March 14, 1933. G. BAKER 1,901,137

BOOK SECTIONER

Filed Aug. 26, 1931 2 Sheets-Sheet 1

Fig. 2

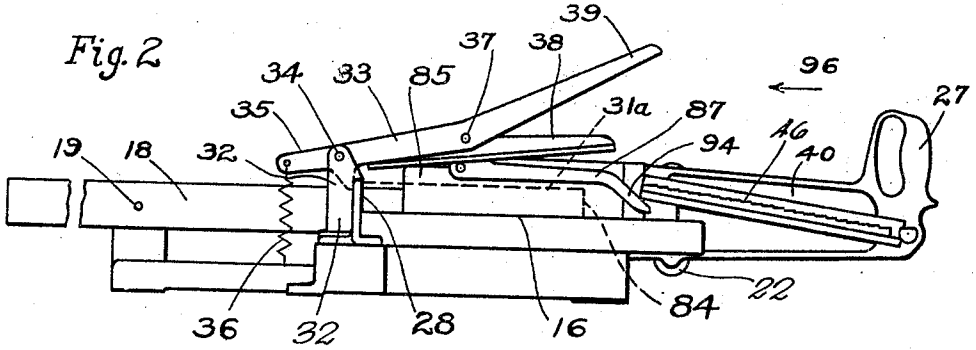


Fig. 1

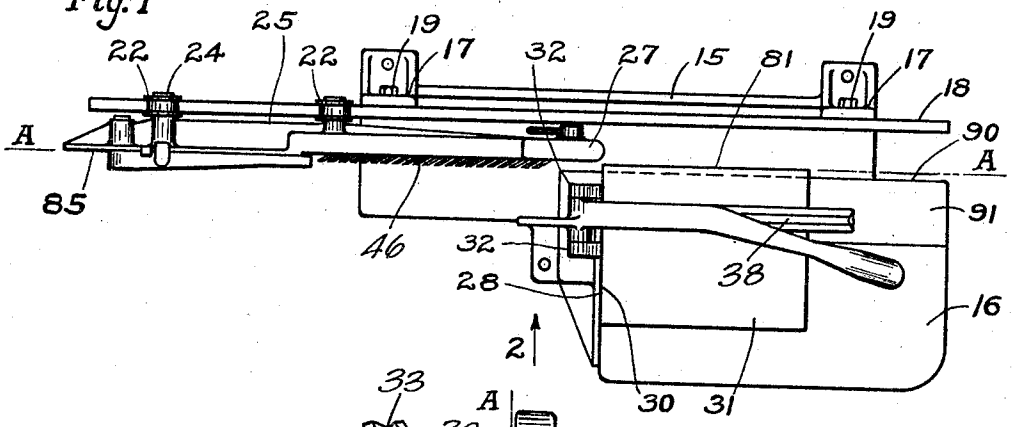


Fig. 3

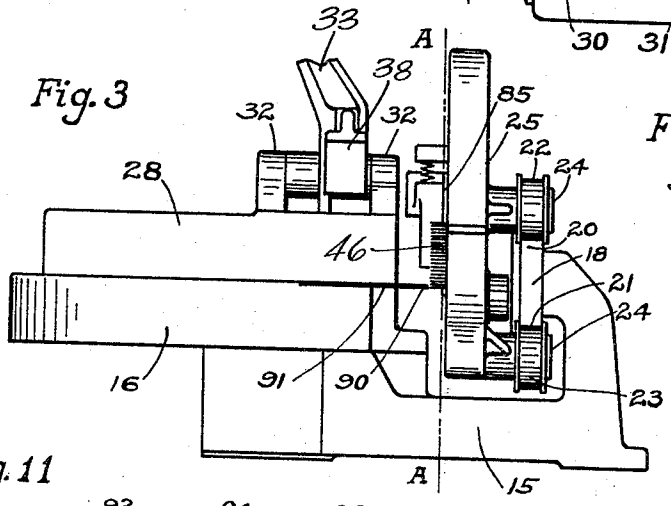


Fig. 12

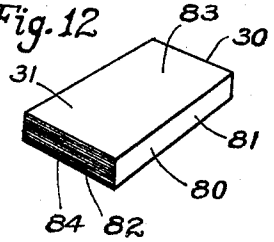
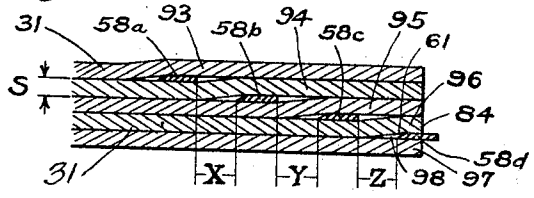


