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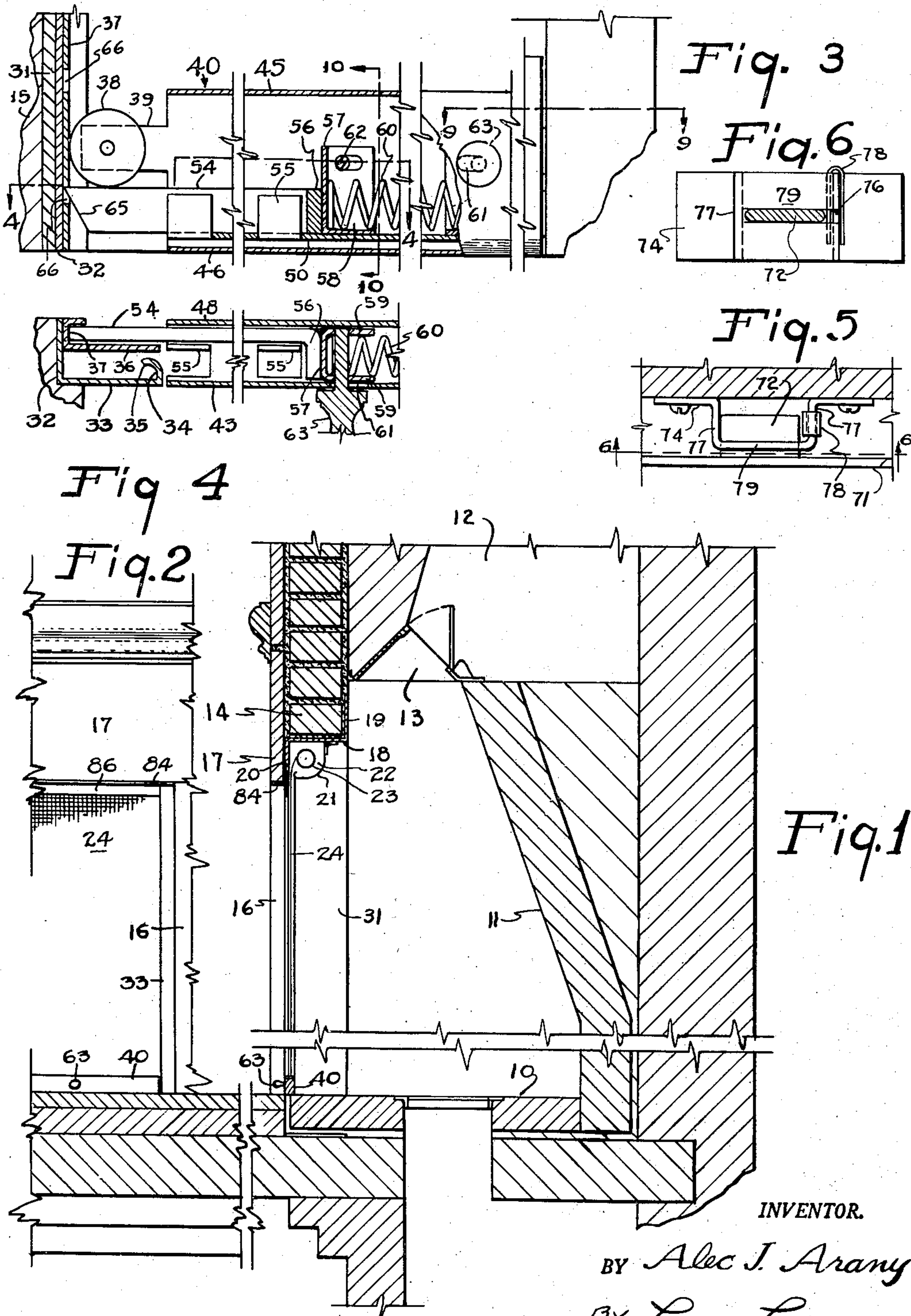
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2,483,608

