No. 671,531. Patented Apr. 9, 1901.

W. G. TREVETTE.

SIGNATURE PACKER FOR BOOK SEWING AND BINDING MACHINES.

(Application filed Aug. 20, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

Witnesses
S. B. Weir
Ira D. Perry

Inventor
W. G. Trevette
By Raymond & Quohundro
Attys.

No. 671,531. Patented Apr. 9, 1901.

W. G. TREVETTE.

SIGNATURE PACKER FOR BOOK SEWING AND BINDING MACHINES.

(Application filed Aug. 20, 1900.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 3.

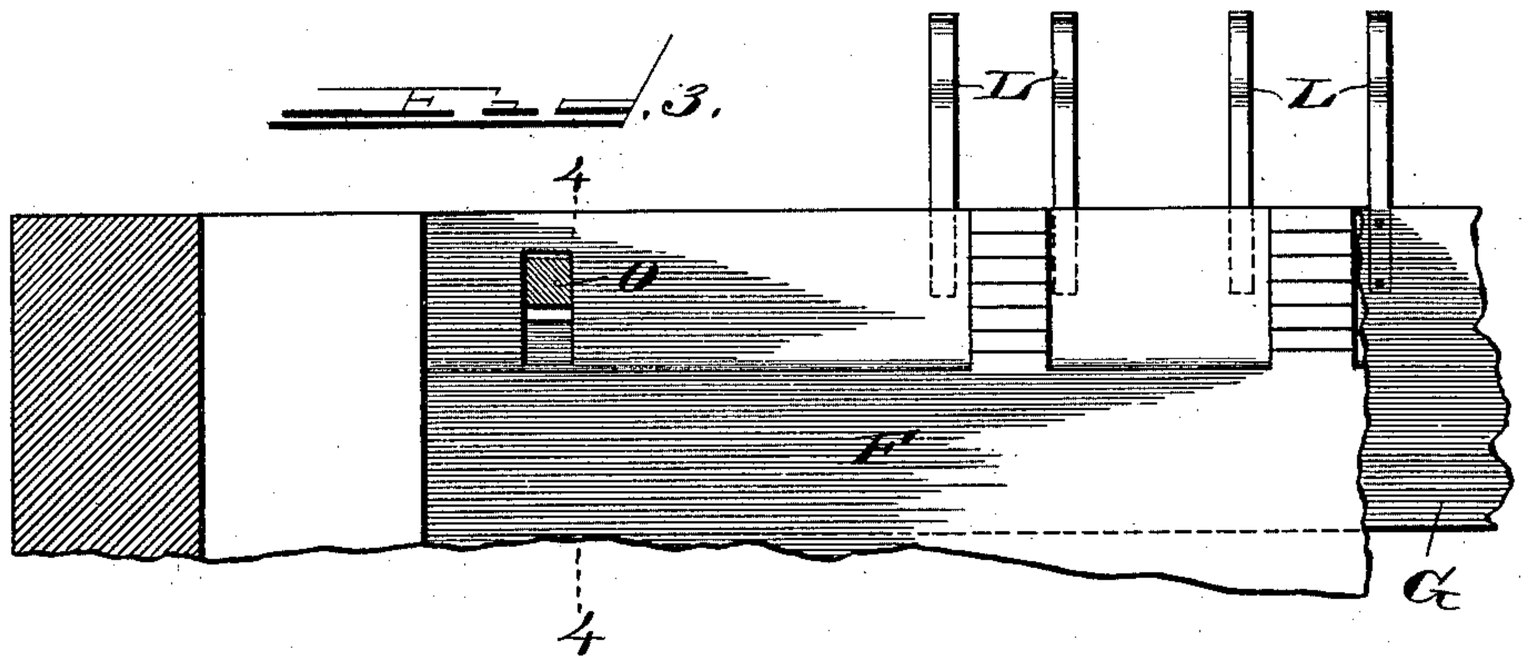


Fig. 4.