Fig. 11



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BOOK SECTIONER

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Fig. 4

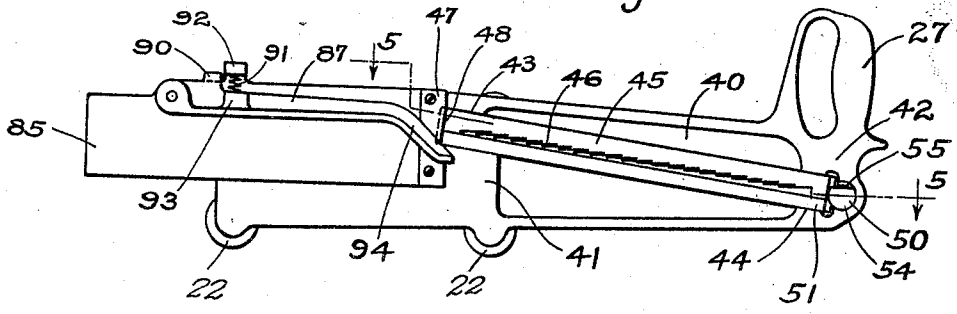


Fig. 5

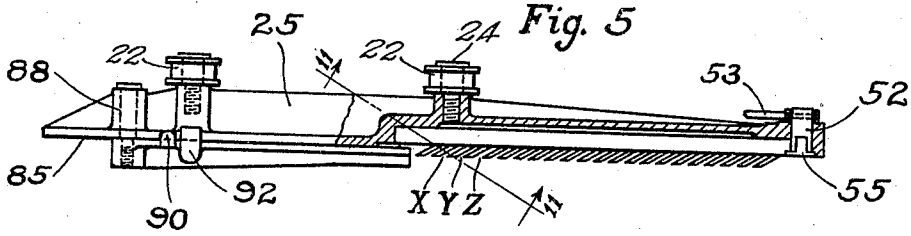


Fig. 6

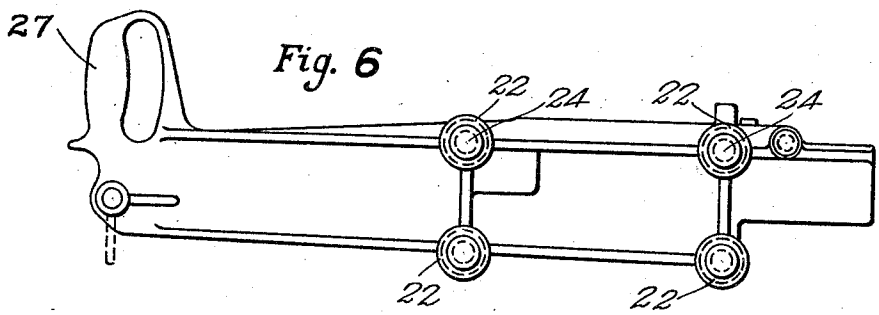


Fig. 7

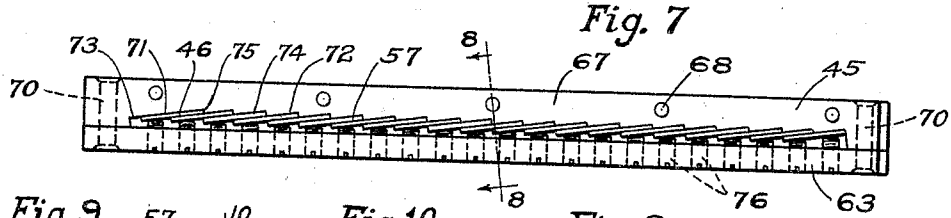


Fig. 9

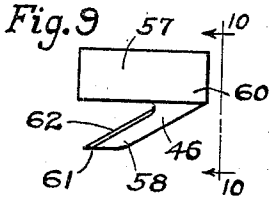


Fig. 10

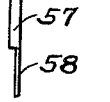
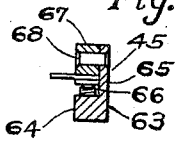


Fig. 8



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ATTORNEYS.

