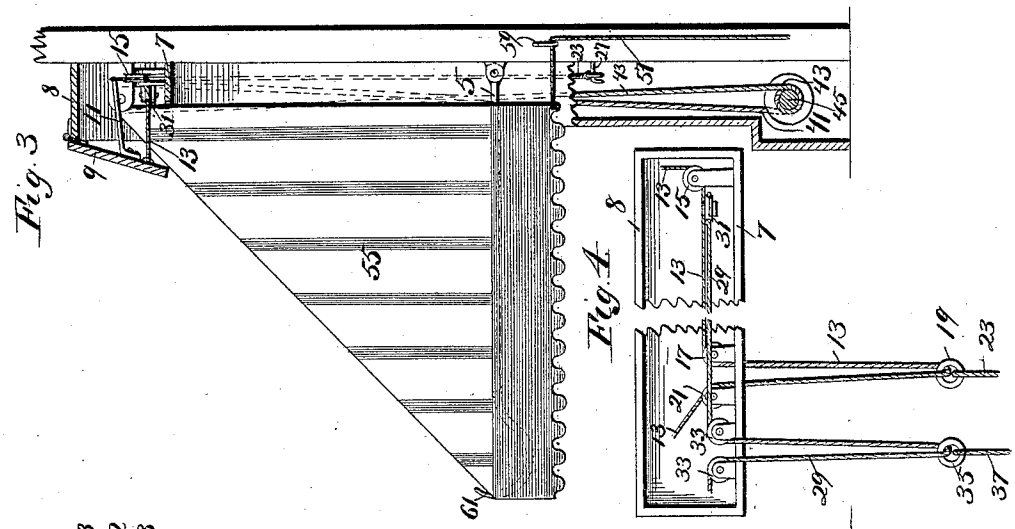
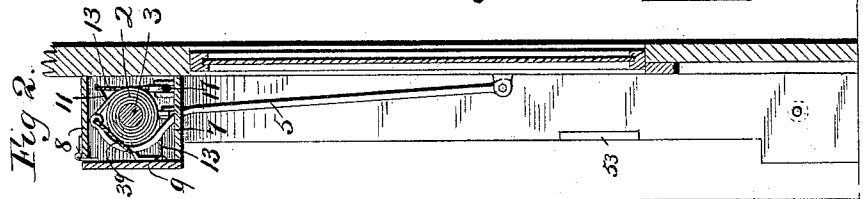
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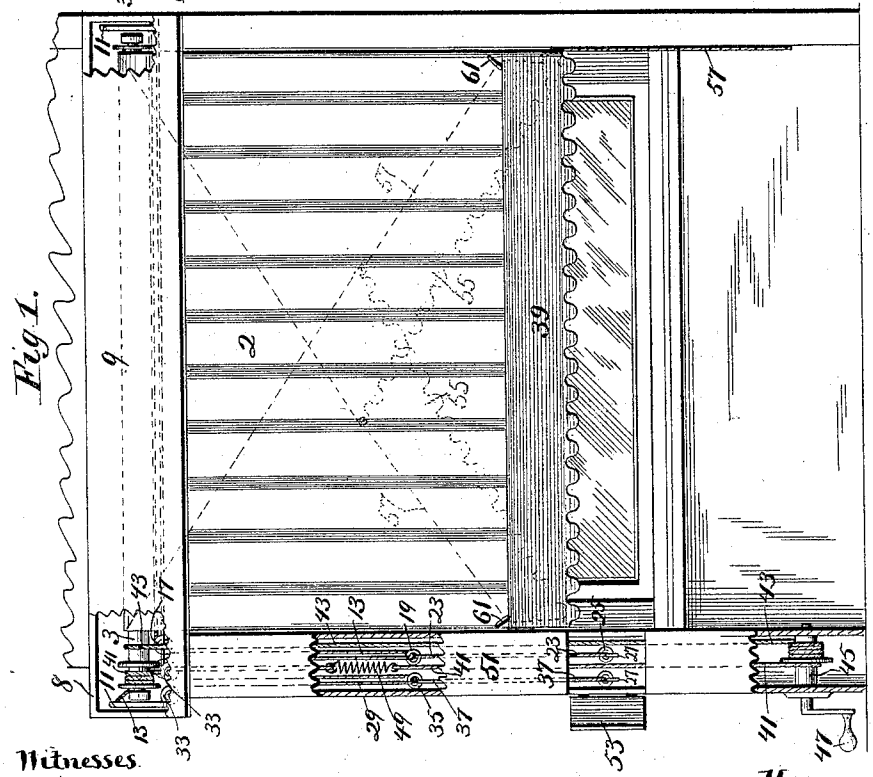
H. D. GREENWALD.

