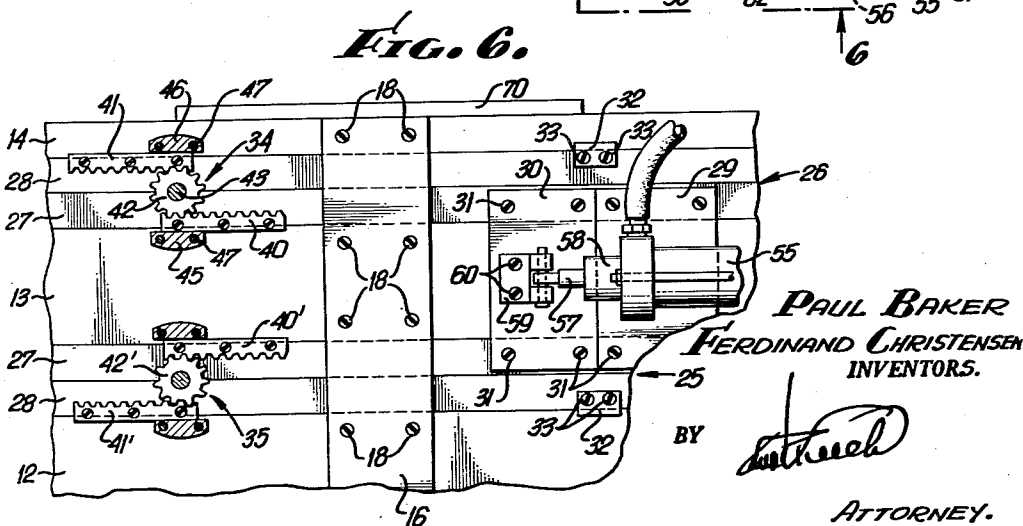
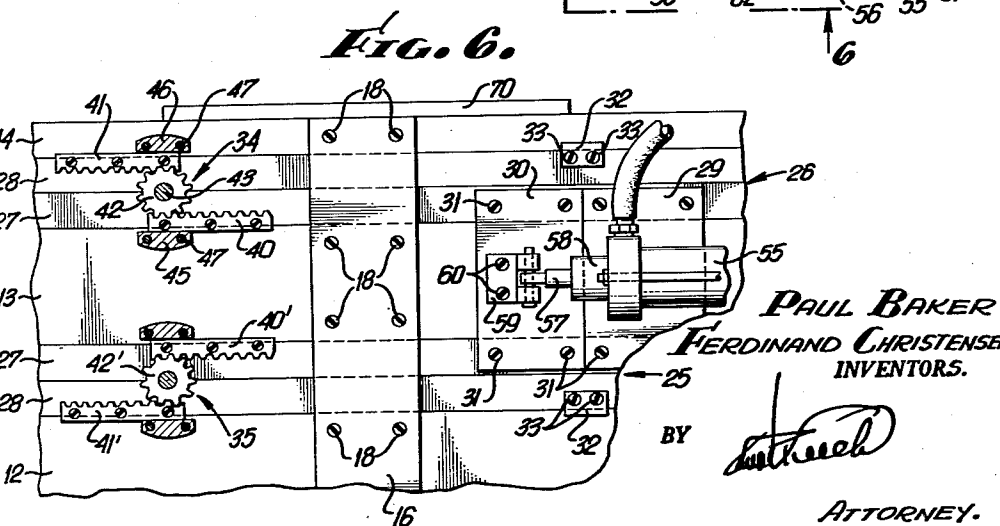
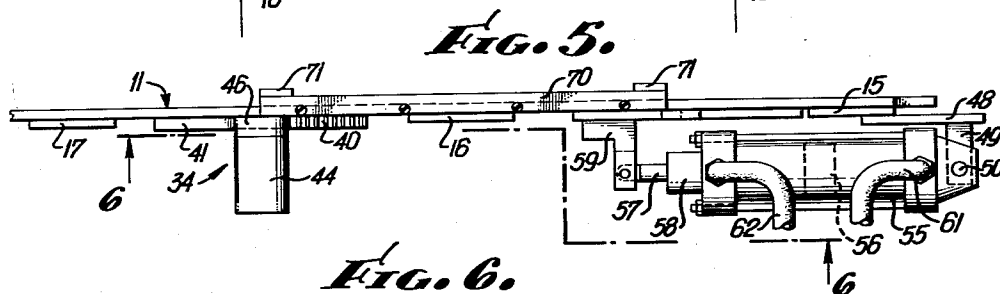