Patented Mar. 14, 1933 1,901,137

UNITED STATES PATENT OFFICE

GEORGE BAKER, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO OVERSEWING MACHINE COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA

BOOK SECTIONER

Application filed August 26, 1931. Serial No. 559,522.

My invention relates to means for dividing tablets of paper into approximately predetermined smaller tablets.

In the process of rebinding books, it is common practice to cut off the folded and sewed backs of the books, thus converting each into a collection of separate leaves. For convenience, each such collection of leaves is at once glued on one edge into an even tablet; then, preparatory to resewing the book, such tablet is divided into a collection of approximately uniform tablets of appropriate thickness for their secure sewing into book form.

My invention provides means for dividing a whole book into sections at one operation, thus greatly increasing speed of production and at the same time assuring greater than usual approximation of uniformity in thickness of sections. Any particular section thickness can be provided in my machine by the use of the proper dividing bar. In short, my invention provides for predetermining section thickness, insures approximately uniformity of section thickness, and attains great speed of production.

A preferred form of my invention consists of a table with a head-stop upon which to lay and align the book-tablet; a yielding edge as a part of said table, upon which yielding edge the glued-up side of the book-tablet must be placed; a clamp to press upon and hold the book-tablet when desired (though such strong holding is not generally necessary); a carriage mounted to be pushed past and close to the glued-up edge of the book-tablet by means of a hand grip on such carriage; and a series of splitting knives carried upon the carriage and so disposed that they enter the book-tablet one after another and are pushed through the glued-up edge of the book-tablet as the carriage is pushed past the same, thus converting the book-tablet into sections. Manifestly the introduction of a series of knife blades into the glued-up tablet tends to expand that tablet an amount equal to the aggregate added thickness of all the knife blades, and provision must therefore be made to care for such expansion or the tablet will stick fast between the blades when an attempt is made to force the blade-carrying carriage past the book-tablet.

Downward expansion of the book-tablet is permitted by the yielding edge of the book table heretofore mentioned, and upward expansion of the book-tablet is accommodated by spacing the splitting blades appropriately one in advance of another and by introducing them into the book-tablet in such sequence. I have experimented with introducing the series of splitting knives into the bottom portion of the book-tablet first, but I prefer to begin splitting at the top of the book-tablet. as shown herein.

Further objects and advantages of the invention will be made evident throughout the following part of the specification.

Referring to the drawings, which are for illustrative purposes only,

Fig. 1 is a plan view of a preferred embodiment of my invention, showing the movable carriage thereof in advanced position.

Fig. 2 is an elevational view looking toward Fig. 1 as indicated by the arrow 2 of Fig. 1, this view showing the movable carriage in retracted position.

Fig. 3 is an enlarged elevational view viewing Fig. 1 from the right thereof.

Fig. 4 is an enlarged face view of the carriage.

Fig. 5 is a plan view corresponding to Fig. 4, partly sectioned as indicated by the line 5—5 of Fig. 4.

Fig. 6 is a rear view of the carriage.

Fig. 7 is an enlarged front elevational view of the removable knife-carrier of the invention.

Fig. 8 is a cross section on the line 8—8 of Fig. 7.

Fig. 9 is a face view of one of the dividing knives forming part of the invention.

Fig. 10 is an end view of the knife shown in Fig. 9, this view being taken from the line 10—10 of Fig. 9.

Fig. 11 is an enlarged sectional view on the diagonal plane indicated by the line 11—11 of Fig. 5.

Fig. 12 is a perspective elevation of a book-tablet which is to be divided.

