

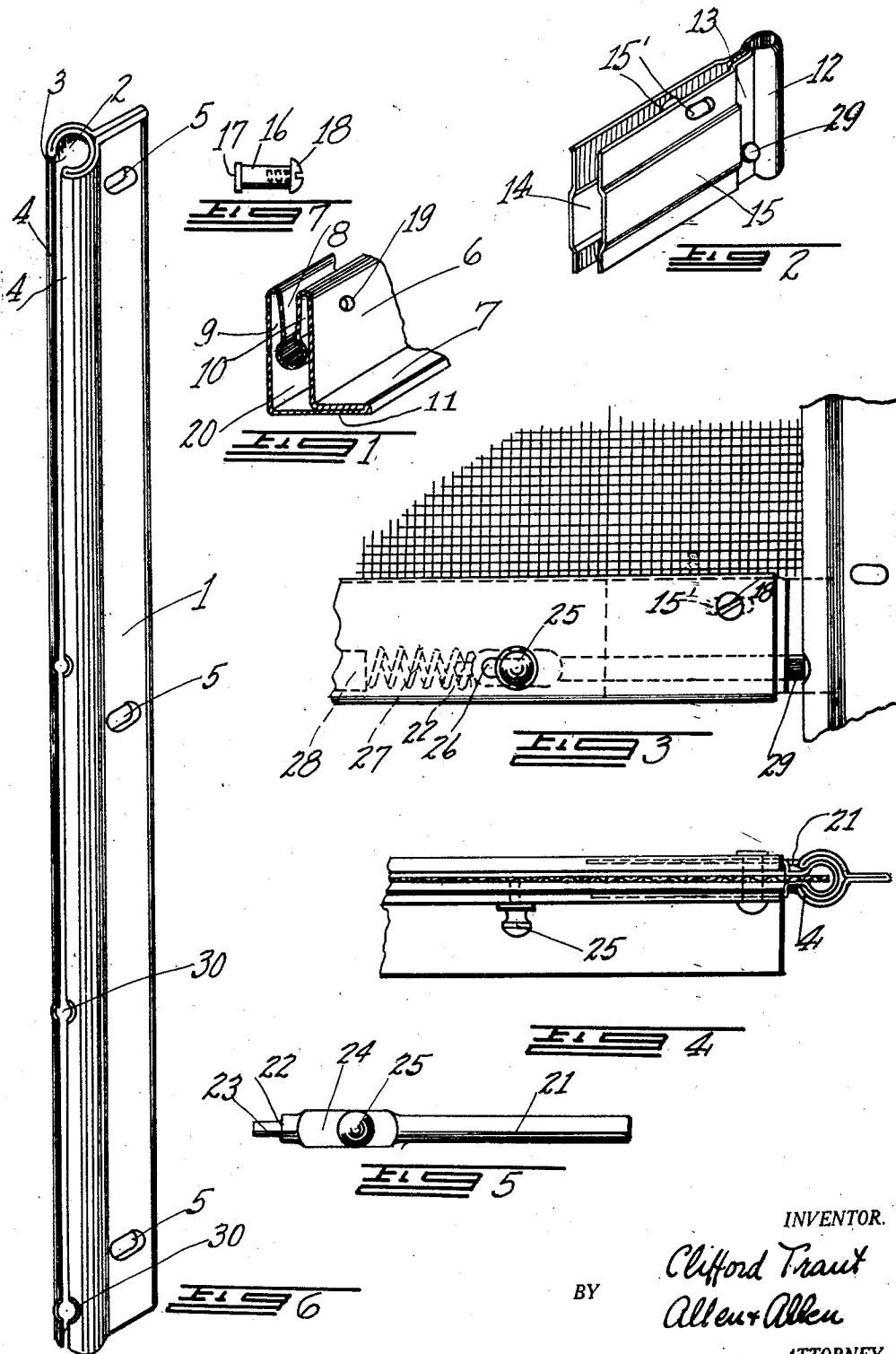
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DRAWBAR FOR SCREENS

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DRAWBAR FOR SCREENS

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My invention pertains to draw or tension bars for roll closures for windows, and particularly for roll screens of the type in which the screen is wound about a spring roller in a housing which may be located either at the top or bottom of the window. The screen is withdrawn from this housing against the tension of the spring roller by means of a draw or tension bar operating along guides. It is an object of my invention to provide a draw bar construction which will compensate for slight irregularities in the guides, and which will permit the smooth operation of the screen.

It is another object of my invention to provide a means for locking the draw bar in position when the screen is in use, the locking being accomplished automatically and without any additional movement on the part of the operator.

