

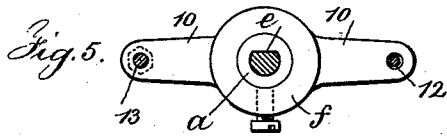
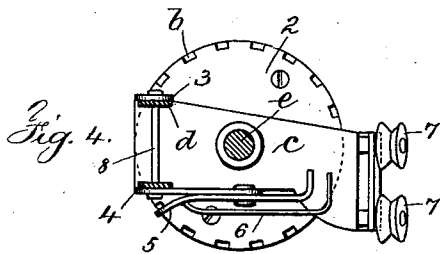
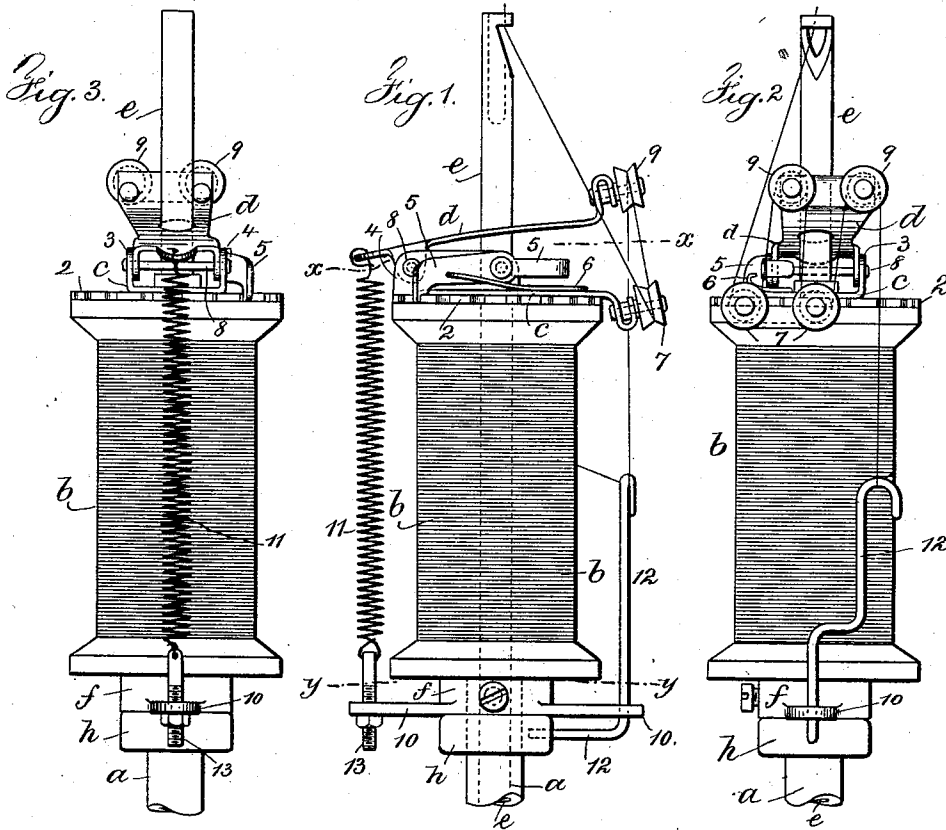
No. 694,536.

Patented Mar. 4, 1902.

A. B. DISS.
BRAIDING CARRIER.

(Application filed June 14, 1901.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

ALBERT B. DISS, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE UNITED STATES BRAID MACHINE MANUFACTURING COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

BRAIDING-CARRIER.

SPECIFICATION forming part of Letters Patent No. 694,536, dated March 4, 1902.

Original application filed April 8, 1901, Serial No. 54,796. Divided and this application filed June 14, 1901. Serial No. 64,516. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. DISS, a citizen of the United States, residing at the borough of Brooklyn, in the county of Kings, city and State of New York, have invented an Improvement in Braiding-Carriers, of which the following is a specification.

My present application is a division of my application for improvement in braiding-machines, filed April 8th, 1901, Serial No. 54,796, the present application embracing novel features in braiding-carriers operated by braiding-machines. In these particular machines there are heads upon a suitable support connected by gears and revolving in opposite directions, the said heads carrying spindles having exchange and transfer devices and the spindles in turn carrying the bobbins of thread, the exchange and transfer devices acting in connection with the heads to change the path of movement of the spindles and cause the same to travel from one revolving head to the next in order. The devices of my present invention are adapted in machines of this art for making both tubular and flat braids. My present invention relates particularly to novel devices for periodically and progressively supplying thread in this class of braiding-machines, for applying tension to the thread, and for holding the thread-spool, all of which are hereinafter more particularly set forth.

