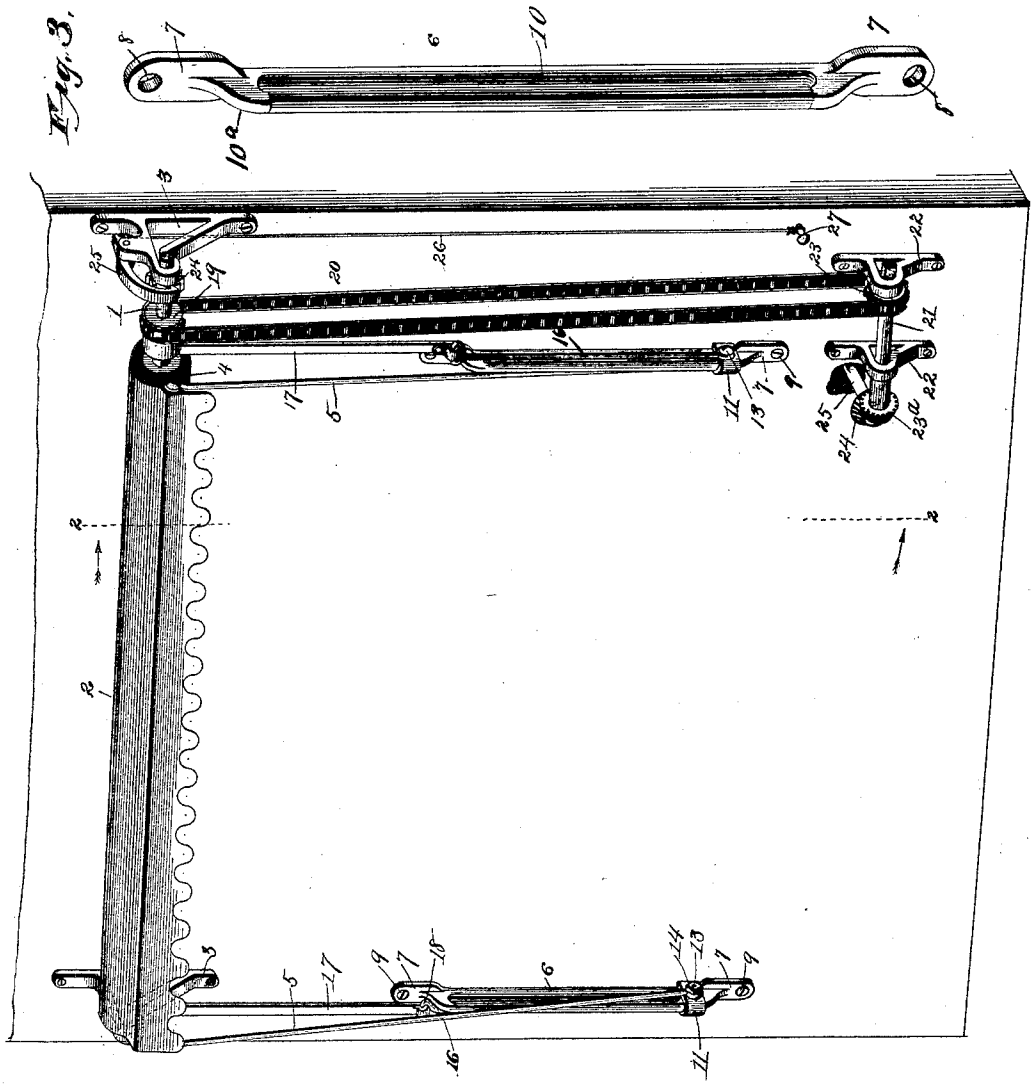
(No Model.) 2 Sheets—Sheet 1.

C. W. LINDER.

AWNING.

No. 459,078. Patented Sept. 8, 1891.



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(No Model.) 2 Sheets—Sheet 2.

