

F. KUGLER.
BOOK STITCHING MACHINE.

APPLICATION FILED MAR. 8, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1

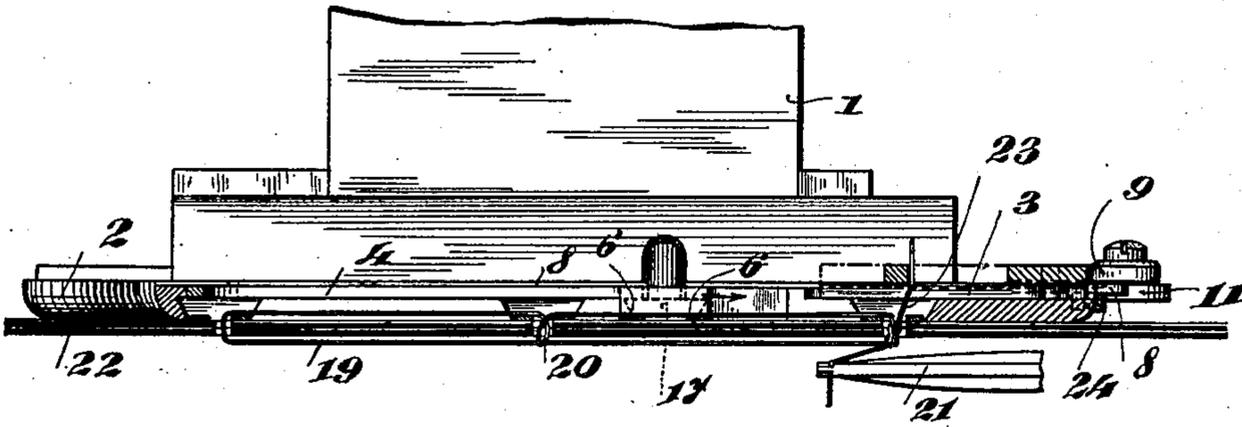


Fig. 2.

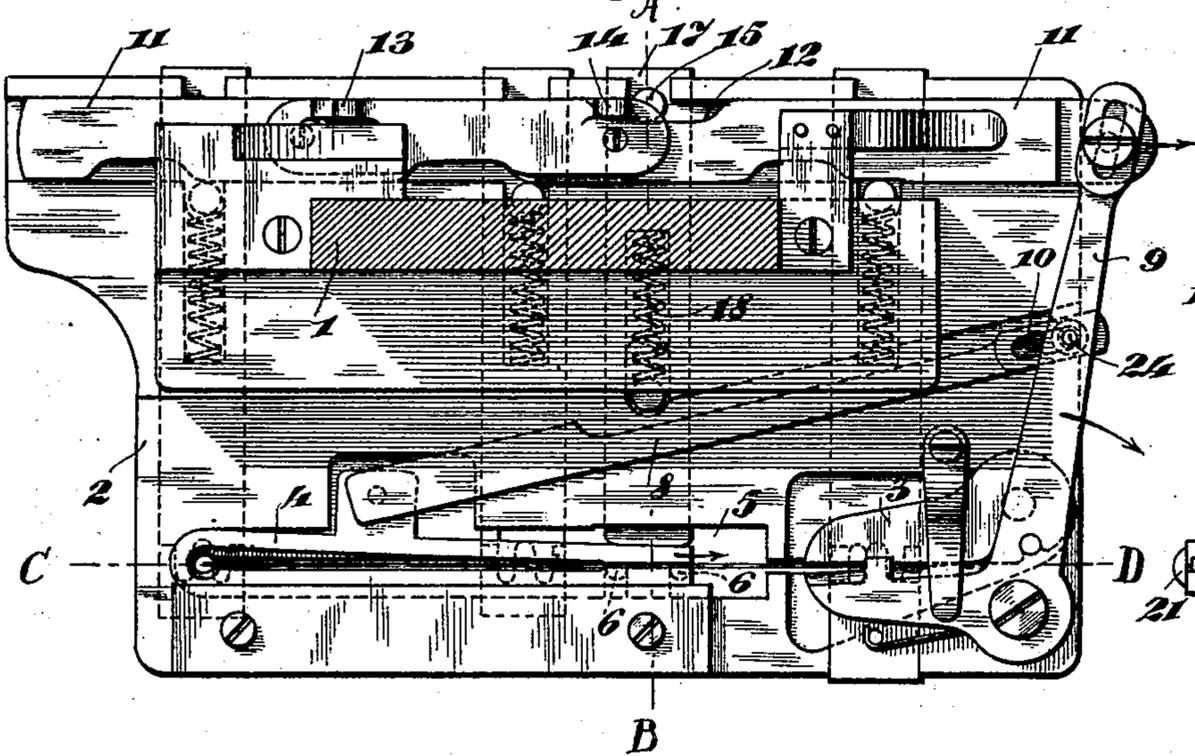
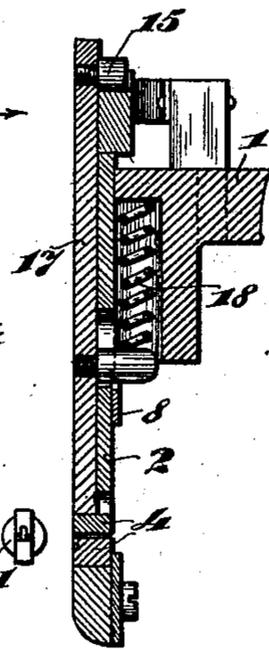