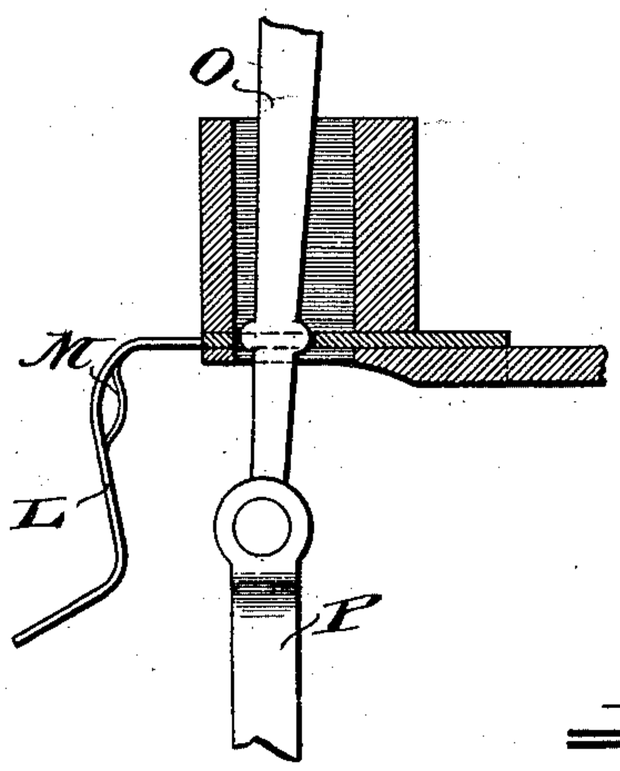
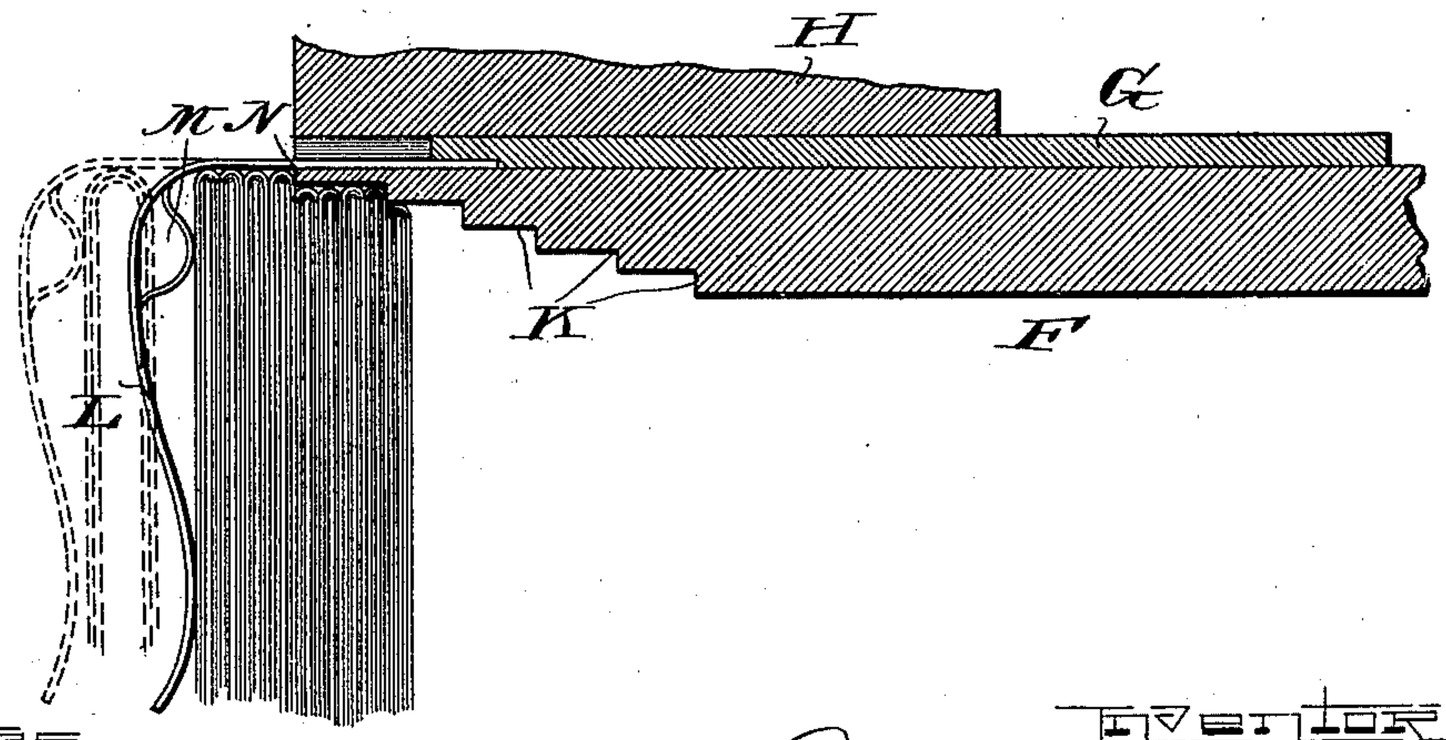


Fig. 2.