In the drawing, Figure 1 is an elevation of the spool-spindle, the bobbin of thread, and the thread-tension devices connected therewith. Figs. 2 and 3 are elevations of the bobbin of thread and the thread-tension devices at right angles to the position of the said devices in Fig. 1. Fig. 4 is a sectional plan at the line *x x* of Fig. 1, and Fig. 5 is a sectional plan at the line *y y* of Fig. 1.

The spool-spindle *a* is made hollow or tubular at its upper end to receive the lower end of the auxiliary spindle *e*, and the thread-bobbin *b* is mounted upon this auxiliary spindle. The lower end of the auxiliary spindle *e* is flattened along one side, and the opening in the upper end of the spindle *a* is made to receive and coincide therewith, so that the

parts are compelled to turn together. At the upper end of the auxiliary spindle *e* I provide an eye for the passage of the thread from the tension devices to the work being accomplished. Around the upper end of the spool-spindle *a* I place a sleeve *f*, provided with oppositely-extending arms. This sleeve is fastened to the spool-spindle *a* by a set-screw, so that the thread-bobbin *b* rests substantially simultaneously upon the said sleeve and end of the spool-spindle. I also employ in connection with these devices a collar *h* below the sleeve *f*, and around the spool-spindle and this collar is provided with a hook-ended vertically-placed wire *l*; beneath the hook end of which the thread passes from the thread-bobbin up to the thread-tension devices.

Secured to the upper end of the thread-bobbin *b* is a toothed disk *2*, that is secured to the upper end of the thread-bobbin in any desired or convenient manner. I employ a base-plate *c*, surrounding and secured to the auxiliary spindle, but free from the toothed disk *2*. This base-plate *c* is provided with lugs *3* and *4*, which form parts of a hinge. The lug *4* is made longer in a horizontal direction, and a pawl-plate *5* is pivoted to its free end. This pawl-plate is shown clearly in Figs. 1, 3, and 4, in which it will be noticed that the right-hand end of the pawl-plate is bent at approximately right angles to the main portion and that the left-hand end is bent at an acute angle and continued downward, so that its free end engages one notch at a time of the toothed disk *2*, and a spring *6*, fastened at one end to the pawl-plate *5* at its free end, rests upon the upper surface of the base-plate *c*. This base-plate *c* at the edge opposite to the lugs *3* *4* is provided with the tension-rollers *7*, two in number, each upon short studs secured to the said base-plate. As a convenient manner of securing these tension-rollers and their shafts I prefer to double the edge of the base-plate *c*, so as to form two thicknesses spaced apart, and the short shafts of these tension-rollers pass through and are secured to these two parts.

A plate *d* is pivotally connected by lugs and a pivot-rod *8* to the lugs *3* *4* of the base-

plate *c*, and this plate *d* is provided on one end with a tailpiece and on the opposite end or edge with tension-rollers 9, secured to the edge of this plate, preferably in a manner identical with the manner of securing the tension-rollers 7 to the plate *c*. The tension-rollers 9 are substantially above the tension-rollers 7, and a spring 11 connects with the tailpiece of the plate *d* and extends down to an adjusting-screw 13, passing through one of the arms 10 of the sleeve *f*. The tendency of said spring is to draw down the plate *d* at the tailpiece and raise the end having the tension-rollers. Figs. 1 and 2 show the manner of passing the thread over these tension-rollers—that is to say, the thread passes from the thread-bobbin under the hook end of the wire 12 vertically to the first roller of the plate *d*, over the same, down to the first roller of the plate *c*, and up to the second roller of the plate *d*, down and beneath the second roller of the plate *c*, and up through the eye of the auxiliary spindle *e* and away.

