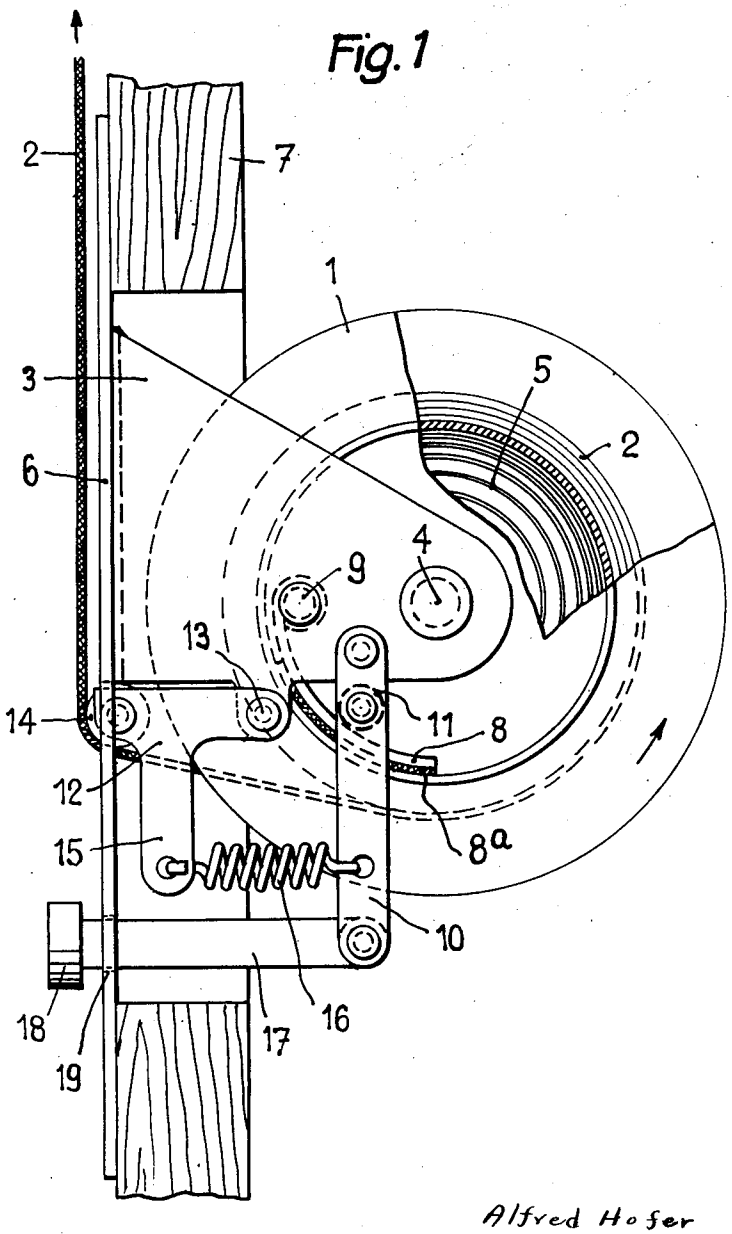
July 15, 1952 A. HOFER 2,603,430

WINDING DEVICE FOR BLIND-RAISING MEMBERS

Filed June 11, 1951 2 SHEETS—SHEET 1

Fig. 1



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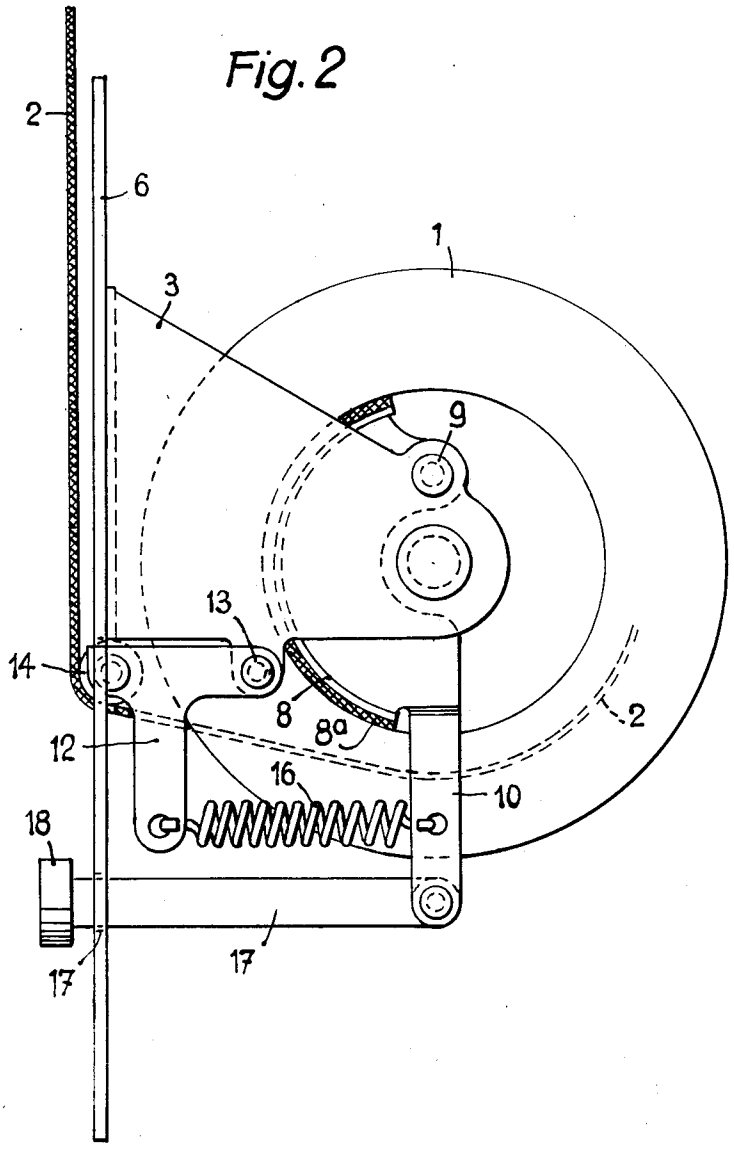
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WINDING DEVICE FOR BLIND-RAISING MEMBERS

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Fig. 2



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WINDING DEVICE FOR BLIND-RAISING MEMBERS

Alfred Hofer, Basel, Switzerland

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7 Claims. (Cl. 242—107)

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My invention has for its object a winding device for the member used for the raising of blinds of the type wherein the said member is wound over a drum that is submitted to the action of a spiral spring.

The arrangements of this type as known hitherto shows generally the draw-back that the straps or the like members must be clamped when it is desired to hold them fast and to brake the movement of the blinds. This operation is, however, very detrimental to the straps as it is necessary to replace them after a very short time. Further damage to the straps may arise through acceleration and sudden stoppage as performed during the lowering of the blind.

My invention has for its object to remove such drawbacks.

The strap-winding device according to my invention is characterized by the fact that there is provided on the drum a brake that is submitted to the tractional stress exerted by the blind holding member while it is furthermore controllable by hand.

Figs. 1 and 2 of the drawing illustrate by way of exemplification, two preferred embodiments of the invention.

The drum 1 of the usual structure that serves for the winding of the strap or cord 2 is secured to a U-shaped bracket or support 3. The drum 1 is revolubly carried by a spindle 4 and is provided with an inner spiral spring 5 that urges the drum in the direction of the arrow so as to draw in the strap 2 and to wind it over the drum.

The securing of the arrangement is provided through the covering plate 6 that is securely screwed onto the wooden frame 7. Said covering plate 6 carries the above mentioned U-shaped bracket or support 3.

Inside the drum is provided a brake including a brake shoe 8 with its lining 8*a*. Said shoe and lining 8*a* are shaped to match the curvature of the inner wall of the drum.

