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TENSIONED AWNING ARM
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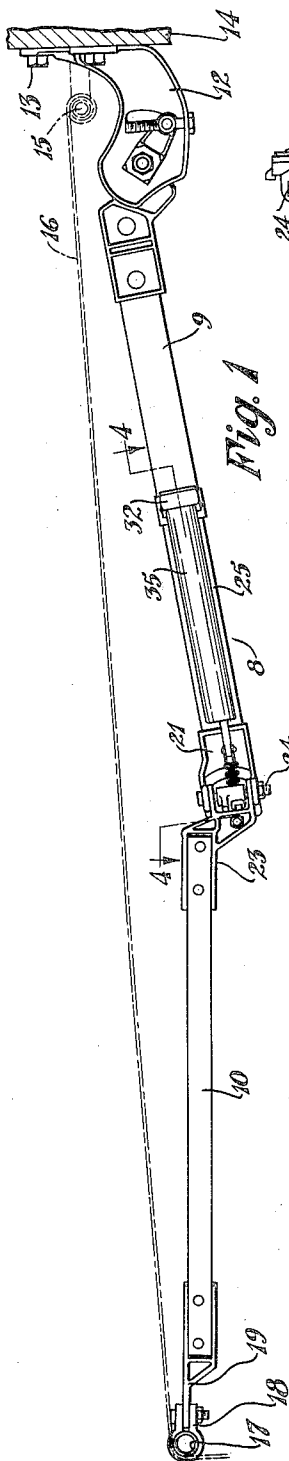


