Feb. 27, 1934. L. B. GOLDBERG ET AL 1,948,788

AWNING ARM HINGE

Filed April 11, 1933

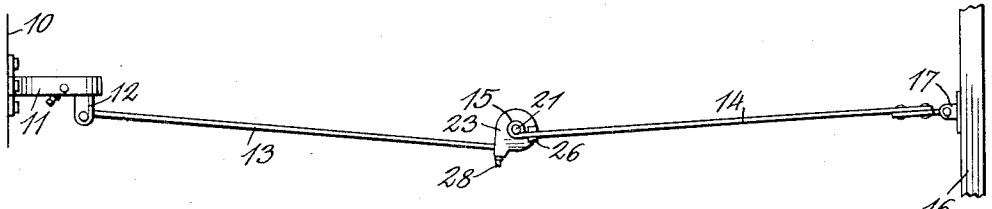


Fig.1.

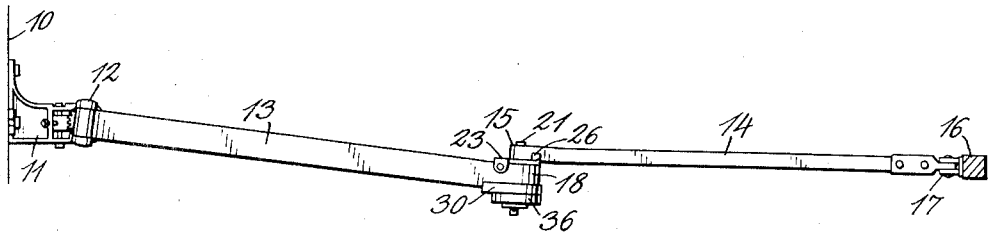


Fig.2.

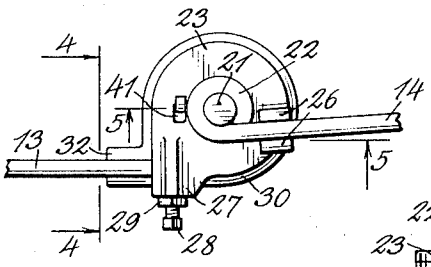


Fig.3.

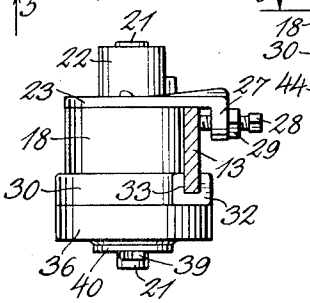


Fig.4.

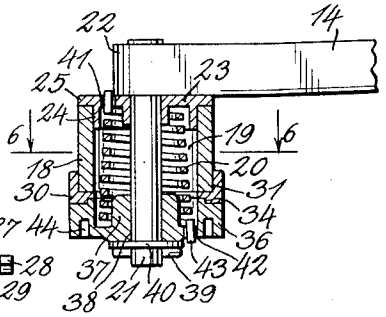


Fig.5.

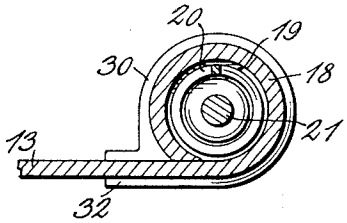


Fig.6.

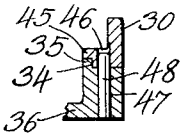


Fig.9.

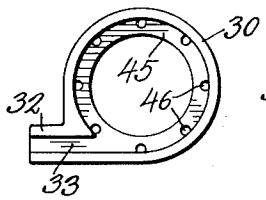


Fig.7.

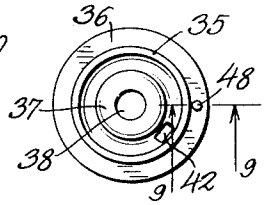


Fig.8.

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AWNING ARM HINGE

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Application April 11, 1933. Serial No. 665,497

6 Claims. (Cl. 156—44)

This invention relates to improvements in awning arms of the type employed for supporting awnings above the sidewalks and other places.

This invention relates more particularly to the hinge construction employed in foldable awning arms of the type indicated.

It is the object of this invention to produce a simple and substantial awning arm comprising two members, one of which is hingedly connected to a bracket supported from the wall of a building and the other of which is hingedly connected to the free end of the first member.

Another object of this invention is to produce a simple and effective spring hinge for assisting in straightening the awning arms when the awning is extended.

A still further object of the invention is to produce a spring hinge of such construction that the tension of the spring can readily be adjusted so as to secure the most desirable operation. The above and other objects that may become apparent as this description proceeds are attained by means of a construction and an arrangement of parts that will now be described in detail, and for this purpose reference will be had to the accompanying drawing in which the preferred embodiment of the invention has been illustrated, and in which:

Fig. 1 is a top plan view of the improved awning arm showing it in extended position;

Fig. 2 is a side elevation of the arm shown in Fig. 1;

Fig. 3 is a top plan view of the hinge showing the same to a somewhat enlarged scale with the arms broken away;

Fig. 4 is a section taken on line 4—4, Fig. 3;

Fig. 5 is a section taken on line 5—5, Fig. 3;

Fig. 6 is a section taken on line 6—6, Fig. 5;

Fig. 7 is a top plan view of a portion of the lower end closure;

Fig. 8 is a top plan view of another portion of the lower end closure; and

Fig. 9 is a section taken on line 9—9, Fig. 8, and shows the manner of holding the two parts of the end closure against relative rotation.