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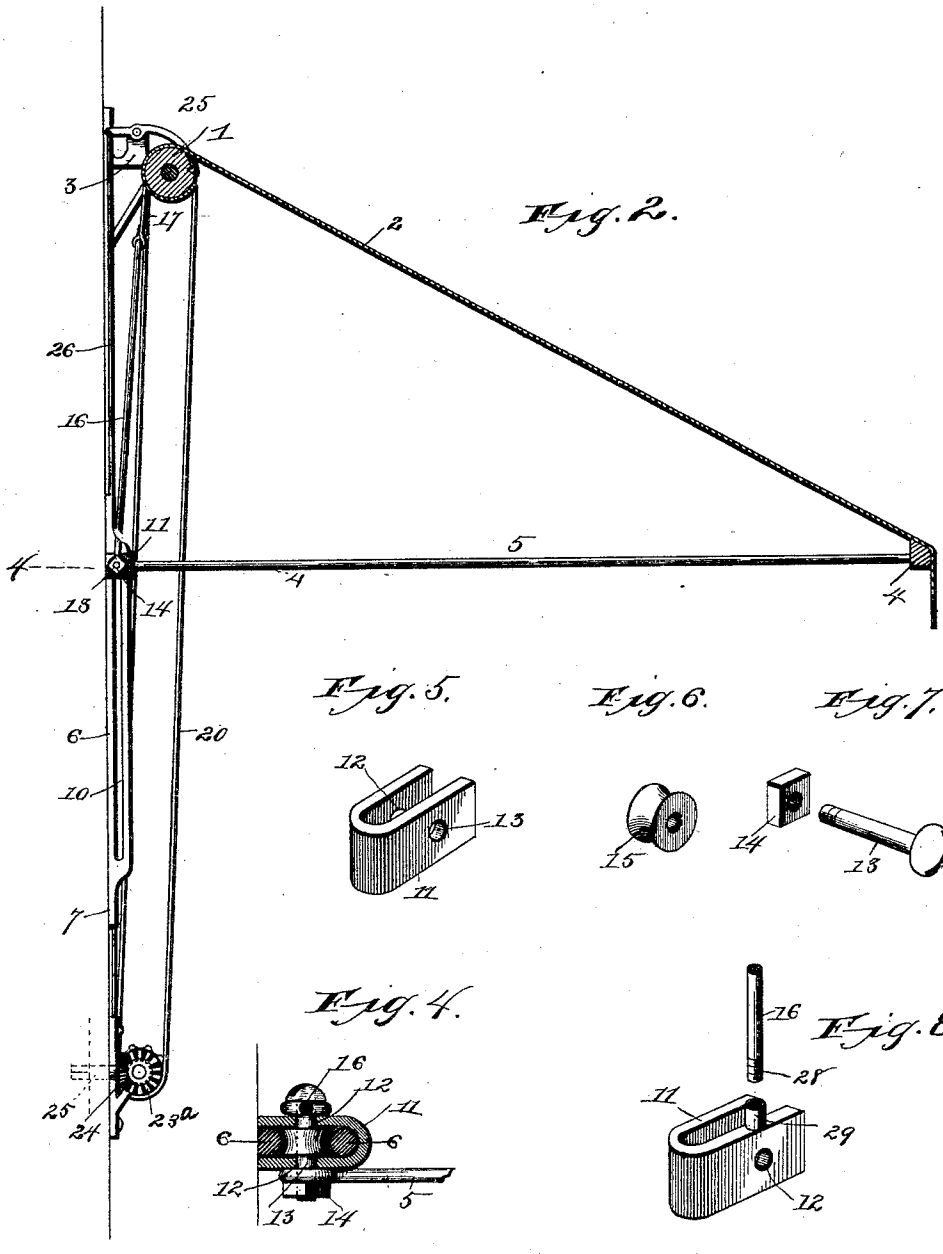

Fig. 2.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 4.

Fig. 8.

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UNITED STATES PATENT OFFICE.

CHARLES W. LINDER, OF KANSAS CITY, MISSOURI.

AWNING.

SPECIFICATION forming part of Letters Patent No. 459,078, dated September 8, 1891.

Application filed March 6, 1891. Serial No. 383,988. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. LINDER, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Awnings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to that class of awnings which are applied to store-windows, doors, the windows of dwellings, and other locations, and more particularly to such awnings as are rolled and unrolled when being raised and lowered, respectively, the objects of my invention being to provide an awning the side arms or rods of which shall automatically rise and fall at their inner ends as the awning is lowered and raised.

A further object of my invention is to provide operative mechanism which shall facilitate the raising and lowering of this class of awnings and which shall insure the smooth working of the same without any hitching or binding of the operative mechanism.

A still further object of my invention is to produce an operative mechanism for roller-awnings which shall enable the awning to be raised and lowered with the exercise of the minimum amount of power or strength, and, finally, to produce an operative mechanism which shall be compact, strong, and durable, and also comparatively inexpensive in construction.

To the above purpose my invention consists in certain peculiar and novel features and construction and arrangement, as hereinafter described, and pointed out in the appended claim.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of a roller-awning constructed in accordance with my invention, the awning being shown in raised position. Fig. 2 is a transverse vertical section of the same on the line 2 2 of Fig. 1, the awning being in lowered position. Fig. 3 is a detached perspective view of the slotted guide for the slide. Fig. 4 is a horizontal cross-section of the slide and guide on the line 4 4 of Fig. 2. Fig. 5 is a detached perspective view of the slide. Fig. 6 is a detached perspective view of the anti-friction roller of the slide. Fig. 7 is a detached perspective view of the pin or bolt which connects the roller and adjacent parts to the slide. Fig. 8 is a detached perspective view of a modified form of connection between the slide and the elevating devices for the awning arms or rods.

