

No. 684,038.

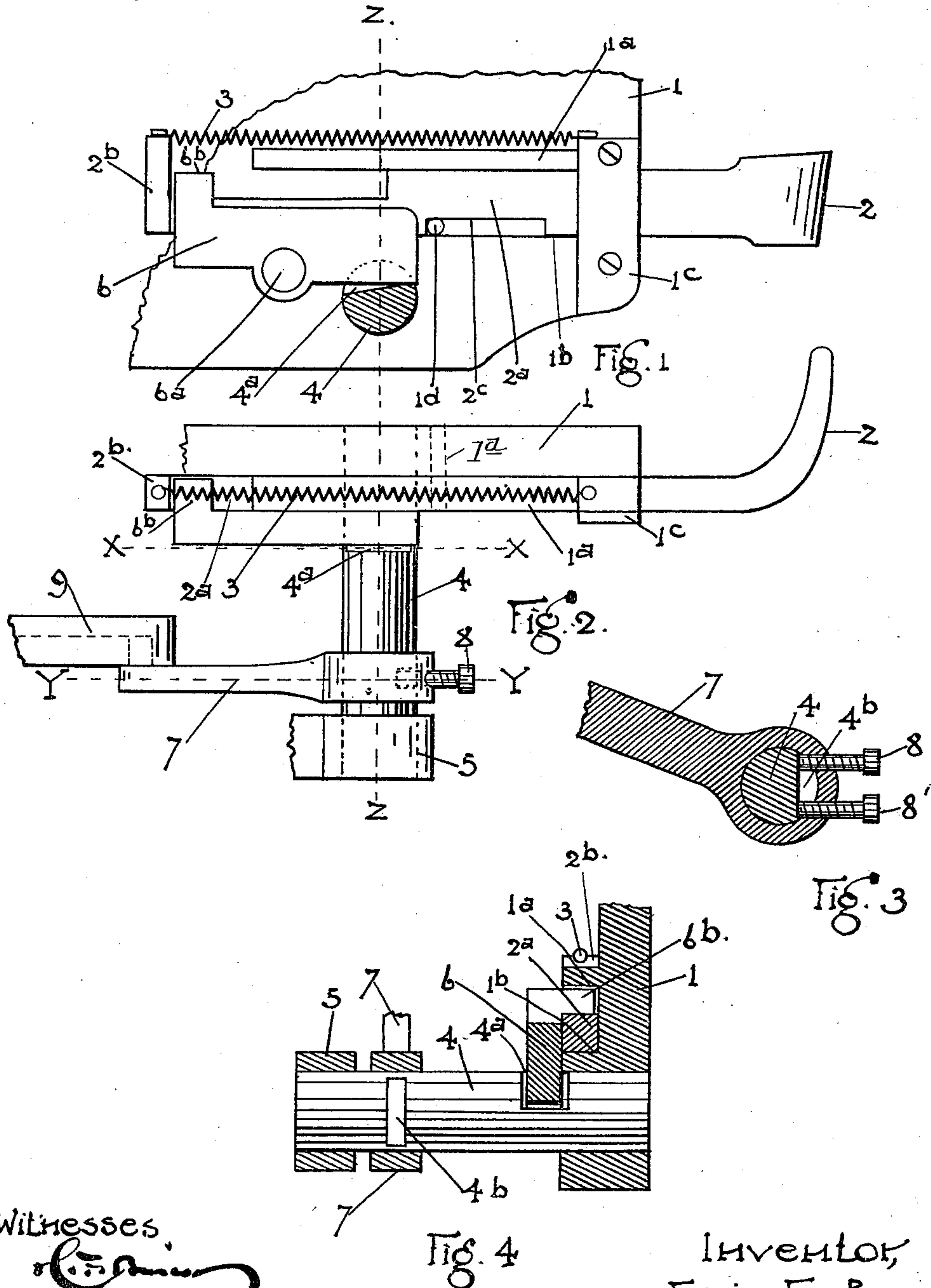
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E. E. BEAN.

BACK REST LOCK FOR SHOE SEWING MACHINES.

(Application filed May 25, 1900.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## BACK-REST LOCK FOR SHOE-SEWING MACHINES.

SPECIFICATION forming part of Letters Patent No. 684,038, dated October 8, 1901.

Application filed May 25, 1900. Serial No. 17,947. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN E. BEAN, a citizen of the United States, and a resident of Warner, in the county of Merrimack and State of New Hampshire, have invented certain new and useful Improvements in Back-Rest Locks for Shoe-Sewing Machines, of which the following is a specification.