The brake shoe is rockably secured through one end to the pivot 9. The braking action is provided through a lever 10 pivotally secured to the support 3 and carrying a roller 11 engaging the brake shoe so as to exert a pressure on the brake shoe as soon as the lever 10 is rocked clockwise when seen as shown in the drawing.

There is also secured to the support 3 a pivoting member 12 provided with several arms and that is adapted to rock round the pivot 13 on said support. Said member 12 carries at its end remote from the pivot 13 a roller 14 forming a guide for the strap 2 which latter is deflected

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in register with said roller towards the drum 1. The pivoting member 12 is provided with a lateral projection 15 the free end of which is secured to a helical spring 16. The other end of the helical spring 16 engages an opening in the brake controlling lever 10. To the free end of the lever 10 is pivotally secured a pusher rod 17 assuming a direction substantially perpendicular to said lever; said pusher member extends outwardly to a slight extent beyond an opening 19 in the covering plate 6, said opening serving as a guide for said pusher rod which carries at its free end a control knob 18.

The operation of the arrangement is as follows:

As the strap is submitted to the action of the weight of the blind, the roller 14 is submitted to a vertical upwardly directed force component that urges the rocking member 12 into clockwise angular movement. This provides a tensioning of the spring 16 which in its turn draws the lever 10 along and consequently actuates the brake. The braking action is thereby substantially proportional to the tensioning of the strap.

When the blind is to be drawn up, the strap 2 is drawn manually down. This allows the pivotal member 12 to rock anti-clockwise. Consequently, the traction on the spring 16 is released and the brake is disengaged to an amount such that the drum 1 may rotate and wind up the strap. When the strap is released, the blind remains stationary in the position that has been given to it, as the brake is again operative. When it is desired to lower the blind, it is necessary to merely depress the knob 18. This causes the lever 10 to rock in antagonism with the action of the spring 16 and release the brake. It is possible to adjust, as required, the speed at which the blind sinks through a corresponding more or less energetic action on the knob 18.

The strap-winding device according to the invention, does not show the drawbacks referred to hereinabove. It is no longer necessary to clamp the strap in order to brake the movement of the blind. The improved brake arrangement cuts out any sudden jerks on the strap so that the latter is less submitted to strain. This is of special interest in the case of light straps which remain serviceable for a much longer time.

It is also possible to provide a modification wherein the brake acts on the outside of the drum.

In contradistinction with the embodiment disclosed, it is also possible to design the arrangement in a manner such that the drum and brake,

instead of being fitted inside the wooden frame are secured outwardly thereof, this being necessary in those cases where it is not possible to insert the device in an opening of the structure provided with the blind.

In a further embodiment, it is possible to cut out the provision of the roller 11 in which case the upper end of the lever 10 may be in one with the brake 8 whereby the pivotal movement of said lever round the pivot 9 rigid with the support 3 would urge the arcuate portion of the lever forming the actual brake against the inner portion of the drum. This is shown in Fig. 2.

What I claim is:

1. A winding device for blind raising members comprising a drum adapted to wind and to unwind said blind-raising member, a spiral spring urging said drum into its winding direction, a brake acting on said drum, a pivoting member, a stationary support to which said member is pivotally secured, a guiding roller for the blind-raising member revolubly carried by the pivoting member at a distance from its pivot on the stationary support, a lever controlling the brake, a stationary pivot for last mentioned lever, a spring connecting the pivoting member with said lever, the blind raising member engaging the roller to urge said pivoting member under the action of the weight of the blind on said blind raising member into a position for which the pivoting member urges the lever through the action of the spring into its brake-operating position.

2. A winding device for blind-raising members comprising a drum adapted to wind and unwind said blind-raising member, a spiral spring urging said drum into rotation in its winding direction, a brake acting on said drum, a lever controlling the operation of the said brake, a stationary support to which said lever is pivotally secured, a member pivotally secured to the stationary support, a roller revolubly carried by said pivoting member and adapted to engage the blind-raising member and to be urged upwardly by same under normal operative conditions to rock the pivoting member away from the lever, a projection on said pivoting member, a spring connecting said projection on the pivoting member with the lever, adapted to urge the lever into its brake-operating position when submitted to the mechanical action of the pivoting member urged into its operative position by the action of the blind-controlling member on the roller.

