July 13, 1926. 1,592,359

W. K. HAWK

COLLAPSIBLE ROLLER FOR CARPETS AND OTHER FABRICS

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FIG. 1

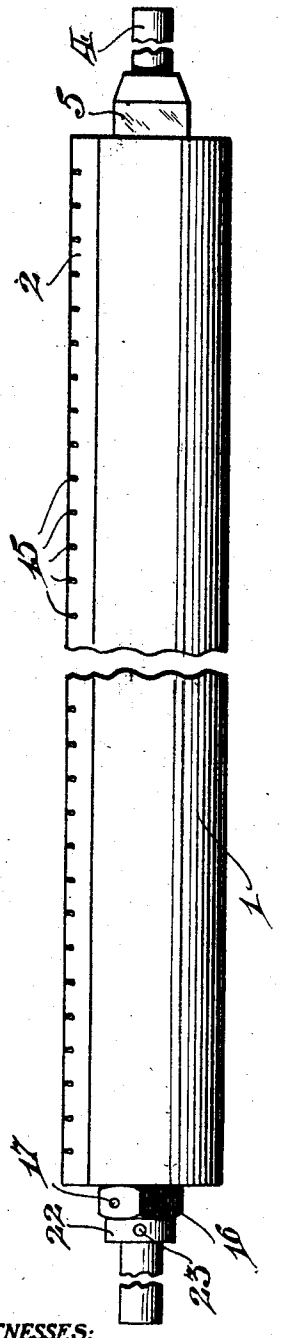
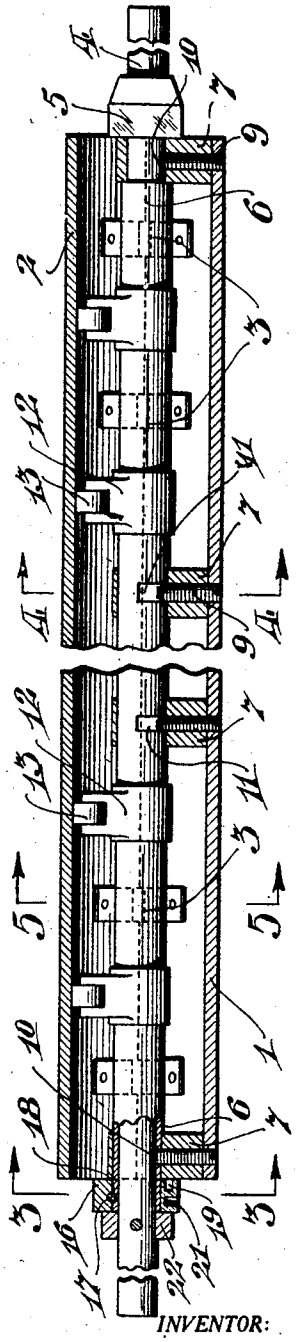


FIG. 2



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FIG. 3.

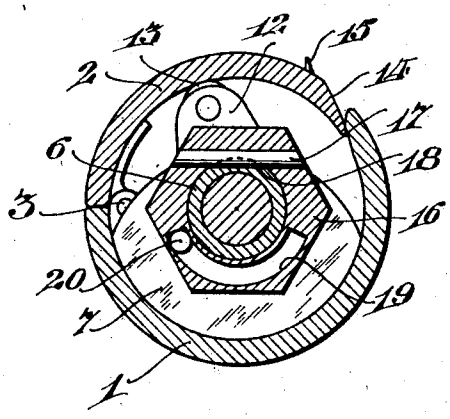


FIG. 4.

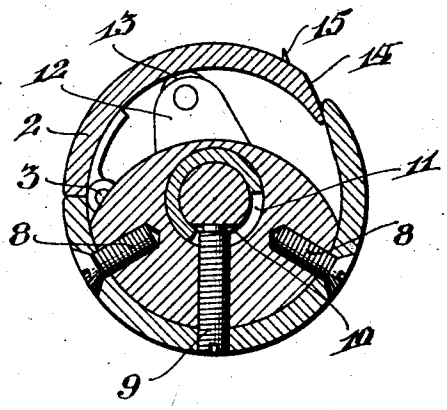


FIG. 5.