FIREPLACE SCREEN

Filed Nov. 26, 1946

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

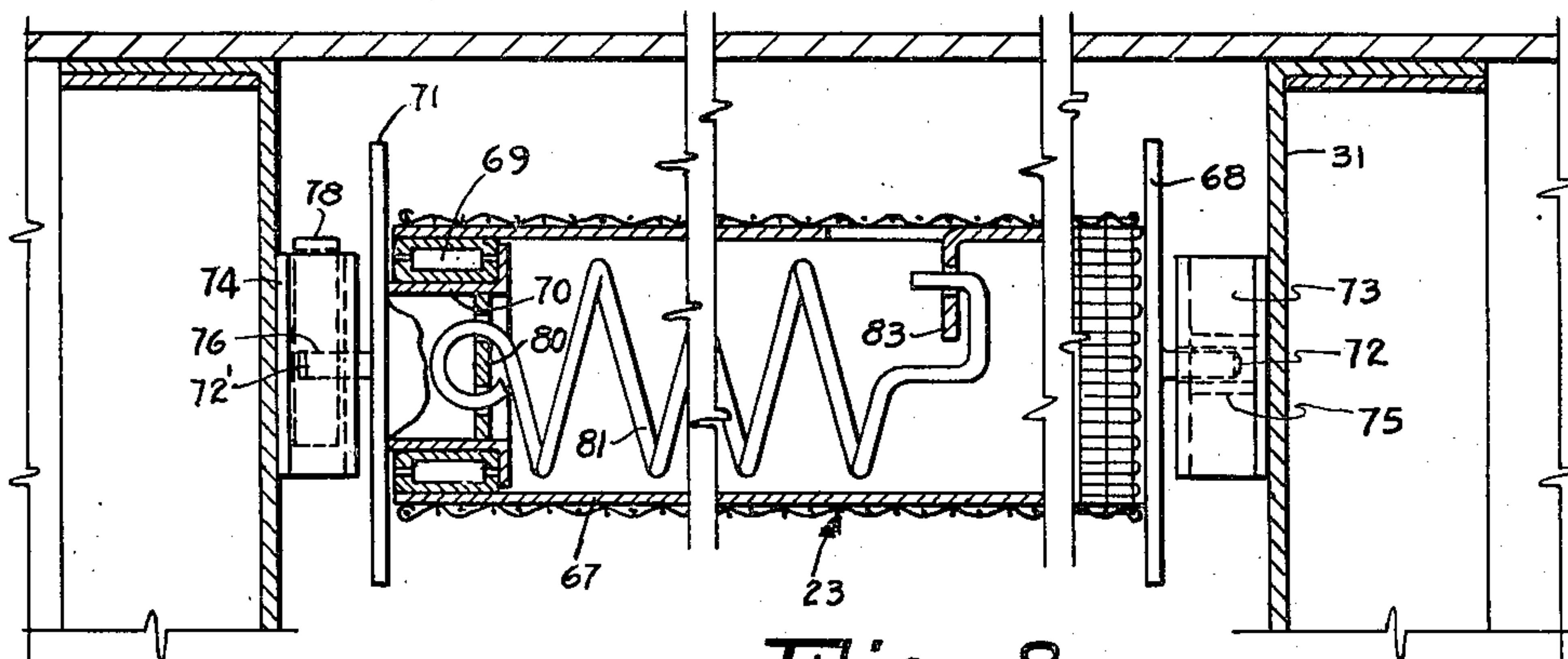


Fig. 8

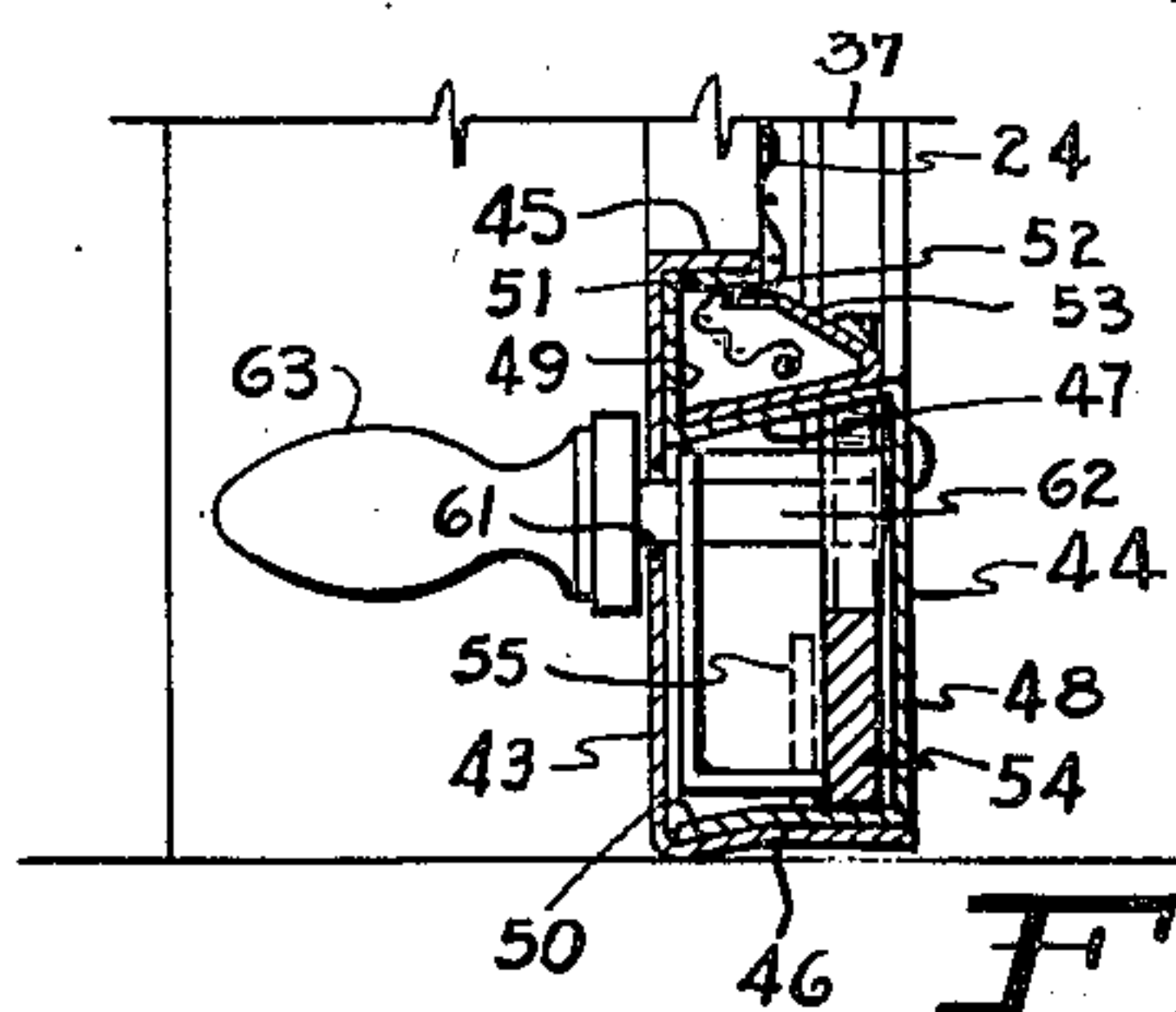


Fig. 10

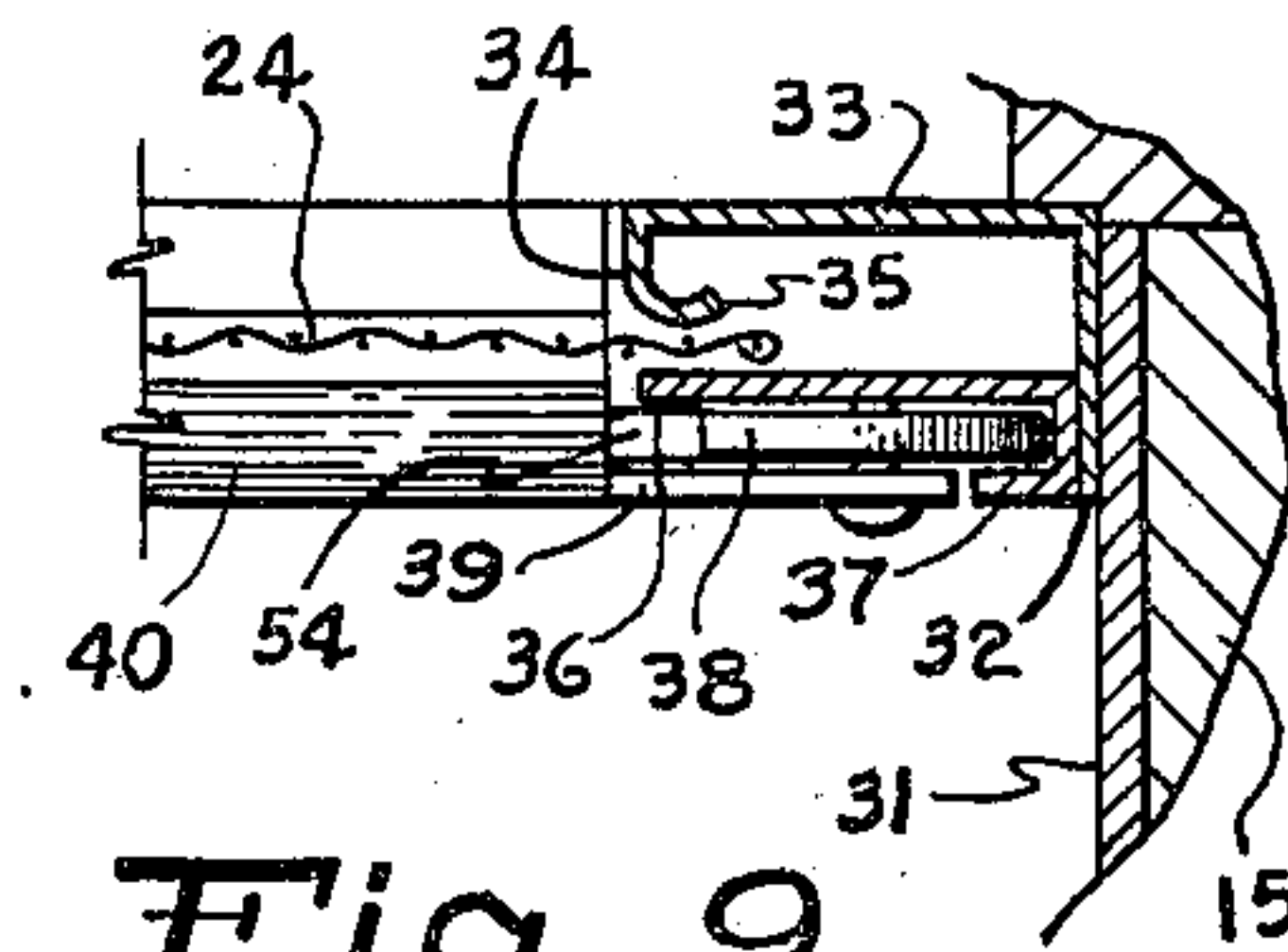


Fig. 9

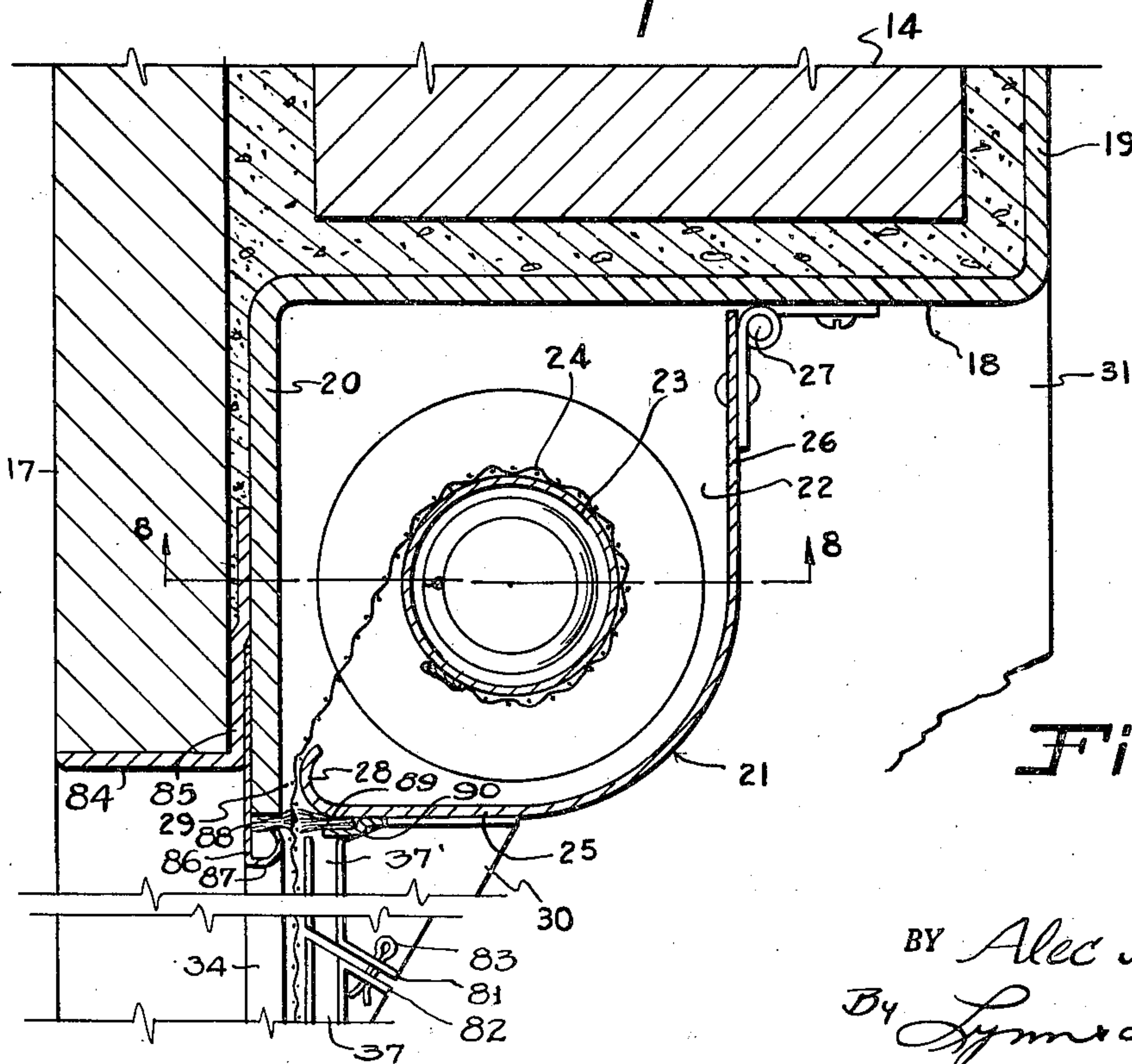


Fig. 7

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FIREPLACE SCREEN

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6 Claims. (Cl. 126--202)

1

This invention relates to fireplace screens. The general object of the invention is to provide a fireplace incorporating a screen that is supported upon a roller located at the top of the fireplace opening, and is adapted to be rolled upon and unrolled from the roller in order to raise and lower the screen.

While there have been a number of previous proposals for rolling fireplace screens, such previous proposals have, in general, involved unduly complicated constructions. Furthermore, there are a number of problems that must be solved before a satisfactory rolling fireplace screen can be provided. The screen must be stretched sufficiently to maintain it in a flat plane. At the same time, it is necessary that the edges of the screen be flexible to permit the screen to roll on the supporting roller. In general, these two problems are met by providing for