

(No Model.)

2 Sheets—Sheet 1.

M. B. REIGH.

THREAD UNWINDING DEVICE FOR SEWING MACHINES.

No. 477,611.

Patented June 21, 1892.

Fig. 1.

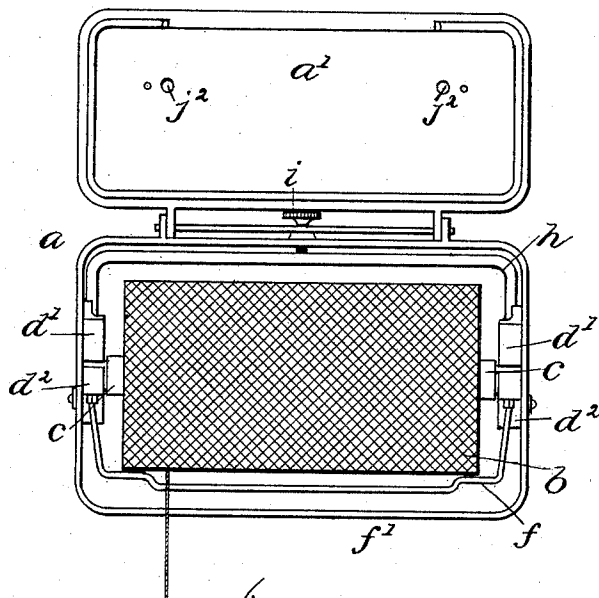
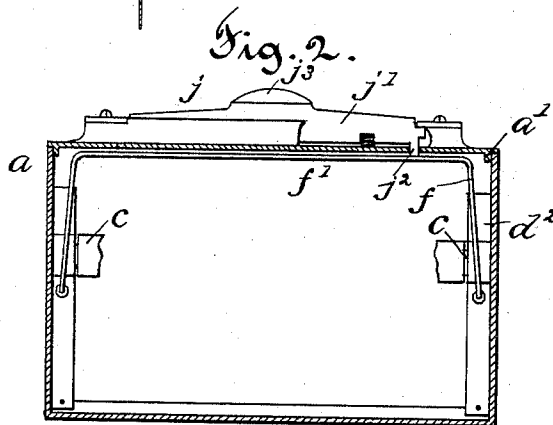


Fig. 2.



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(No Model.)

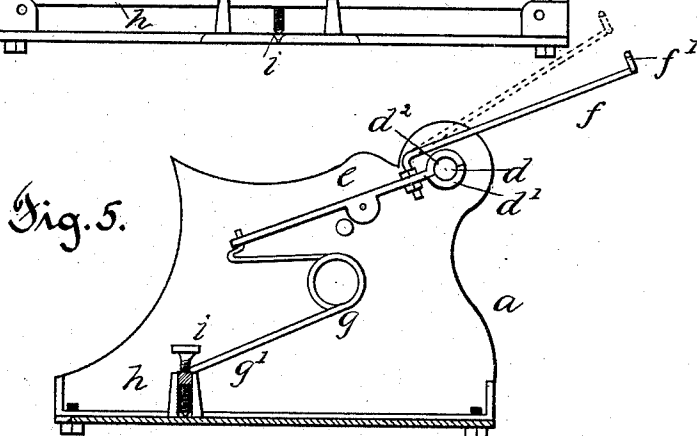
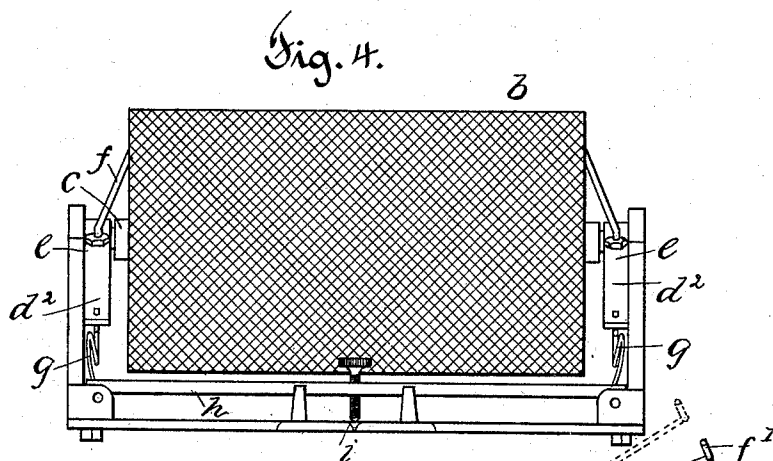
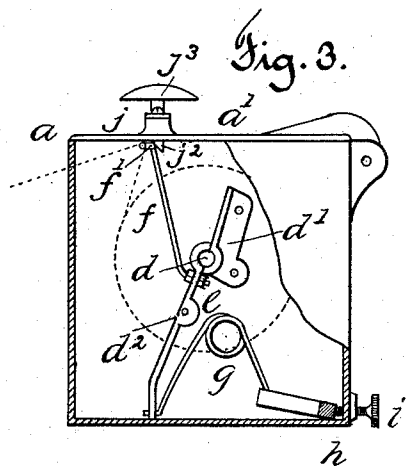
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THREAD-UNWINDING DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 477,611, dated June 21, 1892.

Application filed November 2, 1891. Serial No. 410,626. (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.

The object of my invention is to provide a device by means of which a mass of thread wound in any convenient form may be supported and controlled while the thread is being unwound, so as to provide for an even tension of the thread, the device being applicable to any form of machine in which a supply of thread under an even tension is required to be delivered to it.

