April 15, 1958 H. E. ESKRIDGE 2,830,465

LOCK TYPE CONNECTOR FOR STORM SASH

Filed April 9, 1957

FIG. 1

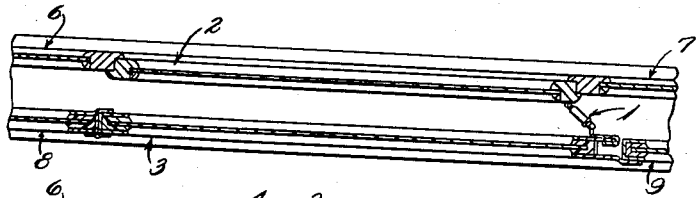


FIG. 2

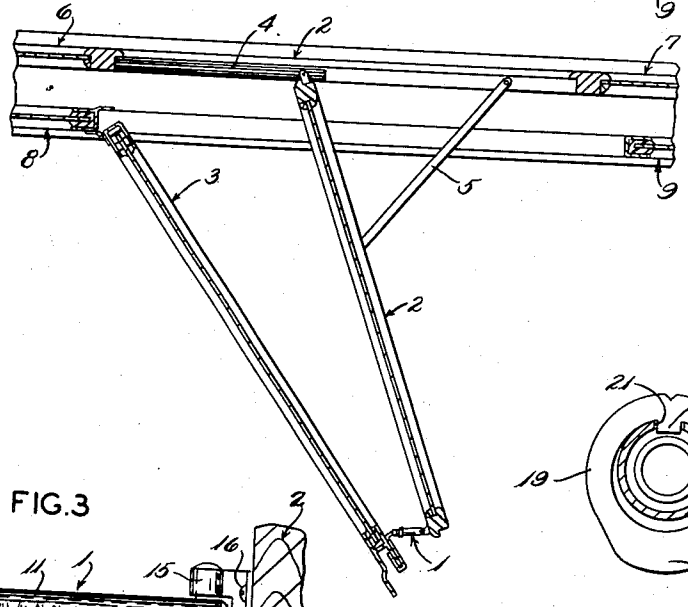


FIG. 3

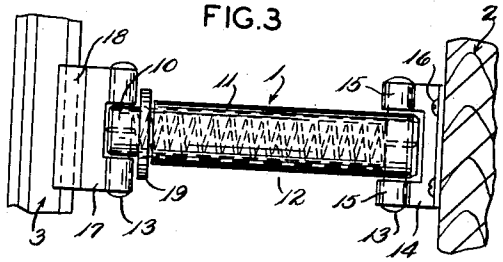


FIG. 5

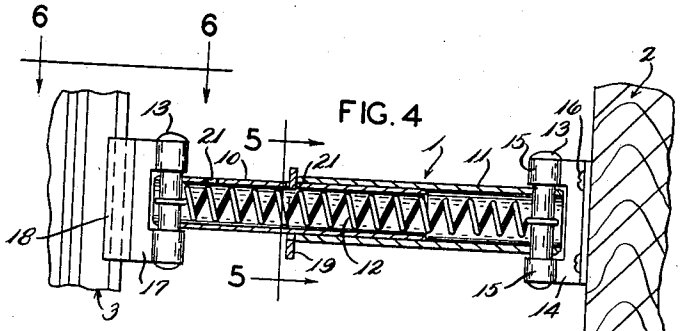


FIG. 4

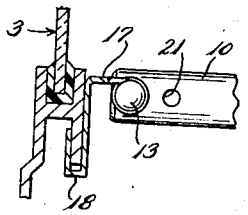


FIG. 6

INVENTOR.
HAROLD E. ESKRIDGE
BY Oldham & Oldham
ATTYS.

United States Patent Office 2,830,465 Patented Apr. 15, 1958

2,830,465

LOCK TYPE CONNECTOR FOR STORM SASH

Harold E. Eskridge, Akron, Ohio

Application April 9, 1957, Serial No. 651,738

6 Claims. (Cl. 74—582)

This invention relates to connectors for pivotally positioned storm sash members, or the like, and particularly relates to a special lock style of a connector which can be readily locked in a partially elongated position.