The object of my invention is to produce an improved form of lock for the back-rest or work-support of a shoe-sewing machine which is simpler and made up of fewer parts than prior devices, and yet is perfectly effective for the purpose intended.

For a more complete disclosure of my invention reference is made to the accompanying drawings, in which—

Figure 1 is a cross-section on the line X X of Fig. 2, showing the main portion of the device in side elevation. Fig. 2 is a plan view of my device. Fig. 3 is a cross-section on the line Y Y of Fig. 2. Fig. 4 is a cross-section on the line Z Z of Figs. 1 and 2.

As the back-rest is unrelated to the main portion of a shoe-sewing machine, the drawings are confined to the back-rest and parts which necessarily cooperate with it.

1 indicates a portion of the mid-plate or main bracket of the machine, and 2 the back-rest, which is provided with the usual rearwardly-extending bar or shank 2<sup>a</sup>, which is adapted to slide between the guideways 1<sup>a</sup> 1<sup>b</sup> of the mid-plate, and with the curved front end, which is adapted to engage the shoe. The back-rest is held in place in its guideways by the plate 1<sup>c</sup>, which is secured to the mid-plate. The rear end of the back-rest is provided with an upwardly-extending piece 2<sup>b</sup>, and a spring 3 is connected thereto and to the front portion of the upper guideway 1<sup>a</sup>, so that said spring tends to force said back-rest forward constantly. The under side of the shank 2<sup>a</sup> is provided with a notch 2<sup>c</sup>, and a pin 1<sup>d</sup> in the mid-plate is located therein and limits the backward and forward movement of the back-rest. A shaft 4 is journaled at one end in said mid-plate and at the opposite end in a bracket 5. Said shaft is provided with two segmental-shaped notches 4<sup>a</sup> 4<sup>b</sup>. A locking-lever 6, which is

pivoted to the mid-plate by the pivot-pin 6<sup>a</sup>, is provided at its rear end with an upwardly and laterally extending finger 6<sup>b</sup>, which is adapted and arranged to engage the upper side of the shank 2<sup>a</sup> of the back-rest when the front end of the lever 6 is lifted. The portion of the lever 6 in front of its pivot is made heavier than the rear portion thereof, so that when its front end is unsupported the back-rest will be unlocked, and when the front end is lifted the arm 6<sup>b</sup> will engage the upper side of the shank of the back-rest. The under surface of finger 6<sup>b</sup> is made flat and is arranged so that it will rest fairly on the upper surface of the shank when it is brought to bear thereon. The front end of the lever 6 rests in the notch 4<sup>a</sup> of shaft 4. The bottom of the notch 4<sup>a</sup> is so located with respect to the under side of the portion of the lever 6 which rests in the notch that when the finger 6<sup>b</sup> is in engagement with the upper side of the shank and the shaft 4 is turned so that the bottom of the notch is parallel with the under side of the lever there will be a narrow space therebetween, so that the front end of the lever will be free to swing down sufficiently to just lift the finger out of engagement with the shank. It will therefore be obvious that when the shaft 4 is rotated, so that the edge of the bottom of the notch which is farthest from the pivot 6<sup>a</sup> is brought against the under side of the lever 6, the finger 6<sup>b</sup> will be pressed down on the upper side of the shank.

The shaft 4 passes through a hub in the lower end of an arm 7 and is secured thereto by two set-screws 8 8', which engage the bottom of notch 4<sup>b</sup> at opposite ends thereof. The opposite end of arm 7 is provided with the usual roll or projecting pin, which engages a suitable cam-path in the cam 9.

It is well known that the back-rest must be locked while the stitch is being taken and unlocked when the shoe is being fed along, so that the rest is alternately locked and unlocked at certain intervals.

The parts being properly adjusted, the operation is as follows: When the shoe is to be fed along, the cam 9 will swing the arm 7 forward, rotating shaft 4 in the same direction,



lowering the front edge of the bottom of notch 4<sup>a</sup> and permitting the front end of lever 6 to drop slightly, thus lifting the finger 6<sup>b</sup> out of engagement with the upper side of the shank 2<sup>a</sup> of the back-rest, unlocking the same. When a stitch is to be taken, the lever 7 is swung back to the position shown in the drawings, lifting the front edge of the bottom of notch 4<sup>a</sup> so that the front end of lever 6 is lifted, bringing the finger 6<sup>a</sup> down on the upper side of the shank of the back-rest and pressing the latter against the lower guide-way 1<sup>b</sup>, so that the rest will be firmly locked in the desired position. As the edge formed by the notch 4<sup>a</sup> which engages the lever 6 is comparatively sharp and as the distance through which the edge moves while in engagement is short, the friction between the engaging parts is reduced to a minimum, and there is little or no tendency to cause said parts to become wedged together, as there would in case an ordinary cam were used for this purpose. In fact, as the distance is inappreciable through which the engaging edge moves, while there is any appreciable force exerted thereby on the lever, there is practically no friction between the engaging parts at any time, and said engaging edge acts as if it were lifted directly in an arc from the center of pivot 6<sup>a</sup>.