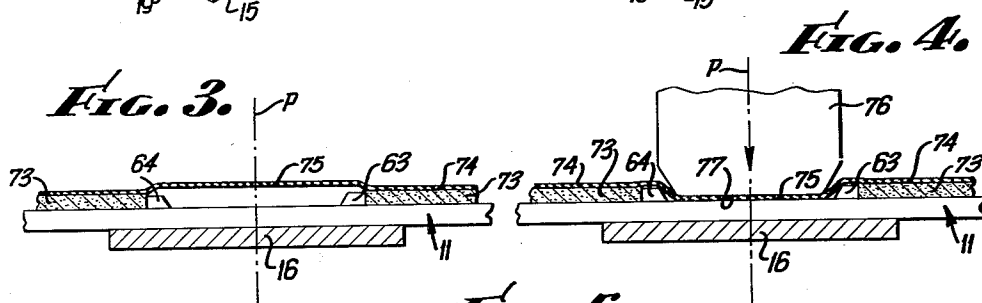
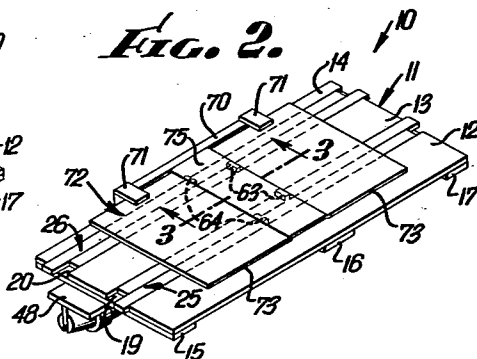
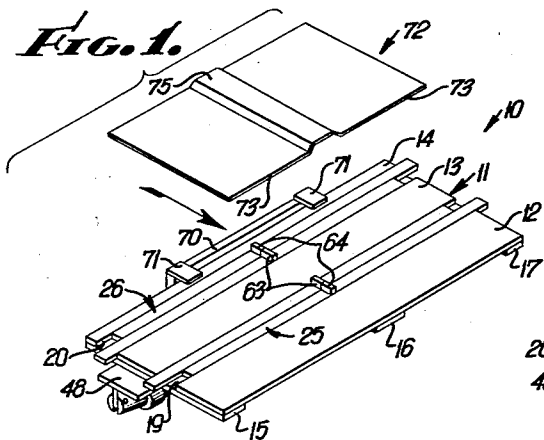


