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AWNING MECHANISM

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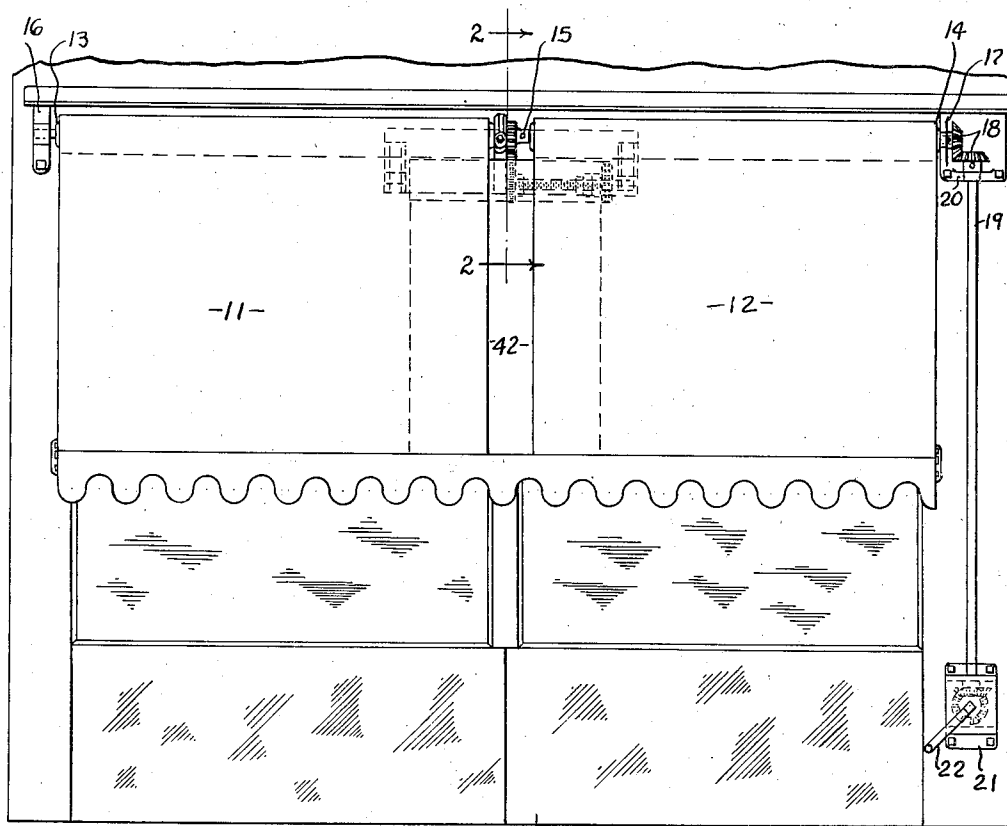


FIG. 1 -

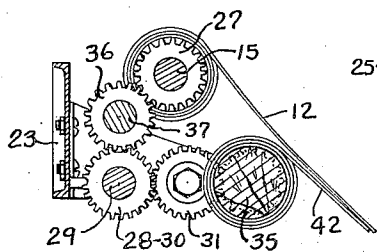


FIG. 2 -

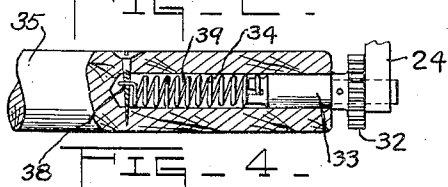


FIG. 4 -

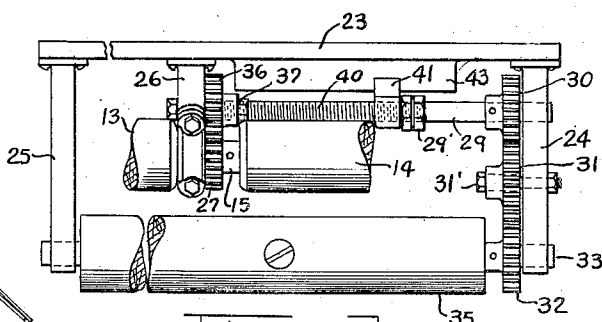


FIG. 3 -

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## UNITED STATES PATENT OFFICE

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## AWNING MECHANISM

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4 Claims. (Cl. 156—44)

This invention is directed to awning mechanisms, more particularly to a mechanism for supporting a roll of an awning at its central portion and novel means for rolling a supplementary central strip as will be described.

The invention has for its object the provision of means for rolling an awning, and means for supporting the central portion of the roll.

A further object is to provide an awning roller, supported at its center and having dual cover strips reeved upon the roller with a gap therebetween and a supplementary strip of awning material disposed to close the gap thus provided, and novel means for rolling the supplementary strip co-operatively with operation of the awning as a whole.

