

No. 685,888.

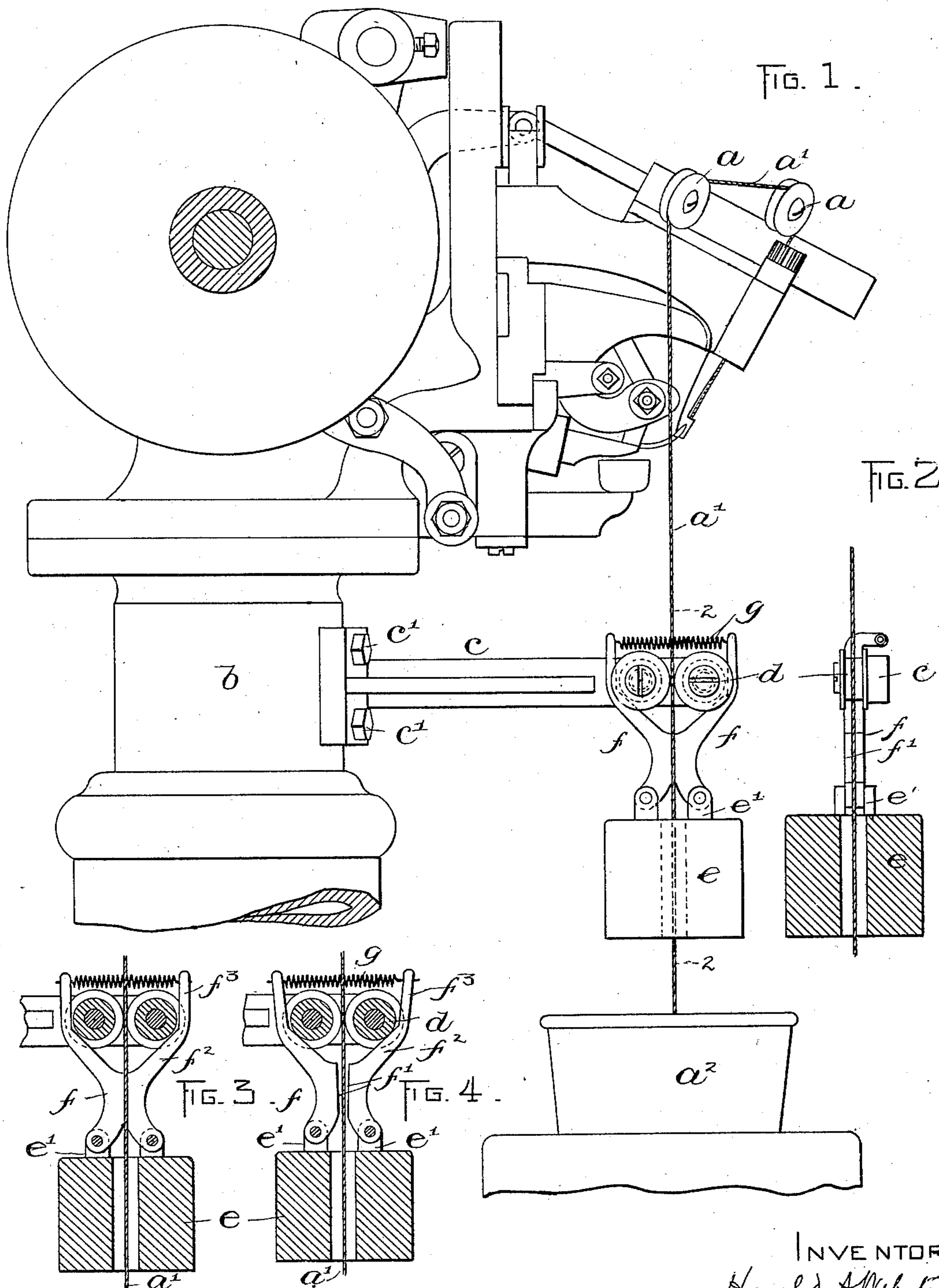
Patented Nov. 5, 1901.

