(No Model.)

M. B. REIGH.

THREAD UNWINDING DEVICE FOR SEWING MACHINES.

No. 485,136. Patented Oct. 25, 1892.

Fig. 1

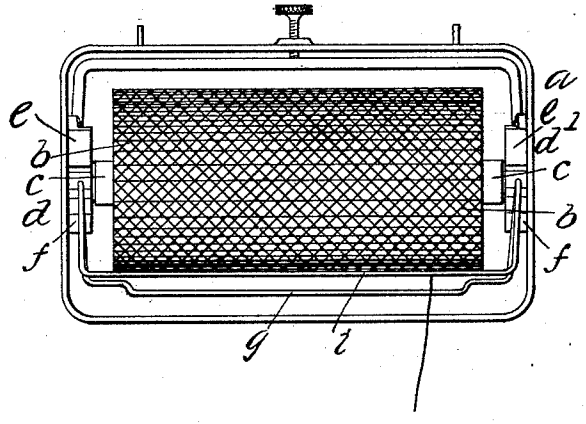


Fig. 2

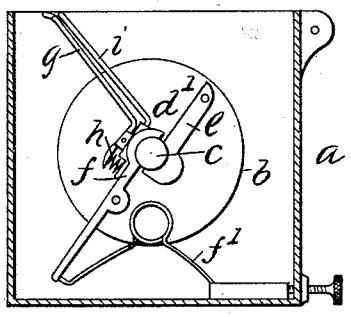


Fig. 3

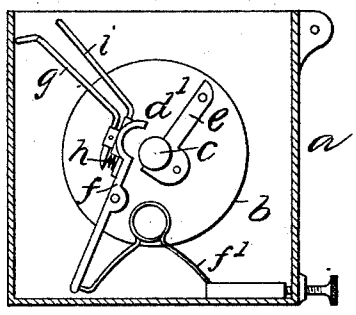
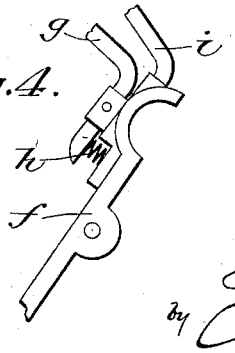


Fig. 4.



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THREAD-UNWINDING DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 485,136, dated October 25, 1892.

Application filed May 26, 1892. Serial No. 434,499. (No model.)

To all whom it may concern:

Be it known that I, MARK B. REIGH, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Thread-Unwinders, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates to the class of devices that are used to support a mass of thread, either in spool form or wound upon a bobbin or spindle in proper manner to be used as a supply for a sewing-machine or for like purposes.

The object of my invention is to provide a device of this class that shall enable the supply of thread to be delivered in such manner as to enable a perfect control of the tension to be maintained, and also to embody in the device a take-up mechanism that will operate to preserve a substantially-uniform tension of the thread while it is being withdrawn from the bobbin.

To this end the invention consists in the details of the several parts making up the device as a whole and in their combination, as more particularly hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a detail top view of a device embodying my invention. Fig. 2 is a detail end view of the same with parts broken away to show the interior construction. Fig. 3 is a detail view with the end of the box broken away, illustrating the method of operation of the device. Fig. 4 is a detail view, on enlarged scale, showing the connection between the thread-guide and the clutch part.

In the accompanying drawings the letter *a* denotes a box or frame that serves as a support for the mass of thread *b*. The thread is wound upon a spindle *c*, that has upon its opposite ends journals that are adapted to rest in the supports *d d'*, formed at opposite ends of the frame or box. These supports *d d'* are made up of a part *e*, rigidly secured to the box or frame and containing a portion of the spindle-socket, and the other end of the spindle-socket is formed in the end of a yielding clutch part *f*, that is pivoted to a fixed portion of the support in such manner as to bind with a yielding pressure upon the ends of the spindle that are held in the spindle-supports. The clutch part is held with a binding force upon the spindle of the bobbin by means of springs *f'*, so located as to operate to force the socketed portion of the clutch part down upon the spindle when the parts are in position for use.

A thread-guide *g*, formed, preferably, of wire, extends lengthwise along the mass of thread and is attached to the clutch parts at each end. This thread-guide is made so as to yield under the pull of a piece of thread that is drawn over it, and it yields until it reaches a point where the tension becomes sufficient to release to a degree the hold of the clutch parts upon the spindle by withdrawing the socket end of such part out of contact with the ends of the spindle. This is effected in the form shown by pivoting the thread-guide to each of the clutch parts and arranging a spring *h* so as to thrust against the guide and keep it at the upper limit of its swinging movement. The guide is forced outward and downward against the pressure of this spring and by the pull upon the thread that is passed over the guide. It is the recoil of this thread-guide under the impulse of the spring that serves as a take-up and enables a uniform tension to be maintained as the thread is supplied to the needle, as in the operation of a sewing-machine.

The device herein illustrated is especially adapted for use in connection with a boot or shoe stitching machine.

By the use of this device a very light tension can be maintained upon the thread and a greater uniformity of the tension is secured. It is also possible to operate a machine successfully under a much less tension of the thread than is possible with prior devices of the class.

In the form shown a guard *i* extends from clutch part to clutch part at the ends of the mass of thread and is practically coextensive with and overlies the thread-guide. This guard serves a purpose in connection with a device that is connected with a cover secured to the machine, of unclamping the spindle

when it is desired to freely withdraw any considerable length of thread. It also serves a like purpose when it is desired to open the sockets wide enough to permit the removal of the old bobbin or the insertion of a new bobbin.

I claim as my invention—

1. In a thread-unwinder, in combination with the frame for supporting a mass of thread, socket-pieces secured to the frame and having formed therein a portion of the socket for the spindle of the bobbin, the yielding clutch parts, each containing a portion of the bobbin-socket and mounted in operative relation to the fixed portions of the socket, and the thread-guide attached to and having a yielding movement independent of the movement of the clutch parts and extending from end to end of the mass of thread, all substantially as described.

2. In an unwinder, in combination with the frame or support, the socket parts secured thereto, the yielding clutch parts adapted to grasp the spindle of the bobbin, the thread-guide pivoted at its opposite ends to the respective clutch parts and having a limited swinging movement independent of the movements of the clutch part, and the springs whereby the yielding thread-guide is held at one limit of its play, all substantially as described.

3. In an unwinder, in combination with the frame or support for a mass of thread, socket-pieces secured to the frame and having formed therein a portion of the socket for the spindle of the bobbin, the yielding clutch parts containing a portion of the socket for the spindle, the thread-guide attached to and having a yielding movement independent of the movement of the clutch parts and extending from end to end of the mass of thread, and the offset portions located on the clutch parts, all substantially as described.

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