In the operation of this tension device and with the movement of the spool-spindles and thread-bobbins around the revolving heads employed in the art the thread is gradually worked into the braiding-machine, and the pairs of rollers of the plates *c* and *d* gradually approach one another, and before they can come into contact the plate *d* strikes the in-turned right-hand end of the pawl-plate 5, forcing the same down and raising its opposite end out of a notch of the toothed disk 2. The tension on the thread at this period is so great that the moment the thread-bobbin is thus released the thread is paid out quickly, and the spring 11, as the thread is paid out, raises the plate *d*, elevating the tension-rollers 9, connected therewith, to their highest point, taking up the slack thread with the upward movement. As the plate *d* rises the spring 6 quickly returns the pawl-plate 5 to its normal position, its end engaging with the nearest notch of the toothed disk 2, so as to stop the rotary movement of the thread-bobbin and reestablish the normal relation between the same and the base-plate *c*. These movements are repeated each time the thread is used up to such an extent that the parts and tension-rollers carried thereby come almost together. Each of these tension-rollers has a V or concave periphery to receive the thread passing around the various rollers, and by the employment of two rollers on each plate an even degree of tension is assured that could not possibly exist were only two rollers employed. More than two rollers to each plate might be employed without changing the nature of the invention; but the movements of the parts would thereby not be so desirable or advantageous.

The hook-ended wire 12 of the collar *h* passes through one of the arms 10, said arm forming a guide therefor. These parts are the same and operate like similar parts heretofore employed by me—that is to say, when the thread

breaks the collar *h* falls, so that other parts in such machines in the art may contact with said collar for the purpose of stopping the mechanism. By the removal of the spring 11, the action of which is to keep the thread-bobbin down in place, the tension devices and the thread-bobbin on which they are mounted can be removed altogether from the auxiliary spindle *e*.

I do not herein limit myself to the precise form or association of the parts hereinbefore described or to the number of tension-rollers employed, it being possible to perform like functions with slightly-modified mechanical devices.

I claim as my invention—

1. The combination in a braiding-carrier, with the spool-spindles, of the thread-bobbins mounted upon said spindles, and thread-tension devices comprising parts hinged together and tension-rollers carried thereby around which the thread passes, and devices actuated by the movement of said parts for releasing the thread-bobbin to pay out the thread, substantially as set forth.

2. The combination in a braiding-carrier, with the spool-spindles, of the thread-bobbins mounted upon said spindles, and thread-tension devices comprising parts hinged together and tension-rollers carried thereby around which the thread passes, and a spring-actuated pivoted catch-plate at one end engaging the thread-bobbin and at the other end actuated by the hinged tension device for periodically releasing the thread-bobbin and paying out the thread, substantially as set forth.

3. The combination in a braiding-carrier, with the spindles, of the thread-bobbins mounted upon said spindles, a toothed disk connected to each thread-bobbin, a base-plate connected to each spindle, a spring-actuated plate pivoted to each base-plate, tension-rollers carried upon one end of the base-plate and upon one end of the pivoted plate, the rollers of one plate being above the rollers of the other plate, and a device pivoted to the base-plate and spring-actuated in one direction and actuated in the opposite direction by the downward movement of the pivoted plate for releasing the thread-bobbin and permitting the thread to pay out as the rollers of the plate approach one another, substantially as set forth.

4. The combination in a braiding-carrier, with the spindle, of the thread-bobbins mounted upon said spindles, a toothed disk connected to each thread-bobbin, a base-plate connected to each spindle, a spring-actuated plate pivoted to each base-plate, tension-rollers carried upon one end of the base-plates and upon one end of the pivoted plates, the rollers of one plate being above the rollers of the other plate, and a pawl-plate pivoted to one of the hinge parts of each base-plate, a spring connected to each pawl-plate and bearing upon the base-plates for maintaining the pawl-plates in their normal relation in which

at one end they engage the thread-bobbins, the opposite end of each pawl-plate coming in contact with the downward movement of each pivoted plate to release the thread-bobbins and pay out the thread, substantially as set forth.

5. The combination in a braiding-carrier, with spindles made hollow or tubular at the upper end, of auxiliary spindles connected to and received in the upper end of the spindles, thread-bobbins mounted upon the auxiliary spindles above the aforesaid spindles, an eye in the upper end of the auxiliary spindles through which the thread passes, a sleeve surrounding each spindle at the upper end thereof, so that the spool rests upon the sleeve and the upper end of the spindle around the auxiliary spindle, a base-plate secured to each auxiliary spindle above the spool-spindle, a

toothed disk secured to the upper end of each thread-bobbin, tension-rollers carried by the said base-plates, a plate pivoted to each base-plate and tension-rollers carried thereby and around which tension devices the thread passes, a spring for actuating each pivoted plate yielding as the thread is used up and taking up the slack as the thread is paid out, and a spring-actuated pawl-plate pivoted to each base-plate and actuated by the pivoted plate to release the spool-spindle periodically to pay out the thread, substantially as set forth.

Signed by me this 11th day of June, 1901.

ALBERT B. DISS.

Witnesses:

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S. T. HAVILAND.