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D. S. DRYSDALE.

TENSION DEVICE FOR SEWING MACHINES.

APPLICATION FILED AUG. 7, 1903. RENEWED JAN. 7, 1905.

Fig. 4.

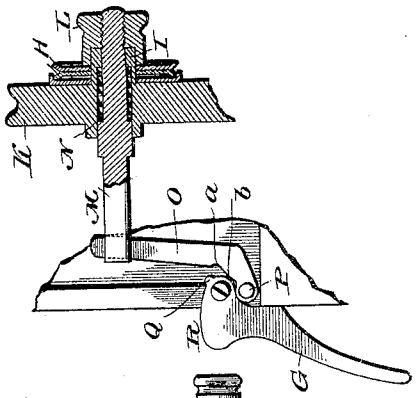


Fig. 3.

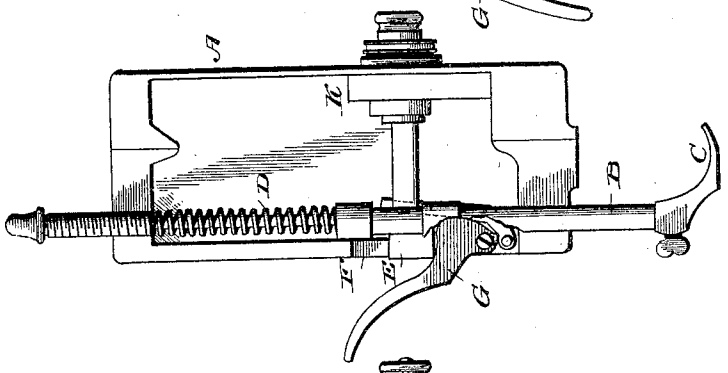


Fig. 2.

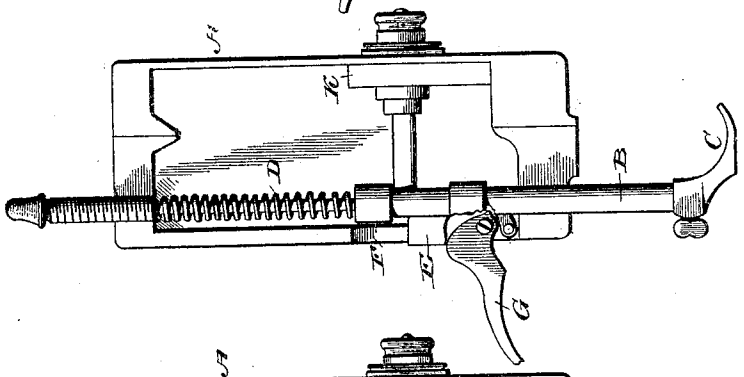
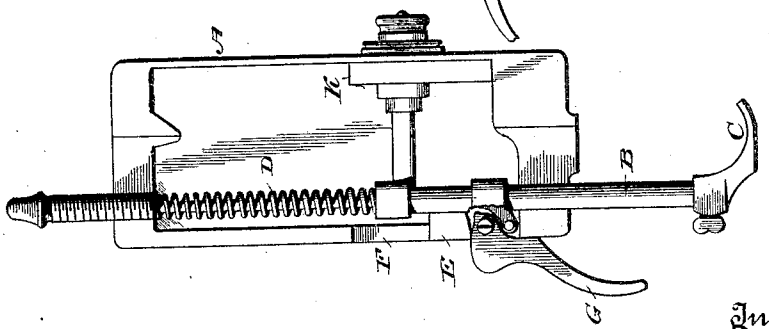


Fig. 1.



Witnesses

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UNITED STATES PATENT OFFICE.

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TENSION DEVICE FOR SEWING-MACHINES.

No. 820,290. Specification of Letters Patent. Patented May 8, 1906.

Application filed August 7, 1903. Renewed January 7, 1905. Serial No. 240,085.