Fig. 1

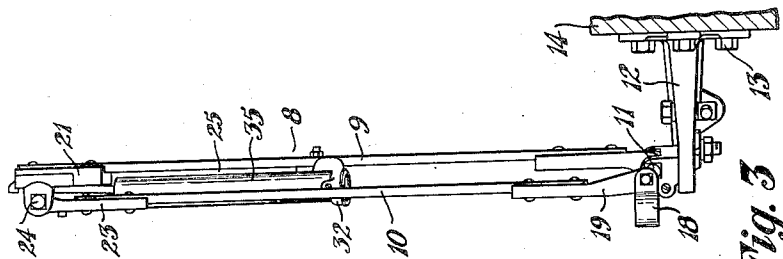


Fig. 3

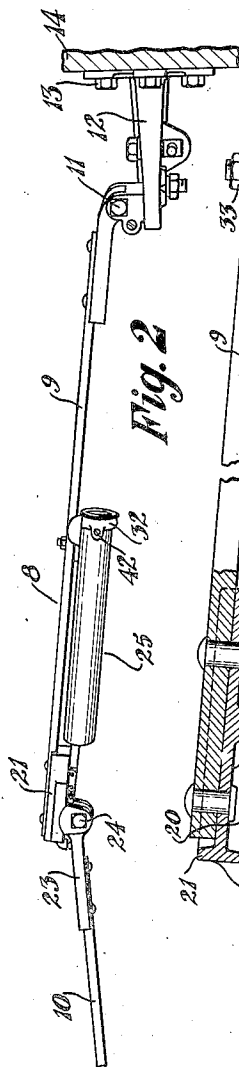


Fig. 2

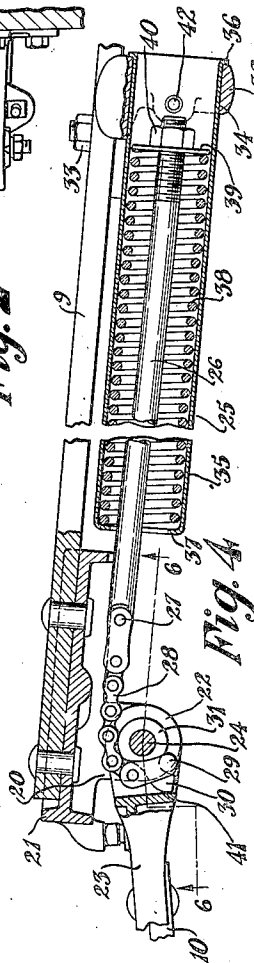


Fig. 4

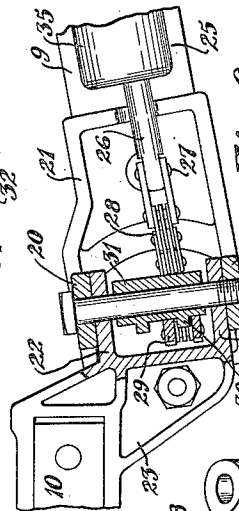


Fig. 6

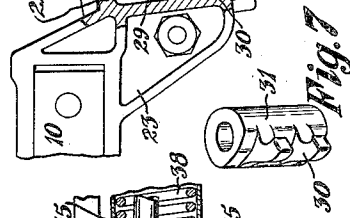


Fig. 7

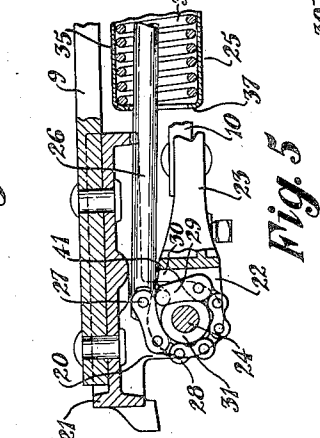


Fig. 5

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TENSIONED AWNING ARM

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5 Claims. (Cl. 156—44)

The invention relates to folding awning arms, and more particularly to means acting to urge or unfold the arms to an extended or open position and to maintain the awning fabric under tension in such open position.

Large roller awnings are extensively used to shade store fronts and show windows; and due to the size and weight of such awnings, and for safety purposes, the so-called lateral folding awning arm of heavy and rugged construction is preferably used for supporting large roller awnings. Such lateral folding awning arms are positioned to fold in a nearly horizontal plane, so that gravity cannot be relied upon to any considerable extent as a means by which the arms may be unfolded.

Moreover, it is desirable that the awning fabric of an awning be held taut at all times to facilitate rolling and unrolling of the same; and that the folding arms be held substantially rigid to prevent wind play and the like.

Moreover, every awning installation presents its own problem of available space and awning height, size, weight, etc. so that a satisfactory folding awning arm must be one which is readily adaptable to the conditions of any particular installation.

Spring tensioning means have been used for tensioning lateral folding awning arms and for aiding in unfolding the same, by positioning the tensioning device between the outer arm and the front awning bar, or between the inner and outer folding arms, or between the inner arm and the arm mounting bracket.

It has been found, however, that the mounting of a tensioning device between the inner and outer arms of a lateral folding awning arm provides the best manner of taking care of the exigencies of any particular installation with a lateral folding awning arm of standard design or construction.

However, no provision has been made in prior tensioning devices for the installation of the same as accessory equipment upon existing awning arms when the tension device is to be located between the inner and outer arms of a folding awning arm.

Accordingly, it is an object of the present invention to provide a lateral folding awning arm with a tensioning device acting between the inner and outer folding arms to unfold the arms.

A further object of the present invention is to provide a tensioning device for lateral folding awning arms acting between the inner and outer arms thereof which may be adjusted readily and

accurately upon or after installation while the device is under tension or pressure.

It is likewise an object of the present invention to provide a tensioning device acting between the inner and outer arms of a lateral folding awning arm, which may be quickly and easily connected or assembled as accessory equipment to various existing types of lateral folding awning arms.

Moreover, it is an object of the present invention to provide a tensioned lateral folding awning arm construction which may be readily adapted to meet the exigencies or requirements of any particular installation with regards awning size, weight, height, angularity etc.

And finally, it is an object of the present invention to incorporate all of the foregoing objectives in a simple and economical construction which is easy to install and operate and which may be quickly and accurately adjusted to suit a variety of conditions.

These and other objects may be obtained by the improvements comprising the present invention, a preferred embodiment of which is shown in the accompanying drawing, and is described in detail and claimed, which may be stated in general terms as including in lateral folding awning arm construction, a wall bracket, a pair of laterally folding arms pivotally mounted on the bracket, said arms comprising inner and outer arms hinge connected together, tensioning means acting between the inner and outer arms urging the same to an unfolded position, and means for adjusting said tensioning means.