It is still another object of my invention to provide a locking mechanism which will selectively operate at predetermined positions along the guides, and which intermediate these positions need not be manipulated by the operator. Thus during the sliding of the draw bar along the guides it is not necessary to keep the locking bolts continuously withdrawn.

It is still another object of my invention to provide a draw bar and lock which will be inexpensive in construction and in which the finger grips may be so small and unobtrusive as not to mar the appearance of the bar or interfere with sash or other window fixtures. Further, I am enabled by my construction to avoid a jagged appearance of the guides, or the provision of teeth or stops therealong, or any members which would be likely to tear the screen cloth.

These and other objects of my invention as will hereinafter appear, I accomplish by that construction of which I shall now describe a preferred embodiment, with reference to the attached drawings which form a part of these specifications.

In the drawings:—

Figure 1 shows the construction of the body of my draw bar.

Figure 2 shows the construction of the

sliding member which carries my bar along the guide.

Figure 3 is an elevation of an end of my draw bar, a portion of the screen cloth and a portion of a guide, showing the assembly.

Figure 4 is a vertical section through Figure 3 above the draw bar.

Figure 5 shows one of my locking bolts.

Figure 6 shows the construction of a guide.

Figure 7 shows a post used for mounting the sliding member in the draw bar.

I have not shown the general assembly of a roll screen and window, since these are well known. A window opening may be imagined as having at the top a housing of the ordinary type containing screen cloth wound upon a spring roller. At either side of the window opening are mounted guides like that shown in Figure 6, and by means of a tension or draw bar affixed to the end thereof, the screen cloth may be withdrawn from the housing and caused to close the window opening, all as has hitherto been practiced in the art.

While there are many serviceable forms of guides, and while my invention is not limited to any particular guide construction, I have shown in Figure 6 a very satisfactory guide which is in general use. The only difference which I make in these guides for use in my invention lies in the provision of locking openings as will hereinafter be described. These guides comprise a piece of sheet metal bent upon itself to form a double thickness back or tongue 1 for attachment to the window frame, a cylindrical channel or guideway 2 throughout its length, and a narrow slot 3 communicating therewith. In this construction the edges 4—4 of the slot are formed of rolled or bent over sheet metal as distinguished from a cut edge thereof, and this is of advantage in that it presents a smooth edge to the screen which rides in the slot. The purpose of the channel is to provide a bearing for the sliding member of the draw bar; the slot permits the passage from the channel of a member connecting the sliding element and the draw bar, and the slot edges also cooperate with the screen edge which rides with-

in them to form an insect-proof closure for the window. Holes 5 are provided in the back for mounting the guides in the window frame.

5 I prefer to form the draw bar of sheet metal bent to the form shown in Figure 1, which general form is also not new with me. The metal is bent to form a body 6 and a ledge 7. Within the body there is formed
10 a channel 8 to receive the end of the screen cloth, and this channel is shaped so that the cloth may be rigidly held therein by means of a spline as is common. Spaces 9 and 10 lie on either side of the screen attachment
15 channel as is shown. The ledge 7 is made of two thicknesses of metal, the meeting edges of the sheet metal falling underneath the ledge at 11. The construction may be held together by spot welding along the
20 ledge, or in any other suitable manner.

To control the movement of my draw bar along the guides, I make use of the device shown in Figure 2. This comprises a sliding element 12 of general cylindrical shape
25 and adapted to fit within the channel 2 so as to slide easily without binding, but without too much play; and the length of the element 12 is such as to tend to maintain along the guides a rectangular relationship of the
30 draw bar thereto. The construction embodying the sliding element 12 is of sheet metal, preferably, as shown in Figure 2, and comprises also a narrow neck portion 13 adjacent the sliding element and adapted
35 to pass through the slot 3, and leg portions 14 and 15. These leg portions are of such size and spacing that they will fit within the body portion of my draw bar, one leg lying within each of the spaces 9 and 10. The
40 legs may be crimped as shown forming shoulders which give a snug fit; but it is essential to my invention that these legs be slidably mounted in the draw bar, and that the fit be not so tight as to prevent this
45 sliding. For use with a guide of different construction the sliding element 12 may be differently shaped. It may thus be rectangular in cross-section to fit a rectangular channel.

50 However carefully the guides may be made, and however accurately they may be fastened to the window opening, there is in commercial experience some slight variation in the spacing of the guides which is unavoidable. A draw bar of the ordinary
55 construction will therefore bind in one or more places along the guides in a window opening of any size. This makes the screen hard to handle and is one of the chief objections to this type of window installation.
60 If the sliding element is given play in the channel of the guide so as to allow for this variation, then the construction is unsatisfactory from the point of view of the keying of the draw bar. By this I mean that the

sliding element no longer cooperates with the channel to maintain a rectangular relationship between the draw bar and the guide; the draw bar may tend to ride up further on one side than the other, and
70 a warping of the screen and a binding of the elements will result. Further, a loose construction permits rattling.

