis of the knife the "vertical" diameter, that diameter which is across the diameter of the knife the "cross" diameter, and will speak of the adjustment along the axis of the bar as "longitudinal" adjustment.

The knife-tang 2 (or type-stem) is held in a block 3. The tang is round and engages in a round hole 4, that passes vertically through the block 3. It is adjustable both by rotation on its own axis and vertically through the block and is held in its adjusted position by a set-screw 3^a, that enters the block 3 on the cross-axis of the bar. The block 3 is adjustable across the bar by sliding it to the desired position, and it is held in this adjusted position by a set-screw 4^a, that passes through one of the pillars a' of the bar.

To provide for longitudinal adjustment wedges 5 are interposed between adjacent blocks 3, the wedges being of any thickness desired, and the blocks 3 are held together by set-screws 6, that are driven axially (or longitudinally) into the bar through properly-threaded openings in the web-plates $b'\,b^2$ or through a threaded block b^3. These three means of adjustment enable me to set the knives entirely independently, both as to depth of cut and as to the axial position they will occupy and the cross position they will occupy, and enables me to adjust them to cut properly any character of book.

What I claim is—

1. A knife-holding bar for indexing-machines combined with a series of knives and adjusting means to set them diagonally across the longitudinal axis of said bar, substantially as described.

2. In combination with a knife-holding bar, a series of knives with adjusting means to set said knives diagonally across the longitudinal axis of the bar and having their lower or cutting edges arranged to cut to different depths, substantially as described.

3. In combination with a bar provided with a cruciform central opening, knife-holding blocks adapted to slide in said openings on the cross-axis of the bar and means for adjusting said blocks longitudinally of the bar, substantially as described.

4. In combination with the holding-bar, a series of knives, and means for adjusting the knives independently of each other transversely of the longitudinal axis of the bar whereby said knives may be set to stand as a series diagonally of the longitudinal axis of the bar, substantially as described.

5. In combination, the holding-bar, and a series of knives adjustable therein longitudinally of the bar and transversely of the axis thereof, substantially as described.

6. In combination, the holding-bar and a series of knives carried thereby, each knife being adjustable independently and along the longitudinal axis of the bar or across the same.

7. In combination, the bar and a series of knives each adjustable along the longitudinal axis thereof, across the same and vertically to cut to different depths.

8. In combination with a holding-bar, a knife-holding block, means for adjusting said block along the longitudinal axis of the bar, means for adjusting the block across the longitudinal axis of said bar and means for adjusting the knife vertically through the block, substantially as described.

9. In combination with a bar provided with a cruciform central opening, knife-holding blocks adapted to slide in said opening, and spacing-wedges arranged to regulate the distance between contiguous blocks, substantially as described.

10. In combination with a bar provided with a cruciform central opening, a series of knife-holding blocks adapted to slide in said opening in two directions, spacing-wedges and means for holding the blocks and spacing-wedges in the opening in the bar, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

SMITH N. WEBB.

Witnesses:
A. O. CROZIER,
HENRY L. ADZIT.