July 22, 1952 L. J. GAETANO 2,604,157

FIREPLACE SCREEN

Filed Aug. 16, 1950

2 SHEETS—SHEET 1

Fig. 1.

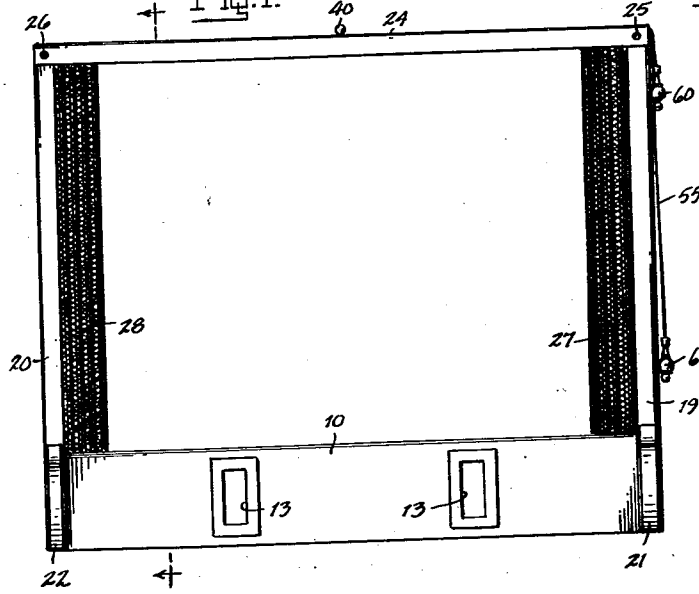


Fig. 2.

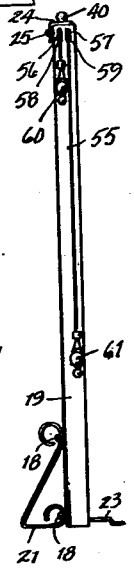


Fig. 3.

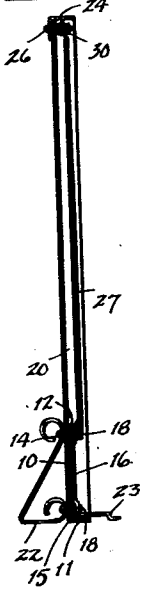


Fig. 4.

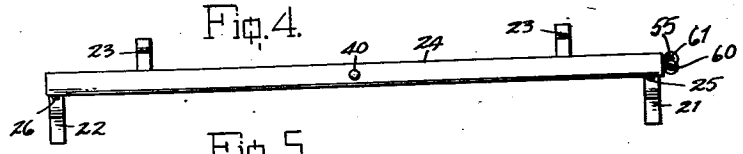
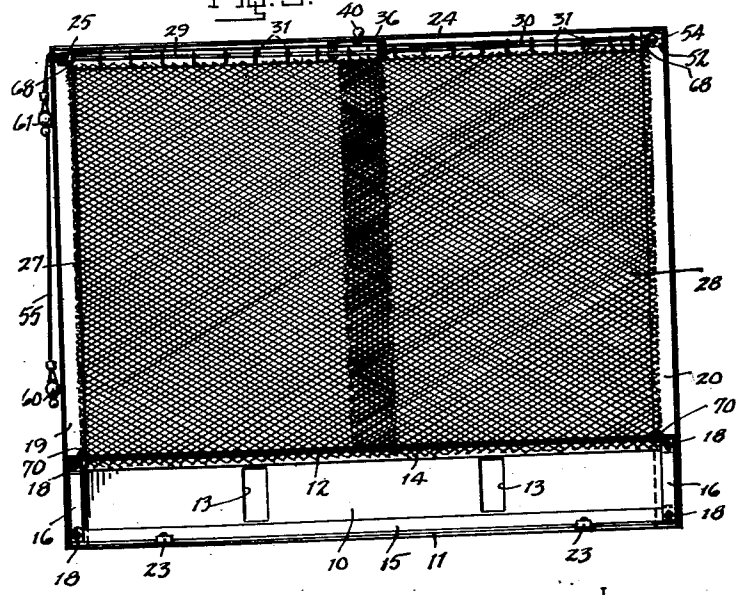


Fig. 5.