vertical tension in the screen. Accordingly, one of the objects of my invention is to provide an improved arrangement for applying tension to the screen through the roller, and for securing the lower edge of the screen against the pull of the roller.

Another requirement is that the screen be easily raised and lowered. A further object of my invention is to provide an efficient means for securing the lower edge of the screen against the tension developed in the screen by the roller, which securing means is, at the same time, capable of being readily manipulated to release the lower edge for vertical movement, and to again secure the lower edge in the position to which it has been adjusted.

A further object of my invention is to provide a relatively simple slide means for covering and supporting the edges of the screen for sliding movement. A further object is to provide, in connection therewith, means for accurately locating the side edges of the screen with reference to the slide means, and for facilitating the vertical sliding movement.

Another object of my invention is to provide a fireplace structure embodying a casing member for the roller, which casing member also functions as the support for the arch of the fireplace.

A further object is to provide a fireplace screen structure including a roller casing, which normally substantially encloses the roller, but may be quickly opened to give access to the roller. To this end, the invention contemplates the employment of an inner casing member, which is hinged to the combined supporting arch and casing member for inward swinging movement, and is adapted to be latched in a closed position. This

2

latching provides for a further function of the hinged casing member, which is to form a guide and bearing surface over which the screen passes into the vertical guide means.

A further object is to provide a horizontal, sliding anchor bar for the lower edge of the screen which, in addition to the previously mentioned function of latching the screen in various positions of vertical adjustment and facilitating the vertical sliding movement, provides a novel and improved means for quickly attaching the lower edge of the screen thereto.

The invention further resides in improved features of spring roller construction and support.

Other objects of the invention will become apparent in the ensuing specifications and appended drawings, in which;

Fig. 1 is a vertical sectional view through a fireplace embodying my invention;

Fig. 2 is a front elevation of one side of the fireplace;

Fig. 3 is a view, partially in front elevation and partially in vertical section, of the anchor bar and associated vertical slide frame members;

Fig. 4 is a horizontal sectional view of one end portion of the anchor bar, taken on the line 4—4 of Fig. 3;

Fig. 5 is a detail plan sectional view of one of the roller supports;

Fig. 6 is the vertical sectional view of the roller support taken on the line 6—6 of Fig. 5;

Fig. 7 is a full size transverse sectional view through the arch of the fireplace and the associated roller casing and roller structure;

Fig. 8 is a vertical sectional view of the roller and associated structure taken on the line 8—8 of Fig. 7;

Fig. 9 is a horizontal sectional view through the anchor bar and the associated vertical slide means taken on the line 9—9 of Fig. 3; and

Fig. 10 is a vertical sectional view of the anchor bar, taken on the line 10—10 of Fig. 3.

As an example of one form in which the invention may be embodied, I have shown in the drawings a fireplace installation embodying a hearth 10, a rear wall 11, a chimney 12 communicating with the fireplace through a throat 13, a masonry arch 14, and jamb plate members 31, fitted against vertical portions of the masonry wall structure (which includes the arch 14), framing the fireplace opening. The fireplace may also include the conventional trim, including vertical slabs 16, and an arch slab 17.