Fig. 3



Witnesses
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 E. F. Petersen

Inventor:
 Friedrich Kugler
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 his Attorney

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2 SHEETS—SHEET 2.

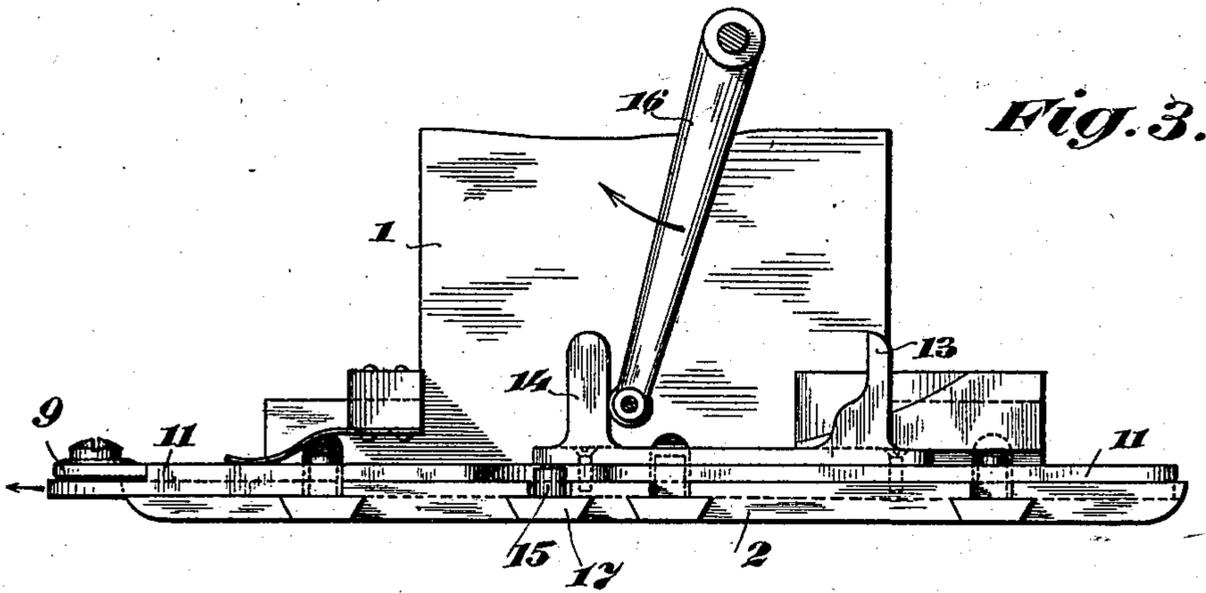


Fig. 3.