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FIREPLACE SCREEN

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Fig. 6.

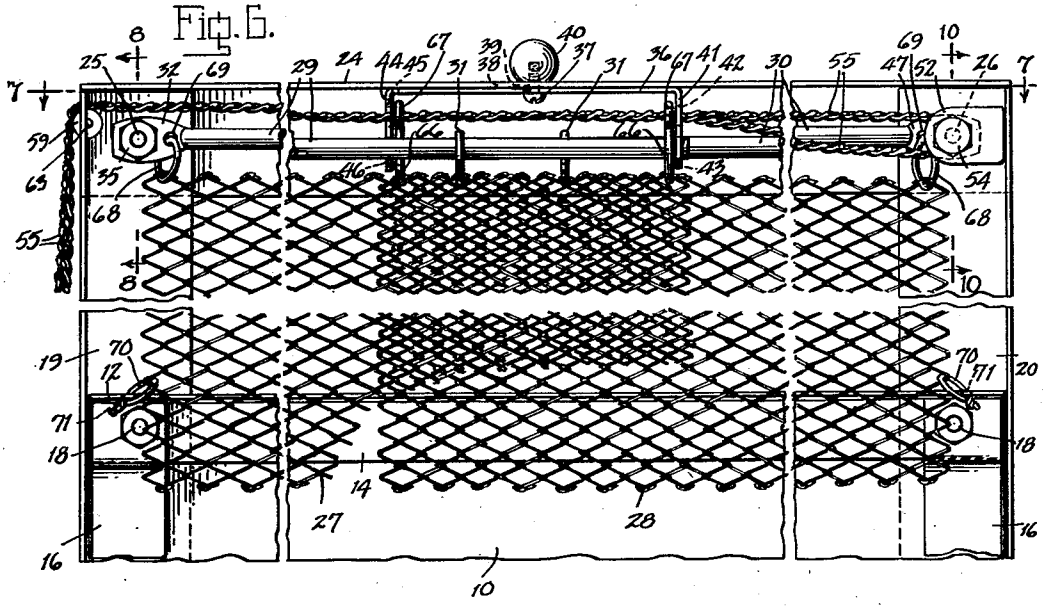


Fig. 7.

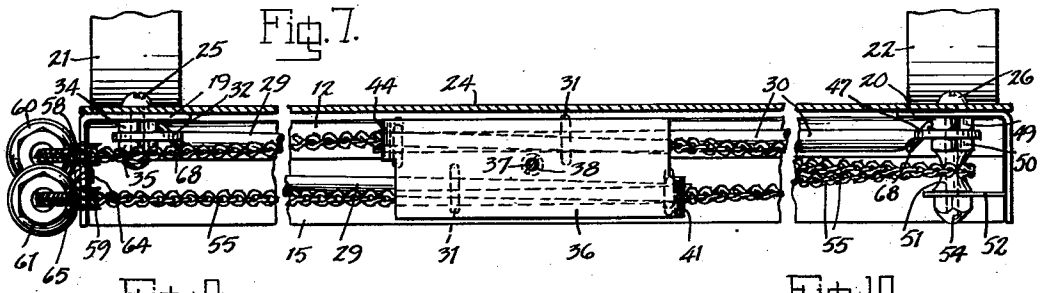


Fig. 8.

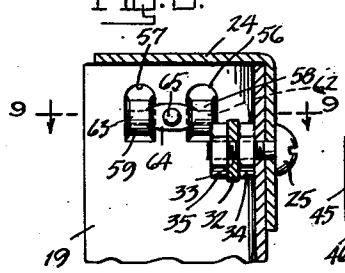


Fig. 11.

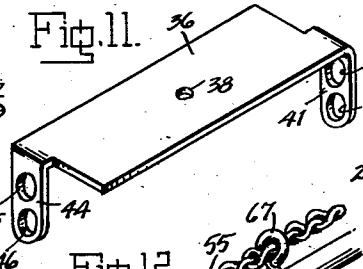


Fig. 10.