My invention provides a combined casing member and arch support 18, having at its rear side

3

an upwardly projecting flange 19, and at its forward side a downwardly projecting flange 20. The flanges 19 and 20 brace the horizontal member 18, and thereby cooperate therewith to support the masonry structure of the arch 14.

The flange 20 and horizontal member 18 cooperate with a casing member 21 to define a housing 22 for a screen roller 23 and a screen 24 rolled thereon. The casing member 21 includes a horizontal wall 25 and a vertical wall 26, the latter being attached to the horizontal member 18 by hinges 27. The forward edge of the horizontal wall 25 is rolled upwardly and rearwardly to provide a bearing guide 28, which is spaced from the lower extremity of the vertical flange 20 to define a pass 29 through which the screen 24 may slide vertically. The bearing guide 28 is positioned forwardly of the roller 23 whereby the screen 24 is inclined forwardly from the roller to the bearing guide and bears against the guide 28 as it slides through the pass 29. The bearing face of the guide 28 is rounded so as to provide for smooth sliding of the screen thereover.

Secured to and projecting downwardly from the horizontal wall 25 of the casing member 21 are a pair of brackets 30 which are adapted to be secured to the jamb plates 31 of the fireplace opening, and to thereby hold the casing member 21 in the closed position shown in Fig. 7.

To the jamb plates 31, which are of heavy sheet or bar metal, are secured a pair of vertical guides, each including an outer flange 32 (which may be welded to a jamb plate 31), a front wall 33 and a flange 34 extending rearwardly from the inner edge of the front wall 33, and curved laterally to provide a bearing portion 35. Spaced from the bearing portion 35, to provide a slideway for the side portion of the screen 24, is a plate 36, the outer edge of which is formed with a channel 37, which is secured, as by welding, to the flange 32. The channel 37 constitutes a track for a roller 38 which is pivoted on an ear 39 projecting from a respective end of an anchor bar 40, in which the lower edge of the screen 24 is secured. The members 33 and 36, which may be readily formed, as rolled or extruded sections of Monel metal, brass, aluminum, or steel, cooperate, as will be apparent from the foregoing description, to define associated slideways for the screen and tracks for the rollers 38 at the respective ends of the anchor bar 40, all as disclosed in Fig. 9.

Referring now to Figs. 3 and 10, the anchor bar 40 comprises a tubular structure assembled from a front member 43 and a rear member 44. The front member 43 is of channel shaped cross section, having a top flange 45 and a bottom flange 46, and the rear member 44 is of S shaped cross section, including an offset web 47 (joining the rear and forward wall portions 48 and 49 respectively) and a bottom flange 50. The bottom flange 50 bears against the upper side of the flange 46, and the upper edge of the forward flange 49 is engaged in a groove 51, which is defined between the forward wall 43, the flange 45 and a strip 52 that is welded to the underside of the flange 45. The flanges 50 and 49 bear against the flanges 46 and 45 under compression, and the flanges 50 and 46 have their forward portions slightly bevelled, as indicated, whereby to provide interengagement under such compression, which securely locks the two members 43 and 44 together so that they can be separated only by inserting a lever between them to pry them apart.

The screen 24 is secured to the anchor bar

4

by a clip 53 in the form of a bar of V-shaped cross section, having a leg that engages the upper face of the web 47, and another leg that is sprung, under compression, beneath the strip 52, with the screen interposed therebetween.

The latching mechanism includes a pair of latch bolts 54, each of which is slidably mounted in ways defined by the inner wall 48, the bottom flange 50 and a pair of ears 55, struck upwardly from the flange 50 in spaced parallel relation to the wall 48. The bolts 54 may be constructed of heavy sheet metal and each has an inner end 56, bent laterally and welded or brazed to a vertical web 57 of a bracket 58, which is slidably mounted in the anchor bar. Viewed from above, as in Fig. 4, the brackets 58 are C-shaped, having side flanges 59 connected by the web 57. A coil spring 60 is engaged, under compression, between the webs 57 of the brackets 58, having its end portions received between the side flanges 59. Secured in the flanges 59 and projecting through slots 61 in the forward wall of the section 43, are a pair of studs 62, having handles 63 at their forward ends.

The outer ends of the bolts 54 are bevelled downwardly and inwardly, as at 65, to provide pointed ends which are adapted to engage beneath the upper edges of slots 66 in the webs of the tracks 37. The upper edges of the end portions of the bolts 54, projecting beyond the ends of the travel bar casing 43, 44, ride beneath the respective rollers 38. It may now be noted that the rollers 38 serve the dual function of traveling in the tracks 37 to provide an anti-frictional engagement of the ends of the travel bar with the tracks for longitudinal positioning of the travel bar, and also provide anti-frictional abutments, against which the outer ends of the bolts 54 may ride when the travel bar is being moved downwardly. In this connection, it is to be noted that the bevelled ends 65 will have a camming engagement against the lower edges of the slots 66 as the travel bar is pushed downwardly, forcing the bolts 54 inwardly against compression of the spring 60, to clear the slots 66.

