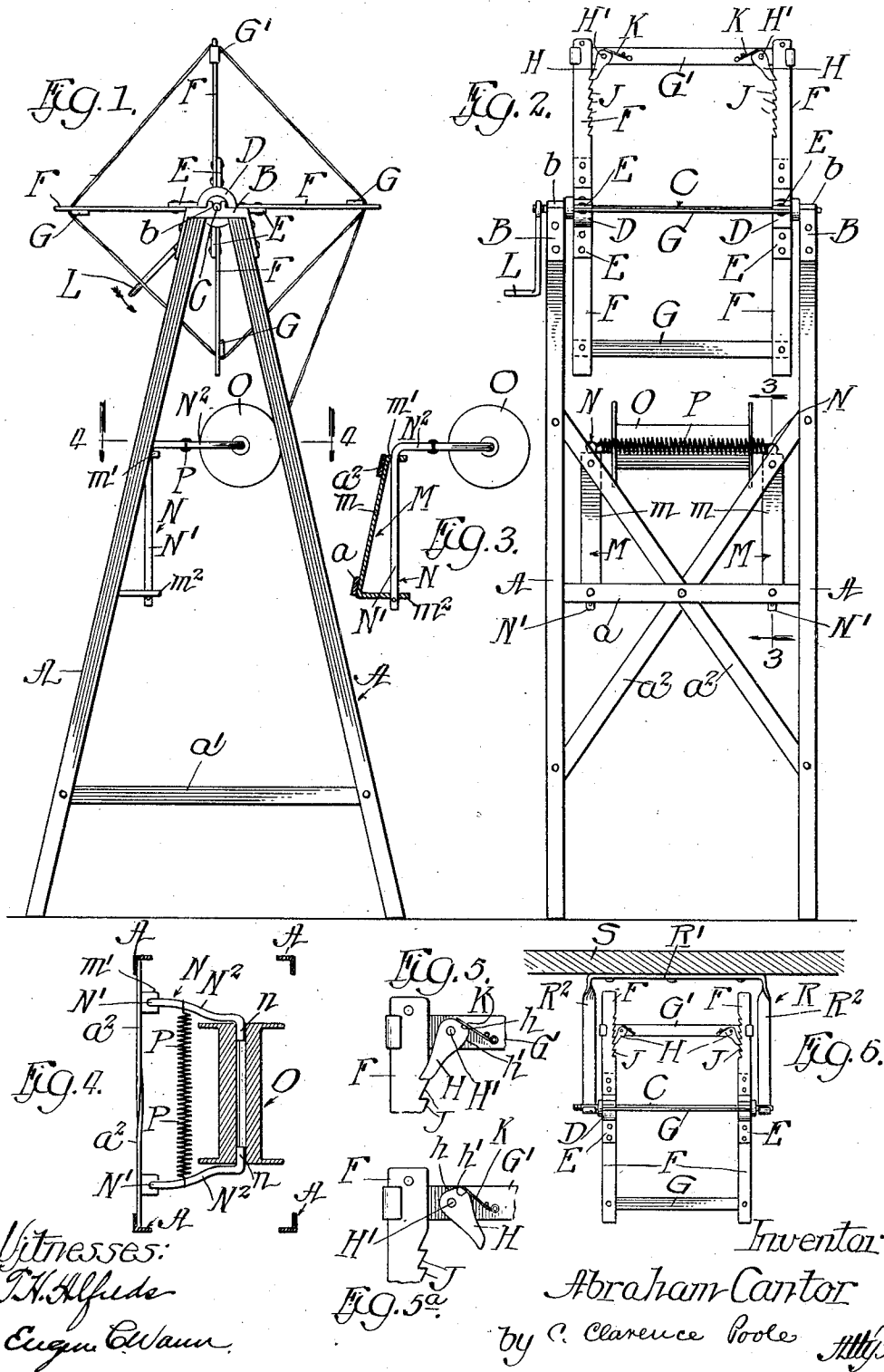


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TAPE SHRINKING MACHINE.  
APPLICATION FILED MAY 17, 1912.

1,063,507.

Patented June 3, 1913.



# UNITED STATES PATENT OFFICE.

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## TAPE-SHRINKING MACHINE.

1,063,507.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed May 17, 1912. Serial No. 697,970.

*To all whom it may concern:*

Be it known that I, ABRAHAM CANTOR, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Tape-Shrinking Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved device or machine for shrinking or sponging tape, braid, or the like, adapted more particularly for the use of tailors or garment makers. Such materials are usually moistened and then dried before being sewed in place in garments, and a device embodying my invention is designed to enable the tape or the like to be held or supported in such manner that water may be readily applied to moisten the same, and when dried it will be stretched taut and dried in a smooth condition, and may be conveniently thereafter used by a sewing machine operator or garment maker without loss or waste.