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BOOK COVER POSITIONER

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2,963,967

BOOK COVER POSITIONER

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6 Claims. (Cl. 101—407)

This invention relates to the art of jigs, and particularly to a book cover positioner for accurately positioning a book cover with reference to the die of a printing machine in the operation of printing a title on the outside of the book cover.

Clothbound book covers include a front board and a back board to which a fabric covering termed a "book cloth" is glued leaving a band of fabric between adjacent edges of these boards which serves the purpose of covering the back edge of the book when it is bound in the cover and which is referred to as the "spine" of the cover. In rebinding books at intervals, which is necessary in libraries for the preservation of the books, the original book cover is replaced by a new cover and it is necessary to print the title of the book and the library classification therefor on this band of fabric or cover spine which is located between the respective cover boards. It has been customary to position the new book cover in the title printing machine manually because of the flexible condition of the cover spine which, in library book binding, varies greatly in width. Considerable time has heretofore been consumed in this operation to assure that the title will be properly located on the cover.

It is an object of the present invention to provide a book cover positioner which will eliminate the need for manually adjusting the cover to the printing machine and will automatically properly orient each book cover placed in the machine so that the title of the book will be accurately centralized on the cover spine when printed thereon, regardless of the width of this spine.

The manner of accomplishing the foregoing object as well as further objects and advantages will be made manifest in the following description taken in connection with the accompanying drawings in which:

Fig. 1 is a diagrammatic perspective view illustrating a preferred embodiment of the invention with the book cover centralizing mechanism thereof in neutral status and with a book cover to be printed upon suspended above the device as is the case just prior to inserting the book cover into the device for printing a title thereon.

Fig. 2 is a view similar to Fig. 1 illustrating said device with the cover inserted in place therein and with the device operated to centralize the cover in the correct position for printing a title thereon.

Fig. 3 is an enlarged detail fragmentary sectional view taken on the line 3—3 of Fig. 2 and illustrates how the positioning dogs of the device engage the respective boards of the book cover to properly orient the spine thereof in the device.

Fig. 4 is a view similar to Fig. 3 and illustrates the lowering of a printing die on the book cover spine between said dogs so as to print a title on said spine.

Fig. 5 is an enlarged rear elevational view of the device taken in the direction of the arrow 5 in Fig. 1.

Fig. 6 is a fragmentary bottom plan view of the device taken on the line 6—6 of Fig. 5 so as to show the pinion bearing brackets and pinion shafts of the device in section.

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Referring specifically to the drawings, the invention is there shown as incorporated in a book cover positioning device 10 which includes a platform 11 made up of spaced parallel plates 12, 13 and 14 which are rigidly secured together by metal cleats 15, 16 and 17 applied to the bottoms of said plates by screws 18.

Plates 12 and 13 are spaced apart to form a slide recess 19 while plates 13 and 14 are spaced apart to form a slide recess 20. Slidably resting in the recesses 19 and 20 are pairs 25 and 26 of slide bars 27 and 28. That is there is one slide bar 27 and one slide bar 28 in each of the pairs 25 and 26. The bars 27 of the respective bar pairs 25 and 26 are disposed immediately adjacent to the plate 13. The bars 28 of the respective bar pairs 25 and 26 are disposed immediately adjacent to the plates 12 and 14. The bars 27 and 28 are of just the same thickness as the plates 12, 13 and 14 of the platform 11 and are of uniform width and this is just sufficient so that each pair 25 and 26 of these bars fills the respective one of the recesses 19 and 20 in which these bars are disposed and allows the individual bars 27 and 28 to be freely slidable lengthwise independently of the other bar in the recess with it.

When thus sliding in the recesses 19 and 20 the bars 27 and 28 press downwardly on the metal cleats 15, 16 and 17 of the platform 11. The bars 27 are held in their place in said recesses by connecting plates 29 and 30 which are secured to these bars by screws 31. The bars 28 are retained in their respective slide recesses by small lugs 32 which are secured to bottom faces of these bars by screws 33 so that said lugs overlap adjacent platform plates 12 and 14.

The bars 27 and 28 of each of the bar pairs 25 and 26 are connected together for symmetrical sliding motion in opposite directions by rack and pinion mechanisms 34 and 35. The mechanism 34 includes racks 40 and 41 which are secured to bars 27 and 28 of the bar pair 26 so as to face each other and mesh with a pinion 42 while these racks also extend outwardly to overlap the bottom faces of plates 13 and 14 and thus assist in holding these bars in the slide recess 20. The pinion 42 is fixed on a shaft 43 which journals in a bearing 44 having mounting legs 45 and 46 which are secured by screws 47 respectively to platform plates 13 and 14. The parts of the rack and pinion mechanism 35 are identical with those of the mechanism 34 just described and reference to any part of mechanism 35 will therefore be made by use of the numeral applied to the corresponding part of mechanism 34 with prime attached. In the mechanism 35 the rack 40' is positioned coextensively with the rack 40 and the rack 41' is positioned coextensively with the rack 41. It is also to be noted that the racks 40 and 40' are secured to the slide bars 27 of the respective bar pairs 25 and 26 and racks 41 and 41' are secured to the bars 28 thereof. By virtue of the connection of bars 27 by plates 29 and 30, sliding movement lengthwise of the bars 27 must always be with these bars 27 traveling in one direction and with the bars 28 traveling in the opposite direction.

