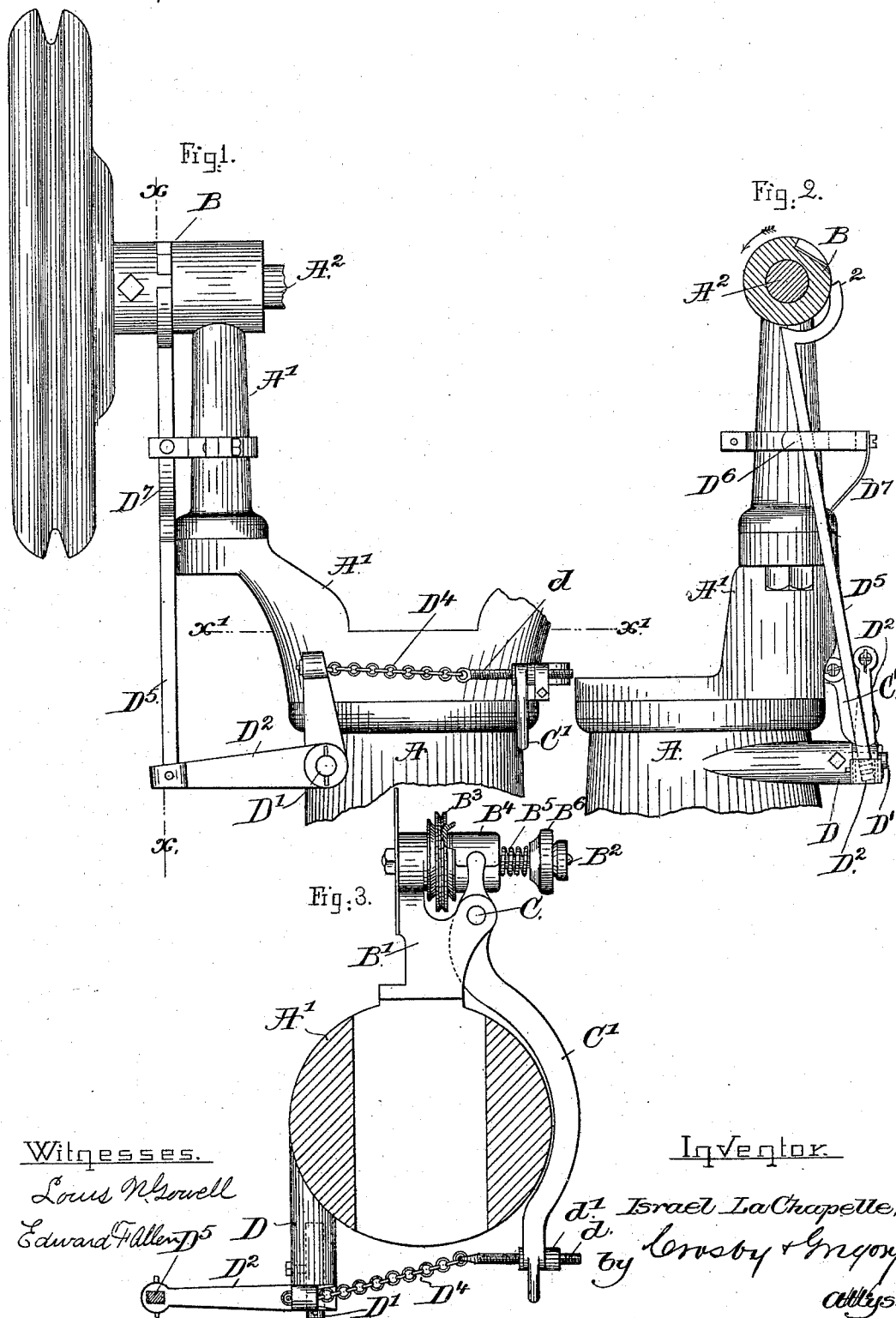


(No Model.)

I. LA CHAPELLE.
TENSION DEVICE FOR SEWING MACHINES.

No. 488,505.

Patented Dec. 20, 1892.



UNITED STATES PATENT OFFICE.

ISRAEL LA CHAPELLE, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR TO THE
GOODYEAR SHOE MACHINERY COMPANY, OF HARTFORD, CONNECTICUT.

TENSION DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 488,505, dated December 20, 1892.

Application filed May 23, 1892. Serial No. 433,949. (No model.)

To all whom it may concern:

Be it known that I, ISRAEL LA CHAPELLE, of Haverhill, county of Essex, State of Massachusetts, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

The apparatus herein to be described and made the subject of this application has been devised for use more especially in connection with mechanism for stitching leather, the needle thread being waxed.