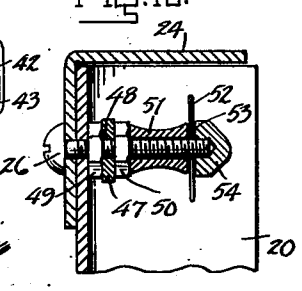


Fig. 12.

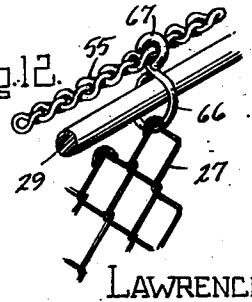
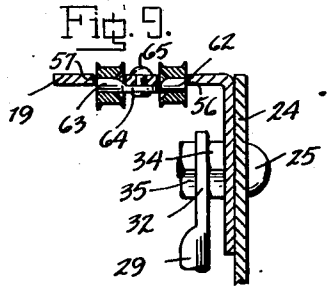


Fig. 9.



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FIREPLACE SCREEN

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Application August 16, 1950, Serial No. 179,824

2 Claims. (Cl. 160—126)

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The present invention relates to an improved fireplace screen, particularly of the type wherein a pair of flexible collapsible metal mesh draw curtains are supported upon rod means provided across the top of a metal frame, and are adapted to be mechanically operated by a chain connected to the curtains and having its ends extended to the outer side of the frame for operating the draw curtains into their respective open and closed positions. It is an object of the invention to provide improved means for assembling the frame and the operating mechanism of the draw curtains whereby substantial economies are effected in the production of such screens, and further to provide structural features whereby improved operation of the curtains is effected.

With the above and other objects in view, an embodiment of the invention is shown in the accompanying drawings, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claims.

In the drawings:

Fig. 1 is a front elevation of a fireplace screen, according to the illustrated exemplary embodiment of the invention, the draw curtains being shown in open position.

Fig. 2 is a side elevation showing the right hand end screen as seen in Fig. 1.

Fig. 3 is a vertical sectional view, taken along the line 3—3 of Fig. 1.

Fig. 4 is a top plan view.

Fig. 5 is a rear elevation, the draw curtain being shown in closed position.

Fig. 6 is a rear elevation on an enlarged scale, parts being broken away and the draw curtains being shown in closed position.

Fig. 7 is a horizontal sectional view, taken along the line 7—7 of Fig. 6.

Fig. 8 is a horizontal sectional view on a further enlarged scale, and taken along the line 8—8 of Fig. 6.

Fig. 9 is a horizontal sectional view, taken along the line 9—9 of Fig. 8.

Fig. 10 is a vertical sectional view, taken along the line 10—10 of Fig. 6.

Fig. 11 is a perspective view of the rod supporting and chain guide bracket employed.

Fig. 12 is a detail perspective view showing the connection between the chain and one of the draw curtains.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, the fireplace screen,

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according to the illustrated exemplary embodiment of the invention, comprises a rectangular screen frame adapted to be self-supporting upon the fireplace hearth and to engage against the face of the fireplace contiguous to the fireplace opening, this frame consisting of a lower cross frame member 10 formed of sheet metal having a longitudinal inwardly extending flange 11 at its lower edge and a longitudinal inwardly extending flange 12 at its upper edge, the flange 11 being the full width of the frame and the flange 12 being substantially narrower to provide hanging space for the curtains, as will presently more fully appear.

The cross frame member 10 is of substantial height and is provided at spaced points with a pair of andiron openings 13—13 enabling the andirons to have their forward ends outwardly of the screen and their log supporting portions within the fireplace. The cross frame member 10 is reinforced at its inner side by a stiffening frame consisting of an upper longitudinal strip 14, a lower angle-section strip 15 and vertical end strips 16—16, these strips being assembled by bolts 18 at the four corners of the stiffening frame, which bolts also serve to connect the angle-section vertical frame members 19 and 20 of the screen frame as well as the forward foot members 21 and 22 at each end of the screen frame. At the inner side of the screen frame there are secured upon the angle-section reinforcing strip 15 a pair of rearwardly extending foot members 23—23 for cooperation with the foot members 21 and 22 to provide firm support for the screen frame, the foot members 23—23 being spaced inwardly from each end so that they will extend into the fireplace opening.