The roller 23 comprises a cylindrical shell 67, one end of which has a flange 68 affixed thereto, and the other end of which is journaled, through the medium of a roller bearing 69, upon a collar 70 which is secured to the center of a flange 71. The flanges 68 and 71 carry studs 72 which are supported in brackets 73 and 74 respectively. The brackets 73 and 74 are, in turn, supported on the jamb plates 31 at the respective sides of the fireplace opening. The stud 72 may be simply a cylindrical pin received in a socket 75 in the bracket 73, but the stud 72' is flat, is received in a slot 76 in the bracket 74, and is held against rotation by the parallel sides of the slot 76. One end of the slot 76 is closed by one of the offset portions 77 of the bracket 74, while the opposite end of the slot extends through the other offset portion 77, and is normally obstructed by a clip 78, embracing said other offset portion 77. The slot 76 extends longitudinally in the central web portion 79 of the bracket 74, which is yoke shaped in plan, as shown in Fig. 5.

The collar 70 is provided with a web portion 80, which is perforated to receive the hooked end of a coil spring 81, the other end of which is hooked through an ear 83 struck inwardly from the wall of the roller cylinder 67. The spring 81 acts torsionally, the end that is attached to the web 80 being fixed against rotation, and the other end tending to rotate the sleeve 67 clock-

wise, as viewed in Fig. 7, so as to exert an upward pull against the screen 24. This upward pull is resisted by the engagement of the pointed ends of the bolts 54 in any selected pair of slots 66 in the track 37. The upward pressure of the anchor bar casing 43, 44 against the lower sides of the bolts 54 under the pull of the screen 24, is applied to the intermediate regions of the bolts 54 at the ends of the anchor bar, and with the ends of the bolts engaged in the slots 66, tends to tilt the inner ends of the bolts 54 upwardly, but such tilting tendency is resisted by the engagement of the studs 62 in the slots 61 of the anchor bar casing member 44.

When it is desired to raise the screen, the operator grasps the handles 63 (which may be positioned closely enough together to be grasped simultaneously in one hand) and moves the handles toward each other, thereby withdrawing the ends of the bolts 54 from the slots 66 in the track 37. Continuing to hold the bolts in their retracted positions, the operator then pushes upwardly on the handles 63, thereby moving the anchor bar upwardly, the rollers 38 riding in the tracks 37. When it is desired to lower the screen, the operator simply pushes downwardly against the anchor bar, and the bolts 54 will automatically engage in the parallel slots 66 next above the level at which such downward movement of the pointed ends of the bolts 54 was stopped.

As the screen is moved upwardly and downwardly, the side edges thereof will ride in the jamb guides defined between the members 35 and 36. The side edges of the screen are selvaged, but are not otherwise bound. Maintenance of the screen in a flat plane is effected solely through the tension that is maintained in the screen by the spring roller.

When it is desired to remove the roller and screen for inspection or repair, the latch brackets 30 are released, and the casing member 21 is hinged rearwardly. The roller 23 is then removed from its supporting brackets by first removing the clip 78 and then sliding the stud 72 horizontally through the open end of the slot 76 until this end of the roller is freed from the bracket 74, whereupon the stud 72, at the other end of the roller, may be withdrawn from the socket 75.

When the roller 23 turns, the stud 72 turns in the socket 75, whereas the other end of the roller rotates upon the collar.

Each bracket 30 includes a track portion 37 which, in the closed position of the casing 21, constitutes a continuation of the track 37. Each bracket also includes an ear 81 at its lower end, cooperating with an ear 82 on the upper end of the track 37 to receive a cotter pin or other securing element 83 passed through both ears and latching the bracket 30 to the track 37. Removal of the cotter pin 83 at each end of the casing 21 makes it possible for the casing 21 to be swung rearwardly and upwardly to give access to the roller 23.

The structural Z-bar 18, 19, 20 functions not only to support the masonry arch 14, but also to support the trim slab 17, the lower edge of which rests upon a flange 84 which may either constitute an integral extension of the lower portion of the vertical wall 20 or may be part of a separate angle iron 85, the vertical flange of which is interposed between the slab 17 and the vertical wall 20 of the structural member, and is welded to the wall 20. Also, a horizontal screen guide member 86 may have its vertical flange interposed between the wall 85 and the wall 20 and

projected below the lower edge of the wall 20 to form a horizontal continuation of the vertical guide members 34, 35.