As best shown in Figs. 1, 2, and 3 of the

drawings, the preferred embodiment of my invention includes a base 15 on which a supporting member or supporting plate 16 is mounted, and a pair of brackets 17 extending upwardly adjacent the rightward edge of the supporting member 16 and having a track member or bar 18 secured thereto by means of screws 19, the upper and lower edges 20 and 21 projecting upwardly and downwardly, as clearly shown in Fig. 3, so as to be engaged by flanged rollers 22 and 23 which are mounted on horizontal bearings 24 projecting rightwardly from a carriage 25 which is provided with a handle or grip 27 whereby it may be moved by an operator between the rearward and forward positions respectively shown in Figs. 2 and 1. Extending upwardly at the rearward end of the supporting member 16 is a vertical wall or stop 28 against which the rear end 30 of a book-tablet 31 may abut when it is placed on the support 16, as shown in Fig. 1. On the back of the vertical wall 28 are posts 32 between the upper ends of which a holding lever 33 is hinged by means of a horizontal pin 34. The lever 33 has a rearward extension 35 to which a tension spring 36 is connected for normally holding the lever 33 in raised position, as shown in Fig. 2. A pin 37 hinges a pressure foot 38 to the lever 33, this pressure foot 38 having a flat horizontal face adapted to engage the top face of the book-tablet 31 so that by downward pressure on the handle 39 of the lever 33, the book-tablet 31 may be firmly held in place on the supporting member 16. In the forward end of the carriage 25 is a recess 40, and in the end walls 41 and 42 are notches 43 and 44 adapted to receive the ends of a dividing member carrier bar 45 which has a plurality of dividing members or blades 46 projecting therefrom in a direction toward the supporting member 16 and above the supporting surface of the supporting member 16. Over the extremity of the notch 43 a plate 47 is secured so as to form in the end of the notch 43 a pocket adapted to receive the end 48 of the bar 45. In the end of the notch 44 is a securing means 50 for engaging the end 51 of the bar 45. This securing means 50 consists of a pin 52 which extends horizontally through the wall of the carriage 25, as shown in Fig. 5, and has a lever 53 on its projecting end whereby it may be rotated so as to bring a flange 54 on the head of the pin 52 into a position overlying the end 51 of the bar 45, as shown in Fig. 4. A portion of the head of the pin 52 is cut away, as indicated at 55, to permit removal of the end 51 of the bar 45 from the notch 44.

The dividing members 46, as shown in Figs. 9 and 10, each include a rectangular base 57 and a relatively thin blade 58 projecting diagonally outwardly and forwardly from the rearward end 60 of the base 57. The forward end of the blade 58 is formed to a point 61 from which a thinned or beveled edge 62 extends diagonally inwardly and rearwardly. The base 57 is thicker than the blade 58 and may be integrally formed with the blade 58 or by use of several thicknesses of metal of rectangular form secured to the inner part of the blade 58.

As best shown in Figs. 7 and 8, the bar 45 includes a metal strip 63, the lower part 64 of which is of substantially square cross section, and from the rearward portion of the lower part 64 of the strip 63 a longitudinal web or plate 65 upwardly extends so that the strip 63 is provided with a longitudinal groove 66 in which a bar 67 is secured by means of rivets 68 which extend laterally and rivets 70 which extend vertically. The bar 67, being originally formed separate from the strip 63, may readily have a primary notch 71 and a series of following notches 72 formed in the lower edge thereof. The primary notch 71 has a face 73 which is diagonally disposed relative to the longitudinal axis of the bar 45 and which is slightly greater in length than the base 57 of the dividing knife 46 which rests therein. The following notches 72 each have a lower face 74 substantially half the length of the base 57 of a dividing member 46 so that the forward portion of each successive base 57 overlaps the rearward portion of a preceding base 57. The height of the end wall 75 of each following notch 72 is the same as the thickness of the knife base 57 which fits therein so that the rear ends of the bases 57 fill the notches 72. Set screws 76 are threaded through the lower portion 64 of the strip 63 in positions to engage the forward ends of the knife bases 57, as shown in Fig. 7, and in view of the fact that the bases 57 overlap, each base 57 will be subject to the pressure of a pair of set screws 76 and will thereby be held securely in position.