In the annexed drawing,

Figure 1 is a side view of a laterally folding awning arm in open or extended position equipped with the improved tensioning means;

Fig. 2 is a fragmentary top plan view of certain of the parts shown in Fig. 1;

Fig. 3 is a plan view similar to Fig. 2, but showing the arm in closed or folded position;

Fig. 4 is an enlarged plan view partly in section, as on the line 4—4, Fig. 1, showing the improved tensioning device with the arm in open or extended position;

Fig. 5 is a view similar to Fig. 4, but showing the arms in closed or folded position;

Fig. 6 is a fragmentary enlarged side elevation, with certain parts in section, taken on the line 6—6, Fig. 4; and

Fig. 7 is a perspective view of one of the parts preferably utilized in the improved tensioning device.

Similar numerals refer to similar parts throughout the drawing.

A lateral folding awning arm is generally indicated at 8 in Fig. 1 comprising the inner arm 9 and the outer arm 10. The folding arm 8 is pivotally mounted at 11 upon a wall bracket 12 which is secured at 13 to a wall 14 of a building.

As indicated in dot-dash lines, a roller 15, on which the awning fabric 16 is rolled, is positioned on the building wall 14 in a well known manner; and a front rod or pole 17, to which the forward edge portion of the fabric 16 is secured, is swivelled by a fitting 18 on the forward end 19 of the outer arm 10.

When the awning fabric is rolled upon the roller 15, the arms 9 and 10 will fold laterally to the position shown in Fig. 3. It is understood, of course, that two or more lateral folding awning arms 8 are utilized to support the awning fabric of any particular awning installation.

The inner and outer arms 9 and 10 are hinge connected together, by providing spaced ears 20 on an end bracket 21 at the outer end of the inner arm 9, and by providing spaced ears 22 on the end bracket 23 at the inner end of the outer arm 10; and by journalling the ears 20 and 22 on a hinge pin 24.

As thus far described, the construction is typical of a usual type of lateral folding awning arm, to which the present improvements relate.

Viewing Fig. 1 discloses that the folding awning arm moves in a nearly horizontal plane so that the force of gravity is not ordinarily sufficient to cause the arms 9 and 10 to unfold to an open position when the awning roller 15 is unrolled. The present invention provides improved tensioning means best illustrated in Figs. 4, 5, 6 and 7 reacting between the inner and outer arms 9 and 10, for accomplishing an opening or unfolding of the arms 9 and 10 in a positive manner, when the awning roller 15 is unrolled.

The improved tensioning device preferably comprises an adjustable compression spring assembly generally indicated at 25, which is adapted, for quick and ready attachment to existing awning arms, or for becoming a part of a new awning arm.

The tensioning device 25 preferably includes a rod or link member 26 which may be pivotally connected at 27 to a link chain 28 or other flexible connector, the outer end or link 29 of which is detachably engaged over an ear or projection 30 of a sleeve member 31 which is journalled on the hinge pin 24 intermediate the arm ears 20 and 22.

The tensioning device also includes a spring retaining member bracket 32 detachably connected to the inner arm 9 by a screw 33. The bracket is provided with an aperture 34 therein, in which a cylindrical housing 35 is secured by entering the housing in the aperture 34 and abutting its flanged end 36 against the bracket wall surrounding the aperture 34.

The cylindrical housing 35 preferably has an inturned flange 37 at its other end to form an abutment for one end of a compression spring 38 located within the housing 35. The other end of the compression spring 38 engages a washer 39 slidably positioned on the outer end of the link rod 26 and adjustable thereon by means of the nut 40 threaded onto the end of the rod 26.

Referring particularly to Figs. 4 and 5, the ear 30 of the sleeve member 31 abuts against the bracket 23 of the outer arm 10, at 41, whereby the tensioning device reacts against the outer arm to urge the same to an unfolded position such as shown in Figs. 1, 2, 4 and 6.

The improved tensioning device may be readi-

ly installed on an awning arm by merely journalling the sleeve member 31 upon the hinge pin of any type of lateral folding awning arm, and by bolting the housing bracket 32 to the inner folding arm. Upon installation, the amount of compression on the spring 38 may be quickly and easily varied or adjusted to suit the condition of size, weight and angularity of the awning, by screwing or unscrewing the nut 40 while the spring 38 is under compression, or in other words while the linkage connector of the tensioning device is under tension.