In accordance with this invention the construction and operation of the parts are such as to enable the tension device for the needle thread to be automatically released whenever the main or cam shaft is stopped and its direction of motion is reversed.

Figure 1 is a partial rear elevation of a sewing machine with my improvements applied thereto; Fig. 2, a partial section to the right of the dotted line x ; and Fig. 3 is a section below the dotted line x' .

Referring to the drawings, A represents a column having erected upon it a head A', which sustains the main or cam shaft A², the said shaft in practice having a series of cams substantially such as provided for in United States Patent No. 412,703, said cams serving to operate the different parts of the stitch forming and material feeding mechanisms, the said parts not being herein shown because not of my invention. I have provided the shaft A² with a cam or projection B and upon the column I have mounted a bracket B' which receives a stud B² on which is loosely mounted a tension device B³ for the needle thread.

This tension device may be of any usual or suitable construction commonly employed in sewing machines, said tension device, as herein shown, being of that class wherein the thread is wound about it and the tension device rotates with the thread as the latter is being drawn through the machine.

The tension device referred to has co-operating with it a sliding block or brake B⁴, said block or brake in this present embodiment of

my invention, being represented as mounted loosely upon the said stud B², and between the said block or brake and a nut B⁶ screwed upon a threaded part of the stud, I have placed a spring which bears against the block or brake, rotation of the nut causing the spring to exert greater or less pressure to thus regulate the friction between the block or brake and the tension device.

The stand B', shown in Fig. 3, has pivoted upon it at C a lever C', movement of which in one direction enables the tension device B³ to be released, so that it may be turned freely about the said stud, the said lever in its other position or direction of movement enabling the spring B⁵ to act as described.

It will be understood that when the stitching of the shoe or other piece of leather has been completed, the work has to be removed, and at such time, and frequently at other times, it is desired to have the thread rend freely through the machine, and this may be done when the device which exerts friction upon the thread tension device is so moved as to release the needle thread from tension.

The column has a suitable stand or boss D, that receives a stud D' on which is mounted a lever D² shown as of elbow-shape, one arm of said lever being joined by a suitable flexible or other link D⁴ with one end of the lever C'. The connection D⁴ as shown, is composed of a chain and it has as a part of it a screw d on which is a nut d' , the adjustment of which nut enables the block or brake to be adjusted with relation to the tension device and spring B⁵. The opposite end of the elbow-lever has jointed to it a rod D⁵ shown as normally pressed against a fulcrum D⁶ by a spring D⁷, said rod having its upper end so shaped, see Fig. 2, as to bear against the cam B so long as the shaft A² is rotated in the direction of the arrow Fig. 2, but without reciprocating said rod so as to turn the lever D². The upper end of the rod referred to will be held against the said cam as herein shown by the spring B⁵. When, however, the rotation of the shaft A² is stopped, and its direction of movement is partially reversed, then the more abrupt portion of the cam B thereon, see Fig. 2, meets

the extremity 2 of the said rod and immediately the latter is sufficiently depressed to thus turn the elbow-lever and move the lever C' sufficiently to effect the release of the tension device B³ so that the thread may there-
5 after be drawn freely from the tension device.

This invention is not limited to the exact shape shown for the cam or projection, nor to the exact shape shown for the rod, nor for the
10 brake device, nor to the connections between the said rod and the said brake device to effect the release of the tension on the needle thread at desired times, as it is obvious that a mechanic might devise other equivalent de-
15 vices for accomplishing the same purpose without departing from my invention.

I am aware, prior to my invention, that the tension device acting upon the needle thread has been released once for each stitch during
20 the stitching operation, and also that the devices co-operating with the tension mechanism have been such that the tension mechanism will be opened intermittingly at each rotation of the main shaft of the machine,
25 whether running in the forward or backward

direction, as in United States Patents Nos. 324,580 and 332,753.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

In a thread controlling mechanism for sewing machines, the following instrumentalities, viz:—a tension device, a brake device to act uniformly thereon to produce a constant tension while the machine is being run for sewing;
35 a shaft having a cam or projection; brake actuating devices located between said cam or projection and said brake, said cam being constructed to meet and move the brake actuating devices to release the tension on the
40 needle thread only after the said shaft has been stopped and its direction of rotation reversed, substantially as described.

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

ISRAEL LA CHAPELLE.

Witnesses:

GEO. W. GREGORY,
AUGUSTA E. DEAN.