It will be obvious that in order to have the finger on the lever clamp the back-rest firmly and yet avoid having the roll or projection on arm 7 bind in the cam-groove the parts must be very nicely adjusted, as no intermediate spring is provided through which the force is transmitted. To secure this nice adjustment and to provide a ready means of altering said adjustment when the parts become worn, I have devised a means of adjustment (shown in Fig. 3 of the drawings) which I have found very effective for this purpose. The notch 4<sup>b</sup>, which is cut in the side of shaft 4, is of such length that bearing-surfaces for the ends of screws 8 8' are provided on the shaft at some distance from and on each side of the radial line from the axis of the shaft, which is half-way between the screws 8 8'. By loosening one screw and tightening the other the shaft 4 may be rotated in either direction in the hub of the arm 7, so that the relative position of the front edge of the bottom of notch 4<sup>a</sup> with the cam may be varied at will. For example, when the back-rest is locked too hard, so that the parts bind, the screw 8 will be loosened and 8' tightened, and vice versa. When both screws are set up firmly against the bottom of notch 4<sup>b</sup> on the shaft, the arm and shaft will be firmly locked together.

A locking device is thus provided which is capable of firmly and positively locking the back-rest at any desired point and which is simple and capable of easy and accurate adjustment. In prior locking devices which have been used for this purpose the shank of

the back-rest has been provided with a ratchet or rod, so that it could only be locked at certain points. Those in which the locking means comprises a spring-actuated clamp and which are capable of locking the rest at any point have been found incapable of locking the rest with sufficient firmness to resist the thrust of the needle and have been found liable to slip. The above defects are avoided by my invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is as follows:

1. A back-rest for shoe-sewing machines having a rearwardly-extending shank, suitable guides therefor, a spring for constantly forcing said shank forwardly, a shaft having a segmental-shaped notch formed therein, a pivoted lever having a part thereof so arranged that when it is swung on its pivot said part may engage said shank and press the same against its guides, and an extremity of said lever being arranged to rest on one edge of the bottom of said notch, and means for oscillating said shaft so as to cause said edge to swing said lever into and out of engagement with said shank and alternately lock and unlock the same substantially as described.

2. A back-rest for shoe-sewing machines having a rearwardly-extending shank having parallel edges, suitable guides in which said shank may slide, a spring for constantly forcing said shank forwardly, a shaft having a segmental-shaped notch formed therein, a pivoted lever having one end resting on one edge of the bottom of said notch, a laterally-extending finger on the opposite end of said lever which is adapted to engage the upper parallel side of said shank and press the same against its under guides, and means for oscillating said shaft so that said edge will alternately lift the lever-arm which rests thereon and permit the same to drop, whereby said back-rest may be alternately locked and unlocked in whatever position it may assume, substantially as described.

3. A back-rest for shoe-sewing machines comprising a rearwardly-extending shank having smooth parallel edges, suitable guides therefor, a pivoted lever having a flat surface which is adapted and arranged to engage one of said edges when it is swung on its pivot, and press the opposite edge against its guide, a shaft having a segmental-shaped notch which is so arranged that when said shaft is oscillated in one direction one edge of the bottom of said notch will engage said lever and cause the flat surface thereof to engage the edge of said shank, and, when moved in the opposite direction, to permit said lever to swing so as to move said flat surface out of engagement with said shank.

4. A back-rest for shoe-sewing machines comprising a sliding bar which is adapted to engage the shoe at its outer end, a pivoted



lever which is adapted to engage said bar when  
moved in one direction, a shaft having a por-  
tion thereof cut away, one end of said lever  
resting in said cut-away portion of said shaft,  
5 an arm having a hub through which said shaft  
passes, two set-screws arranged in said hub,  
bearing-surfaces on said shaft for the ends of  
said screws which are arranged on each side  
of a radial line from the axis of the shaft which

is midway between said set-screws, and means 10  
for oscillating said arm.

In testimony whereof I have affixed my sig-  
nature in presence of two witnesses.

EDWIN E. BEAN.

Witnesses:

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