As shown in Fig. 4, the bar 45 is secured to the carriage 25 in such downwardly and rearwardly sloping position that the dividing members 46 are held horizontal and are spaced apart vertically or transverse to the direction of movement of the carriage on the track member 18. The vertical spacing of the members 46 determines the thickness of the sections into which a book-tablet is divided. By use of bars 45 having a greater or lesser number of members 46 therein spaced throughout the length of the bars 45, the thickness of these divisions may be varied in accordance with the requirements of subsequent operations in rebinding the book-tablet.

Fig. 12 is a perspective view of the book-tablet 31 which consists of a plurality of printed sheets secured together by a layer of glue 80 applied to the back 81 of the book-tablet 31. This layer of glue 80 holds the sheets together in the form of a single tablet

which, in order to be properly sewed together in the subsequent rebinding operations, must be divided into a number of smaller tablets of proper thickness. For the purpose of describing the operation of the machine, the book-tablet 31 may be considered as having a rear end 30 and a front end 82, a top 83 and a bottom 84. To divide the book-tablet 31, the carriage 25 is withdrawn to rearward or retracted position, as shown in Fig. 2, and the book-tablet 31 is placed in the position indicated by dotted lines 31*a* on the supporting member 16 with its bottom 84 resting on the top face of the supporting member 16, with its back 81 resting against a vertical face plate 85 at the forward end of the carriage 25, and with its rear end 30 against the stop wall 28. When in this position, the back 81 of the book-tablet extends under a holding lever 87 which is pivoted, as best shown in Figs. 4 and 5, on a horizontal pin 88 rotatably held in the rearward part of the carriage 25. The downward swinging movement of the lever 87 is limited by a stop lug 90 which extends over the top of the plate 85, and the lever 87 is pressed downwardly by a spring 91 which extends between a projecting lug 92 of the carriage 25 and a boss 93 formed on the lever 87. The forward end 94 of the lever 87 is bent downwardly, and as the carriage is moved from the position in which it is shown in Fig. 2 in the directon of the arrow 96, the downwardly sloping end 94 of the lever 87 will ride up over the front end 84 of the book-tablet 31 adjacent the back 81, thus yieldably holding down the back portion of the book-tablet during the dividing operation.

As the carriage 25 is moved through its operating stroke, the blades 58 of the dividing members 46 consecutively engage the back portion of the book-tablet 31 and pass horizontally therethrough, splitting or cutting through the layer of glue 80 and dividing the book-tablet 31 into a number of small tablets. In Fig. 11 I show a portion of the book-tablet 31 and a number of the splitting or dividing blades 58 therein, those indicated at 58*a*, 58*b*, and 58*c* being within the book-tablet 31, and the blade indicated at 58*d* being shown as it enters the front end 84 of the book-tablet 31. In Fig. 11 the blades 58*a*, 58*b*, 58*c*, and 58*d* are shown sectioned on the plane 11—11 of Fig. 5, so as to clearly show spaces X, Y, and Z between the consecutive blades 58, these spaces being also shown in Fig. 5.

When the book-tablet 31 is properly placed on the supporting member 16, the back 81 thereof resides in and defines a vertical plane A—A of Figs. 1 and 3. This plane, which may for convenience be called the plane of operation of the device, is perpendicular to the top of the supporting member 16 and to the planes in which the leaves of the book-tablet 31 lie, and is likewise parallel to the edge 90 of the supporting member 16 which is formed by a thin metal plate 91 which forms part of the supporting member 16 and projects toward the carriage 25. The plate 91 is formed of spring metal, such as bronze, and will spring downwardly as the back 81 of the book-tablet 31 is expanded by the dividing operation. As shown in Fig. 11, the blades 58*a*, 58*b*, and 58*c* have partly separated from the book-tablet 31 small tablets 93, 94, and 95, and the point 61 of the blade 58*d* is shown as having just entered between leaves at the front end 84 of the book-tablet 31 so as to start the separation of a small tablet 96 from the remaining and lower portion 97 of the book-tablet 31. The vertical spaces S between the horizontal planes in which the blades 58*a*, 58*b*, 58*c*, and 58*d* lie, correspond to the thickness of the respective small tablets 93, 94, 95, and 96. It will be perceived that if the dividing blades were placed side by side in vertical direction, the spaces between the consecutive upper and lower faces thereof would be less than the dimension S and that the small tablets would bind between the blades.