Witnesses
J. B. Weir
Ira D. Perry

Inventor
W. G. Trevette
By Raymond Ridout Dinsmore
Attys.

UNITED STATES PATENT OFFICE.

WENTWORTH G. TREVETTE, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO TREVETTE MACHINE COMPANY, OF SAME PLACE.

SIGNATURE-PACKER FOR BOOK SEWING AND BINDING MACHINES.

SPECIFICATION forming part of Letters Patent No. 671,531, dated April 9, 1901.

Original application filed March 5, 1900, Serial No. 7,314. Divided and this application filed August 20, 1900. Serial No. 27,444. (No model.)

To all whom it may concern:

Be it known that I, WENTWORTH G. TREVETTE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Signature-Packers for Book Sewing and Binding Machines, of which the following is a specification.

This invention relates to that class of devices designed for use in connection with book sewing and binding machines to pack and hold the signatures after they are fastened, whether they are separately and independently fastened or sewed together in successive order. My invention, however, is particularly designed for use in connection with book-sewing machines in which the signatures are sewed together in successive order and afterward the threads uniting the last signatures of each book with the first signature of the next book are cut, so as to leave a complete volume with all the signatures constituting the book sewed together. In such machines some means for packing and holding the signatures immediately after being sewed and during the making up of a volume are essential, numerous devices having been heretofore provided for this purpose, generally comprising spring-followers, against which the packing-arms work; but in all such devices difficulty is encountered not only in properly holding the signatures, but in drawing tight the threads by which the signatures are sewed, so as to securely knot the threads, because the signatures cannot be pressed closely together while the loop or knot is being drawn up, for the reason that the back or finished end of the book or row of signatures must be left free while the machine is in operation to permit the attendant to cut apart and remove each separate book.

My invention has for its primary object a packer operating in such a manner as to pack and firmly hold the signatures adjacent to the needles, while leaving the remainder of the signatures free to be cut apart and removed without affecting the working of the packer.

Another object is to have the packer adapted for coöperation with a book-sewing machine in such manner that the knots in the thread may be drawn tight after the sewing of each signature, thereby avoiding the necessity of leaving the knots loose while the machine is in operation and permitting the cutting apart and removal of each book as it is formed without interruption to the continuous operation of the machine.

These and such other objects as may hereinafter appear are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a central vertical section through a portion of a machine embodying my packer, showing the relation thereof to the needle-gang and feed devices. Fig. 2 is an enlarged detail section through the packer proper. Fig. 3 is an inverted plan view of the parts shown in Fig. 2, and Fig. 4 is a detail section on the line 4 4 of Fig. 3.

Similar letters of reference refer to the same parts in the several figures of the drawings.

As before stated, my packer is adapted for use in connection with any book sewing, stapling, or binding machine, and the manner of supporting and operating the same may be readily adapted to the necessities of any such machine. For convenience I have shown the same supported and operated in a manner in which I have embodied the invention in practice, and for convenience I will describe the use of the invention in conjunction with a book-sewing machine such as is illustrated, described, and claimed in an application filed by me March 5, 1900, Serial No. 7,314, of which this application is filed as a division, but limiting the illustration and description of the coöperating portions of said book-sewing machine to only such parts as will aid in showing the relative positions and coöperation of my invention therewith.

Referring by letters to the accompanying drawings, A indicates a supporting-frame of any suitable construction and arrangement, and B a table adjustably supported upon the frame by any suitable means, such as by the legs C, depending therefrom at opposite sides thereof and sliding between flanges D on the frame, through one of which works a set-

screw E, impinging against one side of the legs C, so as to lock the table in any adjusted position. Above the table is located the packer proper, which coöperates with the table and comprises the fixed abutment F, supported in any suitable manner, either by an extension of the frame A or otherwise, the packer-bar G sliding between the abutment F and a guide-bar H, the packer-bar being positioned in the drawings between the needle-gang I (shown diagrammatically) and a signature-feed arm J, (shown fragmentarily in Fig. 1,) such general arrangement being practically essential to the successful operation of a machine of this class.