In the drawing reference numeral 10 designates the outer surface of the wall to which a supporting bracket 11 is secured. The bracket 11 forms the subject matter of application Serial No. 665,498 of even date and will therefore not be described in this application to any greater extent than absolutely necessary to properly describe the present invention. The bracket 11 is provided with an awning arm support having two spaced lugs 12 between which is pivotally mounted the upper end of the awning arm section 13. In the drawing member 13 has been shown as made from a steel bar.

The other section of the awning arm has been indicated by reference numeral 14 and consists of another rectangular steel bar of lesser width. The two sections 13 and 14 are connected by a hinge 15 which forms the subject of this invention and which will hereafter be described in detail. A wooden bar 16 is secured to the outer end of member 14 by means of a hinge connection 17. When the awning is extended the arm is in the position shown in Figs. 1 and 2, but when tension is applied to the canvas the two arms will fold about the hinge 15 in a manner old and well known.

The awning arm which forms the subject of this invention has a hinge which is formed in part by one end of the bar 13 which is curved into a cylindrical form as indicated by reference numeral 18 and this curved portion forms a cylindrical opening 19 in which is located a helical spring 20. Secured to the inner end of the arm portion 14 is a hinge pin 21. This hinge pin is held in place in an opening formed by the curved portion 22 of member 14, as shown most clearly in Fig. 3. The upper end of the cylindrical opening 19 is closed by an end closure 23 which is provided with a central opening through which the pin 21 extends and which is also provided with a downwardly extending flange 24 that telescopes with the sides of the opening 19, as shown in Fig. 5. The flange 25 acts as a stop for limiting the downward movement of member 23. Extending upwardly from the upper surface of member 23 are two spaced lugs 26, as shown in Fig. 3. These lugs are spaced the proper distance to receive the member 14 and serve to prevent relative rotation between members 14 and 23. Member 23 is also provided with a downwardly extending lug 27 through which a set screw 28 extends. This set screw is held in place by a lock nut 29 and the set screw 28 serves as a stop to limit the relative movement of members 13 and 14 in a direction to unwind the spring. Secured to the lower edge of the cylindrical wall 18 is a ring 30. This ring is provided on its inner surface with a rabbet 31 which receives the lower end of the cylindrical portion 18 as shown in Fig. 5. Member 30 is also provided with a tangential projection 32 having a groove 33 into which the straight portion of member 13 fits as shown in Fig. 6. The interlock between members 13 and 30 afforded by the groove 33 prevents the ring from accidentally

turning on the member 18. The inner surface of member 30 is provided with a rabbet 34 into which the flange 35 of the end closure 36 extends. Member 36 is provided with a central hub 37 which is in turn provided with an opening 38 through which the hinge pin 21 extends. When the parts are in assembled position, a split key 39 is put through an opening in the end of the hinge pin 21 and the washer 40 is interposed between this pin and the inner surface of member 36. Member 23 is provided with an opening 41 for the reception of the hooked end of the spring 20 and member 36 is provided with a corresponding opening 42 for the reception of the hooked end 43 of the spring. Since member 36 can be rotated on member 30, advantage can be taken of this for the purpose of adjusting the tension of the spring and for this purpose member 36 has been provided with openings 44 that can be engaged by a suitable spanner wrench so as to rotate this member with respect to member 30. The inwardly extending flange 45 of member 30 is provided with a number of openings 46 and member 36 is provided with a single opening 47 through which a pin 48 extends in the manner shown in Fig. 9. After the parts 30 and 26 have been moved relative to each other so as to secure the desired tension of the spring, the pin 48 is pushed upwardly until it enters one of the holes 46 and will therefore hold the two parts against relative movement. In the drawing the pin 48 has not been shown threaded, but it can be replaced by a screw having a threaded connection with member 36.

Let us now assume that the parts have been assembled as shown in the drawing and that the awning arm is in extended position. When the awning is to be collapsed or folded the bar 16 is moved towards the wall whereupon the two arm portions 13 and 14 will start folding about the hinge pin 21 until they finally assume a substantially parallel position. During the folding of the awning the spring 20 is tensioned and when the awning is to be again extended, the force exerted by the tensioned spring functions to straighten the arm and to bring the parts into the position shown in Figs. 1 and 2. The set screw 28 serves as a stop which when positioned so as to maintain the two arm sections in a slightly angular position when opened out for the purpose of preventing a dead center position which would require an exceedingly great force to start the parts moving towards folded position.