In my invention the blades are spaced apart longitudinally as indicated by the dimensions X, Y, and Z so that the small tablets, as they are separated from the main body of the book-tablet 31, may curve upwardly over the tops of the blades without restriction or binding, as indicated at 98 in Fig. 11. This is an important feature of my invention as it makes possible a free passage of the blades through the back portion of the book, severing the layer of glue 80 and dividing the book-tablet into small tablets or sections, as previously described. The time required for dividing a tablet, such as the book-tablet 31, into smaller tablets includes only that time required to place the tablet on the supporting member 16, to move the carriage 25 from its position of Fig. 2 to its position of Fig. 1, and to remove the divided tablet from the supporting member 16. I find that my invention, with one operator, will replace from three to four operators dividing a book-tablet with the standard form of hand-dividing tool.

Although I have herein shown and described my invention in simple and practical form, it is recognized that certain parts or elements thereof are representative of other parts, elements, or mechanisms which may be used in substantially the same manner to accomplish substantially the same results; therefore, it is to be understood that the invention is not to be limited to the details disclosed herein but is to be accorded the full scope of the following claims.

I claim as my invention:

1. A book tablet divider for separating into smaller tablets a tablet consisting of

sheets having their edges secured together by a back, including: a support for holding a tablet with its back in a position for being divided; a plurality of dividing members in spaced relation transversely of said back; and means for supporting said dividing members and moving said dividing members first between the leaves of the tablet and then through the back of the tablet on said support.

2. A book tablet divider for separating into smaller tablets a tablet consisting of sheets having their edges secured together by a back, including: a support for holding a tablet with its back in a working plane and in a position for being divided; a plurality of dividing members disposed in spaced relation transversely of said back and in said working plane in a position to be moved through said working plane in a direction parallel to the leaves of said tablet; and means for supporting said dividing members and moving said dividing members between the leaves of the tablet and through the back of the tablet on said support.

3. A book tablet divider of the character described, including: a support for holding a tablet with its back in a position for being divided; a plurality of dividing members disposed in spaced relation transversely of said back and in a position to be moved in a direction parallel to the leaves of said tablet, said dividing members being offset one to the other in said direction parallel to said leaves of said tablet; and means for supporting said dividing members and moving said dividing members between the leaves of the tablet and through the back of the tablet on said support.

4. A book tablet divider of the character described, including: a support for holding a tablet with its back in a working plane and in a position for being divided; a plurality of dividing members disposed in spaced relation transversely of said back and in said working plane in a position to be moved through said working plane in a direction parallel to the leaves of said tablet, said dividing members having intermediate portions adapted to part said back of said tablet and having forwardly projecting points adapted to engage an end of said tablet adjacent the back thereof and enter between sections of said tablet gauged by the spacing of said dividing members in a direction transverse to the leaves of said tablet; and means for supporting said dividing members and moving said dividing members between the leaves of the tablet and through the back of the tablet on said support.

5. A book tablet divider of the character described, including: a support for holding a tablet with its back in a working plane and in a position for being divided; a plurality of dividing members disposed in spaced relation transversely of said back and in said working plane in a position to be moved through said working plane in a direction parallel to the leaves of said tablet, said dividing members having intermediate portions adapted to part said back of said tablet and having forwardly projecting points adapted to engage an end of said tablet adjacent the back thereof and enter between sections of said tablet gauged by the spacing of said dividing members in a direction transverse to the leaves of said tablet, and said dividing members being offset one to the other in said direction parallel to said leaves of said tablet; and means for supporting said dividing members and moving said dividing members between the leaves of the tablet and through the back of the tablet on said support.