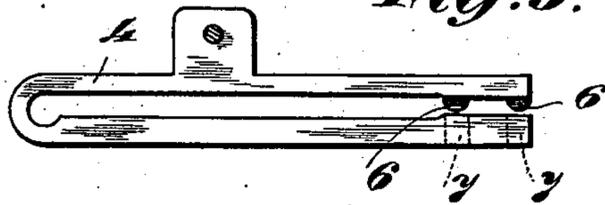


Fig. 5.

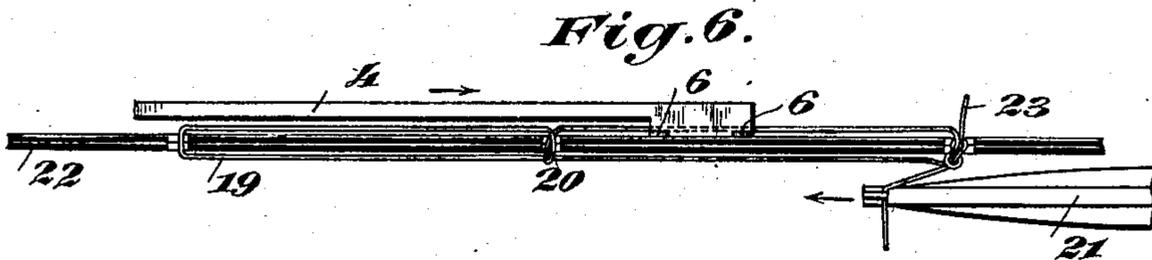


Fig. 6.

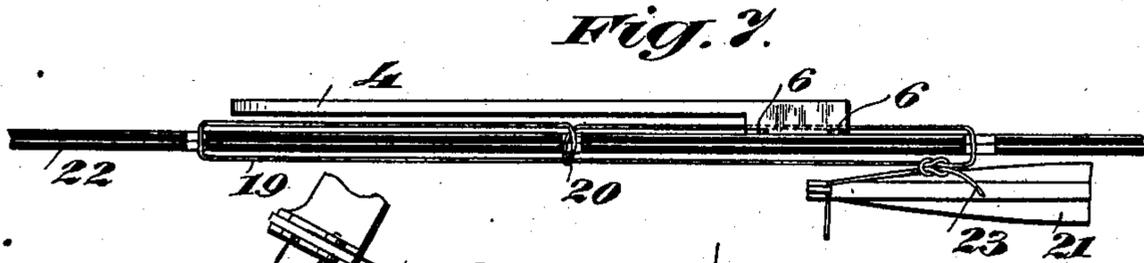


Fig. 7.

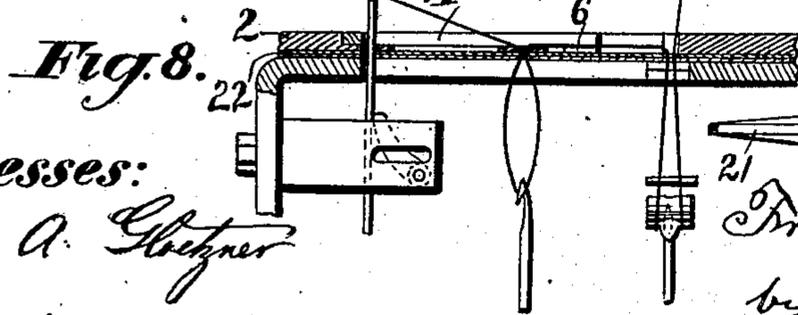


Fig. 8.