In said drawings, 1 designates the roller and 2 the awning, the upper or inner end or edge of which is secured to the roller in such manner as to permit the awning to be wound upon the roller when the awning is raised, as shown in Fig. 1, and to be unwound therefrom when the awning is to be lowered, as shown in Fig. 2. It is to be understood that the roller 1 is to be of any length to accord with the required width of the awning, as circumstances may demand, and that the awning itself is to be of any length desired to properly shield the structure to which it is attached. It is to be further understood that that portion of the roller to which the inner edge of the awning is to be attached is preferably of greater diameter than its end portion or portions, and that the thicker body portion may be of wood, while the end or ends are of metal, or that both the end and body portions may be of wood or of metal, as preferred. The end portions of the roller 1 are journaled in suitable brackets or supports 3, which are firmly secured to the wall or other structure to which the awning as a whole is applied, and these brackets are either of the precise form shown or of any other suitable or preferred form, as desired.

To the outer edge of the awning 2 is suitably attached a cross-rod 4, either of wood or metal, as preferred, and to the ends of this cross-rod are secured the outer or upper ends of the two side rods 5, which are also either of wood or metal, as preferred. The cross-rod 4 and the side rods 5 may be either separate parts, as above described, or they may be formed of one integral piece having a U form, according as circumstances may suggest.

To the wall or other structure to which the awning as a whole is applied are secured two guides 6, which are preferably of metal and of elongated form. Each of these guides is formed at its ends with flattened or elongated

portions 7, through each of which one or more eyes or holes 8 are formed to receive the attaching-screws 9 or equivalent devices. These guides are secured in vertical position at a proper distance below the ends of the roller 1, and each of said guides is formed with an elongated slot 10, extending lengthwise of the guide and formed in an elongated rib 10^a, extending longitudinally of and at right angles to the outer side of the guide. The inner or lower ends of the side rods 5 are connected to the guides so as to move freely upwardly and downwardly thereon, and I will now proceed to describe the means for attaching said ends of the side rods to the said guides.

11 designates a U-shaped slide, preferably of metal, which embraces each of the guides 6 and its longitudinal rib 10^a, the bend of each slide extending over the outer part or rib of the guide and the open part of the slide being adjacent to the wall or outer structure to which the awning is attached. The opposite arms of each slide 11 are formed with eyes or openings 12, there being one such eye or opening for each arm, and through these openings passes a pin or bolt 13, which thus extends transversely of the slide, and which is also screw-threaded at one end to receive a nut 14, which retains the bolt in connection with the slide. This pin or bolt 13 also serves as the axle for an anti-friction roller 15, the bolt passing through the body of said roller. This roller is located between the arms of the slide 11, and when the parts are in operative position the rollers also lie within the slot 10 of the rib 10^a of the guide 6, the periphery of the roller being preferably grooved to insure the retention of the roller in such location. A similar arrangement of the slide, roller, and pin or bolt is provided for both guides, and the inner end of each side rod 5 is formed with a loop or eye to embrace the inner projecting end of the pin or bolt 13, as shown.

The opposite or outer projecting end of each pin or bolt 13 is surrounded by the lower end of a rod or bar 16, which extends vertically upward from its point of attachment to said bolt or pin and the upper end of which is connected to the lower end of a flexible strap or band 17, either of leather, fabric, or metal, as preferred. As shown, the upper end of each of the rods or bars 16 is formed with a loop or eye 18, through which the lower end of the band 17 is passed and then riveted or otherwise secured to the body portion of the band; but any other suitable or preferred form of construction between the rods 16 and bands 17 may be adopted, as described, without departing from the essential spirit of my invention. The upper end of each of the flexible straps or bands 17 is secured to one of the end portions of the roller 1, it being thus understood that the two bands are secured to opposite ends of the roller, and said bands are wound thereon in an opposite direction from that in which the awning proper is wound on the roller. It will thus be seen that as the awning proper is lowered and unwound from the roller 1 the bands 17 will be wound upon the end portions of the said roller, and that when the awning proper is raised and wound upon the roller the bands 17 will be unwound from the end portions of the same. Consequently as the awning proper is lowered the outer ends of the side rods 5 fall, while their inner ends rise, and when the awning is being raised the inner ends of the side rods fall, while their outer ends rise. The several parts are so proportioned that when the awning proper has been fully lowered the inner ends of the side rods will have just completed their upward movement and said side rods will become horizontal, while when the awning proper has been fully raised the side rods will be nearly vertical. It will be seen that the attachment of the rods or bars 16 and side rods 5 is such that the weight and working strains are brought evenly upon the slides and all tendency of such slides to bind upon the guides, either while the awning is being raised or lowered, is effectually avoided. It will also be seen that the rollers 15 neutralize all friction in these parts, and thus also insure the prevention of all binding of the slides.