A further object is to provide an awning mechanism as aforesaid, in which the roll for carrying the supplementary strip has a novel means of automatic adjustment whereby the supplementary strip is retained in proper adjustment with respect to the associated cover.

It is well known to those versed in the art of making and using awnings, that for practical purposes the length or width of a curtain of awning material is limited by reason of the difficulty encountered in providing rollers of sufficient strength to span a considerable distance without sagging.

The roller, of necessity, must be supported at each end and in the case of a very long roll it is necessary to provide additional support at the center.

The unsatisfactory results of numerous means which have been tried for supporting the center of the roll have been due largely to the excessive wear imposed upon the cover material by the central supporting mechanism.

In some instances the rolls have been broken at the center and the cover divided into two separate portions with a space between them and a supporting bearing placed on the roll between the two.

This means necessarily results in an open area in the center of the awning, that is the cover of the awning is not continuous and in order to overcome this undesirable condition supplementary sheets have been placed to cover the open area and a supplementary roller provided for rolling the latter sheet in unison with the main covers, the supplementary roller being mounted upon independent bearings.

The above arrangement has been found unsatisfactory by reason of the practical difficulty of operating the main roller and the supplementary

roller in synchronism, while at the same time allowing for variations in expansion and contraction of the material comprising the awning covers and the supplementary strip.

My principal object therefore is to provide a satisfactory means for operating an awning which includes means for rolling the supplementary strip in proper unison with the main covers.

The invention is fully disclosed in the following description and accompanying drawing, in which:

Fig. 1 is an elevational view representing a building with my awnings device attached thereto;

Fig. 2 is a fragmental sectional and elevational view showing details of the mechanism to be described, taken from line 2—2 in Fig. 1;

Fig. 3 is a plan view, fragmented, showing details of the mechanism to be described; and,

Fig. 4 is a fragmental sectional view showing details of a take-up device to be described.

Referring to the drawing, Fig. 1 discloses my invention as including awning covers 11 and 12, and a pair of rollers 13 and 14, which are joined at 15, as will be later referred to.

The mechanism is attached, as shown, to a building structure 10 and includes bearings 16 and 17 in which the main rolls 13 and 14 are journaled, a pair of mitres 18, one being attached to the awning roller, the other attached to a vertical shaft 19 journaled at its upper end in a bearing 20 and at its lower end in a bearing structure 21 which latter also supports a mechanism connected with the shaft 19 to provide means whereby the awning is manually operated through a crank 22.

Fig. 1 also illustrates in outline a supporting and operating mechanism disposed intermediate the ends of rollers 13 and 14, best illustrated in detail in Figs. 2 and 3.

The latter mechanism comprises a frame structure 23 attached to the building, the frame being provided with extending bracket portions 24, 25 and 26.

The rollers 13 and 14 are joined by a shaft member 15, as already noted, and this shaft is journaled in bracket 26 by means of which the central portion of the roller structure is supported, thus the rollers 13 and 14 are supported at their outer ends in bearings 16 and 17, and have their inner ends supported in the bracket 26.

Upon the shaft 15 is secured a gear 27 which has driving connection with a gear 28 through an idler gear 36.

Gear 36 is supported on bracket 26 by means

of a stud 37, and gear 28 is secured to a short shaft 29, which latter is journaled at its inner and outer ends in brackets 26 and 24, respectively.

5 Adjacent to the bracket 24, shaft 29 carries a gear 30 which has driving connection, through an idler 31 supported upon a stud 31', with a gear 32.

10 Gear 32 is affixed to a stub shaft 33 which is journaled in bracket 24 at its outer end and has its inner end rotatably received in a circular recess 34 formed in a supplementary roller 35.

Roller 35 is supported on its right hand end by means of the stub shaft 33, and at its left hand 15 end in a bearing formed in bracket 25.

A driving connection, between stub shaft 33 and roller 35, is afforded by a spring 39 which is anchored, as at 38, to the roller and at its opposite end to the shaft 33. It will be obvious that, 20 through this spring connection, roller 35 is urged to rotate in unison with shaft 33, there being, however, considerable latitude in the movement between the members.

In the above manner the roller 35 is provided 25 with a tensioned connection with shaft 33, and it will be apparent that rotation of rollers 13 and 14 will result, through the described gearing, in similar rotation of roller 35.

30 It is to be noted that shaft 29 is provided with a screw thread 40 upon which operates a threaded traveler member 41. Traveler 41 is slidably engaged with an extending rail member 43 secured to frame 23.

Outside the member 41, and screwed upon 35 threads 40, are a pair of lock-nuts 29' which may be locked in position at any point on the threads.

By means of the above arrangement the number of revolutions through which shaft 29 may 40 be rotated is limited by reason of the longitudinal travel of member 41, which travel results from rotation of the members of the mechanism.