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 by *Max Georgii*
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UNITED STATES PATENT OFFICE.

FRIEDRICH KUGLER, OF FRAUENFELD, SWITZERLAND, ASSIGNOR TO THE FIRM OF AKTIENGESELLSCHAFT, VORMALS F. MARTINI & CO., OF FRAUENFELD, SWITZERLAND.

BOOK-STITCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 723,535, dated March 24, 1903.

Application filed March 8, 1902. Serial No. 97,342. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH KUGLER, a subject of the Emperor of Germany, residing at Frauenfeld, Switzerland, have invented new and useful Improvements in Book-Stitching Machines, of which the following is a specification.

This invention relates to means in book-stitching machines for bringing the ends of the stitching-thread to the inner side of the fold after the formation of the knot. The apparatus is provided with tongs which serve for clamping the thread and in conjunction with the gripping device that holds one end of the stitching-thread move the thread after it has been cut and the knot has been formed in such a way that the free end of the thread projecting from the knot above the stitched sheets is brought to the inner side of the fold.

An example of apparatus according to this invention is shown in the accompanying drawings, in which—

Figure 1 is a section on the line C D of Fig. 2. Fig. 2 is a plan, and Fig. 3 a rear elevation. Fig. 4 is a section on the line A B of Fig. 2. Fig. 5 is a detail view, and Figs. 6 and 7 show to a larger scale two different positions of the part that serves for holding the stitching-thread and of the gripping device. Fig. 8 is a diagrammatic view showing the relation of my improvement to the stitching and knotting mechanism of one type of book-stitching machine.

The book-stitching machine to which the present improvements are adapted is constructed, for example, in accordance with the specification of my United States Patent No. 705,363, of July 22, 1902. This specification is referred to for details of the construction and mode of operation of this book-stitching machine.

On the pressure-plate 2, which is mounted on the slide-plate 1, there is mounted in a recess 5 a pair of tongs 4, with two spring-arms, on one of which are mounted two projections 6, that are adapted to enter in corresponding depressions 7 on the other arm when the two arms are pressed together. The tongs 4 are pivoted on a lever 8, formed with a slot 10,

engaging with a pin 24, which is mounted on one arm 9 of the shears 3. A slot on this arm likewise engages a pin mounted on a bar 11, which is adapted to slide in a recess in the pressure-plate 2. This bar carries two upwardly-projecting stops 13 and 14, against which an arm 16 (shown diagrammatically in Fig. 3) can strike alternately, so as to effect a to-and-fro movement of the bar 11. The bar 11 is formed on one side with a notch 12, against which bears the pin 15 of a bar 17, which tends under the influence of a spring 18 to press together the arms of the tongs 4, against one of which it bears. During the stitching process the tongs 4 are open, and the stitching-thread is placed between the two arms and bears on the projections 6, which hold the stitching-thread in the proper position, so that it is clamped when the tongs are closed. After the formation of the knot the arm 16 acts on the abutment 14 and causes the slide 11 to move to the right. Fig. 2. At the same time the pin 15 slides into the notch 12, and the bar 17 presses under the influence of the spring 18 the arms of the tongs 4 together, so that when the projections 6 have entered the depressions 7 the stitching-thread is clamped somewhat in front of the loop 20. At this moment the formation of the knot is completed, the knot is drawn tight, and the end 23 of the thread is cut. The position of the parts at this moment is shown in Fig. 6. The tongs 4 are then moved to the right by the arm 9, whose pin 24 has passed through the slot 10 during the previous operation of the shears and the cutting of the thread, and the gripper 21, that holds one end of the stitching-thread, is moved through the same distance to the left, whereby the stitching-thread 19 is moved in such a way that the knot is transferred from the position shown in Fig. 6 to that shown in Fig. 7, and the cut end 23 of the stitching-thread projecting on the upper side of the sheets 22 to be stitched lies on the lower side of the sheets or on the inner side of the fold. When the bar 11 moves farther to the right, the pin 15 finally leaves the notch and the arms of the tongs 4 open. During the move-

ment of the arm 16 in the opposite direction the parts are returned to their initial positions.