H. A. WEBSTER.

TENSION AND TAKE-UP DEVICE FOR SEWING MACHINES.

(Application filed Oct. 21, 1897.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## TENSION AND TAKE-UP DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 685,888, dated November 5, 1901.

Application filed October 21, 1897. Serial No. 655,887. (No model.)

*To all whom it may concern:*

Be it known that I, HAROLD A. WEBSTER, of Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Tension and Take-Up Devices for Sewing-Machines, of which the following is a specification.

This invention has relation to take-ups for sewing-machines or machines of various other types in which it is necessary or desirable to maintain a constant tension upon a thread or cord and intermittingly take up a certain amount of slack in the same.

The object of the present invention is, among other things, to obviate the necessity of employing a large number of spring-pressed disks and other devices through which the cord or thread must be passed and to provide a device which will operate not only to preserve an even tension on the thread, but also to intermittingly take up slack in the same.

In machines for sewing the various parts of boots and shoes the thread is generally waxed, so that when it is passed through a series of spring-pressed disks or eyes the latter become frequently heavily coated with wax, whereby if the machine remain idle at times the thread becomes stuck to them and greatly increases the liability of breaking the needle or some other delicate part of the machine. Hence another object of the invention is to provide for the thread passing directly from the wax-pot to the stitch-forming mechanism, so as to give the wax but little time to cool and to prevent the thread from depositing it on various parts of the machine over which it has been heretofore necessary to pass it.

The manner in which I attain the objects of this invention and remedy the evils referred to, as well as in what the invention consists, may be ascertained from the following specification and claims.

Reference is to be had to the accompanying drawings and to the letters marked thereon, forming a part of this specification, the same letters indicating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 represents in side elevation a sewing-machine equipped with my invention. Fig. 2 represents a section on the line 2 2 of Fig. 1. Figs. 3 and 4

represent a longitudinal vertical section of my combined tension and take-up device and illustrate the operation thereof.

Referring to the drawings, I have illustrated a sewing-machine more or less conventionally, but shall not describe the same, as it forms no part of the present invention, being merely selected for the purpose of illustrating one adaptation thereof.

$a$  indicate pulleys or idlers over which the thread  $a'$  passes, and although I have shown two of these pulleys or idlers one is sufficient for all general purposes. The thread passes from a wax-pot  $a^2$  over the pulleys to the stitch-forming mechanism, my improved tension device and take-up being interposed between the wax-pot and the pulley  $a$ .

Extending out from the standard  $b$  of the machine is an arm or support  $c$ , secured thereto by bolts  $c' c'$ . Journaled on the said support near the outer end thereof are two flanged rolls  $d d$ , separated far enough apart to allow the thread  $a'$  to pass loosely between them without touching them.

$e$  indicates a gravity device or weight provided with upwardly-projecting lugs or ears  $e' e'$ , to which are pivoted the two coacting members of a clamping device  $f$ . Each member is formed of a lever having a clamping edge  $f'$ , an outwardly and upwardly bent portion, and an upwardly-projecting end  $f^3$ . The ends of the two members are connected by a spring  $g$ , which is strong enough to draw the members together against the thread  $a$  with sufficient force to prevent the weight  $e$  from dropping. The two converging portions  $f^2 f^2$  of the members of the clamp bear against the rollers  $d d$  between the flanges thereof, as shown in Figs. 3 and 4.

The operation of my device is as follows: The parts being secured in place, as shown upon the drawings, with the spring  $g$  tightly clasping the clamping portions of the two members together against the thread, the raising of the thread will carry the clamping devices and the weight upwardly until the two members of the said device are separated or wedged apart by the rollers  $d d$ , so as to disengage the said members from the thread. The weight, therefore, immediately drops; but before it has traversed any considerable

distance the spring *g* clamps the members *ff* against the thread again. Thus it will be seen that although the clamps intermittently release the thread, yet the period of release is of so short duration that to all intents and purposes the weight *e* is constantly upon the thread *a'*, and hence the tension upon the said thread may be considered as practically constant, as I have found in actual practice.