It will be apparent that when the crank 22 is rotated in either direction to elevate or lower 45 the awning, the mechanism above described will be driven in unison with roll 14 and since the mechanism includes the shaft 29, operation of the device will result in longitudinal travel of member 41 in accordance with the direction of 50 rotation.

It will be obvious that continued rotation of the awning roller in one direction will eventually bring about abutment of member 41 with lock-nuts 29', and rotation in the opposite direction 55 will bring about similar abutment with the hub of gear 28 and by reason of this abutment, with nuts 29' suitably adjusted, rotation of the mechanism beyond the points of abutment at either end, is made impossible.

60 In practical use the device is operated as follows:

In erection the covers 11 and 12 are assembled as usual and arranged to be rolled upon the rollers 13 and 14.

65 A supplementary sheet, 42 of suitable material is placed beneath the covers in the position indicated in Fig. 1 to cover the space between them. The upper end of sheet 42 is secured to roller 35 and its lower end is secured by any desired 70 means to the structure carrying the free end of covers 11 and 12.

Before attachment of the lower end of sheet 42, the sheet is pulled out in such a manner as to rotate roller 35 upon shaft 33 to wind spring 75 39 to a certain amount. The sheet is then se-

cured at its lower end whereupon it may obviously be rolled and unrolled in unison with covers 11 and 12 and at the same time held in taut condition at any position of the awning.

The advantage of the novel connection between 5 roller 35 and rollers 13 and 14 will be obvious when it is considered that, under the usual conditions of weather or wear, fabric used in awnings is not likely to expand and contract in a uniform manner and without the take-up feature described it would be substantially impossi- 10 ble to maintain the sheet 42 in suitable tensioned condition.

Without the take-up device the sheet 42 may be held in a condition of tension which would tend 15 to hold up the outer edge of the main covers in such a manner as to relax the covers 11 and 12, thus leaving them flabby whereas on the other hand the covers 11 and 12 may be contracted sufficiently to leave sheet 42 relaxed and flabby. 20

With my presently described device the main covers of the awning and the supplementary sheet 42 are held in uniform tension, thus giving a superior awning construction.

The above has disclosed an embodiment of my 25 invention.

Modifications of structure are obviously possible without alteration of the principle involved.

I do not wish to be limited in structure or form except within the scope of the appended claims. 30

What I claim is:

1. A device of the class described having in combination, a pair of rollers, separate sheets of material wrapped thereabout, a single movable frame to which the free ends of said sheets are attached, manual means for rotating the rollers to wind and unwind said sheets, and means for ensuring a uniform rate of take-up of the sheets comprising a resilient driving connection between the rollers whereby one roller may be 35 rotated in a differential manner with respect to the other.

2. An awning mechanism comprising, a first roller, an awning sheet wrapped thereabout, a movable frame supported by the free end of said awning sheet, a second roller disposed axially and longitudinally offset from the first roller, a second awning sheet wrapped about the second roller in such position as to extend beyond the edge of the first named sheet, the free end of said 50 second sheet being attached to said movable frame, resilient driving connection between the rolls, the rolls being rotatable to raise and lower the awning, said resilient driving connection adapted to provide compensation for unequal alteration of the length of the sheets or unequal rate of take-up on the rolls. 55

3. A device of the class described having in combination, a plurality of awning rolls spaced apart and joined by a shaft, a stationary support 60 in which said shaft is journaled, a supplementary roll supported adjacent the inner ends of said rolls, resilient driving connection between said rolls and supplementary roll, awning sheets wrapped on said rollers with their inner edges spaced apart so as to leave an open area between the sheets, a strip of awning material attached adjacent the free ends of said sheets, disposed over said open area and wrapped upon said supplementary roll, and manual means for operating, all of said rolls being operable as a unit. 70

4. A mechanism of the type described comprising a pair of co-axial spaced apart rolls rigid with each other for rotation in unison, an awning sheet for each of said rolls attached at one 75

end thereto for reeling upon and from the same  
in raising and lowering the awning, mechanism  
for rotating said rolls, a third roll disposed in  
staggered relation to said first-named rolls, a  
5 shaft rotatably engaged and co-axial with said  
last-named roll, a shade roller spring connecting  
said last-named roll with said shaft, gearing be-  
tween the latter and said first-named rolls for  
causing all of said rolls to be rotated in unison  
10 in the same direction at substantially equal sur-

face speed, an awning strip secured at one end to  
said last-named roll and spanning the gap be-  
tween the first-named awning sheets, the latter  
and said strip being secured at their other ends  
to a bar common to all of them, said spring being 5  
adjustable to maintain said strip under tension  
at all positions of said sheets and strips and  
adapted to cause automatic take-up of stretch of  
said strip.

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