The present invention particularly relates to connectors such as are shown in and covered by the prior United States Letters Patent No. 2,231,573. These connectors are provided for coupling pivotally positioned storm windows to another pivotal window so that the storm sash can be swung open or closed as a unit with the prime window in a house, or other building. Thus, the primary window may be either of a casement type, or the so-called awning style, or be otherwise positioned in the building for pivotal action with relation thereto. Inasmuch as the storm window for the casement window, or other window has a pivot point spaced from the pivot point for the primary window, obviously the relationship of the free ends of the storm window and primary window will vary appreciably as the primary window is swung to and from an open position. However, it is very desirable that the storm window move with the primary window and obviously the storm window should be moved to a tightly closed position when the primary window is in its closed position. By the use of connectors of the class described, the use of storm windows directly carried by the primary window is avoided.

While many connectors of the style shown in the prior patent referred to have been made and used commercially, I have been able to develop some additional features not found in the prior construction.

As a general object, the present invention has the purpose of providing a new and improved type of a connector member characterized by its ability to be locked in extended positions.

Another object of the invention is to construct a pair of relatively telescopically engaged tubular members in a connector of the class described for ready engagement with the primary window and the storm window to extend therebetween in automatically adjustable relationship with movement of the windows.

Another object of the invention is to provide a lock washer in the connector with a lock projection or lug thereon for securing a pair of relatively telescopically engaged tubular members in extended relationship against the tension of a coil spring positioned within the tubular members for maintaining them in closed spaced axially overlapped relationship so that the connector member normally has a minimum length.

The foregoing and other objects and advantages of the invention will be made more apparent as the specification proceeds.

In order to understand the invention completely, reference should be had to the accompanying drawings, wherein:

Fig. 1 is a fragmentary vertical section taken through a primary awning style window and a storm window unit in a building, such as a home or other structure;

Fig. 2 indicates the relative positions of the windows of Fig. 1 when swung to an open position;

Fig. 3 is a detailed enlarged elevation of the connector member shown in Figs. 1 and 2 when in its condition of minimum axial length, as when the associated windows are in their open position;

Fig. 4 indicates the connector of Fig. 3 when in its partially extended and locked position;

Fig. 5 is a vertical section taken on line 5—5 of Fig. 4; and

Fig. 6 is a detail of the connection of the connector and storm sash.

When referring to corresponding parts shown in the drawings and referred to in the specification, corresponding numerals are used to facilitate comparison therebetween such equivalent or corresponding parts.

The present invention, in general, relates to a connector for joining the free ends of a casement sash, or the like, to the free end of a storm window sash or the like, and this connector comprises a pair of telescopically engaged generally tubular members, spring means positioned within the tubular members for urging them into completely telescoped relation, an end portion of the inner of the telescoped tubular members being exposed at all times, and a lock washer or similar member slidably carried by the inner of the tubular members on the exposed end section thereof, the lock washer and inner tubular member having inter-engaging means provided thereon to prevent longitudinal movement of the lock washer on the inner tubular member and to lock the lock washer against the end of the outer of the tubular members for retaining the tubular members against axially inward telescoping movement, as urged by the spring means, when the lock washer engages the means on the inner tubular member. As another feature, the connector has one hook shaped end bracket for convenient and rapid engagement or release of the connector to or from a casement sash, or the like.

Reference now should be had to the details of the structures shown in the accompanying drawings, and a connector member of the invention is indicated as a whole by the numeral 1. The connector member 1 is pivotally positioned between and connects a primary awning-type window 2 to a pivotally positioned storm sash or window 3. The window 2 is shown as being positioned on a conventional slide or track 4 and it has a control arm 5 pivotally secured between the window and the slide 4. In this embodiment of the invention, the window 2 is shown positioned intermediate a pair of stationarily positioned windows 6 and 7 adjacent opposite sides of this primary window 2.