In providing, therefore, for play in the mounting of the sliding element on the
75 draw bar, I make the holes 15' through which the post 16 passes for holding the legs within the draw bar, of oblong shape so as permit motion of about one sixteenth of an inch against the post 16. This post is shown
80 in Figure 7. Upon one end it bears the head 17, and the other end is bored and tapped for the screw 18. A hole 19 to receive the post is bored through the draw bar in the proper place.

85 Figure 3 will indicate the way in which the sliding element is mounted in the draw bar, and the manner in which the post 16 prevents the withdrawal thereof. If an ordinary bolt or rivet were to be used in
90 place of the post 16, the draw bar, being of sheet metal, would be drawn together, and the legs 14 and 15 so tightly clamped therein as to permit of no play. The post 16 prevents this contraction, and the
95 screw 18 can be tightened without producing any binding of the metal parts. It has been explained how the legs 14 and 15 lie on either side of the screen attachment slot 8. It will be observed in Figure 1, however,
100 that the screen attachment slot does not project downwardly the full length of the body of the draw bar, but stops short leaving beneath it a space 20. Part of this
105 space on either side will be filled by the lower portions of the legs 14 and 15, but there will be left between them a space within which will slide the bolt of my locking device. A further object of the post 16 is to prevent such a contraction of the
110 metal parts as would cause this bolt to bind within the space through which it slides.

The locking bolt which slides in the space 20 is shown in Figure 5, and is indicated by the number 21. It has a shoulder upon
115 one end 22, and a smaller shank 23 for positioning the spring. A portion of the bolt is flattened as at 24, and a small hole is drilled and tapped therein to take the finger grip button 25.
120

The mounting of the device is clearly shown in Figure 3, in which the bolt is shown in dotted lines as lying inside the draw bar. There is in the bar an elongated hole or slot 26 through which the shank
125 of the button passes, and a spring 27 is shown bearing against the shoulder 22 and against a stop 28, which may be a plug of wood placed within the draw bar. The action of the spring is to force the bolt out-
130

wardly through the end of the draw bar; and reference to Figure 2 will show that I provide in the neck portion 13 of the sliding element, an opening 29 to accommodate the bolt end. This opening is also shown in Figure 3 with the bolt end extending in it, and in Figure 4 the bolt and sliding member are shown in a vertical plan which indicates that the bolt end 21 is wider than the neck portion, so that it can be caused to bear against the edges 4 of the guide.

In my guide I provide locking openings 30, as many as may be desired, into which the end of the bolt may pass so as to lock the draw bar along the guide. Ordinarily it will be necessary only to provide one of these holes at the bottom of each guide, since it is seldom desired to provide in a roll screen for fastening it at different heights. Where, however, it is desired to make such a provision, as where the screen is to cooperate with a sash maintained at different heights, or where it is desired to provide a means of preventing the screen from flying up out of reach of the operator when it is released at the bottom, I may make as many holes 30 as necessary along the guide-ways.

It will be understood that there is a sliding member and a locking device on each side of my draw bar. In raising the screen the operator draws the two finger grip buttons 25 toward each other, thus unlocking the screen. It will be found that the operator's fingers are in position to bear against the ledge 7 so as to control the movement of the screen. Having unlocked the screen, however, the operator need not keep the buttons displaced but may release them and the draw bar will ride freely along the guides until another cooperating pair of holes is reached, for the pressure of the bolt against the draw bar edges 4, produced by the spring 27, will not be sufficient frictionally to hold the draw bar against movement.

It will be further clear that, having once released the screen, the operator may thereafter control its sliding operation by the pressure of one hand against the ledge 7, leaving the other hand free.

It has already been explained that my invention is not restricted to any particular draw bar construction or to any particular guide construction, and it will be clear that persons skilled in the art may make various modifications in the details of my invention without departing from the spirit thereof.

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

1. In a controlling device for roll closures, a hollow draw bar, a sliding member with an enlarged portion to ride in the channel of a guide, a neck portion to pass through the

slot of said guide and a portion slidably fitting within said hollow draw bar, and means preventing the withdrawal of said portion while limiting the sliding motion thereof.

2. In a controlling device for roll closures, a hollow draw bar having a hole therein, a sliding member with an enlarged portion to ride in the channel of a guide, a neck portion to pass through the slot of said guide and a portion, having an elongated slot, slidably fitting within said hollow draw bar, and means preventing the withdrawal of said portion while limiting the sliding motion thereof, said means comprising a post passing through said hole in said draw bar and said elongated slot in said sliding member, and fastening means on said post whereby said post may be tightened without contracting said hollow draw bar.

