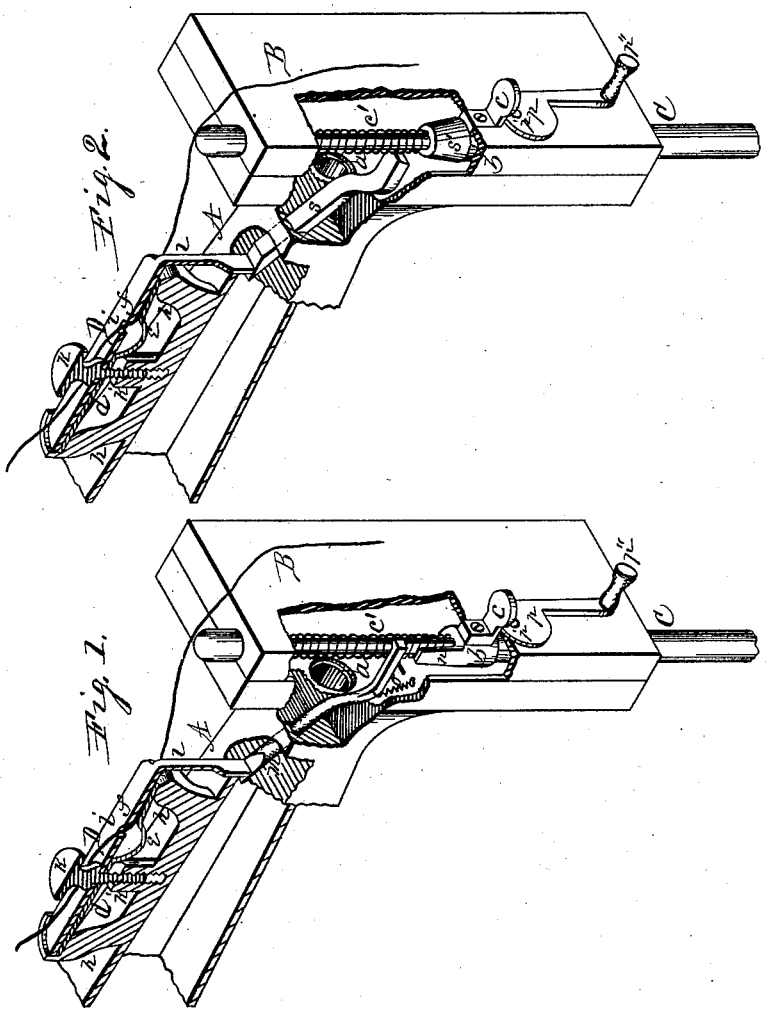
(No Model.)

S. C. WESTERLING.

SEWING MACHINE.

No. 266,934. Patented Oct. 31, 1882.



Witnesses.
C. E. Sweeney
A. O. Behrell

Inventor.
Samuel C. Westerling
Per Jacob Behrell
Atty.

UNITED STATES PATENT OFFICE.

SAMUEL C. WESTERLING, OF ROCKFORD, ILLINOIS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 266,934, dated October 31, 1882.

Application filed December 28, 1881. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL C. WESTERLING, a citizen of the United States, residing in the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Sewing-Machines, of which the following is a specification.

My invention relates to sewing-machines, but more particularly to the tension mechanism. Its object is to relieve the tension when the work is to be removed; and it consists in suitable mechanism connected with the piston-rod of the presser-foot in such a manner that the upward movement of the piston-rod to liberate the goods held by the presser-foot will release the tension on the upper or needle thread to permit the goods to be withdrawn from the machine freely. To this end I have designed and constructed the apparatus represented in the accompanying drawings, in which—

Figure 1 is an isometrical representation of the head or needle-end portion of the overhanging arm of a sewing-machine in which is embodied my invention, and in which portions are broken or cut away to more clearly show the connection and application of my improvements. In Fig. 2 is represented a modification of my improvements.

In the several figures, A represents the forward needle-supporting end portion of the overhanging arm of a sewing-machine of a form substantially such as is found in sewing-machines now in use. This arm is centrally bored lengthwise, as shown at *a*, to receive the shaft of the crank-head, employed to impart a vertical movement to a needle-bar supported in the free end of the overhanging arm.

At B is represented the face-plate, fixed to the free end of the arm, which is of proper form and fitted to receive it. In these parts the piston-rod C of the presser-foot is supported in suitable bearings to move freely in the direction of its length.

At *b* is represented a collar fixed to the piston of the presser-foot in a manner capable of vertical adjustment, and its outward-projecting arm *c* furnishes the means by which it may be raised by the finger of the operator. This piston is provided with a spiral presser-spring, *c'*, employed to hold the presser-foot in contact with the cloth.