AWNING.

No. 405,549. Patented June 18, 1889.







Witnesses.
J. Jessen
A. M. Gaskill

Inventor.
Herman D. Greenwald
By Paul & Mann Attys.

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UNITED STATES PATENT OFFICE.

HERMAN D. GREENWALD, OF ST. PAUL, MINNESOTA, ASSIGNOR OF ONE-HALF TO JEHIEL W. JAGGER, OF SAME PLACE.

AWNING.

SPECIFICATION forming part of Letters Patent No. 405,549, dated June 18, 1889.

Application filed March 22, 1889. Serial No. 304,387. (No model.)

To all whom it may concern:

Be it known that I, HERMAN D. GREENWALD, of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Awnings, of which the following is a specification.

My invention relates to folding or collapsing awnings for doors and windows; and its object is provide an awning which can be readily lowered or raised by one person, and when closed be thoroughly protected from the weather; and it consists, generally, in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a front elevation of my improved awning. Fig. 2 is a cross-section of the awning rolled up. Fig. 3 is a side elevation and partial section of the awning when open or down, and Figs. 4 and 5 are details.

In the drawings, 2 is the body of the awning, made, preferably, of cloth or other suitable material. This is secured along its upper edge to a suitable roll 3, which is arranged close to the side of the building, directly above the door or window to be protected, and is adapted to turn freely in suitable bearings or supports at either end. The lower edge of the awning is secured in the ordinary manner to a suitable metallic frame hinged to the side of the building. The outer ends of the side bars 5 of this frame are preferably bent downward into a partial hook, so that when the awning is wound up the bend will partially embrace the roll and lie close to it. To protect the awning when rolled up, I prefer to inclose it in a case secured to the side of the building and composed of the bottom 7, the top 8, and the flap 9, hinged at the top to 8. This flap is provided at each end beyond the end of the roll with an arm 11, projecting into the interior of the case. An opening-cord 13 is attached to one of these arms, and runs thence around a suitable sheave 15, then to the other end of the awning over the sheave 17, and hangs down the side of the building, preferably being passed through a ring 19, thence upward over the sheave 21, and is secured to the other arm of the flap 9. A cord 23 is secured to the ring 19 and hangs in easy reach, by means of which the cord 13 can be pulled down, so as to raise the flap 9. The ring 19 and cord 23 may be dispensed with, if desired; but this arrangement equalizes the strain upon the two parts of the cord 13 and causes it to operate more efficiently. A suitable ring 25, secured to the end of the cord 23, may be caught on the hook 27, and thus hold the cord drawn down and the flap 9 open. When released, the flap closes by its own weight, if the awning is rolled up, and if down rests upon it, as shown in Fig. 3. To tightly close and secure the flap, I prefer to use a closing-cord 29, having its ends secured to the ends of the flap 9 and running over suitable sheaves 31 and 33 within the case, and provided with a ring 35 and cord 37, by which it is operated and secured similarly to the cord 13. In place of each of the cords 13 and 29, two cords may be used, attached one to one end of the flap or its arm and the other to the other end and conducted over sheaves or through screw-eyes to one end of the awning, where they hang in convenient reach when desired to be operated.

In order to close or draw up the awning, the roll 3 is rotated, rolling upon it the awning-body 2 and lifting with it its frame, until the awning is wholly inclosed in the protecting-case, the bend of the side bars 5 carrying the curtain 39 wholly within the case.

To lower the awning, the roll 3 is rotated in the opposite direction, the weight of the metallic frame falling outward drawing the awning out of its case until it is fully open.