Attention is called to the construction shown in Fig. 5 in which the cylindrical recess in which the spring 20 is located is formed from one end of member 13 and in which the closure for the lower end of the cylindrical opening is formed from two parts 30 and 26 that can be rotatably adjusted so as to tension the spring to any extent desired.

After the parts have been assembled as shown, the hinge gives a neat appearance and the spring is quite effectively protected against the action of the elements as it is located within an entirely closed chamber.

Having described the invention what is claimed as new is:

1. A hinge for a foldable awning arm comprising, in combination, a hinge member formed at one end with a cylindrical opening, a cooperating hinge member having a hinge pin having one end attached thereto, a closure for each end of the cylindrical opening, each closure having an opening for centering the hinge pin in the cylindrical opening, one of the end closures being nonrotatably attached to the arm having the cylindrical opening and the other nonrotatably secured to the arm having the hinge pin, means for holding the pin against longitudinal movement, and a spring located in the cylindrical opening, said spring encircling the pin, the ends of the spring being connected with the end closures whereby its tension will be varied when the arms are moved relative to each other about the pivot pin.

2. A hinge for a foldable awning arm comprising, in combination, a hinge member formed at one end with a cylindrical opening, a cooperating hinge member having a hinge pin having one end attached thereto, a closure for each end of the cylindrical opening, each closure having an opening for centering the hinge pin in the cylindrical opening, one of the end closures being nonrotatably attached to the hinge member having the cylindrical opening and the other nonrotatably secured to the hinge member having the hinge pin, means for holding the pin against longitudinal movement, a spring located in the cylindrical opening, said spring encircling the pin, the ends of the spring being connected with the end closures whereby its tension will be varied when the hinge members are moved relative to each other about the pivot pin and means for adjusting the tension of the spring.

3. A hinge for a foldable awning arm comprising, in combination, a hinge member formed at one end with a cylindrical opening, a cooperating hinge member having a hinge pin having one end attached thereto, a closure for each end of the cylindrical opening, each closure having an opening for centering the hinge pin in the cylindrical opening, one of the end closures being nonrotatably attached to the hinge member having the cylindrical opening and the other nonrotatably secured to the hinge member having the hinge pin, means for holding the pin against longitudinal movement, a spring located in the cylindrical opening, said spring encircling the pin, the ends of the spring being connected with the end closures whereby its tension will be varied when the hinge members are moved relative to each other about the pivot pin, means for adjusting the tension of the spring, and a stop for limiting the movement of the arms in a direction to unwind the spring.

4. A hinge for a foldable awning arm comprising, an arm having one end provided with a cylindrical opening, another hinge member having a hinge pin having one end secured thereto, a closure for each end of the cylindrical opening, one of the closures having a central opening for the reception of the hinge pin and means for holding it against relative movement with respect to the hinge member carrying the hinge pin, the closure for the other end of the opening comprising two members, one of which is annular and is nonrotatably attached to the wall of the cylindrical opening, the other portion of this closure comprising a substantially circular member having a central opening for the reception of the hinge pin, a spring encircling the hinge pin and having its ends secured to the end closures, means for holding the parts in assembled relation, and means for adjusting the tension of the spring.

5. A hinge for a foldable awning arm comprising, in combination, two hinge member portions, one of which has one end provided with

a cylindrical opening, the other hinge member portion having a hinge pin having one end attached thereto and adapted to extend through the cylindrical opening, a closure carried by the hinge member portion having the hinge pin, said closure having a central opening for the hinge pin, a circular flange which extends into one end of the cylindrical opening, a pair of spaced lugs for receiving one edge of the hinge portion and a lug forming a stop, a closure for the other end of the cylindrical opening comprising, a ring adapted to be secured to the wall of the cylindrical opening, means for centering the ring on the end of the wall, means for holding the ring against rotation, a circular closure for the opening in the ring, means for maintaining the ring and circular closure in concentric relation while permitting relative rotation, the circular closure having an opening for the hinge pin, a helical spring enclosing the hinge pin, one end of the spring being secured to the circular closure and the other end to the opposite end closure, means for retaining the parts in assembled relation and means for adjustably interconnecting the ring and the circular closure.

6. A spring hinge for use with foldable awning arms, comprising, in combination, two hinge members formed from flat bars, one of the hinge members having its end bent to form a cylindrical opening, a hinge pin having one end extending through the opening and rigidly secured therein, the other hinge member having one end bent so as to form a cylindrical chamber having an inside diameter larger than that of the hinge pin, a cap for the closure of one end of the cylindrical chamber, the cap having a cylindrical flange adapted to extend into one end of the chamber, the cap having a central opening for the hinge pin and means for preventing it from turning on the hinge pin, a closure for the other end of the cylindrical chamber, means for holding the last named closure from turning relative to the cylindrical chamber, a spring surrounding the pivot pin, the ends of the spring being connected to the adjacent end closures, and a stop for limiting the movement of the hinge member in response to the action of the spring.

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