As rapidly as the signatures are sewed together they must be moved away from the needles to make room for the next signature, and in order to hold the bunch of signatures in proper position during operation the common practice is to have a spring-follower, which presses forward toward the needles opposing the packers. I propose to avoid the necessity for employing any such follower by providing a packer of new and novel construction comprising the fixed abutment F, which is beveled on the under side at its forward edge, steps or serrations K (see Fig. 2) being preferably provided in such beveled or inclined surface to afford resistance to the passage of the signatures between the abutment F and the table B, upon which the signatures rest. Sliding upon the abutment and between it and the guide-bar H is a reciprocating packer-bar G, having rigidly secured thereto at regular intervals a series of spring-packers L. These arms depend from the forward edge of the bar G a suitable distance below the front edge of the abutment F, and substantially opposite the abutment the spring is thickened, as at M, to afford a contact with the signatures a suitable distance below the backs thereof, so as to provide for the free action of the needle and thread in their passage through the signatures. The bar G reciprocates laterally—that is, toward and away from the beveled edge of the abutment—as shown by the dotted lines in Fig. 2, being moved outward to the position shown by the dotted lines when the feed-arms J carry up a signature to be sewed, which signature is forced up under the packer-springs. As soon as the feed-arm is withdrawn from the signature the bar G is moved laterally and the packers force the newly-sewed signature and the entire book of sewed signatures inward along between the abutment and the table.

In practice the distance between the forward edge N (see Fig. 2) of the beveled surface of the abutment F and the upper surface of the table B substantially corresponds with the height of the signatures, the table being made adjustab e to bring about this result when operating upon signatures of different sizes. Hence the beveled and, if desired, serrated or stepped surface of the abutment affords a substantial resistance to the action of the packers in forcing the book of sewed signatures along between the abutment and the table, and thus serves to maintain a yielding cushion against which the newly-sewed signatures are packed and held without the necessity for the usual spring-follower against which the packers have heretofore worked. Hence the signatures may be cut apart as rapidly as desired after passing under the abutment without in any wise affecting the efficiency of the packer.

Heretofore it has been impossible to draw tight the loop passing through the signatures and the knot or chain of thread linking one signature to the other owing to the inability to press the signatures closely together while the loop or knot is being so drawn up, for the reason that the back or finished end of the book or row of sewed signatures must be left free while the machine is in operation to permit the attendant to cut apart and remove each separate book; but by having the frictional abutment above described arranged to come in contact with the sewed signatures sufficient resistance is offered to allow of proper pressure in front to squeeze the signatures solidly together and allow the knots to be drawn tightly.

The lateral reciprocation of the packer-bar may be produced in any suitable manner in proper time with the feeding and sewing mechanism and by any suitable devices. In the drawings I have shown a portion of the simple devices illustrated in my aforesaid application directly coöperating with the packer-bar, comprising a pair of vibrating arms O, pivoted to the frame of the machine at opposite sides thereof and passing through perforations in the guide-bar H and in the packer-bar G, the lower end of each arm being pivotally connected with a vibrating lever P, which may be operated in any suitable manner and in proper time either from the power-shaft of the machine or any other suitable source of power.

My packer possesses manifest advantages over the prior devices in that the usual spring-follower is entirely done away with. The necessity for interrupting the operation of the machine in order to sever the signatures comprising a book is avoided. The operation of the book-sewing or other machine may be continuous, and a friction resistance which affords a yielding cushion is provided for the packers to operate against, while when used in conjunction with a book-sewing machine the loops and knots in the threads may be drawn tight upon each signature as sewed.

Modifications and changes may be made in the construction and arrangement of the various parts of my machine, and especially to adapt the same for use in connection with different kinds of book sewing, stapling, and

binding machines, but all such changes are contemplated by my invention and the claims herein.

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

1. In a signature-packer for book sewing and binding machines, the combination with an adjustable table, of a fixed abutment lying parallel therewith and provided with a beveled forward edge and a reciprocating series of packers opposing said beveled edge, substantially as described.

2. In a signature-packer for book sewing and binding machines, the combination with an adjustable table and a fixed abutment parallel therewith, the forward edge of said abutment being oblique to the table and provided with serrations or steps, and a reciprocating series of packers opposing said oblique edge, substantially as described.

3. In a signature-packer for book sewing and binding machines, the combination with an adjustable table, of a fixed abutment extending parallel therewith, the forward edge of said abutment being oblique to the table and provided with serrations or steps therein, of a reciprocating packer-bar and a series of spring-packers attached to said bar and adapted to engage the signatures in a plane below the highest point of the beveled edge of the abutment, substantially as described.

WENTWORTH G. TREVETTE.

Witnesses:
M. E. SHIELDS,
J. E. HALLENBECK.