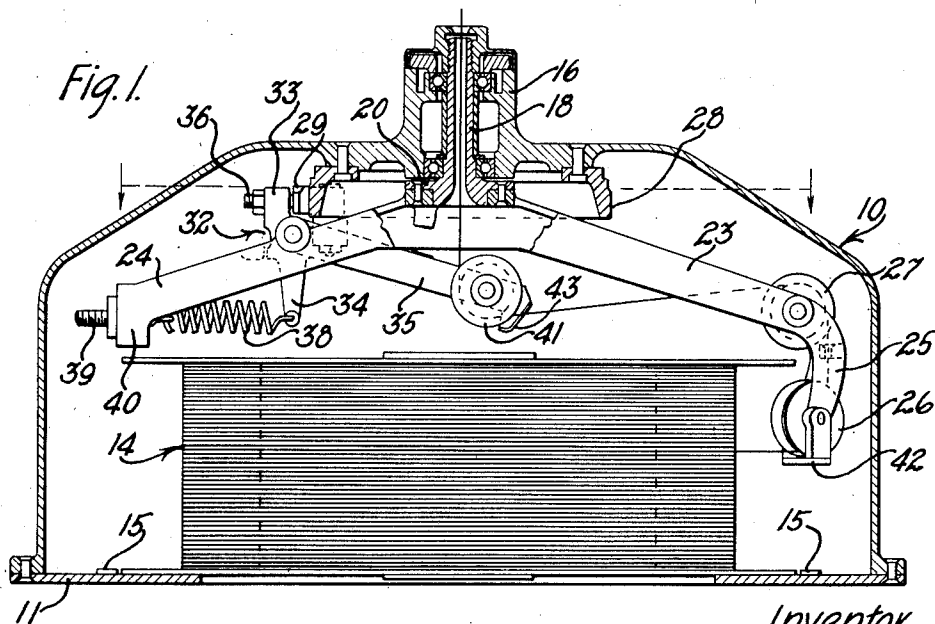
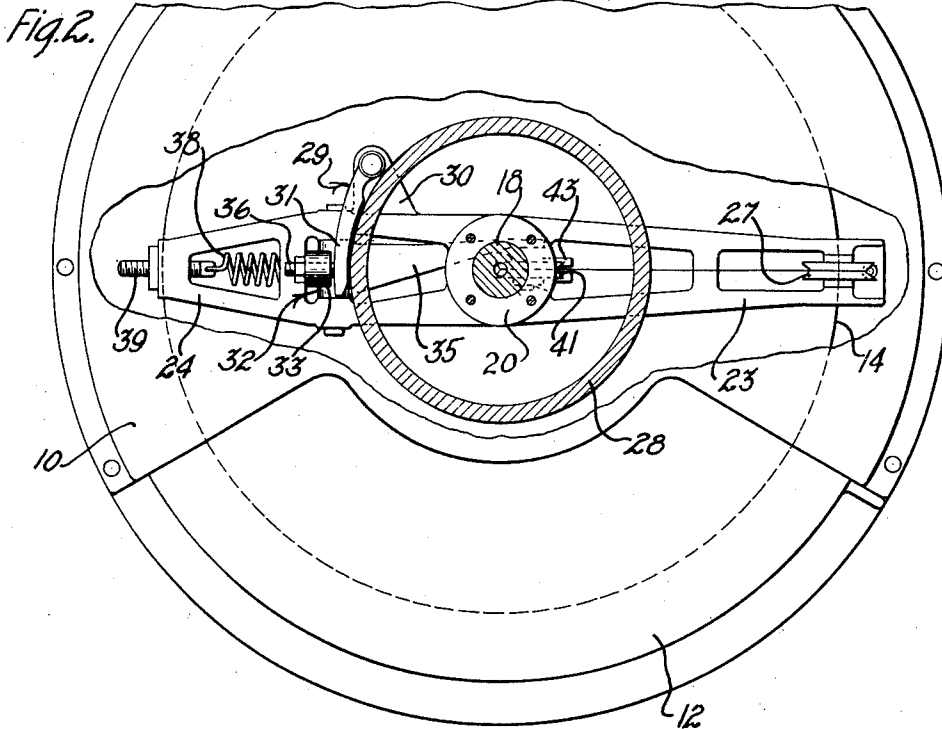


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S. E. BORGESON
MATERIAL UNWINDING DEVICE

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UNITED STATES PATENT OFFICE.

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MATERIAL-UNWINDING DEVICE.

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This invention relates to material unwinding devices, and more particularly to a strand unwinding device for stationary supply spools.

5 The principal object of the invention is the provision of a simple and inexpensive unwinding device for supplies of material wherein the tension upon the material is maintained substantially uniform under
10 varying conditions.

In accordance with the invention there is provided in one embodiment thereof a suitable housing within which is enclosed a vertically positioned stationary supply spool.
15 Secured to a vertically disposed tubular member rotatably carried by the housing is a flier provided with suitable guide sheaves over which the strand is withdrawn from the supply spool. Adjustable braking means
20 controlled by the tension on the strand serves to control the rotation of the flier so as to maintain the strand under a substantially uniform tension at all times.

Other features and advantages of the invention will become apparent in the following detailed description, reference being had to the accompanying drawing, wherein

Fig. 1 is a side elevation, partly in section, of a strand unwinding device embodying the features of the present invention,
30 and

Fig. 2 is a fragmentary plan view, partly in section, of the device shown in Fig. 1.