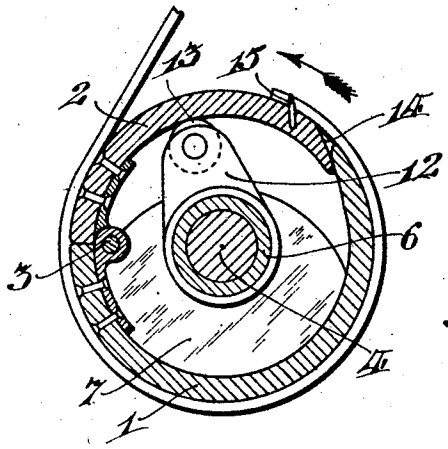
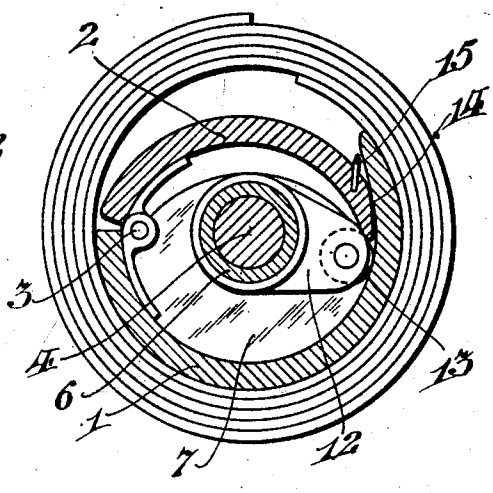


FIG. 6.



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UNITED STATES PATENT OFFICE.

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COLLAPSIBLE ROLLER FOR CARPETS AND OTHER FABRICS.

Application filed February 20, 1926. Serial No. 89,550.

My invention relates to collapsible rollers and is more especially designed for use in temporarily winding carpets and other fabrics as they come from the loom or from measuring rollers or the like. Winding heavy carpets, for instance, the width of which is measured by yards, provision for smooth and even winding and for ready removal of the winding rolls has always been a serious problem and, so far as I am aware, the problem has not heretofore been satisfactorily solved.

The object of my invention is to provide simple and effective mechanism which will insure proper winding of the fabric and which is readily removable from the roll of fabric when the winding is completed.

This object, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a front view of a collapsible roller embodying my invention,

Figure 2 a longitudinal section of the same,

Figure 3 a section on line 3—3 of Figure 2,

Figure 4 a section on line 4—4 of Figure 2,

Figure 5 a section on line 5—5 of Figure 2, and

Figure 6 a transverse section of the roller collapsed and with carpet wound thereon.

The numeral 1 denotes the shell of the roller which is cylindrical in form but includes a segment 2 hinged at 3 to permit it to be swung inwardly. A shaft 4 extends longitudinally through the shell and has a fixed angular head 5 by which it may be driven. The shaft is enclosed in a sleeve 6 which is connected with the shell by a series of brackets 7 which embrace the sleeve and are detachably secured to the shell by screws 8. Set screws 9 take through the shell, the base of the brackets and the sleeves and engage flat parts 10 of the shaft. The sleeves are provided with transverse slots 11 embracing the set screws and permitting a partial rotation of the sleeve relatively to the shaft. The sleeve carries a series of wings 12, each carrying a roller 13 adapted to engage the inner wall of the shell and normally holding segment 2 in its outer or working position. The free longitudinal edge 14 of segment 2 is beveled and underlaps the adjacent edge of the shell thereby preventing the hinged segment from swinging outward beyond the circumferential line of the shell. A series of pins 15 project from segment 2 near its edge 14. A collar 16 is secured to one end of sleeve 6 by a pin 17 engaging a groove 18 in the sleeve. The collar preferably has an arc-shaped slot 19 concentric with its axis. A pin 20 extends through the slot into the end bracket 7 and serves as a stop to limit rotary movement of the collar relatively to the shaft. The collar may have an angular peripheral face or it may be provided with a hole 21 for insertion of a bar by which it may be rotated. A collar 22, contacting with collar 16, is fixed to shaft 4 by a pin 23, extending through the shaft, and prevents endwise movement of the shaft and sleeve relatively to the shell.

The operation is as follows: The roller having been placed in position, with wings 12 holding segment 2 in alignment with the body of the shell, the edge of the carpet, or other fabric, as it comes from the loom, or from another roll, is temporarily secured to the roller by pins 15. Rotation is then imparted to the roller by means of shaft 4 and is continued until the winding of the carpet, or other fabric, is completed. A partial rotation is then imparted to collar 16, by a wrench or bar and this causes a partial rotation of sleeve 6, the movement being from the direction of the hinge. This movement swings the wings from under the segment and into engagement with the fixed part of the shell, that is, from the positions shown in Figures 3, 4 and 5 to that shown in Figure 6, permits segment 2 to collapse inwardly and disconnects the fabric from pins 15. The roller may then be withdrawn from the carpet. By reverse rotation of collar 16 the wings are actuated to restore the segment to and hold it in its working position and the roller is ready for another operation.