To this end my invention consists in details of the several parts making up the thread-support and the tension mechanism, and in the combination of such parts, as more particularly hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a detail plan view of an unwinder in the form especially adapted for use in connection with the McKay boot-sewing machine. Fig. 2 is a detail front view of the same with part of the box broken away to show construction. Fig. 3 is a detail end view of the same with parts broken away. Fig. 4 is a detail front view of a modified form of an unwinder embodying my invention. Fig. 5 is a detail view, in central section, through the unwinder, showing the mass of thread removed.

In the accompanying drawings the letter *a* denotes a frame, box, or bracket that is adapted to support a mass of thread *b*, that is wound either upon a spool or upon a spindle *c*, the office of the part *a* being to form a support for the mass of thread *b* while the latter is being unwound. The structure shown in Figs. 1 to 3 of the drawings is one particularly adapted for use on a McKay boot-sewing machine, the box being secured to the rotary table in a convenient position for supplying the thread to the needle of the machine. No part of such machine is shown in the drawings, as it is only indirectly related to my within-described invention.

In the box *a*, at the opposite ends, sockets *d* are provided for the reception of the ends

of the spindle *c*, and such sockets are preferably made in two sections, a part *d'* being secured to the side of the box, while the other part *d''* is formed in the end of a brake or clutch part *e*, which is pivoted to the side of the box in such position as to enable the ends of the spindle that rest in the sockets to be held with a frictional grasp between these two parts of the socket *d*. This brake or clutch part *e* in the form shown in the drawings is a lever pivoted to the side of the box or frame and having secured to the brake a thread-support *f*, that extends from side to side of the box or frame in proper position to act as a guide and support for the thread as it is unwound from the mass. A spring *g* is attached to the box or frame *a*, with one arm thrusting against the lever *e* in such manner as to cause it to hold the mass of thread with a frictional grasp against unwinding by holding the spool or spindle against a rotary movement in its bearings or socket-supports. The other end *g'* of the spring is in contact with a bar *h*, that is adjustable by means of a thumb-screw *i*, that passes through a threaded socket in the box and engages the bar in such manner as to enable a greater or less degree of tension to be put upon the spring *g* by turning the adjusting-screw *i*. The thread-support *f* has an offset portion *f'*, that controls the position of the thread as it is unwound from the mass and prevents it from moving so far to either end as to cause the thread to slip off the end upon the spindle, the shoulders in the offset portion being formed at points a less distance apart than the length of the mass of thread, as clearly shown in Fig. 1 of the drawings.

The operation of the device is as follows: A mass of thread wound on a spindle is placed within the box or frame, with the ends of the spindle held in the sockets *d*, and the end of the thread is carried up on the inside of the thread-support, over it, and outward and to any point where the thread is to be used, as to the needle of a sewing-machine. The pull upon the thread in such use in sewing acts upon the thread-support as on a lever and tends to release the grasp of the brake upon the spindles to a degree that will enable the mass to revolve just as fast as the thread is needed in use; but the instant the tension is

relieved the pull upon the thread-support is lessened and the brake or clutch part holds the spindle and prevents it from running ahead to any extent whatever. It is by such running ahead and unwinding of the thread in the old devices that alternate fast and loose stitches are formed, on account of the inequality of the tension, even where tension take-ups are used.

- 10 The box shown in Figs. 1 to 3 of the drawings is provided with a cover a' , and on the cover is mounted a releasing device j , that consists of a bar j' , having downturned ends j^2 , that project from the cover and bear cams that are adapted to engage the thread-support in such manner that by depressing the releasing device the hold of the brake or clutch upon the mass will be released, so that the mass of thread will freely revolve and allow the thread to be used with very slight resistance, this freedom of movement of the thread being needed when the first few stitches are being taken in beginning with a new end. This releasing device has a somewhat broad pad j^3 in convenient position on top of the box to be pressed upon by the hand of the operator of the sewing-machine, the box being, as already stated, secured to the frame of a boot-sewing machine in convenient position for use.
- 30 In the form of the invention embodied in the structure shown in Figs. 4 and 5 a frame or bracket forms the immediate support for the tension mechanism and for the mass of thread, and the method of operation is substantially the same as that in the form of device already described.

- The modified form of the invention shown in Figs. 4 and 5 differs from the form previously described mainly in the fact that instead of inclosing the mass of thread in a box it is supported by a frame or bracket in an exposed position; but the tension device comprises, substantially, the same clamping-arms arranged to form a pivot-bearing for the spindle, and the adjusting means and thread-guide are united to the clamp in the manner

substantially the same as in the first form described.

I claim as my invention—

1. In combination with a frame adapted to support a mass of thread wound upon a spindle, the spindle-sockets d , formed in part by the side of the support, with a socket part d^2 , formed in the end of the clutch part e , the spring-supported clutch part e , and the thread-support f , secured to the clutch parts e on opposite sides of the mass of thread and provided with an offset portion f' , all substantially as described.

2. In combination with a case having a cover, the spindle-supports formed within the case at opposite ends, the friction-clutches arranged adjacent to said spindle-supports and forming part of the spindle-sockets, the adjustable clutch-springs, with means for adjusting the tension of the same, the thread-guide secured to the movable parts of the clutch and extending lengthwise of the mass of thread and having the offset portion less in length than the mass of thread, and the clutch-releasing mechanism borne on the cover of the box and having the cam-shaped studs adapted to engage the thread-support, all substantially as described.

3. In combination with a case having a cover, the spindle-supports formed within the case at opposite ends, the friction-clutches arranged adjacent to said spindle-supports and forming part of the spindle-sockets, the adjustable clutch-springs, with means for adjusting the tension of the same, the thread-guide secured to the movable parts of the clutch and extending lengthwise of the mass of thread, and the clutch-releasing mechanism borne on the cover of the box and having the cam-shaped studs adapted to engage the thread-support, all substantially as described.

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