Any conventional frame and positioning means can be provided for the primary window 2. Obviously the window 2 may be a casement window, or may be of other pivotal construction, as desired.

The storm window 3 likewise is positioned intermediate a pair of fixed storm windows 8 and 9 so that the storm windows 3, 8 and 9 form a comparable construction to the primary windows with which the storm windows are associated. Any suitable frame and pivot means may be provided for the storm window 3.

The connector unit 1 of the invention is best shown in Figs. 3 and 4 and primarily comprises a pair of telescopically engaged inner and outer tubular members 10 and 11, respectively. Suitable spring means, usually a coil spring 12, is secured in extended or tension relationship between the opposite ends of the telescopically engaged tubular members 10 and 11. Preferably some type of pin or rivet means are used for securing the coil spring to these members 10 and 11 and thus rivets or pins 13 are shown extending through opposite ends of the tubular members 10 and 11 and engaging end loops, or other securing means

on the coil spring 12. The pin 13 engaging the outer tubular member 11 is shown securing a conventional anchor bracket 14 to such outer member in pivotal association therewith by end portions of the pin 13 engaging suitable eyes 15 provided on this anchor bracket 14. The anchor bracket 14 is secured to the primary window 2 by screws 16, or equivalent members.

The pin 13 carried by the inner tubular member 10 positions an anchor bracket 17 having a hook shaped end 18 thereon in pivotal relationship to the remainder of the connector 1. Such hook end 18 can be readily and conveniently moved or pulled into removable hooked engagement with the outer end of the storm window 3, as best shown in Figs. 3 and 4 of the drawings, so that no screws need be used for anchoring such end of the connector unit 1.

As an important feature of the present invention, the inner tubular member 10 carries a lock washer 19 on an exposed end portion thereof. The inner tubular member 10 and this lock washer 19 has inter-engaging means provided thereon, such as a lug 20 extending radially inwardly from the lock washer 19 and a series of axially spaced and aligned apertures or holes 21 in the tubular member 10. The lug 20 is adapted to be engaged in any one of the series of holes 21, as desired, and with the coil spring 12 then urging the telescopically engaged members 10 and 11 inwardly with relation to each other to draw the lock washer against the end of the outer tubular member 11 and prevent further relative telescopic movement of such members. Thus the connector 1 can be locked or fixed into a unit of any desired length to facilitate installation of the connector 1 between a pair of associated windows. The spring 12 normally urges the members 10 and 11 into their minimum length relation.

In operation, the connector 1 will effectively move and control the position of the storm window 3 with any desired movement of the primary window 2. The connector unit, when once engaged between the two windows, will be so positioned that the lock washer 19 may retain a given position on the inner telescoped tubular member 10, or it may slide along such inner member with elongation of the connector 1. Preferably this lock washer 19 has an enlarged section 22 thereon diametrically opposed to the lug 20 so that the lock washer 19 will usually keep the lug 20 substantially available for engaging one of the holes 21 with movement of the associated window means. The relative sizes of the lug 20 and diameter of the holes 21 will determine if the lug will usually seat in the holes 21 automatically, or whether such action would be manually performed to obtain the desired locking action. The lock washer 19 also can be substantially balanced circumferentially, if desired. By moving the windows 2 and 3 after the connector 1 is locked in an extended position, the free ends of the window sashes can be brought closer together to release the pressures on the anchor brackets 14 and 17. The connector is adapted to exert a force on the storm window 3 when the window 2 is moved to a closed position so as to pull such storm window 3 into a tightly closed, air-tight position.

In view of the above, it is believed that a novel and improved type of a connector member has been provided which is easy to assembly into engagement with a pair of associated windows to permit free pivotal movement of the primary window and to have it control and effectively open and close the storm window associated therewith. The connector can be locked in extended position to facilitate engaging and releasing it with relation to the associated windows. Hence, it is believed that the objects of the invention have been achieved.