At the upper end of the screen frame there is provided an angle-section cross frame member 24 overlapping the upper ends of the vertical frame members 19 and 20 and respectively secured thereto by bolts 25 and 26, these bolts in addition to securing the frame parts together having the additional function of supporting other operating parts of the screen, as will presently more fully appear.

The two flexible and collapsible metal mesh draw curtains 27 and 28 are respectively supported at their upper edges upon rods 29 and 30 by a series of rings 31 slideably supported upon the rods and engaged at spaced points in the upper mesh openings of the curtains. The rod 29 is provided at its outer end with a forwardly offset flattened mounting portion 32 having a bolt-receiving hole 33 through which is engaged

the bolt 25, a frame securing nut 34 being engaged against the inner side of the upright frame member 19 to secure it to the upper cross frame member 24 and to space the rod end from the frame member and a rod securing nut 35 being engaged upon the end of the bolt to secure the rod end thereon against the nut 34.

The rod 29 is of such length that it extends a short distance beyond the center of the screen where its inner end is supported in a bracket member 36 secured centrally upon the under side of the upper cross frame member 24 by a screw 37 engaged upwardly through center holes 38 and 39 in the bracket and cross frame members and screwed into a ball-shaped nut 40 at the upper side of the cross frame member. This bracket member is provided at one end with a depending guide portion 41 adjacent its forward edge having upper and lower holes 42 and 43 therein, the lower hole 43 having the end of the rod 29 supported therein and the upper hole adapted to guide the chain, as will presently more fully appear. At the other end of the bracket and adjacent its inner edge there is provided a similar guide portion 44 having upper and lower holes 45 and 46 therein, the lower hole 46 having the inner end of the guide rod 30 supported therein.

The outer end of the guide rod 30 is provided with a flattened mounting portion 47 having a bolt-receiving hole 48 through which is engaged the bolt 26, a frame securing nut 49 being engaged against the upright frame member 20 to secure it to the upper cross frame member 24 and to space the rod end from the frame member, and a rod securing nut 50 being engaged upon the bolt 26 to secure the rod end thereon against the nut 49.

The bolt 26 is substantially longer than the bolt 25 and projects from the nut 50 to provide supporting shaft for a chain guiding pulley 51, which is retained upon the bolt by a guard plate 52 having a hole 53 engaged by the bolt, and by an acorn type cap nut 54 secured upon the end of the bolt, the bolt being of such length that with the nut 54 tightened thereon there is sufficient clearance to permit free rotation of the pulley 51. The plate 52 has a squared end engaged with the inner vertical surface of the upright frame member 20, so that it is prevented from turning and provides a guard to prevent accidental disengagement of the chain from the pulley.

The chain 55 which is carried over the pulley 51 at one end of the frame has its two runs carried within the upper cross frame member 24 to the other side of the frame where the runs are carried through laterally aligned and spaced vertically disposed openings 56 and 57 over pulleys 58 and 59 to the outer side of the frame, the chain ends being provided with weighted handles or pulls 60 and 61 of sufficient weight to maintain the chain in relatively taut position. The pulleys 58 and 59 are mounted upon the respective shaft ends 62 and 63 of a pulley supporting member having a central flattened and inwardly offset portion 64 which is secured to the inner side of the frame member 20 between the openings 56 and 57 by a rivet 65, the arrangement being such that at least half of the diameters of the shaft ends 62 and 63 extend partially within the openings and thus permit the relatively small diameter pulleys having a radius greater than the wall thickness of the frame member to be projected to a considerable degree beyond the outer surface of the frame member, thus spacing the chain from the surface of the frame member to effect its smoother operation.