3. A winding device for blind-raising members comprising a drum adapted to wind and unwind said blind-raising member, a spiral spring urging said drum into rotation in its winding direction, a brake acting on said drum, a lever controlling the operation of the said brake, a stationary support to which said lever is pivotally secured, a member pivotally secured to the stationary support, a roller revolubly carried by said pivoting member and adapted to engage the blind raising member and to be urged upwardly by same under normal operative conditions to rock the pivoting member away from the lever, a projection on said pivoting member, a spring connecting said projection on the pivoting member with the lever and adapted to urge the lever into its brake-operating position when submitted to the mechanical action of the pivoting member urged into its operative position by the action of the blind-controlling member on the roller, a rod pivotally secured to the free end of the brake operating lever and a knob on the outer end of said rod adapted to be depressed to shift the lever to a varying extent out of its operative position in antagonism with the spring.

4. A winding device for blind-raising members comprising a drum adapted to wind and unwind said blind-raising members, a spiral spring urging said drum into rotation in its winding direction, a brake acting on said drum, a lever controlling the operation of the said brake, a stationary support to which said lever is pivotally secured, a member pivotally secured to the stationary support, a roller revolubly carried by said pivoting member and adapted to engage the blind-raising member and to be urged upwardly by same under normal operative conditions to rock the pivoting member away from the lever, a projection on said pivoting member, a spring connecting said projection on the pivoting member with the lever and adapted to urge the lever into its brake-operating position when submitted to the mechanical action of the pivoting member urged into its operative position by the action of the blind-controlling member on the roller, a rod pivotally secured to the free end of the brake-operating lever and a knob on the outer end of said rod adapted to be depressed to shift the lever to a varying extent out of its operative position in antagonism with the spring and a covering plate for the different parts recited, provided with an opening for the passage of the knob-carrying rod.

5. A winding device for blind-raising members comprising a drum adapted to wind and to unwind said blind-raising member, a spiral spring urging said drum into its winding direction, a brake acting on the inner periphery of said drum, a pivoting member, a stationary support to which said member is pivotally secured, a guiding roller for the blind-raising member revolubly carried by the pivoting member at a distance from its pivot on the stationary support, a lever controlling the brake, a stationary pivot for last mentioned lever, a spring connecting the pivoting member with said lever, the blind raising member engaging the roller to urge said pivoting member under the action of the weight of the blind on said blind-raising member into a position for which the pivoting member urges the lever through the action of the spring into its brake operating position.

6. A winding device for blind-raising members comprising a drum adapted to wind and to unwind said blind-raising member, a spiral spring urging said drum into its winding direction, a brake acting on said drum, a pivoting member, a stationary support to which said member is pivotally secured, a guiding roller for the blind-raising member revolubly carried by the pivoting member at a distance from its pivot on the stationary support, a lever rigid with the brake, a stationary pivot for last mentioned lever, a spring connecting the pivoting member with said lever, the blind raising member engaging the roller to urge said pivoting member under the action of the weight of the blind on said blind raising member into a position for which the pivoting member urges the lever through the action of the spring into its brake-operating position.

7. A winding device for blind-raising members comprising a drum adapted to wind and unwind said blind-raising member, a spiral spring urging said drum into rotation in its winding direction, a brake acting on said drum, a lever rigid with the said brake, a stationary support to which said lever is pivotally secured, a member pivotally secured to the stationary support, a roller revolubly

carried by said pivoting member and adapted to engage the blind-raising member and to be urged upwardly by same under normal operative conditions to rock the pivoting member away from the lever, a projection on said pivoting member, a spring connecting said projection on the pivoting member with the lever and adapted to urge the lever into its brake-operating position when submitted to the mechanical action of the pivoting member urged into its operative position by the action of the blind-controlling member on the roller.

ALFRED HOFER.

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