In order to rotate the roll 3 positively in both directions, for the purpose described, I prefer to use two cords or wires 41 and 43, which may be distinguished as the raising-cord 41 and the lowering-cord 43. These are both secured at one end to the roll 3 near one end and arranged to wind upon the roll in opposite directions, and so that as one is wound up the other is unwound. Thus when the awning is down the raising-cord 41 will be wound upon the roll and the lowering-cord will be unwound. Then by pulling upon the raising-cord it rotates the roll, raising the awning, (there being a sufficient length of

cord wound upon the roll to draw the awning fully up,) while the lowering-cord is in turn being wound upon the roll, so that it can in like manner be employed to rotate the roll in the opposite direction and lower the awning. These cords may be operated by hand; but I prefer to employ for the purpose a windlass 45, secured to the side of the building near the ground, directly under the end of the roll carrying the cords, turning in proper bearings and provided with a suitable crank 47. The raising and lowering cords are secured to this windlass in the same relative manner as to the roll 3, each being wound upon the windlass as unwound from the roll, and vice versa, with the rotation of the windlass by means of the crank. In order to compensate for difference in length or in tension of the two cords, I prefer to place in one of them a spiral spring 49, which will yield to excess of strain or take up slack and cause the cords to wind up on windlass and roll evenly. To protect these cords 13, 29, 41, and 43, I prefer to inclose them in a suitable box or casing 51, secured to the side of the building and provided with a suitable door 53, by opening which access is given to the cords.

In order to readily roll up the wings or flaps 55 with the body of the awning, I prefer to attach the cord 57 to the same, by means of which the wing can be secured to the side of the building when the awning is down, as shown in Fig. 3, and when it is desired to raise the awning, by loosening the cord from its cleat 59 and giving it a slight jerk or throw, the wing is extended flat upon the top of the awning, where it is secured by drawing the cord through the hook 61 on the awning-frame. The awning can then be rolled into its case, as before described.

The mode of operation of my improved awning is as follows: The awning being down and it being desired to raise the same, the cords 57 are unfastened from their cleats and the wings 55 thrown flat upon the body of the awning. The cords are then drawn through the hooks 59, so as to secure the wings in that position. The door 53 is opened, the closing-cord 29 is unfastened, and the opening-cord 13 pulled down and hooked, so as to hold the flap open. The windlass then is turned by its crank, so as to wind upon it the raising-cord 41 until the awning is rolled up entirely with its case. The cord 13 is then released and the cord 29 drawn down and secured, so as to tightly close the flap. In lowering the awning the converse of this operation is followed.

I claim as my invention—

1. The combination, with the awning-body 2, having a suitable hinged metallic frame, of the roll 3, secured to the upper edge of the body 2 and turning in suitable bearings, suitable cords secured to said roll for rotating the same in either direction, the windlass 45, having the crank 47, also secured to said cords, which are arranged to wind upon the roll 3 and the windlass in opposite directions, and each to wind alternately upon roll and windlass, combined and operating substantially as described.

2. The combination, with the awning-body 2, the roll 3, secured thereto, the windlass 45, and the cords 41 and 43, secured to and adapted to be wound alternately upon said roll and windlass, of a suitable case inclosing said roll 3, having the flap 9 hinged to the top 8 and provided with the arms 11, and the cords 13 and 29, attached to and adapted to respectively open and close said flap, combined and operating substantially as described.

3. The combination of the awning-body 2, having a metallic frame with side bars bent downward into a partial hook at the outer end, the wings 55, provided with the cords 57, by means of which they can be secured to the building when down or flat upon the body 2, a suitable case inclosing said roll, comprising the bottom 7, the top 8, and hinged flap 9, having the arms 11, suitable cords 13 and 29, for opening and closing said flap, the windlass 45, and the raising and lowering cords 41 and 43, one of said cords being provided with the spiral spring 49, combined and operating substantially as described.

4. In a device of the class described, means for protecting the awning when rolled up, comprising a case having a hinged flap, cords secured to said flap, adapted, respectively, when operated to open and to close said flap, a roll mounted in said case, means for turning said roll in either direction, and an awning secured upon said roll.

5. In a device of the class described, the combination of a casing having an open front provided with a hinged flap, a roll mounted in said casing, means for turning said roll in either direction, and an awning secured to said roll and adapted to be wound thereon.

6. In a device of the class described, the combination of a casing having an open front provided with a hinged flap, a roll mounted in said casing, means for turning said roll in either direction, and an awning having its top secured to said roll and the side bars pivoted below said roll and having their outer end secured to the bottom of said awning.

In testimony whereof I have hereunto set my hand this 4th day of March, 1889.

HERMAN D. GREENWALD.

In presence of—
T. D. MERWIN,
ARTHUR P. LOTHROP.