6. A book tablet divider of the character described, including: a support for holding a tablet with its back in a working plane and in a position for being divided; a plurality of dividing members in spaced relation transversely of said back and disposed in said working plane in a position to be moved through said working plane in a direction parallel to the leaves of said tablet, said dividing members being spaced apart in said direction parallel to the leaves of said tablet; and means for supporting said dividing members and moving said dividing members between the leaves of the tablet and through the back of the tablet on said support.

7. A book tablet divider of the character described, including: a support for holding a tablet with its back in a working plane and in a position for being divided; a plurality of dividing members disposed in spaced relation transversely of said back and in said working plane in a position to be moved through said working plane in a direction parallel to the leaves of said tablet, said dividing members being spaced apart in a direction transverse to the leaves of said tablet, and in said direction parallel to the leaves of said tablet; and means for supporting said dividing members and moving said dividing members between the leaves of the tablet and through the back of the tablet on said support.

8. A book tablet divider of the character described, including: a support for holding a tablet with its back in a working plane and in a position for being divided; a plurality of dividing members disposed in spaced relation transversely of said back and in said working plane in a position to be moved through said working plane in a direction parallel to the leaves of said tablet, said dividing members being spaced apart in a direction transverse to the leaves of said tablet and in said direction parallel to the leaves of said tablet, and said dividing members having intermediate portions adapted to part

said back of said tablet and being forwardly pitched to provide forwardly projecting points adapted to engage an end of said tablet adjacent the back thereof and enter between sections of said tablet gauged by the spacing of said dividing members in a direction transverse to the leaves of said tablet; and means for supporting said dividing members and moving said dividing members between the leaves of the tablet and through the back of the tablet on said support.

9. A book tablet divider of the character described, including: a support for holding a tablet with its back in a position for being divided, said support including means for yieldably supporting said tablet along the back thereof; a plurality of dividing members disposed in spaced relation transversely of said back and in a position to be moved in a direction parallel to the leaves of said tablet; and means for supporting said dividing members and moving said dividing members between the leaves of the tablet and through the back of the tablet on said support.

10. A book tablet divider of the character described, including: a support for holding a tablet with its back in a working plane and in a position for being divided, said support including means for gripping said tablet at a point away from the back thereof and means for yieldably supporting said tablet along the back thereof; a plurality of dividing members disposed in spaced relation transversely of said back and in said working plane in a position to be moved through said working plane in a direction parallel to the leaves of said tablet; and means for supporting said dividing members and moving said dividing members between the leaves of the tablet and through the back of the tablet on said support.

11. A book tablet divider of the character described, including: a plate member providing a surface on which a tablet may be placed with its back along an edge thereof; stop means for preventing movement of said tablet on said plate member; a cutter carrier mounted so as to move parallel to said edge substantially parallel to the faces of the leaves of the tablet; and a plurality of dividing members projecting from said cutter carrier toward said plate member and above the face thereof so as to move through the back of said tablet as said cutter carrier is moved forwardly, said dividing members being spaced apart in a direction transverse to the back of said tablet.

12. A book tablet divider of the character described, including: a plate member providing a surface on which a tablet may be placed with its back along an edge thereof; stop means for preventing movement of said tablet on said plate member; a cutter carrier mounted so as to move parallel to said edge substantially parallel to the faces of the leaves of the tablet; and a plurality of dividing members projecting from said cutter carrier toward said plate member and above the face thereof so as to move through the back of said tablet as said cutter carrier is moved forwardly, said dividing members being spaced apart in a direction transverse to the back of said tablet and in a direction parallel to the leaves of said tablet.

13. A tablet divider of the character described, including: a plate member providing a surface on which a tablet may be placed with its back along an edge thereof; stop means for preventing movement of said tablet on said plate member; a cutter carrier mounted so as to move parallel to said edge; and a plurality of dividing members projecting from said cutter carrier toward said plate member and above the face thereof so as to cut through the back of said tablet as said cutter carrier is moved forwardly, said dividing members being spaced apart in a direction transverse to the back of said tablet and in a direction parallel to the leaves of said tablet, and said dividing members being pitched forwardly so as to provide points adapted to engage the front end of said tablet adjacent the back thereof and enter between edges of leaves in said tablet.