Referring now to the drawing in detail, 35 the numeral 10 indicates, generally, an inverted cup shaped housing having secured thereto an annular base plate 11. A portion of the housing 10 is cut away and a sliding door 12 is provided whereby a supply spool 14 may be conveniently positioned in place upon the base 11. Guiding blocks
40 15 projecting upwardly from the base 11 serve as a means for properly positioning the supply spool within the housing 10.

45 Formed in the upper side of the housing 10 is a concentric hub 16 within which is rotatably journaled a bushing 18. Secured to an enlarged portion 20 formed at the lower end of the bushing 18 is a flier comprising a pair of oppositely disposed arms 23
50 and 24 which are preferably designed to extend across the upper head of the supply spool. The flier arm 23 is provided with a depending portion 25 having a guide sheave
55 26 rotatably journaled at the end thereof.

A second guide sheave 27 is rotatably carried by the arm 23 and is disposed immediately above and in vertical alignment with the guide sheave 26.

Supported within the housing 11 is a stationary brake drum 28 which is arranged concentric with respect to the bushing 18. A brake shoe 29 pivotally carried by an outwardly projecting arm 30 formed integral with the flier arm 24 is provided with an arcuate portion 31 designed to engage the outer surface of the brake drum, as best shown in Fig. 2.

Pivotally supported in suitable bearings formed in the flier arm 24 is a spider-like member 32 having upwardly and downwardly projecting arms 33 and 34, respectively, and a third arm 35 extending towards the center of the housing 10. An adjustable pin 36 threaded in the free end of the arm 33 is positioned to engage the brake shoe 29. A tension spring 38 serves to normally rotate the member 32 in a clockwise direction (Fig. 1) causing the pin 36 to press the brake shoe 29 into operative engagement with the brake drum, thus retarding the free rotation of the flier. The spring 38 is fastened at one end to the downwardly projecting arm 34 of the member 32 and connected at its opposite end to an adjustable pin 39 threaded in an enlarged end portion 40 of the flier arm 24.

Rotatably carried upon the free end of the arm 35 of the member 32 is a guide sheave 41, the peripheral groove of which is in vertical alignment with the rotating axis of the bushing 18. The strand passes from the supply spool over the guide sheaves 26, 27 and 41 and then upwardly through the bushing 18. The sheaves 26 and 41 are provided with suitable guards 42 and 43, respectively, for retaining the strand within the peripheral grooves thereof.

In the operation of the above described mechanism, the pins 36 and 39 are adjusted in accordance with the amount of tension which it is desired to maintain in the strand being unwound. It is apparent that by turning the pin 39 the tension of the spring 38 may be varied and thus the effectiveness of the braking mechanism may be increased or decreased. When the tension on the moving strand tends to increase above a predetermined point, which may be due to the strand supply diminishing or for any other

reasons, the guide sheave 41 moves upwardly causing the pivoted member 32 to rotate in a counter-clockwise direction against the tension of the spring 38. This decreases the braking pressure of the brake shoe 29 upon the brake drum 28, thereby permitting the flier to rotate more freely until the tension in the strand has returned to normal. If, on the other hand, the tension on the strand tends to decrease below a predetermined point, the braking pressure of the brake shoe 29 is increased due to the tension of the spring 38 and thus the free rotation of the flier is retarded until the tension in the strand has returned to normal. Thus the tension in the moving strand is maintained substantially uniform throughout the unwinding operation.

Although the invention is herein illustrated and described in connection with mechanism for unwinding strand material from vertically positioned supply reels it should be understood that the novel features thereof are capable of other applications within the scope of the appended claims.

What is claimed is:

1. A material unwinding device comprising a housing for enclosing a supply of material, a take-off flier including a rotatable bushing through which material is withdrawn from said housing and a pair of oppositely disposed arms extending transversely from said bushing, material guiding means including a rotatable member carried by one of said arms, and means carried by the other arm for maintaining the material under uniform tension.

2. A strand unwinding device comprising a housing for enclosing a strand supply spool, a strand take-off flier including a bushing rotatably mounted in said housing and a pair of oppositely disposed arms extending transversely from said bushing, a

plurality of rotatable grooved members for guiding the strand from the supply spool through said bushing, and means responsive to the tension of the strand for maintaining the strand under uniform tension at all times.

3. In a device for unwinding strand material from a stationary supply spool, a support, a flier rotatably carried thereby, a plurality of rotatable members carried by the flier for guiding the strand, the strand engaging surface of one of the rotatable members being in alignment with the axis of the supply spool, and means associated with said last mentioned rotatable member for maintaining the strand under a uniform tension.

4. In a device for unwinding strand material from a stationary supply spool, a support, a flier rotatably carried thereby, said flier comprising a tubular member disposed in axial alignment with the supply spool and a pair of oppositely disposed arms extending transversely therefrom, a plurality of strand guiding sheaves carried by one of said arms, and means carried by the other arm for maintaining the strand under a uniform tension, said last mentioned means comprising a member pivoted intermediate its ends, a brake member carried at one end of the pivoted member for normally engaging the support under pressure to retard the rotation of the flier, and a strand engaging sheave mounted upon the opposite end of the pivoted member whereby the retarding effect of the brake member is varied in response to variations in the tension of the strand.

In witness whereof, I hereunto subscribe my name this 13th day of September A. D., 1926.

SIDNEY ELMER BORGESON.