3. In a controlling device for roll closures, a guide comprising a channel with edges defining a slot, a hollow draw bar, a sliding member to connect said draw bar and said guide comprising an enlarged portion to ride within said channel, a neck portion to pass through said slot and a shank portion to fit within said hollow draw bar, a bolt within said draw bar, said neck being perforated to accommodate the end of said bolt, whereby said bolt may be brought against the edges of said guide which define said slot, said guide having a hole in its edges to permit the entrance of said bolt end whereby said draw bar may be locked along said guide.

4. In a controlling device for roll closures, a guide comprising a channel with edges defining a slot, a hollow draw bar, a sliding member to connect said draw bar and said guide comprising an enlarged portion to ride within said channel, a neck portion to pass through said slot and a shank portion to fit within said hollow draw bar, a bolt within said draw bar, said neck being perforated to accommodate the end of said bolt whereby said bolt may be brought against the edges of said guide defining said slot, and said guide edges having a hole to receive said bolt end whereby said draw bar may be locked along said guide, spring means pressing said bolt outwardly, said draw bar having a slot and operating means comprising a finger grip with a portion passing through said slot and attached to said bolt.

5. In a controlling device for roll closures, a guide comprising a channel with edges defining a slot, a hollow draw bar, a sliding member to connect said draw bar and said guide comprising an enlarged portion to ride within said channel, a neck portion to pass through said slot and a shank portion to fit within said hollow draw bar, a bolt within said draw bar, said neck being perforated to accommodate the end of said bolt

whereby said bolt may be brought against the edges of said guide defining said slot, said guide edges having a hole to receive said bolt end whereby said draw bar may be locked along said guide, spring means pressing said bolt outwardly, said draw bar having a slot and operating means comprising a finger grip with a portion passing through said slot and attached to said bolt, and means for slidably mounting said shank of said sliding member in said draw bar, said shank having a slot, said draw bar having a hole, and said means comprising a post passing through said slot and said hole, screw means on said post whereby said post may be tightened without contracting said hollow draw bar so as to inhibit the motion of said shank on said bolt.

6. In a controlling device for roll closures, a sheet metal guide comprising a channel with edges defining a slot, a hollow sheet metal draw bar comprising a body, a channel for the attachment of the closure member, and an operating ledge, a sliding member connecting said draw bar operatively with said guide, said sliding member comprising a piece of sheet metal bent upon itself to form an enlarged portion slidably mounted within said channel, a neck portion to pass through said slot and at least one shank portion to fit slidably within said draw bar, said shank portion having a slot and said neck portion having an opening, said shank portion mounted within said draw bar, a bolt within said draw bar, the end thereof extending through the opening in said neck portion, spring means pressing said bolt outwardly, said draw bar having a slot, operating means for said bolt comprising a finger grip portion and a portion passing through said slot and attached to said bolt, and means for mounting said shank portion of said sliding member slidably within said draw bar, said draw bar having holes and a post passing through said holes and said slot in said shank portion, screw means on said post whereby said post may be tightened in place without contracting the metal of said draw bar so as to bind the parts therein, and the edges of said guide edges defining said slot having a hole therein, said draw bar being lockable in position along said guide by the entrance of said bolt in said hole.

7. In a controlling device for roll closures, a guide comprising a member having a channel and a slot, a hollow draw bar, means connecting said draw bar and said guide comprising a sliding portion adapted to ride within said channel, a neck portion adapted to pass through said slot, and a shank portion adapted to be inserted within said draw bar, a bolt within said draw bar, and a spring to force said bolt outwardly through the end of said draw bar, said neck having

an orifice for the passage of said bolt end, said bolt end being thicker than said neck portion whereby said bolt end under the action of said spring may be caused to bear against the edges of said guide defining said slot.

8. In a controlling device for roll closures, a guide comprising a member having a channel and a slot, a hollow draw bar, means connecting said draw bar and said guide comprising a sliding portion adapted to ride within said channel, a neck portion adapted to pass through said slot, and a shank portion adapted to be inserted within said draw bar, a bolt within said draw bar, and a spring to force said bolt outwardly through the end of said draw bar, said neck having an orifice for the passage of said bolt end, said bolt end being thicker than said neck portion whereby said bolt end under the action of said spring may be caused to bear against the edges of said guide defining said slot, said guide edges having orifices to admit said bolt end whereby said draw bar may be locked in position along said guide, and operating means for said bolt whereby said bolt end may be withdrawn from said orifices.

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