Fixed on the bottom of end cleat 15 is a power cylinder mounting plate 48 having a downwardly extending lug 49 for receiving a pin 50 on which one end of an air cylinder 55 is pivotally mounted. This cylinder has a piston 56 mounted on a piston rod 57 which extends out of one end of the cylinder 55 through a stuffing box 58 and is pivotally connected to a yoke 59 secured to plate 30 by screws 60. The air cylinder 55 has air hoses 61 and 62 which connect to opposite ends of the cylinder and conduct air under pressure thereto to effect a movement of the piston 56 in either direction desired in the cylinder 55.

Fixed on the slide bars 27 at right angles thereto and

extending above the level of the platform 11, so as to be in alignment with each other, is a pair of dogs 63. Similarly fixed on the slide bars 28 is a pair of dogs 64. The parts of the device 10 are shown in what might be referred to as a neutralized position in Figs. 1, 5 and 6. In this position the slide bars 28 are withdrawn slightly to the right of a centralized location in the slide ways 19 and 20 and the slide bars 27 are withdrawn a slight distance to the left from a centralized location in said recesses. While the parts of the device 10 are thus neutralized, however, the pairs of dogs 63 and 64 are in alignment with each other as clearly shown in Fig. 1 in a vertical plane P which may be referred to as the longitudinal planar axis of the device 10 as this plane bisects the central cleat 16 longitudinally of said cleat.

Fixed along the outer edge of plate 14 of the platform 11, and extending upwardly a short distance thereabove, is a limit stop bar 70 having horizontal lugs 71 at its opposite ends which extend inwardly over the plate 14.

Operation

The device 10 is provided, as above noted, for positioning any one of a number of book covers 72, each cover having two book boards 73 united by a book cloth 74, end portions of which are glued to the backs of the boards 73 so as to leave a central portion 75 of said cloth unglued to said boards so as to provide a slack flexible band of said cloth which is known in the art as a book spine. These spines 75 in book covers 72 vary in width depending on the thickness of the book which each particular cover 72 is to be used to bind.

The device 10 is utilized in association with a printing machine (not shown) which has a printing die 76 mounted therein for vertical reciprocation, this die having a printing face 77 on its lower end. The device 10 is so mounted that the vertical plane forming its longitudinal axis and above referred to coincides with the vertical axial plane in which the die 76 reciprocates, the printing face 77 of the die being symmetrical with this plane. The die 76 or removable type provided on the printing face 77 thereof are adapted to be changed between printing operations so as to provide a negative type face for printing the desired title to be applied to the spine 75 of the particular book cover 72 on which a printing operation is to be performed.

With the printing machine provided with a suitable die 76 (or type face 77) for printing the title required on a particular book cover 72, and with the type face inked or provided with suitable gold leaf to be impressed on this book cover 72, the latter is positioned generally as shown in Fig. 1 over the platform 11 with the parts of the device 10 in neutral position, and the cover is then lowered to rest on the platform 11, with the spine 75 thereof overlaying the dogs 63 and 64 and with the cover 72 pushed rearwardly against the limit stop bar 70 beneath the lug 71. When this has been done, a valve is actuated to admit compressed air through the hose 61 into the cylinder 55 and allow the air to be exhausted on the opposite end of the cylinder through the hose 62. This causes the slide bars 27 to be shifted to the right and the slide bars 28 to be shifted to the left, as shown in Fig. 2, until the lugs 63 engage the right cover board 73 and the lugs 64 engage the left cover board 73 thereby stretching the spine 75 as shown in Fig. 3 with this spine in symmetrical relation with the longitudinal vertical axial plane P of the device 10. It is to be noted that this positioning of the book cover 72 with the spine 75 thereof properly centralized for receiving an imprint from the printing face 77 of the die 76 is automatically accomplished regardless of the width of spine 75. In other words, no special attention needs to be paid by the operator to the width of the spine 75 of the book cover 72 being worked on in order to secure the proper centralizing of the cover for the printing operation.