I claim—

5 1. In a book-stitching machine, the combination, with the stitching, knotting and severing mechanism, of means adapted to engage the thread and to move the same longitudinally to an extent sufficient to bring the knot
10 to the inner side of the fold.

2. In a book-stitching machine, the combination with the stitching, knotting and severing mechanism, of means adapted to frictionally engage the thread and to move the same
15 longitudinally to an extent sufficient to bring the knot and severed ends to the inner side of the fold.

3. In a book-stitching machine, the combination, with the stitching, knotting and severing mechanism, of clamping means adapted to engage the thread forming the stitch, and means adapted to actuate the clamping means longitudinally whereby the knot will be
20 brought to the inner side of the fold.

4. In a book-stitching machine, the combination, with the stitching, knotting and severing mechanism, of a clamp adapted to frictionally engage the thread, a gripper adapted to hold one of the ends of the thread, means operating to move said clamp and gripper longitudinally whereby the knot and severed
25 ends will be brought to the inner side of the fold.

5. In a book-stitching machine, the combination, with the stitching, knotting and severing mechanism, of a clamp adapted to frictionally engage the thread on one side of the stitch, a gripper adapted to hold one of the ends of the thread on the opposite side of the
35 stitch, and means operating to move said clamp and gripper longitudinally whereby the knot and severed ends will be brought to the inner side of the fold.

6. In a book-stitching machine, the combination, with the stitching, knotting and severing mechanism, of tongs adapted to frictionally engage the thread on one side of the stitch, a gripper adapted to hold one end of the thread on the other side of the stitch, a
45 spring serving to hold the arms of the tongs in engagement with the thread, a slidable bar actuated by the stitching mechanism and serving to throw said spring into and out of engagement with the tongs, a lever actuated
50 by said bar and operating to move said tongs longitudinally, means operating simultane-

ously to move the gripper longitudinally as the slidable bar is actuated, whereby the tongs and gripper will engage the thread and draw the same longitudinally, bringing the
60 knotted ends of the same upon the inner side of the fold.

7. In a book-stitching machine, the combination, with the stitching and knotting mechanism, of a slidable bar adapted to be reciprocated by the stitching mechanism, a longitudinally-movable clamping device having two arms lying on opposite sides of the thread, a spring-controlled bar bearing against the arms of said clamping device and adapted to
65 be actuated by the slidable bar, an arm connected with the slidable bar and serving to operate the thread-severing mechanism, and a slotted bar connected with the arm at one end and to the clamping device at the other
70 end, whereby after the forming of the knot the thread will be severed and the gripping device caused to draw the thread longitudinally so as to bring the knot and severed ends to the inner side of the fold. 80

8. In a book-stitching machine, the combination, with the stitching and knotting mechanism, of a slidable bar adapted to be reciprocated by the stitching mechanism, a longitudinally-movable clamping device having
85 two arms lying on opposite sides of the thread, a spring-controlled bar against the arms of said clamping device and adapted to be actuated longitudinally by the slidable bar, an arm connected with the slidable bar and serving
90 to operate the thread-severing mechanism, a slidable bar connected at its slotted end with the arm and at the other end to the clamping device, gripping means adapted to hold the end of the thread during the knotting
95 operation, and means adapted to actuate such gripping means longitudinally at the same time with the longitudinal movement of the clamping device, whereby after the forming of the knot the thread will be severed and that portion of the thread forming
100 the stitch will be moved longitudinally to an extent sufficient to bring the knot and severed ends to the inner side of the fold.

In testimony whereof I have signed my
105 name to this specification in the presence of two subscribing witnesses.

FRIEDRICH KUGLER.

Witnesses:

MORITZ VEITH,
A. LIEBERKNECHT.