14. A book tablet divider of the character described, including: a plate member providing a surface on which a tablet may be placed with its back along an edge thereof; stop means for preventing movement of said tablet on said plate member; a cutter carrier mounted so as to move parallel to said edge substantially parallel to the faces of the leaves of the tablet; and a plurality of dividing members projecting from said cutter carrier toward said plate member and above the face thereof so as to move through the back of said tablet as said cutter carrier is moved forwardly, said dividing members being spaced apart in a direction transverse to the back of said tablet and being consecutively offset in a direction parallel to the direction of movement of said cutter carrier.

15. A book tablet divider of the character described, including: a plate member providing a surface on which a tablet may be placed with its back along an edge thereof; stop means for preventing movement of said tablet on said plate member; a cutter carrier mounted so as to move parallel to said edge substantially parallel to the faces of the leaves of the tablet; and a plurality of dividing members projecting from said cutter carrier toward said plate member and above the face thereof so as to move through the back of said tablet as said cutter carrier is moved forwardly, said dividing members being spaced apart in a direction transverse to the back of said tablet and being consecutively

spaced apart in a direction parallel to the direction of movement of said cutter carrier.

16. A book tablet divider of the character described, including: a plate member providing a surface on which a tablet may be placed with its back along an edge thereof, said plate member having a yieldable edge portion under the position of the back of said tablet; stop means for preventing movement of said tablet on said plate member; a cutter carrier mounted so as to move parallel to said edge; and a plurality of dividing members projecting from said cutter carrier toward said plate member and above the face thereof so as to cut through the back of said tablet as said cutter carrier is moved forwardly, said dividing members being spaced apart in a direction transverse to the back of said tablet.

17. A book tablet divider of the character described, including: a plate member providing a surface on which a tablet may be placed with its back along an edge thereof; stop means for preventing movement of said tablet on said plate member; a carriage mounted so as to move parallel to said edge; a cutter carrier detachably mounted on said carriage so as to face toward said plate member; and a plurality of dividing members projecting from said cutter carrier toward said plate member and above the face thereof so as to cut through the back of said tablet as said cutter carrier is moved forwardly, said dividing members being spaced apart in a direction transverse to the back of said tablet and in a direction parallel to the leaves of said tablet.

18. A book tablet divider of the character described, including: a plate member providing a surface on which a tablet may be placed with its back along an edge thereof; stop means for preventing movement of said tablet on said plate member; a carriage mounted so as to move parallel to said edge; a cutter carrier detachably mounted on said carriage so as to face toward said plate member; and a plurality of dividing members detachably secured to and projecting from said cutter carrier toward said plate member and above the face thereof so as to cut through the back of said tablet as said cutter carrier is moved forwardly, said dividing members being spaced apart in a direction transverse to the back of said tablet and in a direction parallel to the leaves of said tablet.

19. A book tablet divider of the character described, including: a plate member providing a surface on which a tablet may be placed with its back along an edge thereof; stop means for preventing movement of said tablet on said plate member; a carriage mounted so as to move parallel to said edge; a cutter carrier detachably mounted on said carriage so as to face toward said plate member; and a plurality of dividing members detachably secured to and projecting from said cutter carrier toward said plate member and above the face thereof so as to cut through the back of said tablet as said cutter carrier is moved forwardly, said dividing members being spaced apart in a direction transverse to the back of said tablet and being consecutively spaced apart in the direction of movement of said carriage.

20. A book tablet divider of the character described, including: a plate member providing a surface on which a tablet may be placed with its back along an edge thereof; stop means for preventing movement of said tablet on said plate member; a carriage mounted so as to move parallel to said edge; a cutter carrier detachably mounted on said carriage so as to face toward said plate member; a plurality of dividing members detachably secured to and projecting from said cutter carrier toward said plate member and above the face thereof so as to cut through the back of said tablet as said cutter carrier is moved forwardly, said dividing members being spaced apart in a direction transverse to the back of said tablet and being consecutively spaced apart in the direction of movement of said carriage; and holding means movably secured relative to said plate member adapted to press said tablet against said plate member so as to hold said tablet during the dividing operation.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 21 day of August, 1931.

GEORGE BAKER.