With the book cover 72 thus centralized for the printing operation, the latter is performed by causing the print-

ing machine to function and the die 76 to reciprocate downwardly so that in its lowermost position it prints the title of the book to be bound in the cover 72 on the book spine 75 as shown in Fig. 4. When the die 76 returns upwardly the printing machine automatically halts and the book cover 72 is removed from between the platform 11 and the die 76.

This concludes the description of a full printing operation on a book cover 72 which is accomplished by the cooperative relationship above described between the device 10 and the printing machine employed therewith.

Although only a single embodiment of the invention is disclosed herein, this is for illustrative purposes only, and various changes and modifications may be made in this without departing from the spirit of the invention or the scope of the appended claims.

The claims are:

1. In a device for positioning any one of a number of different book covers, each cover having two book boards united by a flexible book spine, said spines varying in width, so that the spine of the cover so positioned is stretched while being bisected lengthwise by a given vertical plane, the combination of: a platform normal to said plane for supporting said cover; right and left dog means extending above said platform; and means for shifting said two dog means respectively towards the right and the left in symmetrical relation with said plane to bring said dog means into pressural engagement with the inner edges respectively of said boards of said cover, whereby the spine of said cover will be stretched and positioned as aforesaid.

2. A combination as in claim 1 in which limit stop means is provided on said platform to extend upwardly thereabove for engagement by said book cover while the same is being positioned on said device, said cover being shifted into engagement with said limit stop means by a movement parallel with said plane.

3. A combination as in claim 2 in which said platform is provided with a pair of transverse recesses; two pairs of slide bars slidably occupying said recesses, said right dog means including a pair of dogs mounted on one bar of each of said pairs of bars, said left dog means including another pair of dogs mounted on the other bars of said two pairs of bars, said shifting means comprising pinion means mounted on the bottom of said platform and opposed rack means meshing with said pinion means and attached respectively to the bars having said right dog means and to the bars having said left dog means.

4. A combination as in claim 1 in which said platform is provided with a pair of transverse recesses and in which said right dog means includes a pair of slide bars one of which is slidably disposed in each of said recesses and said left dog means includes a pair of slide bars one of which is also slidably disposed in each of said recesses, each of said right and left dog means also including a pair of dogs which are mounted on and extend upwardly above said platform from the slide bars respectively of said right and left dog means, said shifting means including rack and pinion means uniting the slide bars of the right dog means to the slide bars of the left dog means so that sliding movement of the bars of said right dog means in said recesses in one direction produces a corresponding reverse sliding movement of the bars of the left dog means in said recesses.

5. A combination as in claim 4 in which said platform is made up of transversely disposed plates located on opposite sides of said recesses, the latter being formed by the spacing apart of parallel adjacent edges of said plates, said plates being united by cleats secured to bottom faces of said plates and extending parallel with said plane, one of said cleats being disposed centrally of said platform in symmetrical relation with said plane, said central cleat thus providing support for the plates of said platform and for said slide bars in the area over which said spine is stretched to support said spine in the upper plane of

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said platform during a printing operation on said spine while it is so positioned.

6. A combination as in claim 4 in which each of said slide bars is provided with a rack and the racks of each pair of slide bars mesh with a pinion mounted on said platform to rotate about a fixed axis, and in which said shifting means includes an air cylinder mounted on the

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bottom of said platform and having a plunger which is secured to the slide bars pertaining to one of said right and left dog means so that shifting said slide bars in one direction causes said two pairs of dogs to shift in opposite directions equal distances relative to said plane.

No references cited.