To all whom it may concern:

Be it known that I, DAVID S. DRYSDALE, a citizen of the United States, residing at Newark, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Tension Devices for Sewing-Machines, of which the following is a description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to an improvement in sewing-machines, and particularly to the needle-thread tension mechanism thereof, the object being to provide an automatic tension-release for the needle-thread controlled by the mechanism for raising and lowering the presser-foot, which shall not, however, be brought into action at every movement of the presser-foot, such as takes place when the feed rises or an extra thickness of goods or other obstruction is encountered, but shall be brought into operation only when the presser-foot has reached or substantially reached the limit of its upward movement.

The invention therefore consists in the matters hereinafter described, and referred to in the appended claims.

The invention is illustrated in the accompanying drawings, in which—

Figures 1, 2, and 3 are end views of a portion of a sewing-machine, illustrating my invention when the operating parts are in different positions; and Fig. 4 is a detail view of the presser-foot lever and cam with the connections between the same and the tension-disk-supporting post or cam.

In the drawings, A represents a portion of the head of a sewing-machine of the "Domestic" type, the front plate being removed. B is the presser-bar, C the presser-foot, and D the presses-foot spring, all these parts being operated in the usual manner, the presser-bar B having a horizontally-swinging block E thereon, which is guided up and down in the slot F in the head of the machine and is raised by the action of the ordinary cam presser-lifting lever G. The subject-matter of the present application relates, as above stated, more especially to an automatic tension-release for the needle-thread, and, referring now more particularly to Fig. 4, H H represent two tension-disks between which the thread passes on its way to the needle. These are loosely placed on the projection I of the plate, forming a part of or attached to the head A. The tension on these disks is adjusted by means of the thumb-nut, which is flanged to embrace the projection or hub I, the edges of the flanges being adjacent the outer disk. This thumb-nut is screw-threaded on the outer end of a rod or plunger M, which passes through the frame and plate K and is normally spring-pressed backwardly to keep the disks in contact by means of the spring N. At its rear end this rod or plunger M is forked to receive the upper end of the lever O, which may either be pivoted between the sides of the fork or rest therein. This lever O is pivoted at its lower end at P to the frame of the machine and is adapted to be swung on its pivot to reciprocate the plunger M by means of the presser-bar-lifting cam-lever, which has a projection Q, adapted when the presser-foot-lifting lever has been elevated a certain distance to engage the notch *a* in the lever O, ride over the convex portion *b*, and swing the lever O in its pivot and force out the plunger M to release the tension-disks, so that the thread will run loosely between them.

The projection or supplemental cam Q on the presser-foot-lifting lever G is so placed that it will not engage the lever O to swing it upon its pivot and force out the plunger until the lifting-cam R has substantially or entirely completed the lifting of the presser-foot. Thus it will be seen that in the ordinary action of the feed upon the presser-foot or in the lifting of the foot, due to the passage over seams or other obstructions, the presser-foot may rise without effecting the release of the needle-thread tension. So, also, the presser-foot may be raised practically to its extreme height to swing the work around or insert or remove work to a limited extent without releasing the tension, the tension only being released when the lifting-lever has practically completed its lifting action on the foot.

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

1. The combination with a presser-foot, and a lifting-lever pivoted to the frame and having a two-cam surface, one of which acts to raise the presser-foot, of a vertically-disposed tension-actuating lever pivoted at its

lower end in the same plane with the lifting-lever and engaged near its lower end by the other cam-surface of the lifting-lever, and a tension device having a plunger in the plane of and engaged by the upper end of the tension-actuating lever.

2. In a sewing-machine, a presser-foot-lifting lever having a cam to raise the presser-foot said cam having near one extremity a projection, a tension device, a lever controlling the same, and having a recess adapted to be engaged by the projection on the cam when the cam proper has practically completed its presser-foot-lifting action; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID S. DRYSDALE

Witnesses:
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