It has been heretofore the common practice among garment makers to draw the tape from the spool on which it is furnished by the manufacturers thereof, and wind it loosely in skeins of considerable length, which skeins are thereafter dipped into water or otherwise moistened, and also severed at one point, so as to form a bundle, consisting of a number of separate lengths or pieces, from which bundle, after being dried, the separate lengths of pieces are drawn as needed for use. This method involves considerable care and trouble, the separate pieces or lengths are liable to become mixed or tangled, and there is liable to be considerable waste, because there will usually be left an unused end or remnant in using each length or piece.

The object of my invention is to provide a device by which the tape may be drawn from a spool in a continuous piece, as long as that contained on the spool as it is supplied by the maker, supported in a manner enabling it to be easily moistened, while permitting it to shrink to the full extent that shrinkage thereof will naturally take place, to be exposed to the atmosphere in

such manner that it will be readily and thoroughly dried, and to be easily and readily handled, without waste or loss in cutting, when it is being used by the sewing machine operator.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

In the drawings—Figure 1 is a view in side elevation of the machine; Fig. 2 is a view in front elevation of the machine; Fig. 3 is a sectional view taken on line 3—3 of Fig. 2; Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 1; Fig. 5 is an enlarged view of a portion of the reel showing the pawl of a cross-bar member in its engaged position; Fig. 5\* is a like view showing the pawl in its disengaged position; Fig. 6 is a view of the reel removed from the frame, and placed in a hanger attached beneath the operator's table.

Referring to the said drawings, the frame of the machine on which the working parts are supported, consists of a stand formed of angle bars and connecting members, and embraces two pairs of corner post members A, A and connecting cross bar members  $a'$ ,  $a^2$ , forming two side frames. The corner post members A, A, constituting each pair, are inclined and converge upwardly, and are rigidly joined at their upper ends by a horizontal frame member B and are connected near their lower ends by one of the cross bars  $a'$ . The two side frames, each formed by the corner members A, the horizontal member B, and cross bar  $a'$ , are rigidly connected with each other below the upper ends thereof by means of a horizontal cross bar  $a$  and two oblique braces  $a^2$ ,  $a^2$ , (Fig. 2) which are rigidly joined to each other and to the cross bar  $a$  at their point of intersection.

Mounted on the top of the main frame is a reel comprising a horizontal shaft C, two collars D, D, rigidly attached to the shaft near its ends and each provided with a plurality of integral, radially extending lugs E, E, preferably four in number, and an equal number of arms F, F, of equal length, which are attached to and extending outwardly from the lugs E, E. To the outer ends of said radial arms F, F are secured a plurality of cross bar members G, G, G, and G', arranged parallel with the shaft C.

The horizontal parallel frame members B, B, which join the upper pairs of the post members A, A, are provided with upwardly opening bearings  $b, b$ , adapted to receive and afford support for the shaft C of the reel, said shaft being extended outside of the hubs or collars D, D to engage said bearings.

Three of the cross-bar members G, G, G, of the reel are rigidly attached to the radial arms F, F thereof, while the fourth cross-bar member G' is adapted to be moved or adjusted inwardly and outwardly on the pair of arms F, F, which support the same. The ends of said member G' are suitably shaped to have sliding engagement with said arms F, F and, as shown, are bent into U-form so as to embrace the outer margins of said arms F, F, and to slide on the same. For adjustably holding the said member G' at a desired distance radially from the center of the reel, said member is provided near its end with two pawls H, H, which are pivoted to said member G' at points inside of the arms F, F, and are adapted to engage a plurality of notches or ratchet teeth J, J, formed on the inner edges of the said arms F. Said pawls H, H, are connected with the member G' by pivots H', H', and are held in position to engage with the notches J, J, or are held in position free from engagement therewith, by means of flat springs K, K, each secured at one end of the member G' and adapted to bear at its free end on two flat surfaces  $h, h'$ , formed on the pawl in angular relation to each other.

For giving rotative movement to the reel, the same is provided with a crank L, which is detachably secured to one end of the shaft C outside of the main frame. Said crank L is shown as removably connected with the shaft C by screw-threaded connection, but it may be connected therewith by any other means permitting its convenient removal and replacement. Supported upon the stand or frame in position below the reel, is a spool holding device adapted to sustain a spool O with its axis of rotation parallel with the reel shaft C. Said spool holding means comprises two bearing brackets M, M, each consisting of an inclined member  $m$ , and upper and lower horizontal arms  $m', m^2$ . The inclined member  $m$  is attached at its upper and lower ends to the cross-bar members  $a^2$  and  $a$  of the frame, as clearly seen in Figs. 2 and 3. The said arms  $m', m^2$  are provided with vertically alined bearing apertures, and each of said bearing brackets affords pivotal support for one of two jaw members N, N of the spool holder. Each jaw member N consists of an upright part N', which extends through the bearing apertures in the bracket arms  $m', m^2$  and a horizontal arm N<sup>2</sup>, which ex-