I will now proceed to describe my improved mechanism for operating the awning above described. Upon one of the end portions of the roller 1 is mounted or formed a sprocket-wheel 19, over which is led a suitable endless drive-chain 20. To the wall or other structure and preferably just below one of the guides 6, is placed a horizontal shaft 21, journaled in suitable brackets 22 and carrying a sprocket-wheel 23. The endless drive-chain 20 passes beneath the said sprocket-wheel 23. The end portion of the roller 1 carries also a ratchet-wheel 24, with which engages the tip of a pawl 25, said pawl being pivoted upon the adjacent bracket 3 and being held in engagement with the teeth of the said ratchet-wheel either by gravity, as shown, or by suitable spring-pressure, if preferred. The opposite end of the pawl 25 is suitably connected to the upper end of a rod, wire, or cord 26, the lower end of which is preferably removably attached to a pin 27 or other suitable device secured to the wall within convenient reach of the operator. Now assuming the awning to be in raised position, as shown in Fig. 1, in order to lower the awning it is only necessary to pull downward upon the rod or cord 26, so as to raise the top of the pawl out of engagement with the teeth of the ratchet-wheel 24. The side rods 5 being slightly out of the perpendicular, when shaft 21 is rotated in reverse direction the awning will drop automatically, and thus unwind from the roller 1 and wind the bands 17 upon the end portions of the roller, as above described. In order to raise the awning the shaft 21 is rotated so as to wind the awning upon the roller and unwind the bands 17 off of the end portions of said roller, as also described above,

the tip of the pawl meanwhile slipping over the teeth of the ratchet-wheel 24, and said pawl finally retaining the awning in raised position, as shown in Fig. 1.

When the awning above described is applied to store-fronts or similar situations, so that the shaft 21 is located near the ground, one end of the shaft 21 is squared to receive a crank for rotating said shaft and raising the awning, as above described. If, however, the awning be applied to upper windows, one end of the shaft 21 is provided with a beveled gear-wheel 23^a, which meshes with a similar gear-wheel 24 upon a shaft 25. This shaft 25 extends through the wall of the building, as shown, and may thus be rotated by a person within the building.

It is to be understood that very large awnings may be provided with the sprocket-wheel, drive-chain, pawl-and-ratchet, and operating mechanism at each end, if desired; but usually such mechanism at one end only of the awning, as shown, will be sufficient for operative purposes.

From the above description it will be seen that the mechanism is simple, compact, and durable in construction, and that it is easily operated; also, that all liability of ditching or binding of the mechanism as the awning is lowered or raised is avoided, and that the mechanism is comparatively inexpensive in construction.

If preferred, the arrangement shown in Fig. 8 for connecting the rods 16 to the slides 11 may be substituted for that above described. In this instance the lower end of each rod 16 is externally screw-threaded, as shown at 28, to enter an internally-screw-threaded socket 29 on the upper side of the outer arm of each slide 11. This arrangement possesses all the advantages of that above described, and in addition thereto facilitates putting the parts together, and also avoids any possibility of binding by bringing the weight more nearly centrally upon the bolts or pins 13.

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

An improved roller-awning comprising a pair of brackets 3, secured to the wall of the building, a roller 1, journaled at its ends in said brackets, a sprocket-wheel 19 at one end of the roller, an awning 2, connected at its upper end to the body portion of the roller, two vertical guides 6, having ribs 10^a and secured vertically beneath the ends of the roller 1, a pair of U-shaped slides 11, each embracing one of the guides and its rib, a roller 15, secured between the arms of each slide and working within the slot of the guide-rib, a pair of side arms 5, connected at their outer ends to the outer edge of the awning and connected to the journals of the rollers, a pair of rods 16, screwed at their lower ends into sockets in the upper sides of the slides, a pair of flexible bands 17, connected at their lower ends to the upper ends of the rods 16 and connected at their upper ends to the ends of the roller 1, so as to wind thereon, a sprocket-wheel 19 upon one end of the roller, a sprocket-wheel 23 upon a shaft 21 at the lower part of the wall beneath the roll 1, a ratchet-wheel 24 upon one end of the roll 1, and a pawl 25, pivoted upon one of the standards 3 and engaging the ratchet-wheel, and a cord 26, connected to the inner end of the pawl and operating to lift the outer end of the same out of engagement with the teeth of the ratchet-wheel, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHAS. W. LINDER.

Witnesses:
G. G. THORPE,
H. E. PRICE.