While one complete embodiment of the invention has been disclosed herein, it will be appreciated that modification of this particular embodiment of the invention may be resorted to without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

1. A connector for joining the free end of a casement sash or the like to the free end of a storm sash or the like, which connector comprises a pair of telescopically engaged tubular members, a coil spring received within and secured to said tubular members under tension, an end portion of the inner of said telescoped tubular members being exposed at all times, the inner one of said tubular members having axially spaced apertures therein, and a lock washer slidably carried by the inner of said tubular members on the exposed end thereof, said lock washer having a radially inwardly extending lug thereon to be seated in one of said apertures and lock against the end of said outer of the tubular members and retain the tubular members against inward telescoping movement.

2. A connector for joining the free end of a casement sash or the like to the free end of a storm sash or the like, which connector comprises a pair of telescopically engaged tubular members, spring means positioned within said tubular members to urge them into completely telescoped relation, an end portion of the inner of said telescoped tubular members being exposed at all times, and means carried on the inner of said tubular members on the exposed end thereof, said lock means and inner tubular member having inter-engaging means thereon to prevent longitudinal movement of said lock means on said inner tubular member and to lock said lock means against the end of said outer of the tubular members and retain the tubular members against inward telescoping movement urged by said spring means.

3. A connector for joining the free end of a casement sash or the like to the free end of a storm sash or the like, which connector comprises a pair of telescopically engaged tubular members, a coil spring received within said tubular members, pin means securing opposite ends of said coil spring to different ones of said tubular members at opposite ends thereof, anchor bracket means secured to the connector at opposite ends thereof by said pin means, an end portion of the inner of said telescoped tubular members being exposed at all times, the inner one of said tubular members having axially spaced apertures therein, and a lock washer slidably carried by the inner of said tubular members on the exposed end thereof, said lock washer having a radially inwardly extending lug thereon to be seated in said apertures and lock against the end of said outer of the tubular members and retain the tubular members against inward telescoping movement.

4. A connector for joining the free end of a casement sash or the like to the free end of a storm sash or the like, which connector comprises a pair of telescopically engaged tubular members, a coil spring received within said tubular members, pin means securing opposite ends of said coil spring to different ones of said tubular members at opposite ends thereof, anchor bracket means secured to the connector at opposite ends thereof by said pin means, one of said anchor bracket means having a hooked end thereon for engaging an end of a casement sash, an end portion of the inner of said telescoped tubular members being exposed at all times, the inner one of said tubular members having axially spaced apertures therein, and a lock washer slidably carried by the inner of said tubular members on the exposed end thereof, said lock washer having a radially inwardly extending lug thereon to be seated in said apertures and lock against the end of said outer of the tubular members and retain the tubular members against inward telescoping movement.

5. A connector for joining the unpivoted side of a casement sash to the unpivoted side of a storm window, said connector comprising a pair of telescoping tubes, a tension spring inside the tubes, a pin extending transversely of one end of a tube and securing one end of the spring thereto, a forked bracket straddling the end of the tube and pivotally engaging the ends of the pin, a second pin extending transversely of the opposite end

of the other tube and securing the other end of the spring thereto, and a forked bracket straddling the end of the last-named tube and pivotally engaging the ends of the second pin.

6. A connector for joining the unpivoted side of a casement sash to the unpivoted side of a storm window, said connector comprising a pair of telescoping tubes, a tension spring inside the tubes and having opposite end portions secured to different ones of said telescoping tubes, a pin extending transversely of one end of one tube, a forked bracket straddling the end of said one tube and pivotally secured to said pin, a second pin extending transversely of the opposite end of the second tube, and a forked bracket straddling the end of the said second tube and pivotally secured thereto by said second pin whereby said brackets can be secured to adjacent faces of a casement sash and a storm window for coupling them together but permitting relative movement therebetween.

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