It is to be noted that the trim slab 17 projects downwardly substantially to the lower extremity of the casing 21, cooperating with the guide member 86 (which projects below the flange 84) to conceal the casing 21.

The guide member 86 has a reentrant flange 87 between the edge of which, and the lower edge of flange 20, is clamped a brush 88. A similar brush 89 is clamped between the bottom wall 90 of the casing and a retainer strip 91 secured to the wall 90. The brushes 88 and 89 function to clean the screen as it is rolled upwardly and downwardly.

I claim:

1. In a fireplace, means framing a fireplace opening, said means including an overhead masonry arch, a structural member including a horizontal wall underlying said arch and supporting the same and a vertical wall projecting downwardly from the forward extremity of said horizontal wall, a casing member including a portion hinged to and projecting downwardly from said horizontal wall and a portion projecting forwardly from the lower extremity of said downwardly projecting portion and spaced at its forward edge from said vertical wall to define a pass, a spring-biased roller mounted within said casing, a screen rolled upon said roller and passing downwardly through said pass, vertical guides at the respective sides of the fireplace opening, the side extremities of the screen traveling in said guides, and brackets attached to the underside of said forwardly projecting casing portion and having means for securing the same to the upper extremities of said guides, said brackets having short guide portions forming continuations of said guides.

2. In a fireplace, a pair of vertical guides at the respective sides of a fireplace opening, each of said guides comprising a pair of channel members lying side by side, a screen having edge portions each received in and closely embraced by one of said channel members, a spring roller mounted above said guides exerting an upward pull on said screen, and a travel bar having means traveling in the other of said channels and engageable therewith at vertically spaced points to secure the travel bar in selected fixed positions of vertical adjustment and thereby establish tension in the screen, a lower edge of said screen being anchored to said travel bar.

3. In a fireplace, a pair of vertical guide members each including a C-shaped forward member having an outer flange, a forward wall and an inner flange, the free edge of which is re-entrant toward said outer flange, and a second member having a wall portion parallel to said forward wall and spaced from said re-entrant portion to define a guideway and closely embracing the edge portion of a screen, said second member having at the outer extremity of said parallel wall portion a channel constituting a track, and a travel bar to which the lower extremity of a screen is secured, said travel bar having means traveling in said track to maintain a lateral positioning of said travel bar.

4. In a fireplace, in combination with means including vertical members defining the sides of a fireplace opening, a pair of guide members each including a guideway and closely embracing the edge of a screen and a track lying alongside said guideway, a screen having its side edge por-

7

tions traveling in said guideways, a spring roller mounted above said guides and exerting an upward pull on the upper portion of said screen, and a travel bar to which the lower portion of said screen is anchored, said travel bar having at its respective extremities rollers traveling in said tracks.

5. In a fireplace, in combination with vertical members framing the sides of a fireplace opening, a pair of guide tracks attached to the respective vertical members, a screen, a spring roller mounted above said tracks and exerting an upward pull on said screen, a travel bar to which the lower edge of said screen is anchored, said travel bar having rollers traveling in said tracks, and latch bolts the upper faces of which bear against the undersides of said rollers, said tracks having vertically spaced notches said bolts having downwardly and inwardly bevelled ends receivable in said notches to secure said travel bar in selected positions of vertical adjustment and adapted to have camming action against the bottoms of the notches to cause the bolts to move toward each other and thereby ride out of the notches when the travel bar is moved downwardly, said rollers providing rolling abutment for said bolts to take the upward thrust of the bolts during such camming action, and means yieldingly urging said bolts outwardly into engagement with said tracks.

6. In a fireplace, in combination with vertical members framing the sides of a fireplace opening, a pair of guide members attached to the respective vertical members and each comprising a screen guide channel and a travel bar track lying side by side, a screen having its edge portions received in said screen guide channels, a spring roller mounted above said tracks and exerting an upward pull on said screen, and a travel bar to which the lower edge of said screen is anchored, said travel bar having rollers traveling in said

8

tracks and latch bolts the upper faces of which bear against the underside of said rollers, said tracks having vertically spaced notches said bolts having downwardly and inwardly bevelled ends receivable in said notches to secure said travel bar in selected positions of vertical adjustment and adapted to have camming action against the bottoms of the notches to cause the bolts to move toward each other and thereby ride out of the notches when the travel bar is moved downwardly, said rollers providing rolling abutment for said bolts to take the upward thrust of the bolts during such camming action, means yieldingly urging said bolts outwardly into engagement with said tracks, and a pair of handles each attached to a respective bolt, by means of which said bolts may be drawn toward each other and by means of which a travel bar may be raised and lowered.

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