10 This device has also a take-up action, as will be seen from Fig. 3, the arms *f*<sup>3</sup> being long enough to allow the weight and clamp to descend a substantial distance after the thread has been clamped, thus taking up any  
15 small amounts of thread that may be given up by the other thread-handling instrumentalities.

A device constructed in accordance with the foregoing possesses many features of advantage not possessed by the ordinary tension and take-up devices to which I have hereinbefore referred more or less briefly. The thread is passed directly from the wax-pot to the stitch-forming mechanism with the  
20 interposition of a single pulley, if necessary, and is not carried through a series of spring-pressed disks and other devices upon which it may leave its wax. Hence the machine is always ready for use, even though it has been  
25 idle for a considerable length of time. The tension upon the thread is constant, and may be increased or decreased by changing the weight *e*.

Although I have shown and described the preferred form of my invention, in which the clamping members are attached to a weight, still I do not limit myself to such a construction, any equivalent device for obtaining the desired tension on the thread being within  
35 the spirit and scope of the present invention.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it  
40 may be made or all of the modes of its use, I declare that what I claim is—

1. A take-up consisting of an intermittently-acting clamp supported directly by the thread, and means to actuate the clamp, substantially as described.

2. A combined tension and take-up comprising an intermittently-acting clamp supported directly by the thread and arranged to exert a substantially uniform tension on the  
55 thread, substantially as described.

3. A take-up consisting of a clamp supported by the thread, means for automatically releasing said clamp momentarily as the thread advances, and means for closing the clamp.

60 4. A combined take-up and tension device, comprising a weighted clamp supported by the thread, means adjacent the path of the thread for momentarily releasing said clamp, and means for closing the clamp, substantially as described.

5. A combined take-up and tension device comprising a weighted clamp having diverg-

ing members, means engaged by said members for intermittently and momentarily wedging said members apart as the thread  
70 advances, and means for closing the clamp.

6. A combined take-up and tension device comprising a weighted clamp engaging the thread and having diverging members, stationarily-journaled flanged rolls interposed  
75 between said diverging members and means for closing the clamp, all operating as described.

7. A combined tension device and take-up, comprising a weight, spring-connected clamping members from which the weight depends, and which engage the thread to support the weight and means for momentarily releasing the clamping members.

8. In a sewing-machine, the combination  
85 with a thread-clamp supported by the thread, of means for opening the clamp operated by a pull on the thread and means for closing the clamp thereafter, substantially as described.

9. In a sewing-machine, the combination  
90 with a thread-tension clamp movable to and fro in the line of the pull of the thread, of means for opening the clamp when it shall have been drawn by the thread to the limit of its movement in one direction, means normally  
95 tending to move the clamp in the opposite direction operable on the opening of the clamp and means tending to close the clamp at all times except when overcome by the means for opening the clamp, substantially  
100 as described.

10. In a sewing-machine, the combination with two clamp-levers provided with opposed clamping-faces, a connecting-piece to which the clamp-levers are pivoted, means controlled by the pull on the thread for opening and closing the clamp-levers, substantially as described.

11. In a tension device for sewing-machines, the combination with clamp-levers, a connecting-piece to which the clamp-levers are pivoted, a spring tending to close the clamp-levers and means operating to wedge the levers apart when the device is thrust upon said means by a pull on the thread substantially  
115 as described.

12. In a tension device for sewing-machines, the combination with a weight, of a pair of clamp-levers pivoted thereto having angularly-diverging portions, a spring connecting  
120 the extremities of the clamp-levers, a support and projections carried thereby adapted to engage the diverging portions of the levers to open them by a pull on the thread, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 30th day of September, A. D. 1897.

HAROLD A. WEBSTER.

Witnesses:

C. F. BROWN,

A. D. HARRISON.