The above described roller winds the fabric smoothly and, if the fabric is to be wound from another roller such as a measuring roller, operates far more rapidly than the mechanism heretofore used.

While I have described my invention as taking a particular form, it will be understood that the various parts may be changed

without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A collapsible roller for winding fabrics including a shaft; a shell carried thereby and consisting of a fixed segment and a longitduinal hinged segment; a sleeve embracing the shaft and normally rotating therewith; means for partly rotating the sleeve; means, carried by the sleeve, normally supporting the hinged segment in alignment with the fixed segment, and means for partly rotating the sleeve to swing the supporting means out of supporting engagement with the hinged segment to permit the latter to swing inwardly.

2. A collapsible roller for winding fabrics including a shaft; a shell carried thereby and consisting of a fixed segment and a longitudinal hinged segment; a sleeve embracing the shaft and normally rotating therewith; means for partly rotating the sleeve; wings fixed to the sleeves and carrying rollers engaging with and normally supporting the hinged segment, and means for partly rotating the sleeve to swing the rollers out of supporting engagement with the hinged segment to permit the latter to swing inwardly.

3. A collapsible roller for winding fabrics including a shaft; a shell carried thereby and consisting of a fixed segment and a longitudinal hinged segment; a sleeve embracing the shaft and normally rotating therewith; brackets connecting the shell with the sleeve; transverse slots in the sleeve; set screws extending through the shell, the base of the brackets, and the slots in the shell and engaging the shaft; means, carried by the sleeve, normally supporting the hinged segment in alignment with the fixed segment, and means for partly rotating the sleeve to swing the supporting means out of supporting engagement with the hinged segment.

4. A collapsible roller for winding fabrics including a shaft; a shell carried thereby and consisting of a fixed segment and a longitudinal hinged segment; a sleeve embracing the shaft and normally rotating therewith; brackets connecting the shell with the sleeve; transverse slots in the sleeve; set screws extending through the shell, the base of the brackets, and the slots in the shell and engaging the shaft; wings fixed to the sleeves and carrying rollers engaging with and normally supporting the hinged segment, and means for partly rotating the sleeve to swing the rollers out of supporting engagement with the hinged segment to permit the latter to swing inwardly.

5. A collapsible roller for winding fabrics including a shaft; a shell carried thereby and consisting of a fixed segment and a longitudinal hinged segment; a series of pins projecting from the hinged segment near its free longitudinal edge; means carried by the shaft normally holding the hinged segment in alignment with the fixed segment, and means for releasing the holding means to permit the hinged segment to swing inwardly.

6. A collapsible roller for winding fabrics including a shaft; a shell carried thereby and consisting of a fixed segment and a longitudinal hinged segment; a sleeve on the shaft; brackets rotatably supporting the sleeve; means, carried by the sleeve, normally holding the hinged segment in alignment with the fixed segment; a collar fixed to the sleeve; means for imparting rotary movement to the collar, and means for limiting its rotary movement.

7. A collapsible roller for winding fabrics including a shaft; a shell carried thereby and consisting of a fixed segment and a longitudinal hinged segment; a sleeve on the shaft; brackets rotatably supporting the sleeve; means, carried by the sleeve, normally holding the hinged segment in alignment with the fixed segment; a collar fixed to the sleeve; means for imparting rotary movement to the collar; an arc shaped slot extending through the collar and concentric with its axis and a pin fixed to an adjacent bracket and extending through the slot.

8. A collapsible roller for winding fabrics including a shaft; a shell carried thereby and consisting of a fixed segment and a longitudinal hinged segment; a sleeve on the shaft; brackets rotatably supporting the sleeve; transverse slots in the sleeve; set screws extending through the shell, the base of the brackets, and the slots in the sleeve normally supporting the hinged segment in alignment with the fixed segment; a collar fixed to the sleeve, and means for imparting rotary movement to the collar.

9. A collapsible roller for winding fabrics including a shaft; a shell carried thereby and consisting of a fixed segment and a longitudinal hinged segment; a sleeve on the shaft; brackets detachably connecting the shell and the sleeve; means carried by the sleeve, normally supporting the hinged segment in alignment with the fixed segment, and means for partly rotating the sleeve to swing the supporting means out of supporting engagement with the hinged segment.

In testimony whereof I have signed my name to this specification.

WAYNE K. HAWK.