Such adjustment may likewise be accomplished when the tensioning device is under tension after the same has been in use for a period of time 15 when the spring 38 may have lost some of its resilience. As previously stated, the link chain 28 forms a flexible connector which wraps around the sleeve member 31 and transmits through the lug 30 of the sleeve member, the reaction of the 20 tensioning device to the outer arm 10.

The link chain 28 and sleeve member 31 are preferably, though not necessarily, made of brass or bronze, so as to avoid breakage of parts due to corrosion incident to weather conditions, or the formation of ice or the like on the awning arm.

One or more set screws 42 may be provided on the bracket 32 extending inward through the housing 35, to prevent the spring 38 and rod 26 30 from being accidentally ejected from the housing 35. It is to be understood, however, that the set screws 42 do not act as a stop for the spring 38, or the washer 39, because the tensioning device is always under tension when in use. When 35 the pressure of the spring is released by unscrewing the nut 40 the washer 39 will stop short of abutting the set screw 42.

The present improvements have been broadly termed tensioning devices herein because the 40 purpose of the same is to provide a tension reaction between the inner arm 9 and outer arm 10 to unfold the same, even though a compression spring is utilized in accomplishing the tensioning function.

Likewise, the member 31 may be cylindrical without departing from the scope of the present invention.

The present invention likewise comprehends that the location of the tensioning device may be reversed if desired, by mounting the housing 35 50 on the outer arm member and wrapping a flexible member around a sleeve member on the hinge pin to react against the inner arm member.

Likewise, although it is preferable to provide 55 lugs 30 on the sleeve member for the double purpose of attaching the flexible connector 28 thereto and for abutting against the outer arm to transmit the tensioning device reaction to the outer arm; it is to be understood that the lugs 60 30 may be dispensed with and that the flexible connector 28 may be hooked onto lugs provided on the outer arm after wrapping around a cam member on the hinge pin.

Referring to Fig. 7, the sleeve member 31 is 65 provided with two lugs, only one of which is used. The other lug is provided, however, so that the sleeve member 31 may be utilized on either a right or left hand folding arm as the case may be.

Accordingly, the present improvements provide 70 a lateral folding awning arm with a tensioning device reacting between the inner and outer folding arms thereof to unfold the arms, which tensioning device may be readily adjusted under tension, and which may be quickly and easily 75

connected or assembled to various existing types of lateral folding awning arms.

Moreover, the present improvements provide a tensioned lateral folding awning arm adapted to meet the requirements of any particular awning installation in a simple, effective and economical manner.

I claim:—

1. In lateral folding awning arm construction, a pair of folding arms having a hinge connection with each other, a sleeve member rotatably mounted on said hinge connection, tensioning means mounted on one of said arms connected to said sleeve member, and said sleeve member having a projection abutting the other arm whereby the tensioning means reacts against the other arm to urge the same to unfolded position.

2. In lateral folding awning arm construction, a pair of folding arms having a hinge connection with each other, a sleeve member rotatably mounted on said hinge connection, tensioning means including a compression spring and a linkage connector mounted on one of said arms, said connector being connected to said sleeve member, and said sleeve member having a projection abutting the other arm whereby the tensioning means reacts against the other arm to urge the same to unfolded position.

3. In lateral folding awning arm construction, a pair of folding arms having a hinge connection

with each other, a sleeve member rotatably mounted on said hinge connection, tensioning means mounted on one of said arms connected to said sleeve member, said sleeve member having a projection abutting the other arm whereby the tensioning means reacts against the other arm to urge the same to unfolded position, and means for adjusting said tensioning means under tension.

4. In lateral folding awning arm construction, a pair of folding arms having a hinge connection with each other, a sleeve member rotatably mounted on said hinge connection provided with a projection bearing against one of said arms, and tensioning means mounted on the other arm connected to said projection, said tensioning means including a linkage connector detachably engaged over said projection.

5. In lateral folding awning arm construction, a pair of folding arms having a hinge connection with each other, said hinge connection including a hinge pin and spaced ears on each arm journalled on said hinge pin, a sleeve member journalled on said hinge pin intermediate the spaced ears of each arm, tensioning means mounted on one of said arms reacting against the other arm to urge the arms to unfolded position, and said tensioning means including a flexible connector wrapped around said sleeve member.

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