At D is represented a tension mechanism, consisting of an under spring-plate, *d*, having the downward-curving portion *e*, and an upper plate, *f*, which, in the main, is of substantially the same outline form in plan as the under plate, *d*. These plates are supported in position on the overhanging arm on supports *h*, which rise from the upper surface of the arm. The upper plate, *f*, is perforated, as at *i*, through which the upper or needle thread is passed, and thence between the forward ends of the plates to the needle.

At *k* is represented a tension-screw, which is passed through the central portion of the plates, and is screw-threaded into a center stud, *k'*, rising from the arm, and is employed for the purpose of regulating the tension by increasing or lessening the clamping or holding force of the plates between which the thread is passed. The upper plate, *f*, of the tension mechanism is provided at its forward end with a depending arm, *l*, the lower end of which extends through the upper shell of the overhanging arm and rests on the flattened surface of the end portion of the crank-formed bar *m*. This crank-formed bar *m* is supported in position in a bearing laterally oblique and upwardly inclined to the axis of the arm, or to the shaft of the crank-head contained therein, and its outward end portion is of a suitable curving crank form to pass the crank-head employed to impart motion to the needle-bar, and extends to or outward of the piston of the presser-foot, or in such relative position thereto that the end portion of an arm, *n*, fixed to and rising from the collar *b* on the piston, will, when the piston is raised to release the goods, engage the free end of the crank-formed rod and impart to it a partial rotation, which movement will, by means of its flattened end connection with the depending arm of the upper spring-plate of the tension, raise the forward end of the plate sufficient to completely release the tension and permit the goods to be withdrawn from the machine freely, and when the goods are replaced and the presser-foot lowered onto the work the spring-plate will again embrace the thread and reproduce the tension.

At *o* is represented a spiral spring, connected with the crank-formed bar or rod and with any suitable portion of the arm in such a man-

ner that its spring action will operate to hold its free outer end in its lowest position supported on a suitable stop employed to limit its downward movement under the action of the spring.

At *p* is represented a cam-formed lifting-lever, having a pivotal connection with the face-plate at *p'*, immediately under the projecting lifting-arm *c*. This lifting-cam, by means of its crank-handle *p''*, can be turned upon its pivotal connection from the position shown to a position directly opposite, in which its handle *p''* will be directly above its pivotal connection, in which movement the cam portion will engage the projecting lifting-arm *c* and operate to lift the piston-rod, and also the cloth presser-foot connected therewith, and in this movement of the piston-rod the tension will be released, as hereinbefore described.

In the drawings I have only represented such parts of a sewing machine as are necessary to show the connection of my improvements with the machine, and the parts not herein shown or described and necessary to produce a complete machine may be such parts of any of the machines now in use adapted to be used in connection with the parts herein shown and described.

In this instance I have provided the lifting-collar *b* on the piston-rod with an uprising arm, *n*, to engage the free end of the crank-formed bar to operate the release; but instead thereof an independent collar mounted on the piston and made independently adjustable thereon may be employed.

In the modification of my improvement as shown in Fig. 2, instead of the crank-formed rocking or rolling bar *m*, I have employed an endwise-moving bar, *s*, having its end which engages the vertical arm of the tension-bar inclined or of wedge form in such a manner that the endwise movement of the bar will operate to release or produce the tension as the bar is moved endwise in one or the other direction.

The piston-rod in this instance is provided with a conic-formed collar, *s'*, which in the upward movement of the piston-rod will engage the beveled forward end of the bar *s* and cause it to move endwise, which movement will operate the tension mechanism, as hereinbefore stated.

I claim as my invention—

1. In a tension mechanism for sewing-machines, the spring-plates *d* and *f*, set-screw *k*, piston-rod *c*, and connecting-bar, the upper plate, *d*, being extended and adapted to be acted upon by said piston-rod through the medium of said connecting-bar for releasing the tension, substantially as described.

2. The combination, with the tension mechanism and with the vertical-moving piston of the presser-foot, of an intermediate crank-formed connecting-bar, capable of an axial or rolling movement by means of the vertical movement of the piston to release the tension, substantially as and for the purpose hereinbefore set forth.

3. In a tension mechanism for sewing-machines, the spring-plates *d* and *f* and set-screw *k*, in combination with the vertically-moving piston and the intermediate crank-formed connecting-bar, capable of an axial or rolling movement, substantially as and for the purpose described.

4. In a tension mechanism for sewing-machines, the spring-plate *d*, provided with depression *e*, spring-plate *f*, set-screw *k*, and piston-rod of the presser-foot, in combination with the connecting-bar, all arranged and operating substantially as described.

SAMUEL C. WESTERLING.

Witnesses:
JACOB BEHEL,
R. O. BEHEL.