tends inwardly from the upper end of the upright part N'. At its inner end the arm N<sup>2</sup> of each jaw member has a horizontal pivot arm  $n$ , which extends inwardly or toward the other jaw member and is adapted to enter one end of the central passage of a spool O. The arms N', N' of the two jaw members are adapted to hold between them the spool O, which may be inserted by spreading the swinging ends of the arms apart and then inserting the pivot arms  $n, n$  into the ends of the longitudinal aperture of the spool. A coiled tension spring P extends between and is connected at its ends with the arms N<sup>2</sup>, N<sup>2</sup> of the jaw members. Said spring tends to draw the swinging ends of the arms toward each other, and thereby press the same against the ends of the spool so as to produce such degree of friction as to prevent the spool being too easily rotated as the tape is drawn therefrom.

In Fig. 6 is shown a hanger R consisting of a horizontal base member R' and two parallel depending arms R<sup>2</sup>, R<sup>2</sup>. Said hanger is adapted to be attached to the under side of an operator's table, indicated by S. The lower ends of the vertical arms R<sup>2</sup>, R<sup>2</sup> of such hanger are provided with upwardly opening bearings adapted to receive the ends of the reel shaft C. As shown, the hanger R is made of a single piece or bar bent into U-form and having the ends of its arms R<sup>2</sup> bent upwardly to form the open bearings referred to. The hanger, arranged as described, is adapted to support the reel in a manner permitting the free rotation of the same.

The operation of the tape shrinking machine described, is as follows: The spool O of tape or like material, which is to be sponged or shrunk, is mounted in the spool holder of the machine in the manner described. The end of the tape is carried upwardly to the reel and tied or attached to one of the cross-bar members of said reel. The reel is then turned by its crank L until all, or a desired amount, of the tape has been drawn from the spool and wound upon the reel. The adjustable cross-bar member G' of the reel will have been placed in its extreme outward position before the tape is wound upon the reel. After the winding is completed, said member G' is moved inwardly by releasing the pawls H from the notches J, until it is brought to a distance from the center of the reel which, in the judgment of the operator, will give sufficient slack in the tape to allow for the shrinkage of the same. The pawls are then thrown into engagement with the notches to hold the member G' in its adjusted position. The crank will then be removed from the reel and the latter may then be removed from the frame for the purpose of wetting or

moistening the tape. Water may be applied to the tape in any convenient manner, as by immersing the entire reel in a vessel containing water or immersing a part of the tape at a time in a shallow vessel, turning the reel to bring the different parts of the tape into the water. The tape is then allowed to dry and as it dries, it will shrink to such extent that it will be taut upon the reel and will be held in a flat or unwrinkled condition thereon, so that when withdrawn from the reel it will be in condition suitable for convenient use without being ironed. The reel with the tape wound therein may be now placed in the hanger R, beneath the operator's table, and the tape drawn or unwound therefrom as needed for use from time to time, as pieces of the same are sewed to the garments being made.

This device eliminates the difficulties encountered in the method of shrinking tape heretofore practiced, by which the tape is unwound from the spool, made into skeins, immersed in water and hung up to dry, and when dry severed into lengths, which by reason of drying in a loose condition, may be wrinkled to such extent, as to require pressing or ironing to flatten them before they can be used. The use of the device described enables the tape to be easily handled and dried, while insuring that the tape will be under tension after drying and will, therefore, be perfectly flat and in condition for convenient use as drawn from the reel.

The particular form of spool holder provided allows the tape to be drawn from the reel no faster than it is wound on the

reel, so that it is kept in its flat condition when on the reel and while being dried.

I do not desire that my invention should be limited to the specific details described therein, or shown in the accompanying drawing, nor to the use of the same with any specific kind of material, for it is applicable for shrinking any material of the same general character as tape.

I claim as my invention:

A device for shrinking tape or like material, comprising a frame or standard provided at its top with open bearings, a reel removably supported on said bearings, the same comprising an axle, radial arms, and cross arms connecting said radial arms, one of said cross arms being adjustable inwardly to permit the shrinkage of the tape wound on said reel, and means for rotatably holding a spool in position below and parallel with the reel comprising arms pivoted upon the frame and adapted to engage the ends of the spool, and a spring connecting said arms and acting to constantly draw the arms against the ends of the spool for the purpose of producing frictional resistance to the rotation of the spool and to maintain the tape under tension.

In testimony that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 13th day of May, A. D. 1912.

ABRAHAM CANTOR.

Witnesses:

EUGENE C. WAUN,  
CHARLES H. POOLE.