The chain, according to the invention, is of a special type, particularly designed for cooperation with the particular form and arrangement of the pulleys. This chain is a twisted link type of chain of flat form, that is, it is substantially wider than its vertical thickness and will lie in flat relation upon a flat surface. Consequently the pulleys 58 and 59 are of cylindrical form between their edge retaining flanges to provide a surface over which flat side of the chain will be supported without turning. Furthermore the openings 56 and 57 have their upper ends arched above the pulleys a distance substantially less than the width of the chain and only slightly greater than the vertical thickness of the chain, and, as the vertical diametric planes of the pulleys are within the openings, they will in cooperation with the pulleys, prevent twisting of the chain as it moves over the pulleys. Consequently there will be no jamming of the operation due to twisting of the chain as is likely to occur in previous types of chain operated fireplace screens.

The runs of the chain within the upper cross member of the frame are respectively guided through the upper holes 42 and 45 of the guide portions 41 and 44 of the bracket 36, and the runs are respectively connected to the inner ends of the mesh curtains 27 and 28 by a pair of ring members 66, as shown in Figs. 6 and 12, and which are engaged with the mesh openings at the upper corners of the curtains. These ring members ride on the guide rods and are provided at their upper ends with ring extensions 67 which are respectively clamped upon the two runs of the chain. In the closed position of the draw curtains the ring members 66 are pulled against the end portions 41 and 44 of the bracket 36 which act as stops to limit the closed position with the curtains overlapped. Because of the arrangement of the portions 41 and 44 adjacent the respective front and rear edges of the bracket 36 spaces are provided at each end of the bracket through which the respective runs of the chain and the ring member 66 can move as the draw curtains are opened and closed.

The outer edges of the draw curtains are secured to the screen frame by rings 68—68 connected in the mesh openings at the upper outer corners of the two curtains and engaged in holes 69—69 in the flattened end portions of the guide rods 29 and 30. The lower outer corners are secured by rings 70—70 connected in the mesh openings at the outer edges of the curtains and engaged in holes 71—71 provided in the flange 12 at the upper edge of the lower cross member of the screen frame.

I have illustrated and described a preferred and satisfactory embodiment of the invention but it will be understood that changes may be made therein within the spirit and scope thereof, as defined in the appended claims.

What is claimed is:

1. In a fireplace screen, a screen frame comprising a pair of vertical side frame members and a horizontal cross frame member extending between the upper ends of said side frame members and overlapped at its ends with the upper ends of said side frame members to provide vertically overlapped end portions, said upper ends of said side frame members each having a bolt receiving hole and said overlapped ends of said cross frame member each having a bolt receiving

hole in register with said respective holes of said side frame members, a pair of headed screw bolts, one engaged inwardly through the registered holes at each of said overlapped ends of said cross frame member, a frame securing nut engaged upon each of said bolts to secure the overlapped ends of said cross frame member to said vertical side frame members, curtain supporting rod means extending longitudinally at the inner side of said upper cross frame member having apertured outer end portions engaged with and supported by said bolts, and spaced from said cross frame member by said frame securing nuts, and a rod securing nut screwed upon each of said bolts and securing said apertured end portions of said rod means thereon against said frame securing nuts.

2. In a fireplace screen, a screen frame comprising a pair of vertical side frame members and a horizontal cross frame member extending between the upper ends of said side frame members and overlapped at its ends with the upper ends of said side frame members to provide vertically overlapped end portions, said upper ends of said side frame members each having a bolt receiving hole and said overlapped ends of said cross frame member each having a bolt receiving hole in register with said respective holes of said side frame members, a pair of headed screw bolts, one engaged inwardly through the registered holes at each of said overlapped ends of said

cross frame member, a frame securing nut engaged upon each of said bolts to secure the overlapped ends of said cross frame member to said vertical side frame members, curtain supporting rod means extending longitudinally at the inner side of said upper cross frame member having apertured outer end portions engaged with and supported by said bolts, and spaced from said cross frame member by said frame securing nuts, a rod securing nut screwed upon each of said bolts and securing said apertured end portions of said rod means thereon against said frame securing nuts, one of said screw bolts being extended inwardly from the rod securing nut thereon to provide a pulley supporting shaft, a chain guiding pulley rotatably engaged upon said shaft, a pulley retaining nut screwed upon the outer end of said shaft, and a curtain drawing chain trained over said pulley.

LAWRENCE J. GAETANO.

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